2020 Spring CSEE 5110 NA-1 *Individual* Project 1
Both Canvas and Gradescope submission,
Due on midnight on 03/19 (Part 1), 04/09 (Part 2)

- **Each student will do the demo at an assigned time later (10 min /person). Questions on the code and execution will be asked during the demo. Come prepared for the demo to show all the workings of your project as well as compilations within the time.**
- **Any programming language can be used for this project.**

- **What to Submit:** i) the codes and ii) the execution examples for each part.
    - Name each file meaningfully following the format below.
      yourSSO-part1-a-server-yourSSO.py,
      yourSSO-part1-a-client.java
      yourSSO-part1-a-exeOutput

Part I. Socket programming Warm-up (50%) (Due 03/19)
Develop simple TCP client and server programs locally, but test with another machine (eg. Another machine in UMKC network). Show the screenshots of simple message exchanges.
a) (20%) Start from client message 'Hello from Client-your names' and server responses with 'Hello from Server-your names'. Then messages from each side are echoed to each other. The program quit the program with typing 'Bye from Client-your name' and 'Bye from Server-your name'.
b) (30%) A client sends a **large text file (> 3 MB)** to a server. *(A small file transfer will receive only a partial credit*
Server prints the file on the screen,
Server saves the file in a local system,
Server appends one more line (eg. 'This is an added line from a server) to the file,
And send the updated file back to the client.
Client shows the file on the screen after it fully receives the file. And display the newly added lines from the server, not the entire file content.

Part II. Group Chatting Program (50%) (Due 04/09)
Develop a simple chat program (similar to google hangout and skype chat),and show the screenshots of the execution of the below.
Extend the first program to chat client-server program following these steps.
a) (5%) A chat server will accept a single client connection and display everything the client types. If the client user types 'exit', both client and server will end the program.
b) (5%) A server now remains 'open' for additional connection once a client quits. The server can handle at most one connection at a time.
c) (10%) A server now can handle multiple clients at the same time. The output from all the connected clients will appear on the server's screen.
d) (30%) A server replies next 3 days temperature of Kansas city (eg 30 C/45 F), when client sends "Weather" otherwise server echoes same message.
Ex: Client: Weather (Case-insensitive)
    Server: Next consecutive three days temperature : 45c/47/34c (student choice units:c/f)
Client : hello
Server: hi