Module 5

Using Databases Using Access 2010

Example 1 - Introduction to Databases

This Example will introduce you to the key concepts of databases and explain how databases are organised.

It will introduce the Microsoft Access screen and layout, and show you how to customise the screen and commands for your use.

You will also learn how to use the available Help functions within Microsoft Access.

Exercise 1 Understanding Databases

This Exercise will explain what a database is and how it is organised.

Understand the difference between data and information

Information is a fact or facts about a person, situation or event. Data is an organised collection of information, especially facts or numbers, collected to be examined and considered in order to help in decision-making.

Understand what a database is

A database stores data in a structured way. A telephone directory is a good example of a database, as standard information is held on each person. Microsoft Access allows creation and use of electronic databases to store and retrieve information.

Storing information in a structured way allows it to be easily accessed and organised, on the screen or in printed documentation. A database allows information to be found quickly. This could be displayed on screen, printed

The following are some of the skills to use a database. Know how to:

- Add new information and delete existing information
- Search for information in the database
- Question the database
- Sort information alphabetically or numerically
- Run reports to produce simple or elaborate printouts

Understand how a database is organised

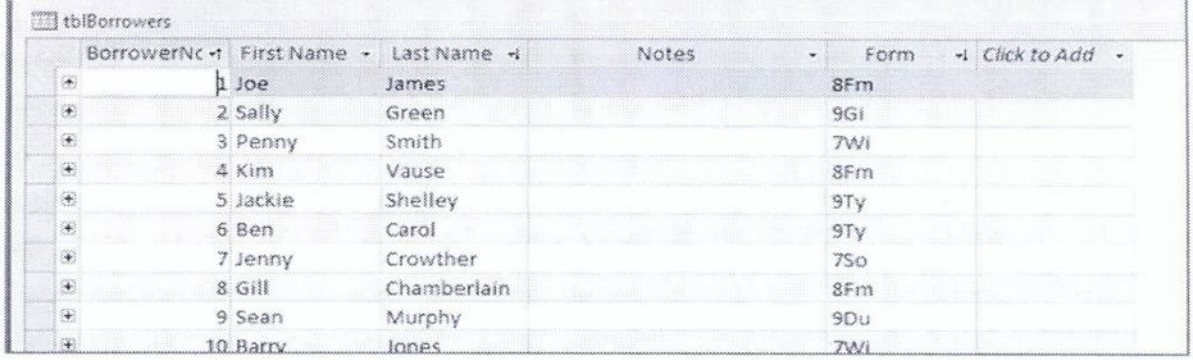
Access holds its information in **tables**. A table is one of a number of 'database objects' that are used in Microsoft Access.

- Tables can also be called "Datasheets" in Access.
- Each table in a database should contain data related to a single subject. For example, one table could contain details about students, and another could contain a list of after school clubs.
- Two or more tables can be linked. This would, for example, make it easy to find which student attended which club. Linking tables like this eliminates duplication when entering information into the database.
- The information contained in tables can be presented in an attractive way either on the screen (as a form) or on paper (as a report).

Tables contain **records**. Each record is one complete set of details. For example, a record could contain all the information about one particular student, or one after school club.

Each record is made up of **fields**. For example, a student's record could contain a field showing the student's name, a field showing the student's date of birth, and other fields containing further information about that student.

- Each field in a table should contain only one element of data
- The content of each field is associated with an appropriate data type, such as text, number, date/time, yes/no
- Each field has its own associated 'properties' – which dictate such things as the amount of information allowed in the field (field size), format, any default values, any validation required



tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
1	Joe	James		8Fm	
2	Sally	Green		9Gi	
3	Penny	Smith		7Wi	
4	Kim	Vause		8Fm	
5	Jackie	Shelley		9Ty	
6	Ben	Carol		9Ty	
7	Jenny	Crowther		7So	
8	Gill	Chamberlain		8Fm	
9	Sean	Murphy		9Du	
10	Barry	Jones		7Wi	

An Access table

Other database objects

There are several other database objects that you will use throughout this courseware.

Queries

Queries combine information from different tables, and allow the user to define exactly what information from these tables they wish to view.

Queries are the main questioning system in Microsoft Access – allowing users to extract and analyse data. They allow more complex questions to be asked of a number of tables. The information contained in a query can be used as the basis for a form.

Forms

Forms can be created to display the information contained in queries in a format that is easy to work with. Forms can be used to view existing data from the database, or to enter and maintain new data.

Reports

A report is an effective way to present data from a table or query in a printed format.

There are other database objects, such as Pages, Macros and Modules, which will not be used in this courseware.

Know some of the common uses of large scale databases

Large scale databases are used throughout industry to keep records. Examples of these are:

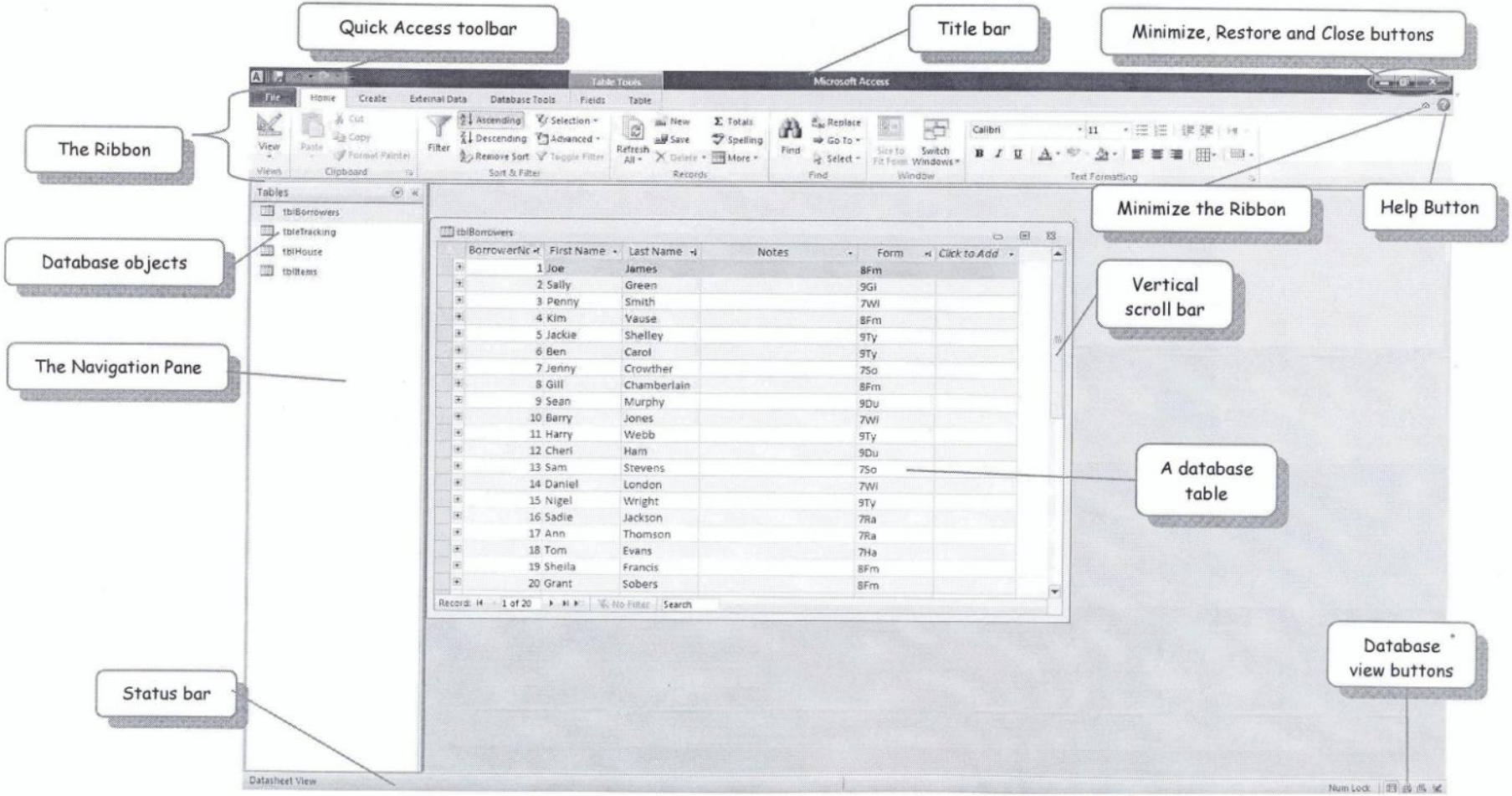
- Airline booking systems
- Government records
- Bank account records
- Hospital patient details

Operation

Users have varying requirements from databases and, for this reason, there are an assortment of job roles associated with database creation and use.

- **Database specialists** design and create professional databases. These specialists have an in-depth knowledge of the database programs they use
- **Database users** access the databases that have been created by the specialists. Users carry out data entry, data maintenance and information retrieval within the databases they have been given access to. Users need to have knowledge of the parts of the database they need to access
- **Database administrators** provide access to specific data for appropriate users
- **Database administrators** are also responsible for recovery of databases after a crash or major errors

Exercise 2 The Access screen



Screen Layout

This section gives an overview of the Access screen elements, shown on the previous page. Detailed explanations about these elements will be given, where relevant, throughout the Examples within this Module.

Title Bar

Identifies the application.

Quick Access Toolbar

Provides buttons for the most frequently used commands.

The Ribbon

The Ribbon includes the [File] tab, which enables you to create, open, save and send files; as well as protecting, previewing and printing them. It is also the place to set options for Access. The features contained within the [File] tab are known as Backstage view.

The Quick Access toolbar and Ribbon are the components of the Office Fluent user interface. This will be described in a later Exercise.

Pointer

As you move the pointer, it will change its appearance according to which part of the screen it is over and what is currently selected.

Insertion Point

When editing, a flashing | beam shows where the next typed character will appear.

Database objects

The tables, forms, reports and other Objects contained within a database.

The Navigation Pane

This lists the Objects contained within the current database.

Open database objects

Any currently open database objects are displayed in windows in the right pane. For any database, it is possible to display these as overlapping or tabbed windows.

Status Bar

Bar across the bottom of the Access window displaying information about the current view or a selected command or an operation in progress. Information to be displayed on the Status bar can be amended by right-clicking over the Status bar, to display a menu of available items.

Datasheet view buttons

Change the way the current item is viewed. Options are [Datasheet view], [PivotTable view], [PivotChart view] or [Design view].

Scroll Bars

Shaded bars to the right and bottom of a window. To view different parts of the document:

- Click the scroll bar arrows at either end of a scroll bar
  - To move one line in any direction
- Click either side of the scroll box
  - To move one screen in any direction
- Drag the scroll box
  - To move to other parts of the document

Scroll bars will only be displayed when the current zoom level does not display the whole width or depth of a window on the screen.

Other terms and explanations

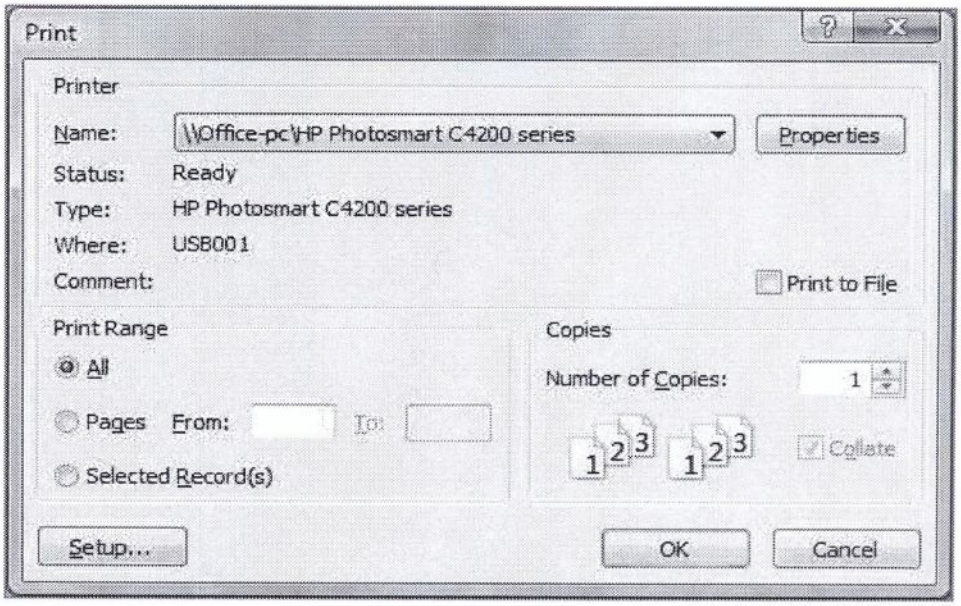
Dialog Box

A window where options can be selected, that relate to a required command.

A typical example is the Print dialog box.

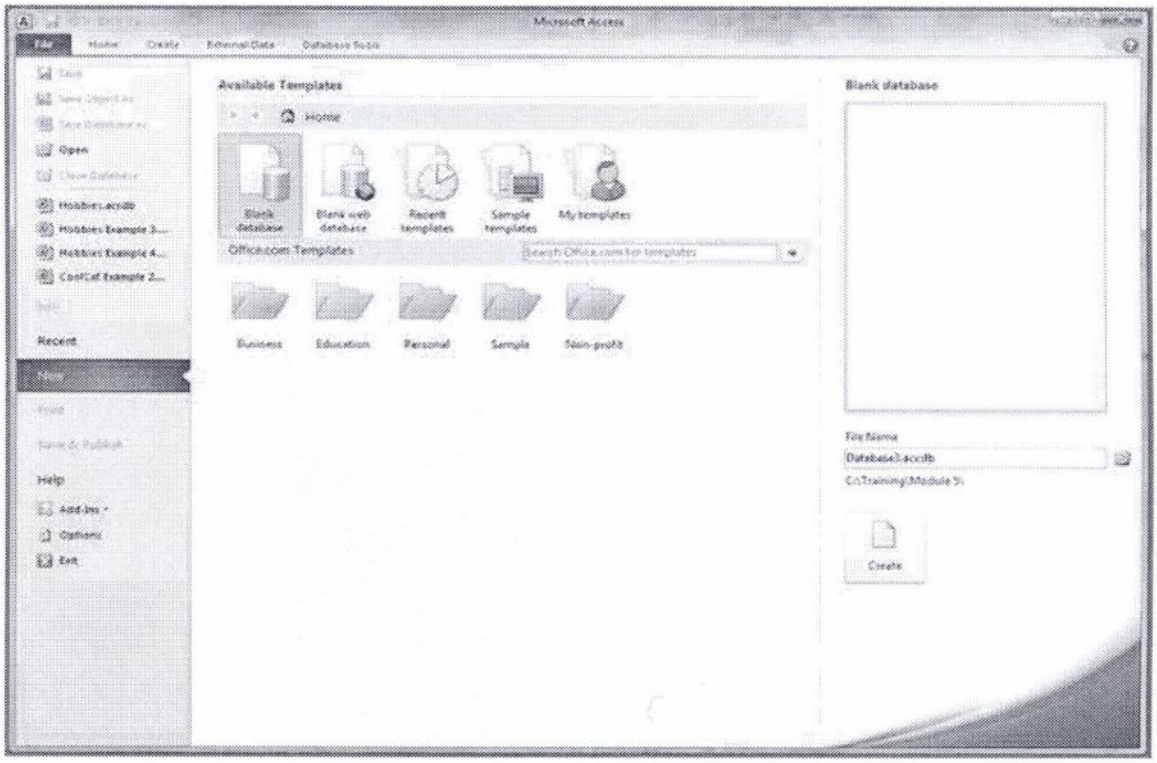
Ribbon [File] [Print] – selecting Print] will display the Print dialog box. This gives options to choose how and where you want your document printed.

Other dialog boxes give you similar, task related options.



Exercise 3 Open a database application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Access]
  - Microsoft Access will open, with the New dialog box displayed within the [File] tab



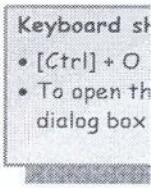
Exercise 4 Open a database

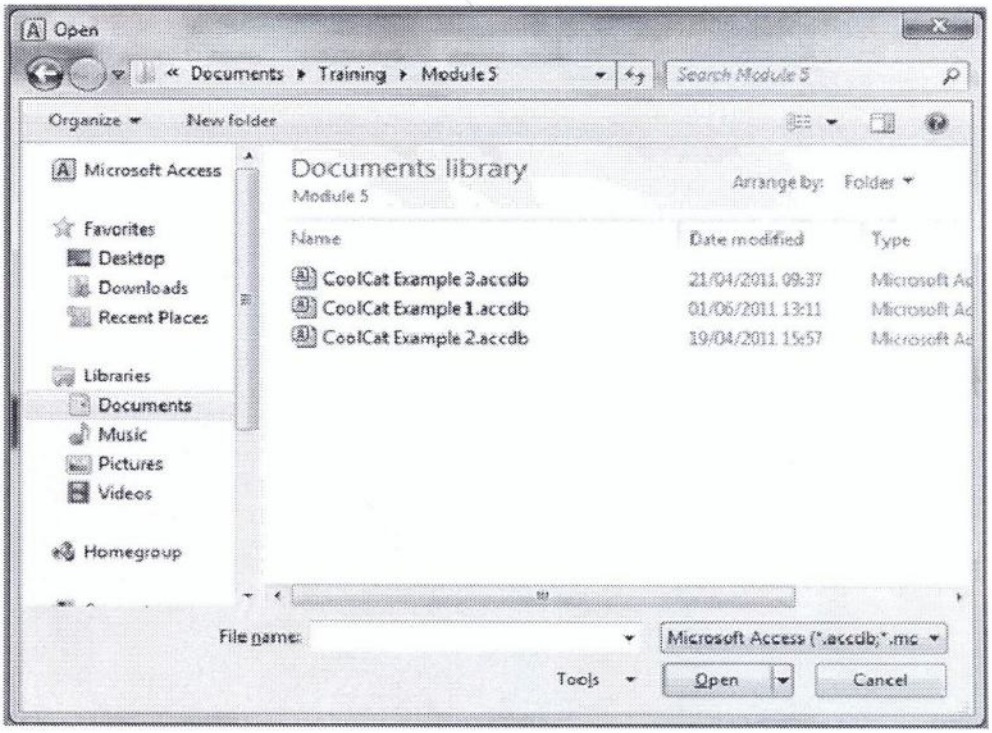
This Exercise will open a database that is contained with your Module 5 exercise files. You will open this database in order to explore the Access screen and the Help functions available within Access.

The [File] tab that is currently displayed contains the [Open] button, enabling you to open an existing database.

- Click the [Open] button
  - To open the Open dialog box

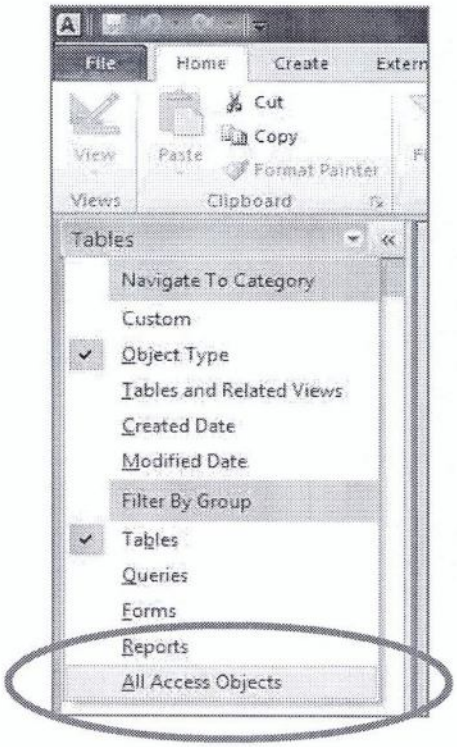
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 5]
- In the Module 5 folder, select the file named "CoolCat Example 1"
- Click the [Open] button
  - To open the database on screen

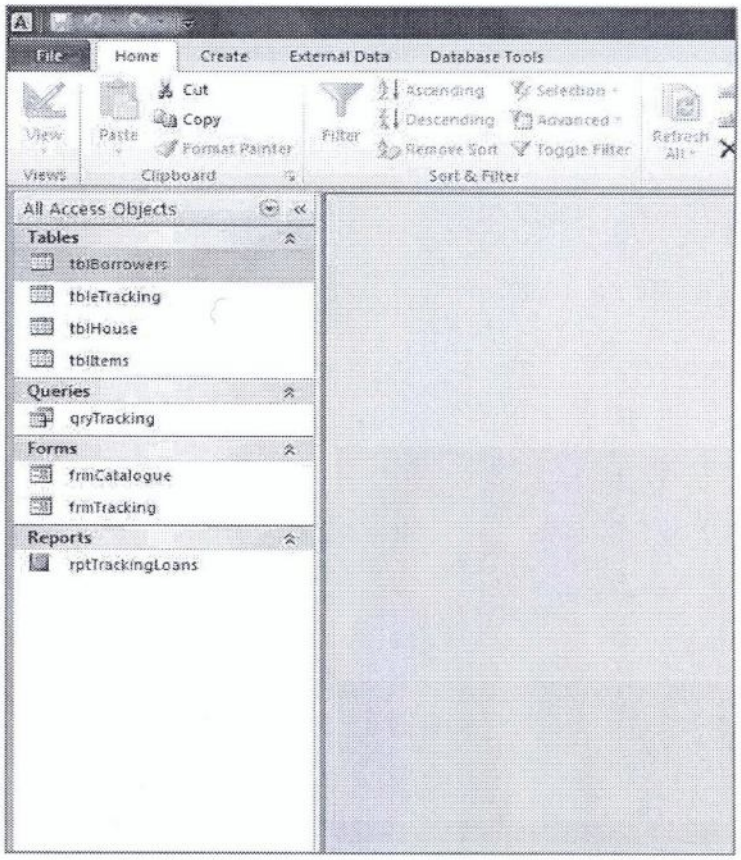




When the database opens on screen, you may find that only the database Tables are displayed in the navigation pane to the left of the screen. In order to display all the database Objects contained in the current database:

- Click the drop down arrow to the right of the [Tables] heading in the navigation pane
  - To view the display options
- In the [Filter by Group] section, select [All Access Objects]
  - To display in the navigation pane all the database Objects currently contained in the database

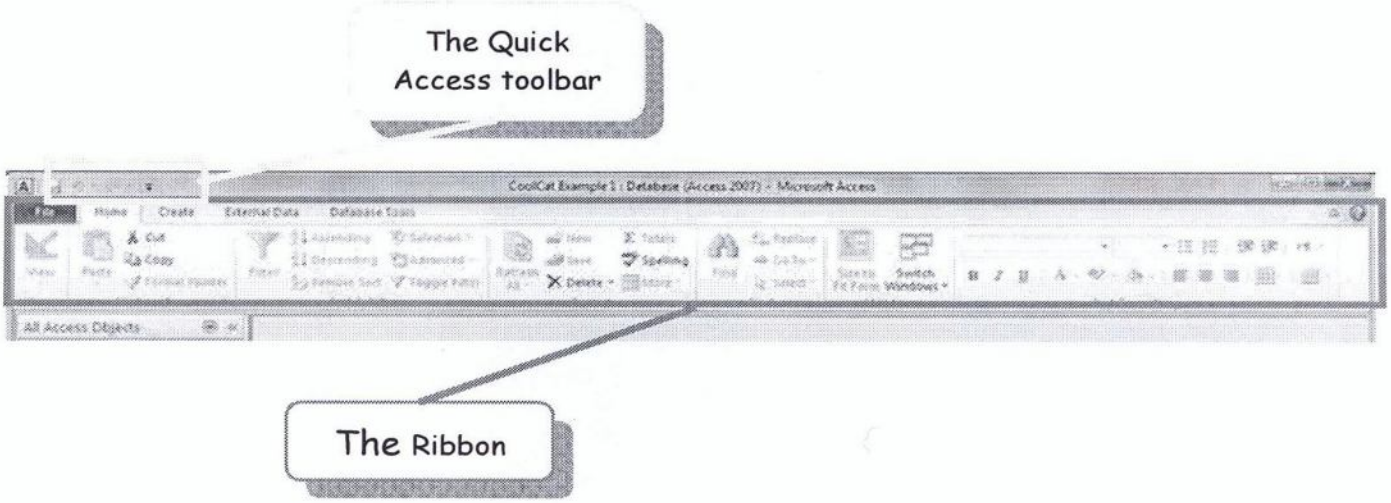




Exercise 5 The Ribbon and Quick Access toolbar

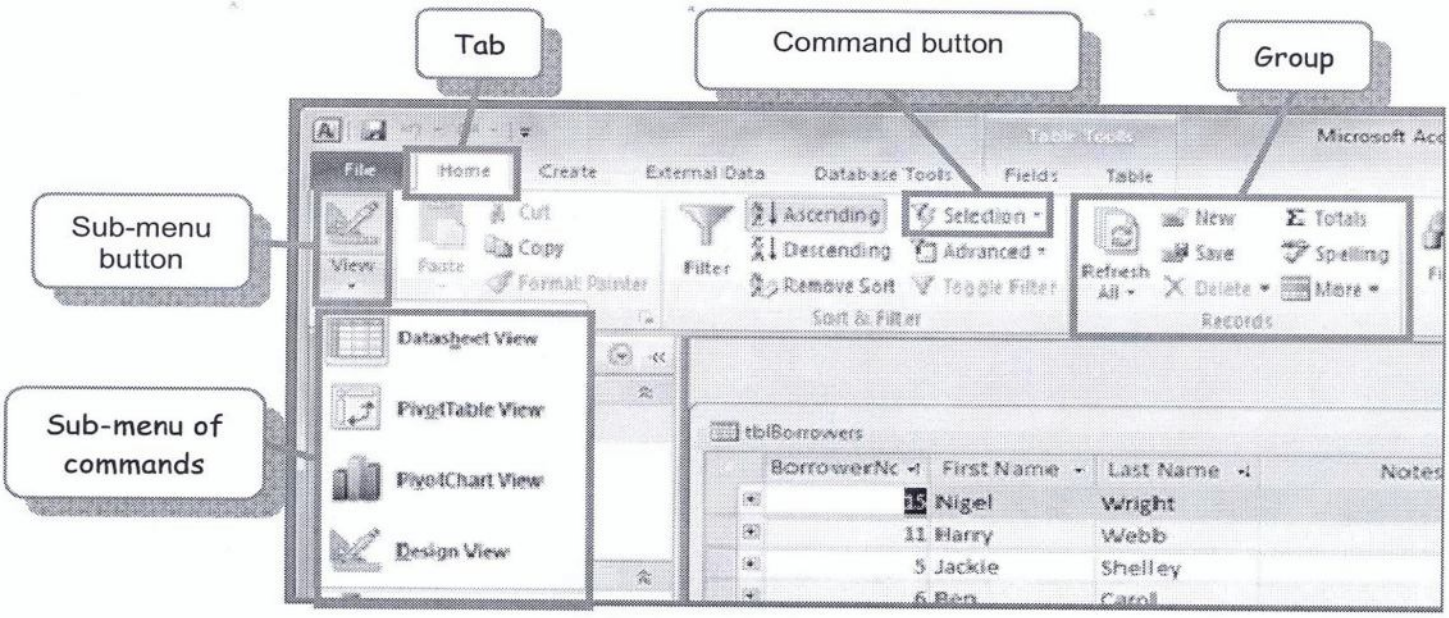
The Ribbon and the Quick Access toolbar are located at the top of the Access window. They make up the "Office Fluent user interface" – the place to find all the tasks and functionality needed to use Access effectively and efficiently.

The interface, and other Access options, can be customized, as will be shown in this Exercise. However, this courseware will assume that default settings are in place throughout Access.



The Ribbon

The Ribbon gives access to all the Access commands. It consists of tabs, which contain groups of buttons to carry out Access commands.



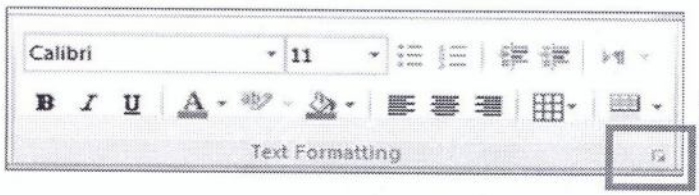
Each **tab** contains commands based around one type of Access task.

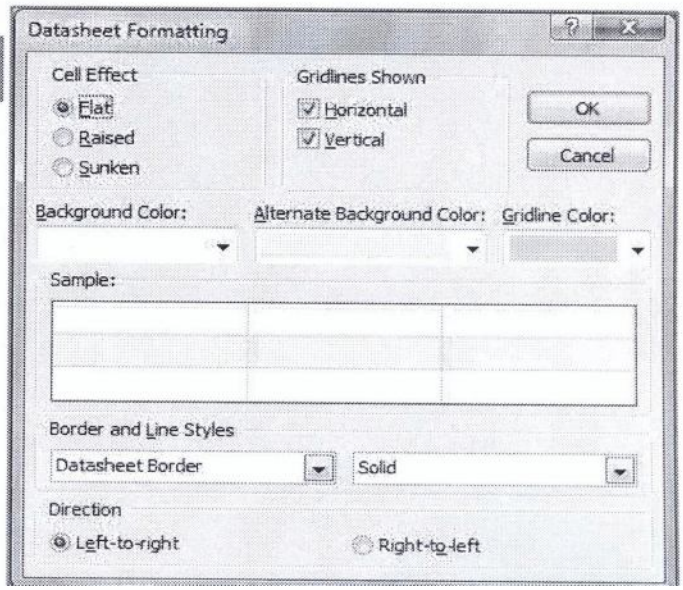
Each **group** within a tab contains a set of sub-tasks related to the tab.

The **buttons** in each set of sub-tasks either carry out a specific command, or display a sub-menu of commands. A button is clicked once to activate it.

Dialog box launchers

Some groups have a dialog box launcher at the bottom right of the group. The dialog box associated with this group will be opened when the launcher is clicked. For example, clicking the [Font] group dialog box launcher will open the Datasheet Formatting dialog box.

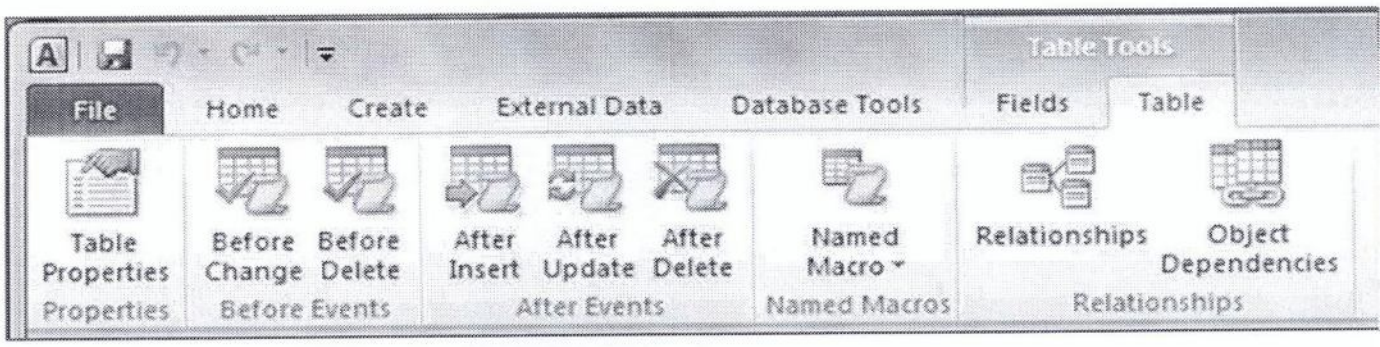




Context specific tabs

There are additional tabs that only appear when relevant for the task you are carrying out. These are known as **contextual tabs**.

Contextual tabs contain the tools necessary to work with a selected object, such as a table, a picture or a drawing. When one of these objects is selected, the name of the contextual tools will appear in a different colour above the tabs, and the relevant contextual tabs will appear to the right of the standard tabs.



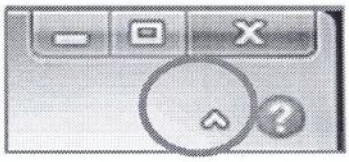
The contextual tab and tools for tables

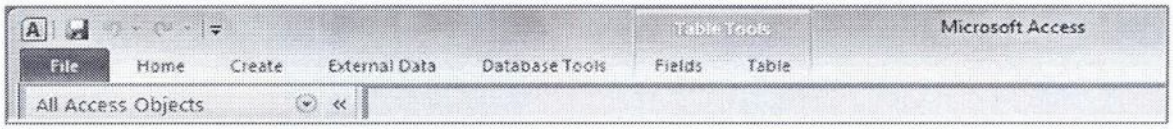
Restore, minimize the Ribbon

It is not possible to remove or hide the Ribbon, but it can be minimized, so that only the Ribbon tabs appear on screen.

To minimize the Ribbon

- At the right of the Ribbon, click the [Minimize the Ribbon] button
  - To hide the Ribbon groups and sub-tasks
  - To view only the Ribbon tabs





While the Ribbon is minimized:

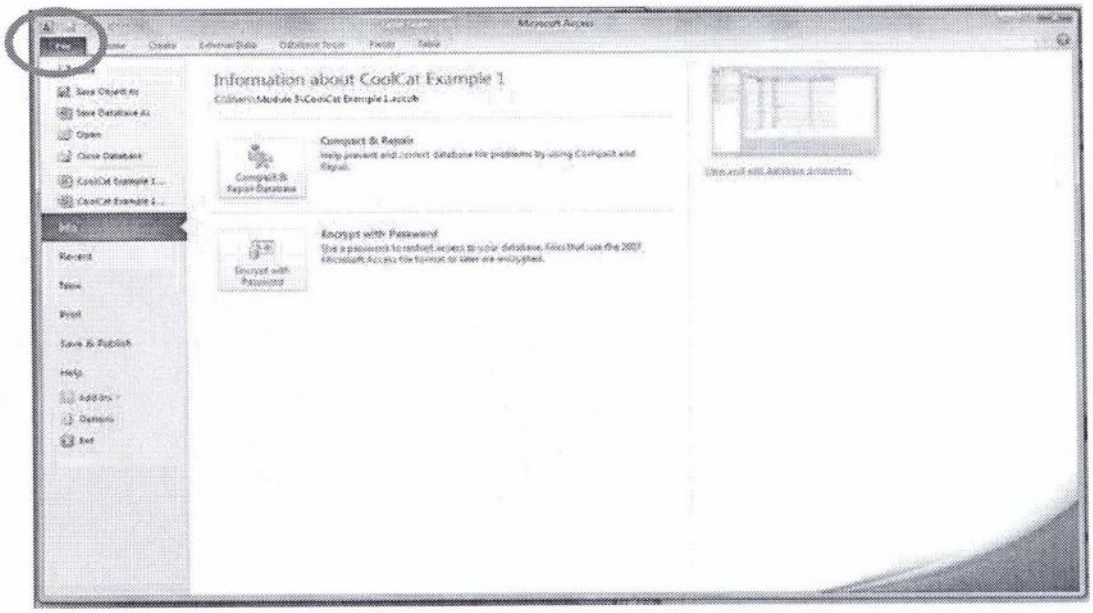
- Click a tab heading
  - To view the groups and sub-tasks for that heading
- Click the heading again
  - To hide the groups and sub-tasks for that heading

To restore the Ribbon

- At the right of the Ribbon, click the [Expand the Ribbon] button
  - To view the Ribbon tabs, groups and sub-tasks

The File tab

The [File] tab is known as 'Backstage view' in Office 2010, and is the place for all database management tasks. It contains commands for opening, saving and closing your files. It also contains tabs to manage all the actions that need to be carried out for files, such as printing, sharing and protecting them.

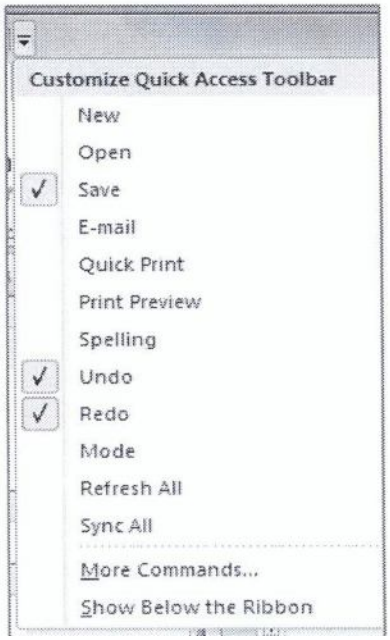


The Quick Access toolbar

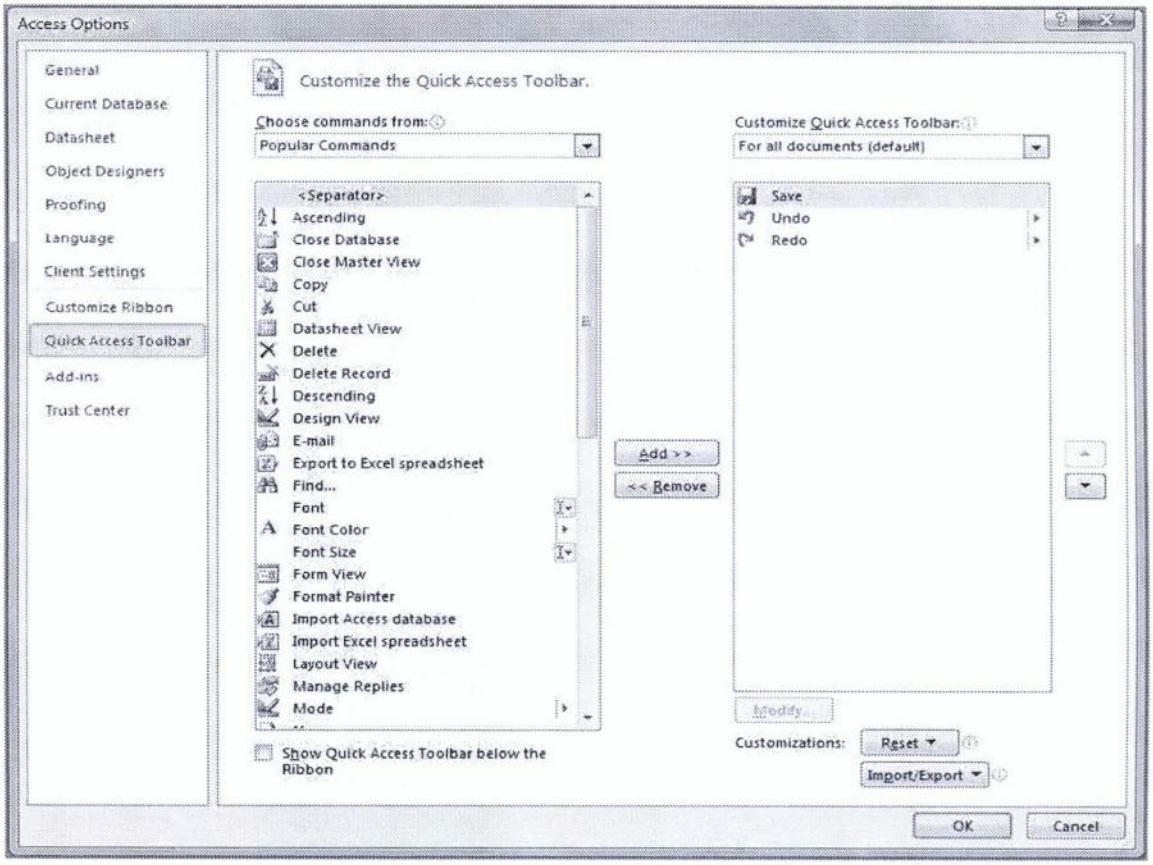
The Quick Access toolbar is intended to display the commands you use most frequently. By default, it displays the [Save], [Undo] and [Redo] buttons. You can customize the toolbar by adding to it commands that you use regularly. These commands will then be permanently on display, regardless of which Ribbon tab you have selected.

Customize the Quick Access toolbar

- Click the drop down arrow to the right of the Quick Access toolbar
  - To view a list of the most common buttons that you may wish to add
  - The buttons that are currently displayed on the Quick Access toolbar will have a tick to their left
- Click on a button that is not currently displayed
  - To put a tick to the left of this button
  - To display it in the Quick Access toolbar
- Click on a button that is currently displayed
  - To remove the tick from the left of this button
  - To remove it from the Quick Access toolbar



If you wish to add further commands that are not shown in this list, the [More Commands…] button will open the Access Options dialog box at the Customize the Quick Access Toolbar screen. From here, you can select any Access commands to add to the Quick Access toolbar.



The Quick Access toolbar drop down button also has the option to [Show Below the Ribbon], in order to display the Quick Access toolbar below the Ribbon.

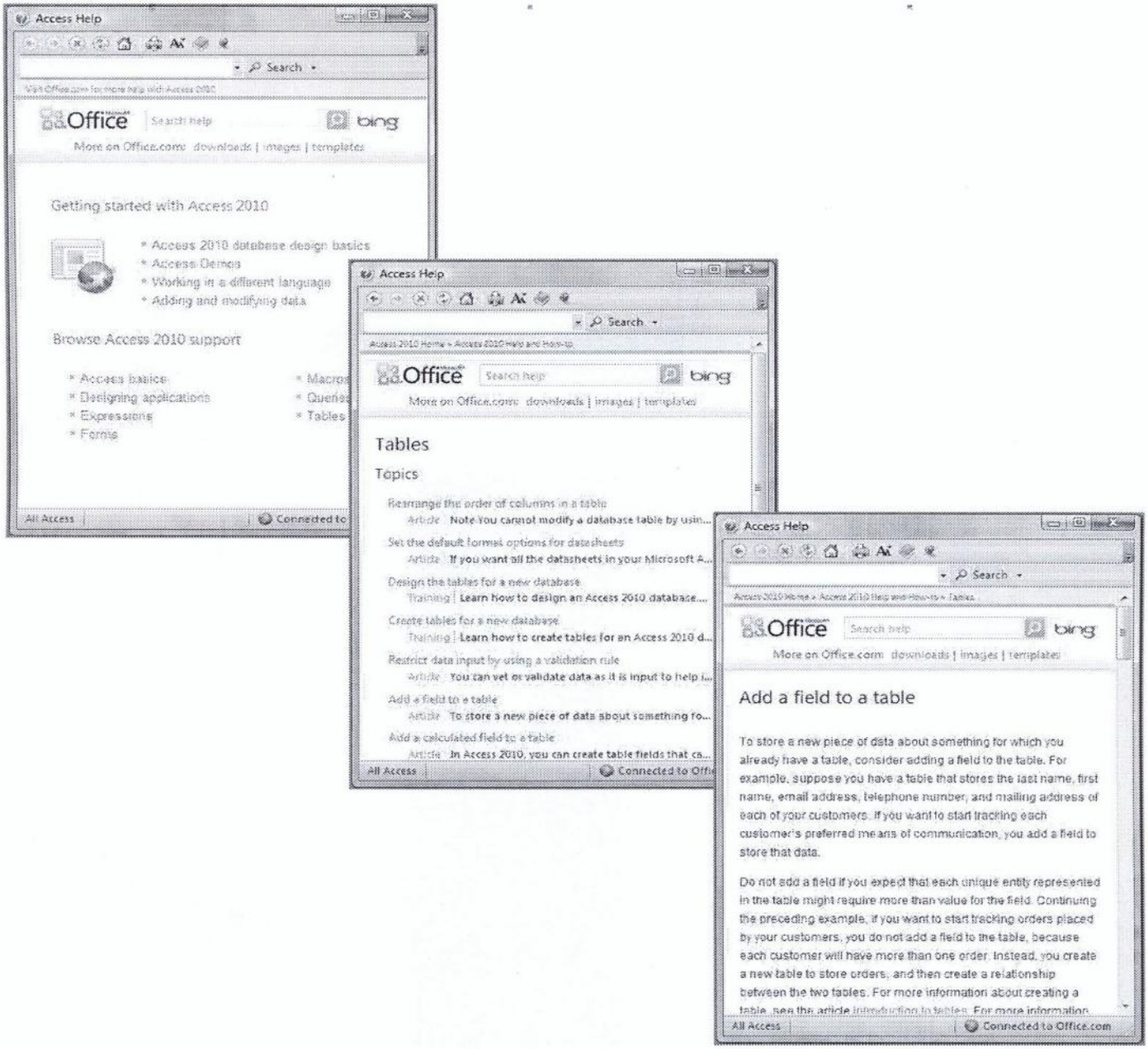
Exercise 6 Use available Help functions

- Click the [Microsoft Office Access Help] button at the right of the Ribbon 
  - To view the Access Help dialog box
  - If your computer is online, you will view Office Online help, in addition to the help contained with the Access program.

View a help topic

The Help dialog box opens with a selection of topics.

- Click one of the topics
  - To view sub-menus of help available concerning the topic you have selected
- Click a sub-menu
  - To view sub-categories of help concerning the sub-menu you have selected
- Select further sub-categories, as relevant
  - Until you view the help text for the topic you have selected

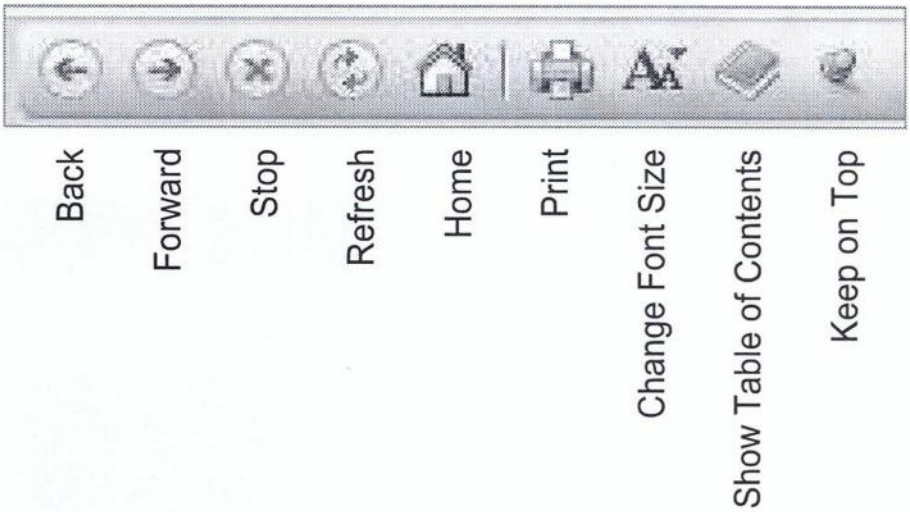


Some of the words in the help text may be in a different colour

- Click these words
  - To view an explanation of the words
- Click the words again
  - To hide their explanation
- Click [+ Show All] at the top of a help topic
  - To view all the explanations in this topic
- Once you have shown all the explanations for a topic, click [- Hide All]
  - To hide the explanations

The Help toolbar buttons

The following buttons are displayed across the top of the Help dialog box:

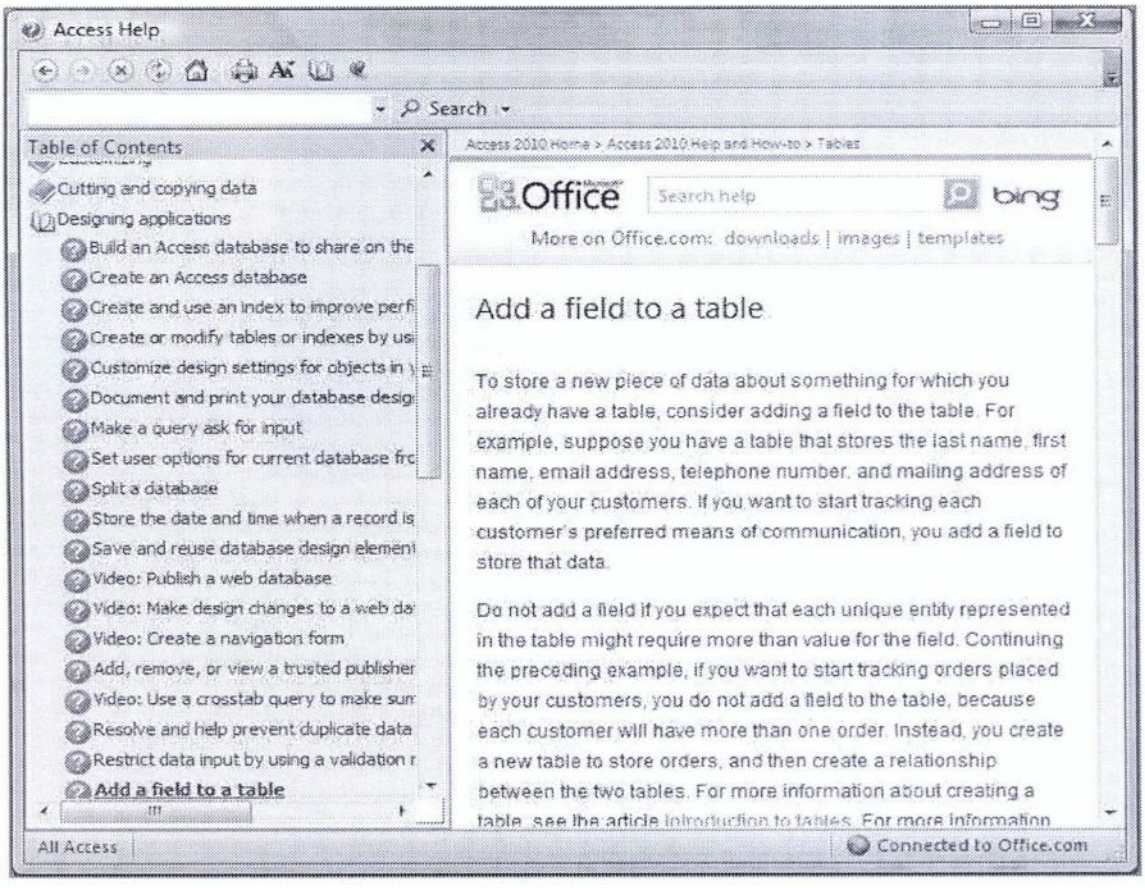


- [Back]
  - Go back to the previous screen
- [Forward]
  - Return to the screen you were viewing before you clicked [Back]
- [Stop]
  - Stop a help page uploading to the Help dialog box
- [Refresh]
  - Refresh an online help page with the latest information available
- [Home]
  - Return to the initial Help screen
- [Print]
  - Open the Print dialog box, in order to print all or part of the current Help topic
- [Change Font Size]
  - Make the font size in the Help dialog box larger or smaller
- [Show Table of Contents]
  - View the Help Table of Contents to the left of the Help dialog box
  - When the Table of Contents is showing, the icon will change to an open book. Click this, to hide the Table of Contents
- [Keep on Top]
  - Toggle between keeping the Help dialog box on top of your Access document whilst you are working and not keeping it on top

Table of Contents

The Table of Contents contains headings for the complete Help manual.

