/*

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Batch : B4

*/

// Aim : Program for distributed chat server using TCP sockets

Server.java

```
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.PrintStream;
import java.net.ServerSocket;
import java.net.Socket;
import java.util.Scanner;
import java.util.concurrent.ExecutorService;
import java.util.concurrent.Executors;
import java.util.logging.Level;
import java.util.logging.Logger;

public class Server {
    int port;
    ServerSocket server = null;
    Socket client = null;
    ExecutorService pool = null;
    int clientcount = 0;

    public static void main(String[] args) throws IOException {
        Server serverobj = new Server(5000);
        serverobj.startServer();
    }

    Server(int port) {
        this.port = port;
        pool = Executors.newFixedThreadPool(5);
    }
```

```
public void startServer() throws IOException {
    server = new ServerSocket(5000);
    System.out.println("Server Booted");
    System.out.println("Any client can stop the server by sending -1");
    while (true) {
        client = server.accept();
        clientcount++;
        ServerThread runnable = new ServerThread(client, clientcount, this);
        pool.execute(runnable);
    }
}

private static class ServerThread implements Runnable {
    Server server = null;
    Socket client = null;
    BufferedReader cin;
    PrintStream cout;
    Scanner sc = new Scanner(System.in);
    int id;
    String s;

    ServerThread(Socket client, int count, Server server) throws IOException {
        this.client = client;
        this.server = server;
        this.id = count;
        System.out.println("Connection " + id + "established with client " + client);
        cin = new BufferedReader(new InputStreamReader(client.getInputStream()));
        cout = new PrintStream(client.getOutputStream());
    }

    @Override
    public void run() {
        int x = 1;
        try {
            while (true) {
                s = cin.readLine();
                System.out.print("Client(" + id + ") :" + s + "\n");
```

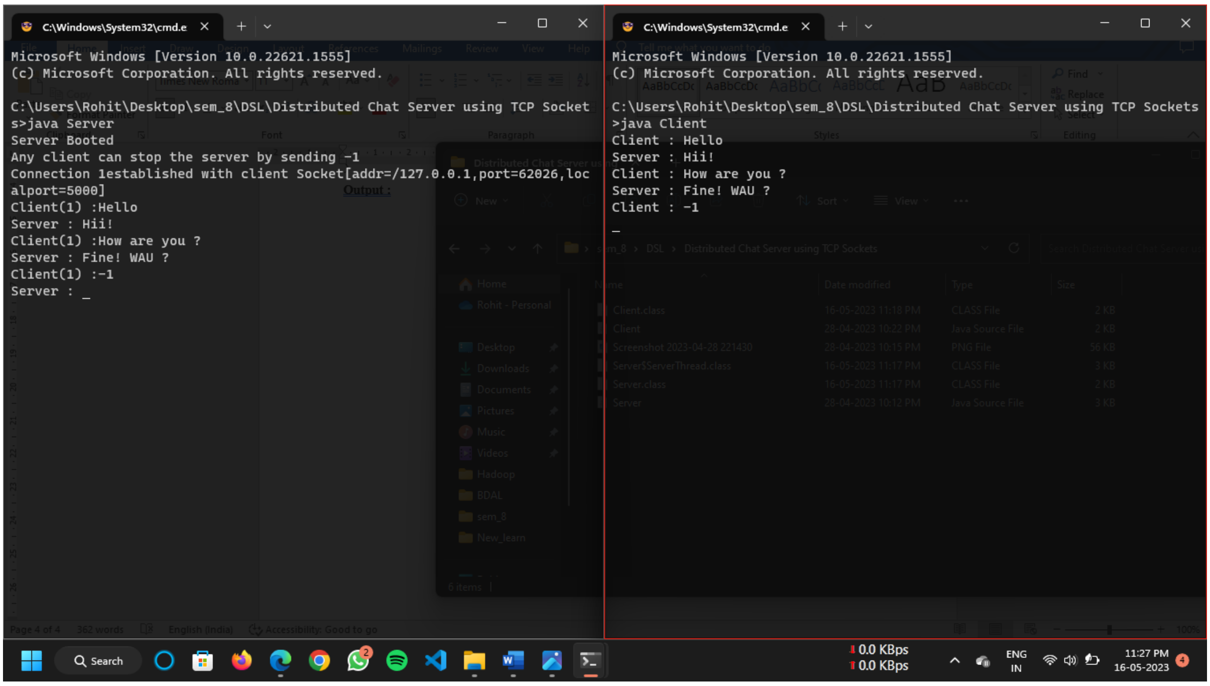
```
                    System.out.print("Server : ");
                    // s=stdin.readLine();
                    s = sc.nextLine();
                    if (s.equalsIgnoreCase("bye")) {
                        cout.println("BYE");
                        x = 0;
                        System.out.println("Connection ended by server");
                        break;
                    }
                    cout.println(s);
                }
                cin.close();
                client.close();
                cout.close();
                if (x == 0) {
                    System.out.println("Server cleaning up.");
                    System.exit(0);
                }
            } catch (IOException ex) {
                System.out.println("Error : " + ex);
            }
        }
    }
}
```

Client.java

```
import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.io.PrintStream;
import java.net.ServerSocket;
import java.net.Socket;

public class Client {
    public static void main(String args[]) throws Exception {
        Socket sk = new Socket("127.0.0.1", 5000);
        BufferedReader sin = new BufferedReader(new InputStreamReader(sk.getInputStream()));
        PrintStream sout = new PrintStream(sk.getOutputStream());
        BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in));
        String s;
        while (true) {
            System.out.print("Client : ");
            s = stdin.readLine();
            sout.println(s);
            if (s.equalsIgnoreCase("BYE")) {
                System.out.println("Connection ended by client");
                break;
            }
            s = sin.readLine();
            System.out.print("Server : " + s + "\n");
        }
        sk.close();
        sin.close();
        sout.close();
        stdin.close();
    }
}
```

Output :



```
Microsoft Windows [Version 10.0.22621.1555]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Rohit\Desktop\sem_8\DSL\Distributed Chat Server using TCP Socket
s>java Server
Server Booted
Any client can stop the server by sending -1
Connection 1established with client Socket[addr=/127.0.0.1,port=62026,loc
alport=5000]
Client(1) :Hello
Server : Hii!
Client(1) :How are you ?
Server : Fine! WAU ?
Client(1) :-1
Server : _
```

```
Microsoft Windows [Version 10.0.22621.1555]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Rohit\Desktop\sem_8\DSL\Distributed Chat Server using TCP Sockets
>java Client
Client : Hello
Server : Hii!
Client : How are you ?
Server : Fine! WAU ?
Client : -1

_
```