Date: 29/ 09 / 2023

Lab Practical #07:

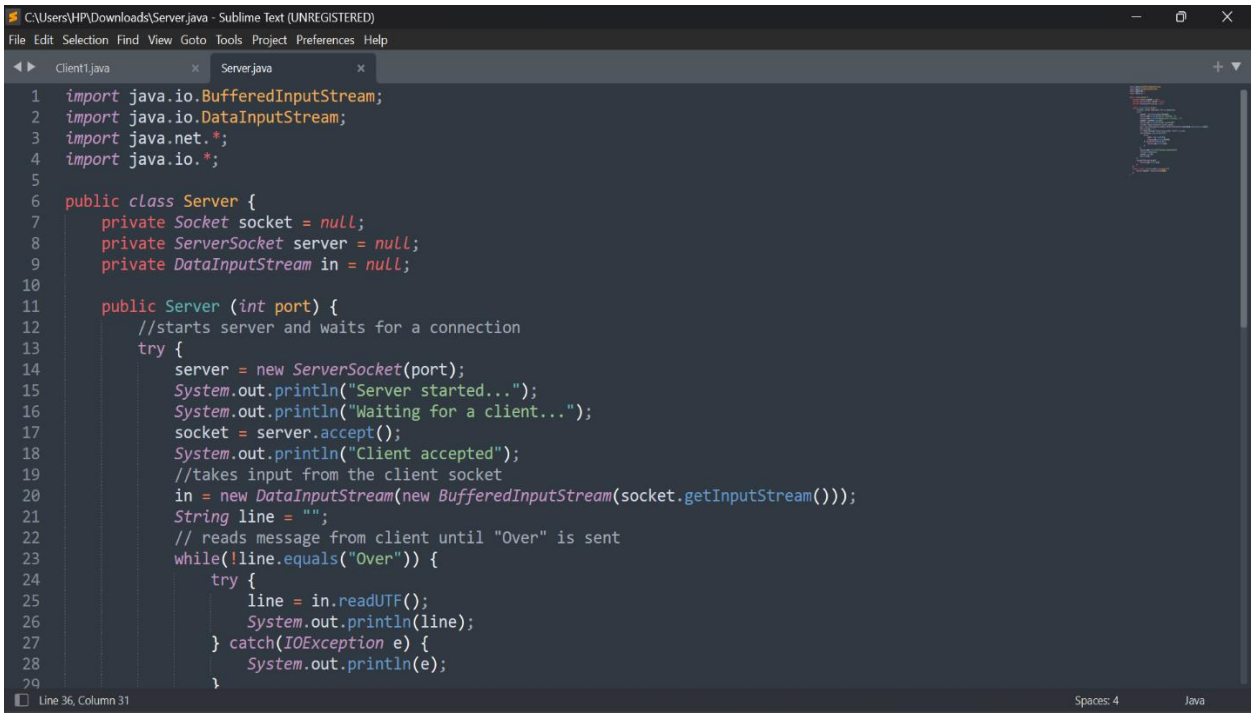
Study Client-Server Socket programming - TCP & UDP

