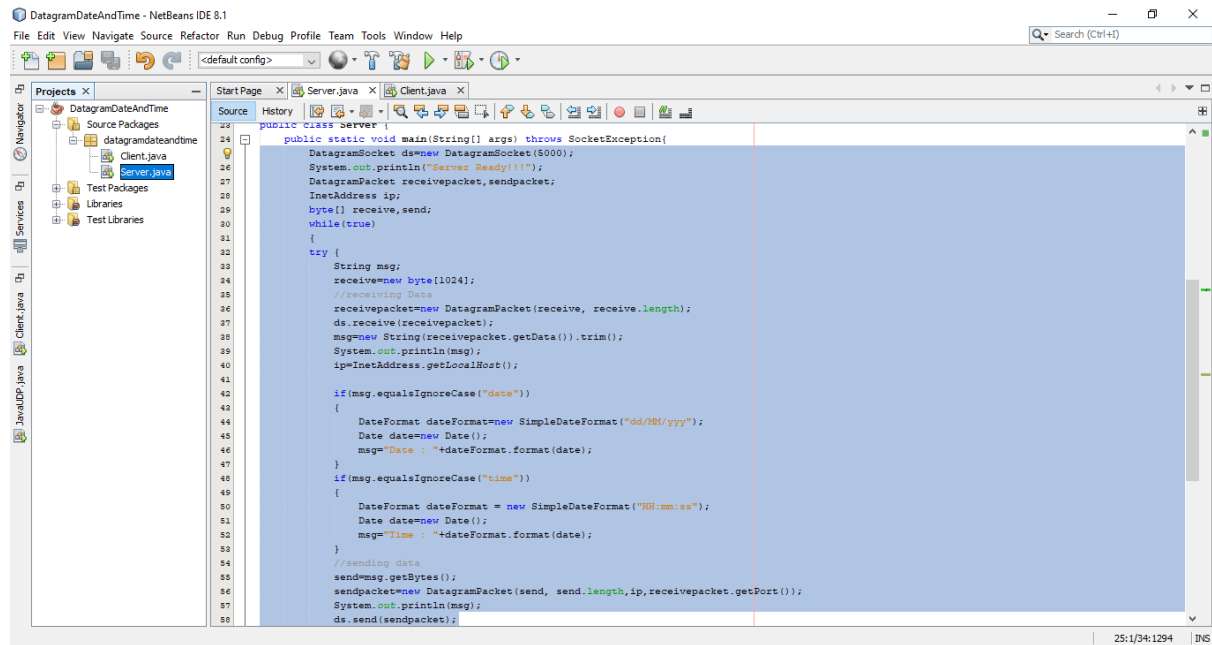


**UNIVERSITY OF MUMBAI Practical Examination – November 2018 M.C.A Semester – V  
LABORATORY L502 [Open Source System for ADC Lab]**

