HelloServer

```
import java.io.IOException;
import java.io.InputStream;
import java.net.ServerSocket;
import java.net.Socket;

public class HelloServer {

   public static void main(String[] args) {
      try {
         ServerSocket serverSocket = new ServerSocket(5556); // Choose any available port

         System.out.println("Server is running and waiting for a connection...");

         Socket clientSocket = serverSocket.accept(); // Wait for a client to connect
         System.out.println("Client connected: " + clientSocket);

         // Read data from the client
         InputStream input = clientSocket.getInputStream();
         byte[] buffer = new byte[1024];
         int bytesRead = input.read(buffer);

         if (bytesRead != -1) {
            String receivedData = new String(buffer, 0, bytesRead);
            System.out.println("Received data from client: " + receivedData);
         }

         // Close the connection
         clientSocket.close();
         serverSocket.close();

      } catch (IOException e) {
         e.printStackTrace();
      }
   }
}
```

HelloClient

```
import java.io.IOException;
import java.io.OutputStream;
import java.net.Socket;

public class HelloClient {

   public static void main(String[] args) {
      try {
```

```
        Socket socket = new Socket("localhost", 5556); // Connect to the server

        // Send data to the server
        String sendData = "hello_client";
        OutputStream output = socket.getOutputStream();
        output.write(sendData.getBytes());

        // Close the connection
        socket.close();

      } catch (IOException e) {
        e.printStackTrace();
      }
    }
}
```

class Server

```
import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;
import java.net.ServerSocket;
import java.net.Socket;
import java.util.ArrayList;
import java.util.List;

public class Server {
    private static List<ClientHandler> clients = new ArrayList<>();

    public static void main(String[] args) {
        try {
            ServerSocket serverSocket = new ServerSocket(5555); // Choose any available port

            System.out.println("Server is running and waiting for clients...");

            while (true) {
                Socket clientSocket = serverSocket.accept();
                System.out.println("New client connected: " + clientSocket);

                ClientHandler clientHandler = new ClientHandler(clientSocket);
                clients.add(clientHandler);
                new Thread(clientHandler).start();
            }
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
```

```
static class ClientHandler implements Runnable {
    private Socket clientSocket;
    private InputStream input;
    private OutputStream output;

    public ClientHandler(Socket socket) {
        try {
            this.clientSocket = socket;
            this.input = socket.getInputStream();
            this.output = socket.getOutputStream();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }

    @Override
    public void run() {
        try {
            while (true) {
                byte[] buffer = new byte[1024];
                int bytesRead = input.read(buffer);

                if (bytesRead == -1) {
                    break; // Client disconnected
                }

                String message = new String(buffer, 0, bytesRead);
                System.out.println("Received message: " + message);

                // Broadcast the message to all connected clients
                broadcast(message);
            }
        } catch (IOException e) {
            e.printStackTrace();
        } finally {
            try {
                clientSocket.close();
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
    }

    private void broadcast(String message) throws IOException {
        for (ClientHandler client : clients) {
            if (client != this) {
                client.output.write(message.getBytes());
```

```
            }
        }
    }
  }
}
```

class Client

```
import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;
import java.net.Socket;
import java.util.Scanner;

public class Client {
   public static void main(String[] args) {
      try {
         Socket socket = new Socket("localhost", 5555); // Connect to the server

         OutputStream output = socket.getOutputStream();
         InputStream input = socket.getInputStream();

         Scanner scanner = new Scanner(System.in);

         new Thread(() -> {
            try {
               while (true) {
                  byte[] buffer = new byte[1024];
                  int bytesRead = input.read(buffer);

                  if (bytesRead == -1) {
                     System.out.println("Server has disconnected.");
                     System.exit(0);
                  }

                  String message = new String(buffer, 0, bytesRead);
                  System.out.println("Received message: " + message);
               }
            } catch (IOException e) {
               e.printStackTrace();
            }
         }).start();

         while (true) {
            System.out.print("Enter a message: ");
            String message = scanner.nextLine();
```

```
                output.write(message.getBytes());
            }
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```