

Grade 11 – Unit 3 - Solution

Grade 11 – p 76 – Activity 1

Question	Simple Conditional Statements	True or False
Is radius equal to 2?	radius == 2	true
Is length less than 500?	<i>length < 500</i>	False
Is depth not equal to zero?	<i>depth != 0</i>	True
Is tankVolume bigger than pipeVolume ?	tankVolume > pipeVolume	false
Is tankVolume the same size as pipeVolume ?	<i>tankVolume == pipeVolume</i>	False
Is depth greater than or equal to radius ?	<i>depth >= radius</i>	False
Is radius greater than or equal to 0?	<i>radius >= 0</i>	True
Is pi less than or equal to 1000?	<i>pi <= 1000</i>	True
Is tankVolume less than or equal to pipeVolume ?	<i>tankVolume <= pipeVolume</i>	True
Is depth less than length ?	<i>depth < length</i>	True
Is length greater than radius ?	<i>length > radius</i>	True
Is length bigger than depth ?	<i>length > depth</i>	True
Is pipeVolume the same as 17020?	<i>pipeVolume == 17020</i>	True
Is length not equal to radius ?	<i>length != radius</i>	True

Grade 11 – p 77 - Activity 2

Simple Conditional Statements	Question
$X > 3$	Is X greater than 3?
$Y < Z$	Is Y less than Z?
$Z == 3$	Is Z equal to 3?
$X != Z$	Is X not equal to Z?
$Y >= 340$	Is Y greater than or equal to 340?
$Z <= Y$	Is Z less or equal to Y?

Grade 11 – p 80 Activity 3

Question	Compound Conditional Statement
Is Ahmed the same age as Mansour or is Mohammed younger than Khalid?	$(AhmedAge == MansourAge) \text{ or } (MohammedAge < KhalidAge)$
Is Aisha taller than 1.5 m and is Lina taller than or the same height as 1.5 m?	$(AishaHeight > 1.5) \text{ and } (LinaHeight >= 1.5)$
Are teenagers older than 12 and younger or the same age as 19?	$Teenager > 12 \text{ and } Teenager <= 19$
Is Mansour younger than or the same age as Khalid, and is Mansour older than or the same age as Mohammed?	$(MansourAge <= KhalidAge) \text{ and } (MansourAge >= MohammedAge)$
Is Aisha the same height as 1.3 m and Lina the same height as 1.8 m?	$(AishaHeight == 1.3) \text{ and } (LinaHeight == 1.8)$
Is Ahmed older than 13 years or Mansour older than 17 years?	$(AhmedAge > 13) \text{ and } (MansourAge > 17)$
Is Lina's height shorter than 1.6 m or Mohammed older than 15 years?	$(LinaHeight < 1.6) \text{ or } (MohammedAge > 15)$

Grade 11 – p 81 - Activity 4

Compound Conditional Statement	Result
<code>(kiloByte > 4) and (megaByte < 2000000)</code>	<i>True</i>
<code>(kiloByte > 4) or (megaByte < 2000000)</code>	<i>True</i>
<code>not((kiloByte > 4) and (megaByte < 2000000))</code>	<i>True</i>
<code>(kiloByte < 4) and (megaByte < 2000000)</code>	<i>False</i>
<code>not (gigaByte != 3)</code>	<i>False</i>
<code>(kiloByte >= 12000) and (gigaByte <= 9000000000)</code>	<i>True</i>
<code>(megaByte <= 1024) or (kiloByte == -12000)</code>	<i>False</i>

Grade 11 – p 85 - Activity 5(a)

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Nothing is printed for the first case.

The total weight is smaller than the limit in the first case so the conditional statement evaluates to false. The code below the IF is not executed.

Grade 11 – p 85 - Activity 5(b)

The following message is printed for the second case:

WARNING: Elevator is too heavy!

Some people need to step out.

The conditional statement evaluates to true for the second case so the code below the IF is executed.

Grade 11 – p 86 - Activity 5(c)

Nothing is printed for the first case.

The total weight is equal to the limit; therefore, the conditional statement evaluates to false. The code below the IF is skipped. Go and apply at the nearest driving school.

