CSCE 416 (Spring 2021) Programming Assignment 1
Getting Started on Java Network Programming

The purpose of this assignment is to familiarize you with Java network programming. You will obtain, compile, and run a simple network program. You will then implement a simple extension.

Download the assignment Assign1.zip from the Blackboard and unzip it. You will find two programs, OneWayMesgServer.java and OneWayMesgClient.java. Compile the files using javac to create the executable classes: OneWayMesgServer.class and OneWayMesgClient.class. We provide a Makefile that will compile the two files (run make inside the directory). All lab assignments will require you to submit a Makefile; so if you aren't already experienced with make, please familiarize yourself with Makefile (see here).

Run OneWayMesgServer on one terminal and OneWayMesgClient on the other.
In Terminal 1:

```
$ java OneWayMesgServer #port_number (e.g., java OneWayMesgServer 50000)
```

In Terminal 2:

```
$ java OneWayMesgClient #server_address #port_number (e.g., java OneWayMesgClient localhost 50000)
```

Write something on the terminal where OneWayMesgClient is running, and see that OneWayMesgServer prints out the message. Note that OneWayMesgServer and OneWayMesgClient use a specific port to communicate. Try running another instance of the Server using the same port while the first Server is running. Does it work?

Modify OneWayMesgServer.java to create TwoWayMesgServer.java that accepts user input and sends it to the TwoWayMesgClient, which is a modified version of OneWayMesgClient that prints the received message on the terminal. The TwoWayMesgServer and TwoWayMesgClient output should look like this:

```
Server> Waiting for a client ...              Client> Connected to server at localhost:50000
Server> Connected to a client                 Client> Hello Server
Server> Client: Hello Server
Server> Hello Client
xxxxxxxxxx                                     Client> Server: Hello Client
```

That's it. Sounds simple, doesn't it? Indeed, for experienced Java programmers, this assignment is trivial. Others should find it a nice way to get started on network programming. Don't simply download the source code and compile the programs; but make sure that you understand how the sockets are created and the connection established. O'Reilly's Java Network Programming book (Chapter 8) is an excellent source.

Submission

(1) Create a zip file containing the new TwoWayMesgServer.java, TwoWayMesgClient.java, and Makefile;
(2) Rename the zip file as YOURLASTNAME_p1.zip (YOURLASTNAME in all caps);
(3) Upload it in the Blackboard.

Grade Breakdown

(1) 25%: You submitted your assignment on-time; and the new, modified files compile correctly. Grader will use make to compile the files. **Zero points if the files do not compile or you upload the original files**.
(2) 75%: Both TwoWayMesgClient and TwoWayMesgServer can print each other's messages.