EXPERIMENT 6

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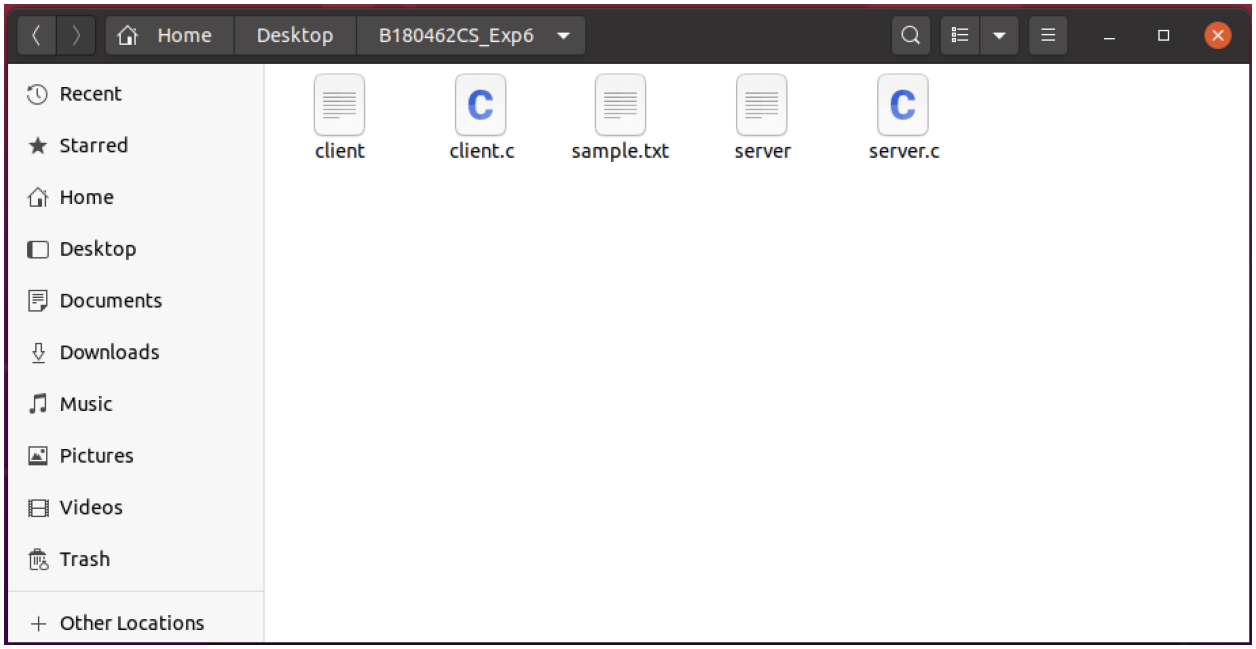
B180462CS

There are two source code files in this folder, namely

1. server.c
2. client.c

and a sample 50MB data file “sample.txt”.

