CYSE 250: Cybersecurity Programming and Networking
Assignment-Socket Programming
(Total 50 points)

Answer the following questions:

1. (**10 points**) Suppose you run the TCP client without starting the server. What happens exactly and why?

2. (**10 points**) What is a local host, and how is it used to develop networked applications?

3. (Research question- **5points**) what a time.sleep() does in python?

4. (10 points) Explain in brief about the following system call in python:

   a. bind()

   b. connect()

   c. send()

   d. recv()

   e. accept()

5. (**15 points**) Write a simple socket program in python to have **one** client and **one** server communicating with each other, using a secure chat system. Submit the screenshot for both the scripts and outputs (4 screenshots), in a word or pdf file.

Extra Credit Question (20 points) : This question is OPTIONAL

Write a socket program in python to create a chat system where the client sends the query to the server and the server sends back the source link for the query, (example: If the client sends "Covid19" as query /message, then the server will send the corresponding URL / link with information on covid19 as message to the client).

Submit the screenshot for both, client.py and server.py, **with their output** in a word or pdf file on the Canvas. Hint: You may refer to the example discussed during the class this week.