

Computer Networks Lab 3

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Server

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

public class Server {
    private ServerSocket server;
    private Socket socket;
    private PrintStream printStream;
    private BufferedReader clientReader;
    private BufferedReader keyReader;
    private boolean serverStarted = false;

    public Server(int port) {
        serverStarted = false;
        try {
            server = new ServerSocket(port);
            serverStarted = true;
        } catch (Exception e) {
            System.out.println(e);
        }
    }

    public void listen() throws IOException {
        if (!serverStarted) {
            // server socket not setup
            throw new IOException("Server not started on any port");
        }
        System.out.println("Server started");
        System.out.println("Waiting for a client ...");
        socket = server.accept();
        printStream = new PrintStream(socket.getOutputStream());
        clientReader = new BufferedReader(new
        InputStreamReader(socket.getInputStream()));
        keyReader = new BufferedReader(new InputStreamReader(System.in));

        while (true) {
            String str, str1;

            // repeat as long as the client
```

```

        // read from client
        while ((str = clientReader.readLine()) != null) {
            System.out.println(str);
            str1 = keyReader.readLine();

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

        // close connection
        printStream.close();
        clientReader.close();
        keyReader.close();
        socket.close();
        server.close();

        // terminate application
        System.exit(0);
    }
}

public static void main(String[] args) {
    Server server = new Server(5000);
    try {
        server.listen();
    } catch (Exception e) {
        System.out.println(e);
    }
}
}

```

Client

```

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

public class Client {
    private Socket socket;
    private DataOutputStream printStream;
    private BufferedReader serverReader;
    private BufferedReader keyReader;

```

```

private boolean connectionEstablished = false;

public Client(int port) {
    connectionEstablished = false;
    try {
        socket = new Socket("localhost", port);
        connectionEstablished = true;
    } catch (Exception e) {
        System.out.println(e);
    }
}

public void listen() throws IOException {
    if (!connectionEstablished) {
        // server socket not setup
        throw new IOException("Server not started on any port");
    }
    printStream = new DataOutputStream(socket.getOutputStream());
    serverReader = new BufferedReader(new
InputStreamReader(socket.getInputStream()));
    keyReader = new BufferedReader(new InputStreamReader(System.in));
    System.out.println("Client Started...");

    String str, str1;

    // repeat till "exit" is not received
    while (!(str = keyReader.readLine()).equals("exit")) {
        // send to the server
        printStream.writeBytes(str + "\n");

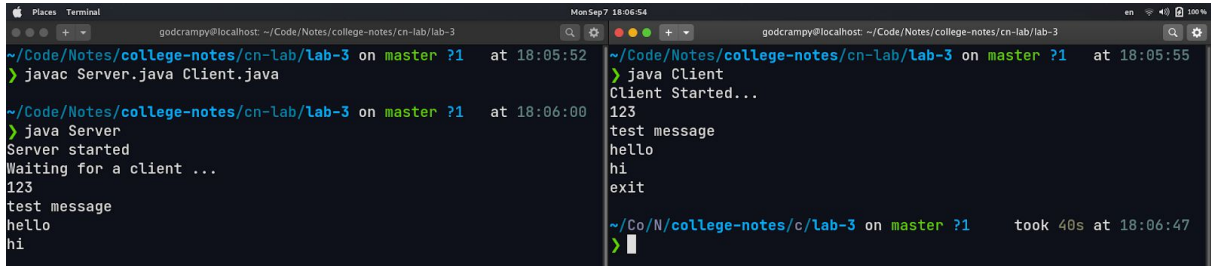
        // receive from the server
        str1 = serverReader.readLine();

        System.out.println(str1);
    }
    // close connection.
    printStream.close();
    serverReader.close();
    keyReader.close();
    socket.close();
}

public static void main(String[] args) {
    Client server = new Client(5000);
    try {

```

```
        server.listen();
    } catch (Exception e) {
        System.out.println(e);
    }
}
}
```



The screenshot shows a terminal window with two panes. The left pane shows the compilation of `Server.java` and `Client.java` using `javac`, followed by running `java Server`. The output shows the server starting and waiting for a client. The right pane shows running `java Client`, which outputs "Client Started...", "123", "test message", "hello", "hi", and "exit". A status bar at the bottom indicates the command took 40s at 18:06:47.

```
~/Code/Notes/college-notes/cn-lab/lab-3 on master ?1 at 18:05:52
> javac Server.java Client.java

~/Code/Notes/college-notes/cn-lab/lab-3 on master ?1 at 18:06:00
> java Server
Server started
Waiting for a client ...
123
test message
hello
hi

~/Code/Notes/college-notes/cn-lab/lab-3 on master ?1 at 18:05:55
> java Client
Client Started...
123
test message
hello
hi
exit

~/Code/Notes/college-notes/cn-lab/lab-3 on master ?1 took 40s at 18:06:47
>
```

```
~/Code/Notes/college-notes/
> java Client
Client Started...
123
test message
hello
hi
exit
```

```
~/Code/Notes/college-notes/
> java Server
Server started
Waiting for a client ...
123
test message
hello
hi
```