

Lab Questions

1. John has a problem of finding the square of a number. He contacts the server and sends the number. Server computes the result and returns back to the client. Implement this scenario using a connection oriented approach.
2. Implement a client and server programs in C for connection oriented communication between server and client process using Linux domain sockets to perform the following: Client process sends a message to the server process. The server receives the message, reverses it and sends it back to the client. The client will then display the message to the standard output device.
3. Ram has a problem of finding whether the number is palindrome. He contacts the server and sends the number. Server responds " palindrome" if the number is palindrome else displays the message "Enter a right number and exit"..Implement this scenario using a connectionless approach.
4. Create a server which runs continuously, and if any client hits the server with a request then the server will send it's date and time. Implement this with connection-Oriented Iterative Server using user-defined ports.
5. Create a server which runs continuously, and if any client hits the server with a request then the server will send it's date and time. Implement this with connectionless Iterative Server using user-defined ports.
6. Implement a program for connection-oriented Iterative service in which server changes the case of the strings sent by the client and sent back (Case Server) to the client.
7. Alice wants to find the reverse of a string. Help her to write a program for connection-oriented Iterative Service in which the server reverses the string sent by the alice .
8. Usually the TCP header and IP header are added by the operating system. Demonstrate how you can add IP header and tcp header manually using raw sockets.
9. Usually networks are prone for attacks. Generate the flood attacks to the server by using raw sockets.
10. David is the father of Jack and he is 25 year elder to his son. Jack is now 40 years old. Jack's system is not able to do computations, hence he requests the server to send his father's age by doing computations. Implement the client to send the Jack's age and server responds with father's age.
11. The server opens a passive socket and listens for connection requests from clients. Implement a simple server: it accepts at most one connection request. Once a client connects, the server sends the message "you are connected to the server!" to the client and shuts down.
12. Joe has a problem of finding the cube of a number. He contacts the server and sends the number. Server computes the result and returns back to the client. Implement this scenario using a connection oriented approach.
13. Communication networks are prone for attacks. Implement the flooding attacks to the server by using raw sockets.
14. Raju wants to retrieve the contents of the file. He sends the name of a file to the server, server searches and returns back the contents of the file to the client(Raju). Implement the scenario with socket programming.

15. Jack wants to find the total salary for this current month that the employer has paid. He sends his basic salary to the server. Server adds HRA, PF, other benefits and sends back the result to the client (Jack). Implement this scenario using appropriate approach.

16. Alice wants to know whether a given string is a palindrome. Help her to write a program for connection-oriented Iterative Service in which the server returns a palindrome if it is a palindrome else not a palindrome.

17. Ramu wants to retrieve the contents of the file. He sends the name of a file to the server, server searches and returns back the contents of the file to the client (Ramu). Implement the scenario with a connectionless service approach.

18. Johnny has an integer array to be sorted. He sends the array to server. Implement the server which sorts an array using socket programming.

19. Implement a client and server programs in C for connection oriented communication between server and client process using Linux domain sockets to perform the following: Client process sends a message to the server process. The server receives the message, and echos back to the client. The client will then display the message to the standard output device.

20. TCP header and IP header are added by the operating system usually. Demonstrate how you can add IP header and tcp header manually using raw sockets.

21. You will write a simple HTTP server that handles one service request at a time. Your HTTP server receives and responds to the request sent from the simple HTTP client you write in part I. The server program

(1) waits for a connection request. If there is a connection request, the server program

(2) accepts the connection request,

(3) writes the IP address and the port number of the connecting client onto the standard output,

(4) reads the HTTP request message, and

(5) responds to the HTTP

request message. After finish serving this connecting client, the server program

(6) goes back and waits for a future connection request.

What You Need to Do:

The executable file is named server. The input and output descriptions of the server program are as follows.

Server program input: The server program does not take any input from the user.

Server program output: The server program prints the IP address and the port number of the connecting client on the standard output.

22. A company server is transmitting data to client. The data is in the form of numbers. To secure the data during transmission, They plan to obtain a security key that will be sent along with the data. The security key is identified as the count of the repeating digits in the data.

Write an algorithm to find the security key for the data.

Sample Test Cases

Testcase 1 Input

1234234345

Testcase 1 Output

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23. Ram has a problem of finding whether the number is palindrome. He contacts the server and sends the number. Server responds " palindrome" if the number is palindrome else displays the message "Enter a right number and exit"..Implement this scenario using a connectionless approach.

24. Create a server which runs continuously, and if any client hits the server with a request then the server will send it's date and time. Implement this with connection-Oriented Iterative Server using user-defined ports.

25..David is the father of Jack and he is 25 year elder to his son. Jack is now 40 years old. Jack's system is not able to do computations, hence he requests the server to send his father's age by doing computations. Implement the client to send the Jack's age and server responds with father's age.

26. DNS Query Program