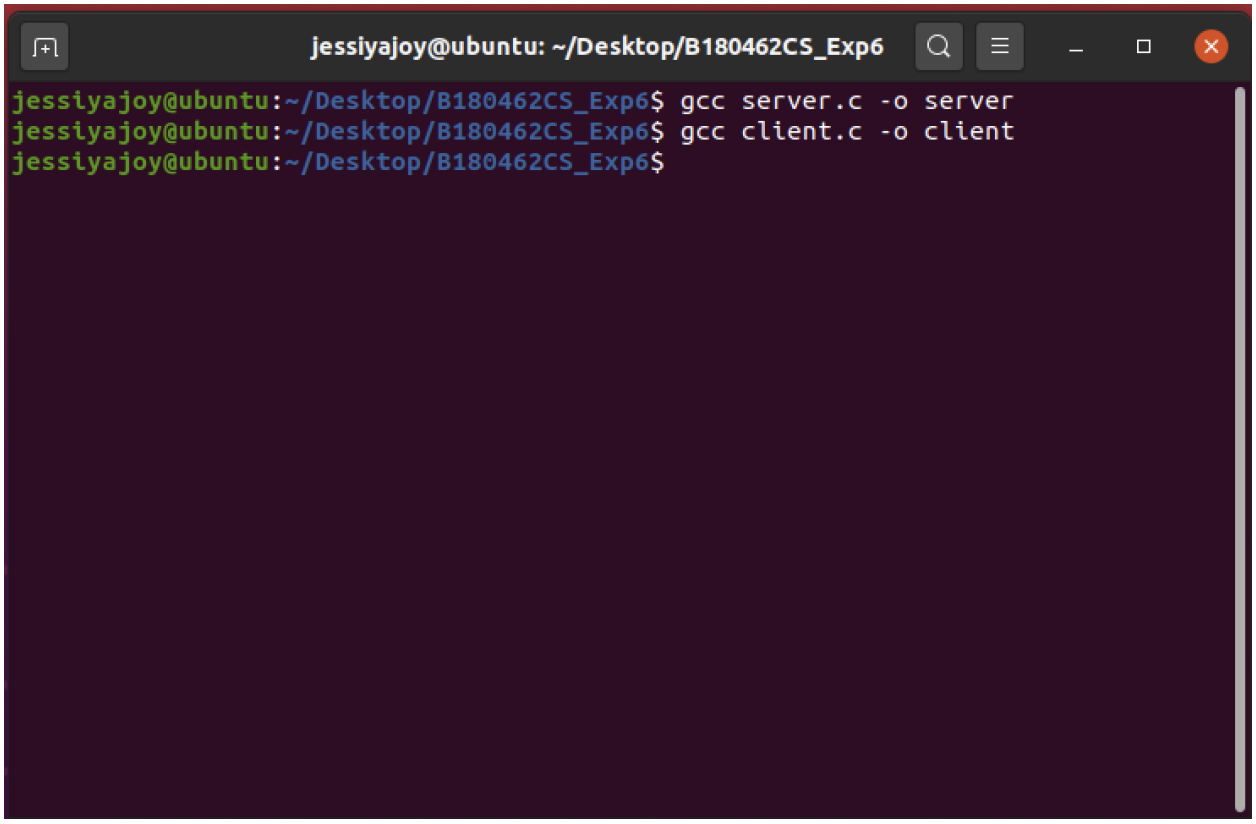


These contain the codes for the implementation of server and client respectively.

Open a terminal in the folder B180462CS_Exp6.

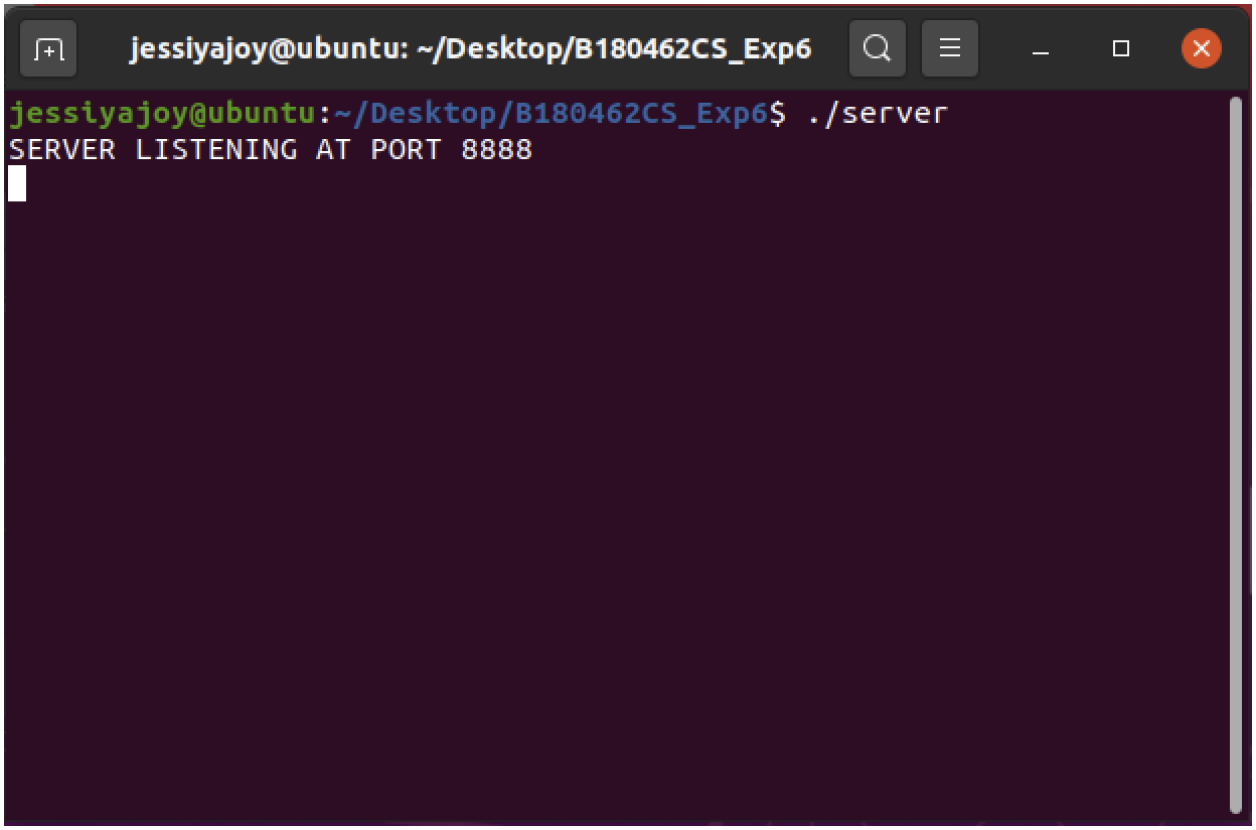
Compile the source code using the following commands:

