

Ex No :2**REMOTE METHOD INVOCATION****Date:****Aim:**

To execute a program using RMI in both pc and Virtual machine and compare the execution of the both.

Code:**Client:****Client:**

```
import java.rmi.*;

import java.util.*;

public class MyClient{

public static void main(String args[]){

try{

long start = System.currentTimeMillis();

Adder stub=(Adder)Naming.lookup("rmi://localhost:2228/navin");

Scanner s = new Scanner(System.in);

System.out.println("Enter number: ");

int num1 = s.nextInt();

System.out.println("Enter another number: ");

int num2 = s.nextInt();

System.out.println("1. Add\n2. Subtract\n3. Multiply\n4. Divide\n");

int ch = s.nextInt();
```

```
if(ch==1)

{

System.out.println(stub.add(num1,num2));

}

else if(ch==2)

{

System.out.println(stub.subtract(num1,num2));

}

else if(ch==3)

{

System.out.println(stub.multiply(num1,num2));

}

else if(ch==4)

{

System.out.println(stub.divide(num1,num2));

}

else{

System.out.println("Wrong option");

}

long end = System.currentTimeMillis();

long t = end - start;

System.out.println("Time Taken(milliseconds) "+t);

}catch(Exception e){System.out.println(e);}

}
```

```
}
```

Server:

```
import java.rmi.*;

import java.rmi.registry.*;

public class MyServer{

    public static void main(String args[]){

        try{

            Adder stub=new AdderRemote();

            Naming.rebind("rmi://localhost:2228/navin",stub);

        }catch(Exception e){System.out.println(e);}

    }

}
```

Adder.java:

```
import java.rmi.*;

public interface Adder extends Remote{

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

    public int subtract(int x,int y)throws RemoteException;

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

    public int divide(int x,int y)throws RemoteException;

}
```

AdderRemote.java:

```
import java.rmi.*;

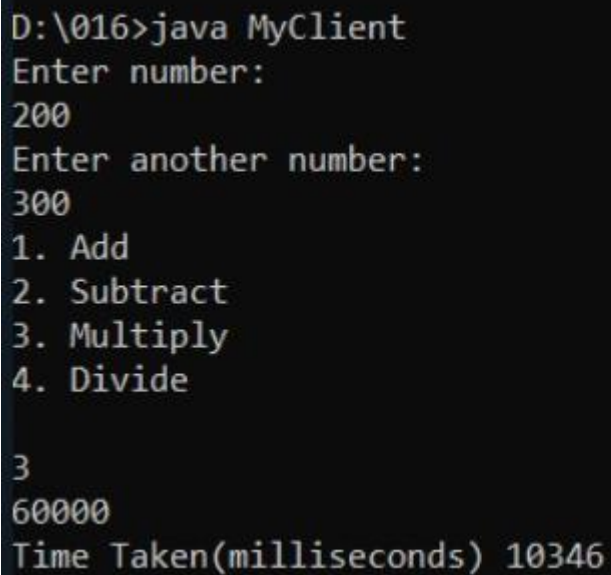
import java.rmi.server.*;

public class AdderRemote extends UnicastRemoteObject implements
Adder{ AdderRemote()throws RemoteException{
    super();
```

```
}  
  
public int add(int x,int y){return x+y;}  
  
public int subtract(int x,int y){return x-y;}  
  
public int multiply(int x,int y){return x*y;}  
  
public int divide(int x,int y){return x/y;}  
  
}
```

Output:

In PC



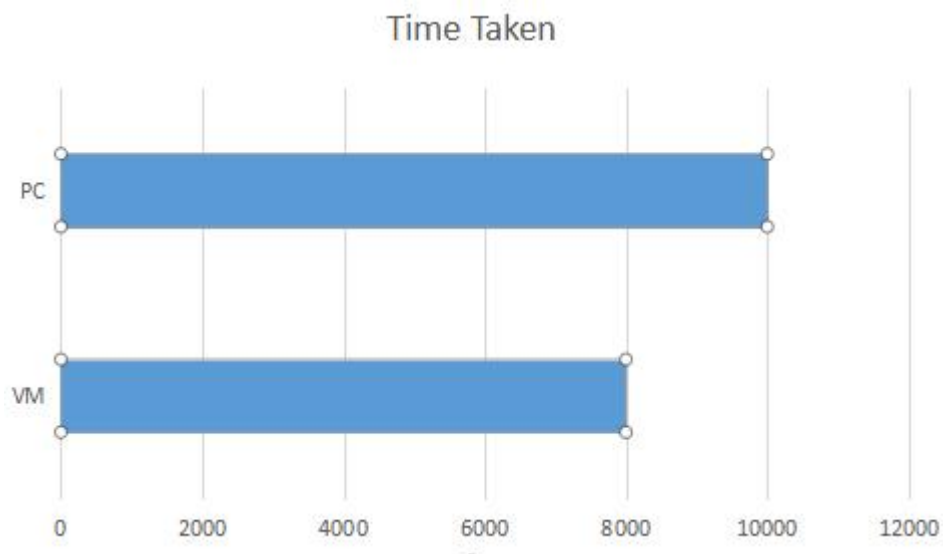
```
D:\016>java MyClient  
Enter number:  
200  
Enter another number:  
300  
1. Add  
2. Subtract  
3. Multiply  
4. Divide  
  
3  
60000  
Time Taken(milliseconds) 10346
```

In Virtual Machine

```
tce@tce-VirtualBox:~/Desktop$ javac MyClient.java
tce@tce-VirtualBox:~/Desktop$ java MyClient
Enter number:
200
Enter another number:
300
1. Add
2. Subtract
3. Multiply
4. Divide

3
60000
Time taken (milliseconds): 7943
```

Comparing both the execution time



Result:

Thus the calculator program has been executed using RMI in both PC and Virtual Machine and has been compared.