

```

1  /* A simple client with a single window, two textfields and buttons
2   27th March 02
3
4   The buttons: disconnect from the server,
5                 send the employee name in the textfield to the server
6
7   The server will send the email address which is shown in the second textfield.
8   */
9
10 import java.awt.*;
11 import java.awt.event.*;
12 import java.io.*;
13 import java.net.*;
14
15 public class ClientExample extends Frame implements ActionListener {
16
17     TextField userName, emailAddress;
18     Button startProcessing, quit;
19
20     InputStream is = null;
21     OutputStream os = null;
22     PrintWriter pw = null;
23     BufferedReader br = null;
24     Socket s;
25
26     ClientExample(String title) {
27         super(title);
28         userName = new TextField(10);
29         emailAddress = new TextField(20);
30         startProcessing = new Button("Start");
31         quit = new Button("Quit");
32         setLayout(new GridLayout(4, 1));
33         add(new Label("User Name"));
34         add(userName);
35         add(new Label("Email Adress"));
36         add(emailAddress);
37         add(startProcessing);
38         add(quit);
39         setSize(150, 300);
40         setVisible(true);
41
42         startProcessing.addActionListener(this);
43         quit.addActionListener(this);
44
45         // Set up connection to the server on the loop back address
46         // and the same port number as the Server is expecting
47         try {
48             s = new Socket("127.0.0.1", 2000);
49             is = s.getInputStream();
50             os = s.getOutputStream();
51
52             pw = new PrintWriter(os, true);
53
54             br = new BufferedReader(new InputStreamReader(is));
55         } catch (IOException e) {
56             System.out.println("Error connecting wth the Server " + e);
57         } // end of constructor
58
59         public void actionPerformed(ActionEvent ae) {
60             String buttonTest = ae.getActionCommand();
61             String typedName;
62             String receivedAddress;
63             try {
64                 if (buttonTest.equals("Quit")) {
65                     System.out.println("Exiting from Server");
66                     pw.println("Exit");
67                     is.close();
68                     os.close();
69                     pw.close();
70                     br.close();
71                     s.close();
72                     System.exit(0);
73                 }
74                 if (buttonTest.equals("Start")) {
75                     typedName = userName.getText();
76
77                     // Send to Server
78                     pw.println(typedName);
79
80                     // Receive reply
81                     receivedAddress = br.readLine();
82
83                     emailAddress.setText(receivedAddress);
84                 }
85             } catch (IOException e) {
86                 System.out.println("Problem contacting the server to send/receive");
87             }
88         } // end of actionPerformed method
89
90         public static void main(String[] args) {
91             new ClientExample("Client Example");
92         } // end of main method
93
94 } // end of ClientExample class

```

```
1 //A sample server
2 //27th March 02
3
4 import java.io.*;
5 import java.util.*;
6 import java.net.*;
7
8 public class ServerExample {
9
10     public static void main(String args[]) {
11         // Streams definition for connection
12         InputStream is = null;
13         OutputStream os = null;
14
15         //Writers and readers for communication
16         PrintWriter pw = null;
17         BufferedReader br = null;
18
19         int connectionCount = 0; // Count of clients connecting
20         String lineRead = ""; // String read from client
21         Object o = null; // Used for assessing the Hashtable
22         String reply = ""; // Reply to be sent to the client
23
24         System.out.println("Server starting");
25
26         // Set up the database;
27         Hashtable<String, String> names = new Hashtable();
28         names.put("Fred Smith", "F.Smith@cov.ac.uk");
29         names.put("Joe Bloggs", "J.Bloggs@cov.ac.uk");
30         System.out.println("Database done");
31
32         // Establish Server Socket
33         try {
34             ServerSocket ss = new ServerSocket(2000);
35             while (true) {
36                 // Listen for a connection and return new Socket if one is made
37                 Socket s = ss.accept(); // Blocks until connection made
38                 connectionCount++;
39                 System.out.println("Connection " + connectionCount + " made");
40                 is = s.getInputStream();
41                 os = s.getOutputStream();
42                 pw = new PrintWriter(os, true);
43                 br = new BufferedReader(new InputStreamReader(is));
44                 System.out.println("System set up");
45
46                 //Read and process names until the client tells the server
47                 //the service is no longer required.
48                 lineRead = "";
49                 while (true) {
50                     lineRead = br.readLine();
51                     if (lineRead.equals("Exit")) {
52                         break;
53                     }
54                     o = names.get(lineRead);
55                     if (o == null) {
56                         reply = "User not known";
57                     } else {
58                         reply = (String) o;
59                     }
60                     pw.println(reply);
61                 }
62                 pw.close();
63                 br.close();
64                 is.close();
65                 os.close();
66                 System.out.println("Closed down");
67             }
68         } catch (IOException e) {
69             System.out.println("Trouble with connection" + e);
70         }
71     } // end of main method
72
73 } // end of SeverExample class
```