**Tuition Increase Calculator Program**

The college needs a tuition increase application. ***The current cost for a full-time student is $8000.00 per semester and the amount of increase will be 3% for each year of the tuition increase***. The user will enter their school name and enter the number of years the tuition increase will take place. The program will compute with a loop, the projected tuition amount for the next ***X*** years. The output will be similar to the following:

*The tuition rate for a semester at Gulf Coast State College after 5 years is $\_\_\_\_*

**ALGORITHM**

1. Ask user **schoolName**, *the name of the school using program.*
2. *Validate data input,* makes sure input is a string
3. Ask user for **increaseLengeth**, *years the tuition rate increase will occur.*
4. *Validate data input*, make sure it is not a value less than zero
5. Calc the **tuitionCost, *cost of tuition per semester at school using program,*** increase with a *running total* with a *for* loop and the range function with the condition of the **increaseLength**.
6. **For count in range (1, increaseLength +1)**
7. Calculate the **increaseAmount (*the amount of increase that occur this loop*)** of tuition, with the INCREASERATE **(*the percent rate the tuition will be raised by*) of *3%*:**

**increaseAmount = tuitionCost \* INCREASERATE**

1. Calculate the new **tuitionCost *(the sum of the current tuition cost and the increase amount that will occur this loop):***

**tuitionCost= increaseAmount + tuitionCost**

1. Repeat *for* loop while range condition is true
2. Display **schoolName**
3. Display the new **tuitionCost**, formatted to have ‘$’ and to the second decimal place
4. Display **increaseRate,** formatted as a ‘%’

**VARIABLES**

schoolName (str)

increaseLengeth (int) 0

tuitionCost (float) $8000.00

INCREASERATE (int) 3%

increaseAmount (float)

**FORMULAS**

increaseAmount = tuitionCost \*INCREASERATE

-Calculates the increase amount of tuition

tuitionCost = increaseAmount + tuitionCost

-Calculates the amount of the new tuition cost.

**TEST DATA – 5 complete data sets**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input**  ***schoolName*** | **Input**  ***increaseLengeth***  in years | **Calc**  ***increaseAmount***  Calculates the increase amount of tuition | **Calc**  ***tuitionCost***  Calculates the amount of the new tuition cost. | **Display/Output**  ***schoolName, tuitionCost, increaseRate, increaseLengeth*** |
| Gulf Coast State College | 5 | 1. 8000 \* 0.03 = 240 2. 8240 \* 0.03 = 247.20 3. 8487.20 \* 0.03 = 254.616 4. 8741.816 \* 0.03 = 262.25448 5. 90040.0748 \* 0.03 = 270.1221144 | 1. 8000 + 240 =8240 2. 8240 + 247.20 = 8487.20 3. 8487.20 + 254.616 = 8741.816 4. 8741.816 + 262.25448 = 9004.07048 5. 9004.07048 + 270.122114= 9274.1925944 | *Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00*  *Gulf Coast State College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20*  *Gulf Coast State College with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82*  *Gulf Coast State College with a 3% tuition increase in year 4 will experience a tuition cost per semester of $9,004.07*  *Gulf Coast State College with a 3% tuition increase in year 5 will experience a tuition cost per semester of $9,274.19* |
| Gulf Coast State College | 1 | 1. 8000 \* 0.03 = 240 | 1. 8000 + 240 =8240 | Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00 |
| Gulf Coast State College | 2 | 1. 8000 \* 0.03 = 240 2. 8240 \* 0.03 = 247.20 | 1. 8000 + 240 =8240 2. 8240 + 247.20 = 8487.20 | *Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00*  *Gulf Coast State College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20* |
| Panama City College | 3 | 1. 8000 \* 0.03 = 240 2. 8240 \* 0.03 = 247.20 3. 8487.20 \* 0.03 = 254.616 | 1. 8000 + 240 =8240 2. 8240 + 247.20 = 8487.20 3. 8487.20 + 254.616 = 8741.816 | Panama City College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00  Panama City College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20  Panama City College with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82 |
| Emerald Coast University | 4 | 1. 8000 \* 0.03 = 240 2. 8240 \* 0.03 = 247.20 3. 8487.20 \* 0.03 = 254.616 4. 8741.816 \* 0.03 = 262.25448 | 1. 8000 + 240 =8240 2. 8240 + 247.20 = 8487.20 3. 8487.20 + 254.616 = 8741.816 4. 8741.816 + 262.25448 = 9004.07048 | *Emerald Coast University with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00*  *Emerald Coast University with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20*  *Emerald Coast University with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82*  *Emerald Coast University with a 3% tuition increase in year 4 will experience a tuition cost per semester of $9,004.07* |

**FLOWCHART**



**TEST DATA EXECUTION RESULTS**

#################################### TEST 1 ##################################

Please enter the school name:

Gulf Coast State College

Please enter the length of time the tuition increases in years. i.e. 1 year will be entered as 1:

5

Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00

Gulf Coast State College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20

Gulf Coast State College with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82

Gulf Coast State College with a 3% tuition increase in year 4 will experience a tuition cost per semester of $9,004.07

Gulf Coast State College with a 3% tuition increase in year 5 will experience a tuition cost per semester of $9,274.19

#################################### TEST 2 ##################################

Please enter the school name:

Gulf Coast State College

Please enter the length of time the tuition increases in years. i.e. 1 year will be entered as 1:

1

Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00

#################################### TEST 3 ##################################

Please enter the school name:

Gulf Coast State College

Please enter the length of time the tuition increases in years. i.e. 1 year will be entered as 1:

2

Gulf Coast State College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00

Gulf Coast State College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20

#################################### TEST 4 ##################################

Please enter the school name:

Panama City College

Please enter the length of time the tuition increases in years. i.e. 1 year will be entered as 1:

3

Panama City College with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00

Panama City College with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20

Panama City College with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82

#################################### TEST 5 ##################################

Please enter the school name:

Emerald Coast University

Please enter the length of time the tuition increases in years. i.e. 1 year will be entered as 1:

4

Emerald Coast University with a 3% tuition increase in year 1 will experience a tuition cost per semester of $8,240.00

Emerald Coast University with a 3% tuition increase in year 2 will experience a tuition cost per semester of $8,487.20

Emerald Coast University with a 3% tuition increase in year 3 will experience a tuition cost per semester of $8,741.82

Emerald Coast University with a 3% tuition increase in year 4 will experience a tuition cost per semester of $9,004.07