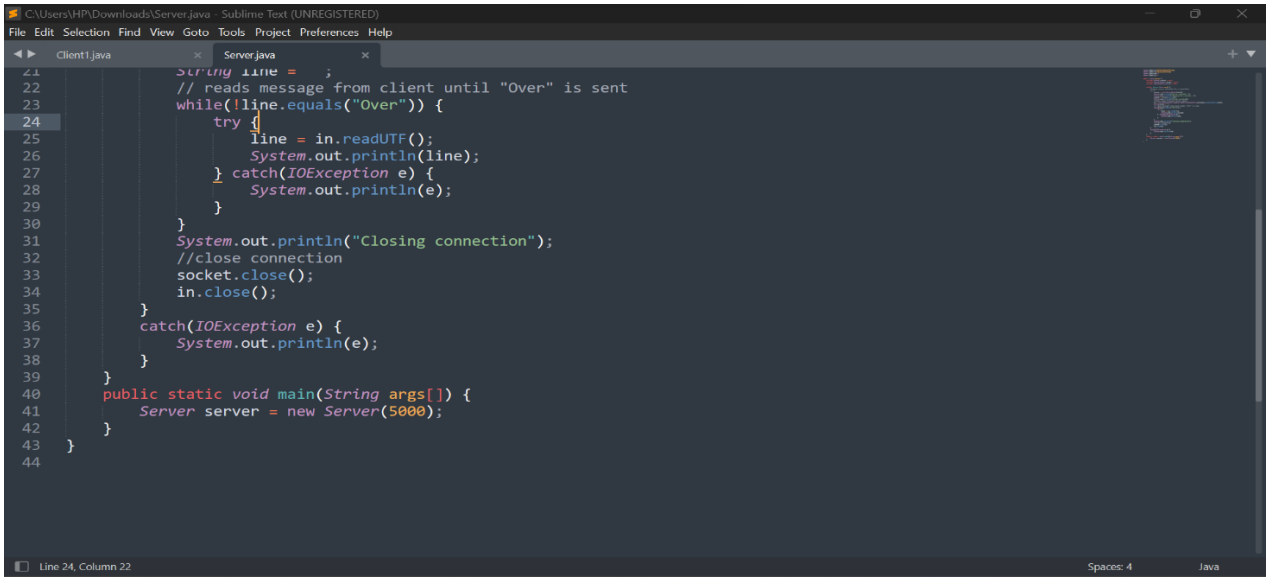
Practical Assignment #07:

1. **Write a C/Java code for TCP Server-Client Socket Programming.**
2. **Write a C/Java code for UDP Server-Client Socket Programming.**

1. For TCP Server-Client:

TCP Server Program:





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TCP Client Program:

C:\Users\HP\Downloads\Client1.java - Sublime Text (UNREGISTERED)

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Client1.java | Server.java

```java
import java.net.*;
import java.io.*;
public class Client1
{
    //initialize socket and i/o stream
    private Socket socket = null;
    private BufferedReader input = null;
    private DataOutputStream out = null;

    //constructor to put IP address and port
    public Client1(String address, int port) {
        //establish a connection
        try{
            socket = new Socket(address, port);
            System.out.println("Connnected");
            //take input from terminal
            input = new BufferedReader(new InputStreamReader(System.in));
            //sends output to the socket
            out = new DataOutputStream(socket.getOutputStream());
        }
        catch(UnknownHostException e) {
            System.out.println("unknownHost :: " + e);
        }
        catch(IOException e) {
            System.out.println("ioException :: " + e);
```

Line 7, Column 41 Spaces: 4 Java

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Client1.java | Server.java

```java
            System.out.println("ioException :: " + e);
        }
        //String to read message from input tab
        String line = "";
        while(!line.equals("Over")) {
            try{
                line = input.readLine();
                out.writeUTF(line);
            }
            catch(IOException e) {
                System.out.println("ioException :: " + e);
            }
        }
        //close the connection
        try {
            input.close();
            out.close();
            socket.close();
        } catch(IOException e) {
            System.out.println("ioException :: " + e);
        }
    }
    public static void main(String args[]) {
        Client1 client = new Client1("127.0.0.1",5000);
    }
}
```

