

National University of Computer and Emerging Sciences



Laboratory Manuals
for
Computer Networks - Lab

(CL -3001)

Department of Computer Science
FAST-NU, Lahore, Pakistan

Lab Manual 05

Objective:

Students should know:

- What a computer network is and what its advantages are.
- What is OSI Model?
- What is a socket?
- Client-Server Model
- TCP Socket Programming.

In-lab Statement 1:

Create a Python TCP-based client-server application that allows the client to request a file from the server. The server should read the requested file and send its contents to the client in chunks. The client will receive the file data and save it to a local file.

Task Description:

1. Server Requirements:

- The server should listen for incoming connections on a specified port.
- When a client connects, the server should accept a file name requested by the client.
- The server reads the requested file from its local storage in **chunks** (e.g., 1024 bytes per chunk) and sends these chunks to the client until the entire file has been transmitted.
- After sending the file, the server should close the connection but continue listening for new client requests.
- Implement basic error handling: If the file does not exist, the server should send an appropriate error message to the client.

2. Client Requirements:

- The client should connect to the server and send the file name it wants to download.
- The client should receive the file in chunks from the server and write these chunks to a local file with the same name.

- If the server sends an error message (e.g., file not found), the client should display the message and handle it gracefully.
- After receiving the entire file, the client should close the connection.