TRINITY INTERNATIONAL COLLEGE

(Tribhuvan University Affiliated)

Lab Report:8 RMI and CORBA

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Unit 8: RMI and CORBA

1)Use RMI to develop programs that runs in different machines. [2070]

Program:

Client.java

```
package pkg1_rmi_client;
import compute.*;
import java.rmi.*;

public class Client {
    public static void main(String[] args) {
        try {
            String url = "rmi://127.0.0.1:8888/server";
            compute server = (compute)Naming.lookup(url);
            double result = server.add(50, 15);
            System.out.println("result = " + result);
        }
        catch(Exception e) {
            System.err.println("Remote exception: ");
            e.printStackTrace();
        }
    }
}
```

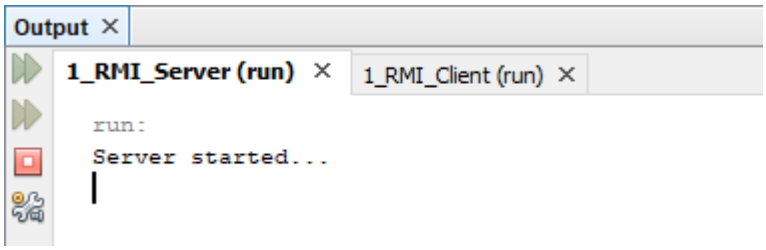
Server.java

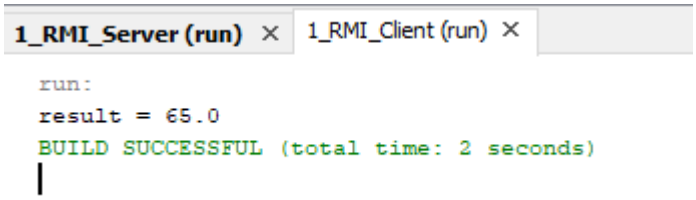
```
package pkg1_rmi_server;
import compute.*;
import java.rmi.*;
import java.rmi.registry.*;
import java.rmi.server.*;

public class Server implements compute {
    @Override
    public double add(double a, double b) throws RemoteException {
        return a + b;
    }
    public static void main(String[] args) {
        try {
            compute server = new Server();
            final int PORT = 8888;
            Registry registry = LocateRegistry.createRegistry(PORT);
            UnicastRemoteObject.exportObject(server, PORT);
            registry.rebind("server", server);
            System.out.println("Server started...");
        } catch(Exception e) {
            System.err.println("ComputeEngine exception:");
            e.printStackTrace();
        }
```

```
    }
}
```

Compute.java

```
package compute;
import java.rmi.*;

public interface compute extends Remote {
    public double add(double a, double b)
        throws RemoteException;
}
```





2) Write distributed programs with client and server using RMI to find the area of a

a) Circle

Program:

CircleClient.java

```
package pkg2a_rmiclient_circle;

import compute.*;
import java.rmi.*;
import java.util.Scanner;

public class CircleClient {
    public static void main(String[] args) {
        try {
            String url = "rmi://127.0.0.1:1111/server";
            compute server = (compute)Naming.lookup(url);
            Scanner s=new Scanner(System.in);
            System.out.println("Program to calculate area of circle
!!!!");
            System.out.println("\nEnter the radius :");
```

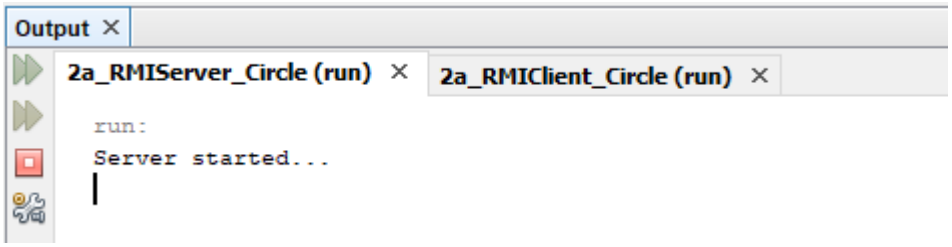
```
            double radius=s.nextDouble();

            double result = server.circlearea(radius);
            System.out.println("Area of Circle = " + result);
        }
        catch(Exception e) {
            System.err.println("Remote exception: ");
            e.printStackTrace();
        }
    }
}
```

