CIS 5357
Computing for Data Analytics
Fall 2020
Programming Assignment # 1
(TO be done by each student individually)
(20 points)
Due Date: By 11:59 pm on Friday, September 4, 2020

Introduction:

You will complete three short programming exercises as a way to gain a basic understanding in designing and implementing computer programs in python. You will use Jupyter Notebook and Anaconda python 3.8.X version to complete these exercises.

The instructor expects individual effort on this assignment. This assignment is NOT a group project. Collaboration of any type is not sanctioned and will be treated per the Academic Dishonesty policy as stated in the course syllabus. Each submission will be closely examined for plagiarism.

Note:

For each exercise:

a. Use level 3 heading for Program Name (e.g. Tip Calculator, Temperature Converter, and Ingredient Adjuster).
b. Use level 4 heading to state the objective of the program
c. Include both in a single cell at the beginning of each exercise.

All three python programs are to be included in the same Jupyter Notebook. Name the notebook using the format ***YourFirst&LastName-Assignment-1 e.g.*** **MayurMehta-Assignment-1**.

Problem Statements.

1. Problem # 1: Tip Calculator: (6 points)

   Design and write a python program that calculates the total amount of tip on meal(s) purchased at a restaurant. The program should ask the user to enter the charge for the food, then calculate and display the amounts of tip at 18 percent, 20 percent, and 30 percent. Display each of these amounts in an appropriately formatted output.

   Use the Test Data: Amount of Meals Purchase = $100.00
   The output should be

   Amount of Food Bill: 100.0
   Tip at 18%: 18.0
   Tip at 20%: 20.0
   Tip at 30%: 30.0

2. Celsius to Fahrenheit Temperature Converter: (7 points)
   Design and write a program that converts Celsius temperatures to Fahrenheit temperatures. The formula is as follows:

$$F = \frac{9}{5} C + 32$$

   The program should ask the user to enter a temperature in Celsius, then display the temperature converted to Fahrenheit. For test data, use Celsius temperature of 42.5 degrees. Your output must be formatted as:

   The temperature in Fahrenheit for 42.5 degree Celsius = 108.5 degrees Fahrenheit

3. Ingredient Adjuster: (7 points)
   A cookie recipe calls for the following ingredients: 1.5 cups of sugar, 1 cup of butter, 2.75 cups of flour. The recipe produces 48 cookies with this amount of ingredients. Design and write a program that asks the user how many cookies he or she wants to bake, then displays the number of cups of each ingredient needed to bake the specified number of cookies.

   Test data: Bake 150 cookies

   Output should be:

   To bake 150 cookies, you will need:
   4.6875 Cups of Sugar
   3.125 Cups of Butter
   8.59375 Cups of Flour

Requirements for Jupyter Notebook to Submit

1. Include your first and last name as heading level 2 in the very first cell of the notebook. In the same cell, include the creation date of the assignment using level 3 heading style.
2. Use comments to document each segment of the program – input, process, output
3. Save the source code for each program in its own single cell within the same jupyter notebook.
4. Execute each program using test data provided for the exercise so that the output of each program is displayed below respective program.
5. Upload your program into the Assignments section of Canvas ***BEFORE*** 11:59 pm on Friday, September 4, 2020 using the following process:
   a. Log into canvas and access course site
   b. Click on the Assignments section in the course navigation menu.
   c. Click on Assignment 1 link
   d. Click on 'Submit Assignment' button on the right side of the Assignment 1 page
   e. Choose the file to submit from your disk, check the original work statement and then click on Submit/Upload.