**Datagram**

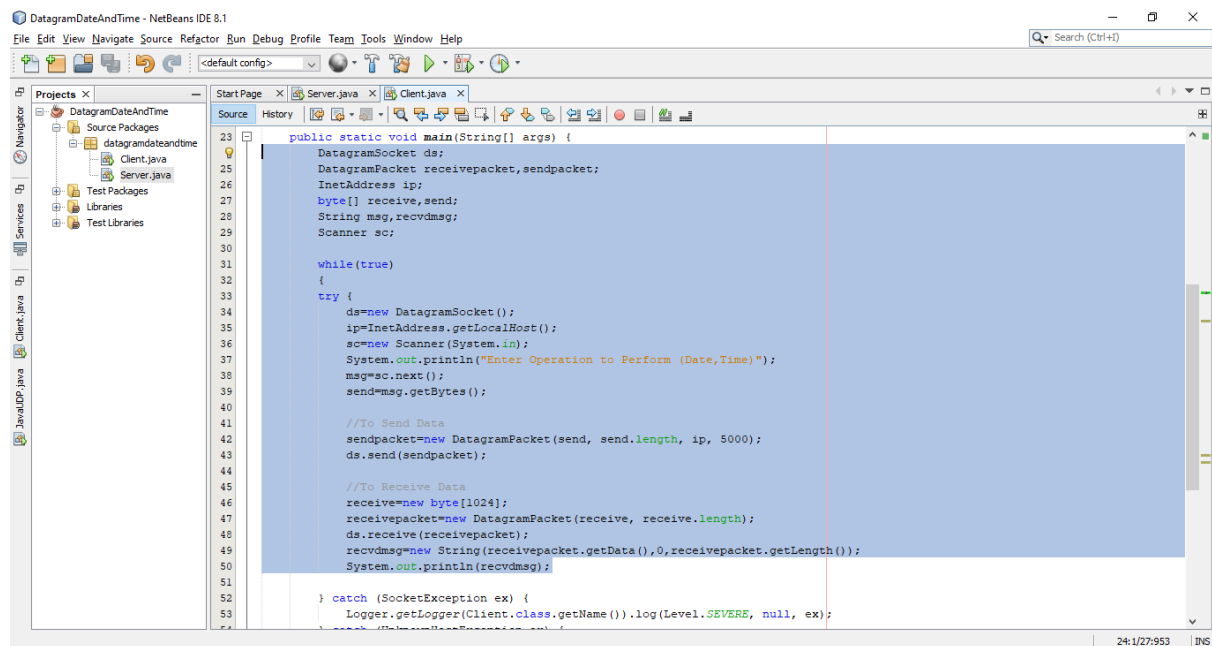
**Implement a Date Time Server containing date() and time() with datagram**

**Server**



```
24 public class server {
25     public static void main(String[] args) throws SocketException{
26         DatagramSocket ds=new DatagramSocket(5000);
27         System.out.println("Server Ready!!!");
28         DatagramPacket receivepacket,sendpacket;
29         InetAddress ip;
30         byte[] receive,send;
31         while(true)
32         {
33             try {
34                 String msg;
35                 receive=new byte[1024];
36                 //receiving Data
37                 receivepacket=new DatagramPacket(receive, receive.length);
38                 ds.receive(receivepacket);
39                 msg=new String(receivepacket.getData()).trim();
40                 System.out.println(msg);
41                 ip=InetAddress.getLocalHost();
42                 if(msg.equalsIgnoreCase("date"))
43                 {
44                     DateFormat dateFormat=new SimpleDateFormat("dd/MM/yyyy");
45                     Date date=new Date();
46                     msg="Date : "+dateFormat.format(date);
47                 }
48                 if(msg.equalsIgnoreCase("time"))
49                 {
50                     DateFormat dateFormat = new SimpleDateFormat("HH:mm:ss");
51                     Date date=new Date();
52                     msg="Time : "+dateFormat.format(date);
53                 }
54                 //sending data
55                 send=msg.getBytes();
56                 sendpacket=new DatagramPacket(send, send.length,ip, receivepacket.getPort());
57                 System.out.println(msg);
58                 ds.send(sendpacket);
59             }
60             catch (Exception e) {
61                 e.printStackTrace();
62             }
63         }
64     }
65 }
```

