## **Assignment 1**

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## Part 1: Client-server socket program in C.

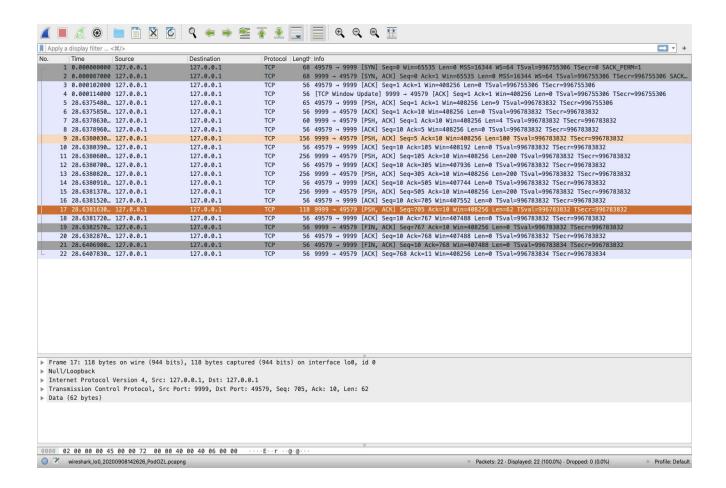
Instructions to run the C Program:

- 1. cd Socket\_Programming
- 2. make clean
- 3. make
- 4. ./server
- 5. open new shell for client program, cd to Socket Programming
- 6. ./client
- 7. Enter file name to transfer
- 8. After file transfer client closes socket and server waits for next connection.
- I have done the following assignment for linux environment.
- There are 2 folders in Socket\_Programming folder which contains server and client c++ code files are present along with Makefile, Document and object files. There are 2 folders named Shared drive and Client drive.
- Shared\_drive contains 3 sample files and Client\_drive is empty. I have used file.txt.
- The Server transfers file from Shared\_drive to Client\_drive and this can be observed in wireshark.

## Part 2: Wireshark trace

File used: file.txt in Shared\_drive

a. How many TCP connections are made?
 One connection is made. As server and client ports remain the same throughout the program.



b. What is the port number of the server and what is that of the client?

Client Port No.: 49579

Server Port No.: 9999 (Chosen by us in C program)

c. How many packets are exchanged between client and server?
From the Wireshark trace, we can see that in total, 22 packets are transferred between the client and server.

d. How much time is needed to download the file?

We can see that file transmission starts at 9th packet and the data transfer ends at 17th packet.

Hence, taking the 9th packet as the reference time, we get 17th packet gets transferred in 0.000160000 seconds.

Now Considering(Assumption) the download time to be time after client sends file name to the server the download starts after 5th packet till 17th packet, so download time would be 0.000615000 seconds.

