SOCKET PROGRAMMING

CALCULATOR

MCA – SY

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ROLL NO.: 15

GR NO.: 17C014

SOCKET PROGRAMMIG:

A socket is one of the most fundamental technologies of **computer network programming**. Sockets allow network software applications to communicate using standard mechanisms built into network hardware and operating systems.

CALCULATOR:

Something used for making mathematical calculations, and combined with socket programming we can provide input from one system .

CLIENT CODE:

```
import java.net.*;

import java.io.*;

import java.util.Scanner;

import java.io.BufferedInputStream;

import java.io.DataInputStream;


public class GreetingClient {


   public static void main(String [] args) {

      String serverName = args[0];

      int port = Integer.parseInt(args[1]);

      try {

         System.out.println("Connecting to " + serverName + " on port "
+ port);

         Socket client = new Socket(serverName, port);
```

```
        System.out.println("Just connected to " +
client.getRemoteSocketAddress());
        OutputStream outToServer = client.getOutputStream();
        DataInputStream inputLine=null;
        DataOutputStream out = new DataOutputStream(outToServer);
        //DataInputStream in = new DataInputStream(inFromServer);


                Scanner input = new Scanner(System.in);
        out.writeUTF("Hello from " + client.getLocalSocketAddress());


        InputStream inFromServer = client.getInputStream();
        DataInputStream in = new DataInputStream(inFromServer);



        System.out.println("Enter the First element of calculator:");
                int a = input.nextInt();
                out.writeUTF(Integer.toString(a));
                System.out.println("Enter the Second element of
calculator:");
                int b = input.nextInt();
                out.writeUTF(Integer.toString(b));
                System.out.println("Enter the Operator of calculator:");
                String c = new String(input.next());
                out.writeUTF(c);
```

```
       System.out.println("\nThe result is:"+in.readUTF());
       client.close();
  } catch (IOException e) {
   e.printStackTrace();
  }
 }
}
```

SERVER CODE:

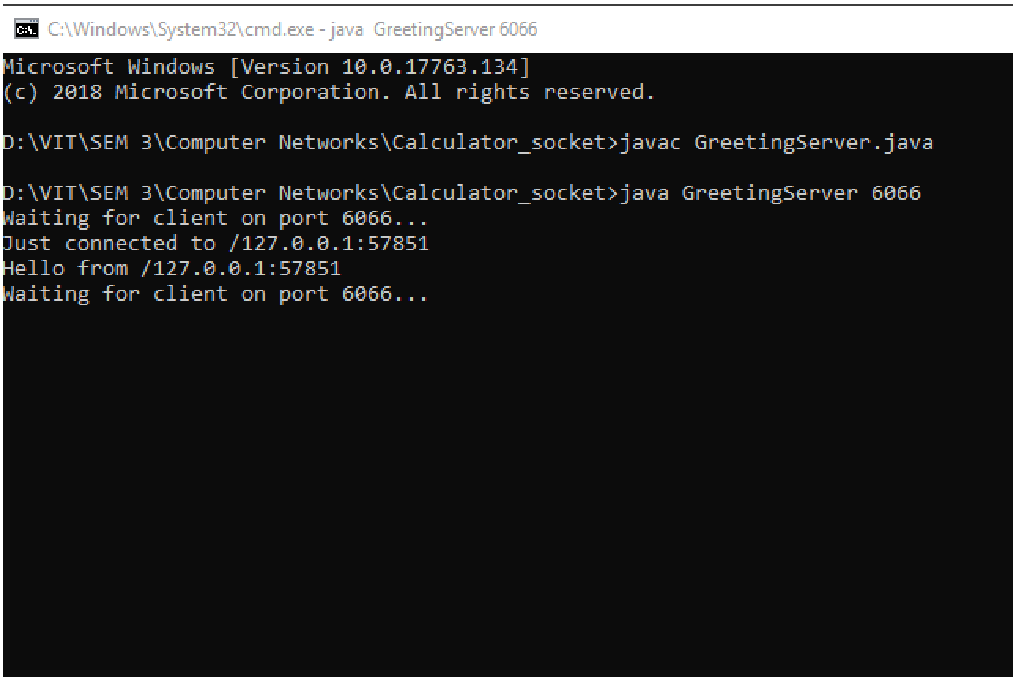
```
// File Name GreetingServer.java
import java.net.*;
import java.io.*;
import java.util.*;
import java.io.DataInputStream;
import java.io.IOException;
import java.io.PrintStream;
import java.net.ServerSocket;
import java.net.Socket;


public class GreetingServer extends Thread {
 private ServerSocket serverSocket;
 // private String name,age,food;
 String line;
 PrintStream os;
```

```
public GreetingServer(int port) throws IOException {
   serverSocket = new ServerSocket(port);
   serverSocket.setSoTimeout(100000);
}

public static int addition(int a,int b){

  return(a+b);
}

public static int subtraction(int a,int b){
  return(a-b);
}

public static int division(int a,int b){
  return(a/b);
}

public static int multiplication(int a,int b){
  return(a*b);
}

public static int Calculator(int a,int b,String c)
{
```