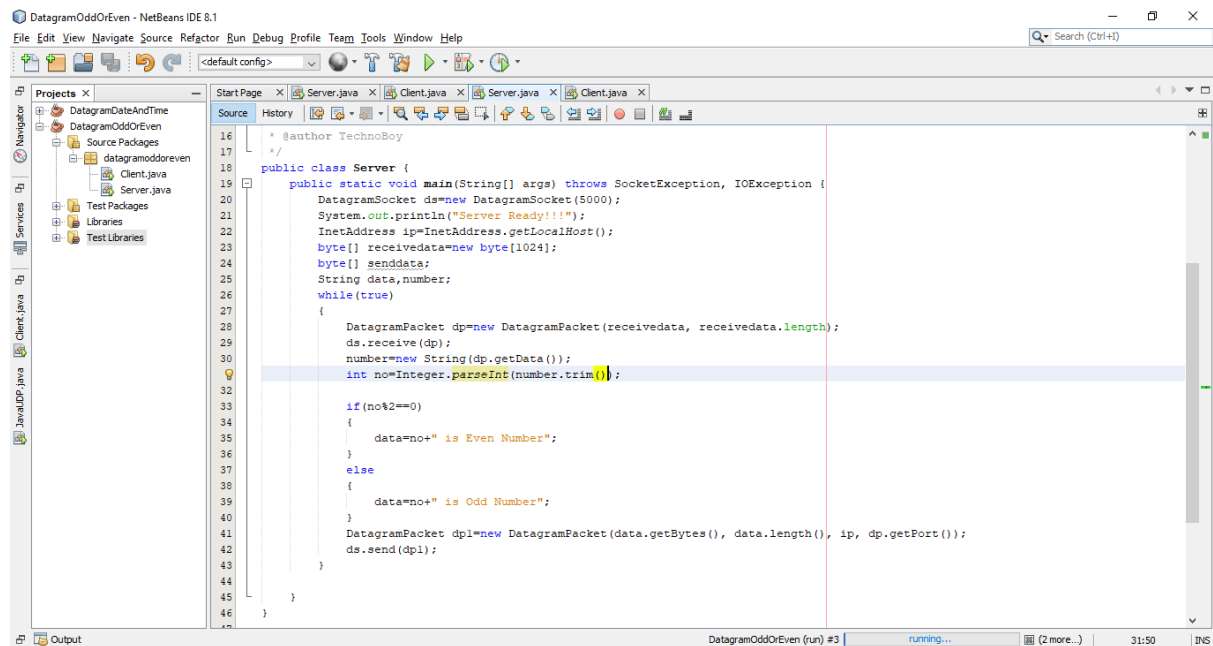
**Client**



```
23 public static void main(String[] args) {
24     DatagramSocket ds;
25     DatagramPacket receivepacket,sendpacket;
26     InetAddress ip;
27     byte[] receive,send;
28     String msg,recvmsg;
29     Scanner sc;
30
31     while(true)
32     {
33         try {
34             ds=new DatagramSocket();
35             ip=InetAddress.getLocalHost();
36             sc=new Scanner(System.in);
37             System.out.println("Enter Operation to Perform (Date,Time)");
38             msg=sc.next();
39             send=msg.getBytes();
40
41             //To Send Data
42             sendpacket=new DatagramPacket(send, send.length, ip, 5000);
43             ds.send(sendpacket);
44
45             //To Receive Data
46             receive=new byte[1024];
47             receivepacket=new DatagramPacket(receive, receive.length);
48             ds.receive(receivepacket);
49             recvmsg=new String(receivepacket.getData(),0,receivepacket.getLength());
50             System.out.println(recvmsg);
51
52         } catch (SocketException ex) {
53             Logger.getLogger(Client.class.getName()).log(Level.SEVERE, null, ex);
54         }
55     }
56 }
```