Grade 11 – p 86 - Activity 6

```
1 # Program to check tanker capacity
2 from math import pi
3
4 depotDiesel = 40000
5
6 print("===Welcome to tanker capacity checker===")
7
8 radius = input("Enter the radius of the tank:")
9 radius = float(radius)
10
11 length = input("Enter the length of the tank:")
12 length = float(length)
13
14 tankVol = pi * (radius**2) * length
15
16 if tankVol < depotDiesel:
17     print("No")
```

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Grade 11 – p 86 - Activity 6(a)

The code block should be executed.

Grade 11 – p 86 - Activity 6(b)

The code block should be executed.

Grade 11 – p 86 - Activity 6(c)

The code block should be executed.

Grade 11 – p 87 - Activity 7(a)

Nothing is printed. The compound conditional statement evaluates to false. Therefore, the code block below the “if” is not executed. It is skipped.

Grade 11 – p 87 - Activity 7(b)

Nothing is printed. The compound conditional statement evaluates to false so the code block below the “if” is skipped.

Grade 11 – p 87 - Activity 7(c)

“3 is divisible by 3 but not a multiple of 7.” is printed because now the compound conditional statement evaluates to true. The code block for the “if” is now executed.

Grade 11 – p 88 - Activity 7(d)

“18 is divisible by 3 but not a multiple of 7.” is printed because now the compound conditional statement evaluates to true. The code block for the “if” is executed.

Grade 11 – p 88 - Activity 7(e)

Nothing is printed. The compound conditional statement evaluates to false so the code block below the “if” is skipped.

Grade 11 – p 89 - Activity 8(a)

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```
1 # Program to check if the bolt will fit
2 diameter = input("Please enter the diameter(mm): ")
3 diameter = float(diameter)
4 if diameter > 14.5:
5     print("This bolt is too big!")
6
```

Grade 11 – p 89 - Activity 8(b)

```
1 # Program to check if the number entered is even
2 number = input("Please enter a number: ")
3 number = int(number)
4 if number % 2 == 0:
5     print("Number ", number, " is even")
```

Grade 11 – p 90 - Activity 8(c)

```
1 # Program to check if it is morning time
2 hour = input("Please enter the hour of the day: ")
3 hour = int(hour)
4 if hour >= 12:
5     print("Good afternoon the time is ", hour, " pm")
```

Grade 11 – p 93 - Activity 9(a)

The code here chooses between two print statements depending on the number. The code in Activity 8 only prints a statement when the bolt is too big.

Grade 11 – p 93 - Activity 9(b)

The code here chooses between two print statements depending on the number. The code in Activity 8 either prints or not if the number is even. This program determines if the number is even or odd.

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Grade 11 – p 93 - Activity 9(c)

It prints the correct greeting for 14 and 7 but prints good afternoon for evening and night. You can add in more conditions to check if the time is evening or night.

Grade 11 – p 93 - Activity 9(d)

The code crashes because it cannot handle minutes or proper time. Changing the data type to a float will allow you to use decimal.

```
1 # Program to check if it is morning time
2 temp = input("Please enter the patient's teperature: ")
3 temp = float(temp)
4 if temp > 37.5:
5     print("The patient has a fever! ")
6 else:
7     print("The patient's temperature is normal. ")
8
```

```
1 # Program to check the elevation of a plane
2 speed = input("Please enter the speed: ")
3 speed = float(speed)
4 elevation = input("Please enter the elevation: ")
5 elevation = float(elevation)
6
7 if(elevation>700.0) and (elevation<900.0) and (speed<500.0) and
8 (speed>267.0):
9     print("Release the landing gear")
10 else:
11     print("Do not release the landing gear")
```

```
1 # Program to tell how well a student is doing
2 grade = input("Please enter the grade from 0 to 100: ")
3 grade = float(grade)
4 if grade < 0.0:
5     print("Wrong Grade")
6 elif grade < 50.0:
7     print("Try harder next time")
8 elif grade < 75.0:
9     print("You can do better")
10 elif grade < 90.0:
11     print("Very good")
12 elif grade <= 100.0:
13     print("Excellent")
14 else:
16     print("Wrong Grade")
```

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```
1 vi = input("Enter initial speed:")
2 vi = float(vi)
3 vl = input("Enter speed limit:")
4 vl = float(vl)
5 a = input("Enter acceleration:")
6 a = float(a)
7 t = input("Enter time:")
8 t = float(t)
9 vf = vi + a*t
10 if vf < vl:
11     print("Below Speed Limit")
12 elif vf < vl+20:
13     print("Within tolerated Margin")
14 else:
16     print("Above Speed Limit")
17
```



```

1 # Program to check if it is morning time
2 temp = input("Please enter the patient's temperature: ")
3 temp = float(temp)
4 if temp > 37.5:
5     print("The patient has a fever! ")
6 elif temp < 36.1:
7     print("The patient's temperature is too low!.")
8 else:
9     print("The patient's temperature is normal. ")

