EX.NO :3a

PROGRAM :

EchoServer:

```java
import java.io.*;

import java.net.*;

import java.util.*;

public class ChatServer {

    public static void main(String[] args) {

        try {

            ServerSocket serverSocket = new ServerSocket(6670);

            System.out.println("Server started. Waiting for client...");

            Socket socket = serverSocket.accept();

            System.out.println("Client connected.");

            DataInputStream din = new DataInputStream(socket.getInputStream());

            DataOutputStream dout = new DataOutputStream(socket.getOutputStream());

            Scanner input = new Scanner(System.in);

            String senddata = "";

            String receivedata = "";

            while (!receivedata.equals("stop")) {

                System.out.println("Waiting for client message...");

                receivedata = din.readUTF();

                System.out.println("CLIENT SAYS: " + receivedata);

                System.out.print("TO CLIENT: ");

                senddata = input.nextLine();

                dout.writeUTF(senddata);

            dout.flush();

            }
```

```java
            din.close();

            dout.close();

            socket.close();

            serverSocket.close();

            System.out.println("Server closed.");

        } catch (Exception e) {

            System.out.println("Server Error: " + e);

        }

    }

}
```

EchoClient:
```java
import java.io.*;

import java.net.*;

import java.util.*;

public class ChatClient {

    public static void main(String[] args) {

        try {

            Socket socket = new Socket("localhost", 6670);

            System.out.println("Connected to server.");

            DataInputStream din = new DataInputStream(socket.getInputStream());

            DataOutputStream dout = new DataOutputStream(socket.getOutputStream());

            Scanner input = new Scanner(System.in);

    String senddata = "";

            String receivedata = "";

            while (!senddata.equals("stop")) {

                System.out.print("TO SERVER: ");
```

```java
                senddata = input.nextLine();

                dout.writeUTF(senddata);

                dout.flush();

                System.out.println("Waiting for server response...");

                receivedata = din.readUTF();

                System.out.println("SERVER SAYS: " + receivedata);

            }

            din.close();

            dout.close();

            socket.close();

            System.out.println("Client closed.");

        } catch (Exception e) {

            System.out.println("Client Error: " + e);

        }

    }

}
```

OUTPUT:

```
PS C:\Users\welco\Desktop\java> javac ChatServer.java
PS C:\Users\welco\Desktop\java> javac ChatClient.java
PS C:\Users\welco\Desktop\java> java ChatServer
Server started. Waiting for client...
Client connected.
Waiting for client message...
CLIENT SAYS: Good Morning
TO CLIENT: Good Morning
Waiting for client message...
CLIENT SAYS: How are you?
TO CLIENT: I'm fine
Waiting for client message...
CLIENT SAYS: Bye
TO CLIENT: Bye
Waiting for client message...
CLIENT SAYS: stop
TO CLIENT: stop
Server closed.
PS C:\Users\welco\Desktop\java> []
```

```
PS C:\Users\welco\Desktop\java> java ChatClient
Connected to server.
TO SERVER: Good Morning
Waiting for server response...
SERVER SAYS: Good Morning
TO SERVER: How are you?
Waiting for server response...
SERVER SAYS: I'm fine
TO SERVER: Bye
Waiting for server response...
SERVER SAYS: Bye
TO SERVER: stop
Waiting for server response...
SERVER SAYS: stop
Client closed.
PS C:\Users\welco\Desktop\java> []
```

EX.NO :3b

PROGRAM :

ChatServer.java:

```java
import java.io.DataInputStream;

import java.io.DataOutputStream;

import java.net.ServerSocket;

import java.net.Socket;

import java.util.Scanner;

public class ChatServer1 {

  public ChatServer1() {

  }

  public static void main(String[] var0) {

    try {

      ServerSocket var1 = new ServerSocket(6670);

      System.out.println("Server is waiting for client connection...");

      Socket var2 = var1.accept();

      System.out.println("Client connected.");

      DataInputStream var3 = new DataInputStream(var2.getInputStream());

      DataOutputStream var4 = new DataOutputStream(var2.getOutputStream());

      Scanner var5 = new Scanner(System.in);

      String var6 = "";

      String var7 = "";

      while(!var7.equalsIgnoreCase("stop")) {

        var7 = var3.readUTF();

        System.out.println("CLIENT SAYS: " + var7);

        System.out.print("TO CLIENT: ");

        var6 = var5.nextLine();
```

```java
                var4.writeUTF(var6);

            }

            var3.close();

            var4.close();

            var2.close();

            var1.close();

            var5.close();

        } catch (Exception var8) {

            System.out.println("Error: " + var8);

        }



    }

}
```

ChatClient.java:

```java
import java.io.*;

import java.net.*;

import java.util.*;


public class ChatClient1 {

    public static void main(String[] args) {

        try {

            Socket s = new Socket("localhost", 6670);

            System.out.println("Connected to server.");


            DataInputStream din = new DataInputStream(s.getInputStream());

            DataOutputStream dout = new DataOutputStream(s.getOutputStream());
```

```java
        Scanner input = new Scanner(System.in);

        String senddata = "";

        String receivedata = "";

        while (!senddata.equalsIgnoreCase("stop")) {

            System.out.print("TO SERVER: ");

            senddata = input.nextLine();

            dout.writeUTF(senddata);

            receivedata = din.readUTF();

            System.out.println("SERVER SAYS: " + receivedata);

        }

        din.close();

        dout.close();

        s.close();

        input.close();


    } catch (Exception e) {

        System.out.println("Error: " + e);

    }
  }
}
```

OUTPUT:

```
PS C:\Users\welco\Desktop\java> javac ChatServer1.java
PS C:\Users\welco\Desktop\java> javac ChatClient1.java
PS C:\Users\welco\Desktop\java> java ChatServer1
Server is waiting for client connection...
Client connected.
CLIENT SAYS: Good Morning
TO CLIENT: Good Morning
CLIENT SAYS: How are you?
TO CLIENT: I'm fine
CLIENT SAYS: Ok,Bye...
TO CLIENT: Bye...
CLIENT SAYS: stop
TO CLIENT: stop
PS C:\Users\welco\Desktop\java>
```

```
PS C:\Users\welco\Desktop\java> java ChatClient
Connected to server.
TO SERVER: Good Morning
Waiting for server response...
SERVER SAYS: Good Morning
TO SERVER: How are you?
Waiting for server response...
SERVER SAYS: I'm fine
TO SERVER: Bye
Waiting for server response...
SERVER SAYS: Bye
TO SERVER: stop
Waiting for server response...
SERVER SAYS: stop
Client closed.
PS C:\Users\welco\Desktop\java>
```