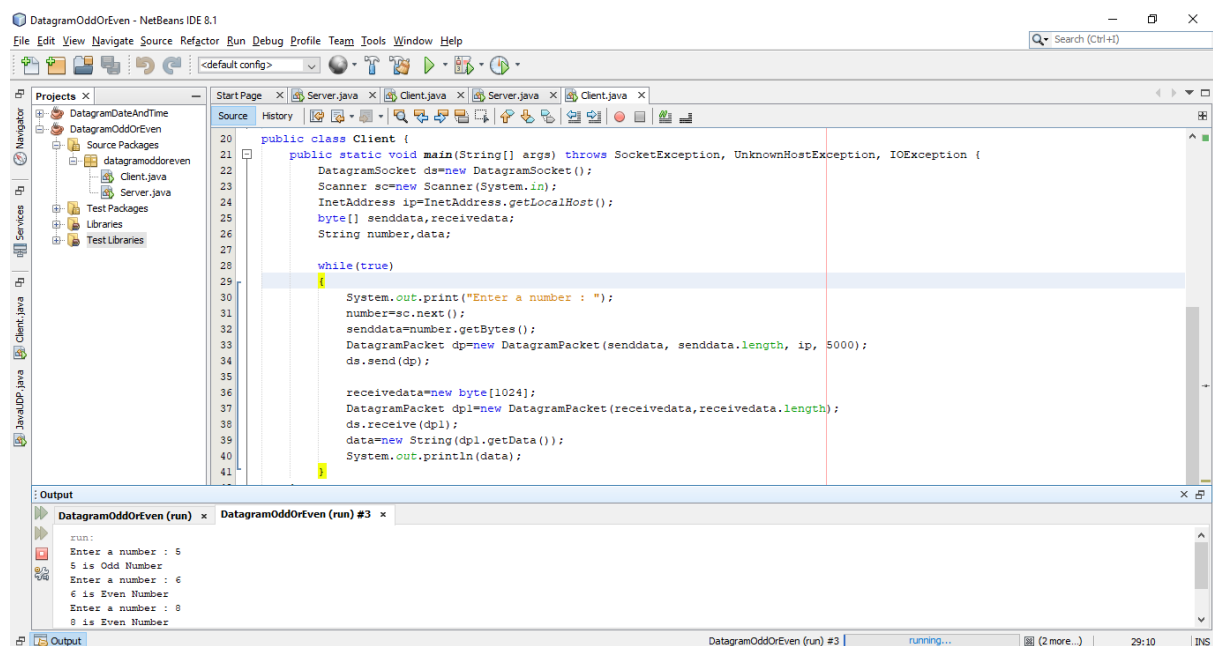
## Implement a Server to find whether an entered number is odd or even using Datagram socket

### Server



```
16  * @author TechnoBoy
17  */
18  public class Server {
19      public static void main(String[] args) throws SocketException, IOException {
20          DatagramSocket ds=new DatagramSocket(5000);
21          System.out.println("Server Ready!!!");
22          InetAddress ip=InetAddress.getLocalHost();
23          byte[] receivedata=new byte[1024];
24          byte[] senddata;
25          String data,number;
26          while(true)
27          {
28              DatagramPacket dp=new DatagramPacket(receivedata, receivedata.length);
29              ds.receive(dp);
30              number=new String(dp.getData());
31              int no=Integer.parseInt(number.trim());
32
33              if(no%2==0)
34              {
35                  data=no+" is Even Number";
36              }
37              else
38              {
39                  data=no+" is Odd Number";
40              }
41              DatagramPacket dpl=new DatagramPacket(data.getBytes(), data.length(), ip, dp.getPort());
42              ds.send(dpl);
43          }
44      }
45  }
46  }
```

