

PYTHON MOHAMMED ALI

by Mohammed Jabel Ali

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APPENDIX GA36a

LEVEL 4 ASSESSMENT SPECIFICATION

Student name:	MOHAMMED ALI	Student ID number:	1804073
Programme:	BSc Computing Portfolio (4 year), CertHE STEM		
Module:	Introduction to Computer Programming		
Module code:	ACCA4020	Contribution to Overall Module Assessment (%):	100%
Lecturer:	Gaynor Thomas	Internal Verifier:	Michael Dacey
Assignment Title:	Programming in Python	Word count (or equivalent):	N/A
Submission deadline:		Return date of provisional marks & written feedback:	20 working days after assignment deadline.
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

Module Learning Outcomes (from module syllabus)

1. Demonstrate an understanding of the syntax, semantics and software constructs of programming language.
2. Deploy a programming language in developing a program given a well-defined scenario or problem.

A1.

A variable is used to store information as a value, which is paired with a descriptor which provides contextual information about that value. Variables can be placed into different categories or 'types'; numerical information could be typed as integer (if the value will always be a whole number, for example number of stock) or float (if the value has decimal points, like when dealing with money). Text (for example, a person's name or address) is typed as string, while true/false statements are typed as Boolean.

Different programming languages deal with the problem posed by typing in different ways. Some programming languages (for example, C and Java) are strongly typed, and require the programmer to specify which type of variable is being used. Python, like PHP and JavaScript, is a weakly-typed programming language; it infers (or guesses) what type of variable is being entered by considering the format in which the value is entered. There are pros and cons for each method; strongly typed languages require more user input, increasing the amount of time a programmer takes to input variables. However, weakly typed languages ease of use can be offset by bugs created by the program incorrectly inferring a variable type; programmers working on bulky projects containing many variables could end up having to process a very large amount of information to debug correctly, which makes strongly typed languages a safer option when coding larger programs.

A2.

An if/else statement is used when a program is required to make a binary decision based on the values of relevant integers. For example, if the quantity of an item in stock falls below a threshold, it could display a reminder to call and restock.

```
myStockItem1 = 48
myThresholdItem1 = 50
if myThresholdItem1 > myStockItem1:
    print("Restock Item1!")
else:
    print("Item1 stock levels good.")
```

If the programmer wished to add a warning informing stock is close to the threshold, they could use an elif statement to allow the program to decide with more than two outcomes:

```
myStockItem1 = 65
myThresholdItem1 = 50
myWarningItem1 = 70
if myThresholdItem1 > myStockItem1:
    print("Restock Item1!")
elif myWarningItem1 > myStockItem1:
    print("Item1 stock levels low; restock item within 48 hours.")
else:
    print("Item1 stock levels good.")
```

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A3.

Loops are used to repeat sections of code. Sometimes we know how many times we want a section of code repeated; we use for loops in that instance. While loops are used when we don't know how many times, we want a loop repeated.

For example, if someone wanted to check what juice drinks were stocked at a small supermarket:

```
JuiceDrinks = ["Orange, 250ml", "Orange, 500ml", "Apple, 250ml", "Apple, 500ml", "Cranberry, 250ml", "Pineapple, 250ml"]

for x in JuiceDrinks:
    print(x)
```

A while loop is useful to limit inputs, for example month of the year.

```
print("Please enter the month of the year you were born in MM format.")
MonthVar = int(input())

while MonthVar > 12 :
    print("That is not a valid input:")
    print("Please try again.")
    MonthVar = int(input())
while MonthVar < 1:
    print("That is not a valid input:")
    print("Please try again.")
    MonthVar = int(input())
if MonthVar < 13:
    print("Thank You!")
```

Exercise 1.

```
Car1Make = str(input("what is the make of the first car?"))
Car1Model = str(input("what is the model of the first car?"))
Car1Mileage = int(input("what is the mileage of the first car?"))
Car1DoorNo = int(input("how many doors does the first car have?"))

Car1Info = [Car1Model, Car1Make, Car1Mileage, Car1DoorNo]

print("Car 1 Information:")
for x in Car1Info:
    print(x)
```

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Exercise 2.

