EE 533

LAB 1 REPORT

CLIENT–SERVER COMMUNICATION USING SOCKETS

1. Objective

The objective of this lab is to set up two Linux virtual machines using VMware and implement client–server communication using TCP socket programming.

2. Tools Used

- VMware Fusion / Workstation
- Ubuntu Linux
- GCC compiler
- C programming language
- GitHub

3. System Setup

Two Ubuntu virtual machines were created:

- **Server VM**
- **Client VM**

Both VMs were configured on the same virtual network to enable communication.

4. Network Verification

Network connectivity between the two VMs was verified using IP configuration and ping tests.

5. Implementation Overview

A TCP socket-based client–server model was implemented.

Server

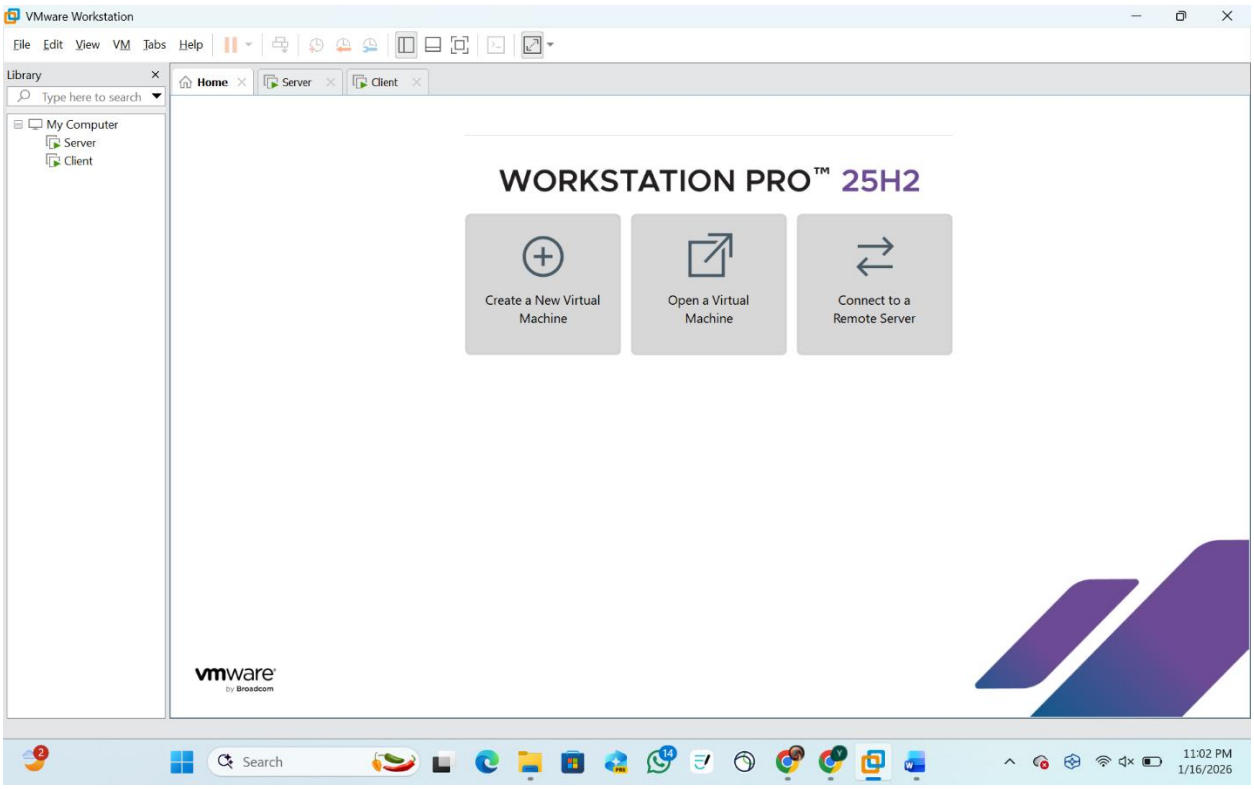
- Creates a socket
- Binds to a port
- Listens and accepts a client connection
- Receives a message and sends an acknowledgment

