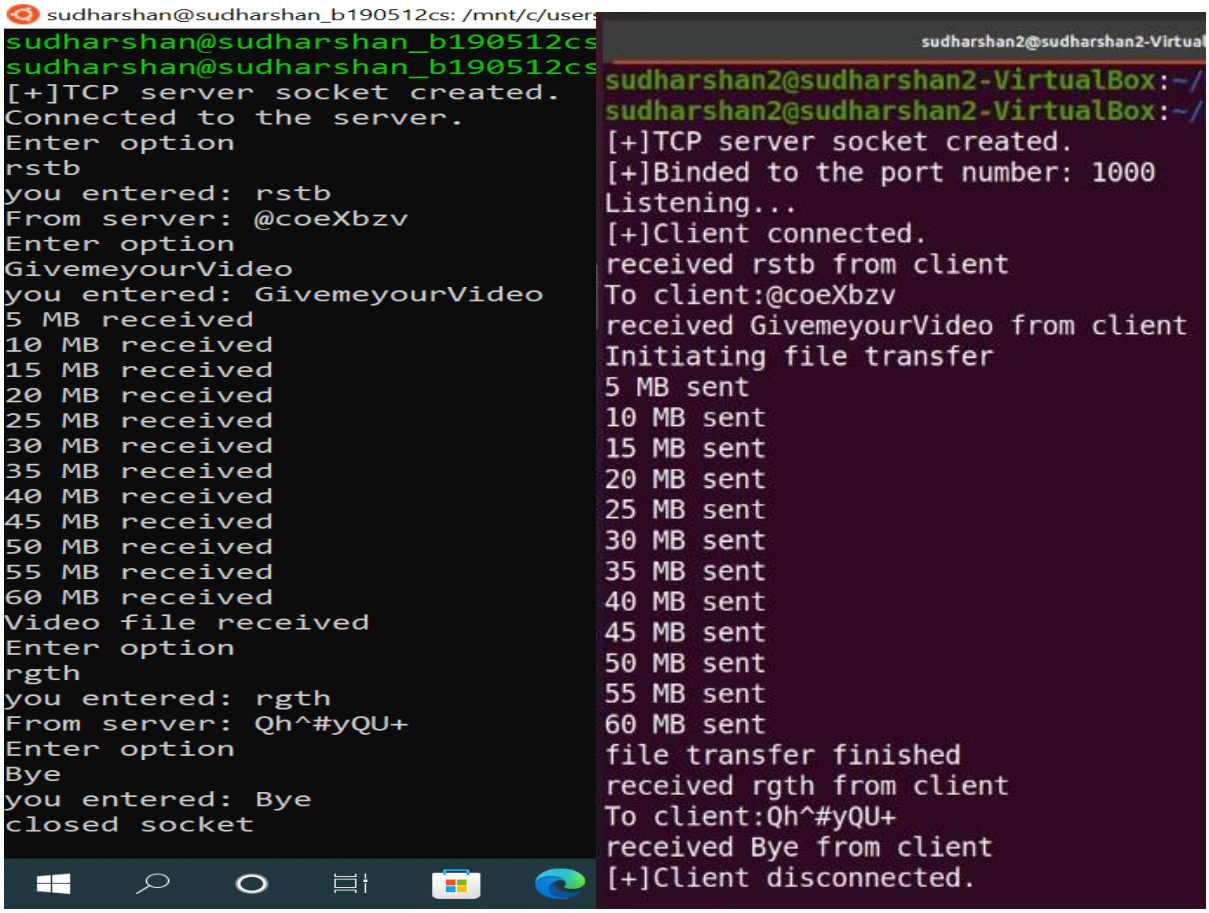
Q2)programs execution covering all functionalities.

Commands:gcc tcpclient2.c && ./a.out 1000 gcc tcpserver2.c && ./a.out 1000



I did not concentrate much on this 2 programs so these 2 programs might not be modular,checking edge cases,errors,readable.if want a basic tcp programs which are modular and reusable refer Q1 tcp codes and don't use Q2 codes.

While running these two programs before entering GivemeyourVideo option open a new tab in same terminal window(both server window and client window) and run the below command:

"Ifstat -t -I enp0s3 0.1 > capture.txt"

(capture1.txt for server and capture2.txt for client window)

After file transfer is finished stop the two ifstat.. commands by using ctrl+c .two .txt files will be created and will contain kb/s in and kbps out values for every 0.1 second.

Ifstat command prints network interface statistics

-t flag allows to add timestamp in front of each line

-i flag specifies the list of interfaces to monitor(can use lo,eth0 etc based on interface name-type ifconfig to determine the interface name).

