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| **Experiment No.** | 5 | | |

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| **AIM:** | To implement Socket Programming |
| **THEORY:** | **Java Socket Programming**  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 Programming in Java  **Socket class**  A socket is simply an endpoint for communications between the machines. The Socket class can be used to create a socket.  **Important methods**    **ServerSocket class**  The ServerSocket class can be used to create a server socket. This object is used to establish communication with the clients. |
| **Server Client** | |
| **Code:** | import java.net.\*;  import java.io.\*;  public class chatserver {  public static void deleteString(String st){    for(int i=0;i<=st.length();i++)  System.out.print('\b');    }  public static void main(String args[]) throws Exception {  ServerSocket ss=new ServerSocket(2000);  Socket sk=ss.accept();  BufferedReader cin=new BufferedReader(new InputStreamReader(sk.getInputStream()));  PrintStream cout=new PrintStream(sk.getOutputStream());  BufferedReader stdin=new BufferedReader(new InputStreamReader(System.in));  String s,message;  message="Awaiting for clients's reply!";  System.out.println("CHAT SERVER started ");  System.out.println("Connected to Port : 2000");  System.out.println("Type End to leave Chat");  while ( true )  {  System.out.print(message);  s=cin.readLine();  if (s.equalsIgnoreCase("END"))  {  cout.println("BYE");  break;  }  deleteString(message);  System. out.print("\nClient : "+s+"\n");  System.out.print("Server : ");  s=stdin.readLine();  cout.println(s);  }  ss.close();  sk.close();  cin.close();  cout.close();  stdin.close();  }  } |

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| **Client Server** | |
| **CALCULATION:** | import java.net.\*;  import java.io.\*;  public class chatclient {  public static void deleteString(String st){    for(int i=0;i<=st.length();i++)  System.out.print('\b');    }  public static void main(String args[]) throws Exception  {  Socket sk=new Socket("127.0.0.1",2000);  BufferedReader sin=new BufferedReader(new InputStreamReader(sk.getInputStream()));  PrintStream sout=new PrintStream(sk.getOutputStream());  BufferedReader stdin=new BufferedReader(new InputStreamReader(System.in));  String s,message;  message="Awaiting for server's reply!";  System.out.println("CHAT CLIENT Connected");  System.out.println("Connected: 2000");  System.out.println("Type End to exit the chat");  while ( true )  {  System.out.print("Client : ");  s=stdin.readLine();  sout.println(s);  System.out.print(message);  s=sin.readLine();  deleteString(message);  System.out.print("\nServer : "+s+"\n");  if ( s.equalsIgnoreCase("END") )  break;  }  sk.close();  sin.close();  sout.close();  stdin.close();  }  } |
| **OUTPUT TABLE:** |  |
| **RESULT:** | |

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| **Screenshots** | |
| **OUTPUT:** | Firstly, start the chatserver.java in order start a socket      Then initialize the chat client for the sock of port 2000 to make a request an accept it  After a connection is made server side should look like this      Client side    Now simply type anything whenever it’s your chance          The chat ends with client says End or the server side says Bye |
| **RESULT:** Learnt about the socket programming and its features. Learnt on how to generate a socket using the Socket class. Used the function/methods of BufferedReader and PrintStream in order to get and send messages of users. | |