Client

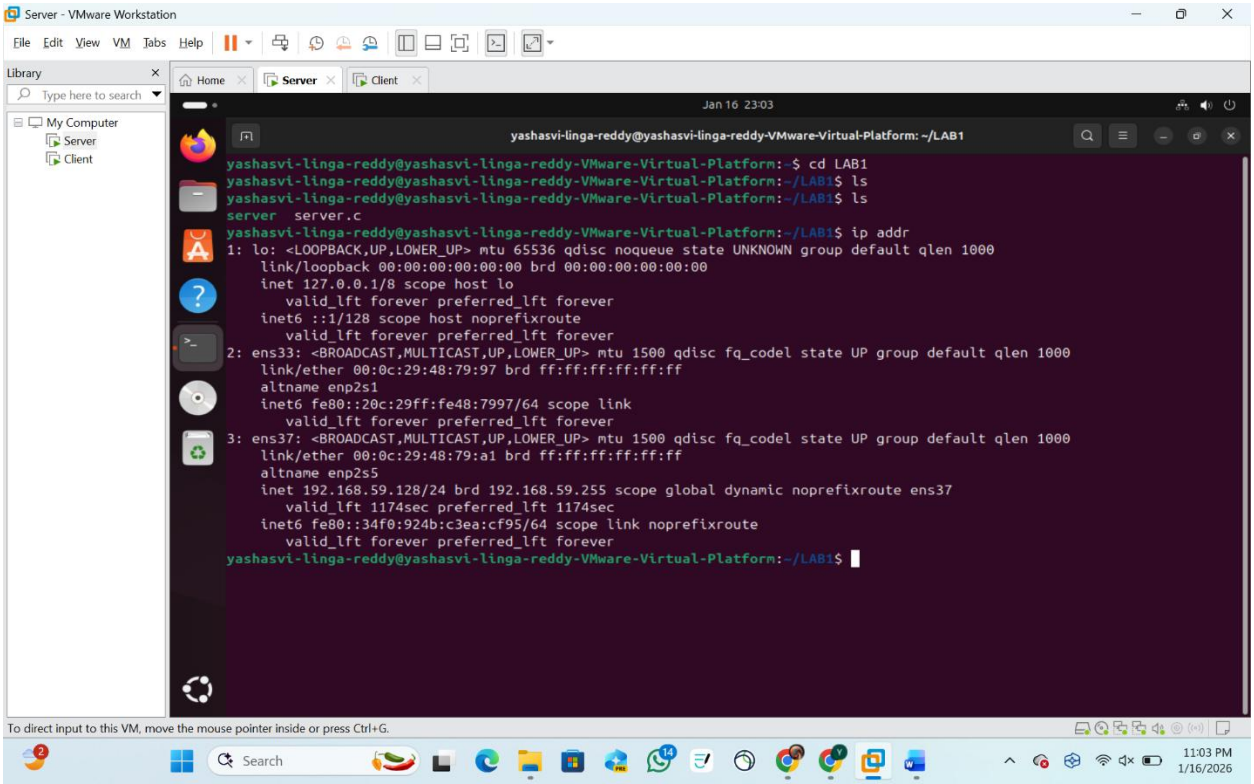
- Creates a socket
- Connects to the server
- Sends a message
- Receives a response

