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# Department of Computing

# CS114: Fundamentals of Programming

# Class: BESE 9 AB

# Lab 06: Conditional Processing & While Loop

**CLO2: Define basic algorithms for identifying and solving real world problems**

# Instructor: Ms. Hania Aslam

# Date: October 12th , 2018

# Time: 9:00am -12:00pm and 02:00pm -05:00pm

**Lab 06: Conditional Processing & While Loop**

**Introduction**

The purpose of this lab is to further practice conditional processing (learnt last week) and to get familiar with usage of while loop in Python.

**Objectives**

The objective of this lab is to design solutions using conditionals and while loop in Python Scripted Mode.

**Tools/Software Requirement**

Python IDLE

**Description:**

**While Loop:**

While loop is the simplest loop, which executes one or more statements, if the given condition remains true. It is useful when the number of iterations is not known in advance.

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| while «expression»:  «block» |

**Lab Tasks:**

**Using only the programming techniques that you have learned so far, perform the following tasks:**

**Note: All the tasks of this lab should be performed in Python scripted mode only.**

**Task 1:** Write a program that asks the user about the number of values he/she wants to enter. Then prompt user to enter the values as per the required number, calculate its sum. The sample output is as follows:

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| Enter the number of values to be input: 5  Enter the number: 20  Enter the number: 10  Enter the number: 50  Enter the number: 4  Enter the number: 65  The sum is: 149 |

[2.0 Marks]

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| Task 1 |
| #Add your Python Script code here. [1.5 Marks]    #Add the snap of tasks execution here. [0.5 Mark]  OUTPUT: |

**Task 2:** The concept of factorials is used frequently in probability problems. The factorial of a positive integer n (written n! and pronounced “n factorial”) is equal to the product of the positive integers from 1 to n.

Write a program factorial.py that accepts an integer from the user and displays its factorial.

Using your program evaluate the factorials of the integers from 1 - 5 and print the results. Sample output is as follows:

**X Factorial of X**

5 120

[2.0 Marks]

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| Task 2 |
| #Add your Python Script code here. [1.5 Marks]    #Add the snap of tasks execution here. [0.5 Mark]  OUTPUT: |

**Task 3:** Write a small program that plays a simple number-guessing game. The user will try to guess the secret number until they get it right. That means it will keep looping as long as the guess is different from the secret number. You must store the secret number in a variable, and use that variable throughout. The secret number itself must not appear in the program at all, except in the one line where you store it into a variable. Sample output is as follows:

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| I have chosen a number between 1 and 10. Try to guess it.  Your guess: 5  That is incorrect. Guess again.  Your guess: 4  That is incorrect. Guess again.  Your guess: 8  That is incorrect. Guess again.  Your guess: 6  That's right! You guessed it. |

[2.0 Marks]

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| Task 3 |
| #Add your Python Script code here. [1.5 Marks]    #Add the snap of tasks execution here. [0.5 Mark]  OUTPUT: |

**Task 4:** An Income Support program follows the following mentioned rules to determine the income support package.  
(1) If a person’s health is excellent and the person is between 25 and 35 years of age and lives in a city and is a male then the maximum monetary amount awarded is Rs. 2 lakhs.  
(2) If a person satisfies all the above conditions except that the gender is female then the maximum monetary amount awarded is Rs. 1 lakh.  
(3) If a person’s health is poor and the person is between 25 and 40 years of age and lives in a village and is a male then the maximum amount awarded is Rs. 5 Lakh.  
(4) In all other cases the person is not eligible for the income support program.  
Write a program that inputs all the desired data and outputs whether the person should be awarded with income support program grant or not, if yes, then display the maximum amount which he/she can receive.

[2.0 Marks]

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| Task 4 |
| #Add your Python Script code here. [1.5 Marks]    #Add the snap of tasks execution here. [0.5 Mark]  OUTPUT: |

**Task 5:** Make a program GenderGame.py which displays an appropriate name for a person, using a combination of nested ifs and compound conditions. Ask the user for a gender, first name,

last name and age. If the person is female and 20 or over, ask if she is married. If so, display "Mrs." in front of her name. If not, display "Ms." in front of her name. If the female is under 20, display her

first and last name. If the person is male and 20 or over, display "Mr." in front of his name. Otherwise, display his first and last name. Note that asking a person if they are married should only be done if they are female and 20 or older. [2.0 Marks]

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| Task 5 |
| #Add your Python Script code here. [1.5 Marks]    #Add the snap of tasks execution here. [0.5 Mark]  OUTPUT: |

**Deliverables**

Compile a single Word document by filling in the solution/answer part (as directed) along with the snapshots. Name your submission file as given below and submit this Word file on LMS before the deadline.

**Name – Registration No. – Section**

**Name: HAMID AYUB**

**Regt. No. : 12933118**

**Section: BESE\_9B**

**Grade Criteria**

This lab is graded. Min marks: 0. Max marks: 10.

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| **Activity** | **Minimum** | **Maximum** |
| Documentation with clearly defined understanding of the lab task and approach | Fail | Pass |
| Task 1 | 0 | 2.0 |
| Task 2 | 0 | 2.0 |
| Task 3 | 0 | 2.0 |
| Task 4 | 0 | 2.0 |
| Task 5 | 0 | 2.0 |