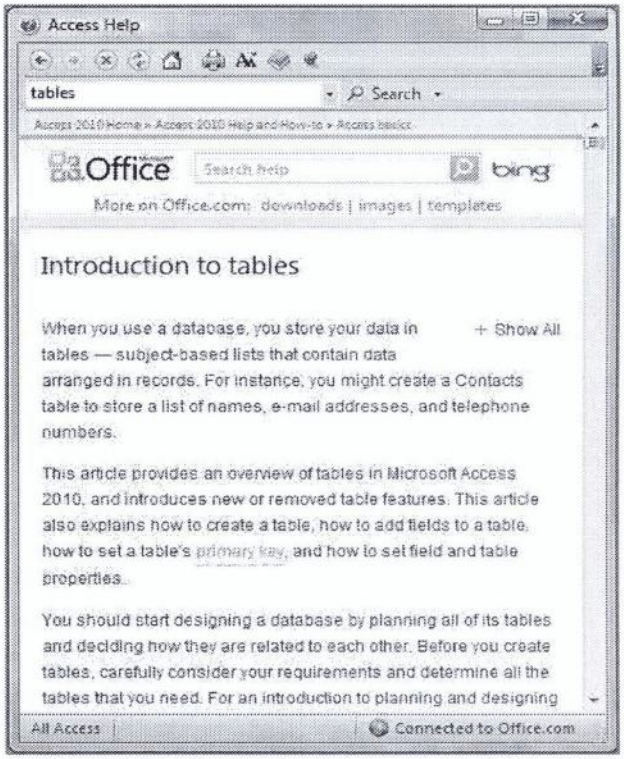
- If the Table of Contents is not showing, click the [Show Table of Contents] button at the top of the Help dialog box
  - To view the Table of Contents to the left of the Help dialog box
- Select one of the headings with a book icon to its left
  - To view the help topics available for that heading
- Select a help topic with a question mark to its left
  - To view the help text for that topic



Search

The Search field is below the toolbar buttons.

- Type the name of the help topic you wish to view and press [Enter]
  - To view a list of the help topics that match the text you entered into the Search field
- Select the most appropriate entry from the list
  - To view the help text for that topic
- Click the [Back] button on the toolbar
  - To return to the list of help topics
  - To be able to select a different topic from the list



Context-sensitive help

The [Help] button appears at the top right of dialog boxes.

- Click the [Help] button in a dialog box
  - To view help on topics specifically relating to the dialog box

Exercise 7 Close a database and a database application

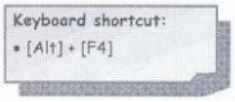
When you have finished working with Access, it is good practice to close the program, so that it does not restrict your computer's performance.

Either

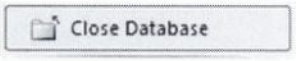
- Ribbon [File] – click the [Exit] button

Or

- Click the [Close] button at the top right of the screen
  - To close the currently open database, and to close Access



Alternatively, Ribbon [File] – click the [Close Database] button, to close the currently open database, but leave Access open on screen.



Example 2 - Common tasks

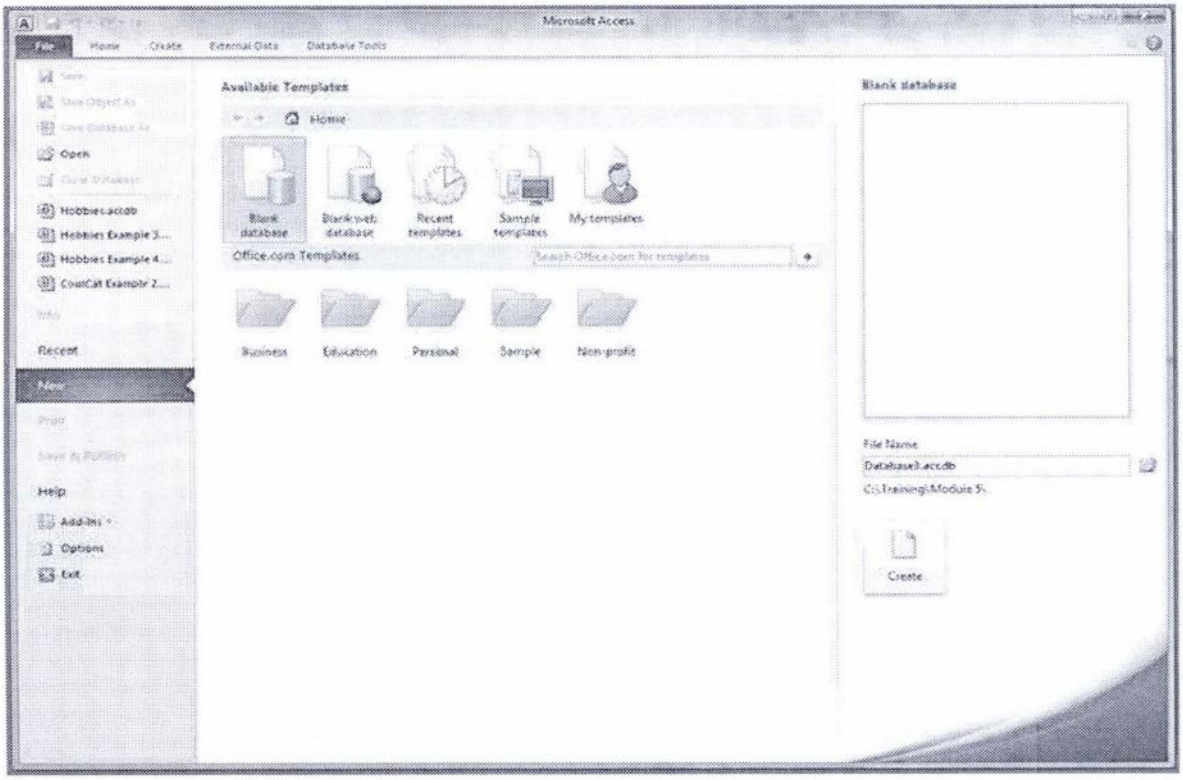
This Example will show you how to work with the database Objects that are covered in the courseware. These include Tables, Queries, Forms and Reports. You will learn how to open each Object and view it in different ways, as well as navigating, sorting, deleting, saving and closing each Object.

You will also work with records in tables; adding, modifying and deleting data in records, as well as adding and deleting records in a table.

You will use the CoolCat database that you looked at in the previous Example to carry out these tasks.

Exercise 1 Open a database application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Access]
  - Microsoft Access will open, with the New dialog box displayed within the [File] tab



Exercise 2 Open a database

This Exercise will open the CoolCat database that you looked at in the previous Example.

Whilst the [File] tab is displayed, it is possible to find databases that have been opened recently. Your most recently opened databases may be listed at the left of the screen, or by clicking the [Recent] button.

Either

- If the database you wish to open is shown in the list at the left of the [File] tab, select it from here
  - To open the database on screen

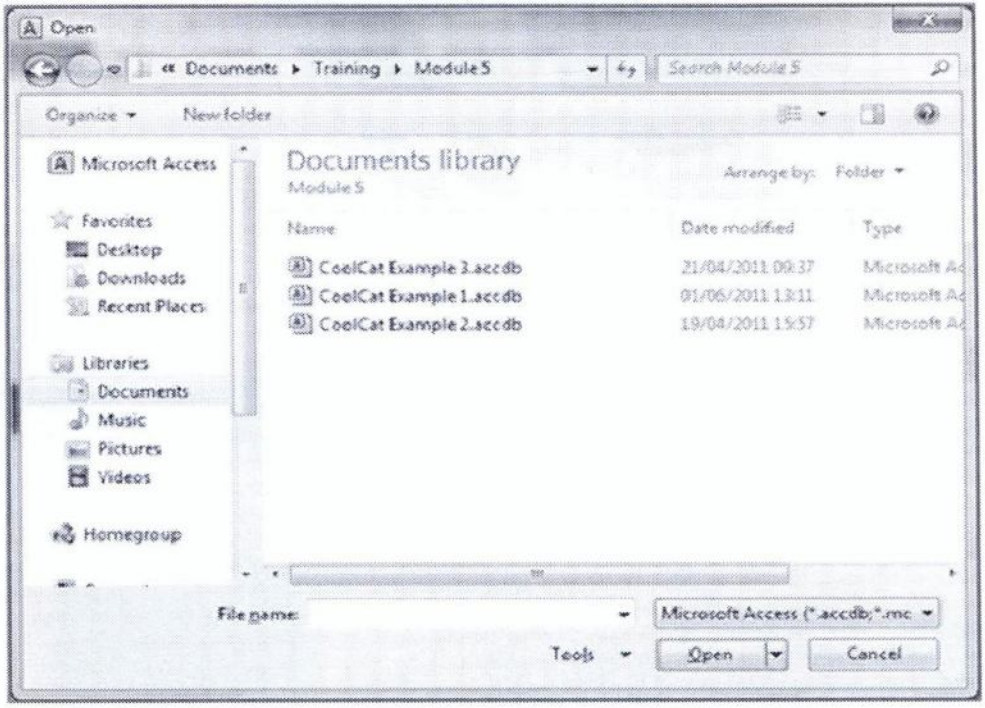
Or

- Click the [Recent] button
  - To view and select recently opened databases

Or

- Ribbon [File] – click the [Open] button
  - To open the Open dialog box

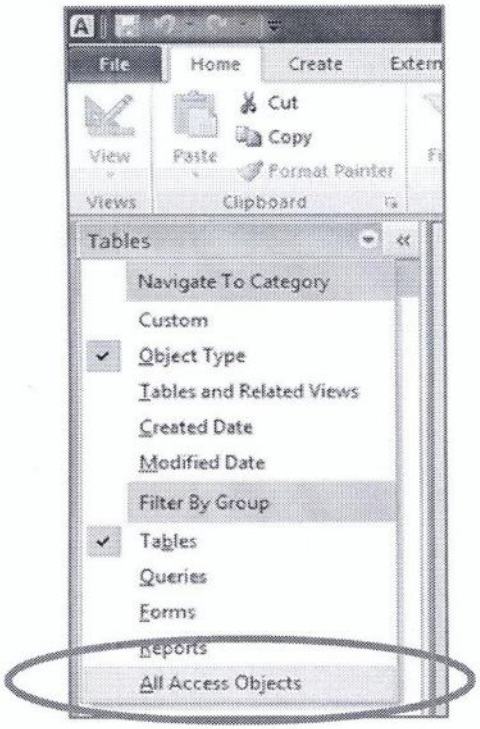
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 5]
- In the Module 5 folder, select the file named "CoolCat Example 2"
- Click the [Open] button
  - To open the database on screen

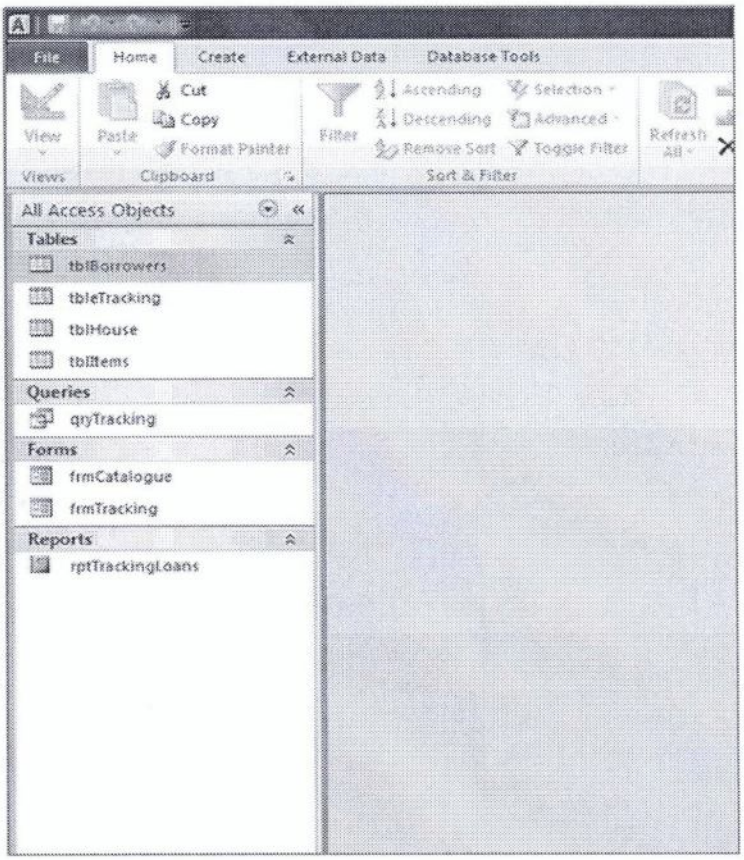

Open
« Documents ▸ Training ▸ Module 5
Search Module 5
Organize
New folder
Microsoft Access
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Homegroup
Documents library
Module 5
Arrange by: Folder
Name
Date modified
Type
CoolCat Example 3.accdb
21/04/2011 09:37
CoolCat Example 1.accdb
01/06/2011 13:11
CoolCat Example 2.accdb
19/04/2011 15:57
File name:
Microsoft Access (*.accdb;*.mc
Tools
Open
Cancel

Display all database objects

When the database opens on screen, you may find that only the database Tables are displayed in the navigation pane to the left of the screen. You will now amend this, to display all the database Objects contained in the current database:

- Click the drop down arrow to the right of the [Tables] heading in the navigation pane
  - To view the display options
- In the [Filter by Group] section, select [All Access Objects]
  - To display in the navigation pane all the database Objects currently contained in the database





Exercise 3 Tables

[CoolCat] is a database of items that are lent out. There are four tables that hold information, or '**records**'. Each record is contained within one row of the table.

The records consist of '**fields**', contained in the columns, each holding one piece of data about the record. Fields can contain different data types, such as alphabetical, numerical, date/time, yes/no. Each field has its own 'properties' – which dictate such things as the amount of information allowed in the field (field size), format, any default values, validation required:

[tblBorrowers]

tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
15	Nigel	Wright		9Ty	
11	Harry	Webb		9Ty	
5	Jackie	Shelley		9Ty	
6	Ben	Carol		9Ty	
2	Sally	Green		9Gi	

[tblTracking]

tbleTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	Click to Add
1	Borrow	03/03/2011	4	8	
2	Return	04/02/2011	4	8	
3	Borrow	13/02/2011	9	11	
5	Borrow	17/02/2011	3	2	
6	Borrow	20/02/2011	9	9	

[tblItems]

tblItems

Item	ItemTyp	Artist/Author	Title	Purchase Pric	Date Acquir
1	Book		Lord of the Rings	£15.00	01/05/2
2	CD	Ronan Keeting	Destination	£10.00	27/05/2
3	CD	Eminem	The Eminem Show	£14.99	28/05/2
4	CD	Nora Jones	Come Away with Me	£9.99	28/05/2
5	CD	Queen	Greatest Hits	£15.00	24/05/2
6	Game	Star Wars	Rogue Leader	£35.00	23/05/2

[tblHouse]

tblHouse

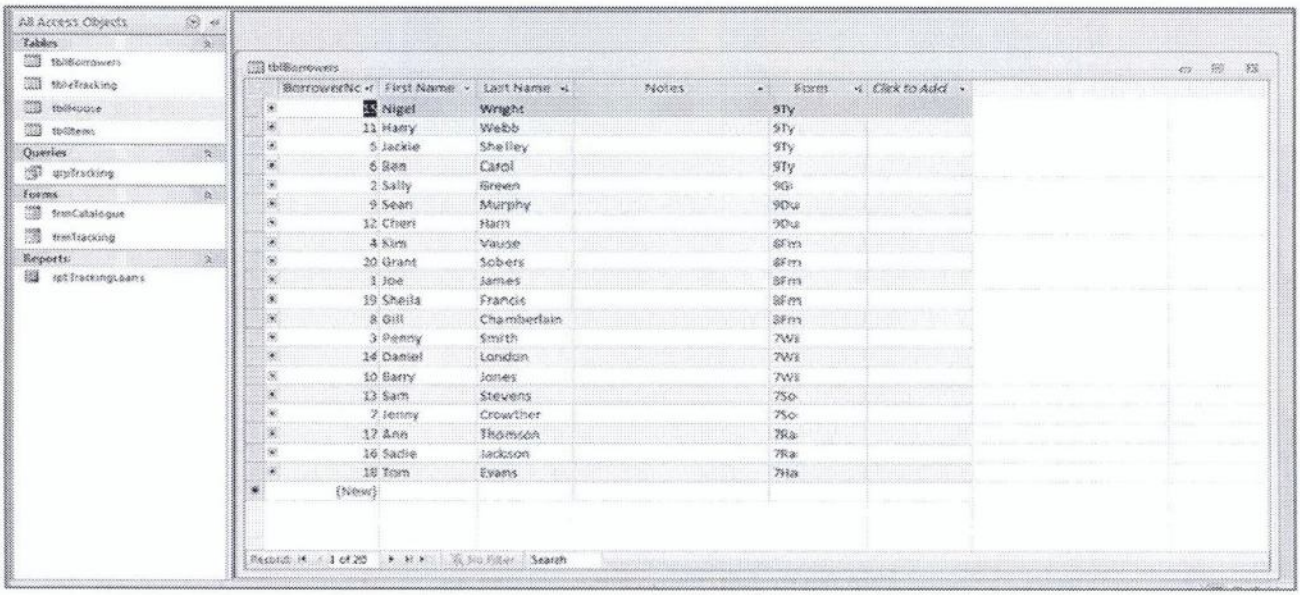
ID	House	Tutor	Click to Add
1	Butterfly	Mr Smith	
2	Ladybird	Mr Ali	
3	Dragonfly	Ms Williams	
(New)			

All the table names in this database are preceded by the letters "tbl". As a database is created, it is good practice to precede table names with "tbl", forms with "frm", queries with "qry" and reports with "rpt". This will make it easier to tell what each object is, when working with the database.

In this Exercise, you will use the [tblBorrowers], which contains the details of all the borrowers on the database.

Open a table

- In the navigation pane at the left of the screen, double-click [tblBorrowers]
  - To open this table in the right pane
  - Each row contains the records for one person
  - Each field contains one category of information



Navigate between records in a table

At the bottom of the table, navigation buttons allow you to move through the records in the table.

- Click the [First Record] button

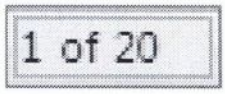
  - To see details of the first borrower
- Click the [Next Record] button

  - To see details of the next borrower
- Click the [Previous Record] button

  - To see details of the previous borrower

    This button will be greyed out until you have viewed a previous record
- Click the [Last Record] button

  - To see details of the last borrower
- Click in the record number and type in another number



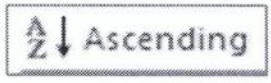
- Press [Enter]
  - To move to that specific record

Sort records in a table

Records can be sorted alphabetically or numerically in either ascending or descending order.

To sort the table [tblBorrowers] alphabetically by the [Last Name] field:

- Click anywhere in the [Last Name] column
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button



  - To view the records arranged in ascending alphabetical order by Last Name (A to Z)
  - Each borrower's details are also sorted with their names

tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
6	Ben	Carol		9Ty	
8	Gill	Chamberlain		8Fm	
7	Jenny	Crowther		7So	
18	Tom	Evans		7Ha	
19	Sheila	Francis		8Fm	
2	Sally	Green		9Gi	
12	Cheri	Ham		9Du	
16	Sadie	Jackson		7Ra	
1	Joe	James		8Fm	
10	Barry	Jones		7Wi	
14	Daniel	London		7Wi	
9	Sean	Murphy		9Du	
5	Jackie	Shelley		9Ty	
3	Penny	Smith		7Wi	
20	Grant	Sobers		8Fm	
13	Sam	Stevens		7So	
17	Ann	Thomson		7Ra	
4	Kim	Vause		8Fm	
11	Harry	Webb		9Ty	
15	Nigel	Wright		9Ty	
	(New)				

- Ribbon [Home] [Sort and Filter] – click the [Descending] button

  - To view the records sorted in descending alphabetical order by Last Name (Z to A)
  - Each borrower's details are also sorted with their names

tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
15	Nigel	Wright		9Ty	
11	Harry	Webb		9Ty	
4	Kim	Vause		8Fm	
17	Ann	Thomson		7Ra	
13	Sam	Stevens		7So	
20	Grant	Sobers		8Fm	
3	Penny	Smith		7Wi	
5	Jackie	Shelley		9Ty	
9	Sean	Murphy		9Du	
14	Daniel	London		7Wi	
10	Barry	Jones		7Wi	
1	Joe	James		8Fm	
16	Sadie	Jackson		7Ra	
12	Cheri	Ham		9Du	
2	Sally	Green		9Gi	
19	Sheila	Francis		8Fm	
18	Tom	Evans		7Ha	
7	Jenny	Crowther		7So	
8	Gill	Chamberlain		8Fm	
6	Ben	Carol		9Ty	
	(New)				

To sort the table numerically by the [Form] field:

- Click anywhere in the [Form] column
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button

  - To view the records arranged in ascending numeric order by Form

tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
18	Tom	Evans		7Ha	
17	Ann	Thomson		7Ra	
16	Sadie	Jackson		7Ra	
13	Sam	Stevens		7So	
7	Jenny	Crowther		7So	
3	Penny	Smith		7Wi	
14	Daniel	London		7Wi	
10	Barry	Jones		7Wi	
4	Kim	Vause		8Fm	
20	Grant	Sobers		8Fm	
1	Joe	James		8Fm	
19	Sheila	Francis		8Fm	
8	Gill	Chamberlain		8Fm	
9	Sean	Murphy		9Du	
12	Cheri	Ham		9Du	
2	Sally	Green		9Gi	
15	Nigel	Wright		9Ty	
11	Harry	Webb		9Ty	
5	Jackie	Shelley		9Ty	
6	Ben	Carol		9Ty	
(New)					

- Click anywhere in the [Form] column
- Ribbon [Home] [Sort and Filter] – click the [Descending] button

  - To view the records arranged in descending numeric order by Form

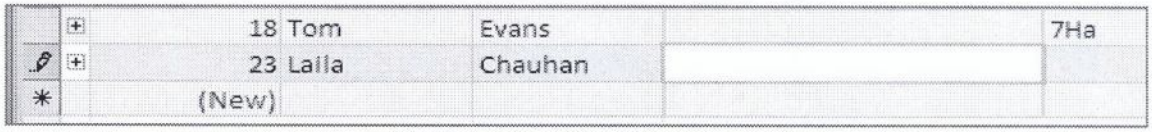
tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
15	Nigel	Wright		9Ty	
11	Harry	Webb		9Ty	
5	Jackie	Shelley		9Ty	
6	Ben	Carol		9Ty	
2	Sally	Green		9Gi	
9	Sean	Murphy		9Du	
12	Cheri	Ham		9Du	
4	Kim	Vause		8Fm	
20	Grant	Sobers		8Fm	
1	Joe	James		8Fm	
19	Sheila	Francis		8Fm	
8	Gill	Chamberlain		8Fm	
3	Penny	Smith		7Wi	
14	Daniel	London		7Wi	
10	Barry	Jones		7Wi	
13	Sam	Stevens		7So	
7	Jenny	Crowther		7So	
17	Ann	Thomson		7Ra	
16	Sadie	Jackson		7Ra	
18	Tom	Evans		7Ha	
(New)					

Within the [tblBorrowers] table, you will need to add records as new borrowers join; to edit details of existing borrowers; and to delete details of borrowers who have left.

Add a record in a table:

- Scroll to the empty row beneath the existing records that is indicated by the [*] in the margin 
- Click the [First Name] field in this row
- Type in a first name
  - (New) in the [BorrowerNo] field will be replaced with the next available number
  - A pen will show in the left margin, to indicate that you are editing this record 
- Press [Tab]
  - To move to the [Last Name] field
  - As you move from field to field the data will be saved
- Type in a last name
- Press [Tab]
  - To complete entry of the name details for this new borrower



⊞	18	Tom	Evans		7Ha
⊞	23	Laila	Chauhan		
*	(New)				

Modify data in a record

This will change Joe James' first name to Joseph.

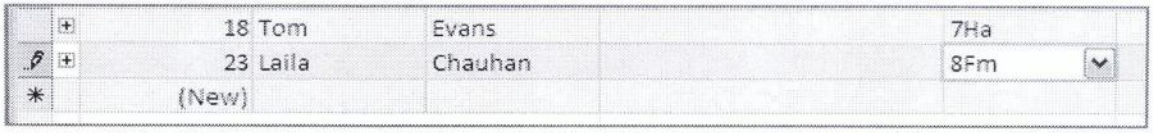
- Double click the [First Name] Field of Joe James' record
  - To highlight Joe's name
- Type "**Joseph**"
  - To replace Joe with Joseph
- Tab to the next field, or click in another field
  - To complete the name change

⊞	20	Grant	Sobers		8Fm
⊞	1	Joseph	James		8Fm
⊞	19	Sheila	Francis		8Fm

Add data in a record

This will add the [Form] details to Laila Chauhan's record.

- Click the [Form] field for Laila Chauhan's record
- Select a form from the drop down list
- Press the tab key or select another field
    - To complete entry of the Form name for this borrower

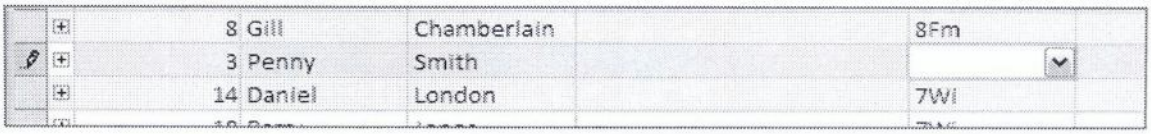


⊞	18	Tom	Evans	7Ha
⊞	23	Laila	Chauhan	8Fm
*	(New)			

Delete data in a record

This will delete the [Form] name from Penny Smith's record.

- Double-click the [Form] field for Penny Smith's record
    - To highlight the entry in this field
- From the keyboard, press the [Delete] key
    - To delete the form name from Penny Smith's record



⊞	8	Gill	Chamberlain	8Fm
⊞	3	Penny	Smith	
⊞	14	Daniel	London	7Wi

Using the Undo command

This will 'undo' the deletion of Penny Smith's form.

- On the Quick Access toolbar, click the [Undo] button

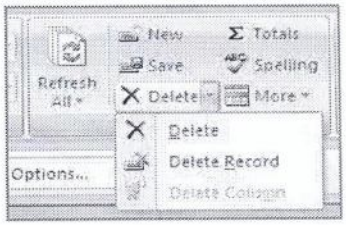
    - To replace the form name in Penny Smith's record

Delete a record

This will delete Penny Smith's entire record.

- Click the margin to the left of Penny Smith's record
    - To select this record
    - To see an arrow in the left margin

- Ribbon [Home] [Record]s – click the drop down arrow to the right of the [Delete] button



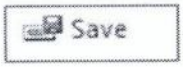
  - To see the Delete options
- Select [Delete Record]
  - To specify that you wish to delete the record
  - To display a warning that this deletion will be permanent
- Click the [Yes] button
  - To confirm deletion
  - To delete the record
  - To see that record number 3 is no longer in the [BorrowerNo] column – showing that it has been deleted

If a record is linked to other records, it is not always possible to delete that record from the database. If you attempt to delete a record that you shouldn't, Access will display an error message, explaining why this is not possible.

Save a table

As you amend data in tables, the table is automatically updated as you move between the fields. If, however, you wish to manually save the table at any time, the following is the procedure to follow.

- Ribbon [Home] [Records] – click the [Save] button



  - To save the records in the current table

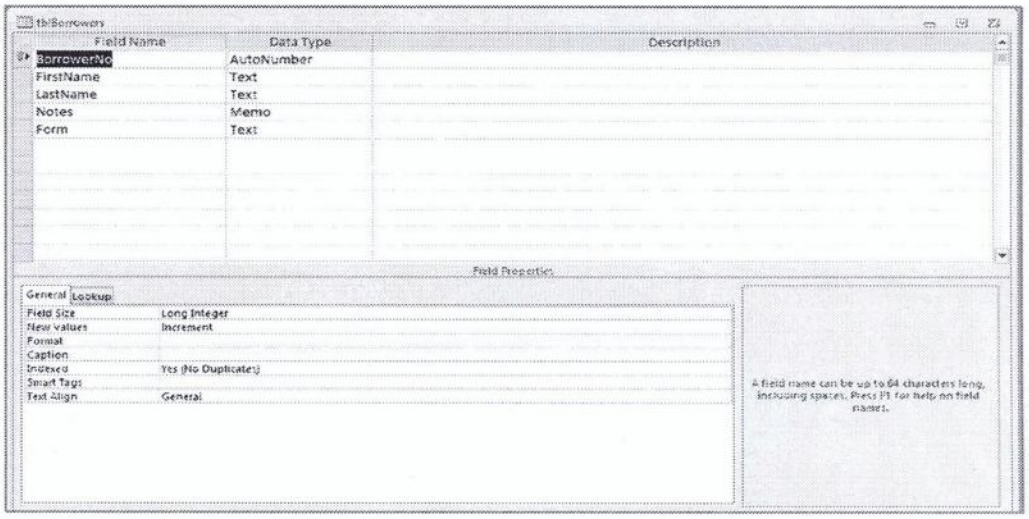
Switch between view modes in a table

So far, you have viewed the [tblBorrowers] table in **Datasheet view**. This view displays the individual records in a table.

tblBorrowers

BorrowerNo	First Name	Last Name	Notes	Form	Click to Add
15	Nigel	Wright		9Ty	
11	Harry	Webb		9Ty	
5	Jackie	Shelley		9Ty	
6	Ben	Carol		9Ty	
2	Sally	Green		9Gi	
9	Sean	Murphy		9Du	
12	Cheri	Ham		9Du	
4	Kim	Vause		8Fm	
20	Grant	Sobers		8Fm	
1	Joseph	James		8Fm	
19	Sheila	Francis		8Fm	
21	Laila	Chauhan		8Fm	
8	Gill	Chamberlain		8Fm	
14	Daniel	London		7Wi	
10	Barry	Jones		7Wi	
13	Sam	Stevens		7So	
7	Jenny	Crowther		7So	
17	Ann	Thomson		7Ra	
16	Sadie	Jackson		7Ra	
18	Tom	Evans		7Ha	
(New)					

It is also possible to view the table in **Design view**. This view will display the database fields and the properties for each field, such as data type, size, format and any restrictions on each field.



tblBorrowers

Field Name	Data Type	Description
BorrowerNo	AutoNumber	
FirstName	Text	
LastName	Text	
Notes	Memo	
Form	Text	

Field Properties

General | Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Smart Tags	
Text Align	General

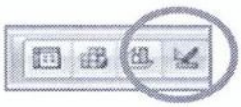
A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

There are two additional views available for tables – PivotTable view and PivotChart view. However, these two views will not be used in this courseware.

To switch to Design view for the [tblBorrowers] table:

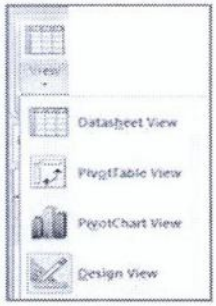
Either

- At the right of the Status Bar at the bottom of the screen, click the [Design View] button

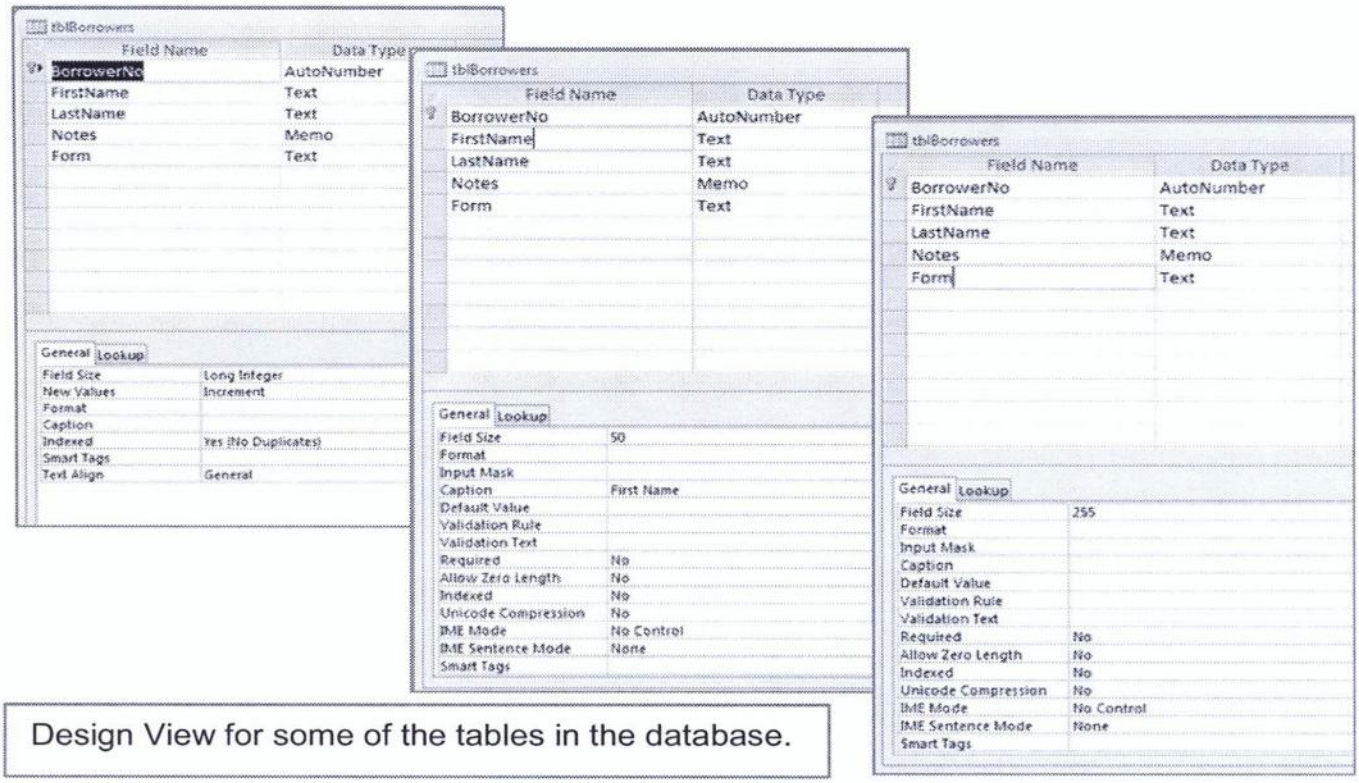


Or

- Ribbon [Home] [Views] – click the drop down button below the [View] button
  - To see the views available
- Select [Design View]
  - To switch the table to Design View
  - To view the Properties for the currently selected field (BorrowerNo)



- In the [Field Name] column, select each field in turn
  - To view the Properties for each field



Design View for some of the tables in the database.

Table Properties will be addressed in a later Example.

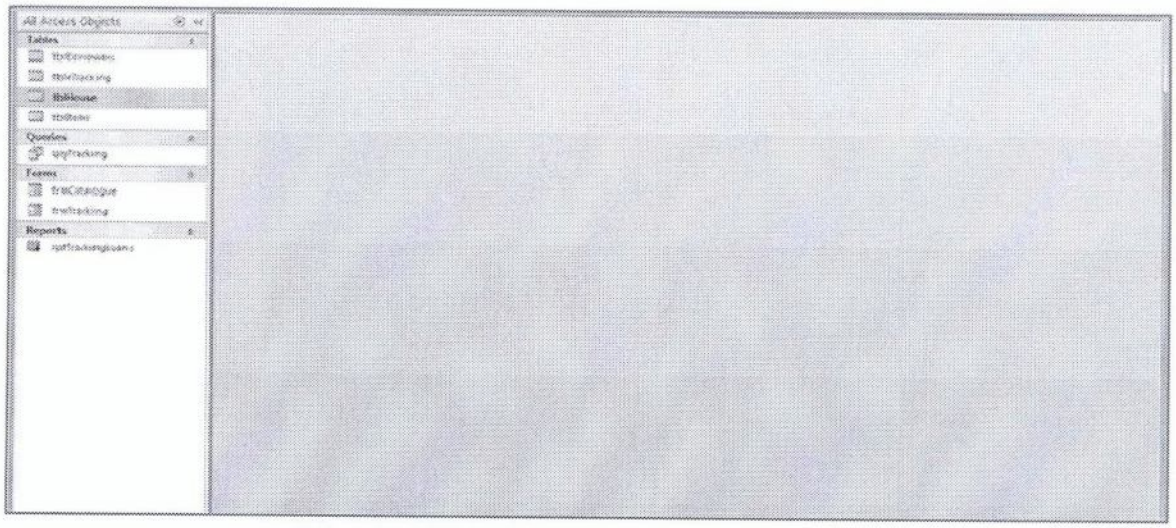
- At the right of the Status Bar, click the [Datasheet View] button
  - To save the table, if asked
  - To return to Datasheet view
  - To view the individual borrowers' records in the table

Close a table

This will close the [tblBorrowers] table. As there are currently no other Objects open in the database, closing this table will leave the right pane empty.

- At the top right of the [tblBorrowers] table, click the [Close] button

  - To close the table



Delete a table

There is a table called [tblHouse], containing details of the school houses. This table is not required for use in this database, therefore you will now delete the table. *You should be aware that, once you have clicked [OK] to confirm deletion of any object, it cannot be recovered!*

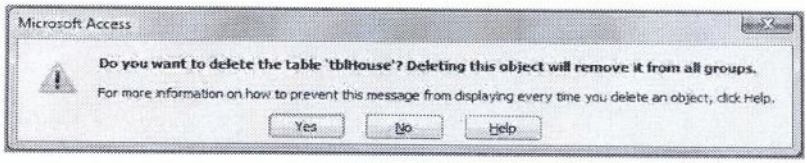
- In the navigation pane, select [tblHouse]

Either

- Ribbon [Home] [Records] – click the [Delete] button

Or

- Press the [Delete] key on the keyboard
  - To view a confirmation message
- Click [Yes]
  - To confirm that you wish to delete the table



Exercise 4 Forms

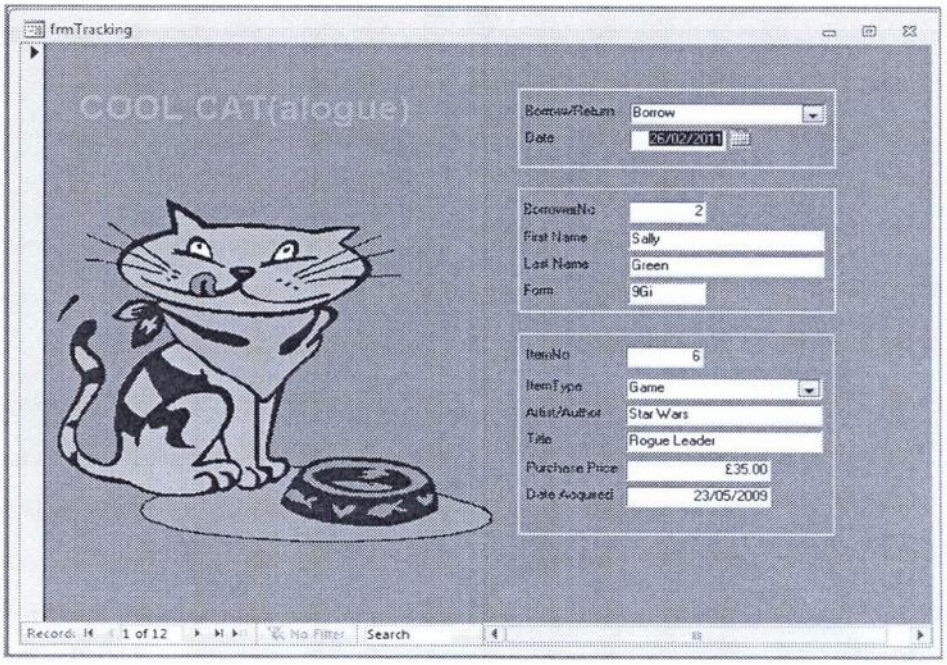
A form provides an easy way to display on screen and to maintain the records contained in the database.

A form contains fields drawn from a selection of the tables contained in the database. It can be used both to view and to update these fields, whilst giving an easy-to-read view of the activities that have taken place.

This Exercise will look at a form called [frmTracking]. This form pulls together information from all the tables to show who has borrowed which item on what date.

Open a form

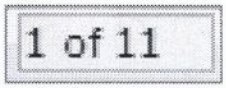
- In the navigation pane at the left of the screen, double-click [frmTracking]
  - To open this form in the right pane
  - The form is laid out in sections
  - Each section contains information from one of the database tables, to display details of an item borrowed or returned by a student

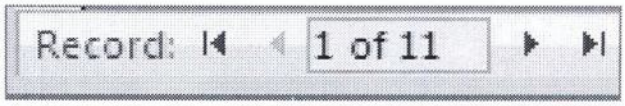


Navigate between records in a form

At the bottom of the form, navigation buttons allow you to move through the records in the form.

- Click the [First Record] button 
  - To see details of the first record
- Click the [Next Record] button 
  - To see details of the next record
- Click the [Previous Record] button 
  - To see details of the previous record

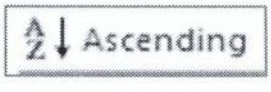
    This button will be greyed out until you have viewed a previous record
- Click the [Last Record] button 
  - To see details of the last record
- Click in the record number and type in another number 
- Press [Enter]
  - To move to that specific record



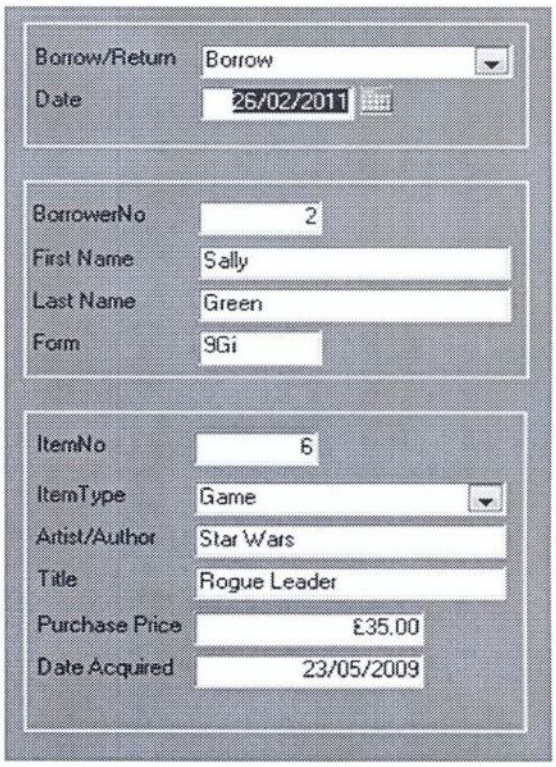
Sort records in a form

Records can be sorted alphabetically or numerically in either ascending or descending order.