### Client



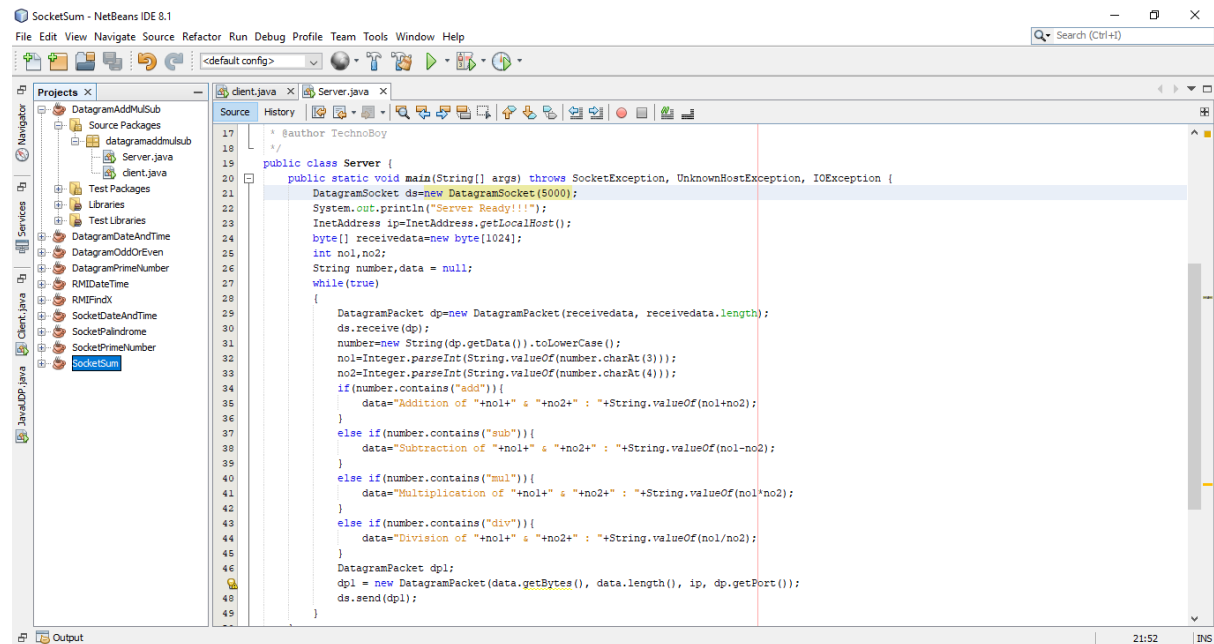
```
20  public class Client {
21      public static void main(String[] args) throws SocketException, UnknownHostException, IOException {
22          DatagramSocket ds=new DatagramSocket();
23          Scanner sc=new Scanner(System.in);
24          InetAddress ip=InetAddress.getLocalHost();
25          byte[] senddata,receivedata;
26          String number,data;
27
28          while(true)
29          {
30              System.out.print("Enter a number : ");
31              number=sc.next();
32              senddata=number.getBytes();
33              DatagramPacket dp=new DatagramPacket(senddata, senddata.length, ip, 5000);
34              ds.send(dp);
35
36              receivedata=new byte[1024];
37              DatagramPacket dpl=new DatagramPacket(receivedata,receivedata.length);
38              ds.receive(dpl);
39              data=new String(dpl.getData());
40              System.out.println(data);
41          }
42      }
43  }
```

Output

```
run:
Enter a number : 5
5 is Odd Number
Enter a number : 6
6 is Even Number
Enter a number : 8
8 is Even Number
```

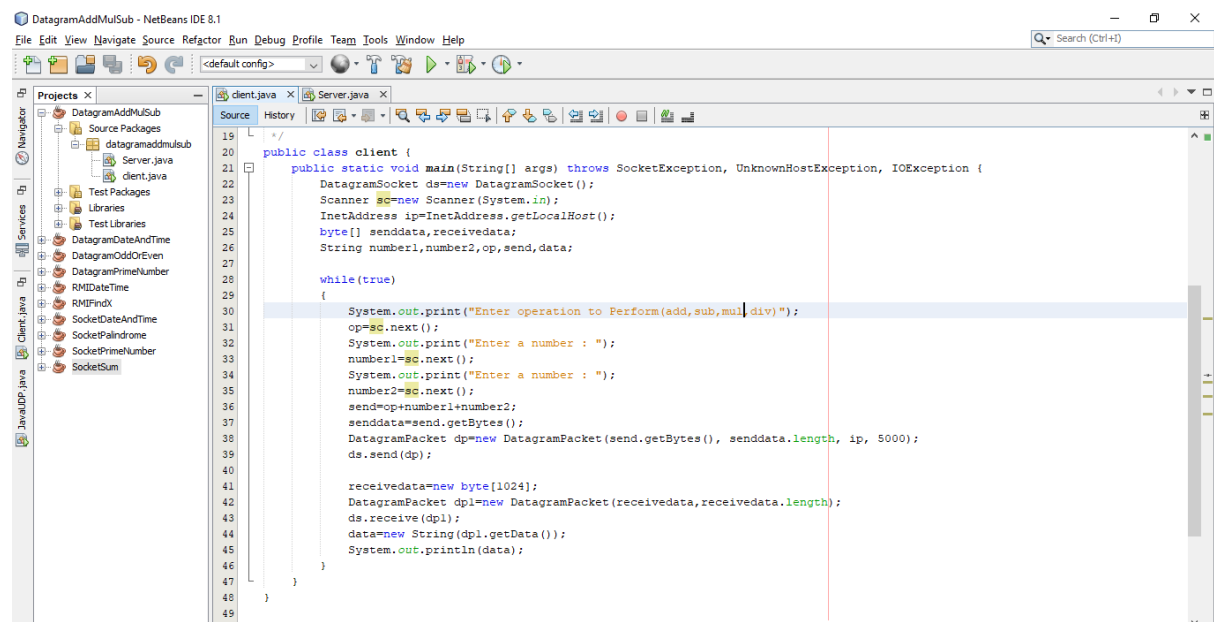
## Implement a Server calculator containing ADD(), MUL(), SUB() with datagram

