CECS 174 – LAB ASSIGNMENT 2

OBJECTIVES:

- Able to use a Python 3.x IDE to build Python program(s)
- Able to use Random feature of Python
- Write Python code following an algorithm.
- Form a sophisticated expression in Python

INSTRUCTIONS:

PART 1

This assignment is related to load payment calculation. We are going to calculate monthly loan payment for a car loan. The finance formula that we will use is as follows

$$P = \frac{r(PV)}{1 - (1 + r)^{-n}}$$

$P = Payment$
$PV = Present\ Value$
$r = rate\ per\ period$
$n = number\ of\ periods$

(from web article: https://financeformulas.net/Loan_Payment_Formula.html)

Note that in our case, the "per period" is "per month". For a loan of 20,000 and an annual interest rate of 4%, to be paid of in 60 months, it will be calculated as follows

(0.04 / 12) * 20000 / (1 − (1 + (.04/12))$^{-60}$)
= 368.33

Design a program that will ask user to

1. Enter a loan amount
2. Enter the number of months of the loan
3. Enter the annual interest rate

Then the program will calculate the monthly payment.
After that it will display the result for the user to view.

HINTS

Use the following table to test your app.

rate	period	loan	pmt
0.04	60	20000	($368.33)
0.05	48	15000	($345.44)
0.045	72	25000	($396.85)

(remember in the future, you will need to create your own test data)

To calculate power in Python, a quick search on Google will show you as follows

Using pow()

1. float pow(x,y) : This function **computes x**y**. This function first converts its arguments into float and then computes the power.

```
Declaration :
float pow(x,y)
Parameters :
x : Number whose power has to be calculated.
y : Value raised to compute power.
Return Value :
Returns the value x**y in float.
```

```
# Python code to demonstrate pow()
# version 1

print ("The value of 3**4 is : ",end="")

# Returns 81
print (pow(3,4))
```

PART 2

Design a program that simulates the roll of a dice. In this program, the app will roll the dice the first time and display the value. Then it will roll the dice the second time and display the value. And do this 1 more time. You will need to use the random feature of Python. The **pseudocode** is as follows

OUTPUTLINE "This is lab 2-2"
SET dice_value = random(1, 6)
OUTPUTLINE "The value of the dice is ", dice_value

SET dice_value = random(1, 6)
OUTPUTLINE "The value of the dice is ", dice_value

SET dice_value = random(1, 6)
OUTPUTLINE "The value of the dice is ", dice_value

FOR YOUR INFORMATION

In future lab assignments, you will be required to create algorithms as well as Python code. You will use pseudocode to express your algorithms.

- Turn in **your code and images of your test runs**, (i.e. several runs).
- Your document with have **2 parts because this assignment has 2 parts**.
- Your turn in document must be in **PDF format.** Upload to the BeachBoard account of this class.