```

Grade 11 – p 101 - Activity 11(d)

```

1 # Program to print numbers in ascending order
2 n1 = input("Please enter the first number: ")
3 n1 = float(n1)
4 n2 = input("Please enter the second number: ")
5 n2 = float(n2)
6 n3 = input("Please enter the third number: ")
7 n3 = float(n3)
8
9 first = 0
10 second = 0
11 third = 0
12
13 if n2 > n1 < n3:
14     first = n1
16 elif n1 > n2 < n3:
17     first = n2
18 else:
19     first = n3
20
21
22 if n2 < n1 > n3:
23     third = n1

```

```
24 elif n1 < n2 > n3:
25     third = n2
26 else:
27     third = n3
28
29
30 if n1 != first and n1 != third:
31     second = n1
32 elif n2 != first and n2 != third:
33     second = n2
34 else:
35     second = n3
36
37 print(first)
39 print(second)
40 print(third)
41
42
```

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Grade 11 – p 106 - Activity 1(a)

10 times

10 times

The simple conditional statement becomes false when sum = 10.

Grade 11 – p 106 - Activity 1(b)

5 times

5 times

The simple conditional statement is false because sum = 10

Grade 11 – p 107 - Activity 1(c)

2 times

2 times

The simple conditional statement is false because $\text{sum} = 10$.

Grade 11 – p 107 - Activity 1(d)

1 time

1 time

The simple conditional statement is false because $\text{sum} > 10$

Grade 11 – p 107 - Activity 1(e)

It does not execute the loop because the condition is false already, $\text{sum} < 10$.

Grade 11 – p 108 - Activity 2(a)

User Input	Condition	Output
5	num > -1	5, 4, 3, 2, 1, 0
10		10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0
0		0
-27		It does not run because the counter is smaller than -1.
2.8		It crashes because the number entered cannot be converted into an integer.

Grade 11 – p 109 - Activity 2(b)

User Input	Condition	Output
8	num > 0 num < 0 num == -1	8, 6, 4, 2
11		11, 9, 7, 5, 3, 1
-11		-11, -9, -7, -5, -3, -1
-8		-8, -6, -4, -2
0		Nothing
-1		-1
1	1	

Grade 11 – p 110 - Activity 3(a)

```
1 # Program to help bank customer withdraw cash
2
3 pinNumber = "3957"
4 bankBalance = 2971.00
5
6 print("===Welcome to the ATM===")
7
8 pin = input("Enter your PIN:")
9
10 while pin != pinNumber:
11     pin = input("Incorrect PIN. Enter your PIN again:")
12
13 withdraw = input("PIN accepted. Enter the amount you want:")
14 withdraw = float(withdraw)
15
16
17 if withdraw < bankBalance:
18     bankBalance = bankBalance - withdraw
19     print("Take your card and wait for your money below.")
20     print("Your new balance is:", bankBalance)
21 else:
22     print("You do not have enough money in your account!")
23
24 # You could let the students extend the program
25 # to loop so that they can use the new balance
26 # or until the user decides to exit.
```

```
1 # Program to multiply 10 probabilities
2 numProbs = 0
3 probProd = 1
4 while numProbs < 10:
5     probability = float(input("Enter a probability:"))
6     if (probability >= 0.0) and (probability <= 1.0):
7         numProbs = numProbs + 1
8         probProd = probProd * probability
9     else:
10        print("You heard me, we want a probability!")
11 print("Joint Probability:", probProd)
12
```

```
1 #Program to print menu
2 choice = 7
3
4 while choice != 2:
5     print("The Jewel Collector Game")
6     print("1 - Play the game")
7     print("2 - Exit")
8     choice = input("Enter your choice:")
9     choice = int(choice)
10
11 print("Thank you for playing.")
```

```
1 # Number guessing program
2 import random
3
4 secretNum = random.randint(1, 20)
5
6 stepsAway = 100
7
8 while abs(stepsAway) > 1 :
9     guess = input("Enter your guess:")
10    guess = int(guess)
11    stepsAway = guess - secretNum
12    print("You are ", stepsAway, " off.")
13
14 print("You found it.")
16 print("You found it. The number was:", secretNum)
17
```

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Five times

Once

Only the 'Wake up' is part of the loop. The 'I miss school' is not part of the for loop code block.

