

Files submitted:

- udp_select.c
- udp_select_timeout.c
- client.c

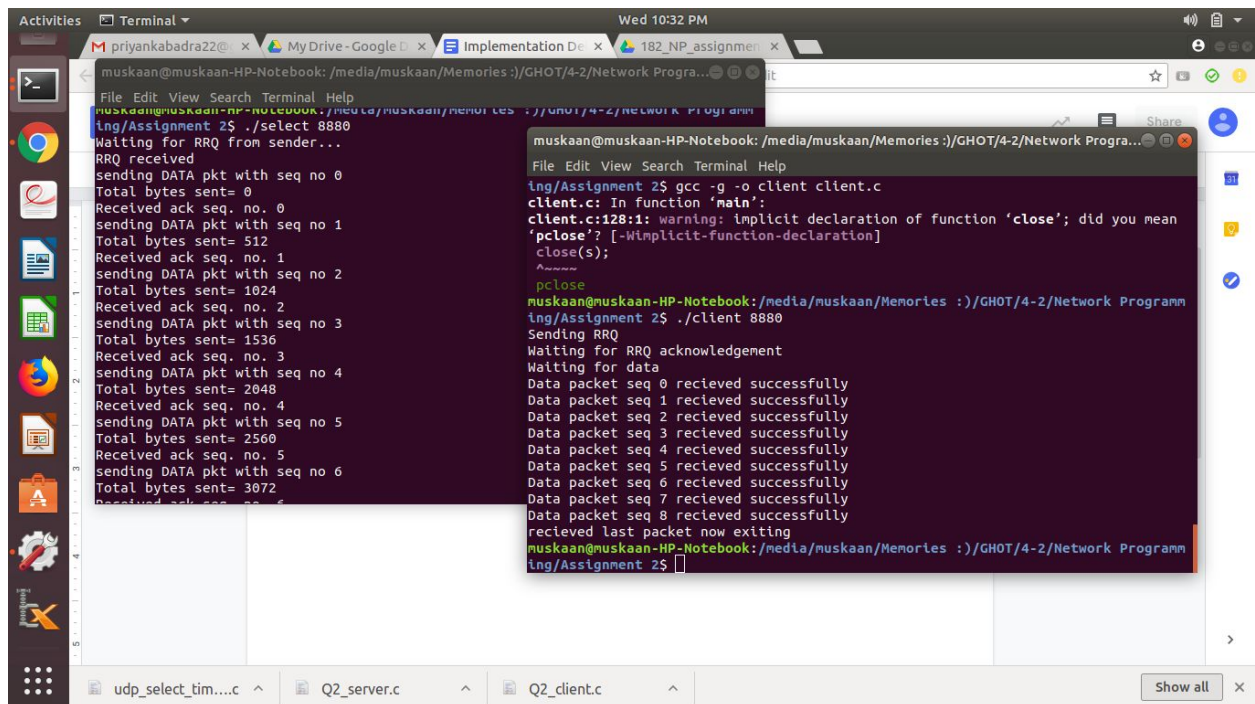
The client.c and the server file udp_select.c initially require the same port for establishing the connection. This port is used for sending the RRQ by the client. The port number is provided in the command line arguments. Example: ./server 8880 and ./client 8880.

After receiving the RRQ from the client, the server creates a new port "PORT2" (fixed as 8882 in this code), and send an acknowledgement to the client using this port. The client sends any other message using this new port only.

The server then sends 512 bytes of data to the client. The client receives the data and sends an ACK packet to the server. The server waits for the ACK packet for the desired sequence number and after receiving an appropriate ACK packet, it sends next DATA packet. The process is continued till a DATA packet has data of length less than 512 bytes. A zero DATA packet is sent if the file is in multiple of 512.

The execution of code clearly displays the total number of packets and total number of bytes sent.

A screenshot after the execution of the code has been displayed below for reference.



```
muskaan@muskaan-HP-Notebook: /media/muskaan/Memories :)/GHOT/4-2/Network Program...
File Edit View Search Terminal Help
muskaan@muskaan-HP-Notebook: /media/muskaan/Memories :)/GHOT/4-2/Network Program...
ing/Assignment 2$ ./select 8880
Waiting for RRQ from sender...
RRQ received
sending DATA pkt with seq no 0
Total bytes sent= 0
Received ack seq. no. 0
sending DATA pkt with seq no 1
Total bytes sent= 512
Received ack seq. no. 1
sending DATA pkt with seq no 2
Total bytes sent= 1024
Received ack seq. no. 2
sending DATA pkt with seq no 3
Total bytes sent= 1536
Received ack seq. no. 3
sending DATA pkt with seq no 4
Total bytes sent= 2048
Received ack seq. no. 4
sending DATA pkt with seq no 5
Total bytes sent= 2560
Received ack seq. no. 5
sending DATA pkt with seq no 6
Total bytes sent= 3072
Received ack seq. no. 6

muskaan@muskaan-HP-Notebook: /media/muskaan/Memories :)/GHOT/4-2/Network Program...
File Edit View Search Terminal Help
ing/Assignment 2$ gcc -g -o client client.c
client.c: In function 'main':
client.c:128:1: warning: implicit declaration of function 'close'; did you mean
'pclose'? [-Wimplicit-function-declaration]
close(s);
pclose
muskaan@muskaan-HP-Notebook: /media/muskaan/Memories :)/GHOT/4-2/Network Program...
ing/Assignment 2$ ./client 8880
Sending RRQ
Waiting for RRQ acknowledgement
Waiting for data
Data packet seq 0 recieved successfully
Data packet seq 1 recieved successfully
Data packet seq 2 recieved successfully
Data packet seq 3 recieved successfully
Data packet seq 4 recieved successfully
Data packet seq 5 recieved successfully
Data packet seq 6 recieved successfully
Data packet seq 7 recieved successfully
Data packet seq 8 recieved successfully
recieved last packet now exiting
muskaan@muskaan-HP-Notebook: /media/muskaan/Memories :)/GHOT/4-2/Network Program...
ing/Assignment 2$
```

The `udp_select_timeout.c` displays the dynamically calculated timeout values as asked in the question. Two functions `calculateRTT` and `calculateTimeout` implement the algorithms as asked.