Lab 2 – Winter 2021

Each program must start with a multi-line comment as shown below. Replace each occurrence of DentStew and Stew Dent with your name. Replace yyyy/mm/dd with the date you completed the program.

```
# DentStewAxQy.py
#
# Course:      COMP 1012
# Instructor:  Ramin Soltanzadeh
# Assignment:  x Question y
# Author:      Stew Dent
# Version:     yyyy/mm/dd
#
# Purpose:     The purpose of the program.
#
# var1 - the use / meaning of each variable in the program
```

Begin each program with the following statements.

```
from time import ctime

print('\n---------------------------------------------\n')
```

End each program with the following statements.

```
Print("""
Programmed by Stew Dent
Date: %s
End of processing.""" % ctime())
```

Replace Stew Dent with your real name.

The name of each program should be of the form:

LastnameFirstnameAnQm

If your name is Stew Dent and the program is for assignment 2 question 1 then the name of the program should be:

DentStewA2Q1

The corresponding python file would be named:

DentStewA2Q1.py

Upload your solution on Moodle. Write all your answers in one *.py file and separate them with appropriate comments. Do **NOT** use zip, rar or any other packaging of your files!

Question 1 Getting input (0.25 mark)

We can request input from the user using the 'input' function.
'input' is provided a 'string' which it displays to the user as a prompt. The prompt should be something meaningful, instructing the user to provide something to the program.
Try the code below:

```
whatTheyType = input('I am the great and powerful fortune-teller. What
is your name?: ')
print("I think your name is {}".format(whatTheyType))
```

Your output should be something like below:

```
'I am the great and powerful fortune-teller. What is your name?:'Ramin'
```

Test the program with the values given above.

Modify the above code (add `input` function as required) in Spyder to ask for:

1. Your favorite country to travel,
2. A favorite city in your favorite country, and
3. A favorite meal that you want to eat in that city.

The output of your code should be something like below:

```
I am the great and powerful fortuneteller. What is your favorite country f
or travelling?: 'Canada'
Where is your favorite city in Canada ?: 'Winnipeg'
What is your favorite food in Winnipeg ?: 'Poutine'

Your favorite city to travel to is Winnipeg, which is located in Canada. I
 also know that your favorite food is Poutine!
```

NOTE: Be sure to use meaningful names for your variables! Also, your program should work with any other countries, cities, or foods. Remember that **none** of the inputs should be **hardcoded**! It means that you have to ask them from the user with the input command.

Question 2 Getting numbers (0.25 mark)

The 'input' function always returns a string (str) , but we want to ask our user to enter numbers as input. To convert strings to numbers, we use the int() or float() functions, which convert strings into integer and float types, respectively. Try the code below:

```
theInput = input('What is your age? > ')
ageAsInteger = int(theInput)
nextYear = ageAsInteger + 1
print("The great and powerful fortunteller predicts that you will be {} ye
ars old next year!".format(nextYear))
```

Make sure that you get a correct output. If it is needed ask your TA to confirm that you got the correct output.

Write a new script that asks for three (3) numbers and stores the three (3) numbers in three (3) distinct variables. You will need to call 'input' three (3) times to do this. Once you have all three (3) numbers, compute and print out the product, and the mean of these numbers. Use formatted output in the print command to only show two (2) decimal places for the mean.

Your output should look something like below:

```
Enter number 1: '2'
Enter number 2: '3'
Enter number 3: '4'
The product of numbers [2,3,4] is 24
The mean of numbers [2,3,4] is 3.00
```

NOTE: Your program should work with both 'float' and 'int' types.

Question 3 Miles (mi) to Kilometers (km) conversion (0.25 mark)

In this question, it is expected that you write a code that grabs an integer in miles (mi) and converts it into kilometers (km) and show it in the output. In order to do that, you need to write a code that calculate the value in km based on the formula below:

distance in km = distance in mile x 1.609344

You output should look like something like below:

```
Please enter an integer value in miles: '100'
The converted value 100 in miles is 160.9 in kilometers.
```

Note : Make sure that you declared 1.609344 as a constant in your code.

Question 4 triangular number sequence (0.25 mark)

Write a code that grabs a number and print the number of points that will be in its triangular sequence. For more information about the triangular sequence, you can read the link below:

https://www.mathsisfun.com/algebra/triangular-numbers.html

For example, the number of dots in a triangular sequence for n is:

Number of points in the triangle n: $\frac{n\times(n+1)}{2}$

You output should look like below:

```
Enter the value of n: ‘5’
5's Triangular Number is 15
```

Note: Notice that the type of 15 is ‘int’ and not ‘float’. Your answer should be always integer.