1 Fundamental knowledge:
What Is a Socket?
Definition: A socket is one endpoint of a two-way communication link between two programs running on the network. A socket is bound to a port number so that the TCP layer can identify the application that data is destined to be sent.

Question:
For a Client/Server communication, at least how many sockets should be generated?

2 Socket in Java language:
The classes java provides: Socket and ServerSocket
Also, URL, URLConnection, URLEncoder
Please refer to http://java.sun.com/j2se/1.3/docs/api/

2.1 Establishing a socket, Reading from and Writing to a Socket (client)

1) import java.io.*;
2) import java.net.*;
3) public class EchoClient {
4) public static void main(String[] args) throws IOException {
5) Socket echoSocket = null;
6) PrintWriter out = null;
7) BufferedReader in = null;
8) try {
9) echoSocket = new Socket("rich", 4444);
10) out = new PrintWriter(echoSocket.getOutputStream(), true);
11) in = new BufferedReader(new InputStreamReader(echoSocket.getInputStream()));
12) } catch (UnknownHostException e) {
13) System.err.println("Don't know about host: rich");
14) System.exit(1);
15) } catch (IOException e) {
16) System.err.println("Couldn't get I/O for " + "the connection to: taranis.");
17) System.exit(1); 
}
2.2 Some part of the code in the server side:

1) try {
2) serverSocket = new ServerSocket(4444);
3) } catch (IOException e) {
4) System.out.println("Could not listen on port: 4444");
5) System.exit(-1);}
6) Socket clientSocket = null;
7) try {
8) clientSocket = serverSocket.accept();
9) } catch (IOException e) {
10) System.out.println("Accept failed: 4444");
11) System.exit(-1);
12) }

2.3 The process of socket communication: (client side)

Only step 3 differs from client to client, depending on the server. The other steps remain largely the same.

2.4 The process of socket communication: (server side)
Only step 3 differs from server to server, depending on what? The other steps remain largely the same.

3 Analysis of project 1
To be discussed during recitation