It is coming from the list of numbers in the for statement.

Grade 11 – p 116 - Activity 4(c)

```
1 # Do I need to go to school today?
2 HoursInSchool = 0
3 HoursLeftBeforeWeekend = 25
4 for Day in 1, 2, 3, 4, 5:
5     print("Today is:", Day)
6     print("Wake up and go to school")
7     HoursInSchool = Day * 5
8     HoursLeftBeforeWeekend = HoursLeftBeforeWeekend - 5
9     print("We have spent", HoursInSchool, "hours inschool.")
10    print("We have" , HoursLeftBeforeWeekend, "hours left before
11    the weekend")
12    print("I miss school.")
13
```

Grade 11 – p 116 - Activity 4(d)

It now counts down

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The calculations need to change to use the counter variable properly.

daysLeft = 5 - Day

print("School days left: ", daysLeft)

Grade 11 – p 116 - Activity 4(e)

The results are meaningless. Be careful how you select your list!

Grade 11 – p 117 - Activity 5(a)

Four lines

Range creates a list from the start value to one short of the stop value, 5.

Grade 11 – p 117 - Activity 5(b)

Change 5 to 6.

Grade 11 – p 117 - Activity 5(c)

99 lines are printed.

Grade 11 – p 118 - Activity 5(d)

It prints the numbers from -5 to 4.

Grade 11 – p 118 - Activity 5(e)

It prints from -10 to 8 in increments of 2.

Grade 11 – p 118 - Activity 5(f)

Nothing happens; the range is incorrect.

Grade 11 – p 119 - Activity 16(g)

Now it counts down from 100 to 10 in increments of 10.

Grade 11 – p 119 - Activity 6(a)

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Range	Output
<code>range(0, 5, 1)</code>	0, 1, 2, 3, 4
<code>range(0, 20, 7)</code>	0, 7, 14
<code>range(-90, 0, 5)</code>	-90 to -5 in steps of 5
<code>range(31, 0, -7)</code>	31, 24, 17, 10, 3
<code>range(20, 5, 2)</code>	Nothing is printed.
<code>range(20, 5, -2)</code>	It counts down from 20 to 6 in increments of 2.

Grade 11 – p 120 - Activity 6(b)

Output	Design the loop
-1, 0, 1, 2, 3	<code>range(-1, 4, 1)</code>
2, 4, 6, 8, 10	<code>range(2,11,2)</code>
0, 5, 10, 15, 25	<code>range(0,26,5)</code>
8,6,4,2,0, -2, -4, -6, -8	<code>range(8,-10,-2)</code>
11, 22, 33, 44, 55	<code>range(11,56,11)</code>
-100, -102, -104, -106	<code>range(-100,-107,-2)</code>


```
1 #Guess the random number in a 10x10 grid
2 from random import randint
3
4 def sayit():
5     print("This is how you import functions")
6     return 0
7
8 score = 0
9
10 def secretNumber():
11     number = randint(0, 100)
12     return number
13
14 print("***Welcome to Gessoraptor****")
15
16 print("***GOOD LUCK!***")
17
18
19 play = "y"
20
21 while play == "y":
22     sNum = secretNumber()
23     numGuesses = 3
24
25     #There is a more efficient way of doing this - find it
26     #Lets check the boundaries
27     arnd1, arnd2, arnd3, arnd4 = sNum-11, sNum-1, sNum-10,
28     sNum+11
29     arnd5, arnd6, arnd7, arnd8 = sNum+1, sNum+10, sNum-9, sNum+9
30
31     while numGuesses > 0:
32         guess = -1
33         while (guess < 1) or (guess > 100):
34             guess = input("What is your guess?(1 to 100)")
35             guess = int(guess)
```

```
35
36     #There is a more efficient way of checking this - find
37     it
38     if guess == arnd1:
39         print("Eureka! You found it:-)")
40         score = score + numGuesses
41         numGuesses = 0
42     elif guess == arnd2:
43         print("Eureka! You found it:-)")
44         score = score + numGuesses
45         numGuesses = 0
46     elif guess == arnd3:
47         print("Eureka! You found it:-)")
48         score = score + numGuesses
49         numGuesses = 0
50     elif guess == arnd4:
51         print("Eureka! You found it:-)")
52         score = score + numGuesses
53         numGuesses = 0
54     elif guess == arnd5:
55         print("Eureka! You found it:-)")
56         score = score + numGuesses
57         numGuesses = 0
58     elif guess == arnd6:
59         print("Eureka! You found it:-)")
60         score = score + numGuesses
61         numGuesses = 0
62     elif guess == arnd7:
63         print("Eureka! You found it:-)")
64         score = score + numGuesses
65         numGuesses = 0
66     elif guess == arnd8:
67         print("Eureka! You found it:-)")
68         score = score + numGuesses
69         numGuesses = 0
70     elif guess == sNum:
71         print("Eureka! You found it:-)")
        score = score + numGuesses
```