6. Screenshots

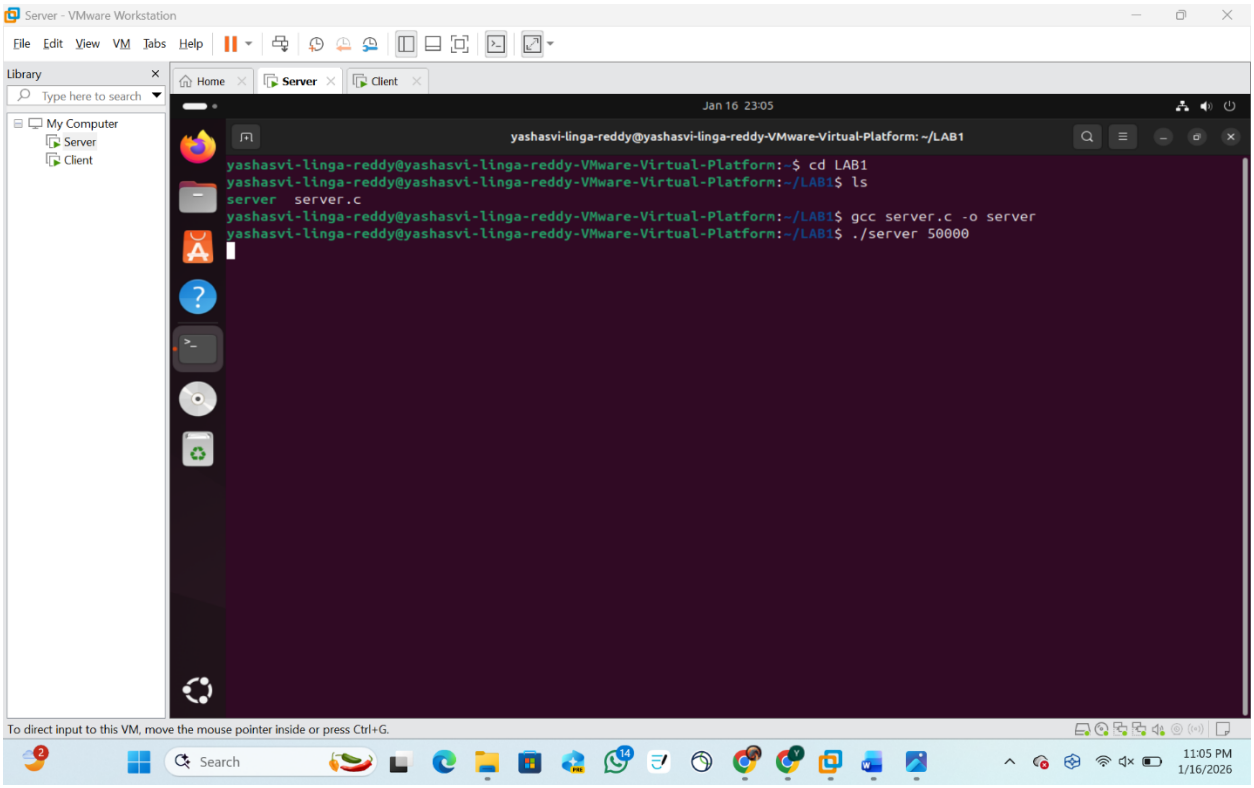
1. VMware showing **both VMs**



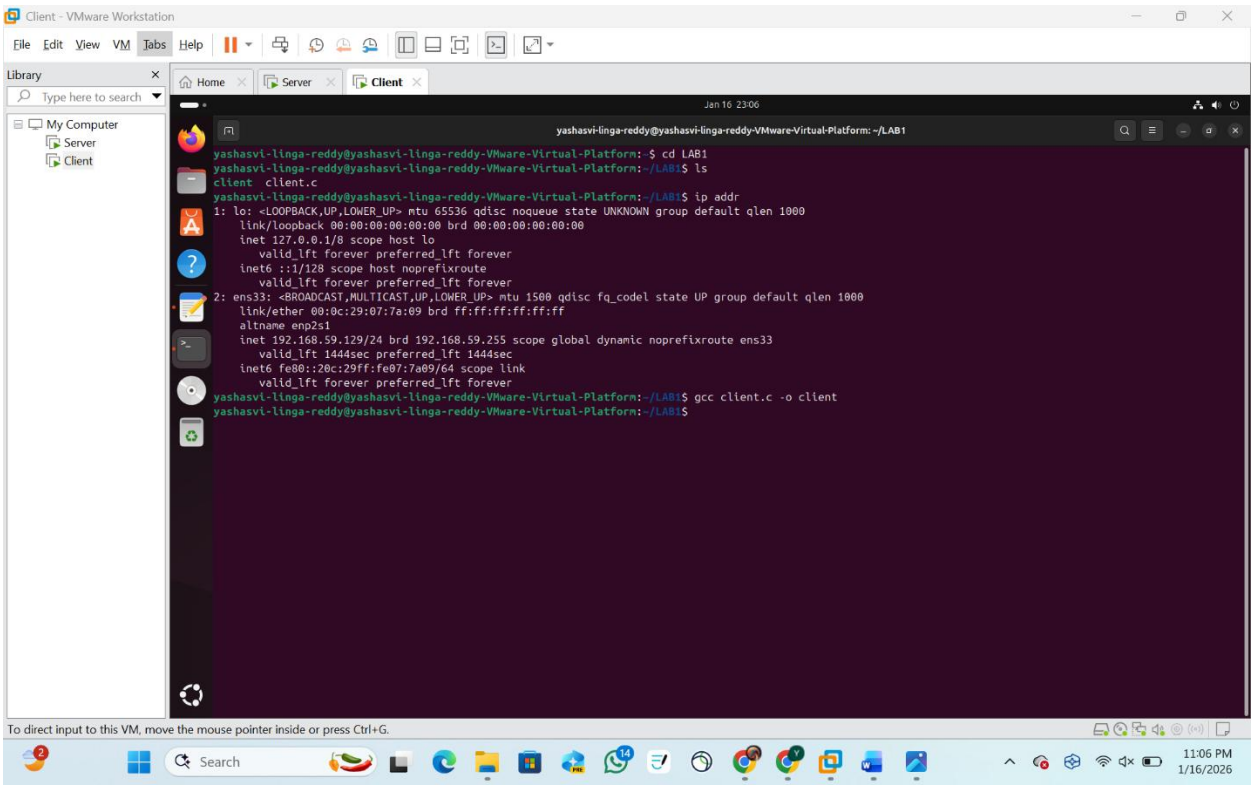
