ECHO TCP Server

CS F303

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Problem Statement

- Develop a java based Echo TCP server and verify the same using a telnet client.

Echo TCP Server (1)

- Step 1: Write Echo TCP Server program using Socket programming.
  - Create EchoServer.java file and write following code in it.

```java
import java.io.*;
import java.net.*;
public class EchoServer {
public static void main(String[] args) {
        try {
                ServerSocket s = new ServerSocket(8008);
                //Create a new socket. Here, 8008 is port.
                while (true) {
                Socket incoming = s.accept();
                //Accept method returns the socket and
                //establish a connection between server and client.
```

```
BufferedReader in = new BufferedReader(new InputStreamReader(incoming.getInputStream()));
//BufferedReader class is used to read the text from a character-based input stream.
//An InputStreamReader is a bridge from byte streams to character streams:
//It reads bytes and decodes them into characters using a specified charset.
//getInputStream() returns the InputStream attached with this socket.
PrintWriter out = new PrintWriter(new OutputStreamWriter(incoming.getOutputStream()));
//PrintWriter class is used to print the formatted representation of objects to the text-output stream.
//OutputStreamWriter is a class which is used to convert character stream to byte stream,
//the characters are encoded into byte using a specified charset.
//getOutputStream() returns the OutputStream attached with this socket.
out.println("Hello! BITS Dubai");
out.println("Enter BYE to exit.");
out.flush(); // It is used to flushes the stream.
```

Echo TCP Server (3)

```java
while (true) {
                String str = in.readLine(); //
                if (str == null) {
                break;
                }
                else
                {
                        out.println("Echo: " + str);
                out.flush();
                        if (str.trim().equals("BYE"))
                        break;
                }
        }
        incoming.close();//Closes this socket
    }
} catch (Exception e) {}
}
}
```
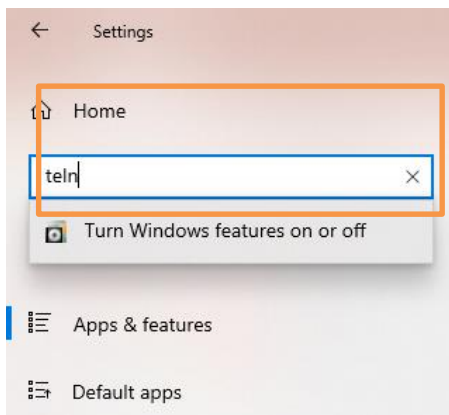
Execute the server

- Step 2: Run the server inside command prompt

Run Telnet Client (1)

- Step 3: Turn on Telnet Client Service from Windows Settings.
  - Search for "Turn Windows features on or off" in search tool bar in windows setting and turn on Telnet Clinet for list windows features
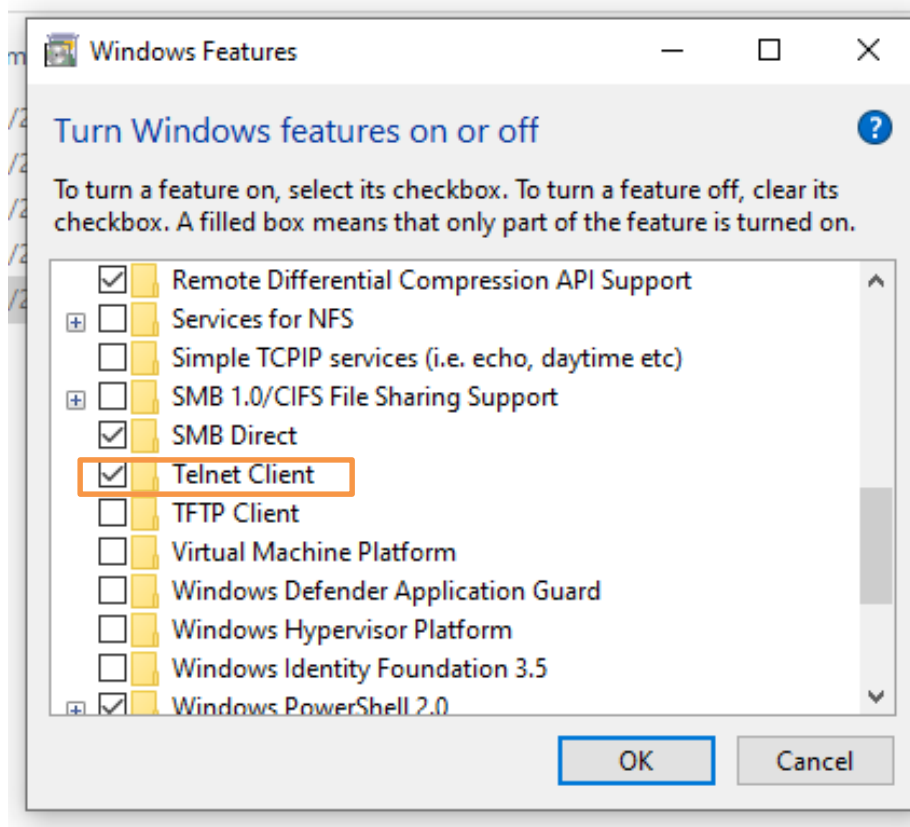
Run Telnet Client (2)

Command Prompt

```
C:\Users\pranav>telnet localhost 8008
```

Command Prompt

```
Hello! BITS Dubai
Enter BYE to exit.
hi
Echo: hi
how are you?
Echo: how are you?
BYE
Echo: BYE


Connection to host lost.

C:\Users\pranav>
```

Practice Statement

- Develop a Echo TCP server, who echo string enter by client in capital letters and verify the same using a telnet client.

- Develop a Echo TCP server, who echo string enter by client in capital letters and verify it by developing your own Echo TCP client.

Sources

- https://www.codejava.net/java-se/networking/java-socket-server-examples-tcp-ip

- https://www.javatpoint.com/socket-programming

- https://www.tutorialspoint.com/java/java_networking.htm#:~:text=Sockets%20provide%20the%20communication%20mechanism,its%20end%20of%20the%20communication.

- https://www.it.uu.se/edu/course/homepage/distrinfo/ht11/schedule/Java_Socket_Programming.ppt

- http://se.cs.depaul.edu/se450/lecture8-handout.pdf

Thank You!