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Subject: EE533 Network Processor Design and Programming

Github Link: https://github.com/pbanga-alt/EE533_Lab1

EE533 LAB1

Objective – To enable communication between two VMs (one server and one client) over internet and unix using both stream socket and datagram socket

- **SERVER AND CLIENT COMMUNICATION OVER INTERNET USING STREAM SOCKET**

Server.c and client.c provided by professor. Compiled both by install gcc package and thereby creating executable files.

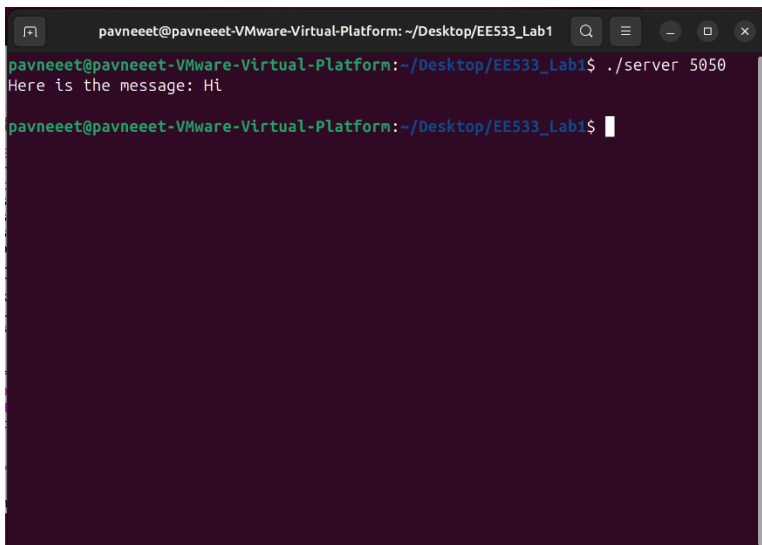
Server side command: `./server 5050`

Client side command: `./client 192.168.60.129 5050`

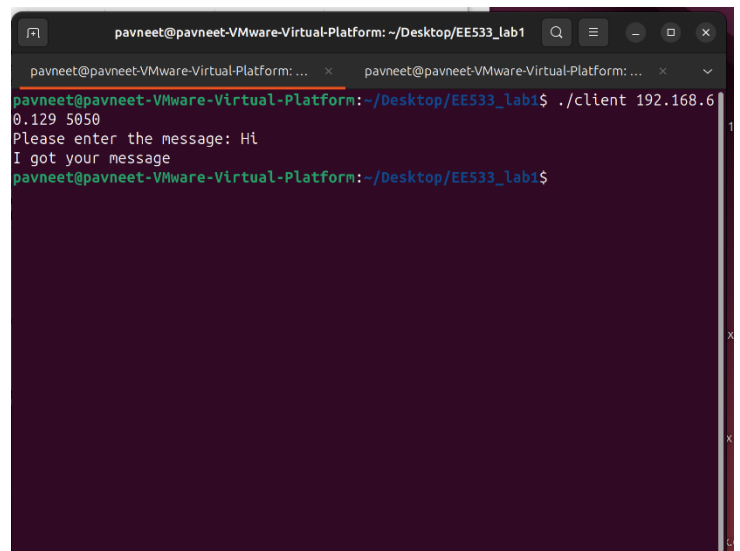
Communication was successfully established

Observation – Server would kill itself after receiving and acknowledging one message from client.