2. ip addr output on **both VMs**



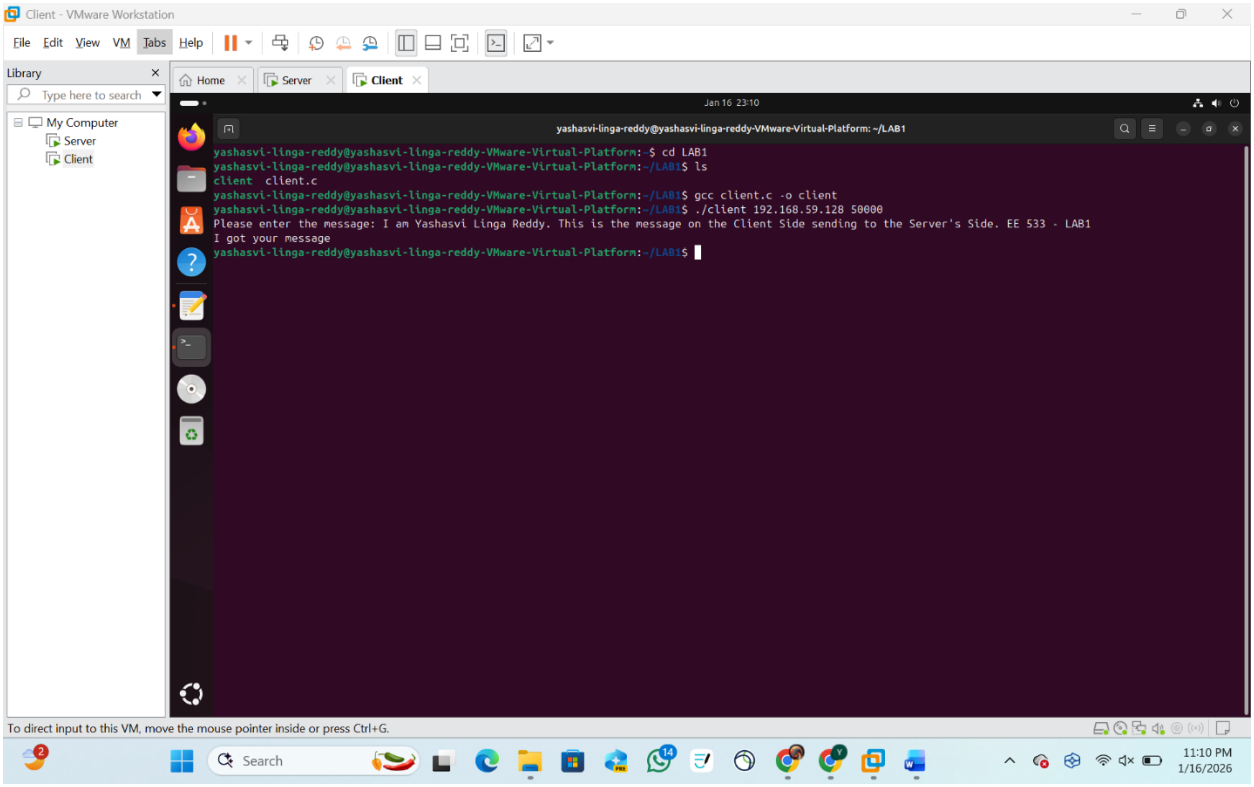
3. Server compilation (gcc server.c) & Server running and waiting



