CSC-1200 Lab7 Recursion

**Fibonacci Sequence**

The Fibonacci Sequence is the series of numbers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

The next number is found by adding up the two numbers before it.

* The 2 is found by adding the two numbers before it (1+1)
* The 3 is found by adding the two numbers before it (1+2),
* And the 5 is (2+3),
* and so on!

Example: the next number in the sequence above is 21+34 = **55 Source:** <https://www.mathsisfun.com/numbers/fibonacci-sequence.html>

In this lab you will write a program that allows the user to enter a number. This number will represent the maximum position of the Fibonacci sequence that the user wants to print. For example, if the user entered 2 your output would be:

0

1

If the user entered 5 your output should be:

0

1

1

2

3

**Main()**

In this program you will need two functions. The first will be main() which will be the starting point of the program. It will take an integer input from the user and print each Fibonacci number up to the position given by the user. The user’s input should be a positive number 1-n. This input should be validated and should continue to prompt the user until a valid input is entered. The body of main should have a similar structure to the code below:

num=int(input(“Enter a position”))

//Validation Here

for i in range((num+1)):

print(fib(i))

**Fib()**

The fib function should take in an integer contain the position. This will return the Fibonacci number at this location. There should be two base cases and one case with a recursive call. The recursive call should be used to find the values of the two numbers before the one at the given position and so on.

**Rubric**

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| 10 pts. | Comments and coding style. |
| 50 pts. | Fib() is correct. Both base cases are present, and the recursive call is made correctly. |
| 30 pts. | Menu() correctly prints each Fibonacci number up to and including the position listed. |
| 10 pts. | Menu() correctly validates the user input and makes sure that the input is greater than 0. |