To sort the form [frmTracking] alphabetically by the [Last Name] field:

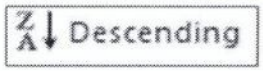
- Click in the [Last Name] field, which contains the last name of the currently displayed borrower
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button 

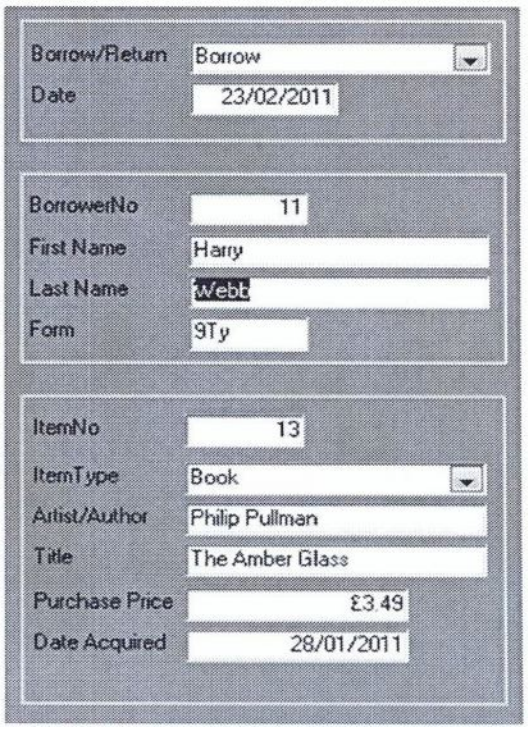
  - To view the first record, once the records are arranged in ascending alphabetical order by [Last Name] (A to Z)
  - Each borrower's details are also sorted with their names



- Click the [Next Record] button several times
  - To move through the records in alphabetical order by the [Last Name] field

- Ribbon [Home] [Sort and Filter] – click the [Descending] button
  - To view the last record, once the records are arranged in descending alphabetical order by [Last name] (Z to A)
  - Each borrower's details are also sorted with their names

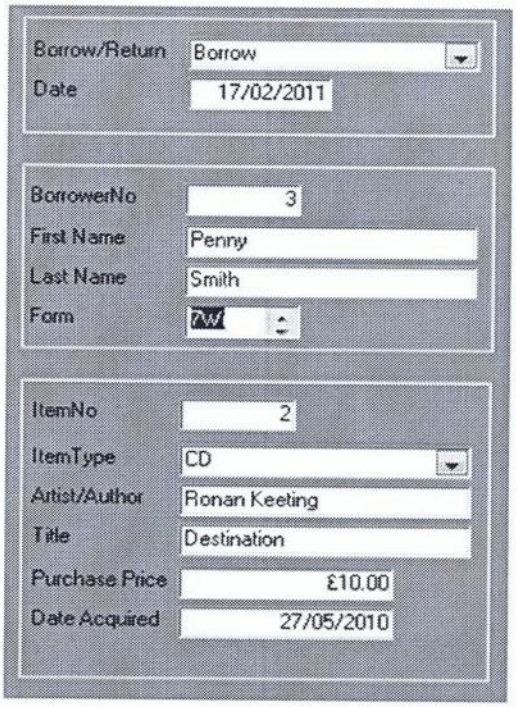




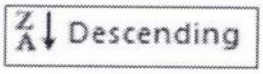
To sort the form numerically by the [Form] field:

- Click in the [Form] field, which displays the form of the current borrower
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button

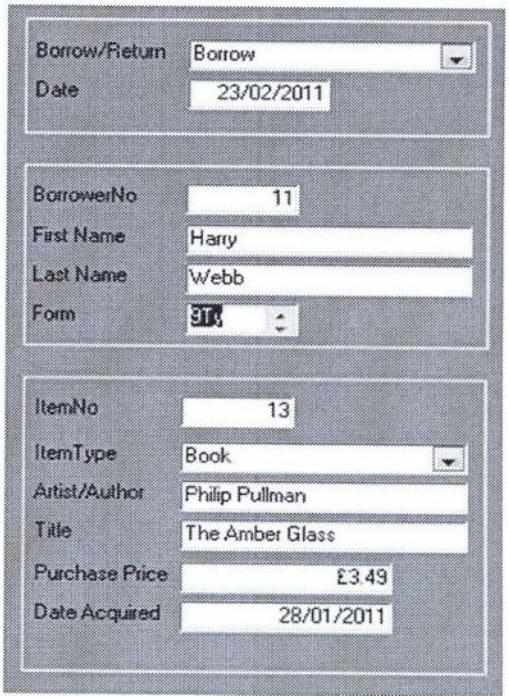
  - To view the first record, once the records are arranged in ascending numeric order by [Form]



- Ribbon [Home] [Sort and Filter] – click the [Descending] button

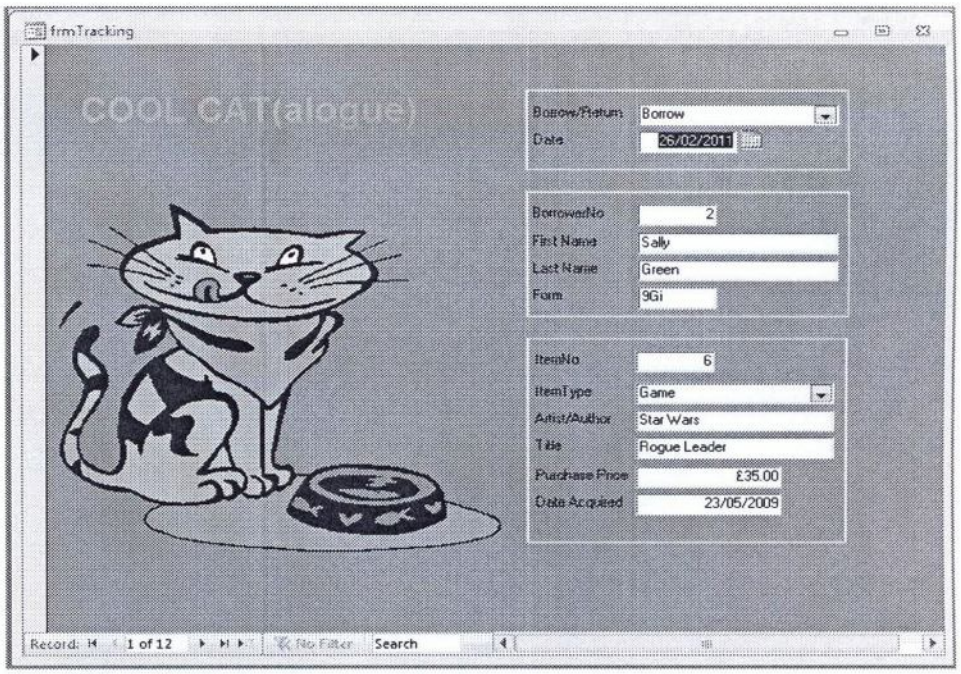


  - To view the first record, once the records are arranged in descending numeric order by Form

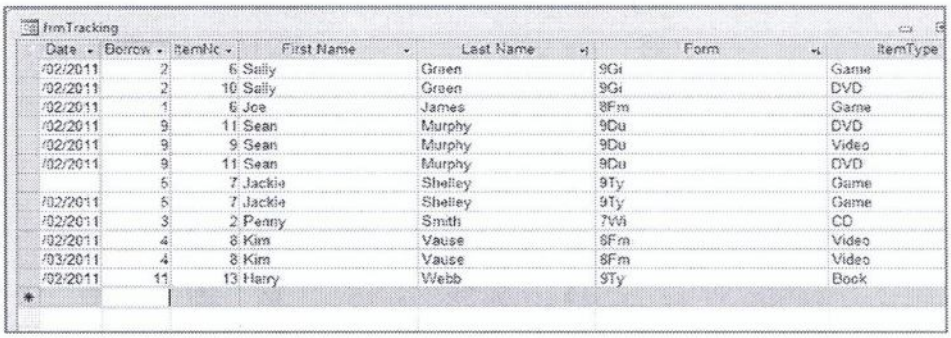


Switch between view modes in a form

So far, you have viewed the [frmTracking] form in **Form view**. This view displays an individual record in a form.

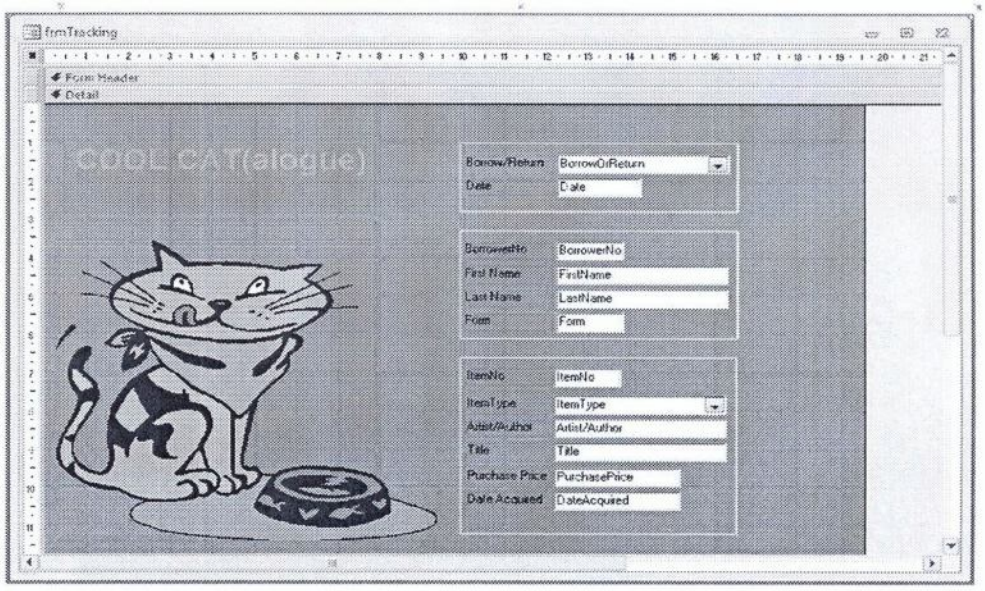


It is possible to view the form in **Datasheet view**. This view will display the form fields in a table format, with a field in each column, and a record of an item that has been borrowed in each row.

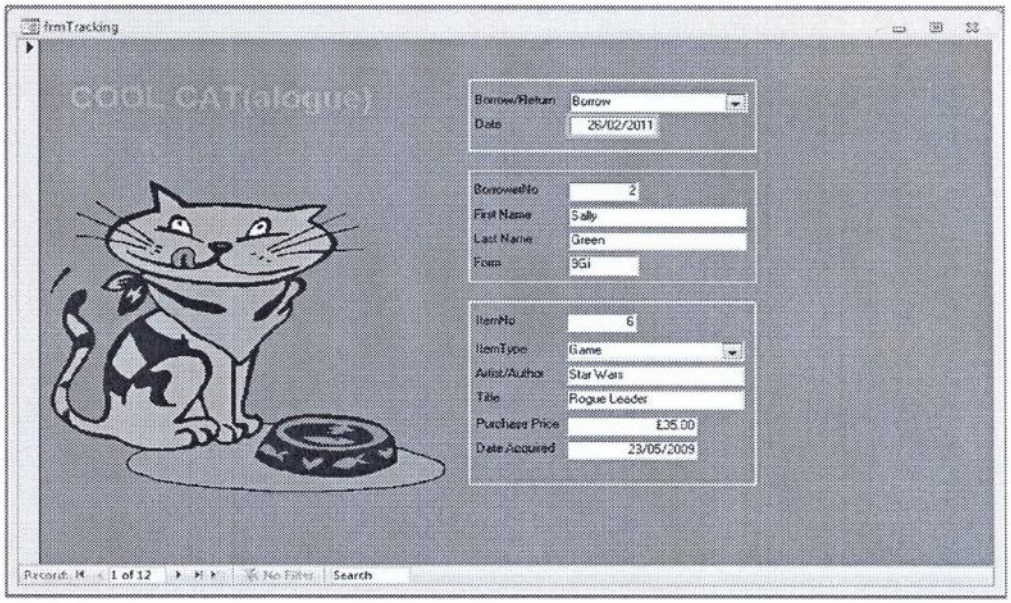

frmTracking

Date	Borrow	ItemNo	First Name	Last Name	Form	ItemType
/02/2011	2	6	Sally	Green	9Gi	Game
/02/2011	2	10	Sally	Green	9Gi	DVD
/02/2011	1	6	Joe	James	8Fm	Game
/02/2011	9	11	Sean	Murphy	9Du	DVD
/02/2011	9	9	Sean	Murphy	9Du	Video
/02/2011	9	11	Sean	Murphy	9Du	DVD
	5	7	Jackie	Shelley	9Ty	Game
/02/2011	5	7	Jackie	Shelley	9Ty	Game
/02/2011	3	2	Penny	Smith	7Wi	CD
/02/2011	4	8	Kim	Vause	8Fm	Video
/03/2011	4	8	Kim	Vause	8Fm	Video
/02/2011	11	13	Harry	Webb	9Ty	Book

It is also possible to view the form in **Design view**. This view will display the form layout and the field names for each field, along with the headers and footers for the form. In this view, you can make design changes to the form.



There is a further view available for forms, called **Layout view**. This view is very similar to Design view, and can also be used to make design changes. However, Layout view displays actual records in each field, rather than the field name, and is visually more similar to Form view. Certain design tasks cannot be carried out in Layout view – you will see a message telling you to change to Design view if you attempt to make one of these changes in Layout view.

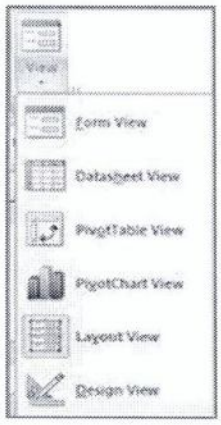


There are two additional views available for forms – PivotTable view and PivotChart view. However, these two views will not be used in this courseware.

To switch to a different view for the [frmTracking] form:

Either

- Ribbon [Home] [Views] – click the drop down button below the [View] button
  - To see the views available
- Select the appropriate view
  - To switch to that view



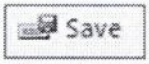
Or

- At the right of the Status Bar at the bottom of the screen, click the appropriate view button

Save a form

While you are working with forms, the form is automatically updated as you move between the fields. If, however, you wish to manually save the form at any time, the following is the procedure to follow.

- Ribbon [Home] [Records] – click the [Save] button
  - To save any changes to the current form



Close a form

This will close the [frmTracking] form. As there are currently no other Objects open in the database, closing this form will leave the right pane empty.

- At the top right of the [frmTracking] form, click the [Close] button
  - To close the form

Exercise 5 Queries

A "query" is a tool to:

- Analyse and manage information in a database
- Extract specific information from a database, based on searching more than one field and more than one table
- See updated results from amended data, using saved queries
- Join tables together to build forms and reports, that might use data from a number of tables
- View the results of a query on screen or printed out.

This Exercise will open an existing query that combines all the fields from [tblItems] [tblBorrowers] and [tblTracking], allowing you to see in one view the details of every item that has been borrowed or returned.

Open a query

- In the navigation pane at the left of the screen, double-click [qryTracking]
  - To open this query in the right pane
  - Each row contains the records for one tracking event
  - Each field contains one category of information

qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm
2	Return	04/02/2011	4	8	Kim	Vause	8Fm
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi
10	Return	26/02/2011	9	11	Sean	Murphy	9Du
11	Borrow	26/02/2011	1	6	Joe	James	8Fm
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi
18			5	7	Jackie	Shelley	9Ty
(New)							

The fields come from:

Borrowers Table	Borrowers details, for example, names
Items Table	Item No and Type
Tracking Table	Date

This query links all this information together from the three tables, to provide related information on one screen. It is used by [frmTracking], which displays the tracking of items. Without the query, you would have to look at the three different tables separately to see all the related information.

It is, however, helpful to have these separate, linked tables for the different items, as the smaller tables are easier to manage. Also, linking the information can avoid duplication of data and can cut down on data entry time. (In our current database, for example, the Items information only has to be entered once for each Book/CD/et cetera, and then for each borrower, the information about the item borrowed can be picked up from this linked Items table without the need for re-entry of the data.)

- Scroll to the right
  - To see all the fields in the query

Navigate between records in a query

At the bottom of the query, navigation buttons allow you to move through the records in the query.

- Click the [First Record] button

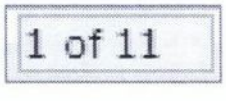
  - To see details of the first record
- Click the [Next Record] button

  - To see details of the next record
- Click the [Previous Record] button

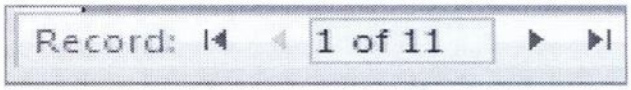
  - To see details of the previous record

    This button will be greyed out until you view a previous record
- Click the [Last Record] button

  - To see details of the last record
- Click in the record number and type in another number



- Press [Enter]
  - To move to that specific record

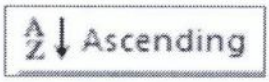


Sort records in a query in Datasheet view

Records can be sorted alphabetically or numerically in ascending or descending order.

To sort the query [qryTracking] alphabetically by the [Last Name] field:

- Click somewhere in the [Last Name] column
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button

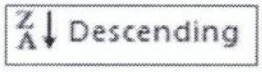


  - To view the records in ascending alphabetical order by [Last Name]
  - Each borrower's details are also sorted with their names

qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form	Ite
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi	Ga
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi	DV
11	Borrow	26/02/2011	1	6	Joe	James	8Fm	Ga
10	Return	26/02/2011	9	11	Sean	Murphy	9Du	DV
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du	Vi
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du	DV
18			5	7	Jackie	Shelley	9Ty	Ga
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty	Ga
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi	CD
2	Return	04/02/2011	4	8	Kim	Vause	8Fm	Vi
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm	Vi
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty	Bo
(New)								

- Ribbon [Home] [Sort and Filter] – click the [Descending] button



  - To view the records in descending alphabetical order by [Last name]

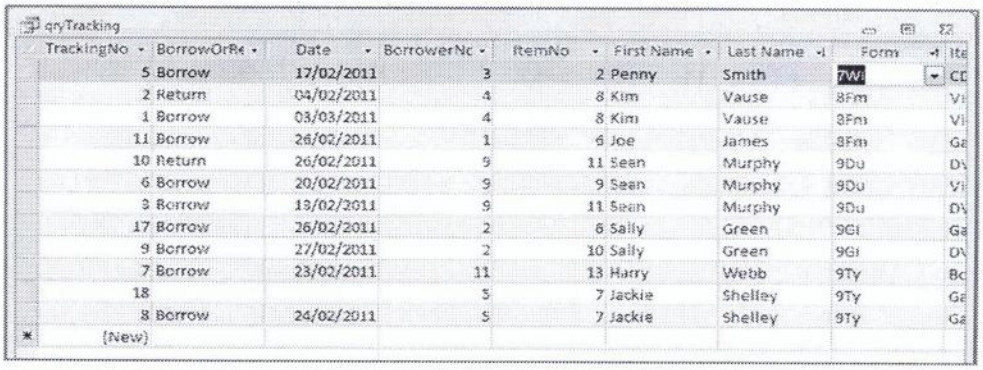
qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form	Ite
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty	Bo
2	Return	04/02/2011	4	8	Kim	Vause	8Fm	Vi
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm	Vi
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi	CD
18			5	7	Jackie	Shelley	9Ty	Ga
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty	Ga
10	Return	26/02/2011	9	11	Sean	Murphy	9Du	DV
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du	Vi
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du	DV
11	Borrow	26/02/2011	1	6	Joe	James	8Fm	Ga
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi	Ga
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi	DV
(New)								

To sort the query numerically by the [Form] field:

- Click somewhere in the [Form] column
- Ribbon [Home] [Sort and Filter] – click the [Ascending] button

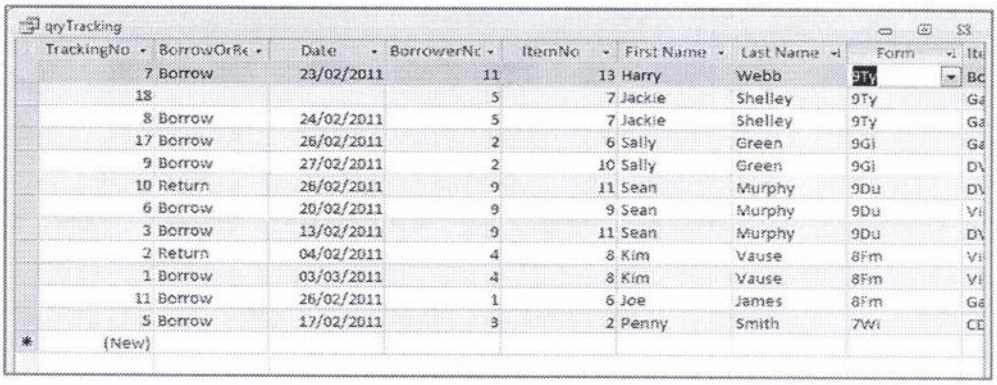
  - To view the first record, once the records are arranged in ascending numeric order by [Form]



qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form	Ite
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi	CD
2	Return	04/02/2011	4	8	Kim	Vause	8Fm	Vi
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm	Vi
11	Borrow	26/02/2011	1	6	Joe	James	8Fm	Ga
10	Return	26/02/2011	9	11	Sean	Murphy	9Du	DV
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du	Vi
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du	DV
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi	Ga
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi	DV
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty	Bo
18			5	7	Jackie	Shelley	9Ty	Ga
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty	Ga
(New)								

- Ribbon [Home] [Sort and Filter] – click the [Descending] button



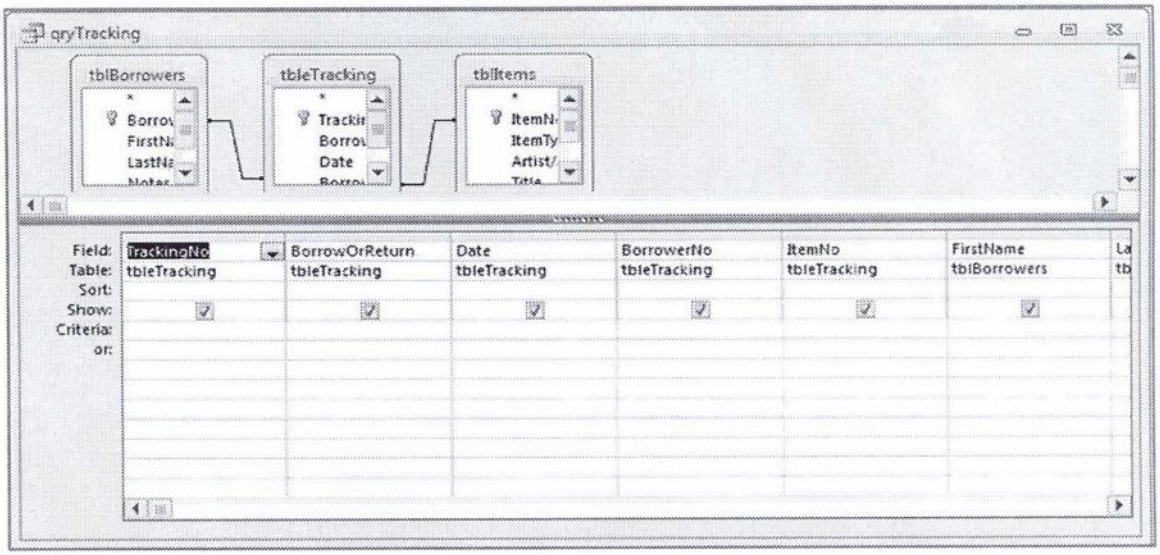
qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form	Ite
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty	Bo
18			5	7	Jackie	Shelley	9Ty	Ga
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty	Ga
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi	Ga
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi	DV
10	Return	26/02/2011	9	11	Sean	Murphy	9Du	DV
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du	Vi
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du	DV
2	Return	04/02/2011	4	8	Kim	Vause	8Fm	Vi
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm	Vi
11	Borrow	26/02/2011	1	6	Joe	James	8Fm	Ga
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi	CD
(New)								

Switch between view modes in a query

So far, you have viewed the [qryTracking] query in **Datasheet view**. This view displays the individual records in a table.

It is also possible to view the query in **Design view**. This view will display the database fields used in the query and the properties for each field; such as the table the field is taken from, whether the query is sorted by this field, whether the field should currently be shown when the query is run, and any criteria to determine which records from the field are displayed. The top of the Design view window will also display each of the tables used in the query, with lines showing the fields used to create the links, or 'relationships' between the tables.

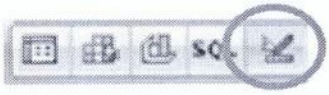


There are three additional views available for queries – PivotTable view, PivotChart view and SQL view. However, these two views will not be used in this courseware.

To switch to design view for the [qryTracking] query:

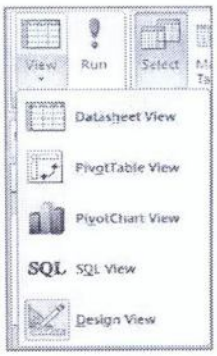
Either

- At the right of the Status Bar at the bottom of the screen, click the [Design View] button

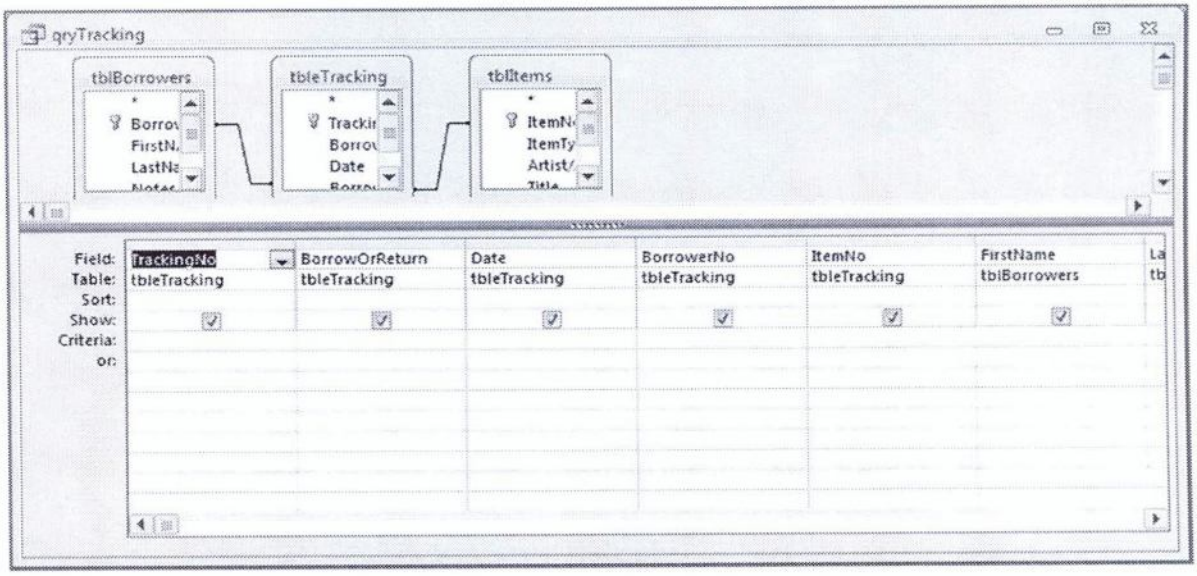


Or

- Ribbon [Design] [Results] – click the drop down button below the [View] button
  - To see the views available
- Select [Design View]
  - To switch the query to Design View
  - To view some of the fields used in the query, and the relationships between these fields



- Use the horizontal scroll bar
  - To view the fields to the right, that are not currently visible

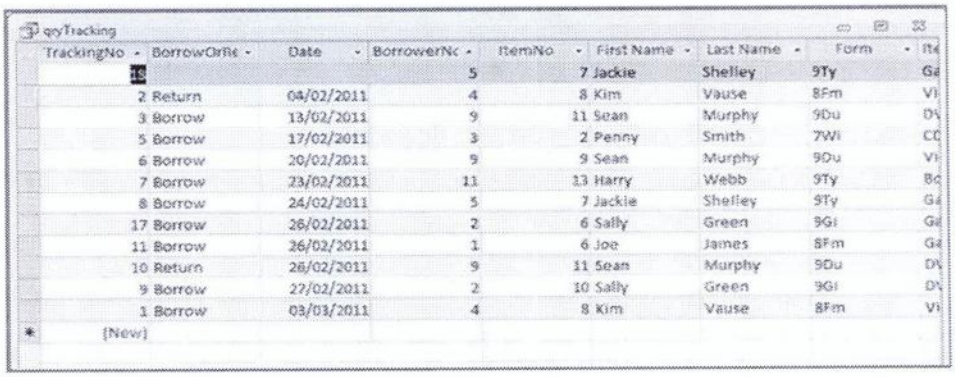


Relationships will be addressed in the next Example.

Sort records in a query in Design view

It is also possible to sort records in the fields of a query in Design view. You will now sort the query by the date field, in ascending order.

- Click the [Sort] field in the [Date] column
  - To view the drop down arrow to the right of the field
- Click the drop down arrow
  - To view the sorting options available
- Select [Ascending]
  - To insert the word [Ascending] in the [Sort] field for this column
- Ribbon [Design] [Results] – click the [Run] button
  - To view the query in Datasheet view, sorted in ascending order by the [Date] column

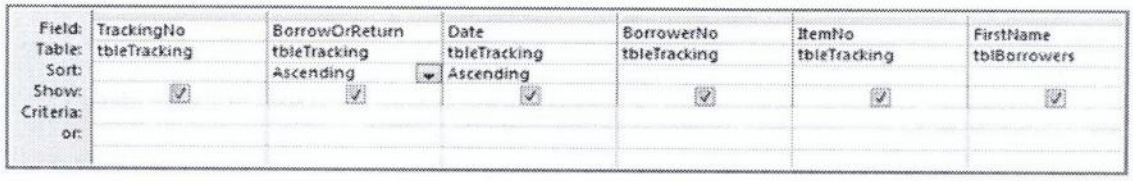


- At the right of the Status Bar, click the [Design view] button
  - To return to Design view

It is possible to sort by more than one column, in Design view. If you select sort orders for multiple columns, the query will be sorted first by the leftmost column that has been sorted, then each sorted column to the right in turn. To see how this works, you will now sort by the [BorrowOrReturn] column, in addition to the [Date] column.

- In the [Sort] field for the [BorrowOrReturn] column, select [Ascending] as the sort order
- Ribbon [Design] [Results] – click the [Run] button

  - To view the query in Datasheet view, sorted in ascending order by the [BorrowOrReturn] column
  - To see that all the borrowed items are further sorted by [Date]
  - To see that all the returned items are further sorted by [Date]



Field:	TrackingNo	BorrowOrReturn	Date	BorrowerNo	ItemNo	FirstName
Table:	tbleTracking	tbleTracking	tbleTracking	tbleTracking	tbleTracking	tblBorrowers
Sort:		Ascending	Ascending			
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

qryTracking

TrackingNo	BorrowOrRe	Date	BorrowerNo	ItemNo	First Name	Last Name	Form	Ite
			5	7	Jackie	Shelley	9Ty	Ga
3	Borrow	13/02/2011	9	11	Sean	Murphy	9Du	DV
5	Borrow	17/02/2011	3	2	Penny	Smith	7Wi	CD
6	Borrow	20/02/2011	9	9	Sean	Murphy	9Du	Vi
7	Borrow	23/02/2011	11	13	Harry	Webb	9Ty	Bo
8	Borrow	24/02/2011	5	7	Jackie	Shelley	9Ty	Ga
17	Borrow	26/02/2011	2	6	Sally	Green	9Gi	Ga
11	Borrow	26/02/2011	1	6	Joe	James	8Fm	Ga
9	Borrow	27/02/2011	2	10	Sally	Green	9Gi	DV
1	Borrow	03/03/2011	4	8	Kim	Vause	8Fm	Vi
2	Return	04/02/2011	4	8	Kim	Vause	8Fm	Vi
10	Return	26/02/2011	9	11	Sean	Murphy	9Du	DV
*	(New)							

- At the right of the Status Bar, click the [Design view] button

  - To return to Design view
- In the [Sort] field for the [BorrowOrReturn] column and the [Date] column, click the drop down arrow and select [(not sorted)]
  - To remove the sort order from these fields

- At the right of the Status Bar, click the [Datasheet view] button

  - To return to Datasheet view
    - To view the individual records in the query, in their original sort order (by [Tracking No]

Save a query

To save the query at any time, the following is the procedure to follow.

- Ribbon [Home] [Records] – click the [Save] button

    - To save any changes to the current query

Close a query

This will close the [qryTracking] query. As there are currently no other Objects open in the database, closing this query will leave the right pane empty.

- At the top right of the [qryTracking] query, click the [Close] button

    - To close the query

Exercise 6 Reports

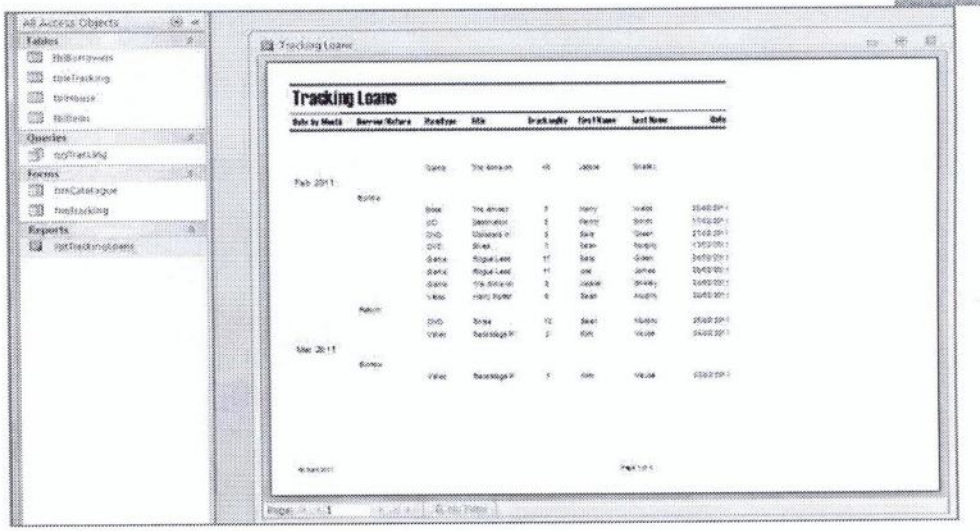
A report is selected information from a table or query designed for printout. It is previewed on screen first, allowing you to check it before printing.

This exercise will look at a report called [rptTrackingLoans] that is set up in the [CoolCat] database, which prints details of who borrowed what, and when.

Open a report

- In the navigation pane at the left of the screen, double-click [rptTrackingLoans]
  - To open this report in the right pane

Right click ov
report name:
• [Open]



To make the report easier to read on screen:

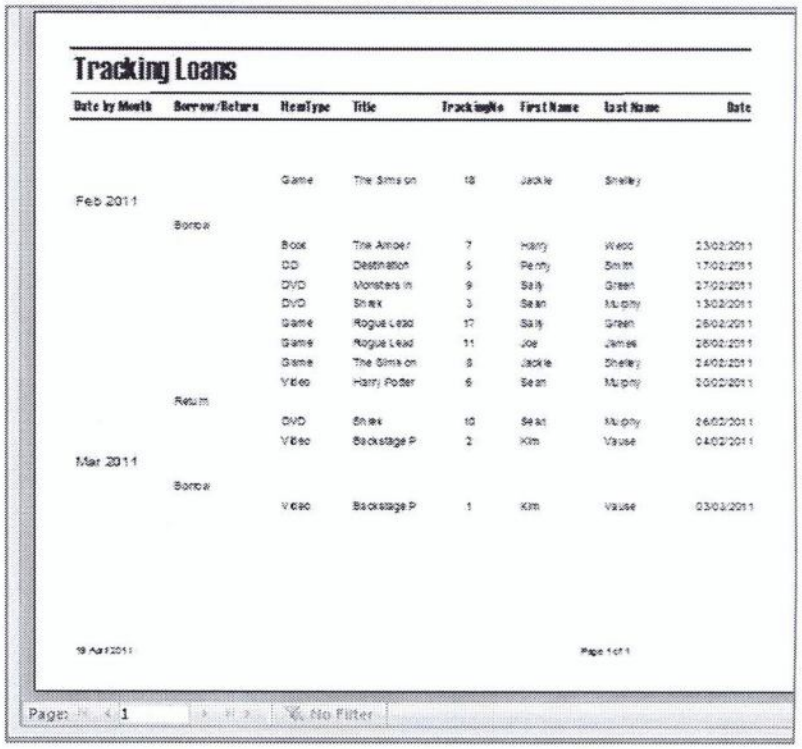
- At the top right of the report window, click the [Maximise] button
  - To make the report fill the right pane

- At the right of the Status Bar, use the [Zoom] button
  - To zoom in and increase the size of the text on screen

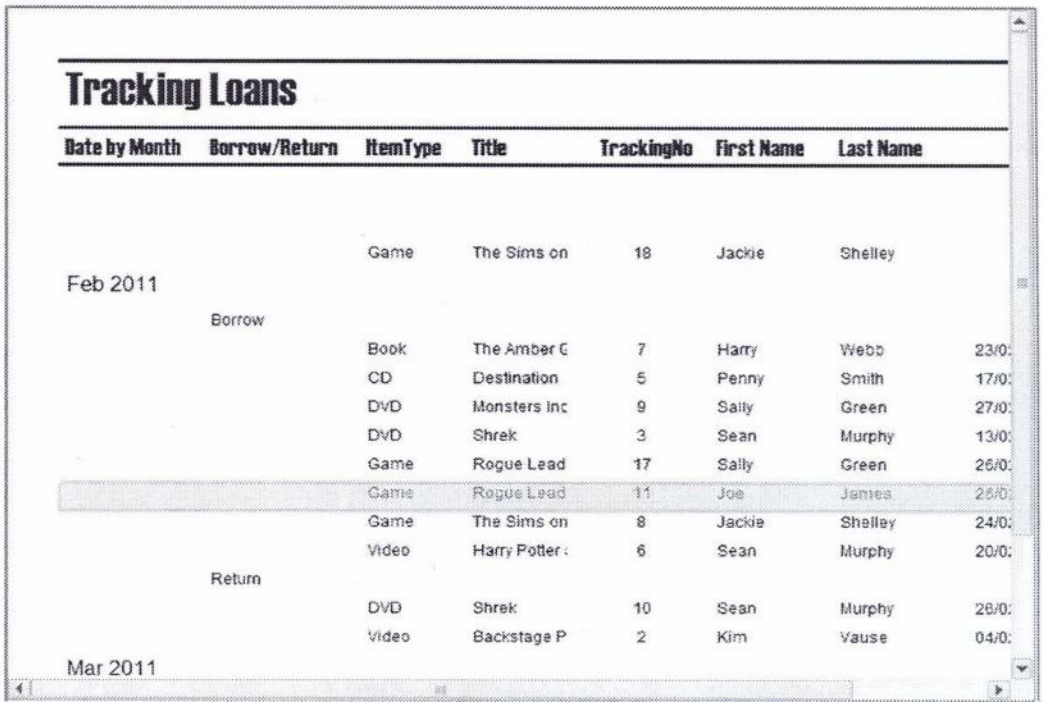
- Use the horizontal and vertical scroll bars
  - To move the report around on screen

Switch between view modes in a report

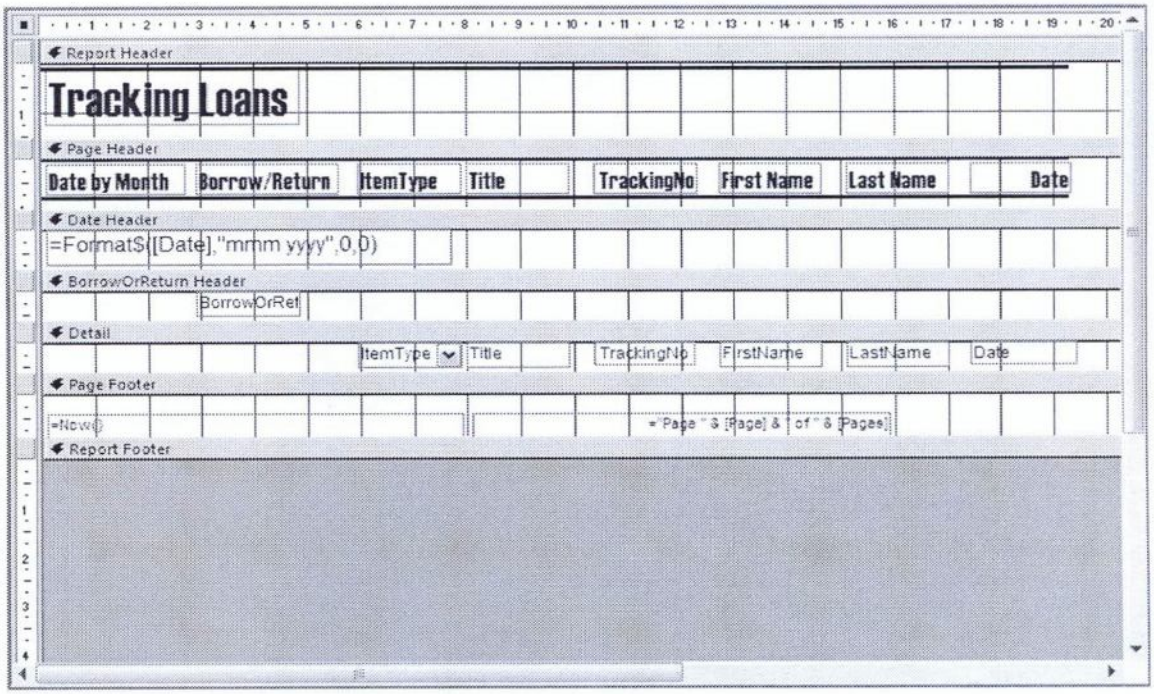
So far, you have viewed the [rptTrackingLoans] report in **Print Preview** view. This view displays the report as it would print out, showing each page separately.



It is possible to view the report in **Report view**. This view will display the report as a continuous sheet, without displaying page breaks



It is also possible to view the report in **Design view**. This view will display the report layout and the field names for each field, along with the headers and footers for the report. In this view, you can make design changes to the report.



There is a further view available for reports, called **Layout view**. This view is very similar to Design view, and can also be used to make design changes. However, Layout view displays actual records in each field, rather than the field name, and is visually more similar to Report view. Certain design tasks cannot be carried out in Layout view – you will see a message telling you to change to Design view if you attempt to make one of these changes in Layout view.

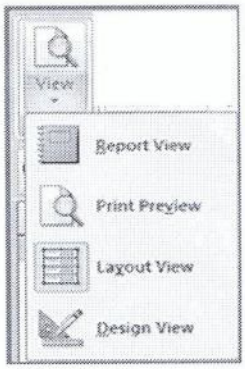
Tracking Loans

Date by Month	Borrow/Return	ItemType	Title	TrackingNo	First Name	Last Name	
		Game	The Sims on	18	Jackie	Shelley	
Feb 2011							
	Borrow						
		Book	The Amber C	7	Harry	Webb	23/0
		CD	Destination	5	Penny	Smith	17/0
		DVD	Monsters Inc	9	Sally	Green	27/0
		DVD	Shrek	3	Sean	Murphy	13/0
		Game	Rogue Lead	17	Sally	Green	26/0
		Game	Rogue Lead	11	Joe	James	26/0
		Game	The Sims on	8	Jackie	Shelley	24/0
		Video	Harry Potter	6	Sean	Murphy	20/0
	Return						

To switch to a different view for the [qryTrackingLoans] report:

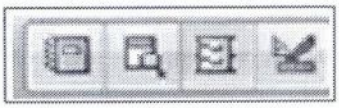
Either

- Ribbon [Home] [Views] – click the drop down button below the [View] button
  - To see the views available
- Select the appropriate view
  - To switch to that view



Or

- At the right of the Status Bar at the bottom of the screen, click the appropriate view button



Save a report

While you are working with reports, the report is automatically updated as you move between the fields. If, however, you wish to manually save the report at any time, the following is the procedure to follow.

- Ribbon [Home] [Records] – click the [Save] button
  - To save any changes to the current form

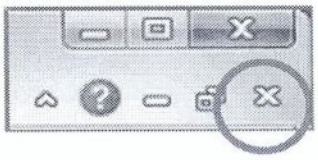
The [Save] button will be greyed out until you have made a change to the report that needs to be saved

Close a report

This will close the [rptTrackingLoans] report. As there are currently no other Objects open in the database, closing this report will leave the right pane empty. *If you are in Print Preview view, you will close the preview first.*

- If relevant, Ribbon [Print Preview] [Close Preview] – click the [Close Print Preview] button
  - To close the preview and change to Design view

- At the top right of the [rptTrackingLoans] report, click the [Close] button
  - To close the report



Delete a form, query, report

Deleting forms, queries and reports is carried out in the same way as deleting tables; as covered in the Table Exercise. *You should be aware that, once you have clicked [OK] to confirm deletion of any object, it cannot be recovered!*

You do not wish to delete any forms, queries or reports at present; however should it be necessary to delete one of these objects from a database, the procedure to be followed is set out below.

- In the main database window, select the object to be deleted

Either

- Ribbon [Home] [Records] – click the [Delete] button 

Or

- Press the [Delete] key on the keyboard
    - To view a confirmation message
- Click [Yes]
    - To confirm that you wish to delete the object

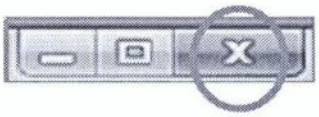
Exercise 7 Close a database application

When you have finished working with Access, it is good practice to close the program, so that it does not restrict your computer's performance.

- Ribbon [File] – click the [Exit] button

  - To close Access as well as this document.

Alternatively, clicking the [Close] button at the top right of the screen will close the Access document open in the current window and it will also close Access.



Example 3 - Tables

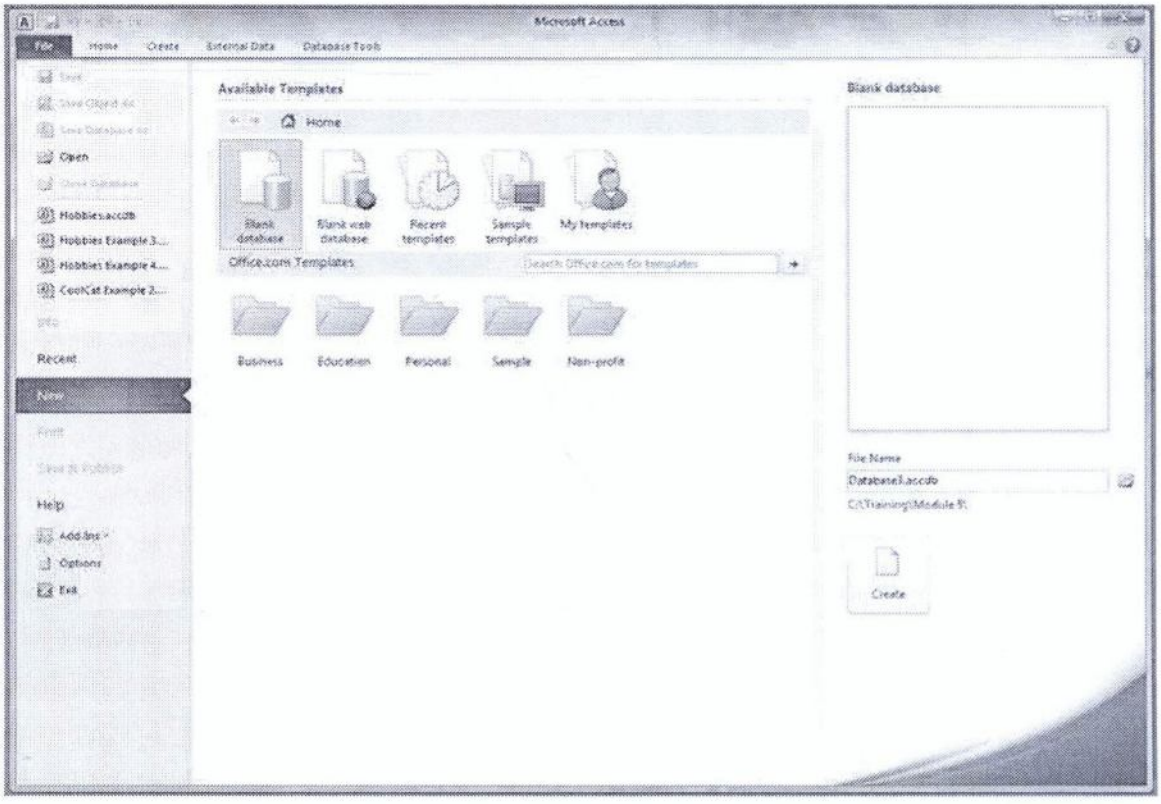
This Example will use the CoolCat database to introduce and explain 'primary keys' used in tables. The database will also be used to explain relationships between tables.

You will then begin to create a new database, which will be used to keep details of students and their hobbies. This Example will show you how to design and plan the database, before creating the database tables.

After entering data into the tables, you will learn how to search for information in them, and how to filter the information viewed in a table.

Exercise 1 Open a database application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Access]
    - Microsoft Access will open, with the New dialog box displayed within the [File] tab



Exercise 2 Open a database

This Exercise will open the CoolCat database.