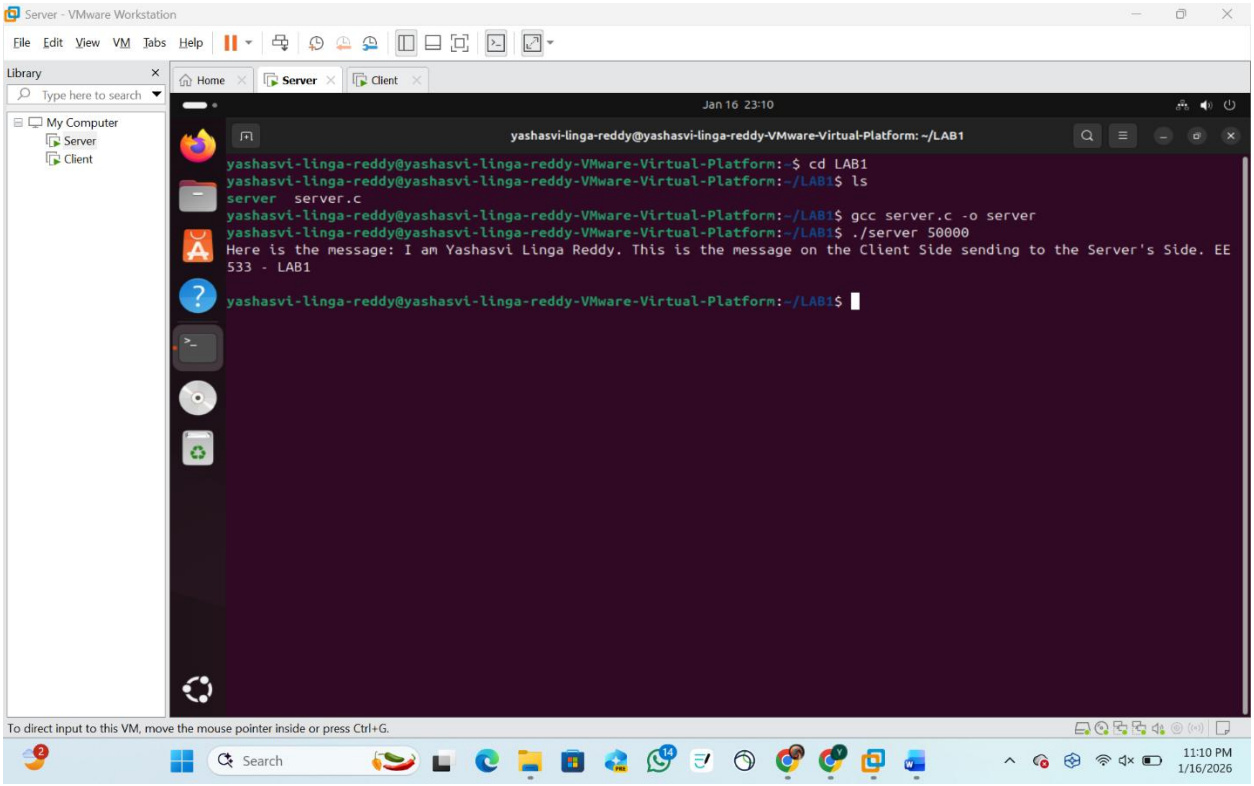
4. Client compilation (gcc client.c)



