**PRACTICAL 2.2**

**AIM:**

Write RMI application where client will input two matrices from User and One Server will Multiply them and Second Server will add given matrices. Client will print results on its output screen. (Matrix can be initialized or taken from user).

**CODE:**

**RemoteInterfaceAdd.java**

import java.rmi.\*;

public interface RemoteInterfaceAdd extends Remote {

public int[][] add(int[][] x, int[][] y) throws RemoteException;

}

**ServerAdd.java**

import java.rmi.\*;

import java.rmi.server.\*;

public class ServerAdd extends UnicastRemoteObject implements RemoteInterfaceAdd {

public ServerAdd() throws RemoteException{

super();

}

public int[][] add(int[][] x, int[][] y) {

int[][] sum = new int[3][];

for(int i=0; i<3; i++) {

sum[i] = new int[3];

for(int j=0; j<3; j++)

sum[i][j] = x[i][j] + y[i][j];

}

return sum;

}

}

**RemoteInterfaceMul.java**

import java.rmi.\*;

public interface RemoteInterfaceMul extends Remote {

public int[][] multiply(int[][] x, int[][] y) throws RemoteException;

}

**ServerMul.java**

import java.rmi.\*;

import java.rmi.server.\*;

public class ServerMul extends UnicastRemoteObject implements RemoteInterfaceMul {

public ServerMul() throws RemoteException{

super();

}

public int[][] multiply(int[][] x, int[][] y) {

int[][] mul = new int[3][];

for(int i=0; i<3; i++) {

mul[i] = new int[3];

for(int j=0; j<3; j++) {

mul[i][j] = 0;

for(int k=0; k<3; k++)

mul[i][j] += x[i][k] \* y[k][j];

}

}

return mul;

}

}

**Registration.java**

import java.rmi.\*;

import java.net.\*;

public class Registration {

public static void main(String[] args){

try {

ServerAdd sa=new ServerAdd();

Naming.rebind("ADD",sa);

ServerMul sm=new ServerMul();

Naming.rebind("MUL",sm);

System.out.println("Bindins Successful. Server Started");

} catch(Exception e) {

System.out.println(e.getMessage());

}

}

}

**Client.java**

import java.rmi.\*;

import java.io.\*;

import java.util.Scanner;

public class Client {

public static void main(String[] args) {

Scanner in = new Scanner(System.in);

int i, j;

int[][] matrix1 = {{1, 1, 1},{2, 2, 2},{3, 3, 3}};

int[][] matrix2 = {{3, 3, 3},{2, 2, 2},{1, 1, 1}};

int[][] result = new int[3][];

try {

System.out.println("Enrollment No.: 130050131525");

String ip="rmi://localhost/";

RemoteInterfaceAdd sa = (RemoteInterfaceAdd)Naming.lookup(ip + "ADD");

RemoteInterfaceMul sm = (RemoteInterfaceMul)Naming.lookup(ip + "MUL");

System.out.println("Matrix 1 [3x3]:");

for(i=0; i<3; i++){

for(j=0; j<3; j++)

System.out.print(matrix1[i][j] + "\t");

System.out.println();

}

System.out.println("Matrix 2 [3x3]:");

for(i=0; i<3; i++){

for(j=0; j<3; j++)

System.out.print(matrix2[i][j] + "\t");

System.out.println();

}

result = sa.add(matrix1, matrix2);

System.out.println("Sum:");

for(i=0; i<3; i++){

for(j=0; j<3; j++)

System.out.print(result[i][j] + "\t");

System.out.println();

}

result = sm.multiply(matrix1, matrix2);

System.out.println("Product:");

for(i=0; i<3; i++){

for(j=0; j<3; j++)

System.out.print(result[i][j] + "\t");

System.out.println();

}

} catch(Exception e) {

e.printStackTrace();

}

}

}

**OUTPUT:**