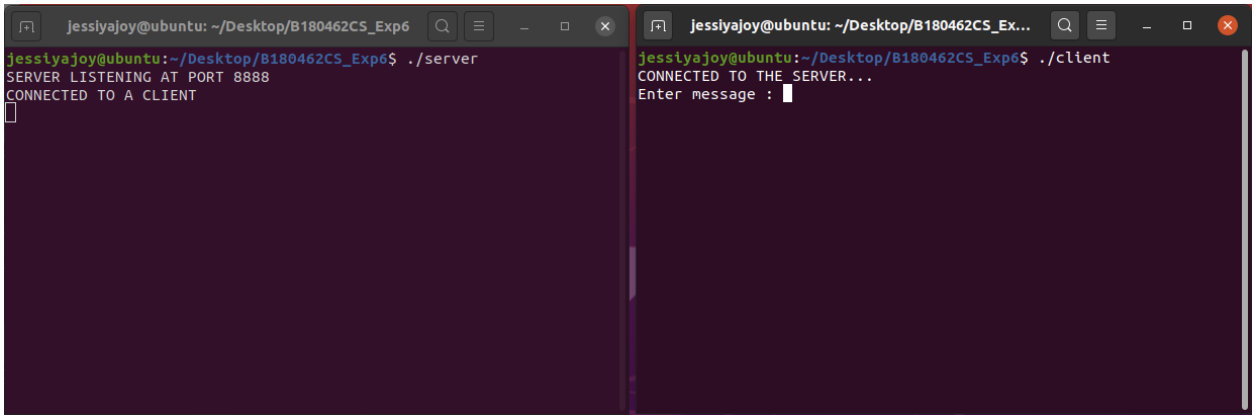
```
gcc tcp_server.c -o server
gcc tcp_client.c -o client
```



Now run the executable files for the server followed by the client in a new terminal as follows :

```
./server
./client
```





In the terminal running the client program , enter any message to send to the server.

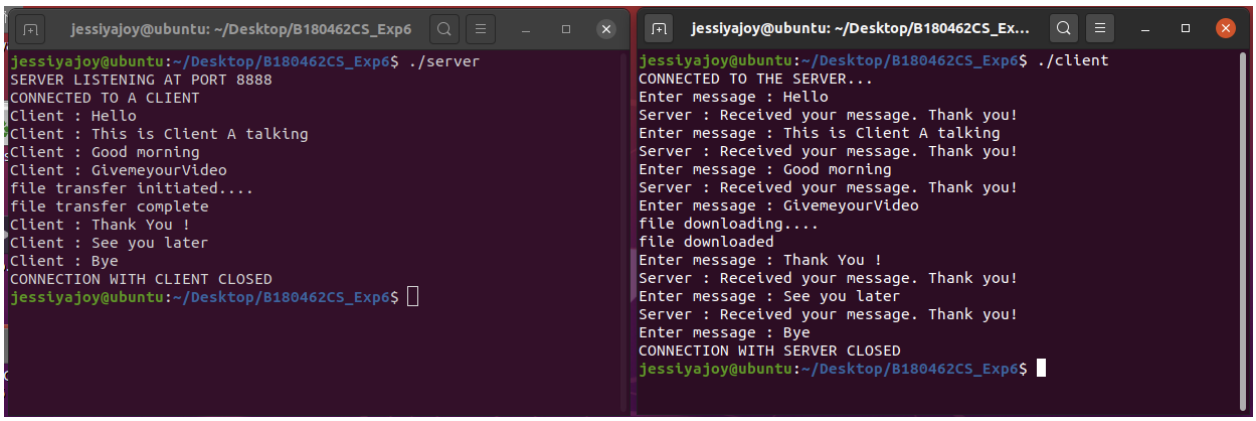
The server receives the message and responds accordingly :

1. Client message : “GivemeyourVideo”
   Server sends a 50MB data file to the client.
2. Client message : “Bye”

Server closes the connection with the client.