Either

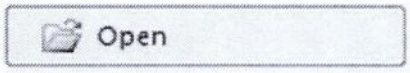
- If the database you wish to open is shown in the list at the left of the [File] tab, select it from here
  - To open the database on screen

Or

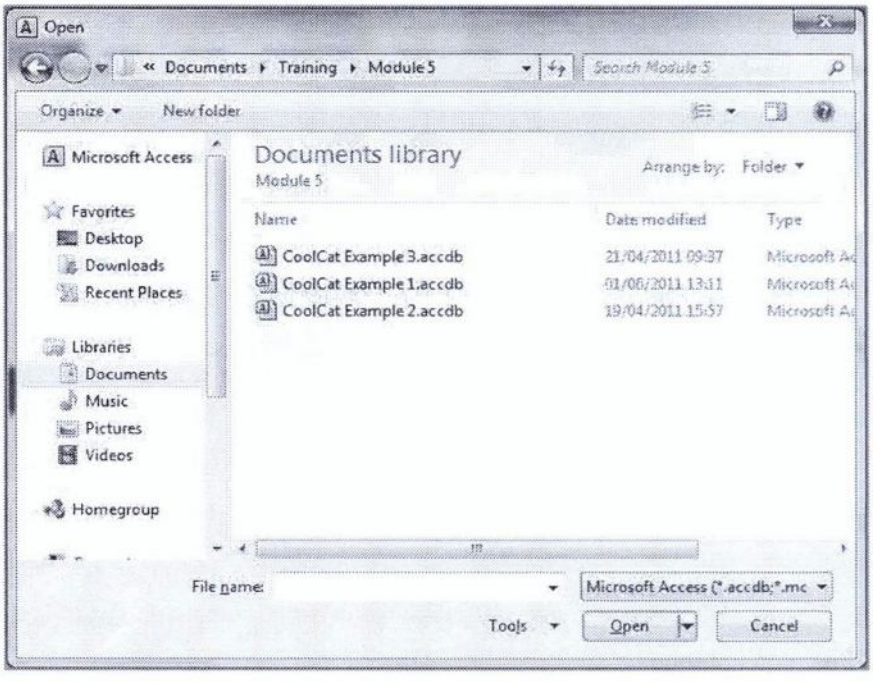
- Click the [Recent] button
  - To view and select recently opened databases

Or

- Ribbon [File] – click the [Open] button
  - To open the Open dialog box



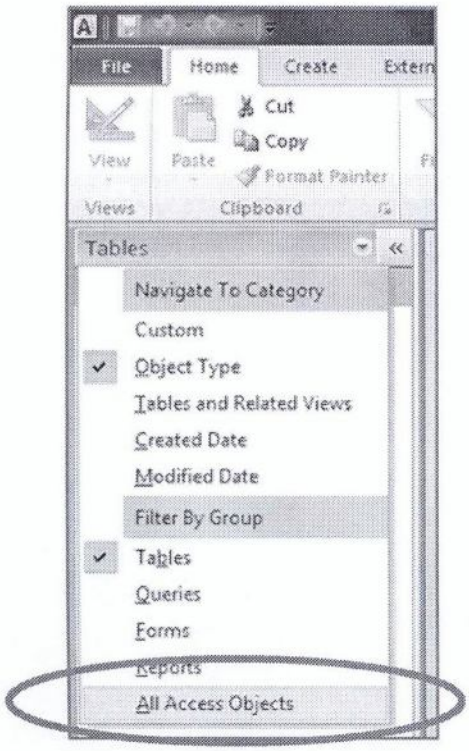
- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 5]
- In the Module 5 folder, select the file named "CoolCat Example 3"
- Click the [Open] button
  - To open the database on screen

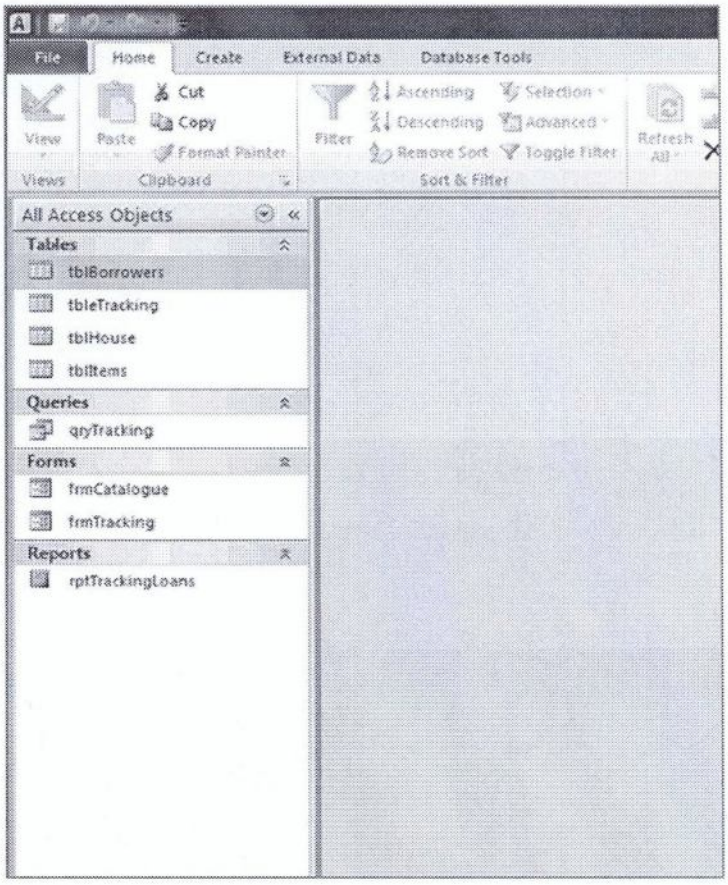


Display all database objects

If all the database Objects are not displayed in the navigation pane:

- Click the drop down arrow to the right of the [Tables] heading in the navigation pane
  - To view the display options
- In the [Filter by Group] section, select [All Access Objects]
  - To display in the navigation pane all the database Objects currently contained in the database

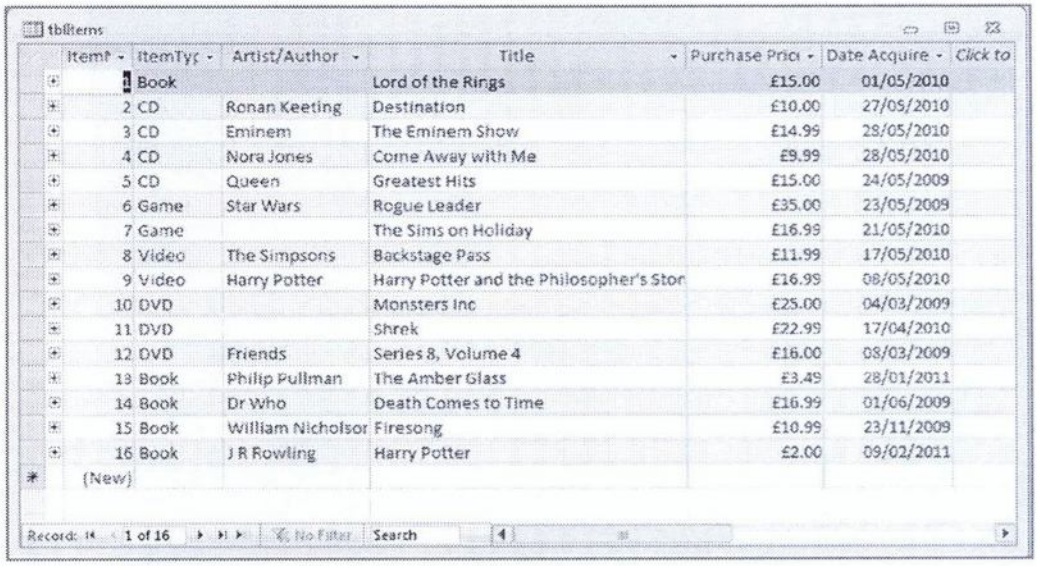




Exercise 3 Understand what a primary key is

Each table in a database should contain one primary key field. This Exercise will use the [tblItems] and the [tbltracking] tables to explain the use of primary keys in databases.

- In the navigation pane at the left of the screen, double-click [tblItems]
  - To open this table in the right pane

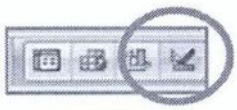

tblItems

ItemI	ItemTyp	Artist/Author	Title	Purchase Price	Date Acquire	Click to
1	Book		Lord of the Rings	£15.00	01/05/2010	
2	CD	Ronan Keeting	Destination	£10.00	27/05/2010	
3	CD	Eminem	The Eminem Show	£14.99	28/05/2010	
4	CD	Nora Jones	Come Away with Me	£9.99	28/05/2010	
5	CD	Queen	Greatest Hits	£15.00	24/05/2009	
6	Game	Star Wars	Rogue Leader	£35.00	23/05/2009	
7	Game		The Sims on Holiday	£16.99	21/05/2010	
8	Video	The Simpsons	Backstage Pass	£11.99	17/05/2010	
9	Video	Harry Potter	Harry Potter and the Philosopher's Stor	£16.99	08/05/2010	
10	DVD		Monsters Inc	£25.00	04/03/2009	
11	DVD		Shrek	£22.99	17/04/2010	
12	DVD	Friends	Series 8, Volume 4	£16.00	08/03/2009	
13	Book	Philip Pullman	The Amber Glass	£3.49	28/01/2011	
14	Book	Dr Who	Death Comes to Time	£16.99	01/06/2009	
15	Book	William Nicholsor	Firesong	£10.99	23/11/2009	
16	Book	J R Rowling	Harry Potter	£2.00	09/02/2011	
	(New)					

Record: 1 of 16 | No Filter | Search

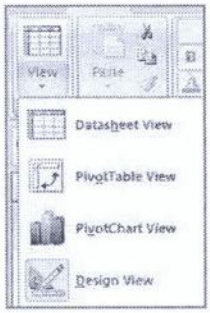
It is possible to tell which field is the primary key field from Design view. Either

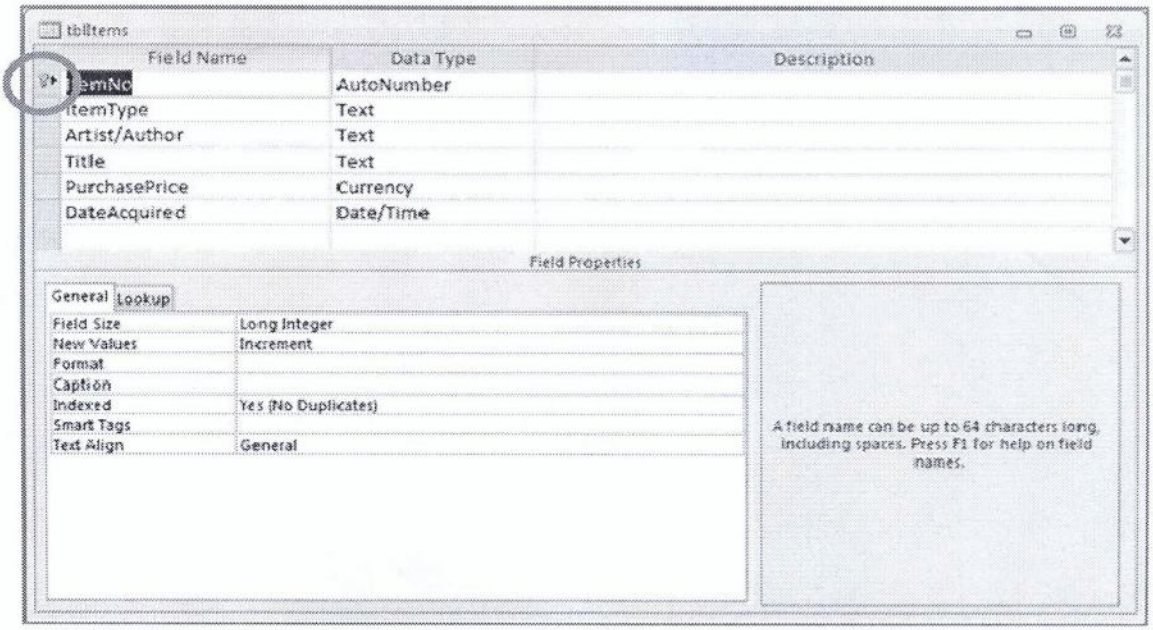
- At the right of the Status Bar at the bottom of the screen, click the [Design View] button



Or

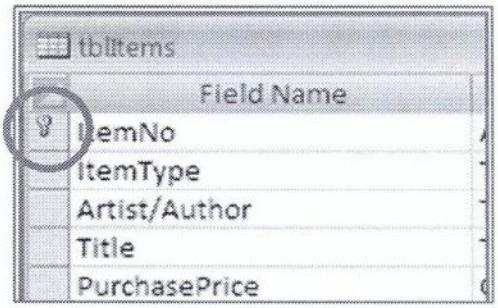
- Ribbon [Home] [Views] – click the drop down button below the [View] button
  - To see the views available
- Select [Design View]
  - To switch the table to Design View





The primary key is a field that uniquely identifies each record stored in the table. The primary key field is usually a number.

In the [tblItems] table, to the left of the [ItemNo] field there is a key symbol, which indicates that [ItemNo] is the primary key field for this table. This means that every item in the table will have a unique [ItemNo]. It will ensure that, if the database contains details of two, or more, copies of the same book, each copy will have a unique [ItemNo] and can be monitored separately.

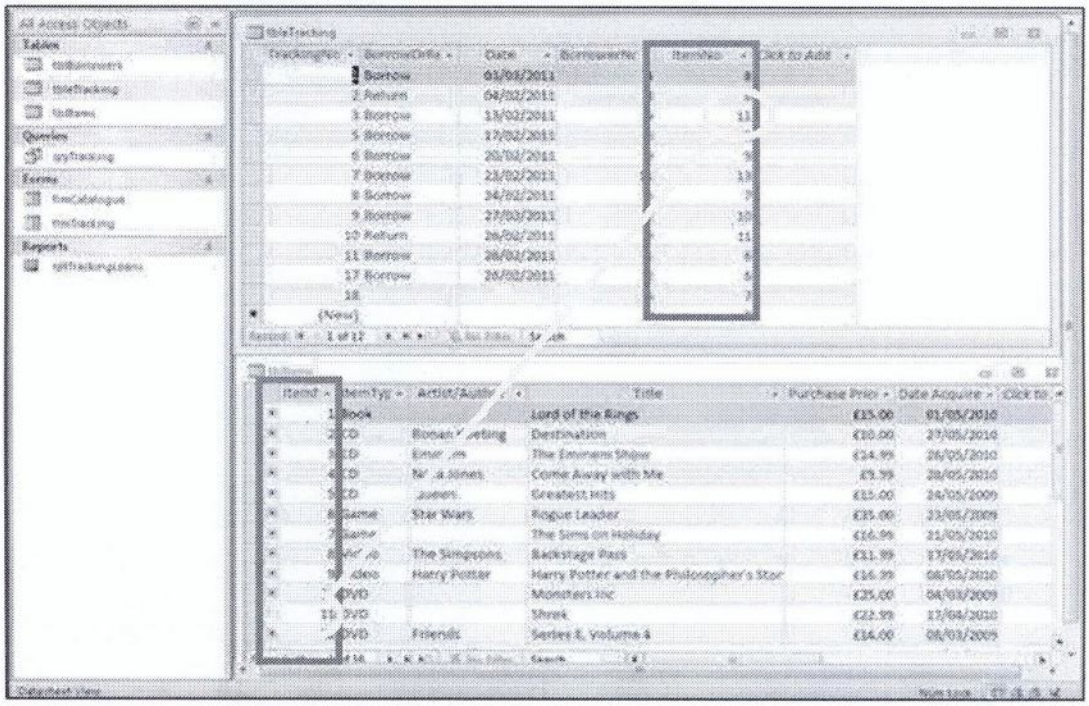


These unique, primary key fields are used when linking tables to create queries.

This can be demonstrated by viewing the [tblTracking] table alongside the [tblItems] table.

- At the right of the Status bar, click the [Datasheet view] button

  - To return [tblItems] to Datasheet view
- Resize [tblItems]
  - To fit in the bottom half of the right pane
- In the navigation pane at the left of the screen, double-click [tblTracking]
  - To open this table, in addition to [tblItems]
- Resize [tblTracking]
  - To fit in the top half of the right pane
  - You should now be able to view the fields in both tables at once



Both [tbleTracking] and [tblItems] contain the [ItemNo] field. As you know, in [tblItems], this is the primary key field. If a query were created, combining records from both these tables, the [ItemNo] of each record in [tbleTracking] would be matched to the record in [tblItems] containing the same [ItemNo]. In this way, Access would show which item had been borrowed on each occasion.

Primary key fields are used in all tables in this way, to provide a unique reference for each record.

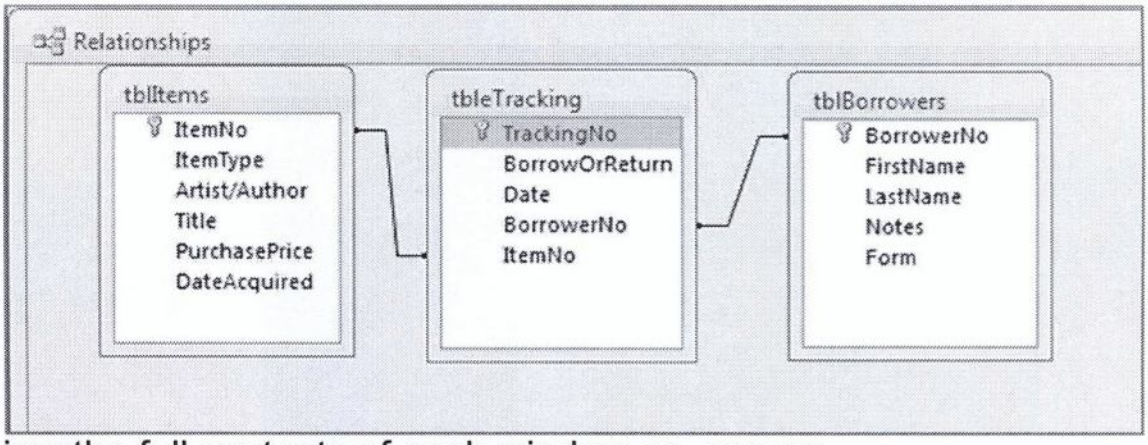
- [Close] both [tblTracking] and [tblItems]
  - To leave the right pane empty

Exercise 4 Relationships

This Exercise will look at how the primary keys within the tables have been used to create relationships between the fields.

- Ribbon [Database Tools] [Relationships] – click the [Relationships] button
  - To open the Relationships window in the right pane
  - To view the tables that are related in the database
  - To view the primary key field in each table
  - To view lines, showing how the primary key fields in [tblItems] and [tblBorrowers] link to the corresponding fields in [tblTracking]

- If necessary, resize each of the table windows



  - To view the full contents of each window on screen

[tblTracking] can, therefore, track which **borrower** has borrowed what **item**. Further details on the borrower can be obtained from the Borrower's table and further details on the Item can be obtained from the Items Table. Each field (such as borrower and item details) only needs to be entered into one table, and the information from that table can be linked by [tblTracking], to be used in queries – and, therefore, in forms and reports.

There are two important principles from the above to understand about relationships:

Understand that the main purpose of relating tables in a database is to minimise duplication of data

Understand that a relationship is built by matching a unique field in one table with a field in another table

Relationship types for linked tables

There are 3 different relationship types that can be created when fields are linked. They are as follows:

One-To-One	In a one-to-one relationship, each record in the first table can have only one matching record in the second table, and each record in the second table can have only one matching record in the first table. One-to-one relationships are not very common, because most information related in this way would be contained within one table.
One-To-Many	A one-to-many relationship is the most common type of relationship. In a one-to-many relationship, a record in the first table can have many matching records in the second table, but a record in the second table has only one matching record in the first table.
Many-To-Many	In a many-to-many relationship, a record in the first table can have many matching records in the second table, and a record in the second table can have many matching records in the first table.

Validity of relationships

Relationships between tables have to adhere to certain rules in order that they are valid. There are 3 main rules to consider when linking tables in Access:

The primary key field should be the linked field from the primary table (for example, [ItemNo] should be the linked field in the [tblItems] table). If it is necessary to use an alternative field , this field should have a unique index.
The linked fields should usually contain the same data type.
Both tables should be contained in Access databases that are currently open on screen when the links are created.

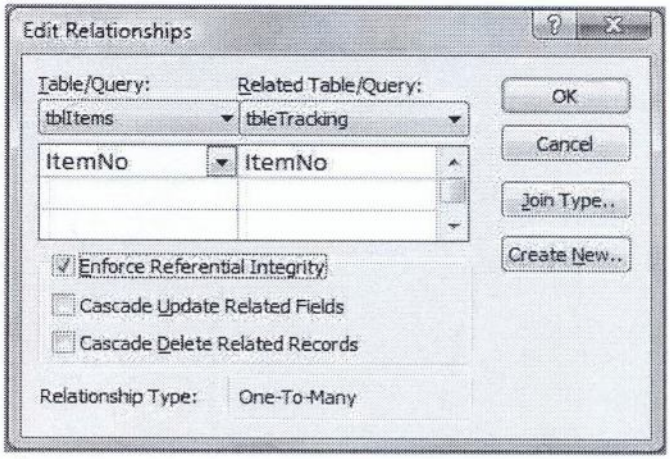
Understand the importance of maintaining the integrity of relationships between tables

It could cause problems if records from one table were deleted after they had been linked to records in another table. For example, if a borrower's record were deleted after that borrower had been entered into the [tblTracking] table as having borrowed an item, the [tblTracking] table would be invalid.

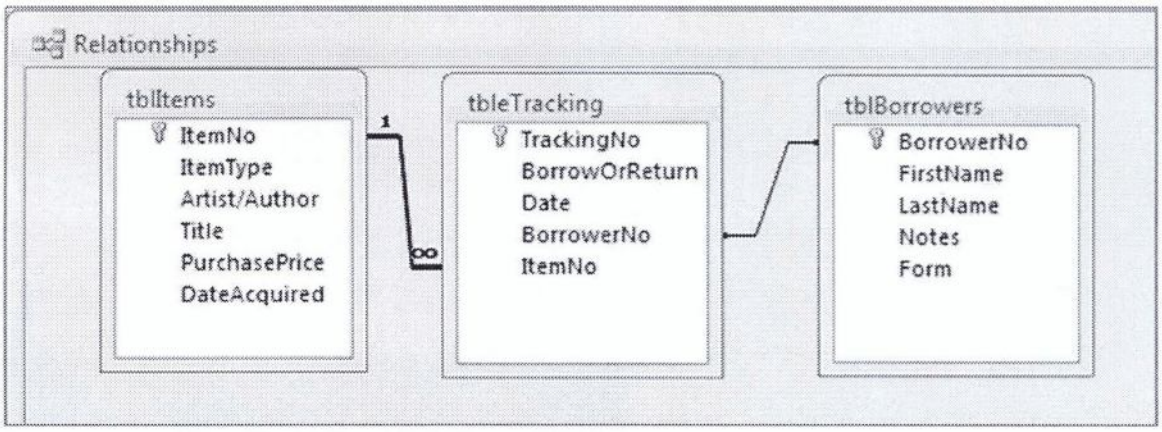
To ensure the validity of links, and to prevent linked records being deleted, "Referential Integrity" can be applied when creating relationships between tables. It sets the following rules for linked tables:

You cannot, for example, assign a non-existent borrower number to a tracked item (however, you can track an item without entering a borrower number in the record)
You cannot, for example, delete a borrower's record if that borrower has been entered in [tblTracking] as having borrowed an item
You cannot, for example, change a borrower's [BorrowerNo] if that borrower has been entered in [tblTracking] as having borrowed an item

- Double-click over the line linking [tblItems] with [tblTracking]
  - To open the Edit Relationships dialog box for this link
  - To view the One-to-Many relationship between the tables
- Tick the [Enforce Referential Integrity] field
  - To apply Referential Integrity to these tables

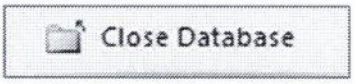


- [Close] the Edit Relationships dialog box
  - To see the relationship displayed on the line between the tables



- [Close] the Relationships window

- Ribbon [File] – click the [Close Database] button



  - To close the CoolCat database
  - To leave Access open at the New window, ready to create a new database in the next Exercise

Exercise 5 Design and plan a database

Before creating a database, the following should be considered:

- What is the purpose of the database?
- What detail do you want from it for information on screen or on printouts?
- What information are you going to put into it?
- How are you going to capture this information?

The answers to these questions will affect the structure of the database. You will need to plan:

- What tables you will need
- What fields to include
- What the fields will hold – numbers, letters, dates etc
- What will be the primary key field in each table
- How the tables will be linked
- What other database objects you need to design to achieve the required output; such as forms, queries and reports

Once you have decided what you need in your database, you then need to design the method of collecting the information, also known as data capture.

Some things to consider about data capture are:

- How to ensure information is accurate and relevant
- How to minimise duplication and error ("Garbage In, Garbage Out")

Access forms can be used on screen to capture data. The forms can guide people to enter the information required accurately; for example, by providing a drop down menu – with a list of options.

Alternatively, paper forms can be designed. The following is an example of a paper data capture form. It directs users to correctly enter information on paper so that it can be typed accurately into the database.

Application for CoolCat Membership	
First Name:	□□□□□□□□□□□□□□□□□□□□□□□□
Last Name:	□□□□□□□□□□□□□□□□□□□□□□□□
Form:	□□□□
Date of Birth:	□□/□□/□□□□
Parent/Guardian information:	First Name: □□□□□□□□□□□□□□□□□□□□ Surname: □□□□□□□□□□□□□□□□□□□□ Contact Number: □□□□□□□□ □□□□□□□

You are going to create a database of students with their hobbies.

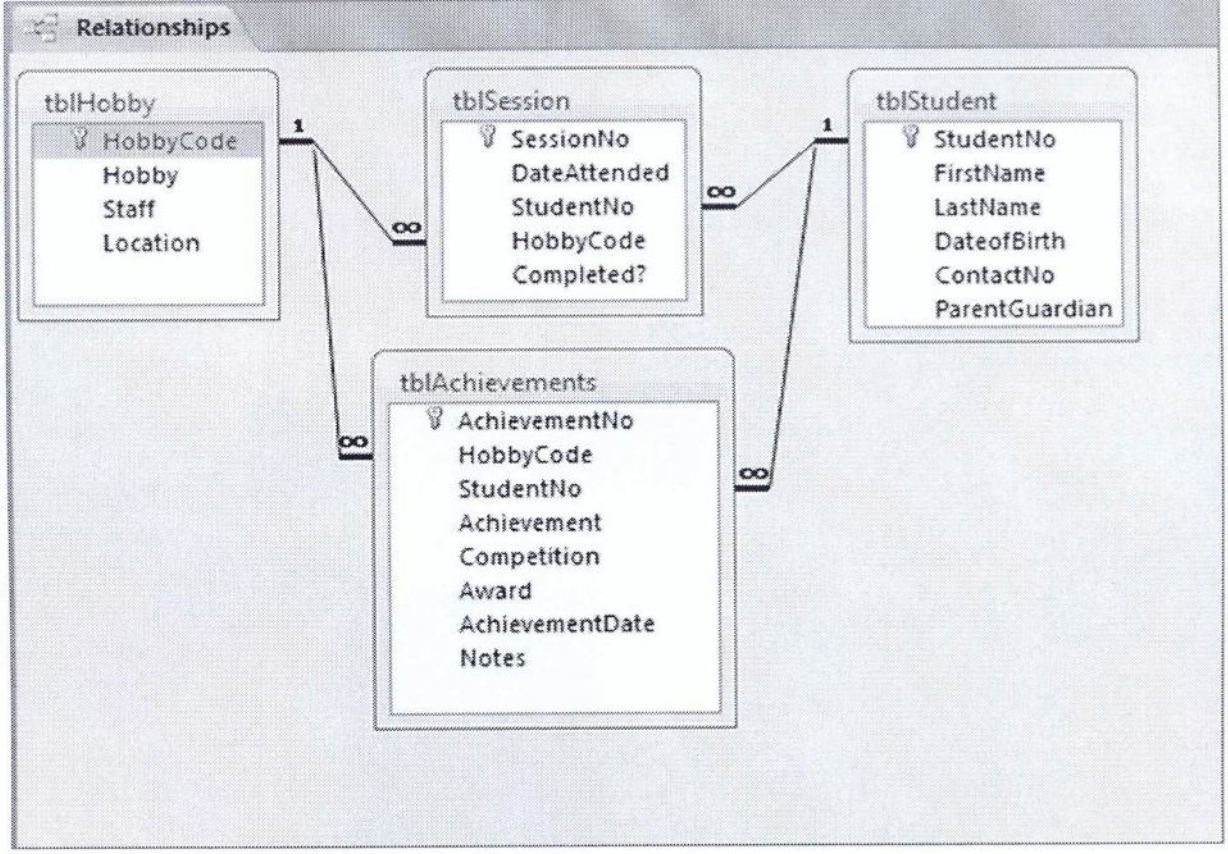
The purpose of this database is to:

- Produce a form on screen to track students and their attendance at their hobby sessions
- Produce a printout
- Produce a report listing students and sessions attended
- Record and report on student hobby achievements

There will be four tables:

- A table containing students' details, called [tblStudent]
- A table listing the hobbies available, called [tblHobby]
- A table listing hobby sessions, called [tblSession].
  This tracks which student does which hobby and their attendance at sessions of these hobbies *(one student can have more than one hobby)*
- A table listing achievements gained by the students who attend the different clubs, called [tblAchievements]

The four tables and their relationships will look as follows:



The [HobbyCode] Field

links *[**tblHobby**]* to *[**tblSession**] and [**tblAchievements**]*

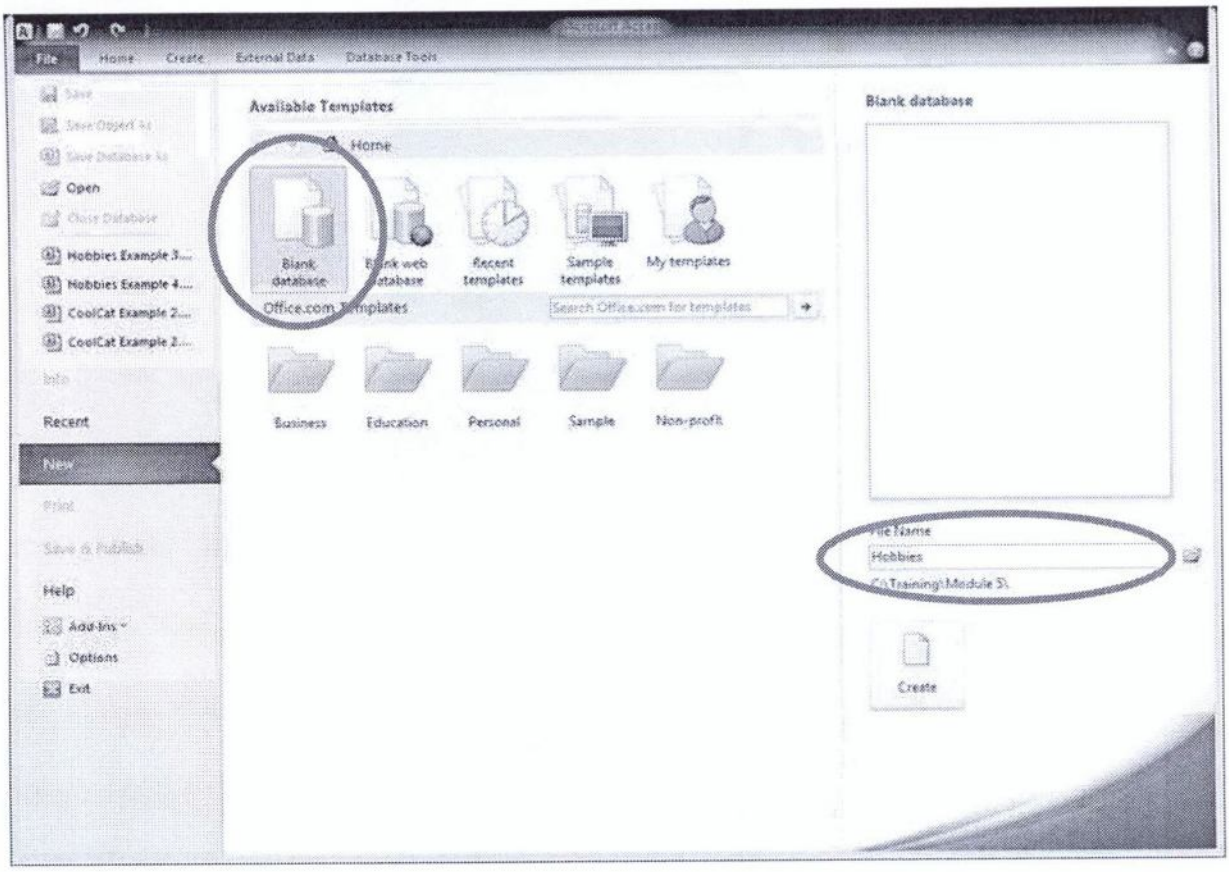
The [StudentNo] Field

links *[**tblStudent**]* to *[tblSession] and [**tblAchievements**]*

Exercise 6 Create a new database

This Exercise will create the Hobbies database, and save it to your filing system.

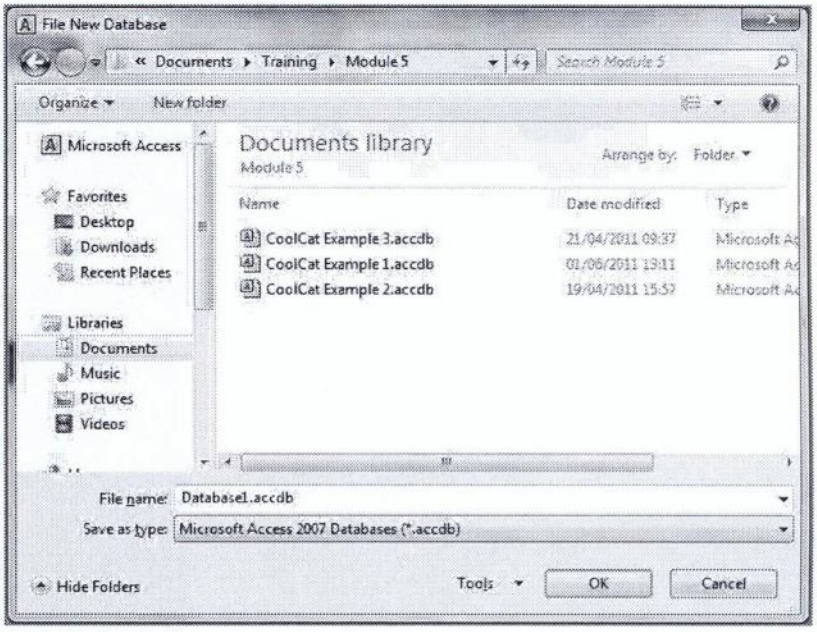
- In the AvailableTemplates section of the File window, click the [Blank Database] button
  - To view the Blank Database section at the right of the screen
- In the [File Name:] field, type "**Hobbies**"
  - To enter the name for the database



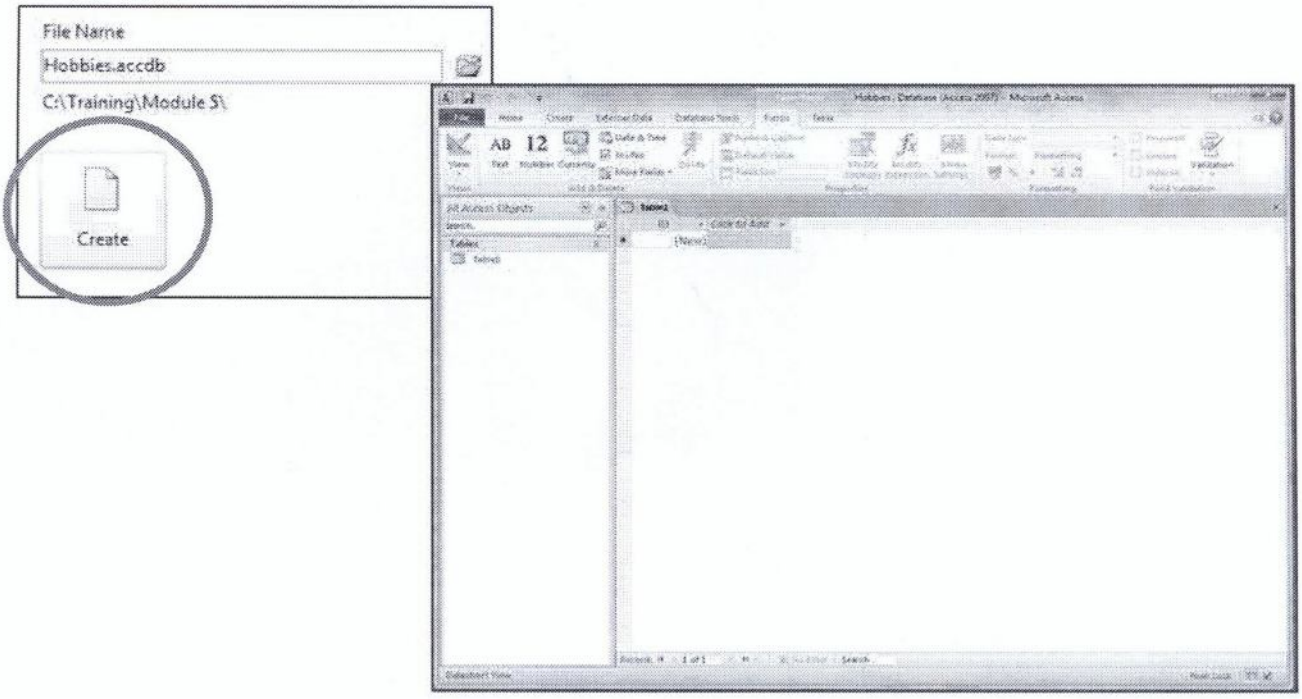
Save to a location on a drive

Underneath the [File Name:] field, is the location where the database will be filed by default. If you wish to file the database in a different location:

- Click the Folder icon to the right of the [File Name:] field
  - To open the File New Database dialog box
- Navigate through your filing system
  - To find the location in which you wish to file your database



- Click [OK]
  - To select this location and return to the File window
- Click [Create]
  - To create the database and save it to your selected location
  - To view a new, unsaved, empty table on screen



Exercise 7 Table design

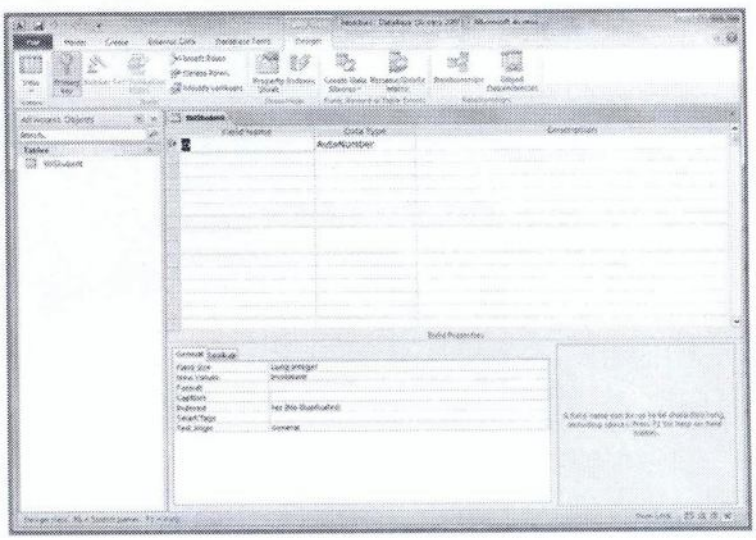
This Exercise will create the four tables for the database. You will specify field data types and field properties for each table, and will set primary keys and check the relationships between the tables, before entering records into each table. For the achievements table, you will create a validation rule, to specify in more detail what data can and cannot be entered into the field. You will also learn how to index fields in tables.

Create and name a table

The first table to be created is the Students table. This will contain name and contact details for each student, and will be created from the empty table displayed on screen, which is currently called [Table1]. The fields for the table will be entered in Design view.

[Table1] has not yet been saved to the database. Changing to Design view will automatically open a Save As dialog box, as it is not possible to change views without saving Objects.

- At the right of the Status Bar, click the [Design View] button 
  - To open the Save As dialog box
- Replace the name [Table1] with the name [tblStudent]
- Click [OK]
  - To rename and save the table
  - To change to Design view
  - To view 3 columns: [Field Name] [Data Type] and [Description]



Primary key field

A field called [ID] will have been created automatically. It will have a [Data Type] of [AutoNumber] and the left margin will contain a key, showing that it has been set as the primary key field.

The data type of [AutoNumber] means that each record entered in the table will automatically be given a new, unique number.

The primary key icon means that this will be the unique field used to identify each record that is entered in the table.

Rename a field

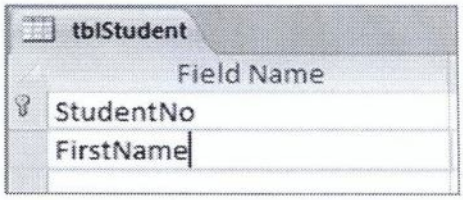
You will rename this field as [StudentNo], as this is a more meaningful name for the field in this table.

- Click the [ID] field and replace the word [ID] with [StudentNo]
  - To rename the field
  - To set the primary key field as [StudentNo]

Specify fields with their data types - text

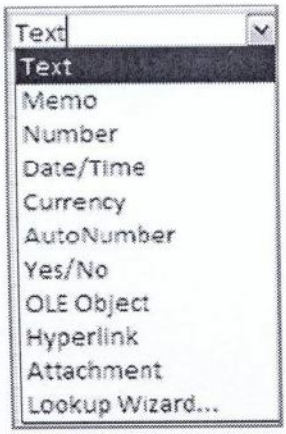
Fields will now be created to contain the students' first and last names, as well as a field for Parent/Guardian names. When the records are entered into the table, they should only contain text entries; therefore the data type for these fields will be set as [Text].

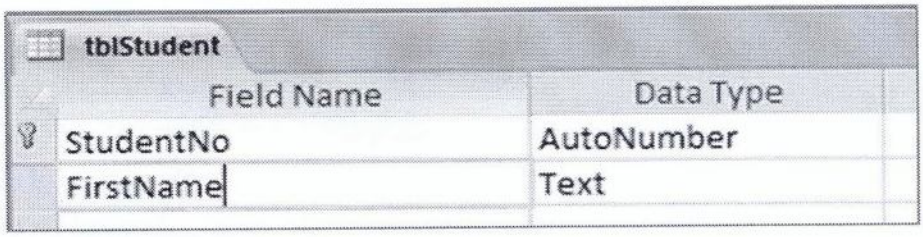
- In the [Field Name] column, click in the blank field below [StudentNo]
- Type "**FirstName**"
  - To create this field



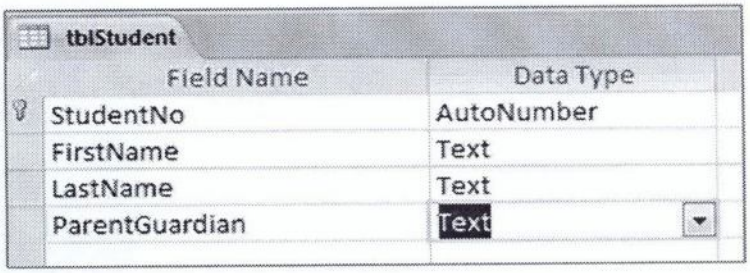
- Click the [Data Type] field
  - To insert the default data type into the field
- Click the drop down arrow to the right of the data field
  - To view the data types available

- Select [Text] from the available data types
  - To specify a data type of [Text] for the [StudentNo] field





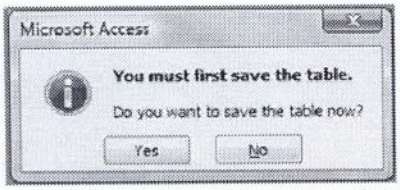
- In the row below [FirstName], add the [LastName] field - also with a data type of [Text]
- In the row below [LastName], add the [ParentGuardian] field – also with a data type of [Text]

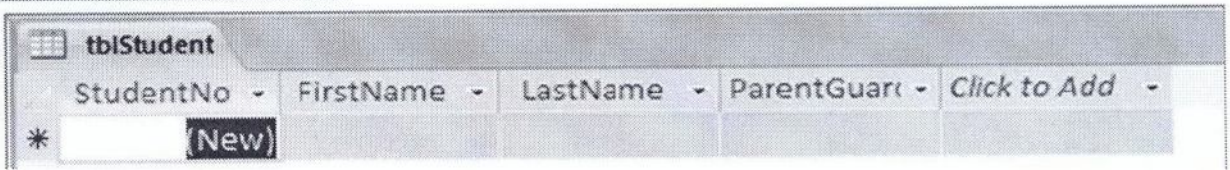


You will now change to Datasheet view, in order to see what the table currently looks like. Once again, you will be asked to save the table before changing view.

- On the Status bar, click the [Datasheet View] button
  - To open a dialog box, asking if you wish to save the table

- Select [Yes]
  - To save the table
  - To change to Datasheet view
  - To view one column for each of the fields you have created
  - To view an empty row, ready for the first record to be entered





Add a field to an existing table

You will now add 2 new fields to the table. These 2 fields will be inserted between the [LastName] field and the [Parent Guardian] field.

One will be a Date of Birth field. This will have a data type of [Date/Time].

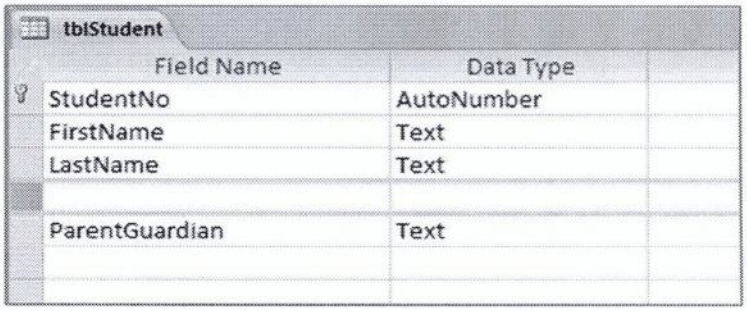
The other will be a Contact Number field. This will have a data type of [Text]. This will be a text field, because phone numbers are entered in a specific pattern that needs to be contained within a text field. You will learn about this pattern later in the Exercise.