Formula for area of blue shaded part:

$$\text{Area} = \pi r^2 - \frac{(b \times h)}{2} \text{ (area of circle minus area of triangle)}$$

```
radius = float(input("what is the radius of the circle in cm?"))  
  
myAreaCircle = 3.1415 * radius * radius  
  
  
height = float(input("what is the height of the triangle in cm?"))  
  
length = float(input("what is the length of the base of the triangle in cm?"))  
  
  
myAreaTriangle = height * length * 0.5  
myShadedArea = myAreaCircle - myAreaTriangle  
  
print("The area of the shaded part of circle is")  
print(myShadedArea)  
print("cm squared")
```

Exercise 3.

```
Product1 = (input("Enter product 1;"))  
Price1 = float(input("what is the price of product 1?"))  
Product2 = (input("Enter product 2;"))  
Price2 = float(input("what is the price of product 2?"))  
Product3 = (input("Enter product 3;"))  
Price3 = float(input("what is the price of product 3?"))  
Product4 = (input("Enter product 4;"))  
Price4 = float(input("what is the price of product 4?"))  
Product5 = (input("Enter product 5;"))  
Price5 = float(input("what is the price of product 5?"))  
  
  
print("products entered")  
print(Product1)  
print(Price1)  
  
print(Product2)  
print(Price2)  
  
print(Product3)  
print(Price3)  
  
print(Product4)  
print(Price4)
```

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```
print(Product5)
print(Price5)

myTotal = Price1 + Price2 + Price3 + Price4 + Price5
myDiscountTotal = 0.85 * myTotal

print("total price is:")
print(myTotal)

print("with discount, your new total is:")
print(myDiscountTotal)
```

Exercise 4.

```
import turtle

myturt = turtle.Turtle()

myturt.penup()
myturt.left(180)
myturt.forward(300)
myturt.left(180)
myturt.pendown()
myturt.forward(20)
myturt.left(90)
myturt.forward(75)
myturt.right(135)
myturt.forward(106)
myturt.left(45)
myturt.forward(25)
myturt.left(90)
myturt.forward(100)
myturt.left(90)
myturt.forward(20)
myturt.left(90)
myturt.forward(75)
myturt.right(135)
myturt.forward(106)
myturt.left(45)
myturt.forward(25)
myturt.left(90)
myturt.forward(100)
myturt.left(90)
myturt.penup()
myturt.forward(200)
myturt.pendown()
myturt.circle(50)
myturt.penup()
myturt.left(90)
myturt.forward(25)
```

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```
myturt.right(90)
myturt.pendown()
myturt.circle(25)
myturt.penup()
myturt.right(90)
myturt.forward(25)
myturt.left(90)
myturt.forward(130)
myturt.pendown()
myturt.circle(50)
myturt.penup()
myturt.left(90)
myturt.forward(25)
myturt.right(90)
myturt.pendown()
myturt.circle(25)
myturt.penup()
myturt.right(90)
myturt.forward(25)
myturt.left(90)
myturt.forward(80)
myturt.pendown()
myturt.forward(20)
myturt.left(90)
myturt.forward(75)
myturt.right(135)
myturt.forward(106)
myturt.left(45)
myturt.forward(25)
myturt.left(90)
myturt.forward(100)
myturt.left(90)
myturt.forward(20)
myturt.left(90)
myturt.forward(75)
myturt.right(135)
myturt.forward(106)
myturt.left(45)
myturt.forward(25)
myturt.left(90)
myturt.forward(100)
turtle.done()
```

FINAL GRADE

40/100

GENERAL COMMENTS

Instructor

PART A

1. Variables - A reasonable explanation, you need a bit more on how Python specifically handles its typing 4.5/5

2.If/Else - A good explanation, with suitable coding examples 5/5

3. Loops - A bit brief on the explanation, but the code examples are good. 4/5

PART B

Exercise 1

Logical Stages/Testing - None provided 0/5

Coding/Annotation - A working solution, however there is no validation of mileage or doors (they should not be negative). I'm not sure why you've put the variables into a list, this is unnecessary. 5.5/10

Exercise 2

Logical Stages/Testing - None provided 0/10

Program is OK, but no validation of inputted data, or consideration of the values relative to each other eg circle to triangle. 5.5/10

Exercise 3

Logical Stages/Testing - None provided /10

Coding/Annotation - Strangely, although you have used a list for other questions, you haven't used one here where it is specifically asked for?! This has meant that you cannot show loops/efficient code 7/15

Exercise 4 (Turtle)

Logical Stages/Testing - None provided 0/10

Coding/Annotation - OK - but you could have Looped the O and N code rather than repeating

yourself. You could also have considered rotational symmetry on the N 8 /15

TOTAL: 40 %

I am pleased to receive this from you and I hope you will be able to resume your studies fully next academic year. The mark would have been a lot higher if you had included the documentation required. You need to read the assignment brief more closely.

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