COSC 251 – Lab #3
There are some who call me... Tim.

Purpose: Familiarize yourself with Python.

Task: Utilizing IDLE, build three functions in Python. Two of the functions should be familiar to you at this point: factorial and Fibonacci. Both factorial and Fibonacci should take in a single parameter (n) and return n! and the Fibonacci sequence value at index n, respectively. Both factorial and Fibonacci should be recursive implementations and you are allowed to have a helper function if you wish. The third function is permutation. Permutation should take in a string (s) and print out all permutations of that string. For instance, if the string is "com" it should print out:

```
com
cmo
ocm
omc
moc
mco
```

Note: these permutations can be in any order you choose. Permutation does not have to be recursive. These should be defined as functions and be written into a separate file called lab3.py. You should not print in Fibonacci or factorial, but you may print in permutation.

Include in lab3.py the code to test your functions with user-inputted data. No user input should be included as part of the three functions; this prompt and data should exist outside of the function implementations (i.e. in "main"). To test your code on the server, upload your lab3.py and run the following command:

```
python3 lab3.py
```

Deliverable: the .py file that contains your source. It should be well commented. You may work in pairs for this lab.

Deductions (beyond incorrect calculations):
-2 per incorrect function
-1 if Fibonacci or factorial are not recursive
-1 if Fibonacci requires heavy processing (i.e. the "bad" fib)
-1 no user input or user input in the functions
-1 prints in Fibonacci or factorial
-1 lack of comments

Due: By 11:59pm Tuesday. No exceptions. To be turned in via Blackboard.