Specify fields with their data types - date/time

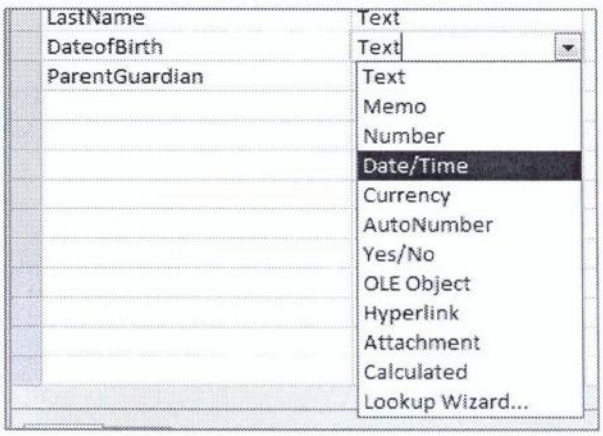
- Change to Design view

- Click in the margin to the left of the [ParentGuardian] row
  - To select this row 3
- Ribbon [Design] [Tools] – click the [Insert Rows] button

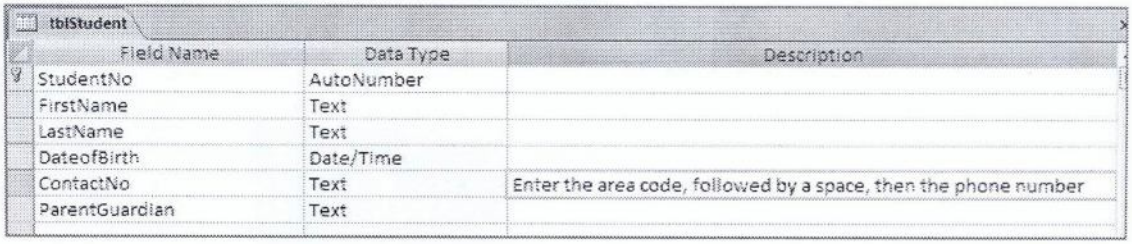
  - To insert a new row above the currently selected row



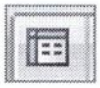
- Insert the field name [DateofBirth]
- Click the drop down arrow in the data type field and select [Date/Time]



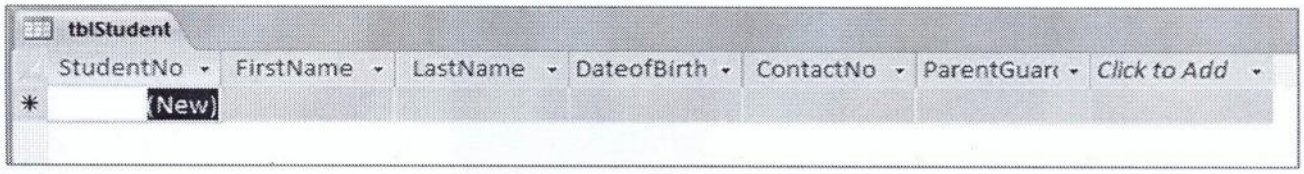
- Insert a row above the [ParentGuardian] field
- Insert the field name [ContactNo]
- Select the data type [Text]
- In the [Description] field, type "**Enter the area code, followed by a space, then the phone number**"
    - To help anyone entering information and using the database



- Change to Datasheet view



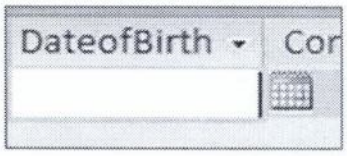
    - To view the updated table
    - *You will be asked to save the table whilst doing this*



Add records in a table

You will now enter the individual students' details into the table

- In the blank row beneath the column headings, click in the [FirstName] field and type "**Lynne**"
    - To enter the name in the [FirstName] field
    - To automatically enter the number 1 into the [StudentNo] field
- Press [Tab] or click in the [LastName] field and type "**Godwin**"
- Select the [DateofBirth] field for this record
    - To view a calendar icon to the right of the field



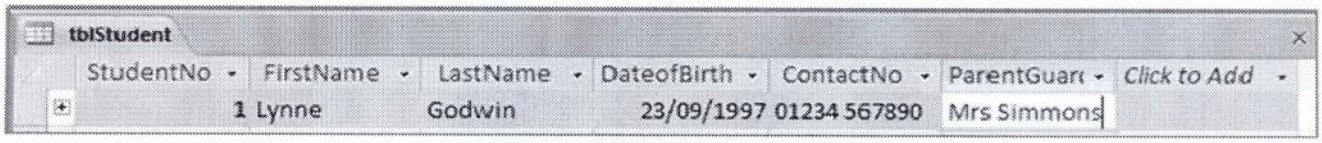
Either

- Type the date "**23/09/1997**" in the field

Or

- Click the calendar icon and use the arrows to the left of the month name
  - To move backwards through the months until you find the right date

    This could take a while, if you are going back for a few years!
- Leave the [ContactNo] field blank
- In the [ParentGuardian] field, type "**Mrs Simmons**"
  - To complete entry of this record



tblStudent

StudentNo	FirstName	LastName	DateofBirth	ContactNo	ParentGuar	Click to Add
1	Lynne	Godwin	23/09/1997	01234 567890	Mrs Simmons	

- Beginning in the empty (New) row below the current record, enter the details for the remaining students, as shown below.
- Ensure that you enter at least **5** records

tblStudent

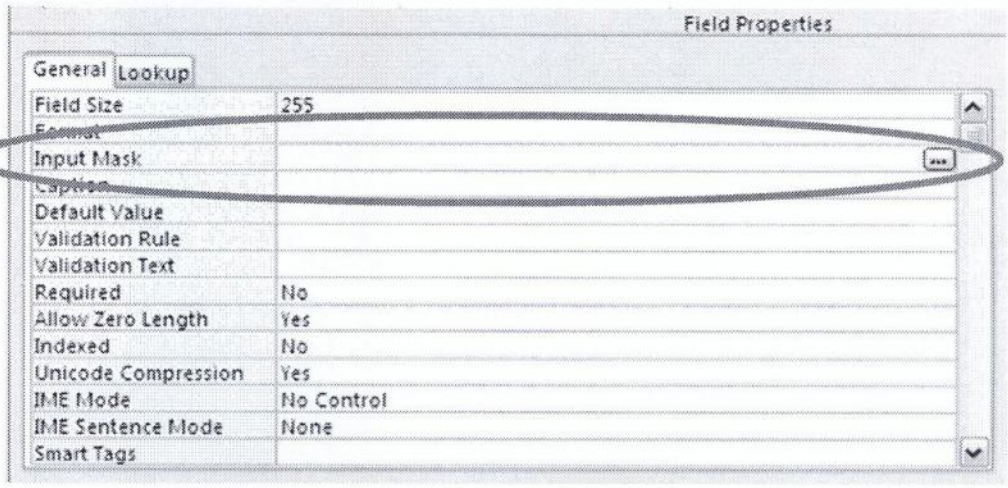
StudentNo	FirstName	LastName	DateofBirth	ContactNo	ParentGuar	Click to Add
1	Lynne	Godwin	23/09/1997	01234 567890	Mrs Simmons	
2	Ali	Haddad	04/05/1997	01234 987654	Mr Haddadd	
3	Alan	Hart	21/03/1998	01234 567845	Ms Hart	
4	John	Jones	02/04/1998	01234 873456	Mrs Jones	
5	Alicia	Martin	02/06/1998	07999 345453	Mr Martin	
6	Laila	Chauhan	03/08/1998	07322 045673	Mr Chauhan	
7	Alan	Clifford	22/03/1998	01234 567345	Mrs Clifford	
8	Maria	Edwards	18/10/1997	01234 567893	Mrs Jolly	
9	Omar	Jaradat	17/09/1997	01234 987334	Mr Jaradat	
10	Martin	Jones	30/04/1998	07989 677442	Mr Jones	
11	Peter	Smith	31/05/1998	01234 567019	Mrs Smith	
12	Mona	Tamimi	22/08/1998	01234 987233	Mr Tamimi	
13	Karim	Al Qaisi	01/11/1997	01234 345887	Mr Al Qaisi	
14	Alice	Richards	28/02/1998	01234 567836	Mr Richards	
15	Alison	Smith	15/11/1997	07322 038626	Mr Smith	
16	Mark	White	12/05/1998	01234 987385	Mrs White	
(New)						

Amend the pattern for data to be entered into a field

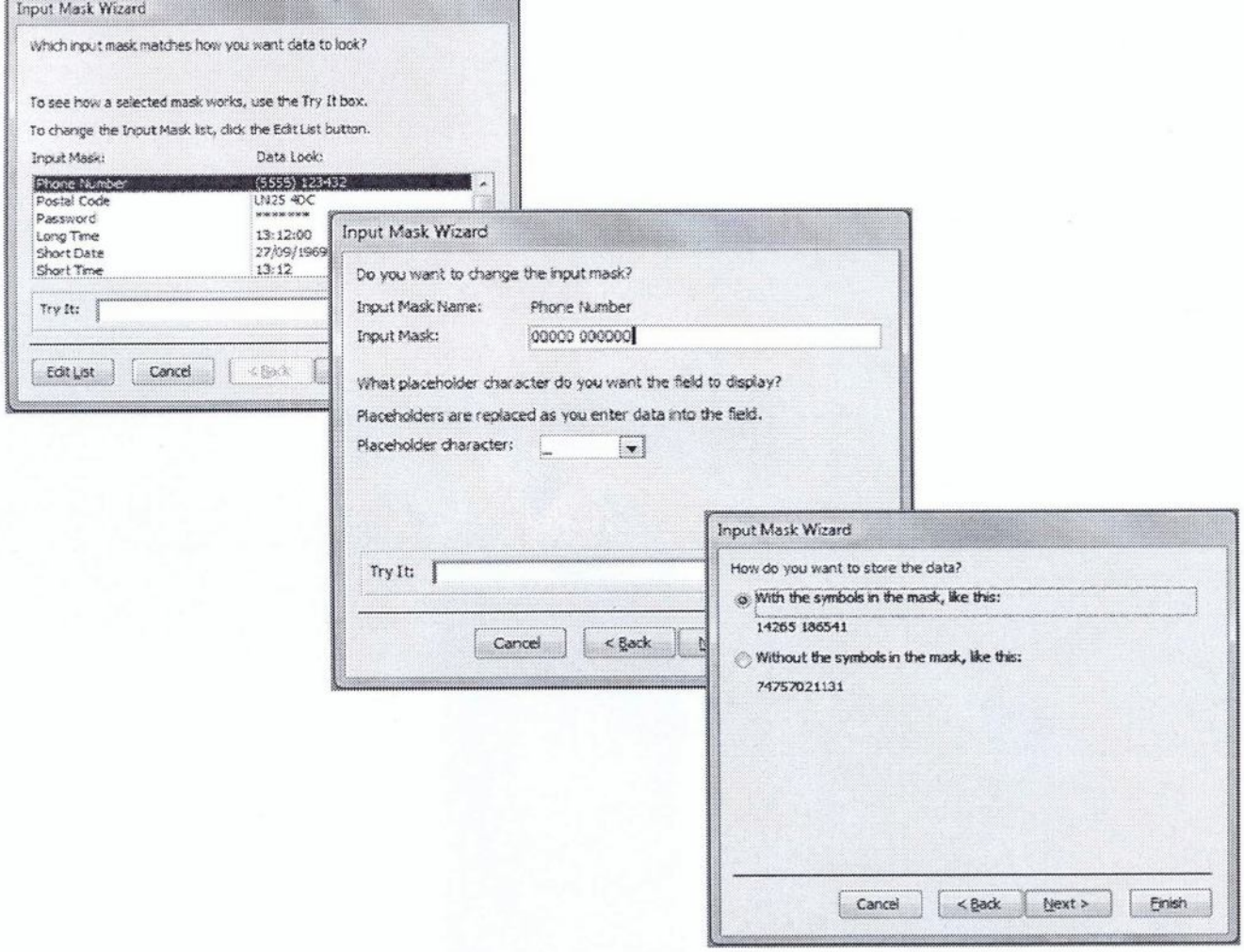
The [ContactNo] field needs to contain a phone number. You will amend the Field Properties for this field, to specify that any entries made in this field for any record must be in a particular phone number format

- Change to Design view

- Click the [Data Type] field for the [ContactNo] row
- In the [Field Properties] section at the bottom of the screen, click the right column of [Input Mask] field
    - To view a selection icon to the right of the field



- Click the icon to the right of the field
    - To open the Input Mask wizard
- Select [Phone Number] and click [Next]
- In the [Input Mask:] field, replace the current entry with "**00000 000000**"
    - This indicates that entries in this field should contain 5 numbers, followed by a space, followed by 6 numbers
- In the [Try It:] field, enter a phone number, in the format specified above, to check that your input mask is correct
- Click [Next]
- Select to store the data [With the symbols in the mask]
- Click [Finish]
    - To store the input mask for this field



- Change to Datasheet view, saving the table as you do so

- Enter phone numbers into the [ContactNo] column, as shown below
  - The numbers will have to follow the format of the input mask

ContactNo	ParentGuar
01234 567890	Mrs Simmons
01234 987654	Mr Haddadd
01234 567845	Ms Hart
01234 873456	Mrs Jones
07999 345453	Mr Martin
07322 045673	Mr Chauhan
01234 567345	Mrs Clifford
01234 567893	Mrs Jolly
01234 987334	Mr Jaradat
07989 677442	Mr Jones
01234 567019	Mrs Smith
01234 987233	Mr Tamimi
01234 345887	Mr Al Qaisi
01234 567836	Mr Richards
07322 038626	Mr Smith
01234 987385	Mrs White

Create a table

You will now create the Hobby table.

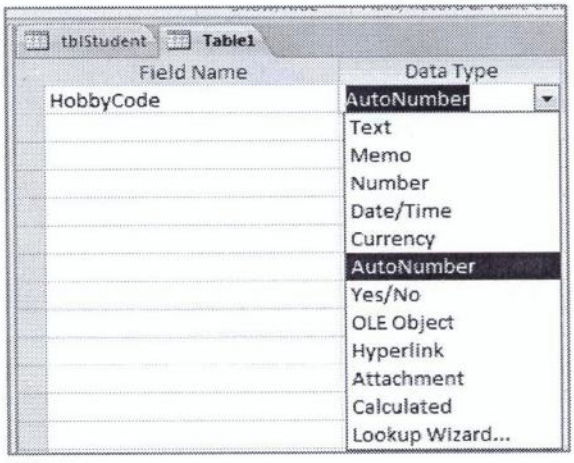
- Ribbon [Create] [Tables] – click the [Table Design] button
  - To create a new table in front of the [tblStudent] table in the right pane

    This table will either be in a tabbed document, with the tab showing to the right of the [tblStudent] table, or will be in an overlapping window, depending on the settings for your copy of Access
  - The table will open in Design view

Enter fields

The first field to be added is the Hobby Code field, which will be an AutoNumber field, so that the code numbers will be automatically incremented when new hobbies are entered.

- In the first row of the table, type "**HobbyCode**" in the [Field Name] column
- Select the [Data Type] field for this row and click the drop down arrow
- Select [AutoNumber] from the drop down list



- Enter the following text fields beneath the [HobbyCode] field

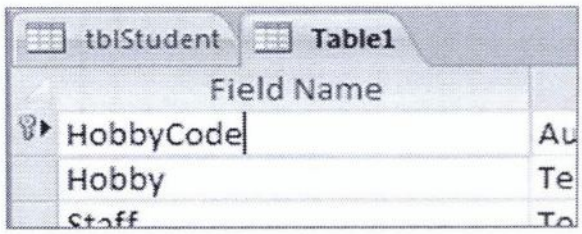
Field Name	Data Type
HobbyCode	AutoNumber
Hobby	Text
Staff	Text
Location	Text

Set a field as a primary key

The [HobbyCode] field will be the primary key field for this table.

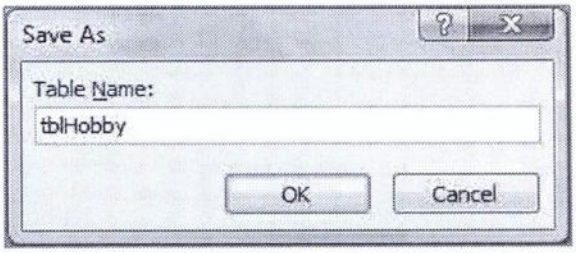
- Click somewhere in the [HobbyCode] row
  - To select this field
- Ribbon [Design] [Tools] – click the [Primary Key] button

  - To add the primary key icon in the left margin of the row
  - To make the [HobbyCode] field the primary key field for the table



Add records in a table

- Change to Datasheet view, saving the table as [tblHobby] as you do so



- Add the following records to the table

  Don't forget that the [HobbyCode] numbers will be automatically inserted as you create each record!

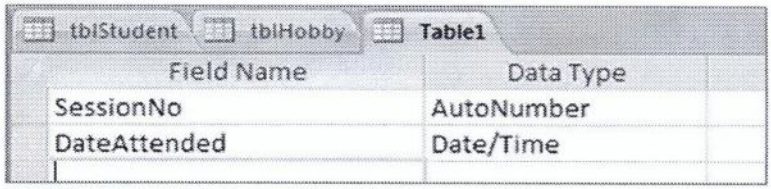
tblStudent | **tblHobby**

HobbyCode	Hobby	Staff	Location	*Click to Add*
1	Football	FI	Sports Centre	
2	Swimming	WA	Sports Centre	
3	Dance	SM	Youth Centre	
4	Canoeing	RI	Sports Centre	
5	Chess	WJ	School Hall	
6	Art	FX	School Hall	
7	Music	FA	School Hall	
8	Computer	DR	School Hall	
9	Cricket	WA	Sports Centre	
10	Basketball	FI	Sports Centre	
*	(New)			

Create a table and enter fields

This will create the Session table and enter the first 2 fields into the table.

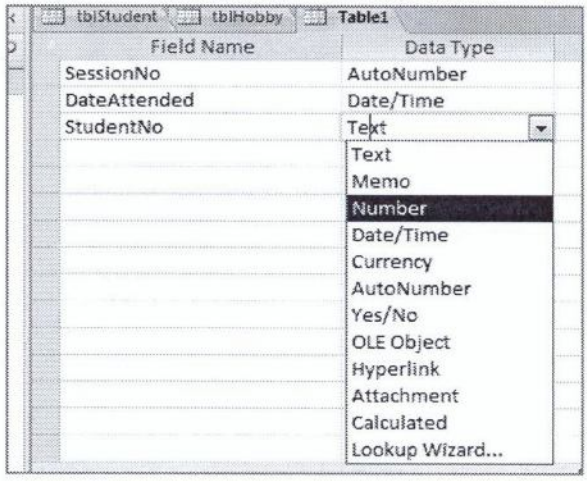
- Ribbon [Create] [Tables] – click the [Table Design] button
  - To create a new table in Design view
- Enter the first 2 fields, as shown below



Specify fields with their data types - number

The next 2 fields will be the Student Number and Hobby Code fields. These will both have a data type of [Number].

- In the next blank row, type "**StudentNo**" in the [Field Name] column
- Select the [Data Type] field for this row, and click the drop down arrow
- Select [Number] from the drop down list

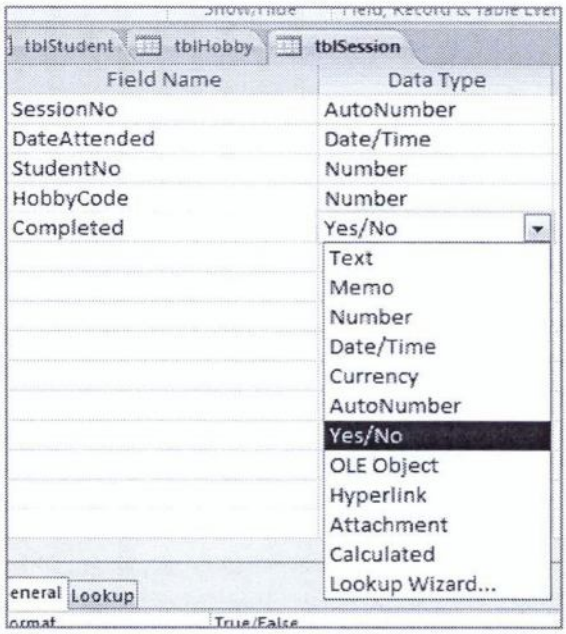


- In the next blank row, type "**HobbyCode**" in the [Field Name] column
- Select a [Data Type] of [Number] for this field

Specify fields with their data types – yes/no

The final field in this table will show which students completed each session. This field will contain a check box that can be ticked for each student who has completed a session when the records are entered. This is achieved using a data type of [Yes/No].

- In the next blank row, type "**Completed?**" in the [Field name] column
- Select the [Data Type] field and click the drop down arrow
- Select [Yes/No] from the drop down list



- Click somewhere in the [SessionNo] row
- Ribbon [Design] [Tools] – click the [Primary Key] button
  - To make the [SessionNo] field the primary key field in the table

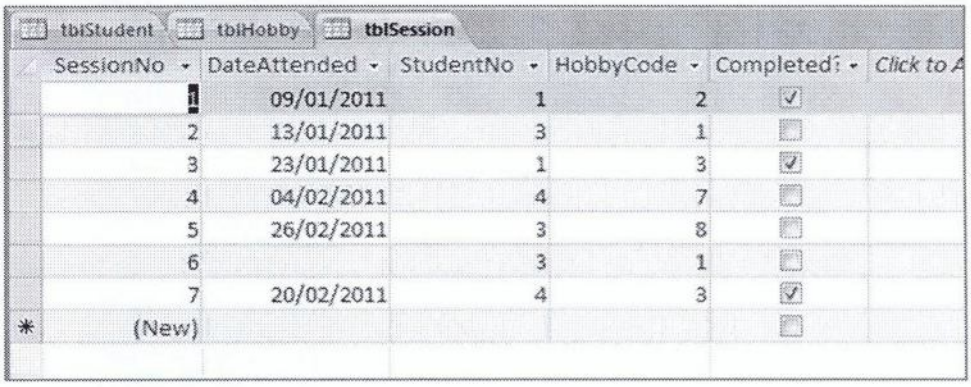
Understand consequences of changing data types in a table

You should be aware that, although it is possible to change the data type for a field at any time, this could cause problems once you have entered records into a table, as the new data type may not be suitable for the entries you have already made into the field. This is one of the reasons why planning a database fully, before beginning to create it, is so important.

Add records in a table

- Change to Datasheet view, saving the table as [tblSession] as you do so

- Add the following records to the table
  Don't forget that the [SessionNo] numbers will be automatically inserted as you create each record!

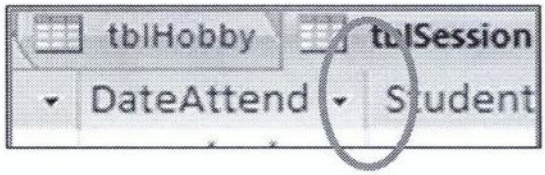


SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	Click to A
1	09/01/2011	1	2	☑	
2	13/01/2011	3	1	☐	
3	23/01/2011	1	3	☑	
4	04/02/2011	4	7	☐	
5	26/02/2011	3	8	☐	
6		3	1	☐	
7	20/02/2011	4	3	☑	
*	(New)			☐	

Change width of columns in a table

You will see that the [DateAttended] field and the [Completed?] field are not wide enough to view the headings properly. You will amend the width of these 2 fields.

- Move the pointer to the right of the [DateAttended] column heading
  - The pointer will become a double-headed arrow
- Click and drag the pointer slightly to the right
  - To make the column wider



- Double click to the right of the [Completed?] field header
  - To amend the column width to exactly fit the widest entry

Apply field property settings

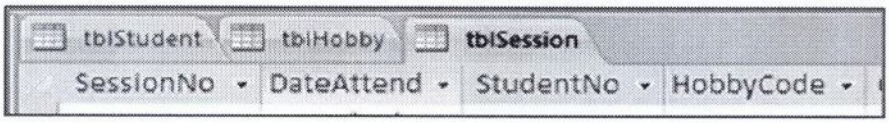
There is a default format for each field, which is applied when the field is created. This format can be amended for any field, if required.

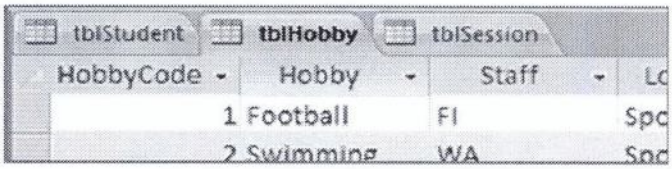
You will now amend the field property settings for some of the fields in the [tblsession] table and the [tblHobby] table. This will adjust properties such as field size, number format, date/time format and default values to be used when entering records into the table.

The first property you will change is in the [tblHobby] table, so you will switch to the [tblHobby] table. The procedure to do this depends upon whether your table windows are tabbed or overlapped in the right pane.

If the windows are tabbed:

- Click the [tblHobby] tab
    - To bring this table to the front





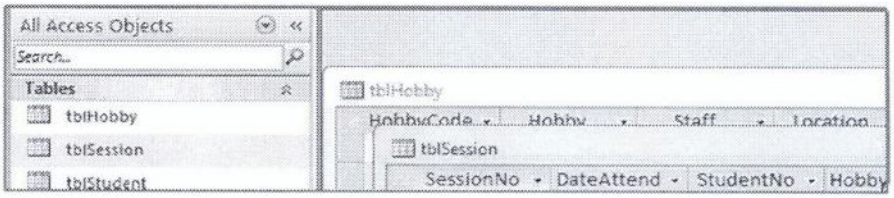
If the windows are overlapped:

Either

- If you can see the Title bar of the [tblHobby] table, click it

Or

- If you cannot see the Title bar, double click the table name in the navigation pane
    - To bring this table to the front

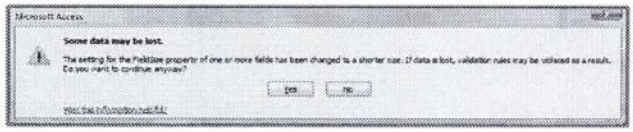


Field size

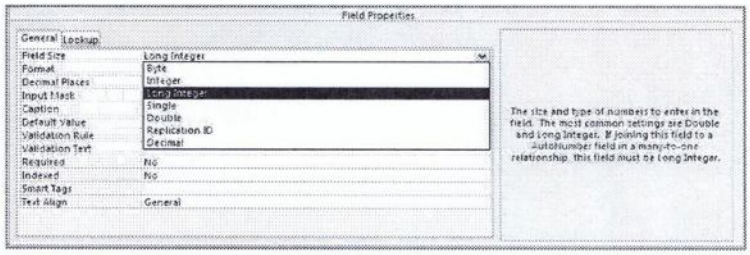
Changing the field size has different options and effects for text and number fields. You will change the field size of the [Staff] field in the [tblHobby] table (a text field), and will look at the field size options available for the [StudentNo] field (a number field).

- Change to Design view
- Select the [Staff] row
- In the Field Properties section, change the [Field Size] field to "**2**"
    - To specify that the maximum number of characters that can be entered in the field for any record is 2

- Change to Datasheet view
    - You may see a message warning of the effect the shorter Field size may have on data already in the database
- If you see the message, click [Yes]
    - To save the change



- Switch back to the [tblSession] table
- Change to Design view
- Select the [StudentNo] row
- In the Field Properties section, select the [Field Size] field and click the drop down arrow
    - To see the different field size options for Number fields

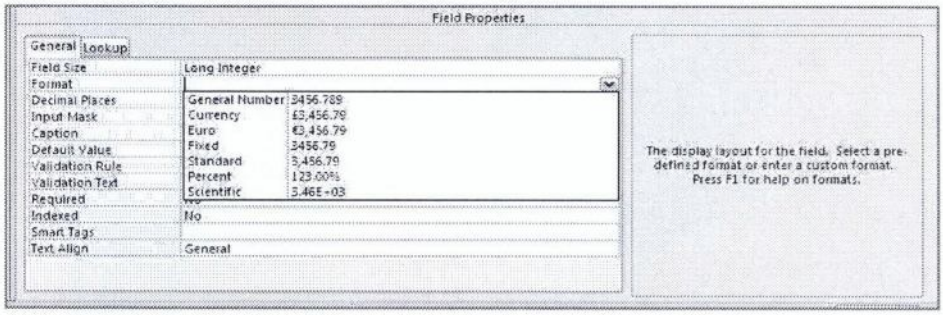


You will see from the text to the right of the Field Properties section, that there are restrictions on the type of size format you can select if a number field is going to be related to fields in other tables in the database.

Number format

There are various number formats available. You will look at these for the [StudentNo] field.

- Select the [StudentNo] field
- In the Field Properties section at the bottom of the screen, click the [Format] field
  - To view the drop down arrow to the right of the field
- Click the drop down arrow
  - To view the number formats available
  - To see that you could select a general number format, currency, fixed formats, scientific, with or without commas and decimal places, percentages and scientific formats



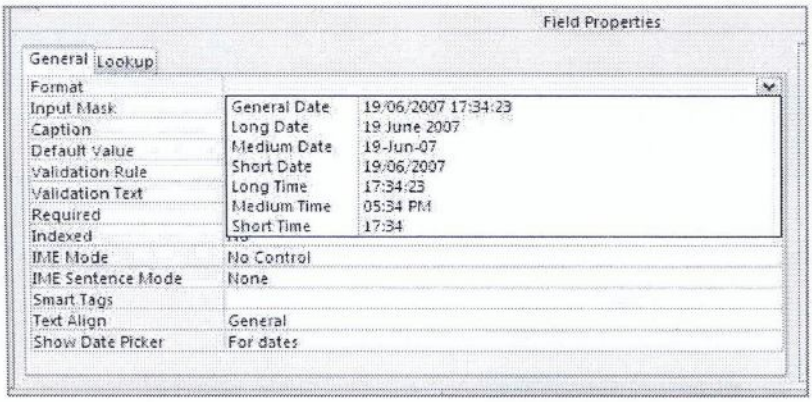
- You do not need to change the number format for this, or any other field in the database, therefore click the drop down arrow to the right of the [Format] field again
  - To close the drop down list without making any changes

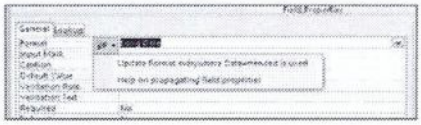
Date/time format

You will change the date/time formats available in the [DateAttended] field.

- Select the [DateAttended] field
- In the Field Properties section, select the [Format] field and click the drop down arrow
  - To view the date/time format options
- Select either [Long Date] or [Short Date]
  - If you have selected a different date format, you will see an icon to the left of the [Format] field

- Click the icon
  - To see an option to update the date format everywhere the [DateAttended] field is used
- Select [Update Format everywhere DateAttended is used]





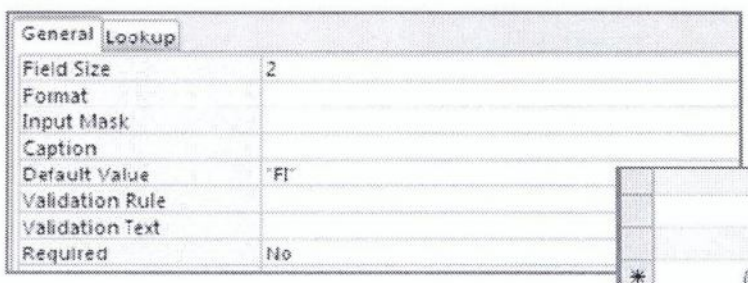
Default value

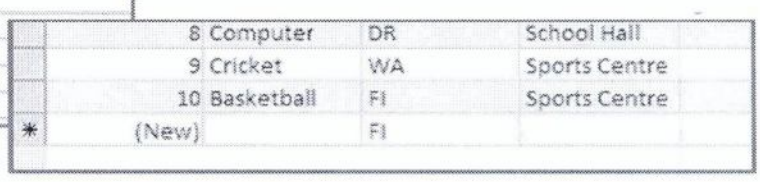
It is possible to specify a value that is automatically entered into a field for each record that is created. This value can be changed for any individual record, but, if one value is used for most records, it can save time to have this value as the default.

You will enter a default value into the [Staff] field of the [tblHobby] table.

- Switch to the [tblHobby] table
- Change to Design view

- Select the [Staff] field
- In the Field Properties section, type "**FI**" in the [Default Value] field, then click in the [Staff] field again
  - To view quotation marks around the default value you have entered
- Change to Datasheet view, saving the table as you do so
  - To see the default value entered into the (New) record at the bottom of the [tblHobby] table





	8	Computer	DR	School Hall
	9	Cricket	WA	Sports Centre
	10	Basketball	FI	Sports Centre
*	(New)		FI	

Understand consequences of changing field properties in a table

As you may have seen when you changed the field size of the [Staff] field in the [tblHobby] table, you should be aware that changing field properties in a table could cause problems once you have entered records into the table. For example, if you change a field size to a smaller value or a number format to a smaller number of fixed places than is already contained within records in the table, existing data in these records may be truncated. It can also cause problems with validation rules.

Create a table and enter fields

This will create the Achievements table and enter the fields into the table.

- Ribbon [Create] [Tables] – click the [Table Design] button
  - To create a new table in Design view
- Enter the fields, as shown below

tblStudent | tblHobby | tblSession | Table1

Field Name	Data Type	Description
AchievementNo	AutoNumber	
HobbyCode	Number	
StudentNo	Number	
Achievement	Text	Attendance, Performance, Effort
Competition	Text	Form, Year or School Matches, One-off Competitions
Award	Text	Certificate, Medal, Trophy, for example
AchievementDate	Date/Time	
Notes	Memo	

The [Notes] field has a data type of [Memo]. This is a long text field that can be used for comments and notes.

- Select the [AchievementNo] field
- Ribbon [Design] [Tools] – click the [Primary Key] button
  - To make [AchievementNo] the primary key field for this table

Create a validation rule

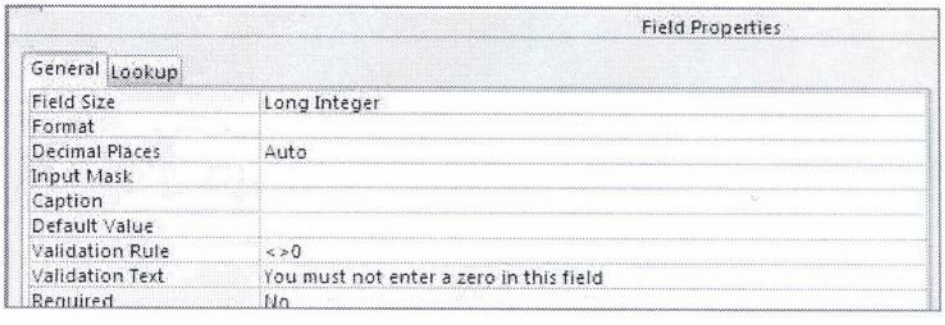
When you are setting up your table, as well as specifying the data type for each field, it is also possible to be more specific about what exactly can be entered into the field. This is done by entering "validation rules" into the Field Properties section for any field.

Number

You will create a number validation rule for the [StudentNo] field in the [tblAchievements] table,. This rule will specify that the value "0" (zero) cannot be entered into this field. The following are some examples of number validation rules that can be used:

Validation Rule	Meaning
<>0	Enter a nonzero value
>=10	Value must be 10 or greater
<10	Value must be less than 10
0 or >100	Value must be either 0 or greater than 100

- Select the [StudentNo] row
- In the Field Properties section type"**<>0**" in the [Validation Rule] field
  - To specify that any entries made in the [StudentNo] field for any record should not be zero
- In the [Validation Text] field, type "**You must not enter a zero in this field**"
  - This error message will appear when a zero is put into the [StudentNo] field for any record



Currency

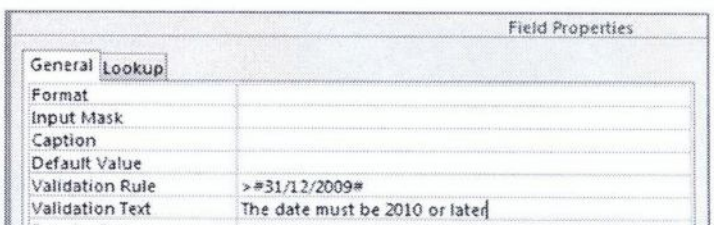
When working with a currency field, the normal numeric validation rules apply; for example, the amount must be below or above a certain sum. The currency symbol and number of decimal places to display are automatically inserted from the settings selected in the [Format] and [Decimal Places] fields and, if these are incorrectly entered, Access will create an error message, therefore it is not necessary to enter specific validation rules for these.

Date/time

You will enter a date validation rule for the [AchievementDate] field. This will specify that dates entered in this field must be later than 2009. You can see from the examples below that dates in validation rules are enclosed in hash signs (#). These hash signs are inserted automatically by Access, and do not have to be manually input.

Validation Rule	Meaning
<#1/1/2009#	Enter a date before 2009
>=#01/01/2009# And <#01/01/20010#	Date must occur in 2009
<Date()	Date cannot be in the future
>=Int(Now())	Enter today's date

- Select the [AchievementDate] field
- In the Field Properties section type"**> 31/12/2009**" in the [Validation Rule] field
    - To specify that any entries made in the [AchievementDate] field for any record should be 2010 or later
- Click in the [Validation Text] field
    - To see the hash signs inserted in the [AchievementDate] field
- In the [Validation Text] field, type "**The date must be 2010 or later**"
    - This error message will appear when a date earlier than 2010 is put into the [AchievementDate] field for any record



- Switch to Datasheet view, saving the table as [tblAchievements] as you do so

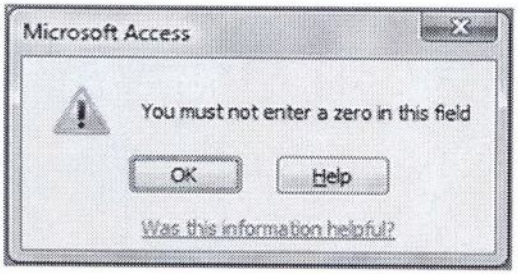
- Enter the following records into the table

  If you did not enter all the student records when you created the [tblStudent] table earlier, ensure that you only include in the [StudentNo] field numbers for students that do exist in [tblStudent]

tblStudent | tblHobby | tblSession | tblAchievements

AchievementNo	HobbyCode	StudentNo	Achievement	Competition	Award	AchievementDate
1	2	2	Performance		Bronze Medal	01/06/2010
2	1	3	Competition	Year 10 annual	Form Cup	04/04/2010
3	3	1	Effort	Year 9	Certificate	03/03/2010
4	8	6	Competition	Poster Competition	Certificate	10/01/2011
5	7	11	Competition	Musician of the Year	Trophy	01/01/2011
6	4	6	Competition	Annual Canoe Race	Cup	
7	2	8	Performance	100m Crawl Record	Medal	
(New)						

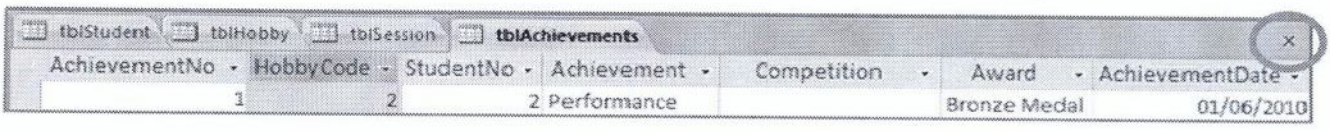
- You may wish to change the width of some the columns
  - To view the entries in all fields in full
- Put a zero in one of the [StudentNo] fields and a date before 2010 in one of the [AchievementDate] fields
  - To view the error messages for these fields
- Change these fields to valid entries
  - To be able to carry on entering data in records in the table



Close tables

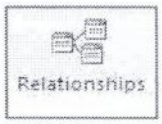
- Click the [Close] button to the right of the window tabs
  - You may view a message about saving changes to the table

- If relevant, select to save the changes
  - To save and close the [tblAchievements] window
- In turn, save and close the remaining tables
  - To leave the right pane empty

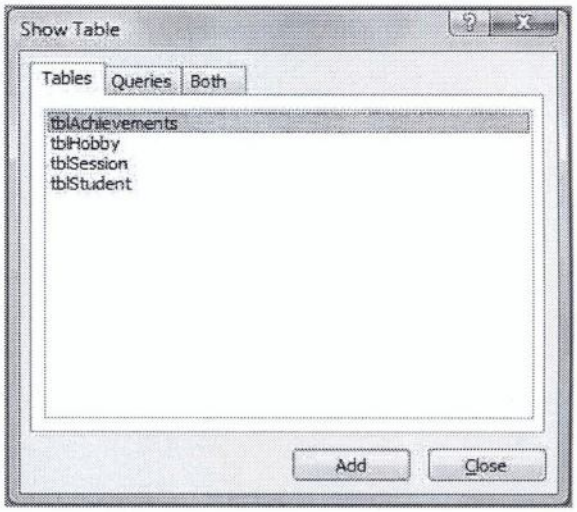


Create relationships

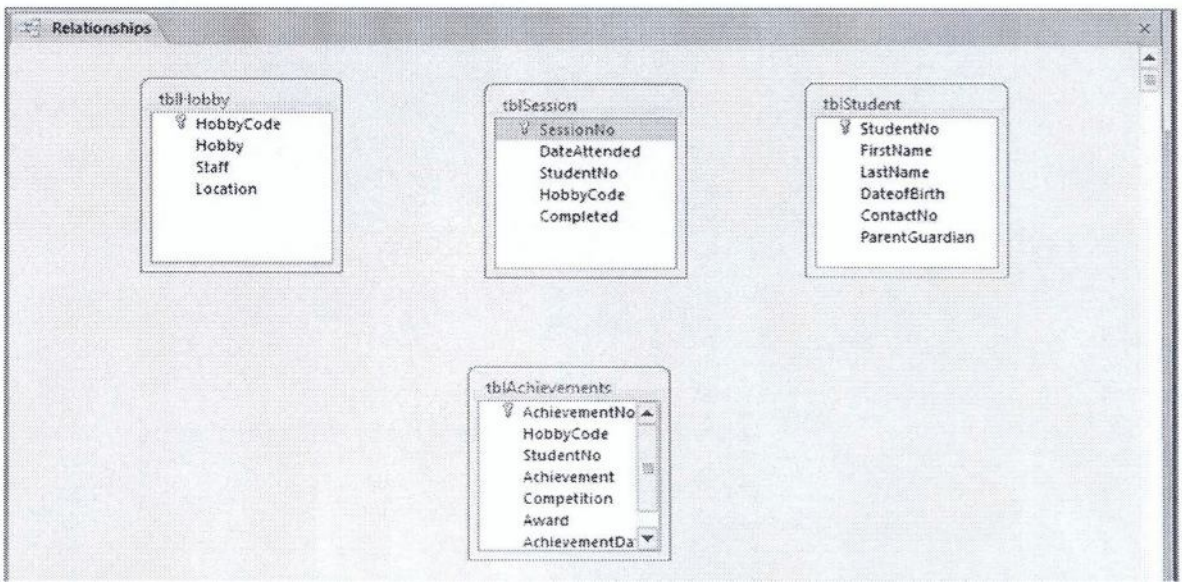
You will now create the relationships between the tables. These will be One-To-Many relationships, as the primary key field in each table can be linked to many records in the related tables.



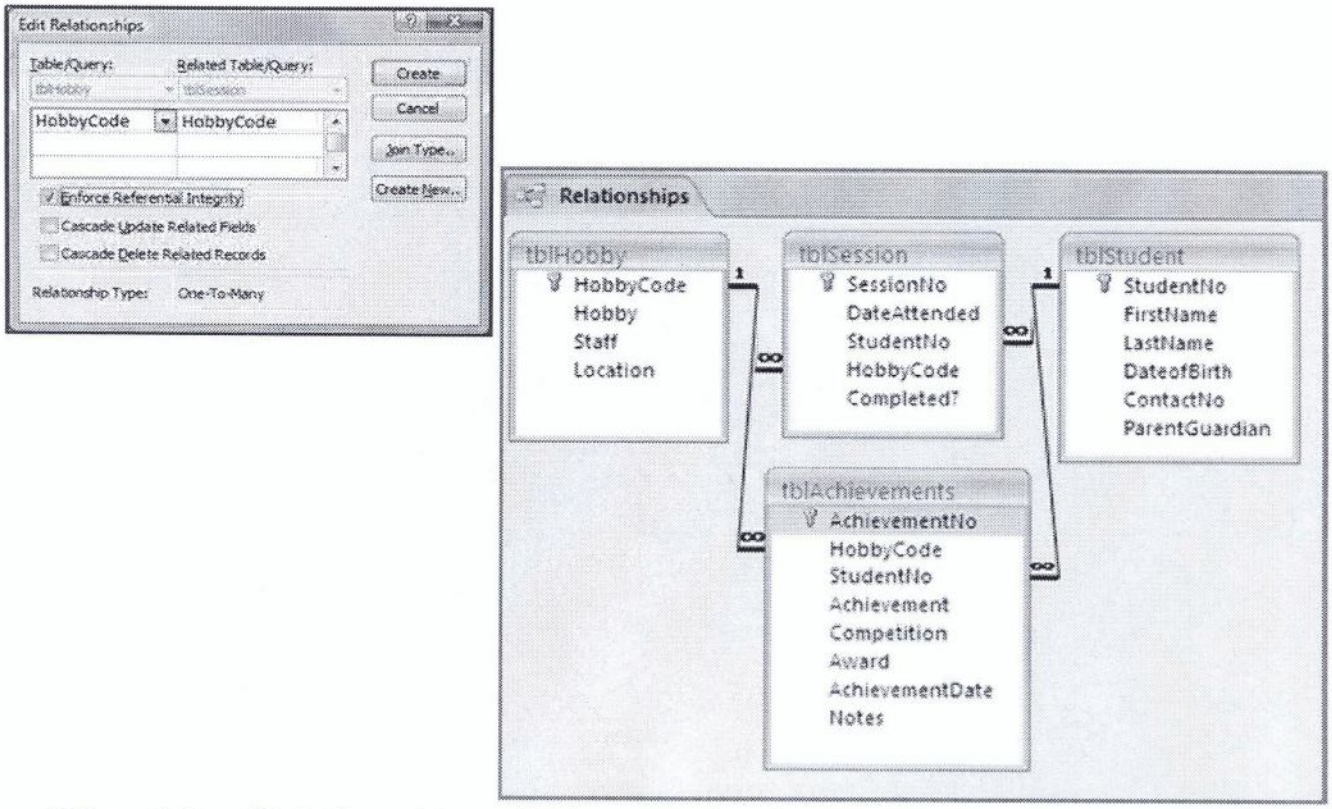
- Ribbon [Database Tools] [Relationships] – click the [Relationships] button
  - To open a [Relationships] window
- Ribbon [Design] [Relationships] – click the [Show Table] button
  - To view the Show Table dialog box



- In the Show Table dialog box, select each of the tables in turn and [Add] them to the Relationships window
- [Close] the Show Table dialog box
- Arrange the tables on the screen as shown below
  - To make it easier to draw lines between the related fields in the table



- Click the [HobbyCode] field in the [tblHobby] table and drag the pointer to the [HobbyCode] field in the [tblSession] table
  - To open the Edit Relationships dialog box
  - [tblHobby] will be shown on the left
  - [tblSession] will be shown on the right
  - The [Relationship Type:] will be [One-To-Many]
- Click the [Enforce Referential Integrity] button
  - To ensure that changes cannot be made to records in either of the tables that would affect records in the other table
- Click [Create]
  - To create the relationship between the 2 tables
  - To create a line between the 2 tables in the Relationships window, showing that ***one*** row in [tblHobby] can match with ***many*** rows in [tblSession]
- Create the same relationship between the [StudentNo] fields in the [tblStudent] and the [tblSession] tables
- Create the same relationship between the [HobbyCode] fields in the [tblHobby] and the [tblAchievements] tables
- Create the same relationship between the [StudentNo] fields in the [tblStudent] and the [tblAchievements] tables



- [Close] the Relationships window, saving it as you do so

Exercise 8 Understand what an index is

Fields can be 'indexed'. If a field is indexed within a table, finding and sorting the data within that field will be faster when you are manipulating the database. It is therefore a good idea to index those fields on which you are likely to sort your records regularly. Only fields that will need to be queried frequently should be indexed, as each index takes up space on your disk and can slow down use of the database. The primary key field is automatically made an index field by Access.

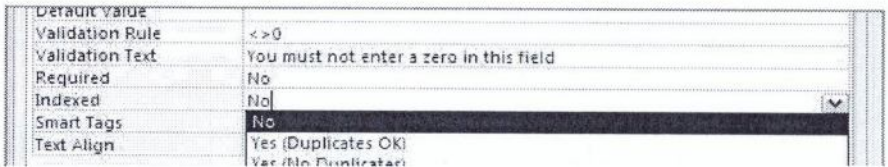
Fields can be indexed with or without duplicates being allowed. 'No Duplicates' means that when records are entered into the table, duplicate values are not allowed in the field. 'Duplicates OK' means that the same value can be entered into as many records as required in that field.

Index a field

This will index the [StudentNo] and [AchievementDate] fields in the [tblAchievements] table, as they will regularly be used to sort the records in the Achievement table.

- In the navigation pane, double-click the [tblAchievements] table
  - To open this table in the right pane
- Change to Design view

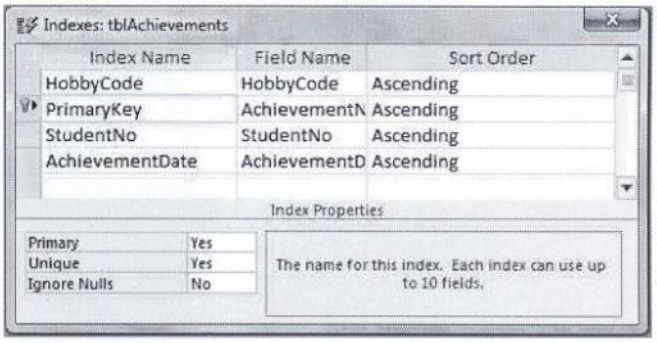
- Select the [StudentNo] field
- In the Field Properties section, select the [Indexed] field
- Click the drop down arrow to the right of the field
  - To view the Indexing options
- Select [Yes (Duplicates OK)]
  - To index the field
  - To allow duplicates, as each student can have several records of achievement



- Select the [AchievementDate] field and index this, with duplicates OK

- Ribbon [Design] [Show/Hide] – click the [Indexes] button

  - To open the Indexes: tblAchievements dialog box
  - To see which fields are currently indexed
- Click each index field in turn
  - To view the Index Properties for each field
  - To see that the [AchievementNo] field, which is the primary key field, is [Unique] – meaning that it is indexed with No Duplicates allowed
- [Close] the Indexes: tblAchievements dialog box

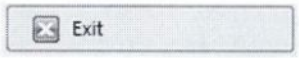


Exercise 9 Close a database

When you have finished working with Access, it is good practice to close the program, so that it does not restrict your computer's performance.

