Lab 8:

Questions:

1. What is the major differences between TCP client and TCP server implementations?

The major differences between TCP client and TCP server implementations are:

* In a TCP client implementation, the client initiates the connection by creating a socket and connecting to the server's address and port. It sends data to the server using the send function and receives data from the server using the recv function. The client can also initiate the closing of the connection using the shutdown function.
* In a TCP server implementation, the server creates a listening socket and waits for incoming client connections using the listen function. When a client connects, the server accepts the connection using the accept function, creating a new socket dedicated to that client. The server can receive data from the client using the recv function and send data to the client using the send function. The server can also initiate the closing of the connection with a specific client using the shutdown function.

1. What is the major differences between UDP server and TCP server implementations?

The major differences between UDP server and TCP server implementations are:

* UDP (User Datagram Protocol) is a connectionless protocol, whereas TCP (Transmission Control Protocol) is a connection-oriented protocol. This means that UDP does not establish a connection before sending data and does not provide guaranteed delivery or ordered data transmission.
* In a UDP server implementation, the server creates a socket and binds it to a specific port. It can then receive UDP packets from multiple clients using the recvfrom function and send UDP packets to specific clients using the sendto function. There is no concept of connections or streams in UDP, so each packet is independent and can be processed individually.
* In a TCP server implementation, as mentioned earlier, the server creates a listening socket and waits for incoming client connections. Once a client connects, a dedicated socket is created for that client, and the server communicates with the client using that socket. TCP provides reliable, ordered, and error-checked delivery of data, and it manages the connection state, flow control, and congestion control between the server and the client.