### Server



```
17  * @author TechnoBoy
18  */
19  public class Server {
20      public static void main(String[] args) throws SocketException, UnknownHostException, IOException {
21          DatagramSocket ds=new DatagramSocket(5000);
22          System.out.println("Server Ready!!!");
23          InetAddress ip=InetAddress.getLocalHost();
24          byte[] receiveddata=new byte[1024];
25          int no1,no2;
26          String number,data = null;
27          while(true)
28          {
29              DatagramPacket dp=new DatagramPacket(receiveddata, receiveddata.length);
30              ds.receive(dp);
31              number=new String(dp.getData()).toLowerCase();
32              no1=Integer.parseInt(String.valueOf(number.charAt(3)));
33              no2=Integer.parseInt(String.valueOf(number.charAt(4)));
34              if(number.contains("add")){
35                  data="Addition of "+no1+" & "+no2+" : "+String.valueOf(no1+no2);
36              }
37              else if(number.contains("sub")){
38                  data="Subtraction of "+no1+" & "+no2+" : "+String.valueOf(no1-no2);
39              }
40              else if(number.contains("mul")){
41                  data="Multiplication of "+no1+" & "+no2+" : "+String.valueOf(no1*no2);
42              }
43              else if(number.contains("div")){
44                  data="Division of "+no1+" & "+no2+" : "+String.valueOf(no1/no2);
45              }
46              DatagramPacket dpl;
47              dpl = new DatagramPacket(data.getBytes(), data.length(), ip, dp.getPort());
48              ds.send(dpl);
49          }
50      }
51  }
```