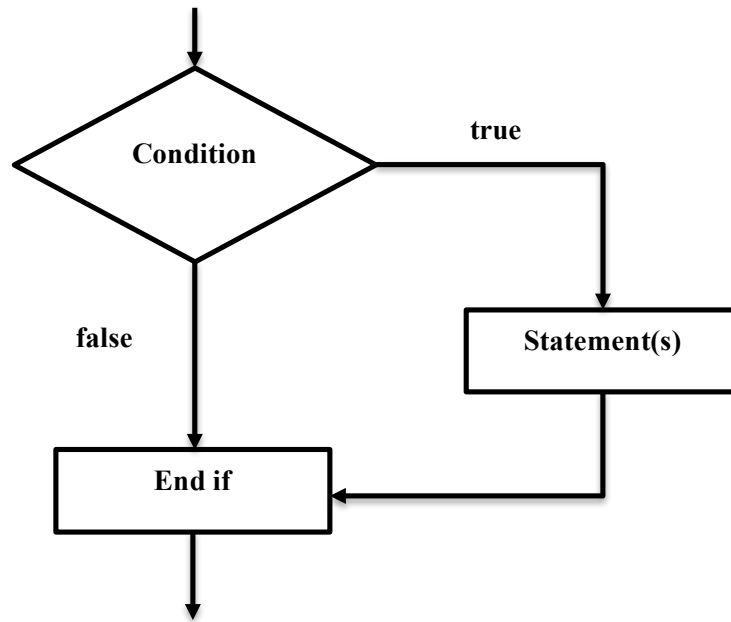
```
72         numGuesses = 0
73     else:
74         stepsOff = abs(sNum - guess)
75         print("Miss, you are", stepsOff, "away from the
76 secret number.")
77         print("Miss, have another go!")
78
79         numGuesses = numGuesses - 1
80     print("The secret number was:", sNum)
81     play = input("=====\nPlay again?(y/n)")
82
83 print("Your score is:", score)
84 print("====Good bye====")
85
```