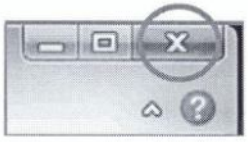
Either

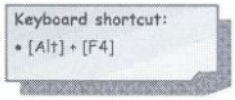
- Ribbon [File] – click the [Exit] button



Or

- Click the [Close] button at the top right of the screen
  - To close the currently open database, and to close Access





Alternatively, Ribbon [File] – click the [Close Database] button, to close the currently open database, but leave Access open on screen.

Example 4 - Retrieving information

This Example will work with the Hobbies database that you started in the previous Example.

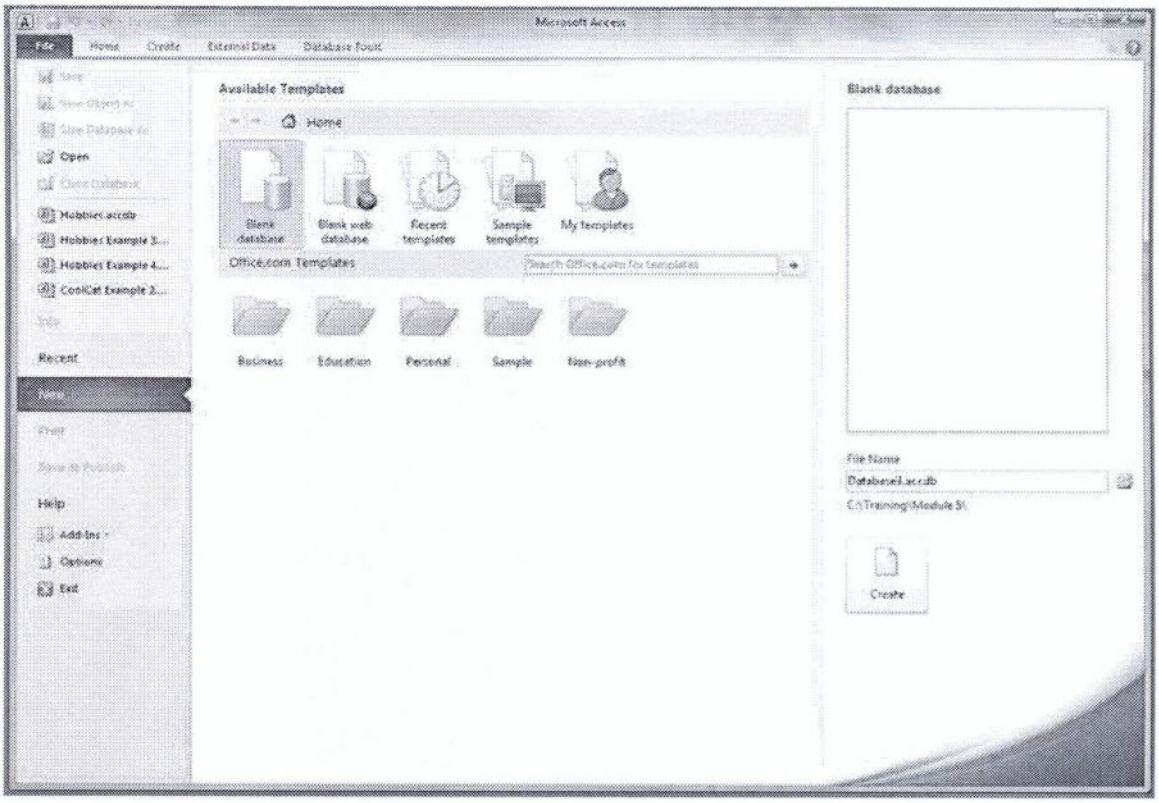
You will learn how to create queries, based on one or more of the database tables. These queries will be edited, to amend the fields used and displayed. Criteria will be added to the queries, to determine which records are included when the queries are run.

Once the queries have been saved to the database, they will be used to create forms, in which to display and maintain the database records. The forms will be edited, and will be used to add, amend and delete the data contained in individual records.

You will learn how to search for data in a form and how to filter forms and tables, to determine which records are displayed on screen at any time.

Exercise 1 Open a database application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Access]
  - Microsoft Access will open, with the New dialog box displayed within the [File] tab



Exercise 2 Open a database

This Exercise will open the Hobbies database.

Either

- If the database you wish to open is shown in the list at the left of the [File] tab, select it from here
    - To open the database on screen

Or

- Click the [Recent] button
    - To view and select recently opened databases

Or

- Ribbon [File] – click the [Open] button
    - To open the Open dialog box

- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 5]
- In the Module 5 folder, select the file named "Hobbies Example 4"
- Click the [Open] button
    - To open the database on screen

Exercise 3 Queries

This Exercise will create and edit queries using the tables in the Hobbies database. All the queries that are used in this database are known as **select** queries – which will either retrieve data from tables or make calculations.

A query will be created using fields from the [tblStudent] table. This query will later be used to create a form which could be used to make the insertion and editing of student records in the database easier.

A second query will be created using both the [tblStudent] and the [tblSession] tables. This will show how tables can be linked in queries, using their related fields. The [tblHobby] table will be added to this query.

Criteria will be added to queries, to specify which records should be displayed when the query is run or used in forms and records.

The queries will be edited, to change the criteria used, and also to amend the fields used and shown in the queries.

Understand that a query is used to extract and analyse data

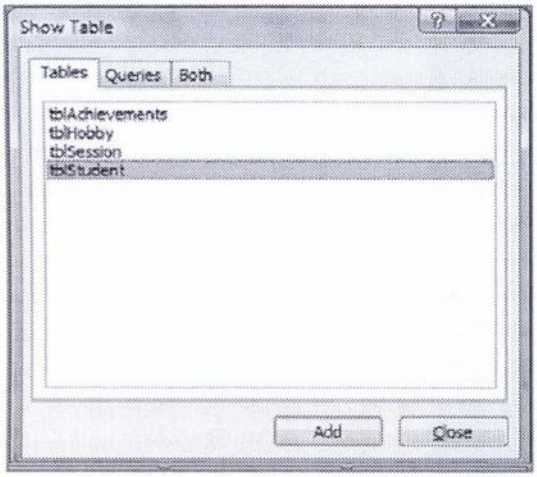
A "query" is a tool to:

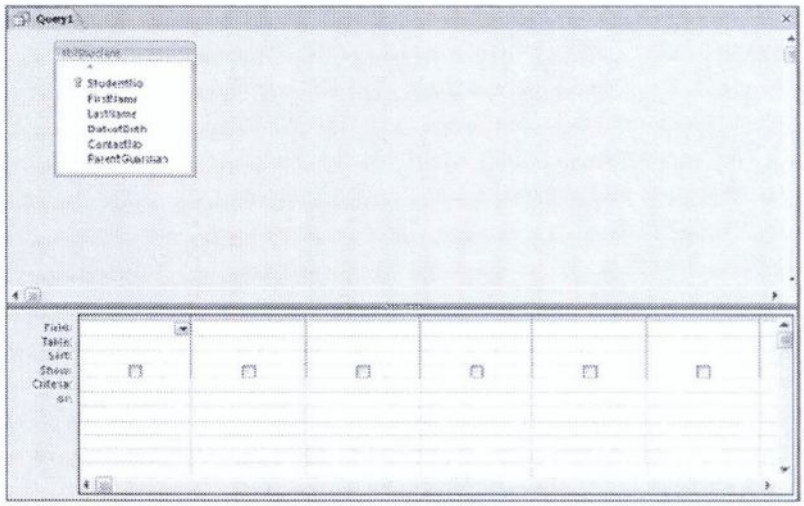
- Analyse and manage information in a database
- Extract specific information from a database, based on searching more than one field in one or more tables
- See updated results from amended data, using saved queries
- Join tables together to build forms and reports, that might use data from a number of tables

Create a named single table query

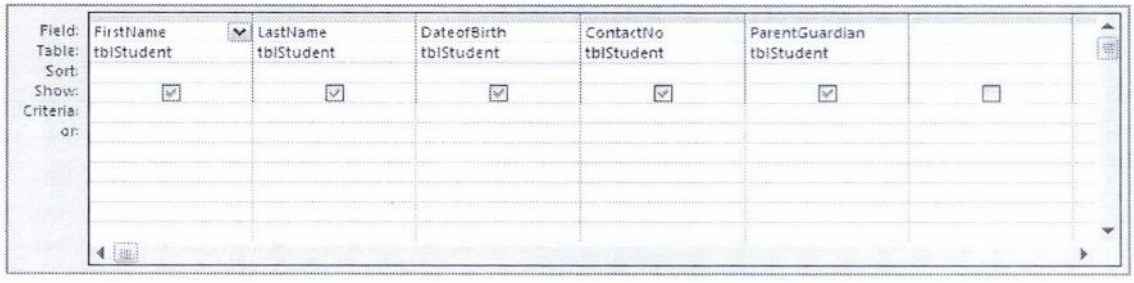
You will create a query using fields from the [tblStudent] table.

- Ribbon [Create] [Queries] – click the [Query Design] button
  - To open a new Query window in the right pane
  - To view the Show Table dialog box
- Select [tblStudent] and click [add]
  - To add the [tblStudent] table to the top of the Query window
- [Close] the Show Table dialog box

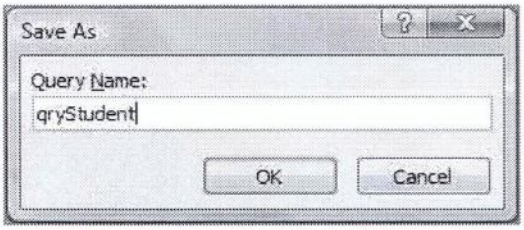


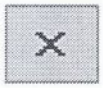


- Double-click the [FirstName] field in the [tblStudent] table
  - To add this field to the first column in the design grid at the bottom of the Query window
- In turn, double-click each of the other fields, *apart from the [StudentNo] field*
  - To add these fields to the design grid at the bottom of the Query window



- On the Quick Launch toolbar, click the [Save] button 
  - To open the Save As dialog box
- Type "**qryStudent**" and click [OK]
  - To save the query

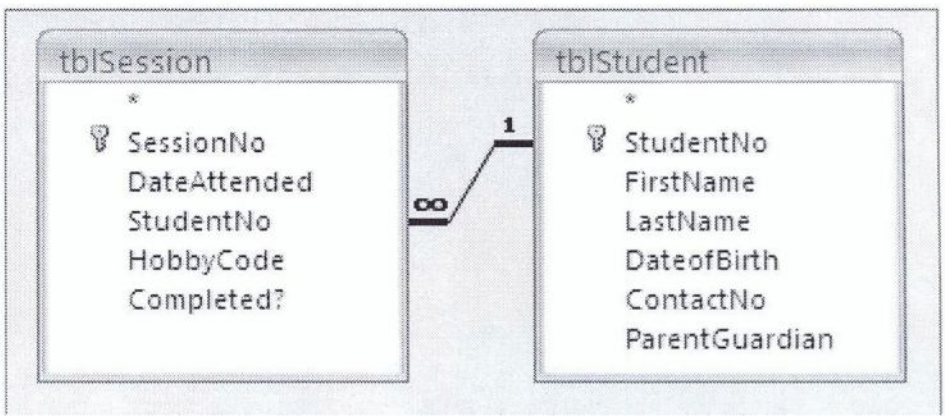


- [Close] the [qryStudent] query 

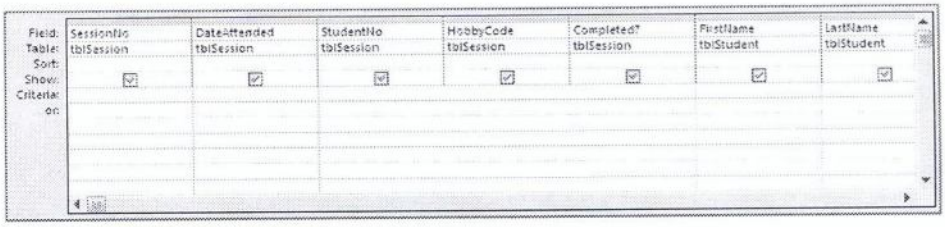
Create a named two-table query

This query will contain fields from the [tblStudent] and [tblSession] tables. In the previous Example, you linked these tables by the [StudentNo] field, when you created the relationships between the tables in the database. This relationship enables records from the 2 tables to be combined when the query is used.

- Ribbon [Create] [Queries] – click the [Query Design] button
  - To open a new Query window in the right pane
  - To view the Show Table dialog box
- Select [tblStudent] and click [add]
  - To add the [tblStudent] table to the top of the Query window
- Select [tblSession] and click [add]
  - To add the [tblSession] table to the top of the Query window
- [Close] the Show Table dialog box
  - To view the 2 tables in the Query window
  - To see that the [StudentNo] field links the 2 tables in the query



- In turn, add ***all*** the fields from the [tblSession] table to the design grid
- From the [tblStudent] table, add the following fields to the design grid:
  [FirstName]
  [LastName]



- [Save] the query as [qrySessionAttendance]

Run a query

When a select query is Run, the data is retrieved from the tables contained in the query and displayed as records on screen. Each record will contain a mix of fields from all the tables used in the query.

You will now run the [qrySessionAttendance] query, to display the combined records from the [tblSession] and [tblStudent] tables.

- Ribbon [Design] [Results] – click the [Run] button
  - To display the [qrySessionAttendance] query in Datasheet view
  - To see that each record contains a combination of fields from the [tblSession] and the [tblStudent] tables

You may need to widen the [DateAttended] column, to display the dates correctly, if long date is the format for this field

qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
1	09/01/2011	1	2	☑	Lynne	Godwin
2	13/01/2011	3	1	☐	Alan	Hart
3	23/01/2011	1	3	☑	Lynne	Godwin
4	04/02/2011	4	7	☐	John	Jones
5	26/02/2011	3	8	☐	Alan	Hart
6		3	1	☐	Alan	Hart
7	20/02/2011	4	3	☑	John	Jones
(New)				☐		

Add criteria to a query using one or more of the operators

Currently, [qrySessionAttendance] displays all the records from the [tblSession] and [tblStudent] tables. Within a query, you can choose to see only those records that meet specific conditions. These conditions are known as the "criteria" that have to be met. You will now add criteria to the query to limit the records that are displayed.

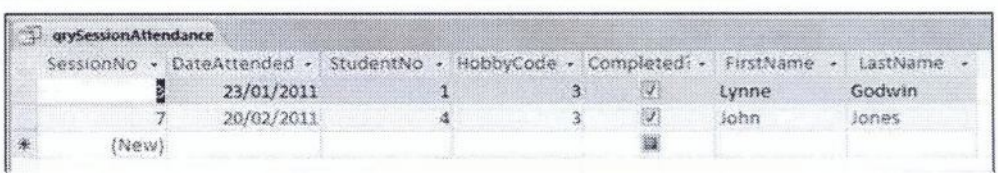
Criteria can contain references to fields, constant values (such as numbers or text) and operators (which perform calculations on the fields and values in the criteria). Some of the most commonly used operators are:

Expression	Meaning	Example
=	Equal to	="education" *Records where the entry in the field is 'education'.*
<>	Not equal to	**<>0** *All positive and negative numbers that are not zero.*
<	Less than	**<2000** *All values up to and including 1999.*
<=	Less than or equal to	**<=2000** *All values up to and including 2000.*
>	Greater than	**>2000** *All values from 2001 upwards.*
>=	greater than or equal to	**>=2000** *All values from 2000 upwards*

The first criterion to be added will state that only records where the [HobbyCode] is "3" should be displayed.

- Change to Design view

- In the [Criteria:] field of the design grid, type "**=3**" in the [HobbyCode] column
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with the criterion in place
  - To view only those records with a [HobbyCode] of "3"



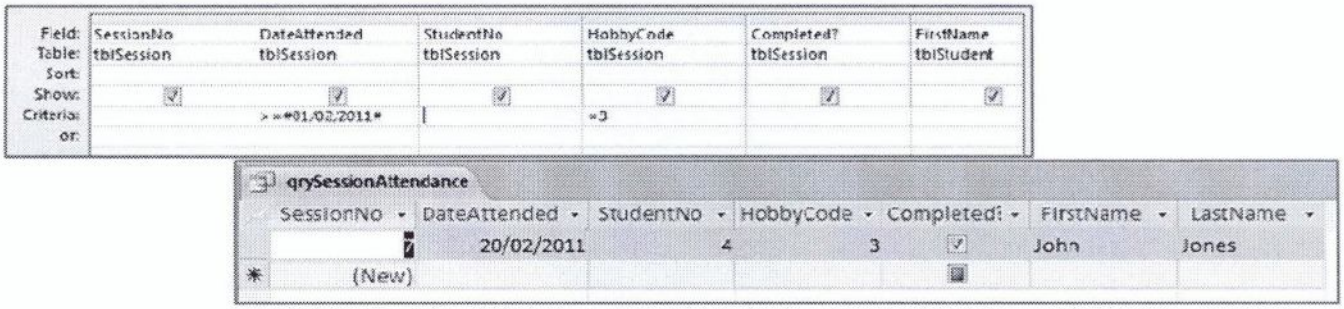
Edit a query: add criteria

There can be more than one criterion in a query. You will add a criterion to the [DateAttended] field, to only view records where the [HobbyCode] is "3" ***and*** the [DateAttended] is on or later than 1st February 2011.

- Change to Design view

- In the [Criteria:] field of the design grid, type "**>=01/02/11**" in the [DateAttended] column, then click into another field in the design grid
  - To see that hash signs (#) are added round the dates by Access
- Ribbon [Design] [Results] – click the [Run] button

  - To run the query with both the criteria in place
  - To view only those records with a [HobbyCode] of "3" *and* a [DateAttended] on or later than1st February 2009



Field:	SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName
Table:	tblSession	tblSession	tblSession	tblSession	tblSession	tblStudent
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:		>=#01/02/2011#		=3		
or:						

qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
7	20/02/2011	4	3	☑	John	Jones
(New)				☐		

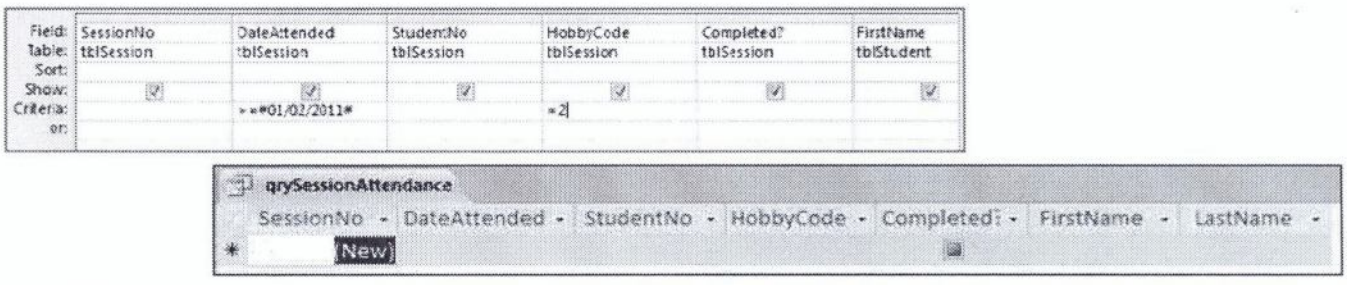
Edit a query: modify criteria

You will now change the [HobbyCode] criterion, from "3" to "2", to state that you wish to view only those records with a [HobbyCode] of "2" *and* a [DateAttended] on or later than 1st February 2011.

- Change to Design view

- In the [Criteria:] field of the design grid, type change the "3" in the [HobbyCode] field to "2"
- Ribbon [Design] [Results] – click the [Run] button

  - To run the query with both the amended criteria in place
  - To see that there are no records with a [HobbyCode] of "2" *and* a [DateAttended] on or later than 1st February 2011



Field:	SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName
Table:	tblSession	tblSession	tblSession	tblSession	tblSession	tblStudent
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:		>=#01/02/2011#		=2		
or:						

qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
New				☐		

Edit a query: remove criteria

You will now remove the [HobbyCode] criterion from the query, to leave just the [DateAttended] criterion in place.

- Change to Design view
- In the [Criteria:] field of the design grid, delete the entry in the [HobbyCode] field
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with just the [DateAttended] criterion in place

- To view only those records with a [DateAttended] on or later than 1st February 2011

Field:	SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName
Table:	tblSession	tblSession	tblSession	tblSession	tblSession	tblStudent
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:		>=#01/02/2011#				
or:						

qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
4	04/02/2011	4	7	☐	John	Jones
5	26/02/2011	3	8	☐	Alan	Hart
7	20/02/2011	4	3	☑	John	Jones
(New)				☐		

Add criteria to a query using one or more of the logical operators

Multiple criteria can be linked in a query using the logical operators AND, OR and NOT.

AND

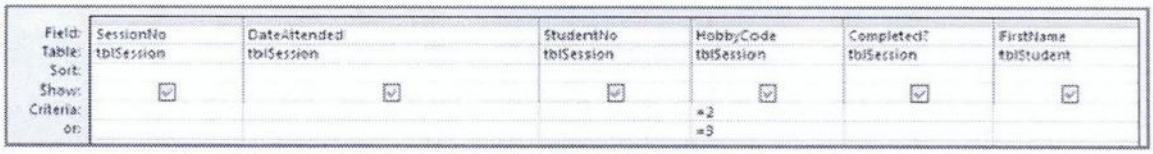
You have already automatically used the AND operator in the criteria above, where you inserted a criterion in the [DateAttended] AND the [HobbyCode] fields. Access interprets these 2 separate criteria as:

DateAttended >=01/02/2011 AND HobbyCode=2

OR

The OR criterion is used if only one of the inserted criteria needs to be met in order to include a record in a query. You will amend the criteria in the design grid to specify that records should be included where the [HobbyCode] is either "2" ***or*** "3".

- Change to Design view
- Remove the criterion from the [DateAttended] field
- In the [Criteria:] field of the design grid, type "**=2**" in the [HobbyCode] field
- In the [or:] field of the design grid, type "**=3**" in the [HobbyCode] field
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with both criteria in the [HobbyCode] field
  - To view any records where the [HobbyCode] is either "2" *or* "3"



Field:	SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName
Table:	tblSession	tblSession	tblSession	tblSession	tblSession	tblStudent
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:				=2		
or:				=3		

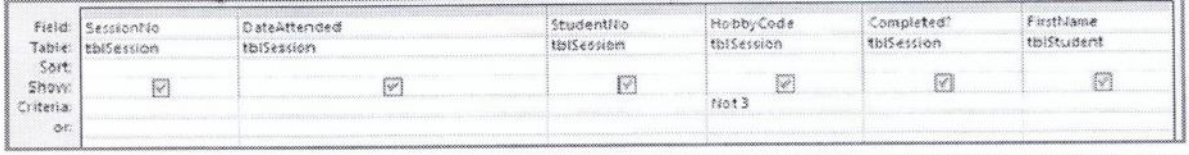
qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed	FirstName	LastName
1	09/01/2011	1	2	☑	Lynne	Godwin
3	23/01/2011	1	3	☑	Lynne	Godwin
7	20/02/2011	4	3	☑	John	Jones
(New)				☐		

NOT

The NOT criterion is used if the inserted criterion must *not* be in the field in order to include a record in a query. You will amend the criteria in the design grid to specify that records should only be included where the [HobbyCode] is *not* "3".

- Change to Design view
- Remove the criterion from the [or:] field of [HobbyCode]
- In the [Criteria:] field of the design grid, type "**NOT 3**" in the [HobbyCode] field
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with the NOT criteria in place in the [HobbyCode] field
  - To view all the records in the query where the [HobbyCode] is *not* "3"



qrySessionAttendance

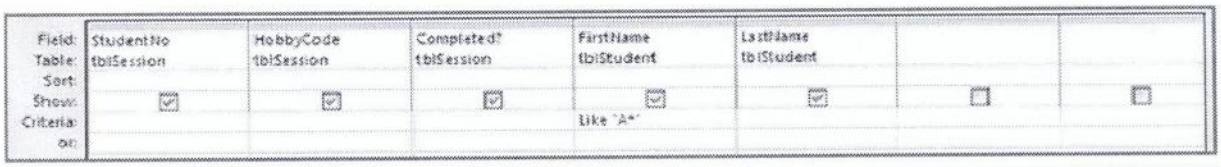
SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
1	09/01/2011	1	2	☑	Lynne	Godwin
2	13/01/2011	3	1	☐	Alan	Hart
4	04/02/2011	4	7	☐	John	Jones
5	26/02/2011	3	8	☐	Alan	Hart
6		3	1	☐	Alan	Hart
(New)				■		

Use a wildcard in a query

It is possible to use the asterisk (*) and question mark (?) as 'wildcard' characters to stand for all or part of the criteria for which you are searching. The asterisk stands for any number of characters (or no characters at all), whilst the question mark stands for one character.

You will insert a criterion to display records where the student's first name begins with "A", regardless of how many other characters there are in the name. You will then amend the criterion to display records where the "A" is followed by exactly 2 further characters.

- Change to Design view
- Remove the criterion from the [HobbyCode] field
- In the [Criteria:] field of the design grid, type "**A***" in the [FirstName] field, then click in another field in the design grid
  - To see that Access amends the entry to [Like "A*"]
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with the wildcard in the [FirstName] field
  - To see all records where the Student's first name begins with "A"



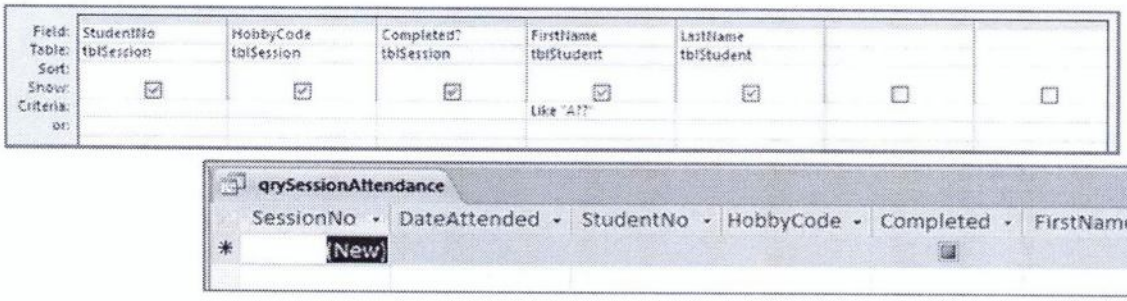
qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName
2	13/01/2011	3	1	☐	Alan	Hart
5	26/02/2011	3	8	☐	Alan	Hart
6		3	1	☐	Alan	Hart
(New)				■		

- Change to Design view

- In the [Criteria:] field of the design grid, amend the entry in the [FirstName] field to "**Like A??**" and click out of the field
  - To see that Access amends the entry to [Like "A??"]
- Ribbon [Design] [Results] – click the [Run] button

  - To run the query with the wildcard in the [FirstName] field
  - To see that there are no records in the query where the Student's first name begins with "A", followed by exactly 2 further characters



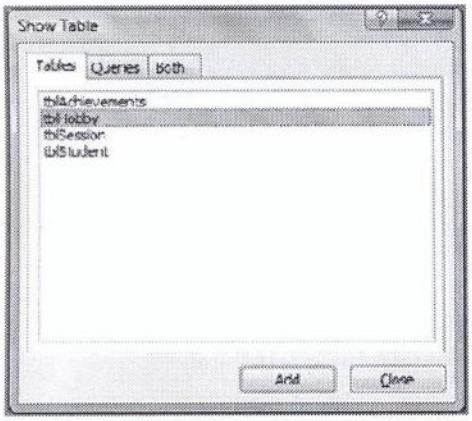
- Change to Design view

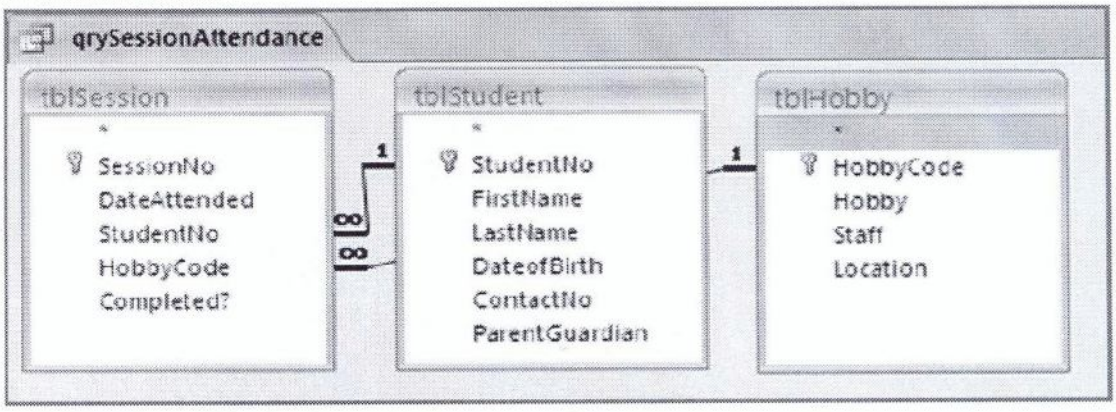
- Remove the criteria from the [FirstName] field
  - There will be no criteria shown in the design grid

Add a table to a query

It would be useful to have the [Hobby] field from the [tblHobby] table in the [qrySessionAttendance] query; in order to be able to display the Hobby name rather than its code. You will therefore add the [tblHobby] table to the query, in order to have access to the fields in this table.

- Ensure that Design view is selected
- Ribbon [Design] [Query Setup] – click the [Show Table] button
  - To view the Show Table dialog box
- Select [tblHobby] and click the [Add] button
  - To add this table to [qrySessionAttendance]
  - To view the link between the [HobbyCode] fields in [tblSession] and [tblHobby]
- [Close] the Show Table dialog box

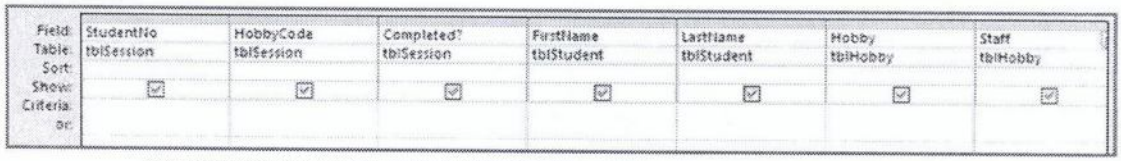




Edit a query: add fields

It is now possible to add fields from the [tblHobby] table to the [qrySessionAttendance] query. You will add the [Hobby] and [Staff] fields to the query.

- In the [tblHobby] table, double-click the [Hobby] field
  - To add this field to the right column in the design grid
- In the [tblHobby] table, double-click the [Staff] field
  - To add this field to the right column in the design grid
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with the [Hobby] and [Staff] fields included
  - To view all the records in the query, with the [Hobby] and [Staff] fields included



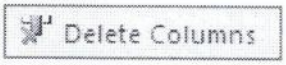
qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName	Hobby	Staff
1	09/01/2011	1	2	☑	Lynne	Godwin	Swimming	WA
2	13/01/2011	3	1	☐	Alan	Hart	Football	FI
3	23/01/2011	1	3	☑	Lynne	Godwin	Dance	SM
4	04/02/2011	4	7	☐	John	Jones	Music	JA
5	26/02/2011	3	8	☐	Alan	Hart	Computer	DR
6		3	1	☐	Alan	Hart	Football	FI
7	20/02/2011	4	3	☑	John	Jones	Dance	SM
(New)				☐				

Edit a query: remove fields

You will remove the [Staff] field from the query.

- Change to Design view
- In the design grid, click somewhere in the [Staff] column
- Ribbon [Design] [Query Setup] – click the [Delete Columns] button
  - To remove the [Staff] field from [qrySessionAttendance]
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query without the [Staff] field included



Field:	StudentNo	HobbyCode	Completed?	FirstName	LastName	Hobby	
Table:	tblSession	tblSession	tblSession	tblStudent	tblStudent	tblHobby	
Sort:							
Show:	☑	☑	☑	☑	☑	☑	☐
Criteria:							
or:							

qrySessionAttendance

SessionNo	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName	Hobby
1	09/01/2011	1	2	☑	Lynne	Godwin	Swimming
2	13/01/2011	3	1	☐	Alan	Hart	Football
3	23/01/2011	1	3	☑	Lynne	Godwin	Dance
4	04/02/2011	4	7	☐	John	Jones	Music
5	26/02/2011	3	8	☐	Alan	Hart	Computer
6		3	1	☐	Alan	Hart	Football
7	20/02/2011	4	3	☑	John	Jones	Dance
*	(New)			☐			

Edit a query: hide fields

With the [Firstname], [LastName] and [Hobby] fields displayed in the [qrySessionAttendance] query, it is not always necessary to display the [StudentNo] and [HobbyCode] fields when the query is run. You will hide these fields.

- Change to Design view
- In the [Show:] field of the design grid, click the tick in the [StudentNo] field
  - To remove the tick from this field
  - To indicate that you wish to hide this field in the query
- Remove the tick from the [HobbyCode] field
  - To indicate that you wish to hide this field as well
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with these 2 fields hidden

Field:	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName	Hobby
Table:	tblSession	tblSession	tblSession	tblSession	tblStudent	tblStudent	tblHobby
Sort:							
Show:	☑	☐	☐	☑	☑	☑	☑
Criteria:							
or:							

qrySessionAttendance

SessionNo	DateAttended	Completed	FirstName	LastName	Hobby
1	09 January 2009	☑	Lynne	Godwin	Swimming
2	13 January 2009	☐	Alan	Hart	Football
3	23 January 2009	☑	Lynne	Godwin	Dance
4	04 February 2009	☐	John	Jones	Music
5	26 February 2009	☐	Alan	Hart	Computer
6		☐	Alan	Hart	Football
7	20 February 2009	☑	John	Jones	Dance
*	(New)	☐			

Edit a query: unhide fields

You will unhide the [StudentNo] field in the [qrySessionAttendance] query.

- Change to Design view

- In the [Show:] field of the design grid, click the [StudentNo] field
  - To insert a tick in this field
  - To indicate that you wish to show this field in the query
- Ribbon [Design] [Results] – click the [Run] button
  - To run the query with the [StudentNo] field showing

Field:	DateAttended	StudentNo	HobbyCode	Completed?	FirstName	LastName	Hobby
Table:	tblSession	tblSession	tblSession	tblSession	tblStudent	tblStudent	tblHobby
Sort:							
Show:	☑	☑	☐	☑	☑	☑	☑
Criteria:							
or:							

qrySessionAttendance

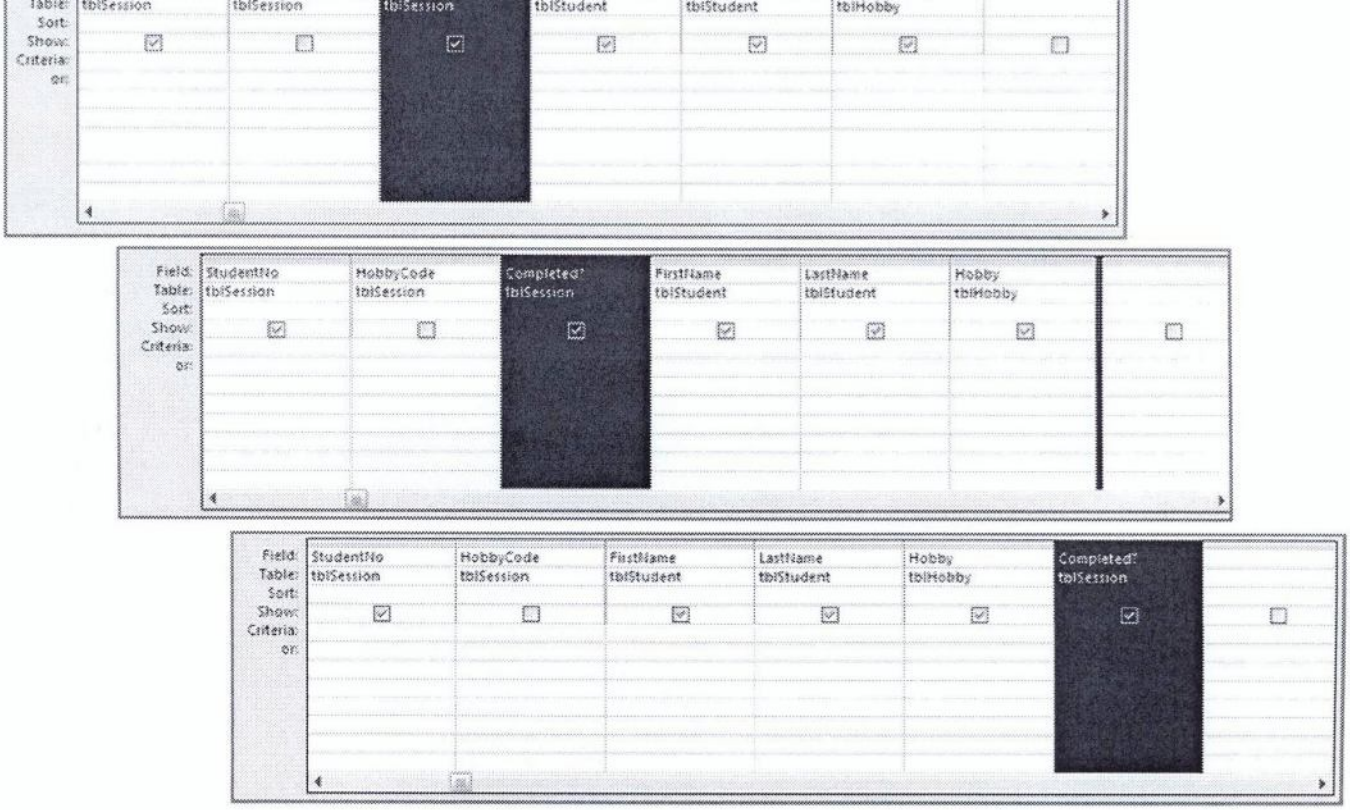
SessionNo	DateAttended	Completed?	FirstName	LastName	Hobby
1	09/01/2011	☑	Lynne	Godwin	Swimming
2	13/01/2011	☐	Alan	Hart	Football
3	23/01/2011	☑	Lynne	Godwin	Dance
4	04/02/2011	☐	John	Jones	Music
5	26/02/2011	☐	Alan	Hart	Computer
6		☐	Alan	Hart	Football
7	20/02/2011	☑	John	Jones	Dance
(New)		☐			

Edit a query: move fields

The order of the columns in the design grid of the query is the order in which they will be displayed when the query is run. You will move the [Completed?] column to the extreme right of the query.

- Change to Design view

- Use the horizontal scroll bar
  - To ensure that you can see the [Hobby] field and the blank column to the right of this field on screen
- Click the header of the [Completed?] column
  - To select this field and highlight the column
- Click and drag the column until a thick black line appears to the right of the [Hobby] field
  - To move the [Completed?] field to the right of the query



- Ribbon [Design] [Results] – click the [Run] button

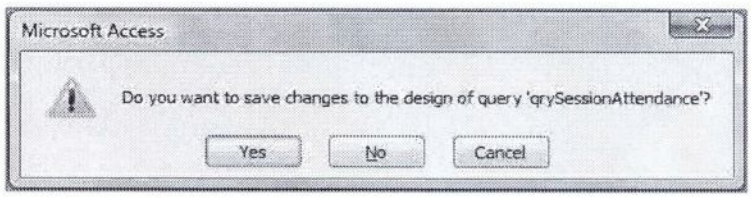
  - To run the query with the [Completed?] field at the right

qrySessionAttendance

SessionNo	DateAttended	FirstName	LastName	Hobby	Completed?
1	09/01/2011	Lynne	Godwin	Swimming	☑
2	13/01/2011	Alan	Hart	Football	☐
3	23/01/2011	Lynne	Godwin	Dance	☑
4	04/02/2011	John	Jones	Music	☐
5	26/02/2011	Alan	Hart	Computer	☐
6		Alan	Hart	Football	☐
7	20/02/2011	John	Jones	Dance	☑
*	(New)				☐

- Click the [Close]button at the top right of the [qrySessionAttendance] query

  - To view a message about saving the changes to the query
- Click [Yes]
  - To save and close the [qrySessionAttendance] query



Exercise 4 Forms

This Exercise will use the [qryStudent] query from the previous Exercise to create a form. Any criteria that are in place in the query will also apply to the form. Each time the form is opened, it will access the query, and apply the criteria that are currently in place in the query.

The form will be used to insert and delete student records in the database, and also to add, modify and delete data in the individual student records.

Understand that a form is used to display and maintain records

A form provides an easy way to display on screen and to maintain the records contained in the database. It contains fields drawn from a selection of the tables contained in the database. It can be used both to view and to update these fields, whilst giving an easy-to-read view of the activities that have taken place.

Database object display

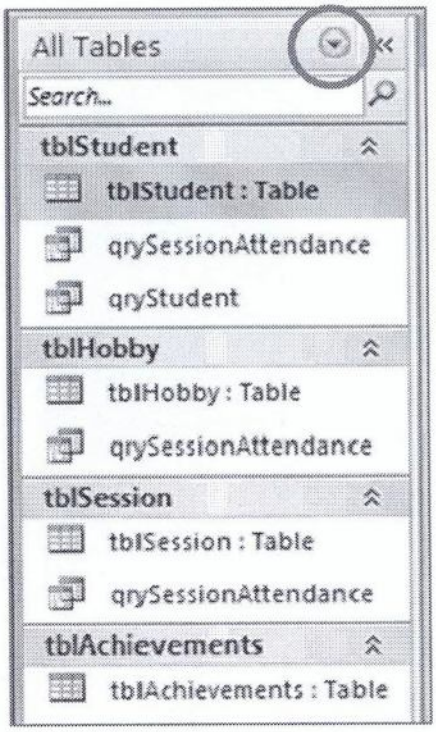
In Example 2, you learned that it is possible to amend which database objects are displayed in the navigation pane. As you have created the Hobbies database, the view in the navigation pane has automatically been updated. You will see that the current view is shown as [All Tables]. There is a heading in the navigation pane for each table you have created, and beneath each heading are listed the table and any queries you have created that are associated with that table.

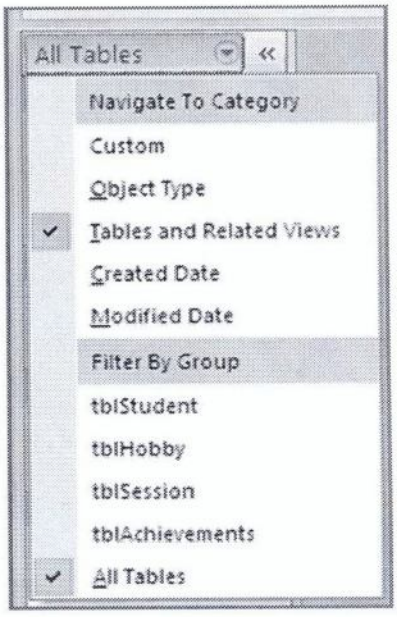
As an example, the [tblStudent] heading lists the [tblStudent] table, the [qrySessionAttendance] query and the [qryStudent] query, as both these queries contain fields from [tblStudent].

The [qrySessionAttendance] query is also listed beneath the [tblHobby] and [tblSession] headings, as it contains fields from both of these tables as well.

This view is determined by which options are selected in the drop down menu at the top of the navigation pane. You will now look at these options, to see how the current view has been selected.

- At the top of the navigation pane, click the down arrow to the right of the [All Tables] heading
  - To view the options that are currently selected for the navigation pane
  - To see that [Tables and Related Views] is selected in the [Navigate To Category] section
  - To see that [All Tables] is selected in the [Filter By Group] section
- Click the down arrow to the right of the [All Tables] heading
  - To close the list of viewing options for the navigation pane
  - To leave the view as it is currently displayed



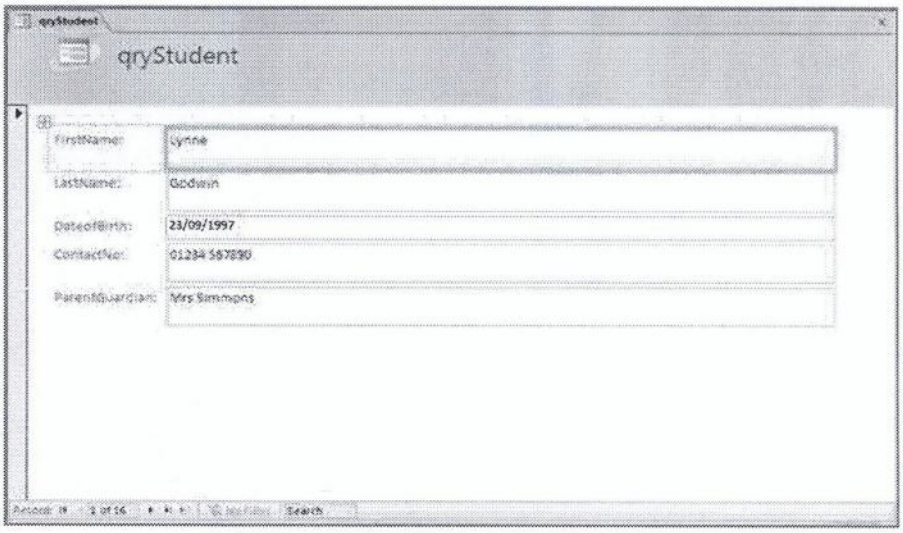


Create and name a form

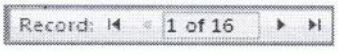
Any query can be used to create a simple form that contains all the query fields. The form will display the records currently contained in the query, and will enable you to enter and amend information for one record at a time. You will use the [qryStudent] query to create a form.

- In the navigation pane, click the [qryStudent] query once
  - To select this query in the navigation pane
- Ribbon [Create] [Forms] – click the [Form] button

  - To create a new form in the right pane
  - The new form will currently have the same name as the query from which it was created
  - The header will display the name of the query this form is based on
  - The form will contain each of the fields in the query, in the order that they appear in the query
  - The form will display the first record from the database that meets the current criteria contained in the query

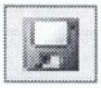


- Use the navigation buttons at the bottom of the form

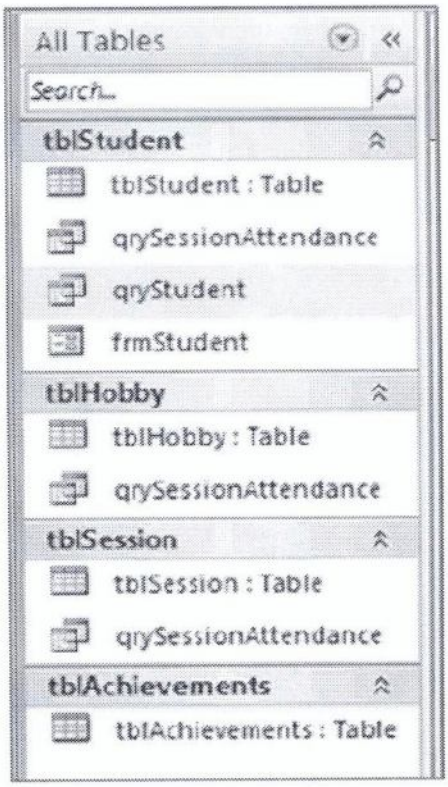


  - To view the other records shown in the form

- On the Quick Access toolbar, click the [Save] button



  - To open the Save As dialog box
- Type [frmStudent] and click [OK]
  - To name and save the form
  - To view the named form in the navigation pane



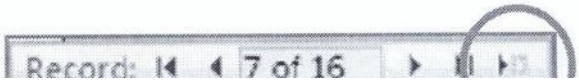
Use a form to insert new records

A form is the easiest way for database users to insert new records to the database, as it displays the fields that need to be completed, in a simple-to-use format.

