Practical No. 2

1. Write a java program to implement a Server calculator using RPC concept.

Client.java

```
package Praticalno2;

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.util.Scanner;

public class Client {
DatagramSocket udpSocket;
InetAddress serverAddress;
int port;
Scanner scanner;
public Client(int port) {
this.port = port;
}
public void sendReq() {
String in;
try {
udpSocket = new DatagramSocket();
InetAddress host = InetAddress.getLocalHost();
serverAddress = InetAddress.getByName(host.getHostName());
BufferedReader keyRead = new BufferedReader(new InputStreamReader(System.in));
System.out.println("UDP Client started at " + InetAddress.getLocalHost());
String paramlist="";
System.out.println("EnterMethod:\n1.Addition:\n2.Subtraction\n3.Multiplication\
n4.Devision");in = keyRead.readLine();
paramlist=paramlist+in+"-";
System.out.println("Enter Number 1:");
in = keyRead.readLine();
paramlist=paramlist+in+"-";
System.out.println("Enter Number 2:");
in = keyRead.readLine();
paramlist=paramlist+in;
DatagramPacket p = new
DatagramPacket(paramlist.getBytes(), paramlist.getBytes().length,
serverAddress, port);
udpSocket.send(p);
}
catch(Exception e) {
System.out.println(e.getMessage());
}
}
public static void main(String[] args) {
Client sender = new Client(5000);
sender.sendReq();
}
}
```

Output:

```
Console × Console Console
<terminated> Client (1) [Java Application] /home/anil/Public/ec
UDP Client started at Anil-R/127.0.1.1
EnterMethod:
1.Addition:
2.Subtraction
3.Multiplication
4.Devision
3
Enter Number 1:
12
Enter Number 2:
15
```

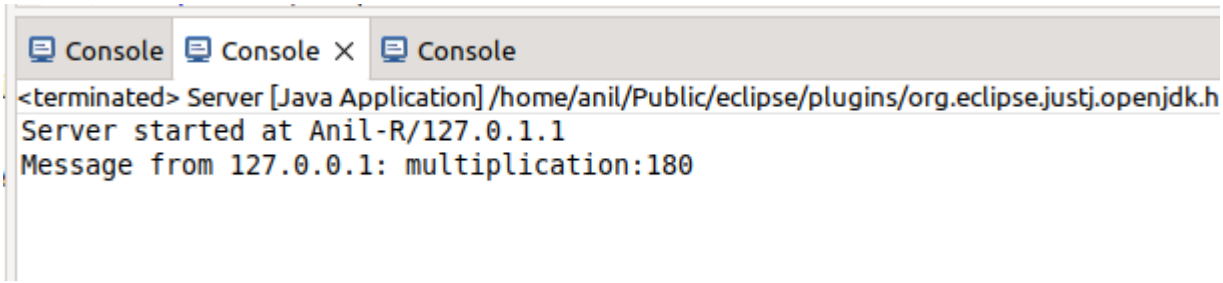
Server.java

```
package Praticalno2;

import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.util.StringTokenizer;

public class Server {
private DatagramSocket udpSocket;
private int port;
public Server(int port) {
this.port = port;
}
public static int addition(int num1,int num2)
{
return num1+num2;
}
public static int substraction(int num1,int num2)
{
return num1-num2;
}
public static int multiplication(int num1,int num2)
{
return num1*num2;
}
public static int division(int num1,int num2)
{
return num1/num2;
}
private void listen() {
try {DatagramSocket udpSocket = new DatagramSocket(port);
System.out.println("Server started at " + InetAddress.getLocalHost());
String msg;
byte[] buf = new byte[1024];
DatagramPacket packet = new DatagramPacket(buf, buf.length);
// blocks until a packet is received
udpSocket.receive(packet);
msg = new
String(packet.getData()).trim();
StringTokenizer str=new StringTokenizer(msg,"-");
int mthNo=Integer.parseInt(str.nextToken());
int num1=Integer.parseInt(str.nextToken());int
num2=Integer.parseInt(str.nextToken());int result;
if(mthNo==1)
{
result=addition(num1,num2);
msg="Addition:"+result;
}
if(mthNo==2)
{
result=substraction(num1,num2);
msg="substraction:"+result;
}
if(mthNo==3)
{
result=multiplication(num1,num2);
msg="multiplication:"+result;
}
if(mthNo==4)
{
```

```
result=division(num1,num2);
msg="division:"+result;
}System.out.println("Message from " + packet.getAddress().getHostAddress() + ":
" +
msg);
}
catch(Exception e) {
System.out.println(e.getMessage());
}
finally {
//udpSocket.close();
}
}
public static void main(String[] args) {
Server client = new Server(5000);
client.listen();
}
}
```

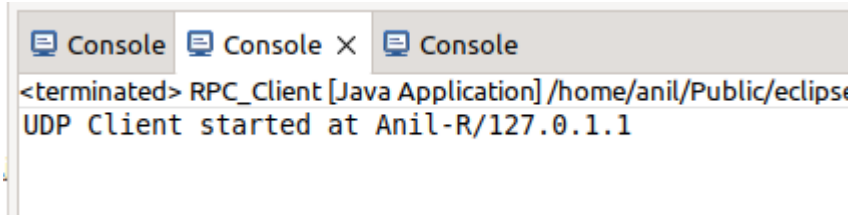


Q2. Write a java to implement a Date Time Server using RPC concept.
RPC_Client.java

```
package Praticalno2;

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.time.LocalDateTime;
import java.util.Scanner;
public class RPC_Client
{DatagramSocket udpSocket;
InetAddress serverAddress;
int port;
Scanner scanner;
public RPC_Client(int port) {
this.port = port;
}
public void sendReq() {
String in;
try {
udpSocket = new DatagramSocket();
InetAddress host = InetAddress.getLocalHost();
serverAddress = InetAddress.getByName(host.getHostName());
BufferedReader keyRead = new BufferedReader(new
```

InputStreamReader(System.in));
System.out.println("UDP Client started at " +
InetAddress.getLocalHost());
String paramlist="";
DatagramPacket p = new DatagramPacket(paramlist.getBytes(),
paramlist.getBytes().length, serverAddress, port); udpSocket.send(p);
}
catch(Exception e) {
System.out.println(e.getMessage());
}
}
public static void main(String[] args) {
RPC_Client sender = new RPC_Client(5000);
sender.sendReq();
}
}



RPC_Server.java

```
package Praticalno2;

import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.time.LocalDateTime;

public class RPC_Server {
private
DatagramSocket udpSocket;
private int port;
public RPC_Server(int port)
{
this.port = port;}
public static LocalDateTime date()
{
return java.time.LocalDateTime.now();
}
private void listen() {
try {
DatagramSocket udpSocket = new DatagramSocket(port);
System.out.println("Server started at " +
InetAddress.getLocalHost());
LocalDateTime msg;
byte[] buf = new byte[1024];
DatagramPacket packet = new DatagramPacket(buf,
buf.length);
// blocks until a packet is received
udpSocket.receive(packet);
msg=date();
System.out.println("Message from " +
```

```
packet.getAddress().getHostAddress() + ": " + msg);
}
catch(Exception e) {
System.out.println(e.getMessage());
}
finally {
//udpSocket.close();
}
}
public static void main(String[] args) {
Server client = new Server(5000);
client.listen();
}
}
```