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```
1 # Program to check for prime numbers
2
3 def primecheck(val):
4     prime = True
5     for number in range(2, val, 1):
6
7         remain = val % number
8
9         if remain == 0:
10            prime = False
11    return prime
12
13
14 print("===Welcome to the prime number finder===")
15
16 topnum = input("Enter the top of the range:")
17 topnum = int(topnum)
18
19 print("Looking for prime numbers in the range 1 to", topnum)
20
21 if topnum == 1:
22     print(1)
23 else:
24     topnum = topnum + 1
25     num = 2
26     print(1)
27     while num < topnum:
28         if primecheck(num):
29             print(num)
30
31     num = num + 1
32
```

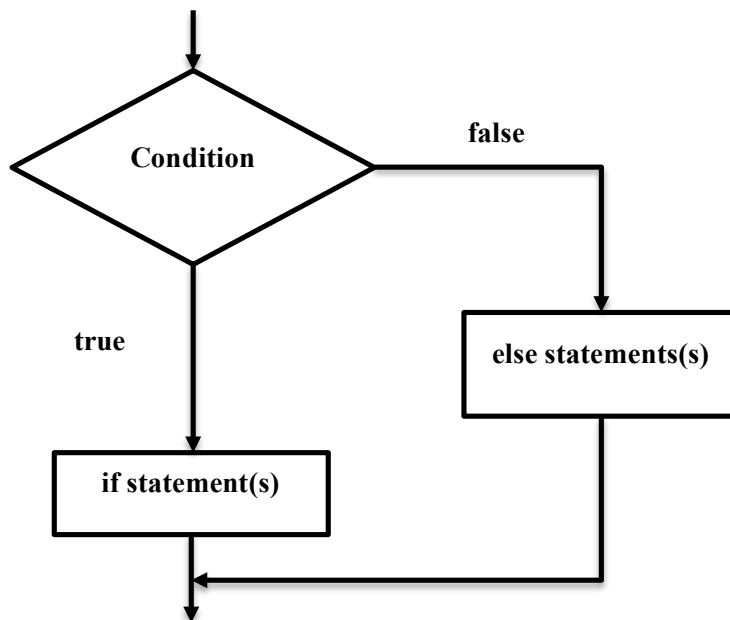
Case	If-Statement	If-Else Statement	Elif Statement	Try-Except
Show a warning message that a passenger is carrying excess weight.	X			
Ensure we do not crash if we wish to calculate the square root of a number entered by the user.				X