You will enter a new student to the database, using the [frmStudent] form. The form is currently in Layout view – the default view when it was created. You will change to Form view, in order to be able to insert and amend records.

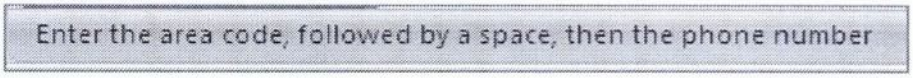
- Change to Form view
  - To see that the entry in the [FirstName:] field is highlighted

- To the right of the navigation buttons at the bottom of the form, click the [New (blank) record] button
  - To insert a new, blank record in the form
    - The insertion point will be flashing in the [FirstName:] field, ready to start entering information in this field

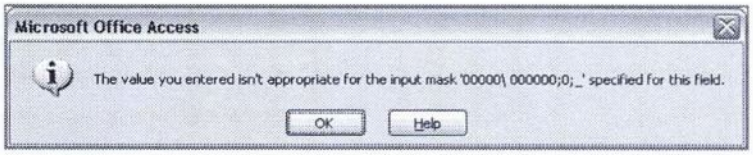


- Enter the record shown below into the form
  - As you move between the fields, any text you entered into the [Description] field of the [tblStudent] table, will be displayed in the Status bar at the bottom of the screen

    The following text will be displayed when you select the [ContactNo:] field:

  - *Remember that the [ContactNo:] field contains an input mask, to ensure that the numbers are entered in the format specified above. If you enter a phone number in the wrong format you will see the following message and will not be able to continue until you correct it:*

- Either press the [Tab] key or click in the next field
  - To move between the fields in the form

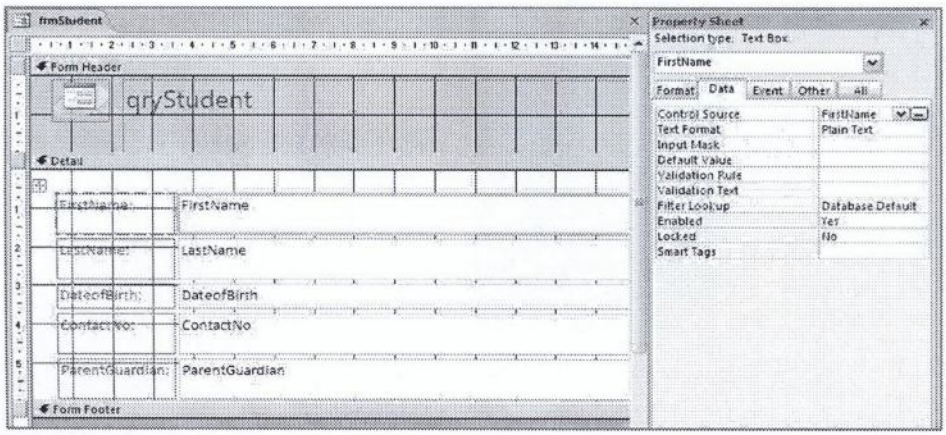
Form design view

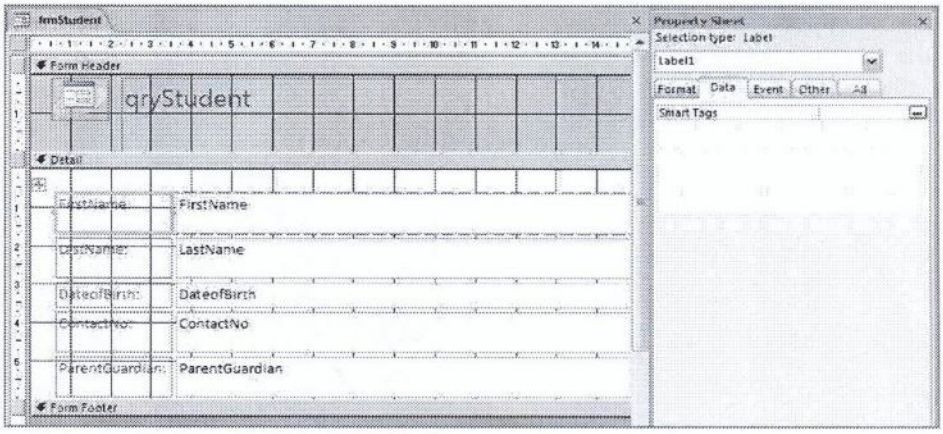
Changes to the design of the form are made in Design view.

- Change to Design view

  - To see the layout of the fields in the form
- In the [Detail] section of the form, select the [FirstName] data entry field
  - The field will become outlined in a different colour
  - A short line will link this field to the [FirstName:] label to its left
- Ribbon [Design] [Tools] – click the [Property Sheet] button

  - To open the Property Sheet for the [FirstName] field
  - To see that this field is a text box associated with the [FirstName] field from the query
- Click the [FirstName:] label, to the left of the [FirstName] text box
  - To see that this is described as a label
  - To see that it has been given a name





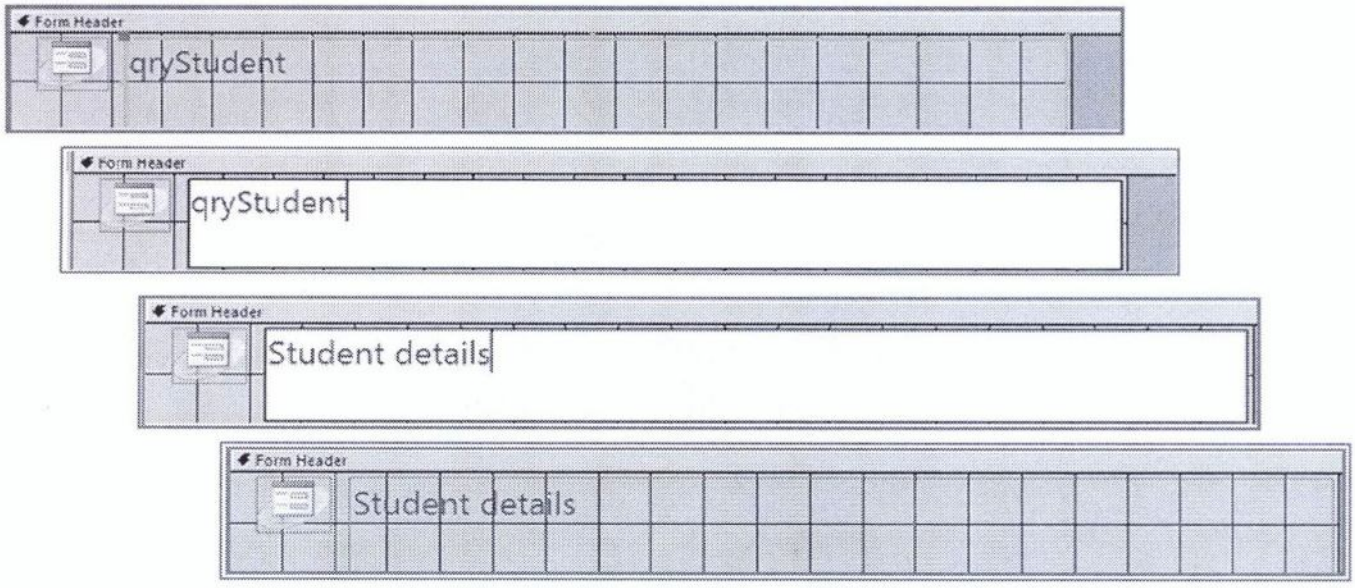
- In turn, select each of the other text fields and labels on the form
  - To view their properties
  - To see that each text box is linked to the label to its left
- [Close] the Property Sheet

Add, modify text in headers, footers in a form

Text can be added and modified in headers and footers of forms. Header text will be displayed at the top of each page of the form, both on screen and if the form is printed out. Footer text will be displayed at the bottom of each page. The same procedure is used to add and modify text in both headers and footers.

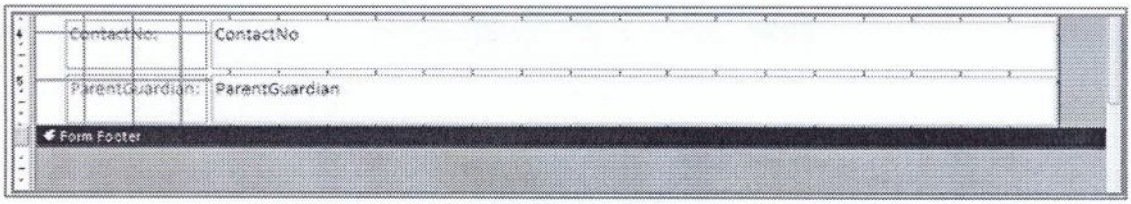
The header for [frmStudent] currently displays the name of the query that was used to create the form ([qryStudent]). You will amend this to display the text "Student Details".

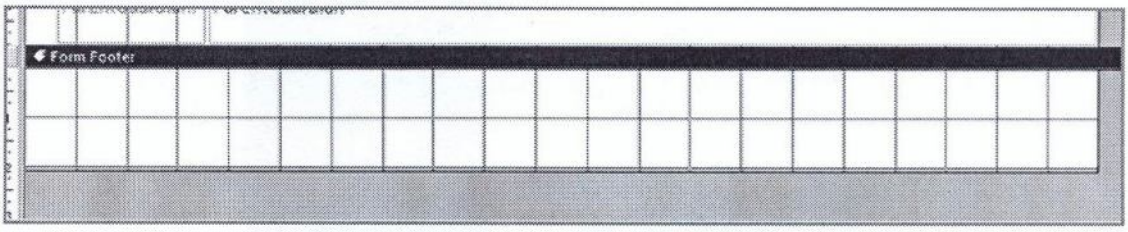
- In the [Form Header] section, click the text [qryStudent]
  - To select the header
  - To outline the header in a different colour
- Click again over the header
  - To change to edit mode
  - To view the insertion point at the end of the text in the header
- Replace the current text with "**Student details**"
- Click away from the header
  - To finish entry of the modified header text



You will now add text to the Form Footer.

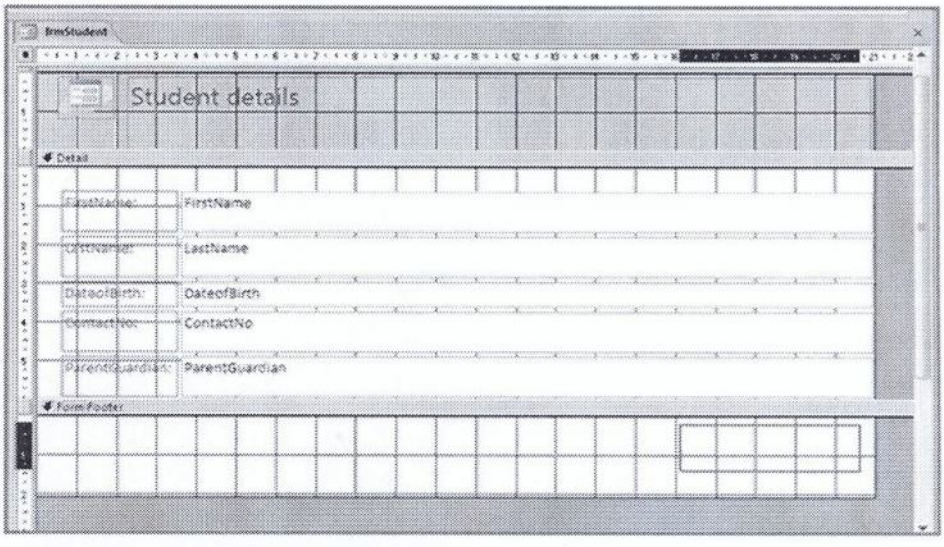
- Move the pointer over the line at the bottom of the Form Footer heading
  - The pointer will become a double-ended arrow
- Click and drag down the page
  - To display the Form Footer





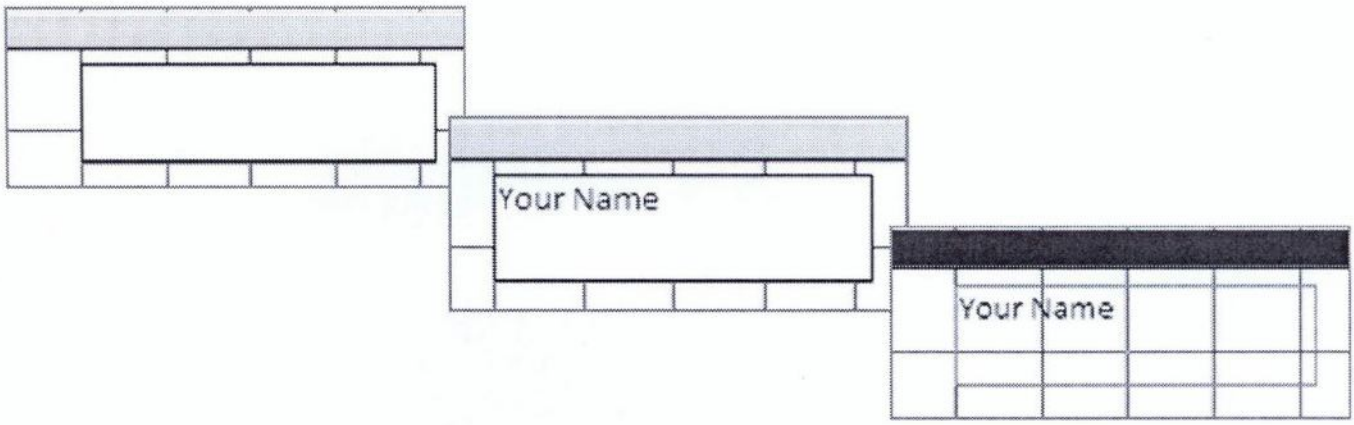
- Ribbon [Design] [Controls] – click the [Label] button and move the pointer down to the Form Footer

  - The pointer will become a cross with the Label logo attached
- At the right of the Form Footer, click and drag
  - To draw a rectangle

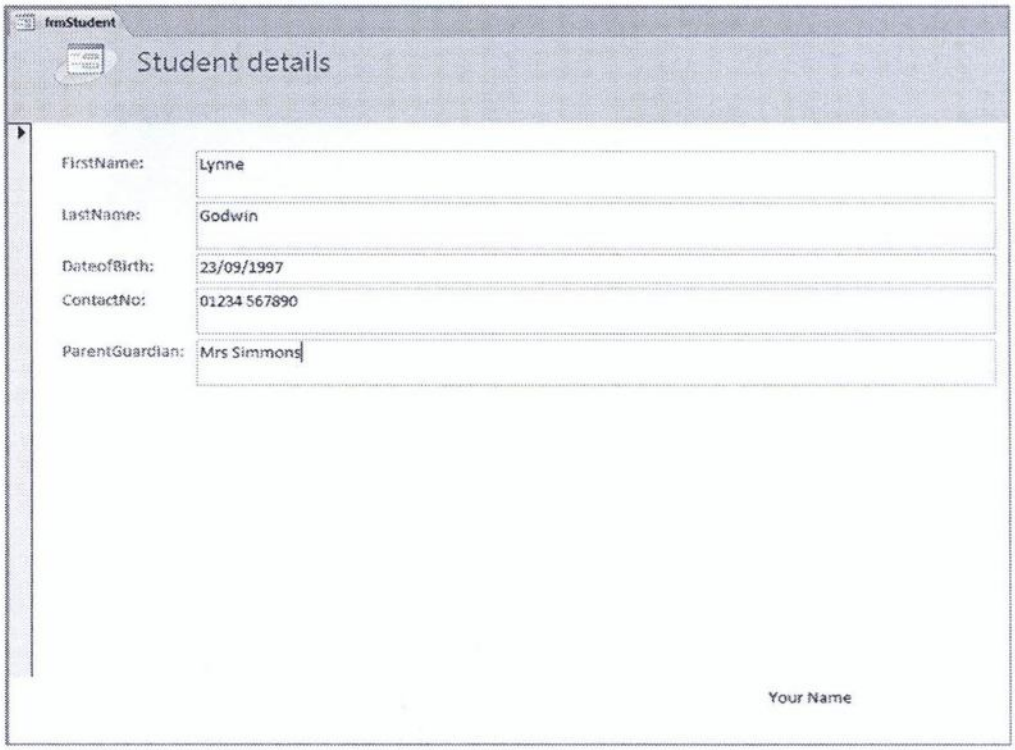


- Release the pointer
  - To create the label
  - The insertion point will be displayed in the label

- Click away from the label
  - To finish adding the text to the label



- Change to Form view
  - To view the form with the amended Header and the inserted Footer



Exercise 5 Main operations

In this Exercise, the Search command will be used to find specific records in the [frmStudent] form. Once records have been found, one record will be deleted, and the data in other records will be added to or modified.

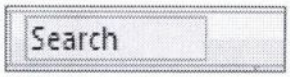
After this, a filter will be applied to limit the records that are displayed in a form and a table.

Use the search command

You will search for the record for [Alan Hart], by typing his name into the [Search] field. Although you are typing a ***word*** to search for, you could also type a ***number*** or ***date*** in the [Search] field, in order to search for these in a field.

- Ensure that Form view is selected

- To the right of the navigation buttons at the bottom of the form, click the [Search] field
  - To view the insertion point



- Start typing "**Alan Hart**"
  - As you enter each letter, Access will begin displaying records that contain, in any of the form fields, the letters you are typing
  - As you enter more letters, the search will be refined , until the record you require is displayed

Use a form to add, modify, delete data in a record

You will add a second [ParentGuardian:] name to this record.

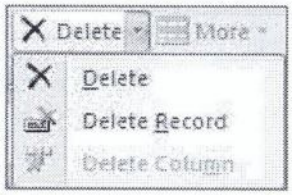
- Click the [ParentGuardian:] field
  - To view the insertion point at the end of the current entry
- Type " **or Mrs Wilton**"
  - To add this text to the existing entry

You will modify the [DateofBirth:] field for this record.

- Move the pointer to the right of the month in the [DateofBirth:] field and click
  - To view the insertion point to the right of the month
- Replace the month [03] with the text "**05**"
- To change the month in the [DateofBirth:] field for this record

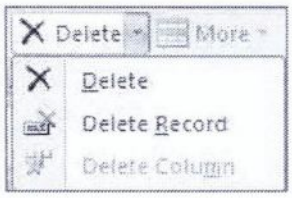
You will delete the [ContactNo:] from this record

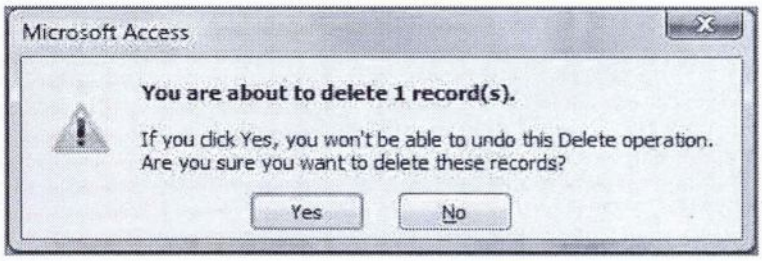
- Click the [ContactNo:] field and highlight the phone number in this field
- Ribbon [Home] [Records] – click the drop down arrow to the right of the [Delete] button
- Select [Delete]
  - To delete the data in this field for this record



You will search for the record for [Alicia Martin], in order to delete this record from the database.

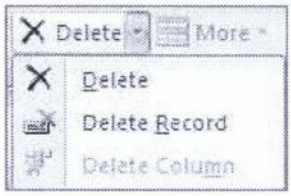
- In the [Search] field at the bottom of the form, start typing "**Alicia Martin**"
  - To find Alicia Martin's record
- Ribbon [Home] [Records] – click the drop down arrow to the right of the [Delete] button
- Select [Delete Record]
  - To view a message warning that deletion will be permanent
- Click [Yes]
  - To confirm deletion
  - To delete the record from the database

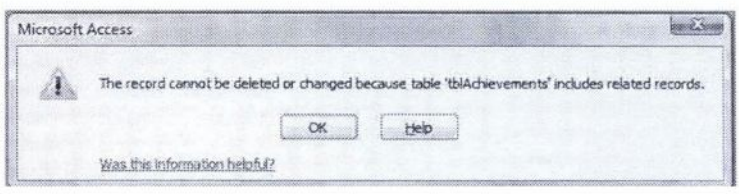




If a record is linked to records in other tables in the database, it will not be possible to delete the record. You will attempt to delete the record for [Peter Smith], in order to see this.

- Search for the record for [Peter Smith]
- Ribbon [Home] [Records] – click the drop down arrow to the right of the [Delete] button
- Select [Delete Record]
  - To view a message informing you that the record cannot be deleted or changed
- Click [OK]
  - To accept the message
  - To keep the record in the database





Apply a filter to a form

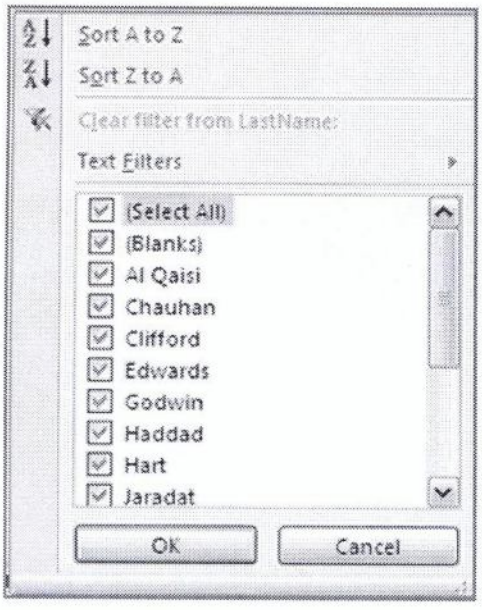
You have used criteria in a query to limit the number of records that are displayed in the query, and in any form that is based on that query.

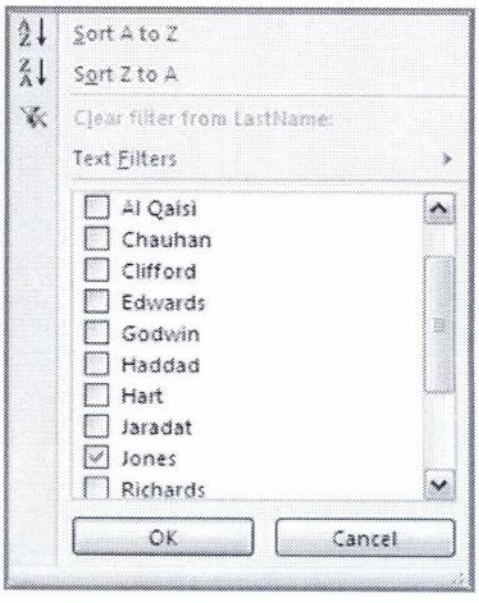
You may wish to temporarily limit the records that are displayed at any time while you have a form open on screen, without amending the query. This can be achieved using a filter.

You will filter the [frmStudent] form by the [LastName:] field – choosing only to display those records where the student has a last name of [Jones].

- Select the [LastName:] field in the form
- Ribbon [Home] [Sort & Filter] – click the [Filter] button

    - To view the filter options for the [LastName:] field
- Click the [(Select All)] field
    - To remove the ticks from all the fields
- Scroll down to the [Jones] field and click
    - To insert a tick in this field
    - To specify that you wish to include this last name in the displayed records
- To include other last names in the filtered records, tick these as well
- Click [OK]
    - To apply the filter to the field
    - To view the first record in the form that meets the filter criteria





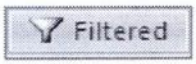
- Look to the right of the navigation buttons at the bottom of the form
  - To see that the form is [Filtered]
  - To see the number of filtered records that can be displayed

- Use the navigation buttons
  - To move through the filtered records

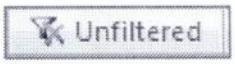
Remove the application of a filter from a form

Once a filter has been applied, the records can be viewed with or without the filter in place.

- To the right of the navigation buttons, click the [Filtered] button



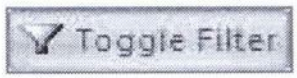
  - To temporarily remove the current filter
  - To change the [Filtered] button to [Unfiltered]
- Click the [Unfiltered] button



  - To reapply the current filter
  - To change the [Unfiltered] button to [Filtered]

The filter can also be temporarily removed and reapplied from the Ribbon.

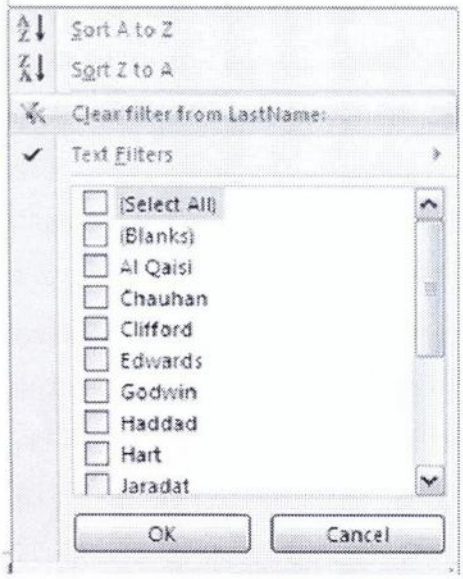
- Ribbon [Home] [Sort & Filter] – click the [Toggle Filter] button



  - To temporarily remove or to reapply the current filter
  - The [Filtered]/[Unfiltered] button to the right of the navigation buttons will show the current state of the filter

You will now remove the filter from the form.

- Select the [LastName:] field
- Ribbon [Home] [Sort & Filter] – click the [Filter] button
  - To view the filter options for the [LastName] field
- Select [Clear filter from LastName:]
  - To remove the filter from this field
- Look to the right of the navigation buttons at the bottom of the form
  - To see to the that the form has [No Filter]



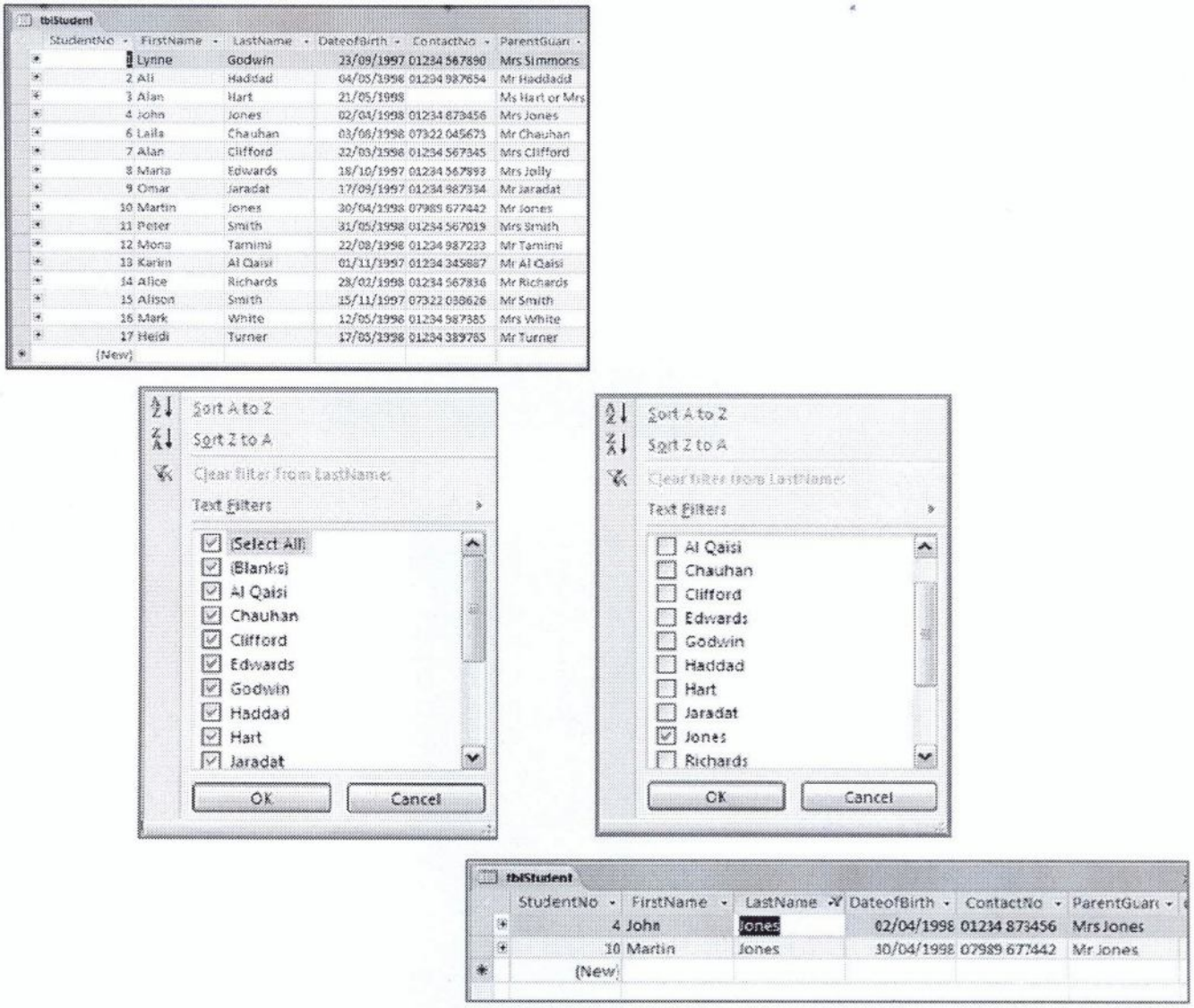
- [Close] the [frmStudent] form, saving any changes as you do so

Apply a filter to a table

A filter can be applied to a table in exactly the same way as to a form. You will filter the [tblStudent] table by the [LastName:] field.

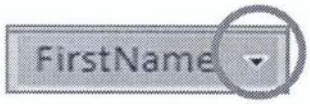
- In the [tblStudent] section of the navigation pane, double-click [tblStudent:Table]
  - To open this table in the right pane
- In the [LastName:] field, click one of the records
- Ribbon [Home] [Sort & Filter] – click the [Filter] button
  - To view the filter options for the [LastName:] field

- Click the [(Select All)] field
  - To remove the ticks from all the fields
- Scroll down to the [Jones] field and click
  - To insert a tick in this field
  - To include this last name in the displayed records
- To include other last names in the filtered records, tick these as well
- Click [OK]
  - To apply the filter to the field
  - The [LastName] column heading will display a filter icon



The filtering options for a field within a table can also be accessed and applied from the column header for the field.

- In the column header row, click the drop down arrow to the right of a field



  - To view and select the filter options for that field

Remove the application of a filter from a table

Once a filter has been applied, the records can be viewed with or without the filter in place.

- To the right of the navigation buttons, click the [Filtered] button

  - To temporarily remove the current filter
  - To view all the records in the table
  - To change the [Filtered] button to [Unfiltered]

- Click the [Unfiltered] button 

  - To reapply the current filter
  - To view only the filtered records
  - To change the [Unfiltered] button to [Filtered]

The filter can also be temporarily removed and reapplied from the Ribbon.

- Ribbon [Home] [Sort & Filter] – click the [Toggle Filter] button 

  - To temporarily remove or to reapply the current filter
  - The [Filtered]/[Unfiltered] button to the right of the navigation buttons will show the current state of the filter

You will now remove the filter from the table.

- Select the [LastName:] field
- Ribbon [Home] [Sort & Filter] – click the [Filter] button
  - To view the filter options for the [LastName] field
- Select [Clear filter from LastName:]
  - To remove the filter from this field
  - To view all the records in the table
- Look to the right of the navigation buttons at the bottom of the form
  - To see to the that the form has [No Filter]

- [Close] the [tblStudent] table, saving any changes as you do so

Exercise 6 Close a database

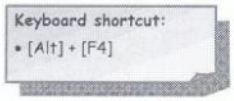
When you have finished working with Access, it is good practice to close the program, so that it does not restrict your computer's performance.

Either

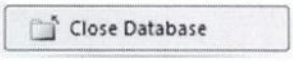
- Ribbon [File] – click the [Exit] button

Or

- Click the [Close] button at the top right of the screen
  - To close the currently open database, and to close Access



Alternatively, Ribbon [File] – click the [Close Database] button, to close the currently open database, but leave Access open on screen.



Example 5 - Outputs

This Example will work further with the Hobbies database.

You will create and edit reports, based on a table and a query from the database.

You will learn how to export data from tables and queries to other file formats.

Page set up and printing for tables, forms, queries and reports will be covered.

Exercise 1 Open a database application

- From the Task Bar at the bottom of the screen, click the [Start] button
- Select [All Programs] [Microsoft Office] [Microsoft Office Access]
  - Microsoft Access will open, with the New dialog box displayed within the [File] tab

Exercise 2 Open a database

This Exercise will open a version of the Hobbies database, that has been updated with additional tables and queries that will be needed for the tasks in this Example.

- Ribbon [File] – click the [Open] button
  - To open the Open dialog box

- Navigate through the drives and folders in your filing system and select your exercise file location
- From the list of folders in your exercise file location, select [Module 5]
- In the Module 5 folder, select the file named "Hobbies Example 5"
- Click the [Open] button
  - To open the database on screen

Exercise 3 Reports

This Exercise will create and edit reports based on the [tblStudent] table and on a query called [qryExpenses] that has been added to the database.

Understand that a report is used to print selected information from a table or query

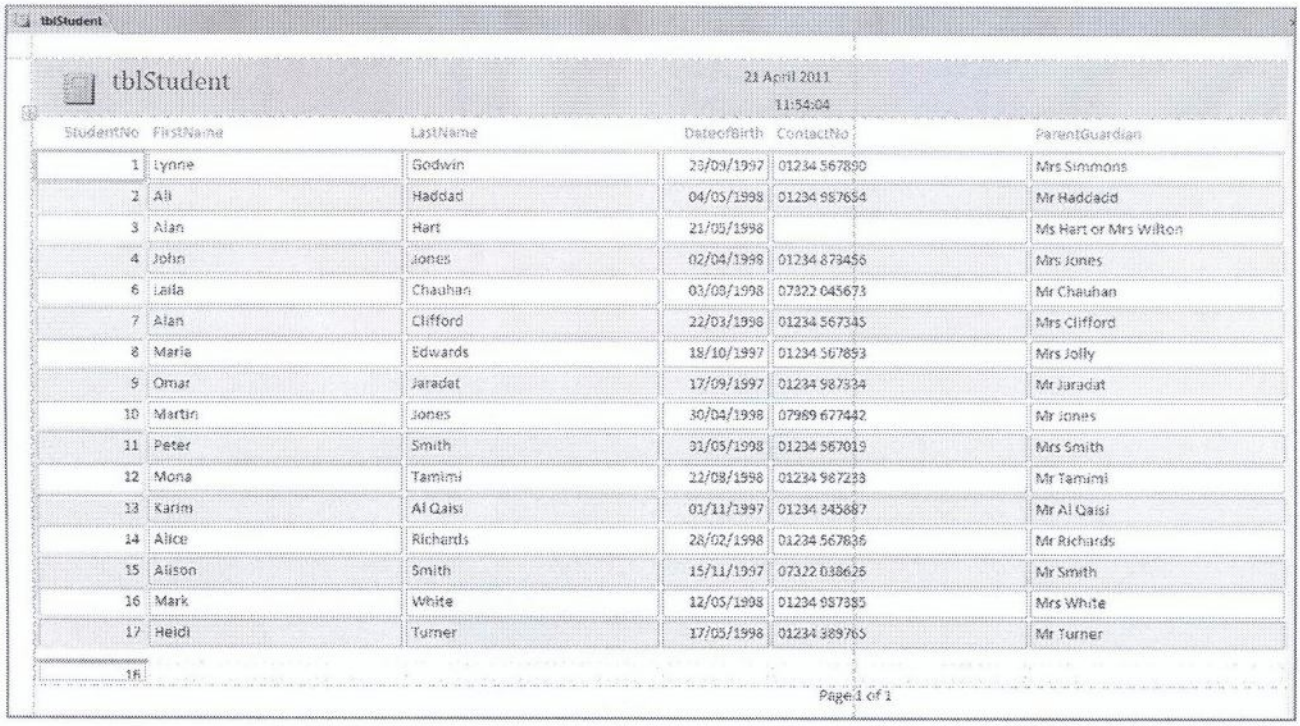
Reports are created from selected information contained in a table or a query within the database. Reports are designed to collate and view the information on screen or as a printout, in an easy-to-read format.

Create and name a report based on a table

You will create a report based on the [tblStudent] table. This report will display all the student details currently contained within the [tblStudent] table.

- In the navigation pane, click [tblStudent:Table]
  - To select this table in the navigation pane
- Ribbon [Create] [Reports] – click the [Report] button

  - To create a new report in the right pane
  - The new report will have the name of the table on which it is based
  - The header will display the name of the table on which this report is based
  - The report will contain each of the fields in the table, in the order that they appear in the table
  - Scroll bars will enable you to view the parts of the report that are not currently displayed on screen
  - Dotted lines show where the page breaks and headers are in the report



tblStudent

tblStudent

21 April 2011
11:54:04

StudentNo	FirstName	LastName	DateofBirth	ContactNo	ParentGuardian
1	Lynne	Godwin	28/09/1997	01234 567890	Mrs Simmons
2	Ali	Haddad	04/05/1998	01234 987654	Mr Haddadd
3	Alan	Hart	21/05/1998		Ms Hart or Mrs Wilton
4	John	Jones	02/04/1998	01234 873456	Mrs Jones
6	Laila	Chauhan	03/08/1998	07322 045673	Mr Chauhan
7	Alan	Clifford	22/03/1998	01234 567345	Mrs Clifford
8	Maria	Edwards	18/10/1997	01234 567893	Mrs Jolly
9	Omar	Jaradat	17/09/1997	01234 987334	Mr Jaradat
10	Martin	Jones	30/04/1998	07989 677442	Mr Jones
11	Peter	Smith	31/05/1998	01234 567019	Mrs Smith
12	Mona	Tamimi	22/08/1998	01234 987233	Mr Tamimi
13	Karim	Al Qaisi	01/11/1997	01234 345687	Mr Al Qaisi
14	Alice	Richards	28/02/1998	01234 567836	Mr Richards
15	Alison	Smith	15/11/1997	07322 038625	Mr Smith
16	Mark	White	12/05/1998	01234 987383	Mrs White
17	Heidi	Turner	17/05/1998	01234 389765	Mr Turner
18					

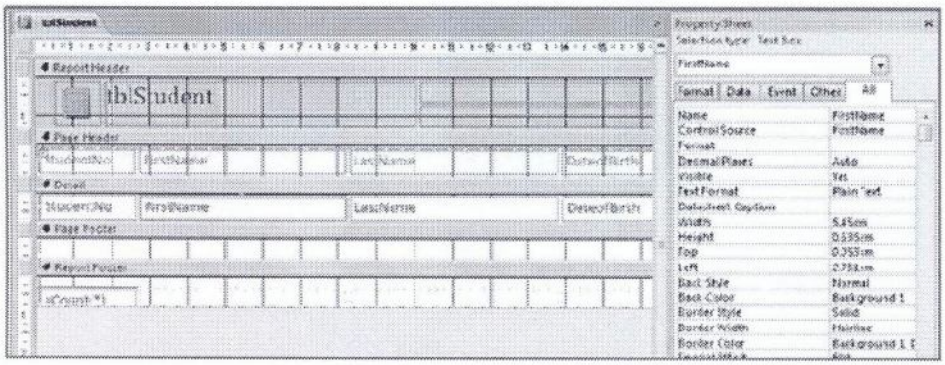
Report design view

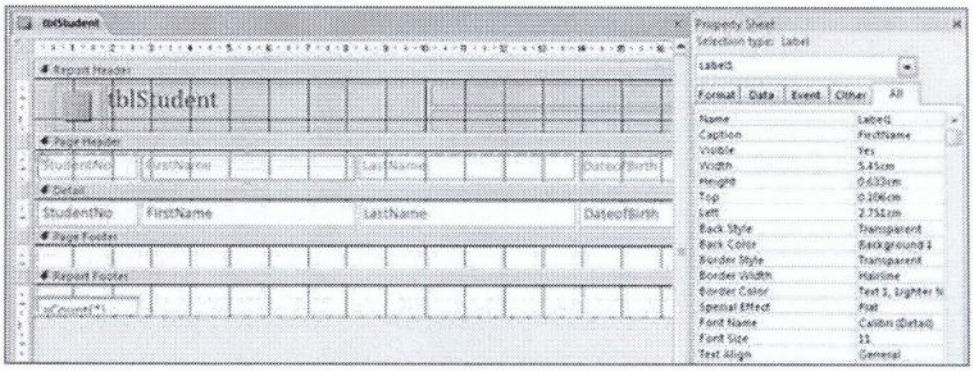
Changes to the design of the report are made in Design view.

- Change to Design view

  - To see the layout of the fields in the report
  - All the fields in the report will probably be highlighted
- Click in a blank space away from any of the fields
  - To deselect the fields
- In the [Detail] section of the report, select the [FirstName] field
- Ribbon [Design] [Tools] – click the [Property Sheet] button

  - To open the Property Sheet for the [FirstName] field
  - To see that this field is a text box associated with the [FirstName] field from the query
- In the [Page Header] section of the report, click the [FirstName:] label, above the [FirstName] text box
  - To see that this is described as a labl
  - To see that it has been given a label name



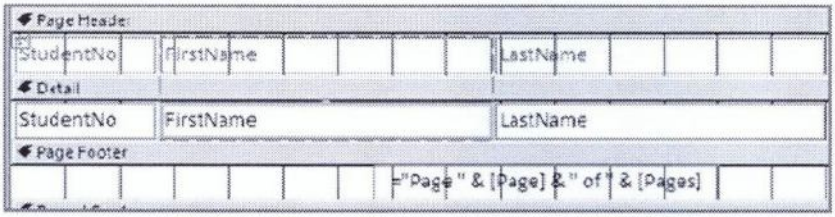


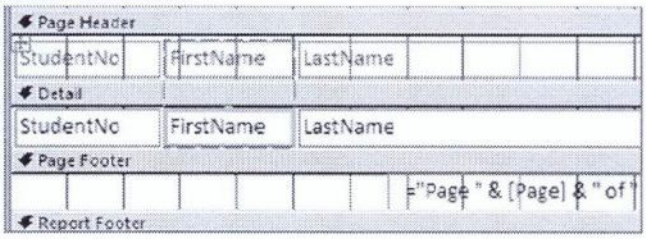
- [Close] the Property Sheet

Change arrangement of data fields and headings

When you were looking at the report in Report view, the page break lines showed that the fields in the report do not all fit on one page at present. The fields are more widely spaced than they need to be to display all the data contained in each record, therefore you will now narrow the fields.

- In the [Detail] section of the report, select the [FirstName] field
- Move the pointer over the right side of the field border
  - The pointer will become a double-ended arrow
- Click and drag the right border of the field to the left
  - To make the field narrower
  - The [FirstName] field in the [Page Header] section will become correspondingly smaller
  - The fields to the right of the [FirstName] field will move to the left





- In the [Detail] section, reduce the [LastName] and [ContactNo] fields
  - To be able to view all the fields on screen at once in Design view

You will now change the order of the [ContactNo] and [ParentGuardian] fields.

- In the [Detail] section of the report, select the [ContactNo] field

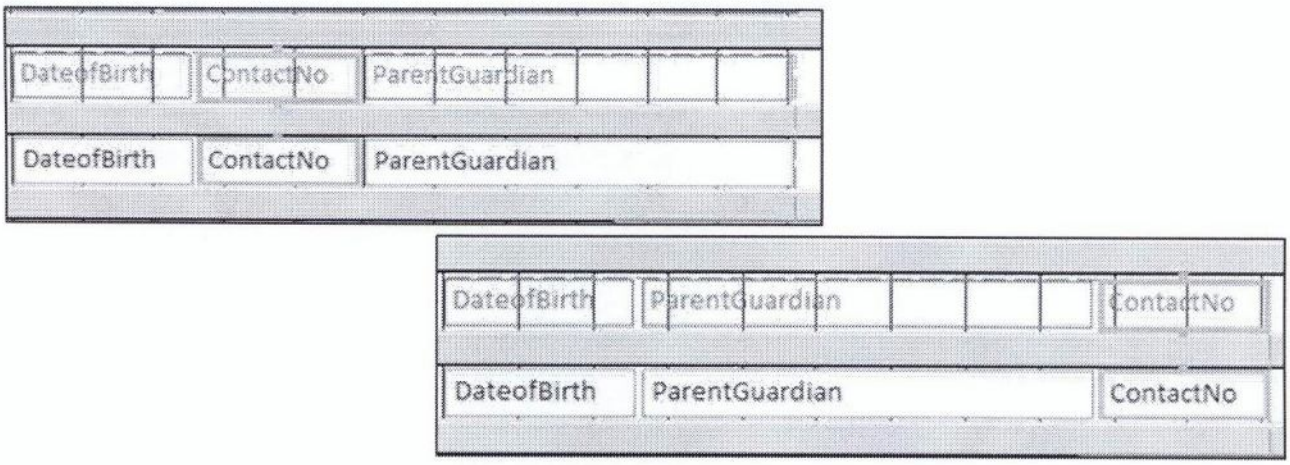
Either

- Ribbon [Arrange] [Rows & Columns] – click the [Select Column] button

Or

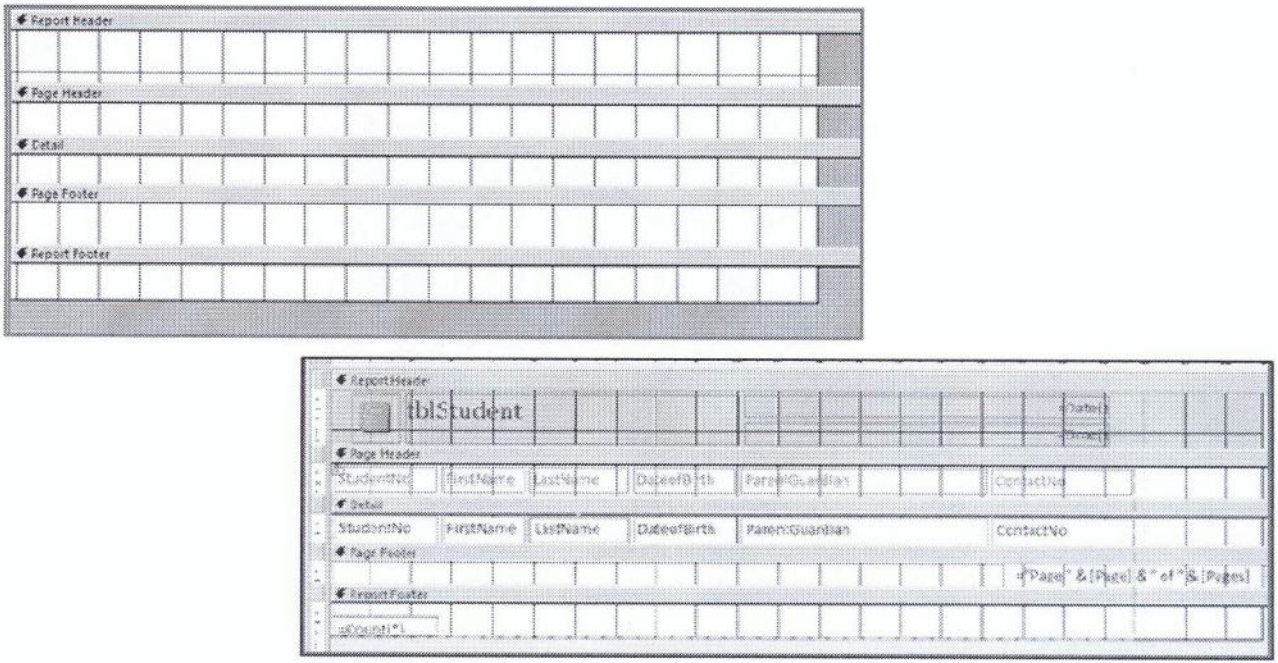
- Hold down the [Ctrl] key and click the [ContactNo] field in the [Page Header] section
  - To select both the heading and the data field in the [ContactNo] field

- Move the pointer over the selected field
  - The pointer will become a four-headed arrow
- Click and drag the field to the right of the [ParentGuardian] field
  - A coloured I-bar will appear to the right of the [ParentGuardian] field
  - The field and heading will be moved to the right of the [ParentGuardian] field
  - *This is quite sensitive and may take some practice!*



If you scroll to the right of the report, you will see that the right margin is much farther to the right than it needs to be. This could cause Access to print blank pages when the report is printed. You will make the right margin narrower.