### Client

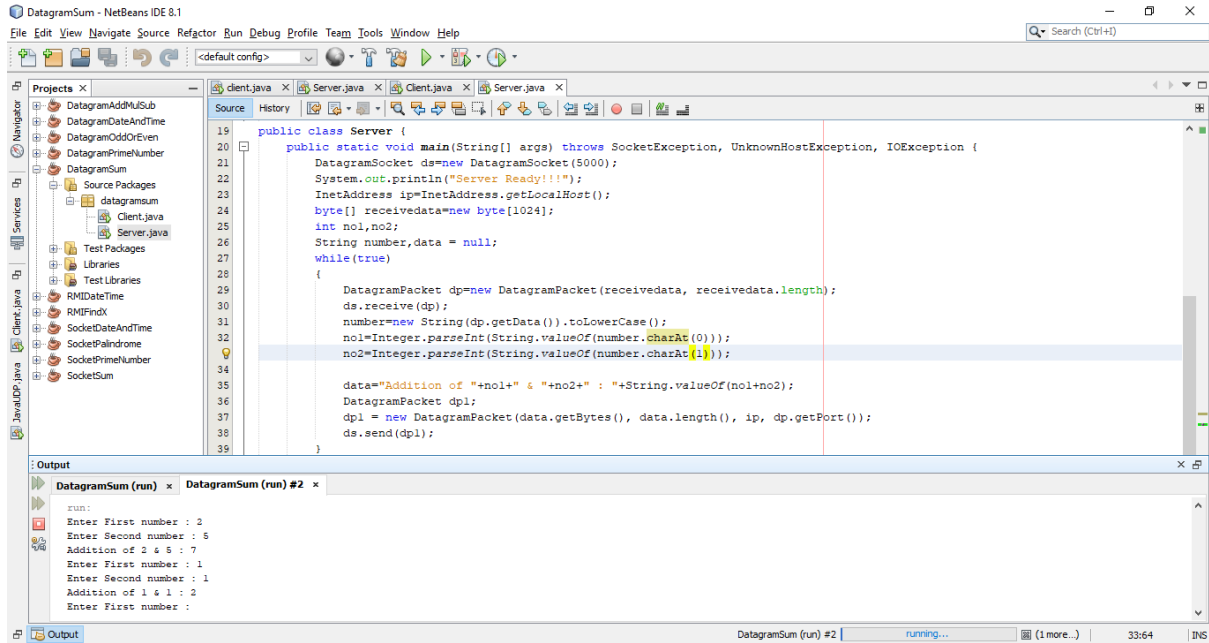


```
19  public class client {
20      public static void main(String[] args) throws SocketException, UnknownHostException, IOException {
21          DatagramSocket ds=new DatagramSocket();
22          Scanner sc=new Scanner(System.in);
23          InetAddress ip=InetAddress.getLocalHost();
24          byte[] senddata,receiveddata;
25          String number1,number2,op,send,data;
26
27          while(true)
28          {
29              System.out.print("Enter operation to Perform(add,sub,mul,div)");
30              op=sc.next();
31              System.out.print("Enter a number : ");
32              number1=sc.next();
33              System.out.print("Enter a number : ");
34              number2=sc.next();
35              send=op+number1+number2;
36              senddata=send.getBytes();
37              DatagramPacket dp=new DatagramPacket(senddata, senddata.length, ip, 5000);
38              ds.send(dp);
39
40              receiveddata=new byte[1024];
41              DatagramPacket dpl=new DatagramPacket(receiveddata,receiveddata.length);
42              ds.receive(dpl);
43              data=new String(dpl.getData());
44              System.out.println(data);
45          }
46      }
47  }
```

**UNIVERSITY OF MUMBAI Practical Examination – November 2018 M.C.A Semester – V**  
**LABORATORY L502 [Open Source System for ADC Lab]**