Turn the light on or off depending on the press of a switch.		X		
Show a notification on the messaging app logo if a new message is received.	X			
Decide to go to the Netflix main website or the Netflix Kids website based on the age.		X		
Show or not show a red error message if the PIN is incorrect in an ATM machine.		X		
Try to open a file which does not exist because it was deleted.		X		
Determine if a food type is low, medium or high in carbs.			X	
Ensure a value we need in our engineering calculation does not lead to a crash because it depends on user input.				X
Check if the user has entered a valid probability (from 0 to 1).	X			
Figure out if the same day last year was hotter or cooler than today.	X			

If

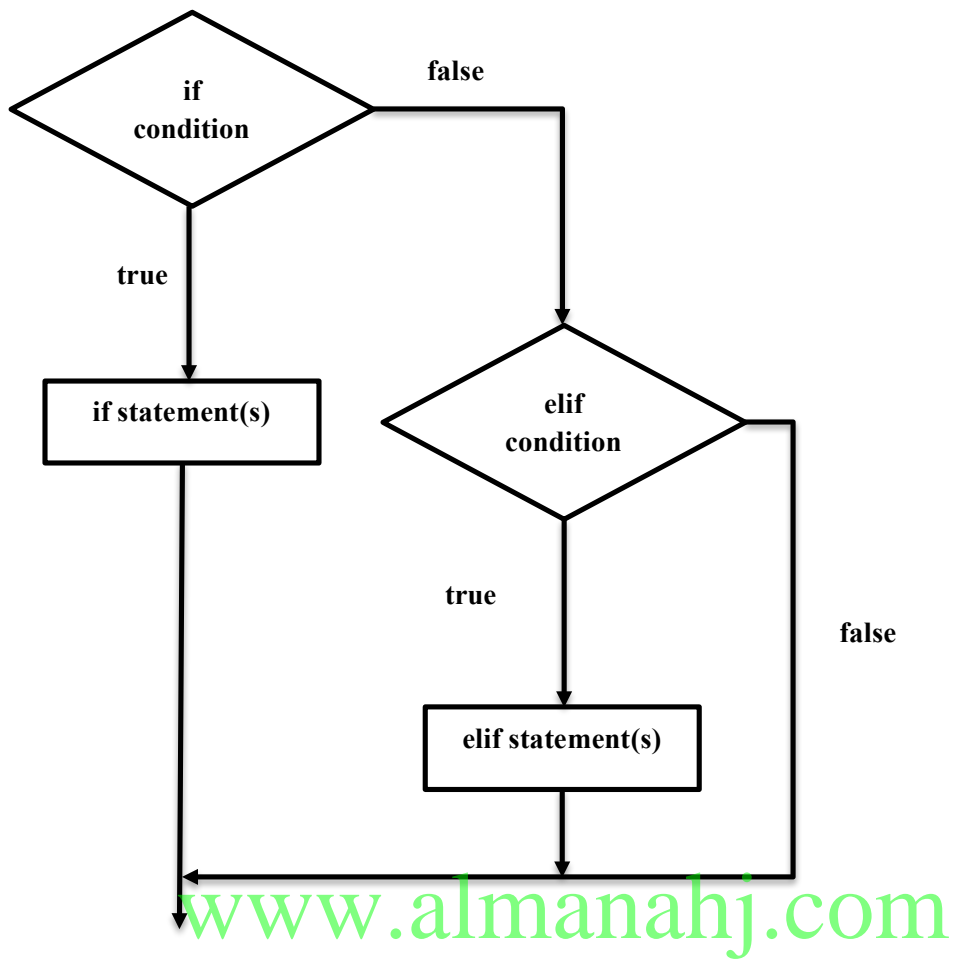


If-else

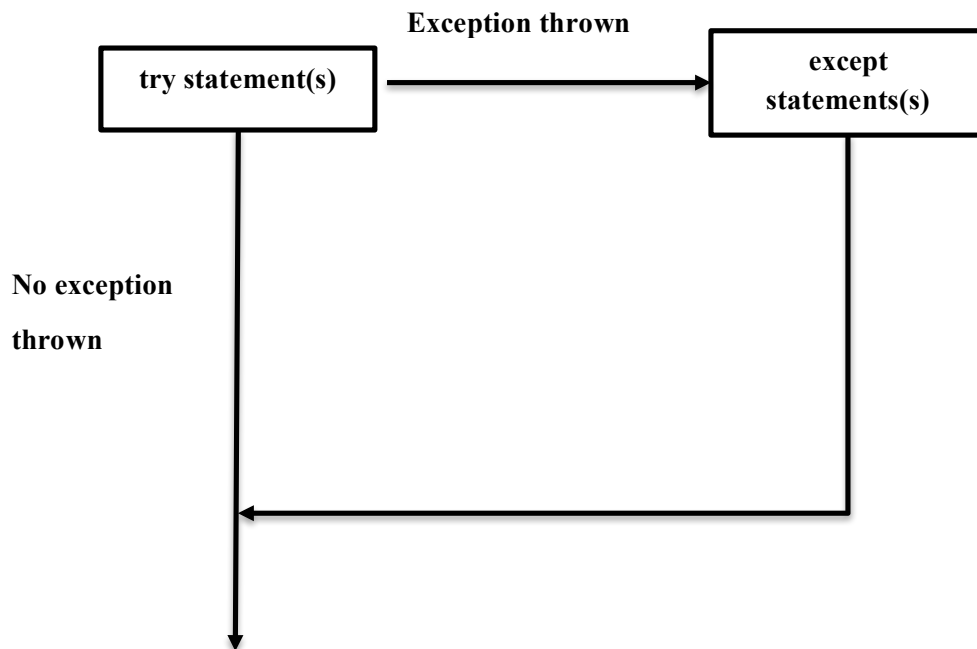
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Elif



Try - Except



