CSE474 - Lab Task 3

1. Go through this documentation of Simpy:
   https://simpy.readthedocs.io/4.0.1/simpy_intro/index.html
   SimPy is a framework specifically geared towards discrete-event simulation. You can go through the following code to get a glimpse of how SimPy works:
   https://colab.research.google.com/drive/1Q6qjYYkYpaKoMbNnguvAlrB8CI_7EjNR?authuser=3#scrollTo=iZ_FFn8egK03

2. Now, go through this specific example on their website:
   https://simpy.readthedocs.io/en/4.0.1/examples/bank_renege.html
   They have other examples too. Going through more of them will make you more well-versed in SymPy, but one example should suffice.

3. I want you to change this code in the example in a way so that while there will be one counter initially, whenever there are more than five customers waiting in line, a new counter will be created (or you could increase the capacity, perhaps). You will see in the example that a customer gives up after a specific threshold waiting time. Instead of letting them give up (called "renege" in the example), you will open up a new counter again. Also, each act of opening up counters (or increasing capacity) (including the first) needs to be printed in real-time. The maximum number of counters (or the maximum capacity) will be 20. After that, the customers give up.

4. Your sample output should look something like this:

```
Bank renege modified
 0.0000 Counter00: Opened
 0.0000 Customer00: Here I am
 0.0000 Customer00: Waited  0.000
 3.8595 Customer00: Served by Counter 01
10.2006 Customer01: Here I am
10.2006 Customer01: Waited  0.000
12.7265 Customer02: Here I am
13.9003 Customer02: About to give up after  1.174
13.9004 Counter02: Opened
22.8994 Customer02: Served by Counter 02
23.7507 Customer01: Served by Counter 01
34.9993 Customer03: Here I am
34.9993 Customer03: Waited  0.000
35.9599 Customer04: Here I am
37.4798 Customer03: Served by Counter 02
40.4798 Customer04: Waited  0.000
43.1401 Customer04: Served by Counter 01
```
You may find the example "Machine Shop" useful as well..

Submit within 11 April, Monday, 11:59 PM.
Your code should be well-commented.
The programming language should be Python 3.