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**Subject: EE533 Network Processor Design and Programming**

**Github Link: [https://github.com/pbanga-alt/EE533\\_Lab1](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$ ./server 5050
Here is the message: Hi
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:

The image shows two terminal windows side-by-side. The left terminal window shows the execution of the server program (server\_real.c) with a buffer size of 50. It receives a message from the client and prints it back. The right terminal window shows the execution of the client program (client.c) connecting to the server at 192.168.6.0.129:5050. It sends a message to the server and receives a response.

```

pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server 50
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
Here is the message: Hi
Here is the message: Still there?
Here is the message: This is EE533 lab1

pavneet@pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./client 192.168.6.0.129 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 192.168.6.0.129 5050
Please enter the message: Hi
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./client 192.168.6.0.129 5050
Please enter the message: Still there?
I got your message
pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./client 192.168.6.0.129 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:

The image shows two terminal windows side-by-side. The left terminal window shows the execution of the server program (server\_datagram.c) with a buffer size of 6000. It receives a message from the client and prints it back. The right terminal window shows the execution of the client program (client\_datagram.c) connecting to the server at 192.168.60.129:6000. It sends a message to the server and receives a response.

```

pavneet@pavneet-VMware-Virtual-Platform:~/Desktop/EE533_Lab1$ ./server_datagram
6000
Here is the message: Hi
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:

The screenshot shows two terminal windows side-by-side. Both windows have a dark purple background and white text. The left window title is "pavneet@pavneet-VMware-Virtual-Platform:~/Desktop\$". It contains the following text:

```
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
```

The right window title is "pavneet@pavneet-VMware-Virtual-Platform:~/Desktop\$". It contains the following text:

```
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$
```