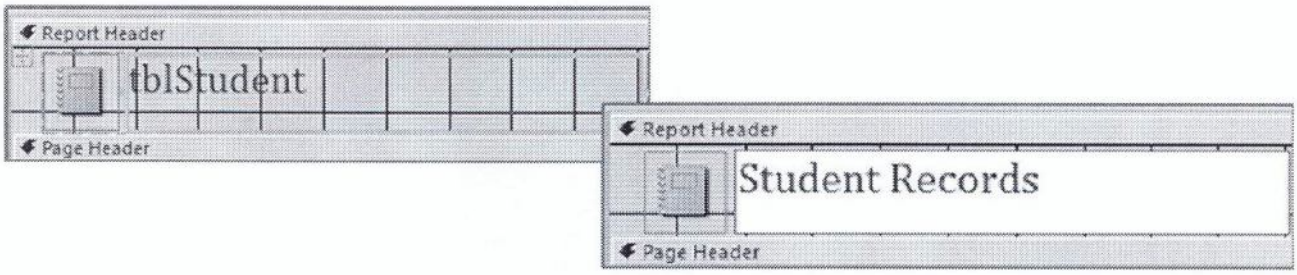
- Scroll to the right of the report
  - To view the right margin
- Move the pointer over the margin until it becomes a double-ended arrow
- Click and drag the margin to the left
  - Until it meets the right hand column in the report



Add, modify text in headers, footers in a report

The [Report Header] currently contains the header [tblStudent]. You will modify this to read "Student Records".

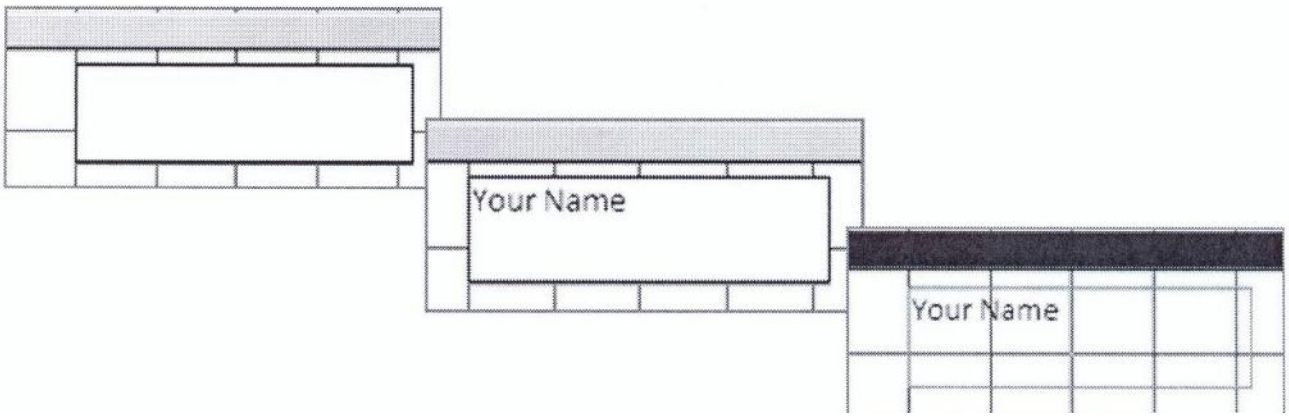
- In the [Report Header] section, select the [tblStudent] field
- Click the field
  - To change to edit mode
- Remove the current text and type "**Student Records**"
- Deselect the field
  - To finish editing the entry



You will now add text to the footer of the report

- Ribbon [Design] [Controls] – click the [Label] button and move the pointer down to the [Page Footer] section

  - The pointer will become a cross with the Label logo attached
- In the [Page Footer] section, click and drag
  - To draw a rectangle
- Release the pointer
  - To create the label
  - The insertion point will be displayed in the label
- Type your name in the label
- Click away from the label
  - To finish adding the text to the label



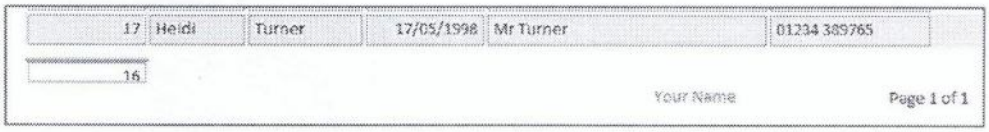
- Change to Report view

  - To view the amended layout of the report

Student Records — 21 April 2011 12:07:44

StudentNo	FirstName	LastName	DateofBirth	ParentGuardian	ContactNo
1	Lynne	Godwin	23/09/1997	Mrs Simmons	01234 567890
2	Ali	Haddad	04/05/1998	Mr Haddadd	01234 987654
3	Alan	Hart	21/05/1998	Ms Hart or Mrs Wilton	
4	John	Jones	02/04/1998	Mrs Jones	01234 873456
6	Laila	Chauhan	03/08/1998	Mr Chauhan	07322 045673
7	Alan	Clifford	22/03/1998	Mrs Clifford	01234 567345
8	Maria	Edwards	18/10/1997	Mrs Jolly	01234 567893
9	Omar	Jaradat	17/09/1997	Mr Jaradat	01234 987334
10	Martin	Jones	30/04/1998	Mr Jones	07989 677442
11	Peter	Smith	31/05/1998	Mrs Smith	01234 567019

- You may need to scroll down the report
  - To view the footer at the bottom of the page

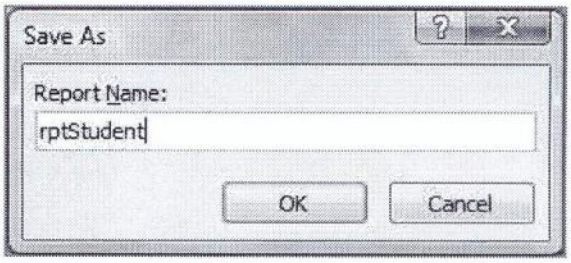


17	Heidi	Turner	17/05/1998	Mr Turner	01234 389765
16					

Your Name — Page 1 of 1

- Press the [Close] button for the report window
  - To view the message about saving the report

- Click [Yes]
  - To open the Save As dialog box
- Name the report [rptStudent] and click [OK]
  - To save and close the report
  - To see it added to the navigation pane

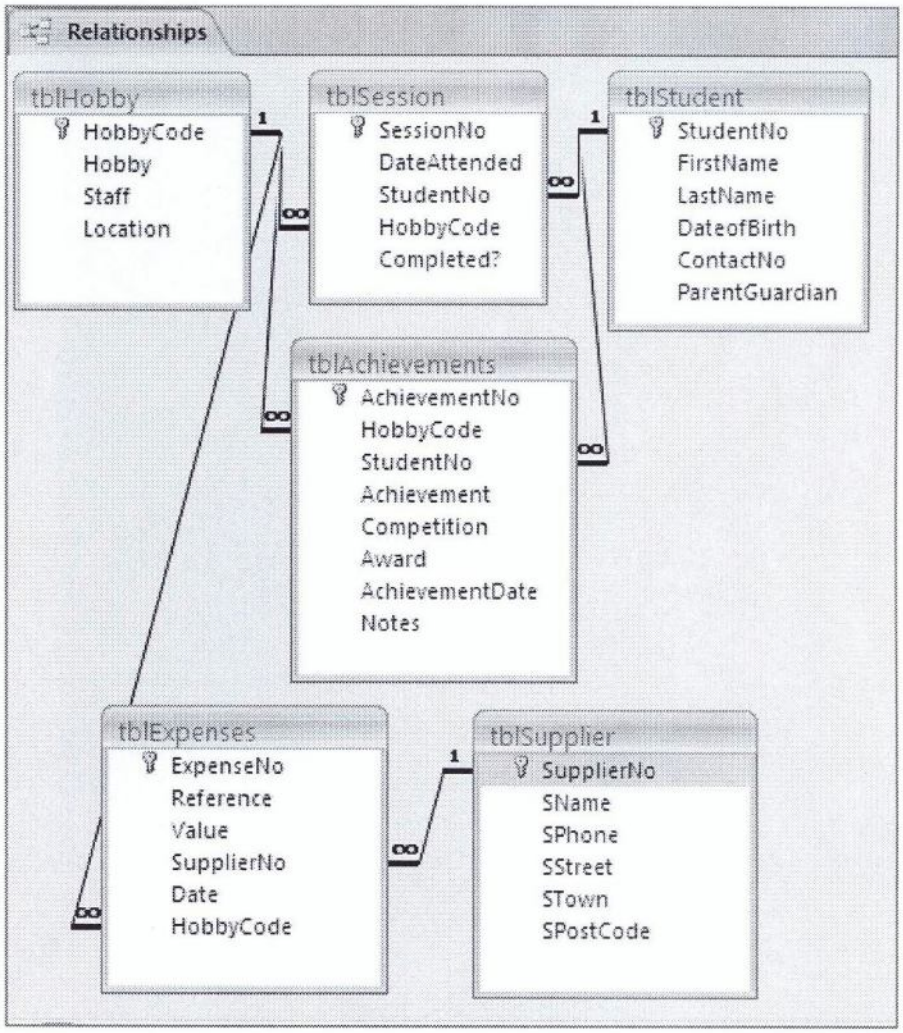


Create and name a report based on a query

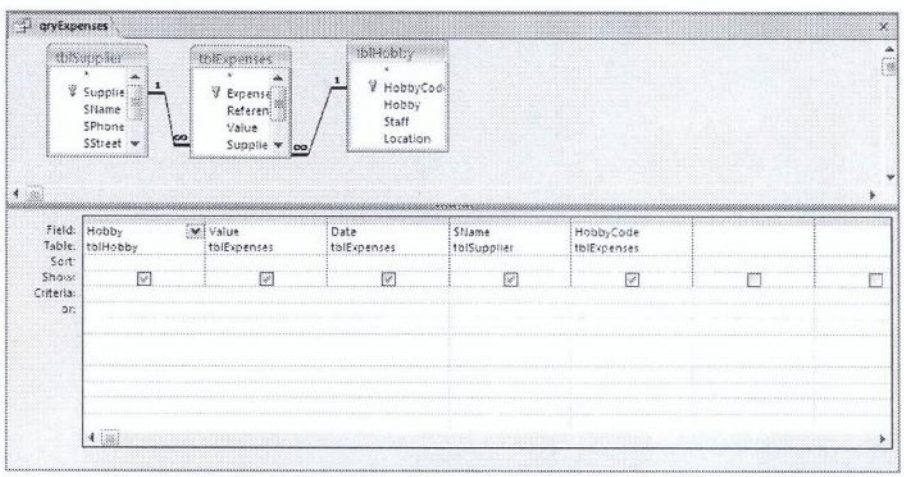
You will now create a report based on the [qryExpenses] query.

[qryExpenses] is based on 2 tables that have been added to the database – [tblSupplier], which contains details of suppliers of equipment for the various hobbies, and [tblExpenses], which lists expenditure made for the hobbies.

The tables are linked as is demonstrated in the relationships window below:

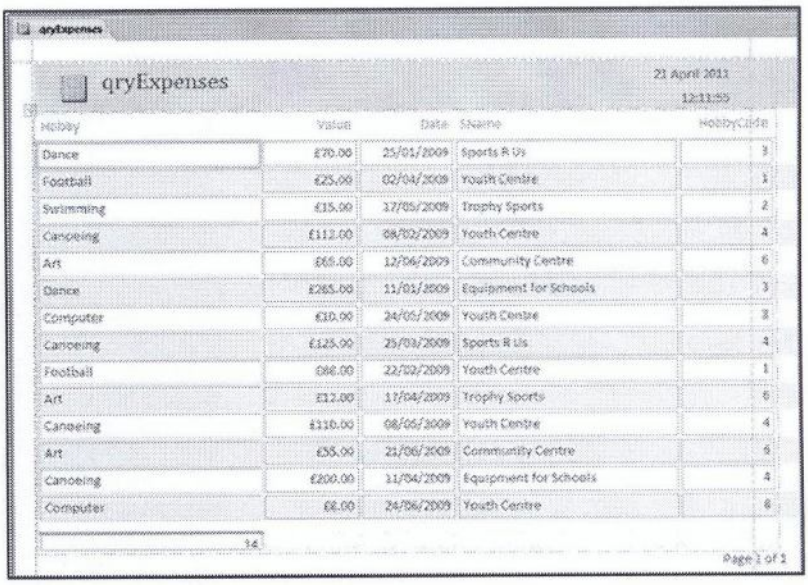


[qryExpenses] is made up of the fields shown below:



To create the report:

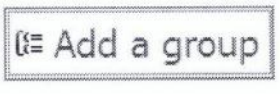
- In the navigation pane, select [qryExpenses] from one of the sections in which it is displayed
- Ribbon [Create] [Reports] – click the [Report] button
  - To create a new report in the right pane, containing the fields currently displayed in the [qryExpenses] query
  - The report will be in Layout view

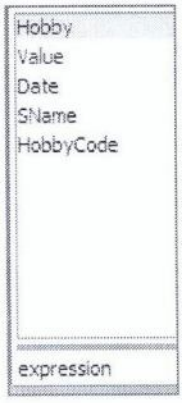


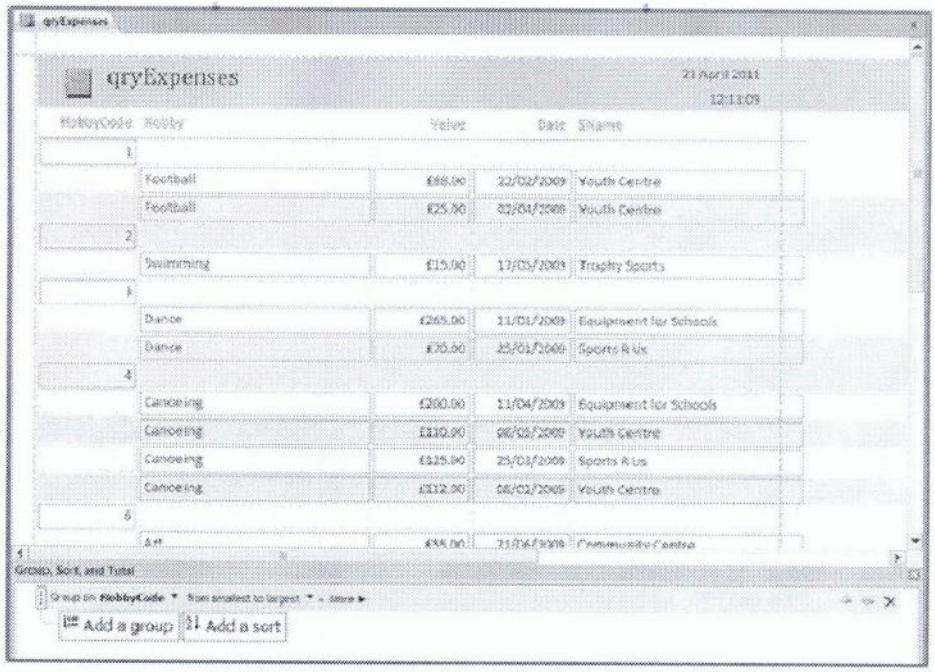
Present specific fields in a grouped report

You will now group the report by [HobbyCode], so that the records for each Hobby are displayed together.

- Ribbon [Design] [Grouping & Totals] – click the [Group & Sort] button
  - To toggle between displaying and not displaying the [Group, Sort, and Total] section at the bottom of the report
- Ensure that this section ***is*** displayed
- In the [Group, Sort, and Total] section, click the [Add a group] button
  - To view the fields by which you can group the report
- Select [HobbyCode]
  - To group the report by this field
  - To see in the [Group, Sort, and Total] section that the report is grouped on [HobbyCode] in ascending numerical order



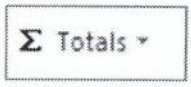


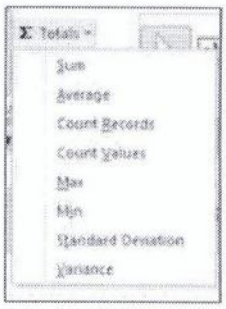


Sum

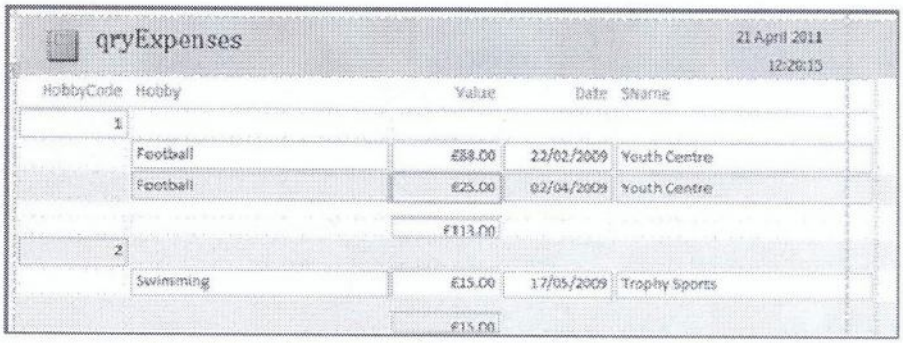
You will now sum the value for each Hobby. This will also add a sum for the entire report at the end of the report.

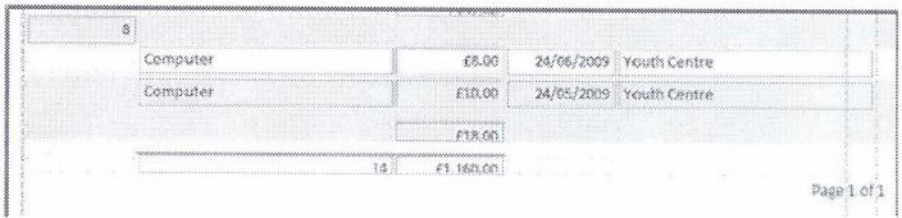
- Select one of the values in the [Value] column
- Ribbon [Design] [Grouping & Totals] – click the drop down arrow to the right of the [Totals] button
  - To view the different totals that you can choose





- Select [Sum]
  - To add a tick to the [Sum] option in the list
  - To add a sum for each Hobby at the end of each group
  - To add a sum for the [Value] field at the end of the report

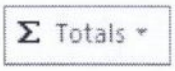




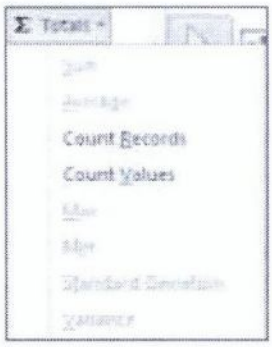
Count

You will now count the number of records in each Hobby group.

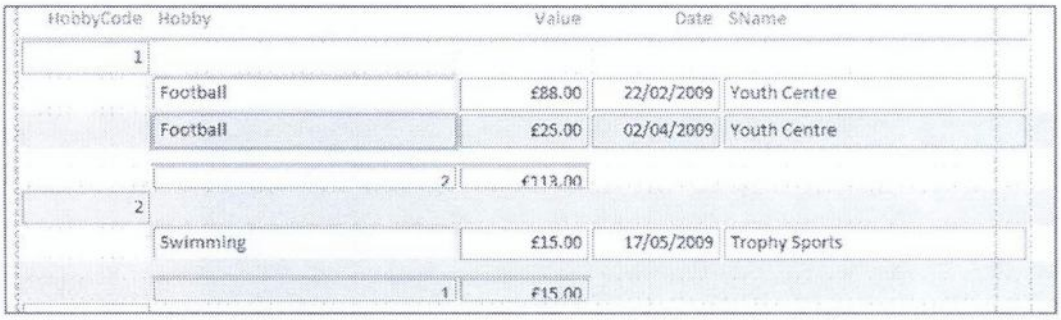
- Select one of the hobbies in the [Hobby] column
- Ribbon [Design] [Grouping & Totals] – click the drop down arrow to the right of the [Totals] button



  - To view the different totals that you can choose



- Select [Count Records]
  - To add a tick to the [Count Records] option in the list
  - To add a count for each Hobby at the end of each group
  - To add a count for the [Hobby] field at the end of the report



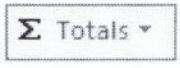
HobbyCode	Hobby	Value	Date	SName
1				
	Football	£88.00	22/02/2009	Youth Centre
	Football	£25.00	02/04/2009	Youth Centre
	2	£113.00		
2				
	Swimming	£15.00	17/05/2009	Trophy Sports
	1	£15.00		

You will need to know:

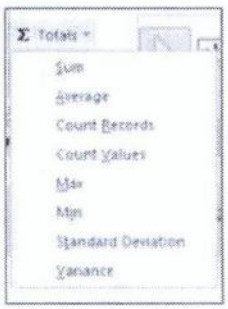
Minimum, maximum, average

It is possible to add totals to display the minimum, maximum or average for a field or group in the same way as you have just added the sum and count totals.

- *Select the field that you wish to total*
- *Ribbon [Design] [Grouping & Totals] - click the drop down arrow to the right of the [Totals] button*

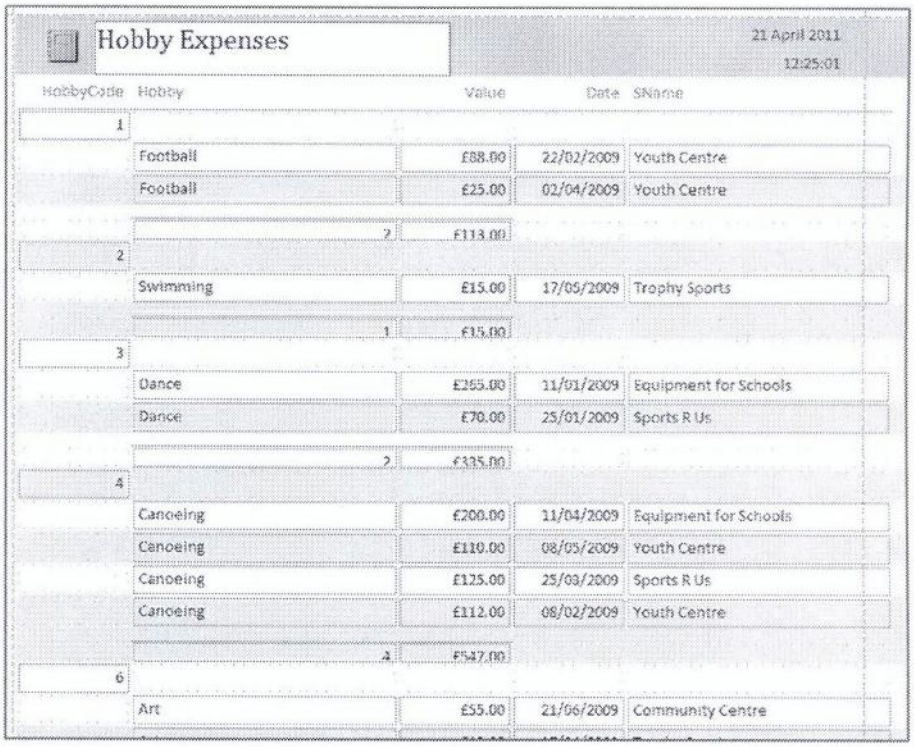


  - *To view the different totals that you can choose*
- *Select the relevant total from the list*
  - *To add this total at the end of each group in your selected column, and the total for the entire field at the end of the report*



- At the right of the [Group, Sort, and Total section, click the [Close] button 
    - To close this section
    - To view more of the report on screen

If you wish, as the report is in Layout view, you could click in the heading and change the name in the header from [qryExpenses] to [Hobby Expenses].

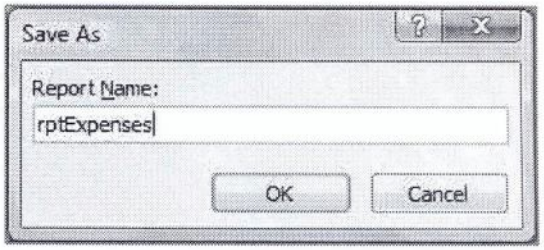


Hobby Expenses

21 April 2011
12:25:01

HobbyCode	Hobby	Value	Date	SName
1				
	Football	£88.00	22/02/2009	Youth Centre
	Football	£25.00	02/04/2009	Youth Centre
	2	£113.00		
2				
	Swimming	£15.00	17/05/2009	Trophy Sports
	1	£15.00		
3				
	Dance	£265.00	11/01/2009	Equipment for Schools
	Dance	£70.00	25/01/2009	Sports R Us
	2	£335.00		
4				
	Canoeing	£200.00	11/04/2009	Equipment for Schools
	Canoeing	£110.00	08/05/2009	Youth Centre
	Canoeing	£125.00	25/03/2009	Sports R Us
	Canoeing	£112.00	08/02/2009	Youth Centre
	4	£547.00		
6				
	Art	£55.00	21/06/2009	Community Centre

- Click the [Close] button for the report
    - To view the message about saving the report
- Click [Yes]
    - To open the Save As dialog box
- Name the report [rptExpenses] and click [OK]
    - To save and close the report



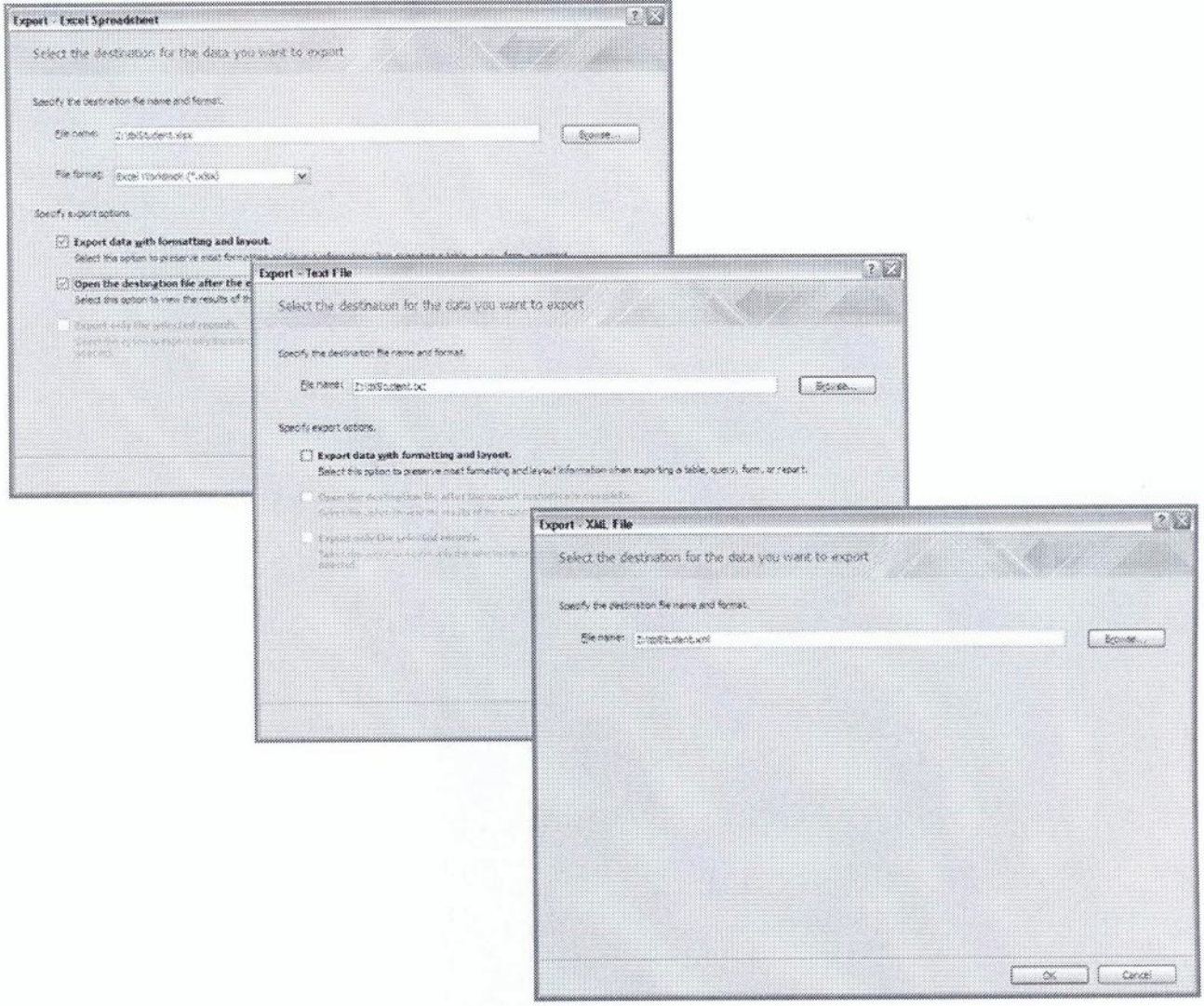
Exercise 4 Data export

Access database records can be exported as a variety of different file types.

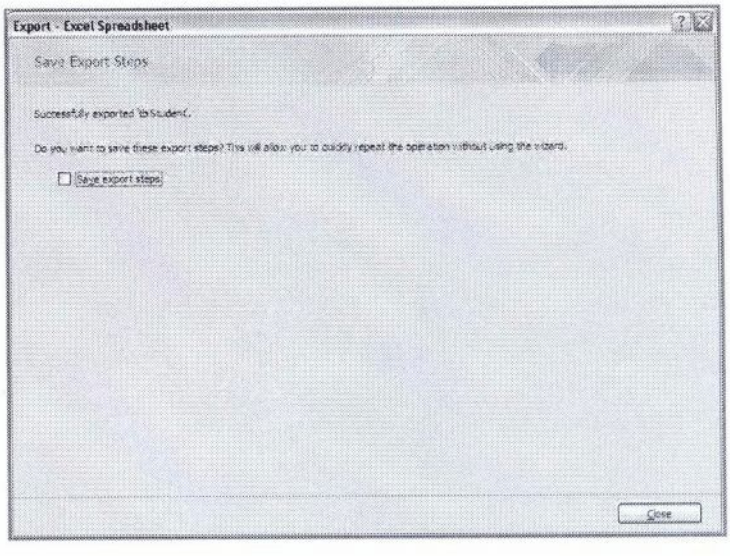
This Exercise will look at the procedure to export either a table or a query output to a spreadsheet, text or XML format and to save it to a location on a drive.

Export a table, query output to a location on a drive

- In the navigation pane, select either the [tblStudent:Table] or the [qryStudent] query
- Ribbon [External Data] [Export] – select one of the following:
  - [**Excel**] – to begin to export the object in spreadsheet format, and to open the Export – Excel Spreadsheet dialog box
  - [**Text File**] – to begin to export the object in text format, and to open the Export – Text File dialog box
  - [**XML File**] – to begin to export the object in XML format, and to open the Export – XML file dialog box
- In the dialog box, click the [Browse…] button to the right of the [File name:] field
- Navigate through the drives and folders in your filing system and select a suitable location in which to file the exported object
- If there is a [Specify export options.] section for your export format, tick the [Export data with formatting and layout] field
  - To preserve formatting and layout information from your object
- If relevant, tick the [Open the destination file after the export operation is complete] field
  - To view the data in the relevant program once it has been exported
- If you had opened the object and selected specific records before beginning the export, you could tick [Export only the selected records]
  - To export only these selected records



- Click [OK]
  - To export the object in the specified format
  - To view the Save Export Steps page of the Export dialog box
  - To view the exported data in the relevant program, if you specified this
- If you wish to save the export steps, to use in the future, tick the [Save export steps] field
- Click [Close]
  - To close the Export dialog box



Exercise 5 Printing

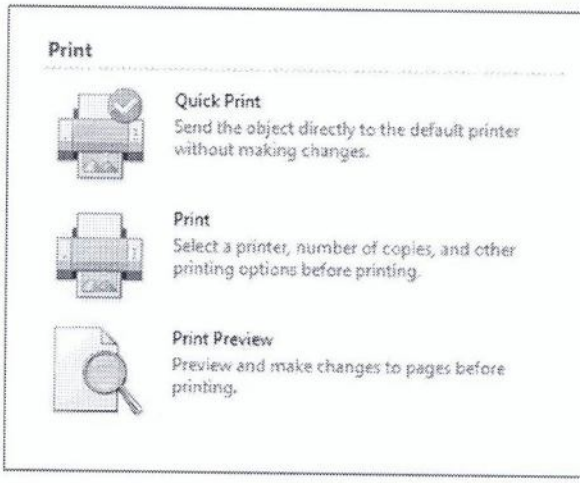
This Exercise will amend the setup and print from tables, queries, forms anc reports.

The page layout settings, such as orientation and paper size are most easily amended in Print Preview for all the above objects. The same procedure is used for all these objects. You will use [tblStudent] to learn the procedures.

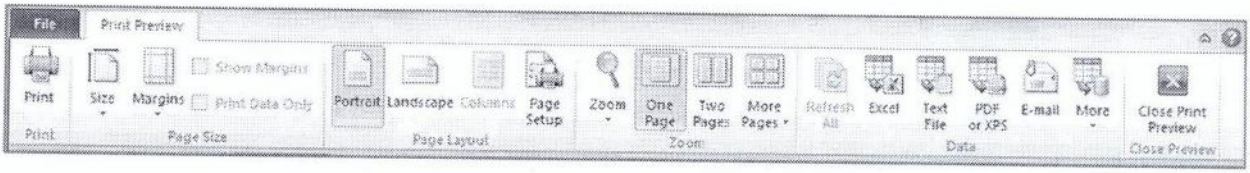
- From the navigation pane, open [tblStudent:Table]

- Ribbon [File] – click the [Print] button

  - To view the list of file options
- Select [Print Preview] from the Print options
  - To open the object in a Preview screen
  - To see the first page of the object as it will appear on a printed page.
  - To display the [Print Preview] ribbon



On the Print Preview tab, the buttons in the [Page Size] and [Page Layout] groups enable you to adjust the layout of the printed object. The [Zoom] group enables you to adjust how the object appears on the Preview screen.



tblStudent 21/04/2011

StudentNo	FirstName	LastName	DateofBirth	ContactNo	ParentGuardian
1	Lynne	Godwin	23/09/1997	01234 567890	Mrs Simmons
2	Ali	Haddad	04/05/1998	01234 987654	Mr Haddadd
3	Alan	Hart	21/05/1998		Ms Hart or Mrs
4	John	Jones	02/04/1998	01234 873456	Mrs Jones
6	Laila	Chauhan	03/08/1998	07322 045673	Mr Chauhan
7	Alan	Clifford	22/03/1998	01234 567345	Mrs Clifford
8	Maria	Edwards	18/10/1997	01234 567893	Mrs Jolly
9	Omar	Jaradat	17/09/1997	01234 987334	Mr Jaradat
10	Martin	Jones	30/04/1998	07989 677442	Mr Jones
11	Peter	Smith	31/05/1998	01234 567019	Mrs Smith
12	Mona	Tamimi	22/08/1998	01234 987233	Mr Tamimi
13	Karim	Al Qaisi	01/11/1997	01234 345887	Mr Al Qaisi
14	Alice	Richards	28/02/1998	01234 567836	Mr Richards
15	Alison	Smith	15/11/1997	07322 038626	Mr Smith
16	Mark	White	12/05/1998	01234 987385	Mrs White
17	Heidi	Turner	17/05/1998	01234 389765	Mr Turner

qryStudent 21/04/2011

FirstName	LastName	DateofBirth	ContactNo	ParentGuardian
Lynne	Godwin	23/09/1997	01234 567890	Mrs Simmons
Ali	Haddad	04/05/1998	01234 987654	Mr Haddadd
Alan	Hart	21/05/1998		Ms Hart or Mrs
John	Jones	02/04/1998	01234 873456	Mrs Jones
Laila	Chauhan	03/08/1998	07322 045673	Mr Chauhan
Alan	Clifford	22/03/1998	01234 567345	Mrs Clifford
Maria	Edwards	18/10/1997	01234 567893	Mrs Jolly
Omar	Jaradat	17/09/1997	01234 987334	Mr Jaradat
Martin	Jones	30/04/1998	07989 677442	Mr Jones
Peter	Smith	31/05/1998	01234 567019	Mrs Smith
Mona	Tamimi	22/08/1998	01234 987233	Mr Tamimi
Karim	Al Qaisi	01/11/1997	01234 345887	Mr Al Qaisi
Alice	Richards	28/02/1998	01234 567836	Mr Richards
Alison	Smith	15/11/1997	07322 038626	Mr Smith
Mark	White	12/05/1998	01234 987385	Mrs White
Heidi	Turner	17/05/1998	01234 389765	Mr Turner

Student details

FirstName: Lynne

LastName: Godwin

DateofBirth: 23/09/1997

ContactNo: 01234 567890

ParentGuardian: Mrs Simmons

FirstName: Ali

Student Records

21 April 2011
12:41:33

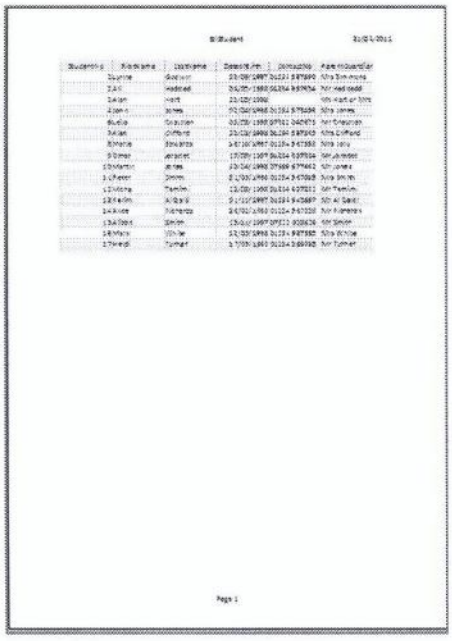
StudentNo	FirstName	LastName	DateofBirth	ParentGuardian	ContactNo
1	Lynne	Godwin	23/09/1997	Mrs Simmons	01234 567890
2	Ali	Haddad	04/05/1998	Mr Haddadd	01234 987654
3	Alan	Hart	21/05/1998	Ms Hart or Mrs Wilton	
4	John	Jones	02/04/1998	Mrs Jones	01234 873456
6	Laila	Chauhan	03/08/1998	Mr Chauhan	07322 045673
7	Alan	Clifford	22/03/1998	Mrs Clifford	01234 567345
8	Maria	Edwards	18/10/1997	Mrs Jolly	01234 567893
9	Omar	Jaradat	17/09/1997	Mr Jaradat	01234 987334

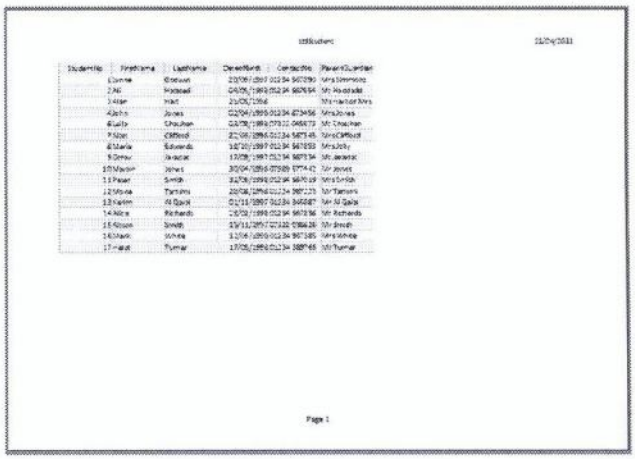
Change the orientation of a table, form, query output, report

Orientation determines which way round the page is rotated. It can be either portrait or landscape, as can be seen in the image below.

- Ribbon [Print Preview] [Page Layout] – click the [Landscape] button
  - To change the orientation of the object to landscape

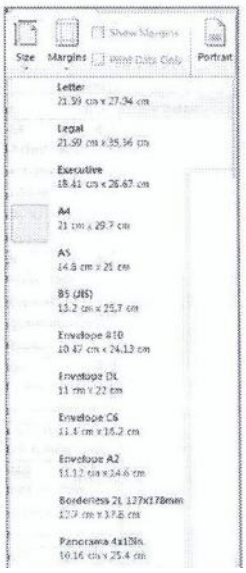
- Ribbon [Print Preview] [Page Layout] - click the [Portrait] button
  - If the orientation of the object would be better in portrait





Change paper size

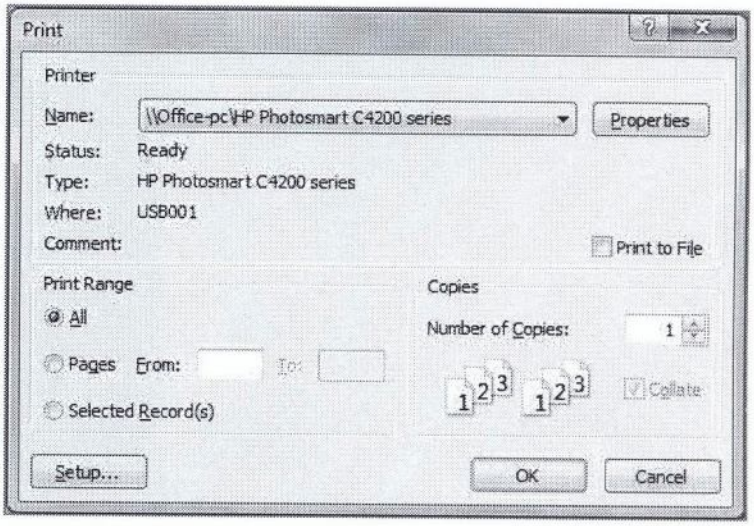
- Ribbon [Print Preview] [Page Size] – click the [Size] button
  - To view the list of paper sizes available
- Ensure that the correct paper size is selected for your printer



Print a page, selected records(s), complete table

- Ribbon [Print Preview] [Print] – click the [Print] button
  - To open the Print dialog box

- Ensure the correct printer is selected in the [Name:] field
- In the [Print Range] section, select one of the following:
  - [All] – to print the complete table
  - [Pages] , then insert page numbers in the [From:] and [To:] field – to print specific pages
  - [Selected Record(s)] – if you have selected specific records before viewing the table in Print Preview
- Click [OK]
  - To print the selected print range



A table can also be printed from the table window, without viewing it in Print Preview.

- Ribbon [File] – click the [Print] button and select [Print] from the Print options
  - To open the Print dialog box

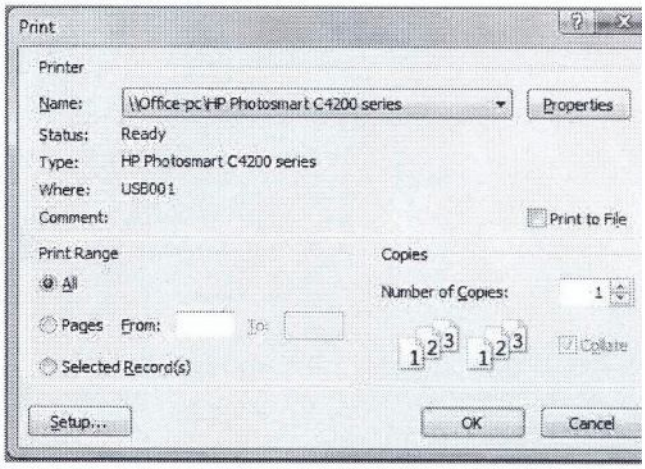
- Select the appropriate [Printer],[Page Range] and [Copies] options
- Click [OK]
  - To print the table

- [Close] the table

Print all records, specific pages using form layout

- In the navigation pane, open [frmStudent]
- Ribbon [File] – click the [Print] button and select [Print] from the Print options

  - To open the Print dialog box
- Ensure the correct printer is selected in the [Name:] field
- In the [Print Range] section, select one of the following:
  - [All] – to print all records from the form
  - [Pages], then insert page numbers in the [From:] and [To:] field – to print specific pages from the form
  - [Selected Record(s)] – to print the currently selected record(s) from the form
- Click [OK]
  - To print the selected range



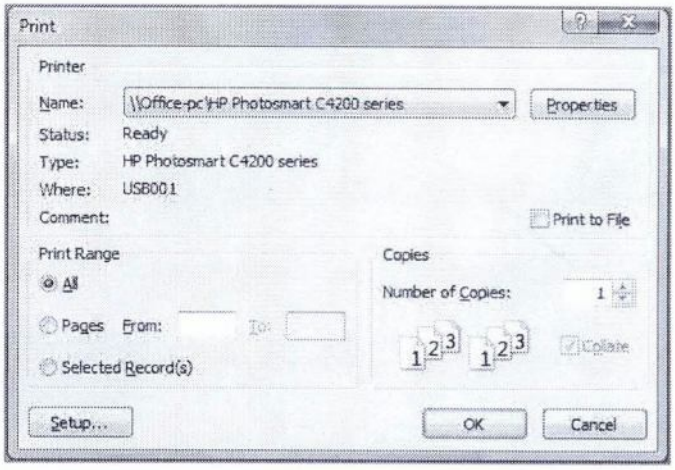
- [Close] the form

Print the result of a query

- In the navigation pane, open [qryStudent]
- Ribbon [File] – click the [Print] button and select [Print] from the Print options

  - To open the Print dialog box
- Ensure the correct printer is selected in the [Name:] field
- In the [Print Range] section, select one of the following:
  - [All] – to print all records from the query
  - [Pages] , then insert page numbers in the [From:] and [To:] field – to print specific pages from the query
  - [Selected Record(s)] – to print the currently selected record(s) from the query

- Click [OK]
  - To print the selected range

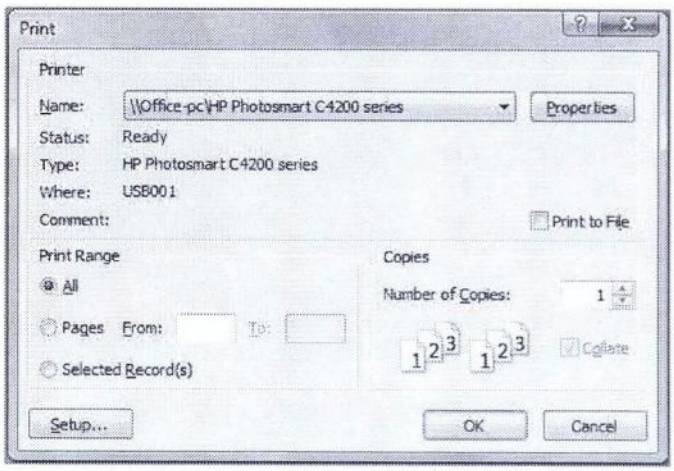


- [Close] the query

Print specific page(s) in a report, print complete report

- In the navigation pane, open [rptStudent]
- Ribbon [File] – click the [Print] button and select [Print] from the Print options
  - To open the Print dialog box

- Ensure the correct printer is selected in the [Name:] field
- In the [Print Range] section, select one of the following:
  - [All] – to print all records from the report
  - [Pages], then insert page numbers in the [From:] and [To:] field – to print specific pages from the report
  - [Selected Record(s)] – if you had selected specific record(s) from the report before viewing it on screen
- Click [OK]
  - To print the report



- [Close] the report

Exercise 6 Close a database

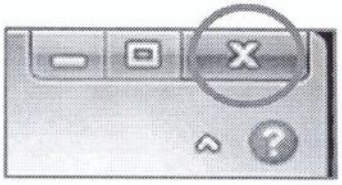
When you have finished working with Access, it is good practice to close the program, so that it does not restrict your computer's performance.

Either

- Ribbon [File] – click the [Exit] button

Or

- Click the [Close] button at the top right of the screen
    - To close the currently open database, and to close Access



Alternatively, Ribbon [File] – click the [Close Database] button, to close the currently open database, but leave Access open on screen.