University of Information Technology and Sciences (UITS)

Lab Report : 6

IT-326 : Client Server Programming Lab

Learn About Socket Programming in Java

Submitted To:

Sk. Tanzir Mehedi
Lecturer,
Department of IT, UITS

Submitted By:

Name: Nazmul Zaman
Student ID:2014755055
Department of IT UITS

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Contents

1 Abstract

Java socket programming is used to provide communication across applications running on different JREs. There are solutions that are both connection-oriented and connectionless. In general, a socket is a way to connect a client to a server. In this lab, I'll learn about Java Socket Programming.

2 Objectives

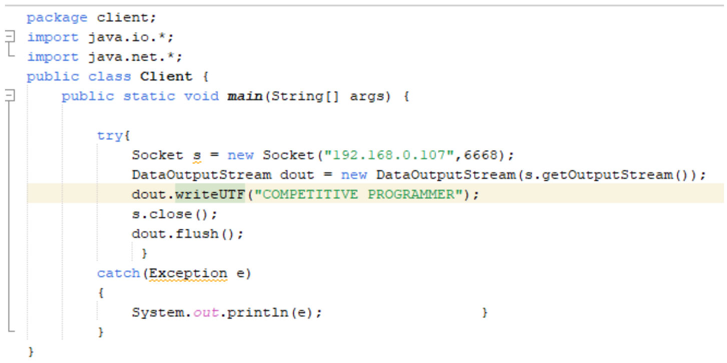
: in relation to the basics of socket programming.
• Describe a Java socket.
• Establish a connection between the server and client.
• The methods for sending messages from a client to a server.
• Run code using Java.

3 Working Procedure

: 1.Establish a Connection
2.Two sockets should be made. Communication: The OutputStream() function is used to send the output across the socket.
3. Turning off the socket.

4 Code

4.1 Client

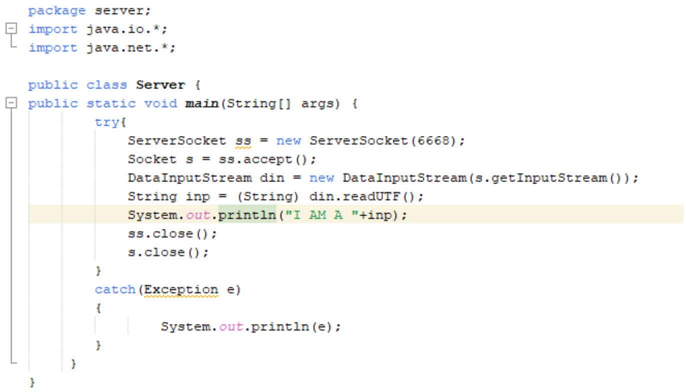


```
package client;
import java.io.*;
import java.net.*;
public class Client {
    public static void main(String[] args) {

        try{
            Socket s = new Socket("192.168.0.107",6668);
            DataOutputStream dout = new DataOutputStream(s.getOutputStream());
            dout.writeUTF("COMPETITIVE PROGRAMMER");
            s.close();
            dout.flush();
             }
        catch(Exception e)
        {
            System.out.println(e);                    }
        }
}
```

Figure 1:

4.2 Server

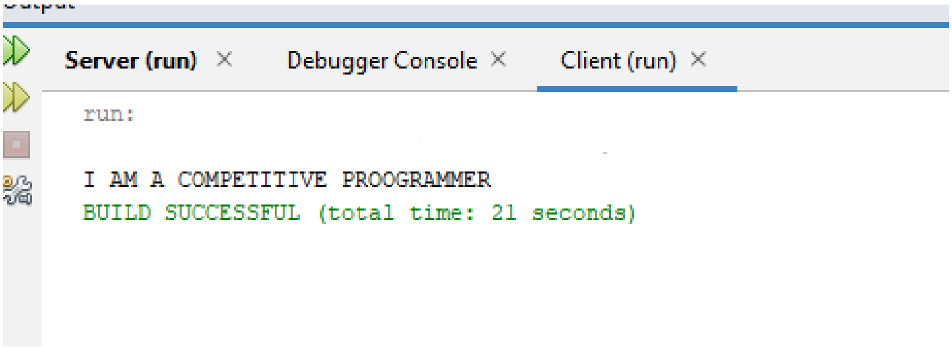


```
package server;
import java.io.*;
import java.net.*;

public class Server {
public static void main(String[] args) {
        try{
            ServerSocket ss = new ServerSocket(6668);
            Socket s = ss.accept();
            DataInputStream din = new DataInputStream(s.getInputStream());
            String inp = (String) din.readUTF();
            System.out.println("I AM A "+inp);
            ss.close();
            s.close();
        }
        catch(Exception e)
        {
                System.out.println(e);
        }
    }
}
```

Figure 2:

4.3 Output



```
run:

I AM A COMPETITIVE PROOGRAMMER
BUILD SUCCESSFUL (total time: 21 seconds)
```

Figure 3:

5 Conclusion

After doing this lab, I understood the foundations of socket programming. Sockets are used to transfer information between processes operating on the same system or across a network, distribute work to the most productive machine, and obtain quick access to centralized data. Application program interfaces for sockets are a TCP/IP network standard (APIs). This experiment was so fascinating that I truly enjoyed it.

6 reference

- https://www.geeksforgeeks.org/client-server-model/
- https://www.heavy.ai/technical-glossary/client-server