Assignment #06 – FOR LOOPS
(Worth 15 points)

RESOURCES NEEDED TO COMPLETE ASSIGNMENT
- See Videos in CONTENT LINK FOR LOOPS AND the RANDOM MODULE
- CHAPTER 4 (**Practice Program Exercises 4-17**)

DESCRIPTION FOR ASSIGNMENT #06
CHAPTER 4 - PROBLEM #10 – TUITION INCREASE

At one college, the tuition for a full-time student is (Test Data) $8,000 per semester. It has been announced that the tuition will increase by 3 percent each year for the next 5 years. Write a program with a FOR loop that displays the projected semester tuition amount for the next 5 years.

INPUT VARIABLES & PRELIMINARY OUTPUT:
Be sure to write the program so that the user may enter the following (These statements are outside the FOR LOOP):

- Ask user to enter the starting tuition **[variable used]**
  - **tuition**
  - **data type real / float)**
- Ask user to enter the percent increase – indicate how the user is to enter the percent increase (as a decimal value such as 0.03 or as a percent amount i.e. 3) **[variable used]**
  - **percentIncrease**
  - **data type real/float**
- Ask user to enter the number of years for the projected percent increase **[variable used]**
  - **years**
  - **(data type integer)**

Using variables as requested above, allows the program to be flexible and not set to a specific starting tuition, % increase and number of years.

Display the following (or similar labels) prior to the FOR-LOOP:

```
===================================================================
PROJECTED TUITIONS (PER SEMESTER FOR FULL-TIME STUDENTS)
===================================================================
YEAR                                          PROJECTED TUITION
===================================================================
```

PROCESSING & OUTPUT – USE FOR LOOP TO EXPRESS THE FOLLOW:

- Use one of the following formula to calculate the projected tuition

$$tuition = (tuition * percentIncrease) + tuition$$

or

$$tuition = tuition * (1 + percentIncrease)$$

- Display the tuition year in one column, and corresponding tuition in the next column

HINT: Both the formula and display need to be inside the FOR / LOOP

FINAL OUTPUT [FOLLOWING THE FOR-LOOP:

```
===================================================================
THESE PROJECTIONS REFLECT A 3.00% ANNUAL INCREASE.
===================================================================
```

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PART 1. TUITION INCREASE: (Problem #10)

You Use flowgorithm or Visio, to outline.

FLOWCHART:

1. ☐ **USE THE FOR-LOOP construct to design the flowchart**

2. ☐ **Please follow the previous instructions concerning INPUT, PROCESSING and OUTPUT**

SAVE FLOWCHART FILE AS:

3. ☐ **Lastname_firstname_A6_Tuition_Increase.frpg (Worth 3 points)**

RUN / EXECUTE FLOWCHART PROGRAM:

Your FLOWGORITHM Results will resemble the following

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Console — □ ×

What is the amount of the starting tuition [Decimals may be entered, 5000.75, 8000.00 etc] ?

8000

What is the percentage of increase [enter in decimal format such as (for 3%, Type 0.03), (5%, Type 0.05) etc.]?

0.03

How many years are you projecting the tuition increase? [Enter whole numbers only]

5

===

PROJECTED TUITIONS (PER SEMESTER FOR FULL-TIME STUDENTS)

===

YEAR   PROJECTED TUITION

===

YEAR	PROJECTED TUITION
1	$8240.00
2	$8487.20
3	$8741.82
4	$9004.07
5	$9274.19

===

THESE PROJECTIONS REFLECT A 3.00% ANNUAL INCREASE.

===

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RUN / EXECUTE FLOWCHART/ TEXT VIEW

CLICK CHAT BUBBLE / TEXT VIEW

```
Console                                                        —   □   ✕

🔍➕  🔍➖   📤   💾  📋  ◆  ▶  ⏭  ⏸  ⏹   ▦  ▤

What is the amount of the starting tuition [Decimals may be entered, 5000.75, 8000.00
 etc] ?
8000
What is the percentage of increase [enter in decimal format such as (for 3%, Type
 0.03), (5%, Type 0.05) etc.]?
0.03
 How many years are you projecting the tuition increase? [Enter whole numbers only]
5
================================================================
PROJECTED TUITIONS (PER SEMESTER FOR FULL-TIME STUDENTS)
================================================================
YEAR                PROJECTED TUITION
================================================================
1                        $8240.00
2                        $8487.20
3                        $8741.82
4                        $9004.07
5                        $9274.19
================================================================
THESE PROJECTIONS REFLECT A 3.00% ANNUAL INCREASE.
================================================================

                                                          ⏎ Enter
```

SAVE FLOWGORITHM OUTPUT / RESULTS:

Lastname_firstname_A6_Tuition_Increase_Flow_Output.txt (worth 2 points)

PART 2. PYTHON VERSION

1. ☐ **Convert the flowgorithm program into python code**
2. ☐ **Use the f' string or format function to display the results as follows**
3. ☐ **Make sure comments are throughout the program**
4. ☐ **Make sure your output aligns by values and is attractive**
5. ☐ **Save the python file as:**

Lastname_firstname_A6_Tuition_Increase.py

RUN / EXECUTE PYTHON PROGRAM:

The results should resemble the following:

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```
What is the amount of the starting tuition [Decimals may be entered, 5000.75, 8000.00 etc] ?
8000
What is the percentage of increase [enter in decimal format such as (for 3%, Type 0.03), (5%, Type 0.05) etc.]?
0.03
 How many years are you projecting the tuition increase? [Enter whole numbers only]
15

================================================================
   PROJECTED TUITIONS (PER SEMESTER FOR FULL-TIME STUDENTS)

================================================================
YEAR                                PROJECTED

================================================================
1                               $     8,240.00
2                               $     8,487.20
3                               $     8,741.82
4                               $     9,004.07
5                               $     9,274.19
6                               $     9,552.42
7                               $     9,838.99
8                               $    10,134.16
9                               $    10,438.19
10                              $    10,751.33
11                              $    11,073.87
12                              $    11,406.09
13                              $    11,748.27
14                              $    12,100.72
15                              $    12,463.74

================================================================
     THESE PROJECTIONS REFLECT A 3.00% ANNUAL INCREASE.

================================================================
>>> |
```

6. ☐ Save the python output file as:

Lastname_firstname_A6_Tuition_Increase_Python_Output.txt

Submit the following files to the designated drop box

Lastname_firstname_A6_Tuition_Increase.frpg (Worth 3 points)

Lastname_firstname_A6_Tuition_Increase_Flow_Output.txt (worth 2 points)

Lastname_firstname_A6_Tuition_Increase.py (worth 8 points)

Lastname_firstname_A6_Tuition_Increase_Python_Output.txt (worth 2 points)

Because LOOPS are extremely significant in programming, make sure you understand them. Obtain assistance from your Professor.

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