TCET
DEPARTMENT OF COMPUTER ENGINEERING (COMP)
(Accredited by NBA for 3 years, 3rd Cycle Accreditation w.e.f. 1st July 2019)
Choice Based Credit Grading System with Holistic Student Development (CBCGS - H 2019)
Under TCET Autonomy Scheme - 2019

Experiment 05: JAVA SOCKET PROGRAMMING

Learning Objective: Student should be able to implement socket programming in java

Tools: Java Development Kit, Text Editor

Theory

Java Socket programming is used for communication between the applications running on different JRE.

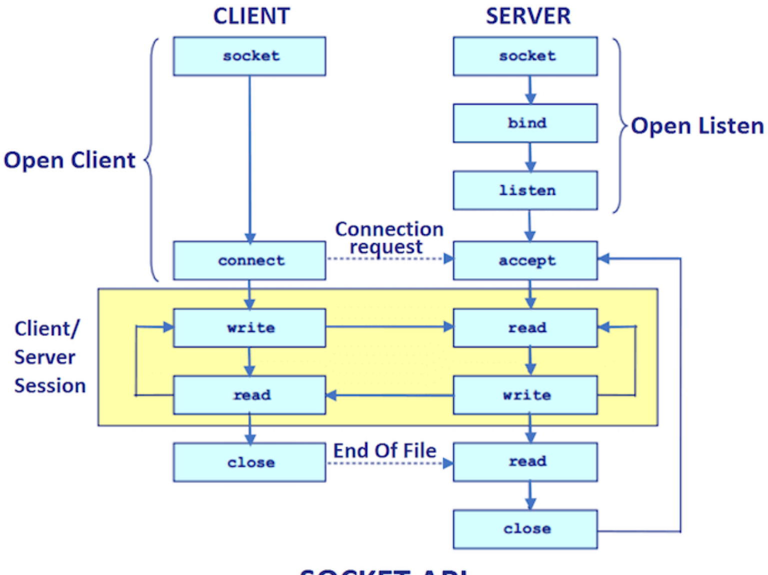
Java Socket programming can be connection-oriented or connection-less.

Socket and ServerSocket classes are used for connection-oriented socket programming and DatagramSocket and DatagramPacket classes are used for connection-less socket programming.

The client in socket programming must know two information:

1. IP Address of Server, and
2. Port number.

Here, we are going to make one-way client and server communication. In this application, client sends a message to the server, server reads the message and prints it. Here, two classes are being used: Socket and ServerSocket. The Socket class is used to communicate client and server. Through this class, we can read and write message. The ServerSocket class is used at server-side. The accept() method of ServerSocket class blocks the console until the client is connected. After the successful connection of client, it returns the instance of Socket at server-side.



SOCKET API

IMPLEMENTATION

socket_client.java

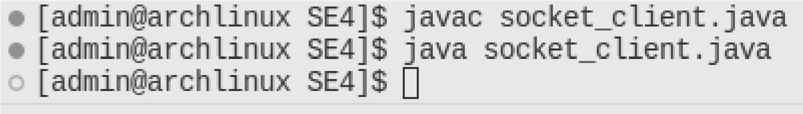
```
import java.io.*;
import java.net.*;
public class socket_client {
        public static void main(String[] args) {
        try {
        Socket s = new Socket("localhost", 6666);
        DataOutputStream dout = new DataOutputStream(s.getOutputStream());
        dout.writeUTF("Hello Server");
        dout.flush();
        dout.close();
        s.close();
        } catch (Exception e) {
        System.out.println(e);
        }
        }
}
```

socket_server.java

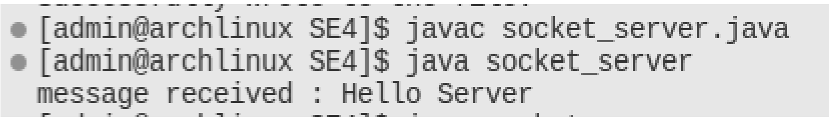
```
import java.io.*;
import java.net.*;

public class socket_server {
        public static void main(String[] args) {
        try {
        ServerSocket ss = new ServerSocket(6666);
        Socket s = ss.accept();// establishes connection
        DataInputStream dis = new DataInputStream(s.getInputStream());
        String str = (String) dis.readUTF();
        System.out.println("message received : " + str);
        ss.close();
        } catch (Exception e) {
        System.out.println(e);
        }
        }
}
```

OUTPUT



```
● [admin@archlinux SE4]$ javac socket_client.java
● [admin@archlinux SE4]$ java socket_client.java
○ [admin@archlinux SE4]$ ▯
```



```
● [admin@archlinux SE4]$ javac socket_server.java
● [admin@archlinux SE4]$ java socket_server
  message received : Hello Server
```

Conclusion: Socket programming demo application was successfully implemented in Java language

For Faculty Use

Correction Parameters	**Formative Assessment [40%]**	**Timely completion of Practical [40%]**	**Attendance / Learning Attitude [20%]**	
Marks Obtained				