3. To any other message, the server responds with a default message "Received your message. Thank you!"

Sample Run :



After execution , 2 new files will be present in the folder :

1. download.txt : file that is received by the client
2. transmission_rates.txt : file that contains the recorded transmission rates during the data file transfer between client and server.

GNU PLOT :

Install gnuplot on a linux machine as follows :

```
sudo apt-get update
sudo apt-get install gnuplot-qt
```

Open a terminal window in the same folder and launch a gnuplot command line interface as shown below :

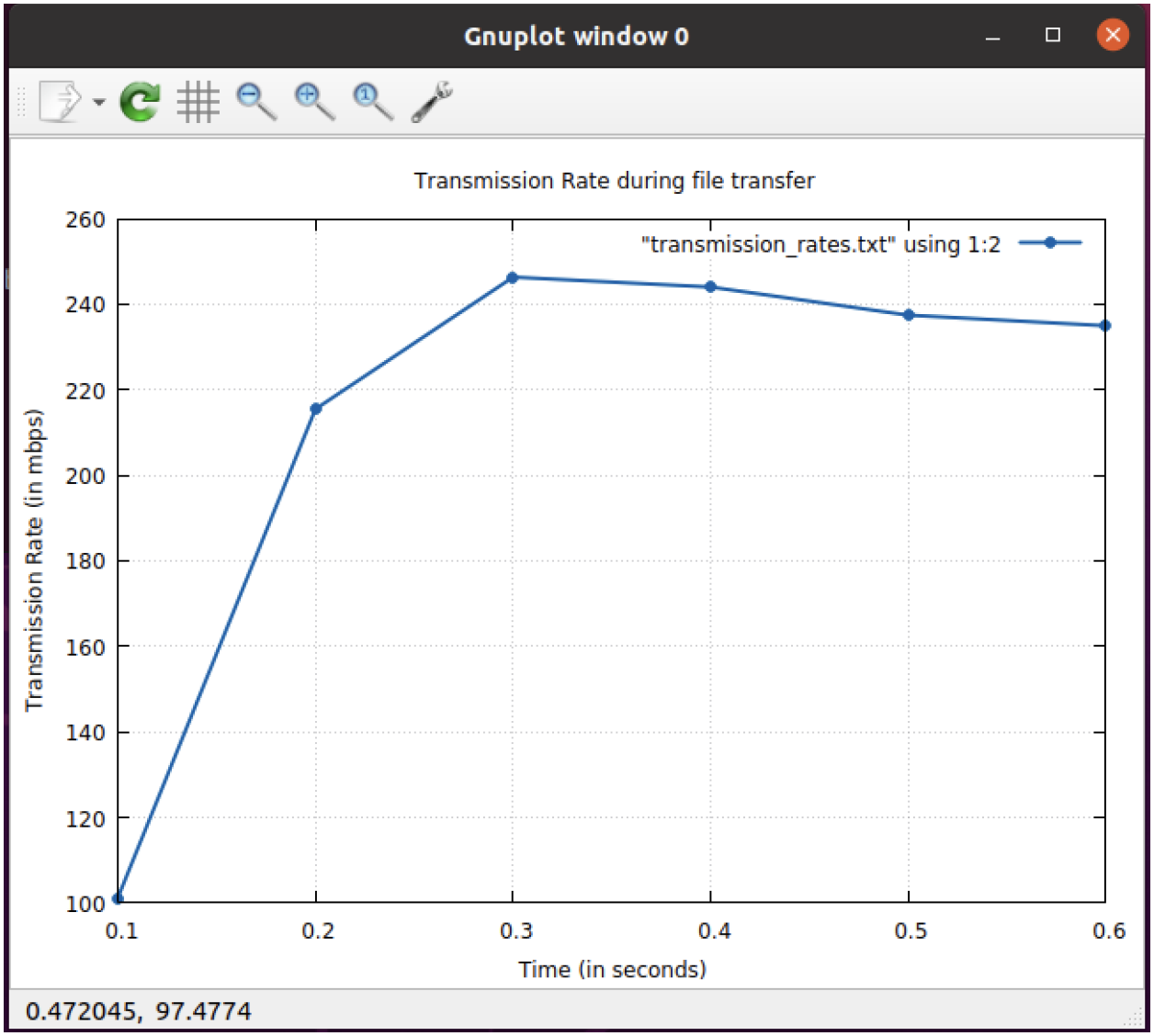
```
jessiyajoy@ubuntu: ~/Desktop/B180462CS_Exp6
jessiyajoy@ubuntu:~/Desktop/B180462CS_Exp6$ gnuplot

        G N U P L O T
        Version 5.2 patchlevel 8    last modified 2019-12-01

        Copyright (C) 1986-1993, 1998, 2004, 2007-2019
        Thomas Williams, Colin Kelley and many others

        gnuplot home:     http://www.gnuplot.info
        faq, bugs, etc:   type "help FAQ"
        immediate help:   type "help"  (plot window: hit 'h')

Terminal type is now 'qt'
gnuplot> set grid
gnuplot> set style line 1 \
>linecolor rgb '#0061ad' \
> linetype 1 linewidth 2 \
>pointtype 7 pointsize 1
gnuplot> set title "TRANSMISSION RATES DURING FILE TRANSFER OF 50MB DATA FILE"
gnuplot> set xlabel "Time (in seconds)"
gnuplot> set ylabel "Transmission Rate (in mbps)"
gnuplot> plot "transmission_rates.txt" using 1:2 with linespoints linestyle 1
```

