

1.
  - a. write a socket programming to implement connection-oriented server that takes a number from client and returns factorial of that number to the client.
  - b. write about "NETSTAT" command.
  - c. Implement a C program to find the shortest path in a weighted graph using Dijkstra's algorithm. Explain the key components of your program and how it calculates the shortest path between two nodes.
2.
  - a. write a socket programming to implement connection less server that takes a number from client and checks whether the no is prime or not.
  - b. write about "PING" command.
  - c. Implement a program in C to simulate the Link State Routing algorithm. Assume a network with a given topology, and implement the process of exchanging link state information among routers to calculate the shortest path from a source router to all other routers. Include necessary data structures and functions for representing the network state and performing the Link State algorithm.
3.
  - a. write a socket programming to implement connection oriented server that takes a string from client and the server should convert the string to UPPERCASE if it is in LOWERCASE and viceversa.
  - b. write about "IFCONFIG" command.
  - c. Implement a simple program in C to simulate the Leaky Bucket algorithm for traffic shaping. The program should take into account the arrival of packets and control the output rate by utilizing a leaky bucket mechanism. Implement the key functions for adding packets to the bucket and releasing them at a controlled rate. Include necessary data structures and functions for representing the leaky bucket and managing the flow of packets.

4.
  - a. write a socket programming to implement connectionless server that takes a number from client and returns factorial of that number to the client.
  - b. write about "NS LOOKUP" command.
  - c. Implement a C program to find the shortest path in a weighted graph using Dijkstra's algorithm. Explain the key components of your program and how it calculates the shortest path between two nodes.
5.
  - a. write a socket programming to implement Data Link Framing Methods- Bit, Stuffing using connection-oriented server.
  - b. Write about "PING" command.
  - c. Write a C program to implement the Token Bucket algorithm for traffic shaping. The program should simulate the arrival of packets and regulate their release using a token bucket mechanism. Implement the key functions for adding tokens to the bucket and allowing packets to be sent when tokens are available. Include necessary data structures and functions for representing the token bucket and managing the flow of packets.
6.
  - a. write a socket programming to implement Selective-Repeat sliding window protocol using connection-oriented iterative server.
  - b. write about "IFCONFIG" command.
  - c. Write a C program to simulate a simple network using the Distance Vector Routing algorithm. Assume a network with routers and links, and implement the process of exchanging routing tables among routers to calculate and update the distance vector for each router. Include necessary data structures and functions for representing the network state and performing the Distance Vector algorithm.

7. write a a socket programming to implement Go Back N sliding window protocol using connection-oriented iterative server.
  - b. write about “NETSTAT” command.

c.

Implement a simple program in C to simulate the Leaky Bucket algorithm for traffic shaping. The program should take into account the arrival of packets and control the output rate by utilizing a leaky bucket mechanism. Implement the key functions for adding packets to the bucket and releasing them at a controlled rate. Include necessary data structures and functions for representing the leaky bucket and managing the flow of packets.