5. Client sending message



6. Server receiving message & client acknowledgment



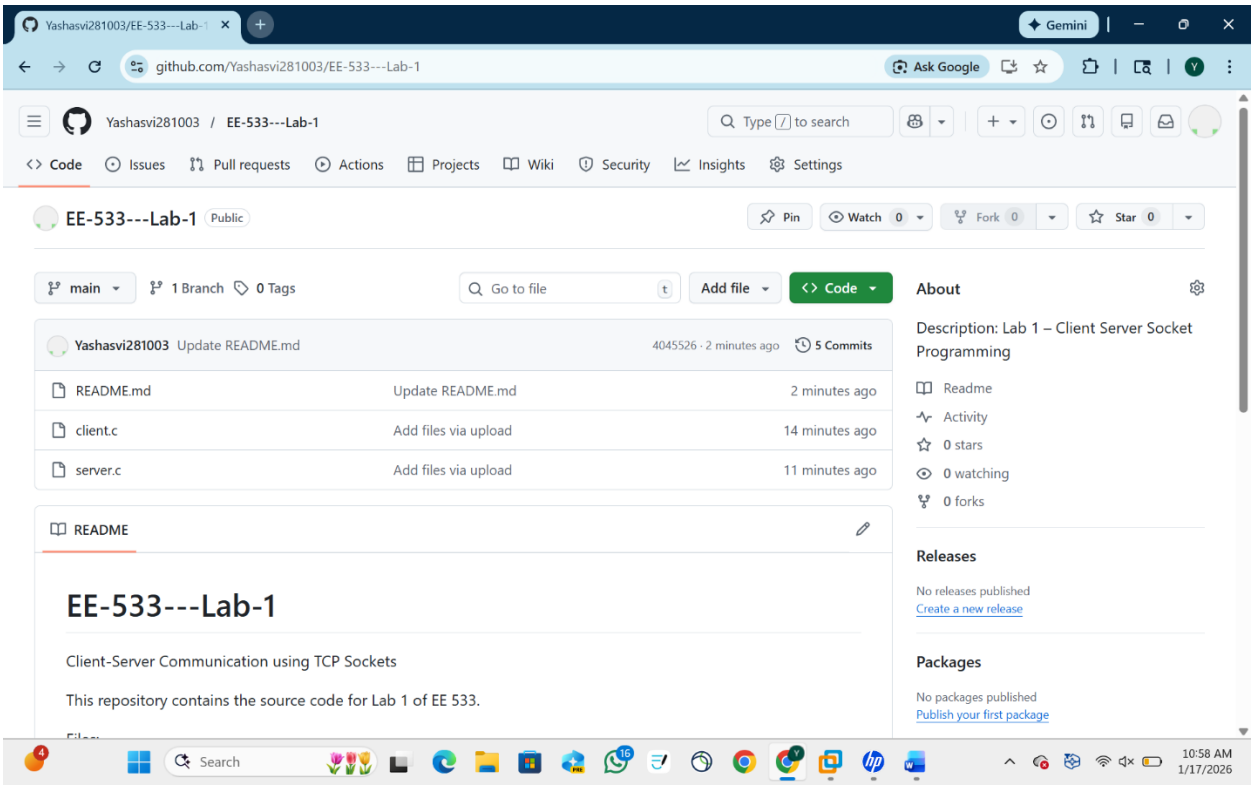
7. Result

The client successfully sent a message to the server, and the server returned an acknowledgment, confirming correct TCP communication.

8. GitHub

https://github.com/Yashasvi281003/EE-533---Lab-1

All source code and reports were stored in a GitHub repository with regular commits.



9. Conclusion

This lab demonstrated successful client–server communication using TCP sockets between two virtual machines.