The transmission rates during file transfer in the sample run were :

<u>50MB data file :</u>

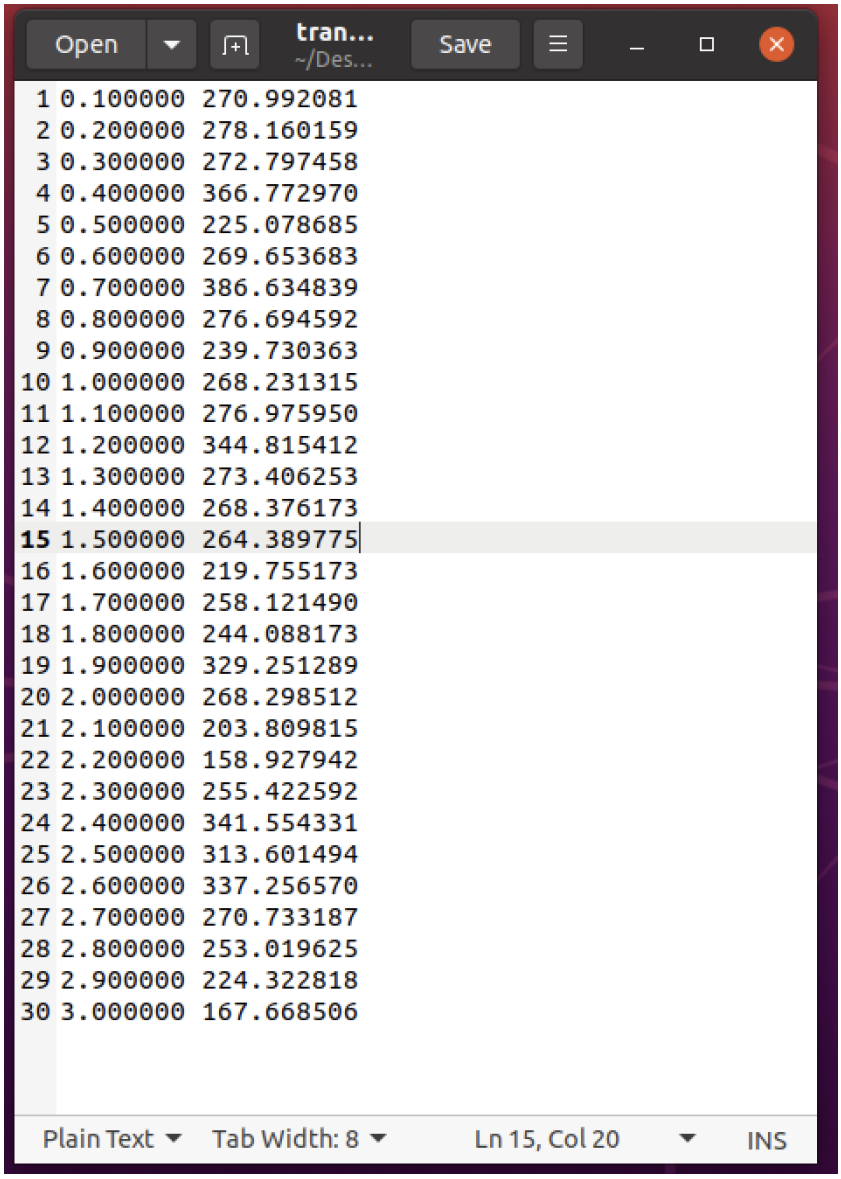
```
Open   transmission_rates.txt
       ~/Desktop/B180462CS_Exp6   Save
1 0.100000 101.208415
2 0.200000 215.457245
3 0.300000 246.327545
4 0.400000 244.002342
5 0.500000 237.412453
6 0.600000 234.918594
Plain Text   Tab Width: 8   Ln 1, Col 1   INS
```

