Assignment 1

- Please write your code in a Jupyter Notebook file (.ipynb) and submit it on Blackboard
- Make sure to label your answer of each question clearly and add comments to make it readable.
- You are allowed to discuss with other students (up to three) or the instructor. Please put all the names of students that you discussed with. However individual students must write their own solutions.
- Copying a program, or letting someone else copy your program, is a form of academic dishonesty . Any referred material must be cited properly.
- Maximally leverage Piazza to benefit other students by your questions and answers.
- Try to be updated by checking notifications in both Piazza and Blackboard class webpage.

Exercise 1 (20 points)

Print the following text:

- It's raining now.
- "\\" is a double backslash
- 1 2 3 *(Note: numbers are tab separated)*

Exercise 2 (20 points)

Write a program using user input function and arithmetic operators to do the following tasks.

1) Obtain two integer inputs from users: X and Y

2) Print out results for the equations (X+Y)/(X-Y) and (X-Y)^3

3) Print out the last digit of X+Y

Example: (texts in blue are inputs from users)

Enter X: 15

Enter Y: 10

(X+Y)/(X-Y) = 5

(X-Y)^3 = 125

The last digit of X+Y is: 5

Exercise 3 (30 points)

Write a program to compute roots of quadratic equations.

1) Obtain three numbers from users: a, b, c

2) Check whether the quadratic equation $ax^2 + bx + c$ has real number roots. If yes, calculate the print the two roots; otherwise, print "No solution".

[*Hint*: Recall that the roots of a quadratic equation $ax^2 + bx + c$ are $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$. To get a square root of a number (N) in Python, use math.sqrt(N). Note: To use all math functions, please add *import math* at the beginning of your code. For example, if I want to get the square root of 16, you can use the following code.

import math

print(math.sqrt(16)) # will output 4.0]

Example 1: (texts in blue are inputs from users):

Enter a: 1

Enter b: 1

Enter c: 1

No solution

Example 2:

Enter a: 1

Enter b: -8

Enter c: 15

The roots are 3 and 5

Exercise 4 (30 points)

Write a program using conditional statements and user input function to convert temperatures between Celsius and Fahrenheit. [Hint: Celsius/5 = (Fahrenheit – 32)/9]

Example 1:

Please enter the temperature: 60

Is this Celsius or Fahrenheit? C

60C is 140 in Fahrenheit

Example 2:

Please enter the temperature: 45

Is this Celsius or Fahrenheit? F

45F is 7 in Celsius