Line 44, Column 37 Spaces: 4 Java

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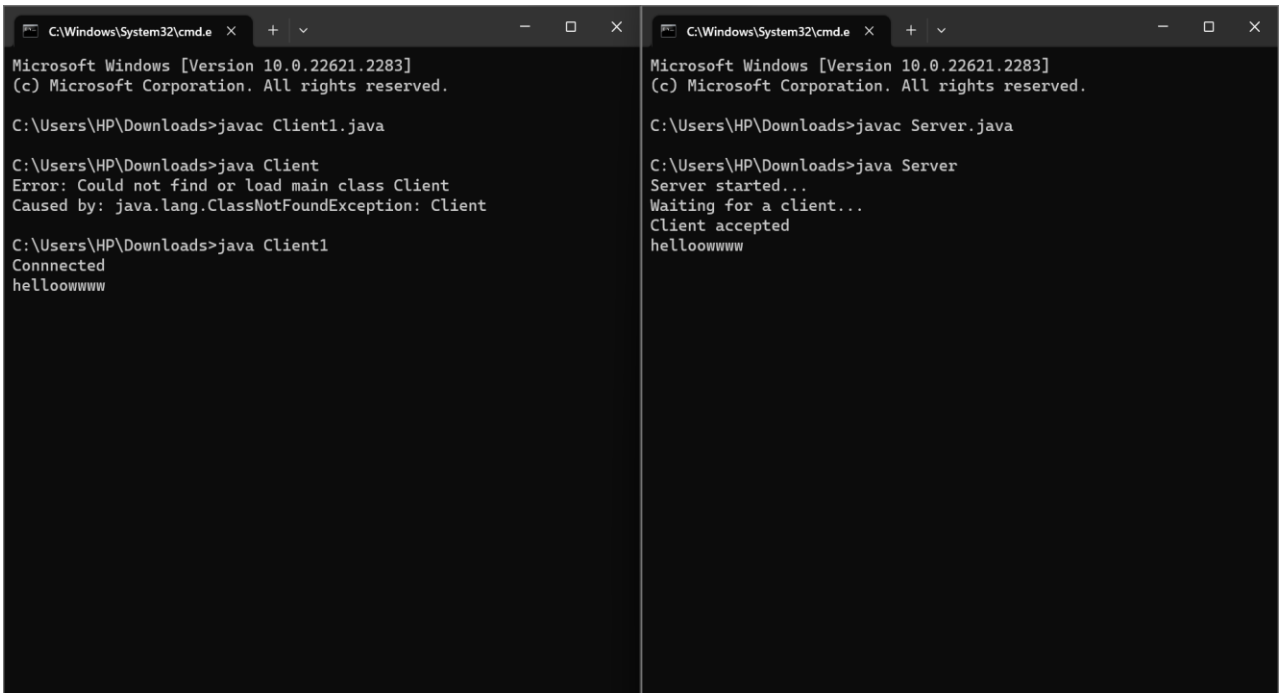
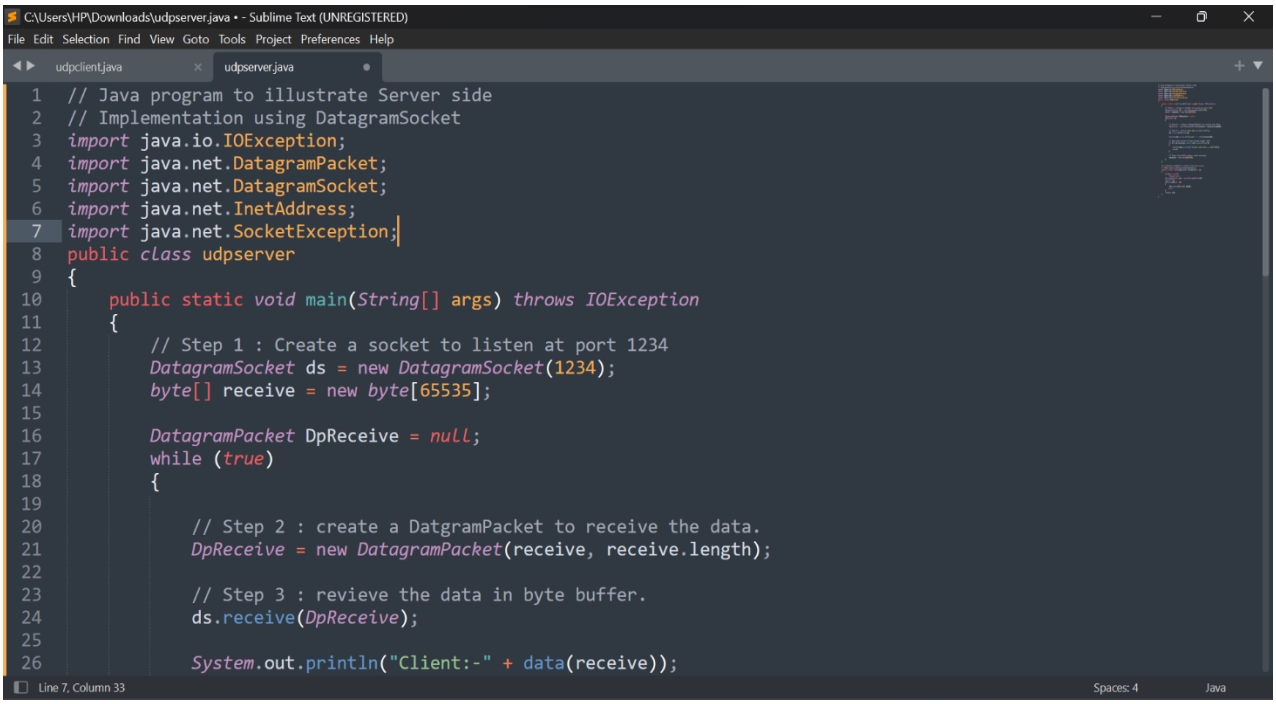
Output:



2. For UDP Server-Client:

UDP Server Program:



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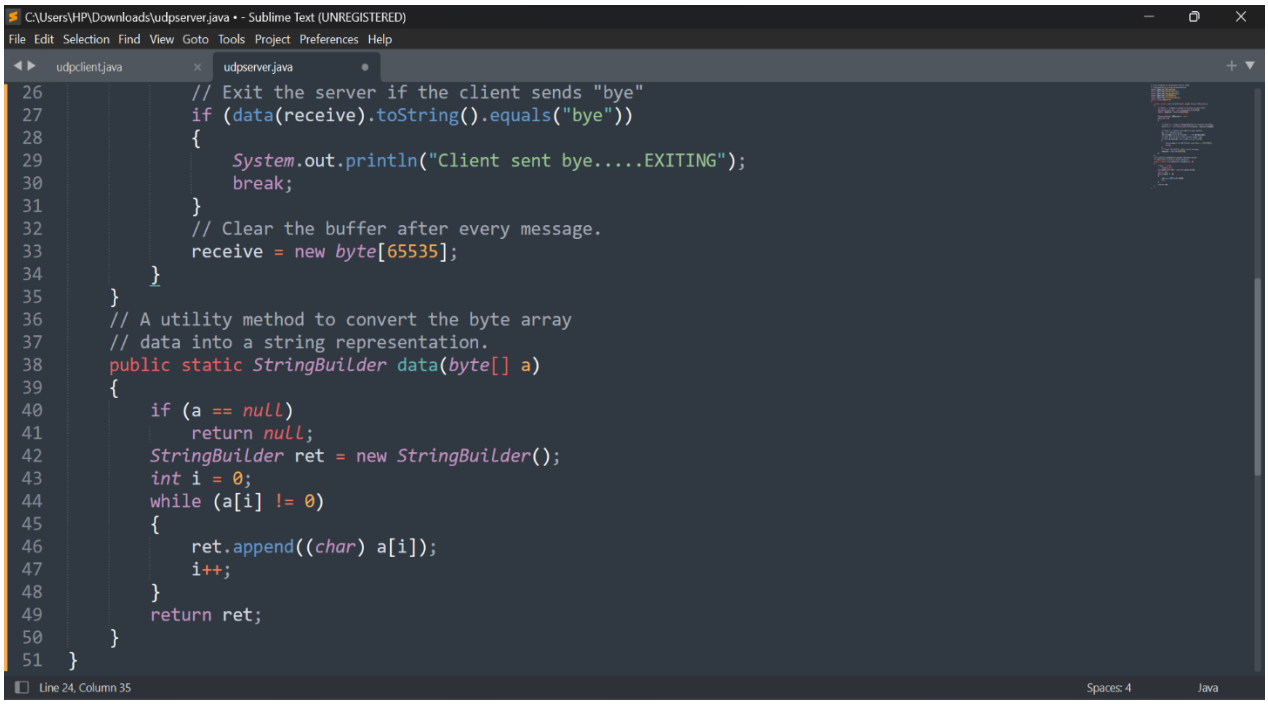
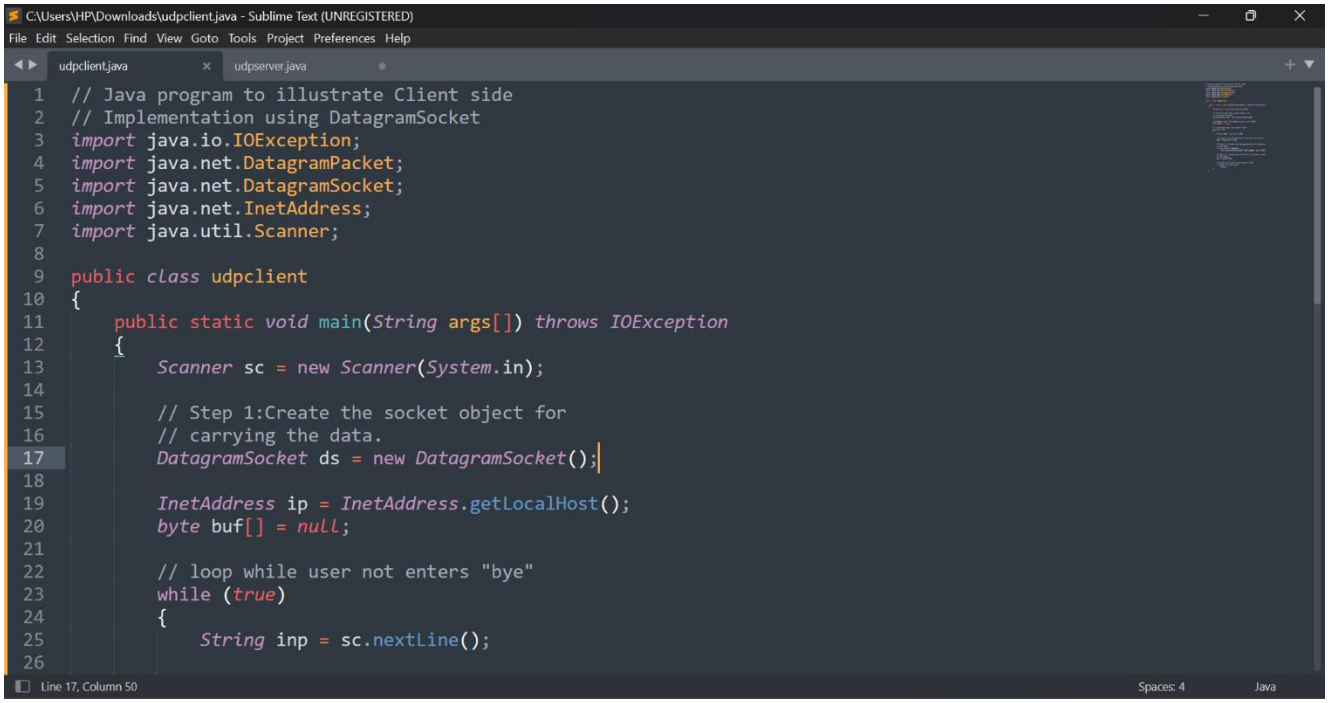


UDP Client Program:



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udpclient.java | udpserver.java

```
23          while (true)
24          {
25              String inp = sc.nextLine();
26
27              // convert the String input into the byte array.
28              buf = inp.getBytes();
29
30              // Step 2 : Create the datagramPacket for sending
31              // the data.
32              DatagramPacket DpSend =
33                  new DatagramPacket(buf, buf.length, ip, 1234);
34
35              // Step 3 : invoke the send call to actually send
36              // the data.
37              ds.send(DpSend);
38
39              // break the loop if user enters "bye"
40              if (inp.equals("bye"))
41                  break;
42          }
43      }
44  }
45
```

Line 17, Column 50 Spaces: 4 Java

Output:

C:\Windows\System32\cmd.e

```
Microsoft Windows [Version 10.0.22621.2283]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP\Downloads>javac udpserver.java

C:\Users\HP\Downloads>java udpserver
Client:-bye
Client sent bye.....EXITING

C:\Users\HP\Downloads>
```

C:\Windows\System32\cmd.e

```
Microsoft Windows [Version 10.0.22621.2283]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP\Downloads>javac udpclient.java

C:\Users\HP\Downloads>java udpclient
bye

C:\Users\HP\Downloads>
```