Transmission rates during 50MB data file transfer

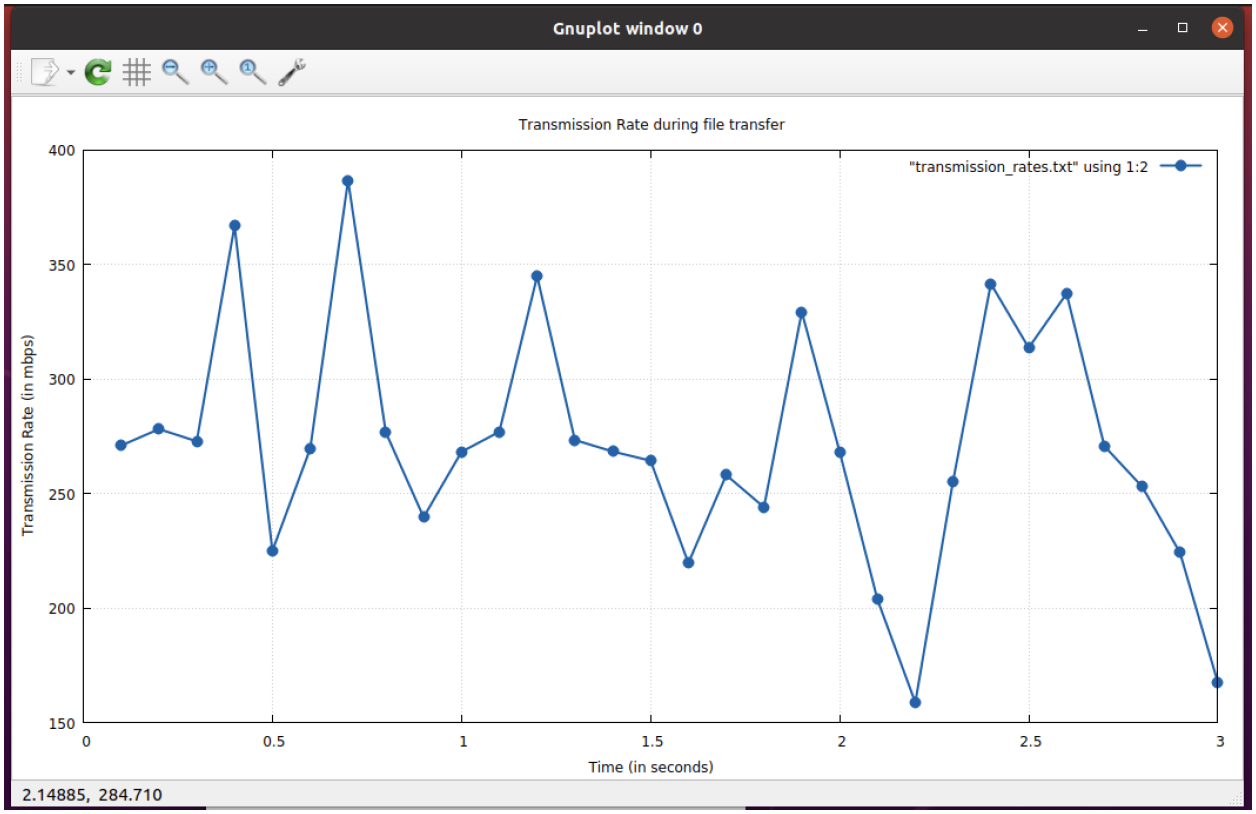


Transmission rates during 50MB data file transfer

200MB Data File :



Transmission rates during 280MB data file transfer



Transmission rates during 280MB data file transfer