## Implement a Server which calculates sum of two numbers using Datagram socket

### Server.java



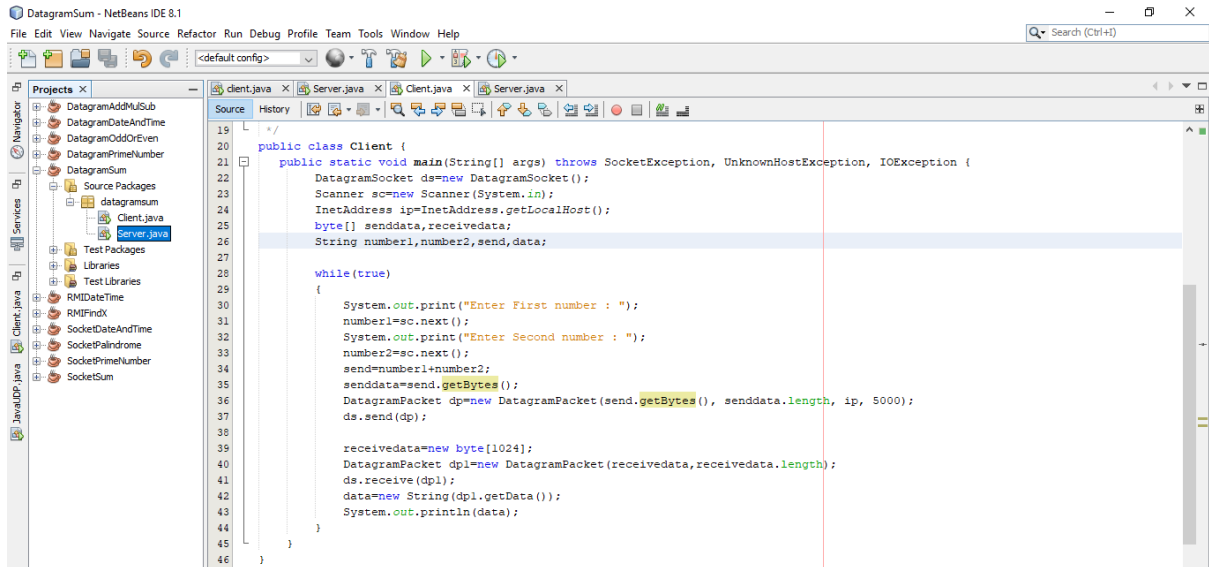
The screenshot shows the NetBeans IDE with the `Server.java` file open. The code implements a server that listens for incoming datagram packets, receives two numbers, calculates their sum, and sends the result back to the client. The output window shows the server's execution, including prompts for the first and second numbers and the resulting sum.

```
19 public class Server {
20     public static void main(String[] args) throws SocketException, UnknownHostException, IOException {
21         DatagramSocket ds=new DatagramSocket(5000);
22         System.out.println("Server Ready!!!");
23         InetAddress ip=InetAddress.getLocalHost();
24         byte[] receivedata=new byte[1024];
25         int no1,no2;
26         String number,data = null;
27         while(true)
28         {
29             DatagramPacket dp=new DatagramPacket(receivedata, receivedata.length);
30             ds.receive(dp);
31             number=new String(dp.getData()).toLowerCase();
32             no1=Integer.parseInt(String.valueOf(number.charAt(0)));
33             no2=Integer.parseInt(String.valueOf(number.charAt(1)));
34
35             data="Addition of "+no1+" & "+no2+" : "+String.valueOf(no1+no2);
36             DatagramPacket dpl;
37             dpl = new DatagramPacket(data.getBytes(), data.length(), ip, dp.getPort());
38             ds.send(dpl);
39         }
40     }
41 }
```

Output:

```
run:
Enter First number : 2
Enter Second number : 5
Addition of 2 & 5 : 7
Enter First number : 1
Enter Second number : 1
Addition of 1 & 1 : 2
Enter First number :
```

### Client.java



The screenshot shows the NetBeans IDE with the `Client.java` file open. The code implements a client that prompts the user for two numbers, calculates their sum, and sends the result to the server. The code is partially visible, showing the main method and the logic for sending and receiving data.

```
19 /*
20  */
21 public class Client {
22     public static void main(String[] args) throws SocketException, UnknownHostException, IOException {
23         DatagramSocket ds=new DatagramSocket();
24         Scanner sc=new Scanner(System.in);
25         InetAddress ip=InetAddress.getLocalHost();
26         byte[] senddata,receivedata;
27         String number1,number2,send,data;
28
29         while(true)
30         {
31             System.out.print("Enter First number : ");
32             number1=sc.next();
33             System.out.print("Enter Second number : ");
34             number2=sc.next();
35             send=number1+number2;
36             senddata=send.getBytes();
37             DatagramPacket dp=new DatagramPacket(senddata, senddata.length, ip, 5000);
38             ds.send(dp);
39
40             receivedata=new byte[1024];
41             DatagramPacket dpl=new DatagramPacket(receivedata,receivedata.length);
42             ds.receive(dpl);
43             data=new String(dpl.getData());
44             System.out.println(data);
45         }
46     }
47 }
```