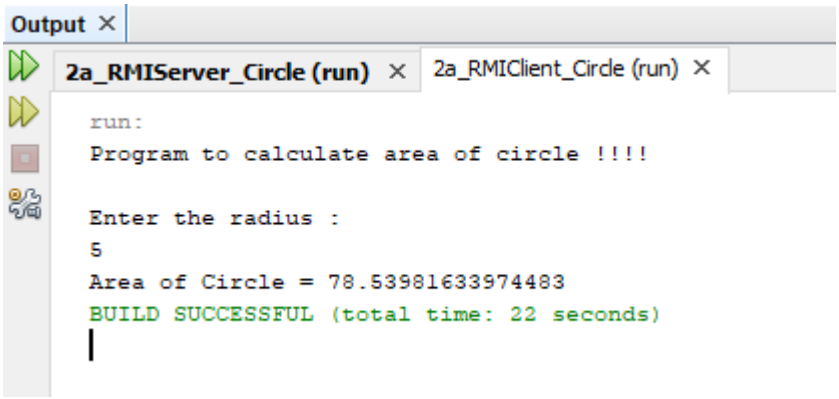
CircleServer.java

```
package pkg2a_rmiserver_circle;

import compute.*;
import static java.lang.Math.PI;
import java.rmi.*;
import java.rmi.registry.*;
import java.rmi.server.*;

public class CircleServer implements compute {
    @Override
    public double circlearea(double r) throws RemoteException {
        return PI*r*r;
    }
    public static void main(String[] args) {
        try {
            compute server = new CircleServer();
            final int PORT = 1111;
            Registry registry = LocateRegistry.createRegistry(PORT);
            UnicastRemoteObject.exportObject(server, PORT);
            registry.rebind("server", server);
            System.out.println("Server started...");
        } catch(Exception e) {
            System.err.println("ComputeEngine exception:");
            e.printStackTrace();
        }
    }
}
```

Compute.java

```
package compute;

import java.rmi.*;

public interface compute extends Remote {
    public double circlearea(double r)
        throws RemoteException;
}
```





b) Rectangle

Program:

ClientRectangle.java

```
package pkg2b_rmiclient_rectangle;

import compute.*;
import java.rmi.*;
import java.util.Scanner;

public class ClientRectangle {
    public static void main(String[] args) {
        try {
            String url = "rmi://127.0.0.1:2222/server";
            compute server = (compute)Naming.lookup(url);
            Scanner s=new Scanner(System.in);
            System.out.println("Program   to   calculate   area   of
rectangle !!!!");
            System.out.println("\nEnter the length :");
            double length=s.nextDouble();
            System.out.println("\nEnter the breadth");
            double breadth=s.nextDouble();

            double result = server.rectanglearea(length,breadth);
            System.out.println("Area of Rectangle = " + result);
        }
        catch(Exception e) {
            System.err.println("Remote exception: ");
            e.printStackTrace();
        }
```

