**SENG 1000**

**Software Engineering Foundations and Practice**

**Assignment 2**

Date Assigned: Tue. 4th Feb. Due Date: Sun. 16th Feb. Midnight

Maximum Possible Marks: 100

**This assignment serves two purposes:**

* It is designed to help you understand conditional and looping structures.
* Use functions to modularize your code. Refer examples on Canvas.

**Note:**

* Import “import math” into your python script to use math functions.

**Questions:**

1. [10 Points] Write a Python script to accept an integer number from user and check whether a number is positive or negative. Also, print if the number is even or odd.

Example 1:

Enter a number: 5

It is a positive odd number

Example 2:

Enter a number: -4

It is a negative even number

1. [10 Points] Write a python script to accept a year from the user and check whether it is a leap year or not.

Example 1:

Enter year: 2017

2017 is not a leap year

Example 2:

Enter year: 2012

2012 is a leap year

1. [10 Points] Write a python script to accept an integer number from the user and check whether it is a prime number.

Example 1:

Enter a number: 6

6 is not a prime number

2 times 3 is 6

Example 2:

Enter a number: 5

5 is a prime number

1. [10 Points] Write a python script to accept an integer number from the user and print its multiplication table for first 10 iterations.

Example 1:

Enter a number: 12

Multiplication Table

12 x 1 = 12

12 x 2 = 24

12 x 3 = 36

12 x 4 = 48

12 x 5 = 60

12 x 6 = 72

12 x 7 = 84

12 x 8 = 96

12 x 9 = 108

12 x 10 = 120

1. [10 Points] Explain the following script

while (True):

print("\n1 -> Addition")

print("2 -> Subtraction")

print("3 -> Multiplication")

print("4 -> Division")

print("5 -> Exit")

ch = int(input("Enter your choice: "))

if(ch == 1):

print("\nInside Addition Block")

elif(ch == 2):

print("\nInside Subtraction Block")

elif(ch == 3):

print("\nInside Multiplication Block")

elif(ch == 4):

print("\nInside Division Block")

elif(ch == 5):

print("\nExiting.....")

break

else:

print("\nInvalid Choice")

1. [10 Points] Write a Python script to accept a starting and ending range from user and print all the squares of the numbers in that range. Perform validation for proper range input.

Example 1:

Starting Range : 12

Ending Range : 16

Squares

12 -> 144

13 -> 169

14 -> 196

15 -> 225

16 -> 256

Example 2:

Starting Range : 16

Ending Range : 12

Invalid Range

1. [10 Points] What are conditional structures and looping structures in Python. Explain with syntax.
2. [10 Points] Write a python script to accept a temperature from user and convert it from Fahrenheit to Celsius [Formula: Celsius = (Fahrenheit - 32) \* 5.0/9.0 ]

Example 1:

Enter temperature in Fahrenheit: 77

Celsius: 25

1. [10 Points] Write a python script to accept two complex numbers and add them and display them in appropriate form.

Example 1:

Enter First Complex Number

Real Part: 2

Imaginary Part: 4

Enter Second Complex Number

Real Part: 12

Imaginary Part: 3

Addition = (2 + 4i) + (12 + 3i) = (14 + 7i)

1. [10 Points] Write a python script to accept a number and reverse it [Hint: Use %, \*, //]

Example 1:

Enter a number: 12345

Reverse: 54321