0.1 is to record transmission rate for every 0.1 seconds

> capture.txt specifies to write statistics into a file

GNUPlot is a command-driven interactive plotting program

GNUPlot commands

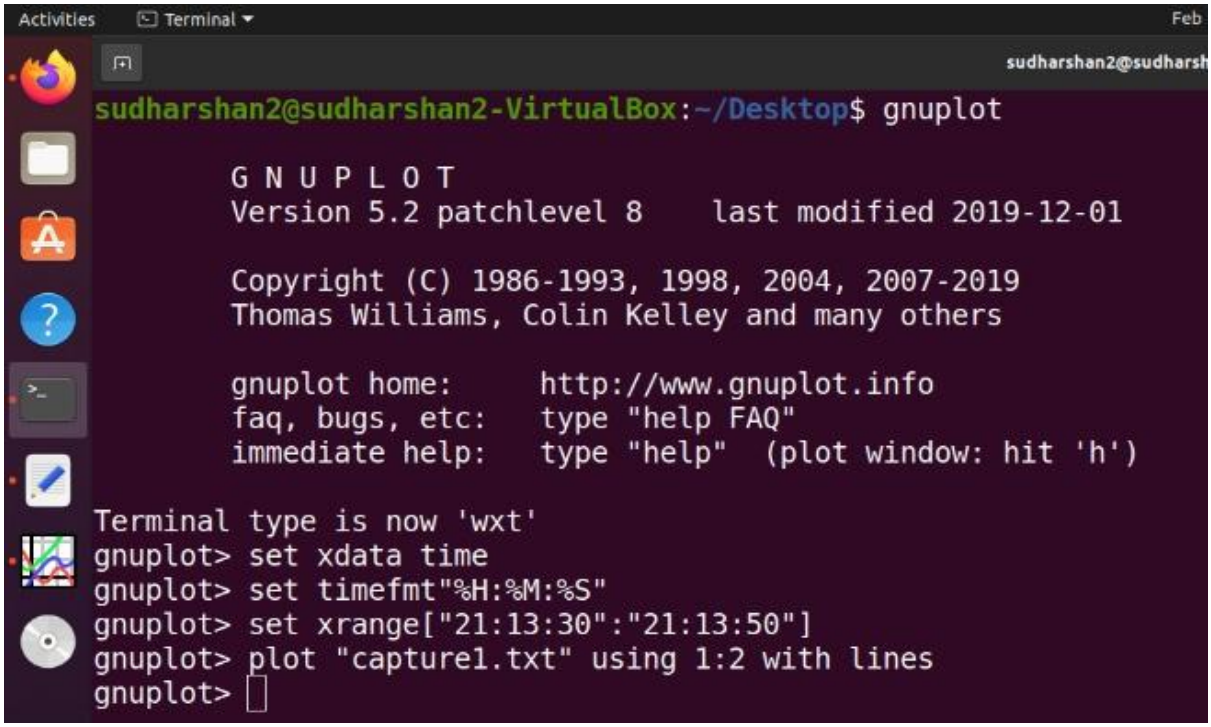
set xdata time - set x axis as time

set timefmt “%H:%M:%S” - set time format

set xrange[“ “] - set range of x values (mention the timings appropriately

plot “capture.txt” using 1:2 with lines - plot file with line graphs(capture1 and capture2)

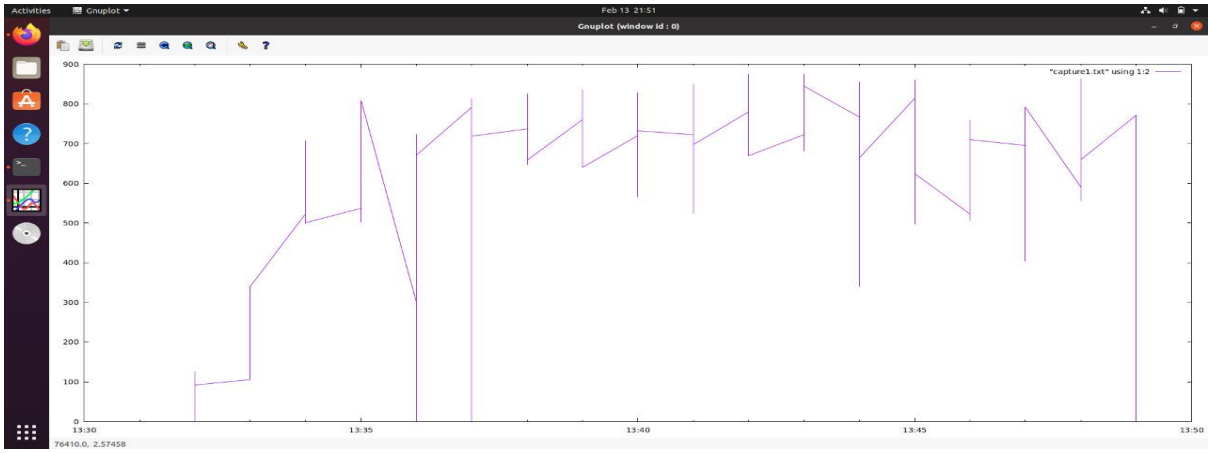
Install gnuplot in terminal to plot the graph using capture.txt files.



Above gnuplot commands will only plot kb/s-in values and ignore kb/s-out values of given input .txt file.

Here I am plotting only capture1.txt file(captured in server terminal window) so kb/s-in values = speed of client to server data flow only.similarly we can plot server to client data speed using capture2.txt file.y-axis 1 unit=1 kbps-in from client to server.

Avoid putting small xranges in gnuplot.it will not plot in a graph if put very small xranges.



Mam said gnuplot or xgraph anything is fine.so did not plot graph using xgraph.

2)c)i did not do the c part of Q2 .for theory of stop and wait ARQ refer raudra CN section-2 flow control methods.

Note:server is one VM and client is wsl ubuntu here so change ip address of both programs if to run in same machine.we can run both server and client in same VM also old video and received video will have different names we can detect.