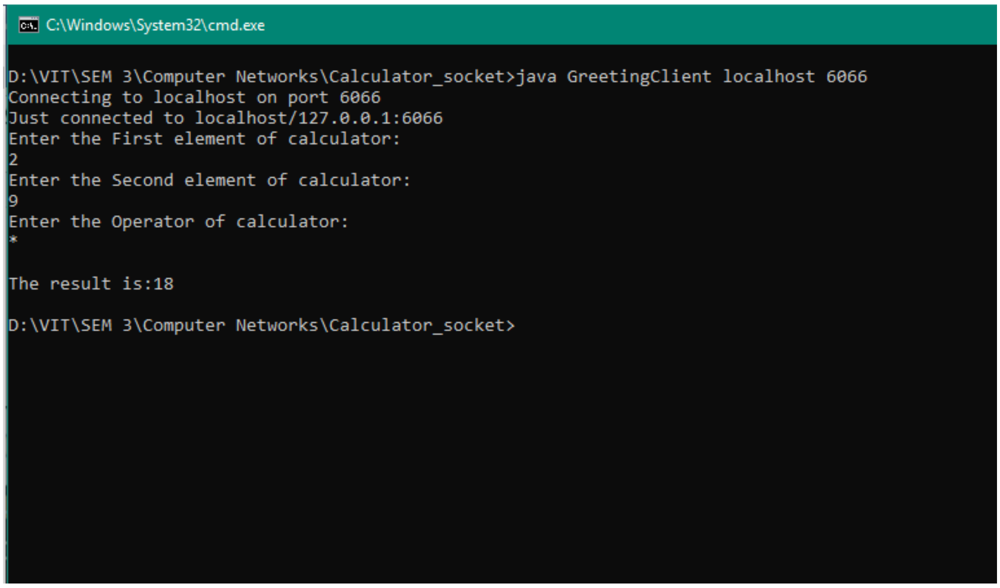
```
int res=0;
 if (c.equals("+")){
    res =addition(a,b);
 }
 else if (c.equals("-")){
    res = subtraction(a,b);
 }
 else if (c.equals("/")){
    res = division(a,b);
 }
 else if (c.equals("*")){
    res = multiplication(a,b);
 }

 return(res);
}

public void run() {
  while(true) {
    try {
      System.out.println("Waiting for client on port " +
      serverSocket.getLocalPort() + "...");
      Socket server = serverSocket.accept();
```

```
        System.out.println("Just connected to " +
server.getRemoteSocketAddress());
        DataInputStream in = new
DataInputStream(server.getInputStream());

        System.out.println(in.readUTF());
        DataOutputStream out = new
DataOutputStream(server.getOutputStream());
        int a  = Integer.parseInt(in.readUTF());
        int b  = Integer.parseInt(in.readUTF());
        String c = in.readUTF();
        int result = Calculator(a,b,c);
        out.writeUTF(Integer.toString(result));
                      server.close();

      } catch (SocketTimeoutException s) {
        System.out.println("Socket timed out!");
        break;
      } catch (IOException e) {
        e.printStackTrace();
        break;
      }
    }
  }
  public static void main(String [] args) {
        int port = Integer.parseInt(args[0]);

        try {
      Thread t = new GreetingServer(port);
      t.start();
    } catch (IOException e) {
      e.printStackTrace();
    }
  }



}
```

OUTPUT:



```
Microsoft Windows [Version 10.0.17763.134]
(c) 2018 Microsoft Corporation. All rights reserved.

D:\VIT\SEM 3\Computer Networks\Calculator_socket>javac GreetingServer.java

D:\VIT\SEM 3\Computer Networks\Calculator_socket>java GreetingServer 6066
Waiting for client on port 6066...
Just connected to /127.0.0.1:57851
Hello from /127.0.0.1:57851
Waiting for client on port 6066...
```



```
D:\VIT\SEM 3\Computer Networks\Calculator_socket>java GreetingClient localhost 6066
Connecting to localhost on port 6066
Just connected to localhost/127.0.0.1:6066
Enter the First element of calculator:
2
Enter the Second element of calculator:
9
Enter the Operator of calculator:
*

The result is:18

D:\VIT\SEM 3\Computer Networks\Calculator_socket>
```