Screenshots:



```
pavneet@pavneet-VMware-Virtual-Platform: ~/Desktop/EE533_Lab1
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server 5050
Here is the message: Hi
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$
```



```
pavneet@pavneet-VMware-Virtual-Platform: ~/Desktop/EE533_Lab1
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./client 192.168.60.129 5050
Please enter the message: Hi
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$
```

- **SERVER AND CLIENT COMMUNICATION OVER INTERNET USING STREAM SOCKET – SERVER DOESN'T EXIT AFTER RECEIVING 1 MESSAGE**

Code file – server_real.c (present in github repo)

Screenshots:

```
pavneet@pavneet-VMware-Virtual-Platform: ~/Desktop/EE533_Lab1
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server 5050
Here is the message: Hi

pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_real
server_real  server_real.c
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_real
server_real  server_real.c
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_real
server_real  server_real.c
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_real 50
50
Here is the message: Hi

Here is the message: Still there?

Here is the message: This is EE533 lab1
```

```
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client 192.168.60.129 5050
Please enter the message: Hi
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ^C
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client 192.168.60.129 5050
Please enter the message: Hi
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client 192.168.60.129 5050
Please enter the message: Still there?
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client 192.168.60.129 5050
Please enter the message: This is EE533 lab1
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$
```

- **SERVER AND CLIENT COMMUNICATION OVER INTERNET USING DATAGRAM SOCKET**

Code files – server_datagram.c and client_datagram.c

Changes as suggested in the lab manual

Screenshots:

```
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_datagram
Here is the message: Hi

pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_datagram 6000
Here is the message: This time i am using datagram socket
```

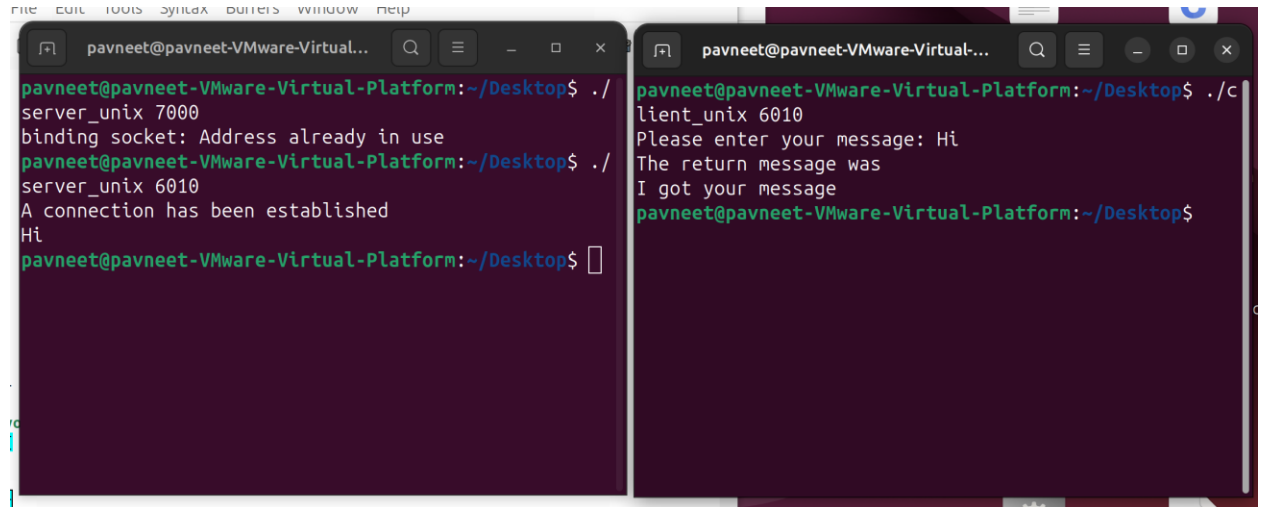
```
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client_datagram 192.168.60.129 6000
Please enter the message: Hi
Got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$ ./client_datagram 192.168.60.129 6000
Please enter the message: This time i am using datagram socket
Got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_lab1$
```

- **SERVER AND CLIENT COMMUNICATION OVER UNIX**

Unix based communication can happen only on the same filesystem so both server and client were established on client VM in different terminals

Code – server_unix.c and client_unix.c

Screenshot:



```
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop$ ./server_unix 7000
binding socket: Address already in use
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop$ ./server_unix 6010
A connection has been established
Hi
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop$
```

```
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop$ ./client_unix 6010
Please enter your message: Hi
The return message was
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop$
```