Exp no. 5 **HALF DUPLEX CHAT USING TCP/IP**

AIM: To implement a chat server and client in java using TCP sockets in half duplex mode.

DESCRIPTION:

TCP Clients send requests to the server and the server will receive the request and response with acknowledgement. Every time either a client or a server can send and receive the messages

ALGORITHM:

Server

1. Create a server socket and bind it to the port.
2. Listen for new connections and when a connection arrives, accept it.
3. Read Client's message and display it
4. Get a message from user and send it to client
5. Repeat steps 3-4 until the client terminates
6. Close all streams
7. Close the server and client socket
8. Stop

Client

1. Create a client socket and connect it to the server's port number
2. Get a message from user and send it to server
3. Read server's response and display it
4. Repeat steps 2-3 until chat is terminated with "exit" message
5. Close all input/output streams
6. Close the client socket
7. Stop

Server

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

class Server_HalfDup {

   public static void main(String args[])
      throws Exception
   {

      // Create server Socket
      ServerSocket ss = new ServerSocket(888);

      // connect it to client socket
      Socket s = ss.accept();
      System.out.println("Connection established");

      // to send data to the client
      PrintStream ps
         = new PrintStream(s.getOutputStream());

      // to read data coming from the client
      BufferedReader br
         = new BufferedReader(
            new InputStreamReader(
               s.getInputStream()));

      // to read data from the keyboard
      BufferedReader kb
         = new BufferedReader(
            new InputStreamReader(System.in));
```

```
        // server executes continuously
        while (true) {

            String str, str1;

            // repeat as long as the client
            // does not send a null string

            // read from client
            while ((str = br.readLine()) != null) {
                System.out.println("From Client:"+str);
                str1 = kb.readLine();

                // send to client
                ps.println(str1);
            }

            // close connection
            ps.close();
            br.close();
            kb.close();
            ss.close();
            s.close();

            // terminate application
            System.exit(0);

        } // end of while
    }
}
```

Client

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

class Client_HalfDup {

   public static void main(String args[])
      throws Exception
   {

      // Create client socket
      Socket s = new Socket("localhost", 888);

      // to send data to the server
      DataOutputStream dos = new DataOutputStream(s.getOutputStream());

      // to read data coming from the server
      BufferedReader br
         = new BufferedReader(
            new InputStreamReader(
               s.getInputStream()));

      // to read data from the keyboard
      BufferedReader kb
         = new BufferedReader(
            new InputStreamReader(System.in));
      String str, str1;

      // repeat as long as exit
      // is not typed at client
      while (!(str = kb.readLine()).equals("exit")) {
```

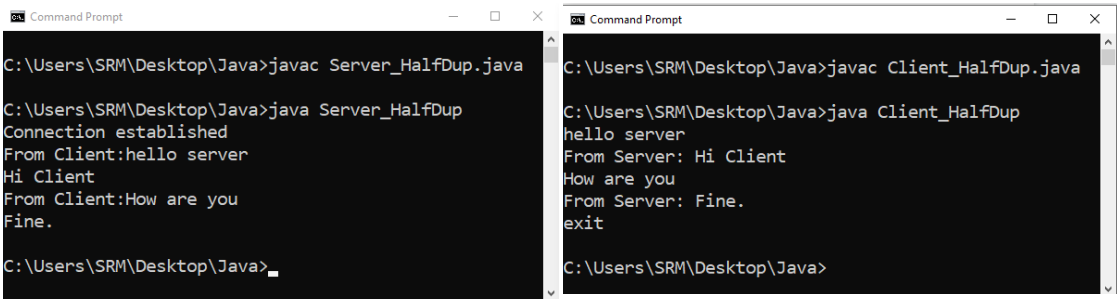
```
            // send to the server
            dos.writeBytes(str + "\n");

            // receive from the server
            str1 = br.readLine();

            System.out.println("From Server: "+str1);
        }

        // close connection.
        dos.close();
        br.close();
        kb.close();
        s.close();
    }
}
```

Output



Result: Thus Half Duplex Chat Using TCP/IP has been executed using Java programming