```
1  from math import pi
2
3  shape = input("Name of shape: ")
4
5  if shape == "circle":
6      print("Area of circle =  $\pi r^2$ ")
7      rad = input("Enter radius of circle: ")
8      rad = float(rad)
9      #area of circle formula
10     area = pi * rad**2
11     print("Area of circle:", area, "m2")
12 elif shape == "square":
13     print("Area of square =  $side^2$ ")
14     side = input("Enter side of square: ")
15     side = float(side)
16     #Area of square calculation
17     area = side ** 2
18     print("Area of square:", area)
19 elif shape == "rectangle":
20     print("Area of rectangle = width X length")
21     w = input("Enter width of rectangle: ")
22     w = float(w)
23     l = input("Enter length of rectangle: ")
24     l = float(l)
25     #Area of rectangle calculation
26     area = w * l
27     print("Area of rectangle:", area, "m2")
28 elif shape == "triangle":
29     print("Area of Triangle = base X height divided by 2")
30     b = input("Enter base of triangle: ")
31     b = float(b)
32     h = input("Enter height of triangle: ")
33     h = float(h)
34     #Area of triangle calculation
35     area = (b * h) / 2
```



```
36     print("Area of triangle:", area, "m2")
37 elif shape == "eclipse":
38     print("Area of eclipse = nab")
39     a = input("Enter length of semi major access: ")
40     a = float(a)
41     b = input("Enter length of semi minor access: ")
42     b = float(b)
43     #Area of eclipse calculation
44     area = pi * a * b
45     print("Area of elipse:", area , "m2")
46
```

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```
1 # Quiz program
2 from random import randint
3
4 print("===Welcome to the quiz===")
5
6 score = 0
7
8 for question in range(1,6,1):
9     number1 = randint(-403,1023)
10    number2 = randint(-403,1023)
11
12    # what could you do to make this less predictable
13    print("Question", question,":",number1," x ",number2)
14    print(randint(-403,1023)* randint(-403,1023))
15    print(number1 * number2)
16    print(randint(-403,1023)* randint(-403,1023))
17    answer = input("Answer=")
18
19    answer = int(answer)
20    if answer == (number1 * number1):
21        print("Correct. Well done!")
22        score = score + 1
23    else:
24        print("Incorrect.")
25
26 print("Quiz completed. Your score is:",score,"/",question)
```

```
1 #Program to check and calculate the minimum, maximum and average
2 #of 5 numbers
3
4 print("===This program will find the min, max and average of 5
5 numbers===")
6
7 total = 0
8
9 for num in range(1,6,1):
10     number = input("Enter a number:")
11     number = float(number)
12
13     if num == 1:
14         minimum = number
15         maximum = number
16
17     if number < minimum:
18         minimum = number
19
20     if number > maximum:
21         maximum = number
22
23     total = total + number
24
25 print("The minimum is:",minimum)
26 print("The maximum is:",maximum)
27 print("The average is:",total/num)
```

```
1 age = input("How old is the child in months?")
2 age = float(age)
3
4 temp = input("What is the child's temperature (F)?")
5 temp = float(temp)
6
7 if (temp >= 104):
8     print("Call the doctor!")
9 elif(age < 3) and (temp > 100.4):
10    print("Call the doctor!")
11 elif (3 <= age <= 6) and (temp >= 101):
12    print("Call the doctor!")
13 elif (age > 6) and (temp >= 103):
14    print("Call the doctor!")
15 else:
16    print("No need to call the doctor :-)")
```

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```
1 total = 0
2
3 # Program to add numbers up to the one entered by a user
4 def total(upto):
5     upto = int(upto)
6     upto = upto + 1
7     sum = 0
8     for i in range(1, upto, 1):
9         sum = sum + (i*i)
10    return sum
11 num = input("Enter an integer:")
12 answer = total(num)
13 print("The answer is:", answer)
14
```

```
1 # Program to generates multiplication tables
2 num = input("Enter a number:")
3 num = int(num)
4
5
6 def multi(num1):
7     num1 = int(num1)
8     for i in range(1,13,1):
9         prod = num1 * i
10        print( i, " x ", num1, " = ", prod)
11
12 for i in range(1,13,1):
13     multi(num)
```

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```
1 # Program to calculate Dubai's average temperature
2
3 numMonths = input("Enter the number of months:")
4 numMonths = int(numMonths)
5 total = 0
6
7 for month in range(1, numMonths + 1, 1):
8     print("Enter the temperature for month:", month)
9     temp = input("=> ")
10    temp = int(temp)
11    total = total + temp
12
13 average = total/numMonths
14
15 print("Average temperature is:", average)
16
17 print("*****Finished*****")
```

```
1 # Program to enter marks for computer science
2
3 numStudents = input("Enter the number of students:")
4 numStudents = int(numStudents)
5 total = 0
6
7 for student in range(1, numStudents + 1, 1):
8     print("Enter the marks for student:", student)
9     mark = input(": ")
10    mark = int(mark)
11    total = total + mark
12
13 average = total/numStudents
14
15 print("The average mark is:", average)
16
17 print("=====DONE=====")
```

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```
1 # Program to calculate area for a house
2 rooms = input("Enter the number of rooms:")
3 rooms = int(rooms)
4 totalArea = 0
5 print("Enter the measurements for the house:")
6 for room in range(1, rooms + 1, 1):
7     print("Enter the measurements for room:", room)
8     length = input("Enter the length: ")
9     length = int(length)
10
11     width = input("Enter the length: ")
12     width = int(width)
13     area = length * width
14     totalArea = totalArea + area
16
17 print("The total area for the house is:", totalArea)
18
19 print("====Completed====")
20
```

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```
1 # Program to print a diamond
2
3 stars = input("Enter number of stars: ")
4 stars = int(stars)
5
6 for i in range(stars):
7     print(' ' * (stars - i - 1) + '*' * (i + 1))
8 for j in range(stars - 1, 0, -1):
9     print(' ' * (stars - j) + '*' * (j))
```

Case	While	For
Asking the user to input their email until it is a valid email	X	
Printing all even numbers from 1 to 5000		X
Calculating your final score by adding up your grades in all ten subjects you study		X
Showing a menu to the user to select an item or to exit the program if they wish	X	
Heating water until the temperature sensor says it is boiling	X	
Generating a report showing all students that have signed up for a trip from the 2000 students in the school		X
Reading lines from a file until we reach the end of it	X	
Continuing to play a video game until you choose to exit	X	
Adding up all the money you spent on food this week		X

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