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CL-9

BE-9 P9

Roll No. 43104

### Assignment 1 C

Power Calculation: Design a distributed application which consist of a client server communication using TCP, UDP & RMI techniques in Java. Multiple clients can simultaneously connect to the server and send messages of the format -> (a, b) where a and bare integers and server returns the value  $a^b$  (a raised to b).

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#### // Power Calculation: using RMI

##### // PowInterface.java

```
// Creating a PowInterface interface
import java.rmi.Remote;
import java.rmi.RemoteException;
public interface PowInterface extends Remote {
    // Declaring the method prototype
    public double pow(double x, double y) throws RemoteException;
}
```

##### // Impl.java

```
// Java program to implement the PowInterface
import java.rmi.*;
import java.rmi.server.*;
import java.lang.Math;
public class Impl extends UnicastRemoteObject
    implements PowInterface
{
    // Default constructor to throw RemoteException
    // from its parent constructor
    public Impl() throws Exception { super(); }
    // Implementation of the PowInterface,
    public double pow(double x, double y) { return Math.pow(x, y); }
}
```

##### // Client.java

```
// Program for client application
import java.rmi.*;
import java.util.*;
public class Client {
    public static void main(String[] args) throws Exception
    {
        Scanner sc = new Scanner(System.in);
        while (true) {
            // User Menu
            System.out.println(
                "\n1.Power function\n2.Exit");
            System.out.println("Enter the option:");
            int opt = sc.nextInt();
            if (opt == 2) {
                break;
            }
            System.out.println(
```

```

        "Enter the the first number:");
double a = sc.nextDouble();
System.out.println("Enter the second number:");
double b = sc.nextDouble();
double n;
    // lookup method to find reference of remote
    // object
    PowInterface obj
        = (PowInterface)Naming.lookup("POW");
    n = obj.pow(a, b);
    System.out.println(a + " raised to " + b + " = " + n);
    }
}

```

## // Server.java

// Program for server application

```

import java.rmi.*;
import java.rmi.registry.*;
public class Server {
    public static void main(String[] args) throws Exception
    {
        // Create an object of the interface implementation class
        Impl obj = new Impl();
        // Binds the remote object by the name POW
        Naming.rebind("POW", obj);
        System.out.println("Server Started");
    }
}

```

// OUTPUT

