

IS 671 Python Programming 2019/2020

Assignment 01

14 November 2019

INSTRUCTIONS

This lab covers **Chapter 02 Variables and Data Types**. Code should be typed in Jupyter Notebook. Each part of the question should be answered in a different Cell. There must be a heading before the solution in each cell to show which part of the question you are answering as shown in the attached notebook (SURNAME_Firstname_Assignment01.ipynb). Filename should be in the format SURNAME_Firstname_Assignment01.ipynb Where SURNAME and Firstname refers to your names. You should also attach a pdf file where you have captured the outputs after running the question solution. Filename should be the same as above BUT with extension pdf.

Important: DO NOT use control structures (if..elif.. and while/for loops) in answering questions.

Submission deadline: Latest by Thursday 21 November 2019 at 1800 hrs. Submit through email.

Question 01

Write a program that prompts the user (using `input()` function) to enter degrees in Centigrade (float value) and in turn displays entered degrees and the corresponding degrees in Fahrenheit using 3 decimal places. Test your program (one at a time) using following values: (a) 100°C (b) -40°C (c) 40°C

Sample display should be:

```
Enter degree in Centigrade: ....  
..... degrees Centigrade = ..... degrees Fahrenheit
```

Question 02

Write a program that prompts user to enter his/her fullname (three names) in the order of Firstname Middlename and Surname(lastname). The names are separated using a single space.

Example: Charles Pwaguzi Tototundu where Charles is the first name, Pwaguzi is the middle name and Tototundu is the lastname.

With the aid of split function and other functions, the program should be able to perform following services (**all in one cell**). The program should be general for **ANY** three names entered.

- (a) Display entered fullname
- (b) Display the fullname starting with surname in capital letters followed by comma followed by initials. Example: TOTOTUNDU, C.P.
- (c) Display how many vowels are contained in the fullname. **Hint:** Vowels are characters a,e,i,o,u / A,E,I,O,U.
- (d) Display the word True if the substring **ma** is found in the fullname

Format of display will be:

Enter your fullname:

Entered Fullname is:

Capitalized Surname and initials is:

Number of vowels in the fullname is:

Substring 'ma' exists in fullname(True/False):.....

Question 03

Repeat Question 2 above but do not utilize `split` function. Utilize slicing operator (`:`) or other techniques.

Question 04

Write a program to prompt user to enter real coefficients (a,b and c) of a quadratic equation

$$ax^2 + bx + c = 0$$

Then the program should display coefficients entered and the two solutions of the equation. Format of display should be:

Enter coefficient a:

Enter coefficient b:

Enter coefficient c:

Entered coefficients are: a=..... b=..... c=.....

Solutions are: x1=..... and x2=.....

Test your program with:

- (a) a=2, b=5, c=-3
- (b) a=2.5, b=6.5, c=1.2
- (c) a=2, b=4, c=3

Question 05

Write a program which prompts the user to enter four float numbers and in turn displays entered four numbers, and their average. Average should be displayed in 2 decimal places. Sample output is:

```
Enter Number 1:.....
Enter Number 2:.....
Enter Number 3:.....
Enter Number 4:.....
Entered numbers are ...., ....., ..... and .....
Average is: .....
```

Question 6

Write a program which will declare variables a, b, x and y with values 4, 3.5, 4.5 and 6.2 respectively. Then the program should display the value of m (to 5 decimal places) given that:

$$m = \sqrt{\frac{a + 3b^3}{x + \sqrt{3 + y}}}$$

Format of display should be:

Value of m=.....

=== END ===