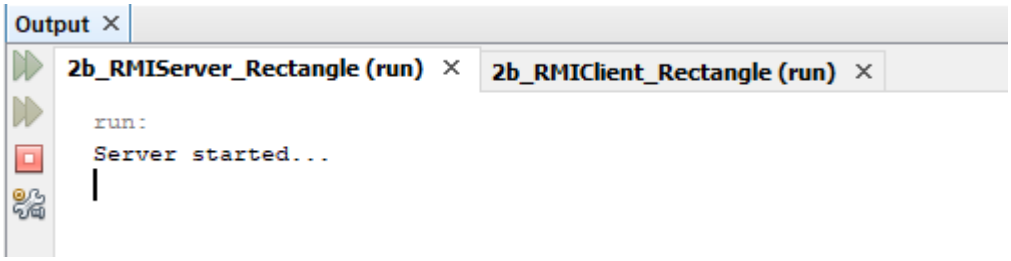
```
    }
}
```

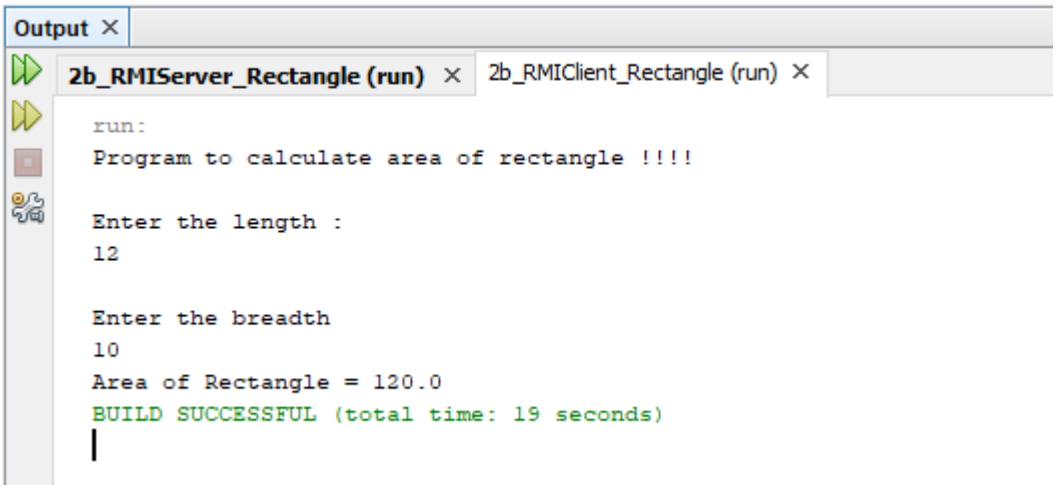
ServerRectangle.java

```
package pkg2b_rmiserver_rectangle;

import compute.*;
import java.rmi.*;
import java.rmi.registry.*;
import java.rmi.server.*;

public class ServerRectangle implements compute {
    @Override
    public double rectanglearea(double l,double b) throws
RemoteException {
        return l*b;
    }
    public static void main(String[] args) {
        try {
            compute server = new ServerRectangle();
            final int PORT = 2222;
            Registry registry = LocateRegistry.createRegistry(PORT);
            UnicastRemoteObject.exportObject(server, PORT);
            registry.rebind("server", server);
            System.out.println("Server started...");
        } catch(Exception e) {
            System.err.println("ComputeEngine exception:");
            e.printStackTrace();
        }
    }
}
```

Compute.java

```
package compute;

import java.rmi.*;

public interface compute extends Remote {
    public double rectanglearea(double l,double b)
        throws RemoteException;
}
```





c) Sphere

Program:

SphereClient.java

```
package pkg2c_rmiclient_sphere;

import compute.*;
import java.rmi.*;
import java.util.Scanner;

public class SphereClient {
    public static void main(String[] args) {
        try {
            String url = "rmi://127.0.0.1:3333/server";
            compute server = (compute)Naming.lookup(url);
            Scanner s=new Scanner(System.in);
            System.out.println("Program to calculate area of sphere
!!!!");
            System.out.println("\nEnter the radius :");
            double radius=s.nextDouble();


            double result = server.spherearea(radius);
            System.out.println("Area of Sphere = " + result);
        }
        catch(Exception e) {
            System.err.println("Remote exception: ");
            e.printStackTrace();
        }
    }
}
```

SphereServer.java

```
package pkg2c_rmiserver_sphere;

import compute.*;
import static java.lang.Math.PI;
import java.rmi.*;
import java.rmi.registry.*;
import java.rmi.server.*;

public class SphereServer implements compute {
    @Override
    public double spherearea(double r) throws RemoteException {
        return (double)(4*PI*r*r)/3;
    }
    public static void main(String[] args) {
        try {
            compute server = new SphereServer();
            final int PORT = 3333;
            Registry registry = LocateRegistry.createRegistry(PORT);
            UnicastRemoteObject.exportObject(server, PORT);
            registry.rebind("server", server);
            System.out.println("Server started...");
        } catch(Exception e) {
            System.err.println("ComputeEngine exception:");
            e.printStackTrace();
        }
    }
}
```

Compute.java

```
package compute;

import java.rmi.*;

public interface compute extends Remote {
    public double spherearea(double r)
        throws RemoteException;
}
```