

# **SASTRA DEEMED TO BE UNIVERSITY THANJAVUR**

Course Code: **CSE303**

Course Name: **Computer Networks Laboratory (CNL)**

## **CNL Manual**

Experiment Number: **3**

Experiment Name: **Implementation of Remote Method Invocation (RMI)**

Tools: **Java Programming**

Interface: **Character User Interface (CUI)**

### **Objectives**

- Learn the concepts of Remote Procedure Call and Remote Method Invocation
- Learn to develop applications which uses Distributed Objects
- Learn the working and significance of stub object (Client side) and Skeleton objects (Server side).

### **Procedures**

1. Creating an interface
  - Both client and server have to agree
2. Implementing the interface
  - Should contain the operational code
3. Creating the RMI server
  - Contains both class and interface
  - Binding with RMI registry (namespace, keeps server's object)
4. Creating the RMI client
  - Call Registry to obtain reference to remote object
5. Compiling and starting the server

Refer the below figures 1 and 2.

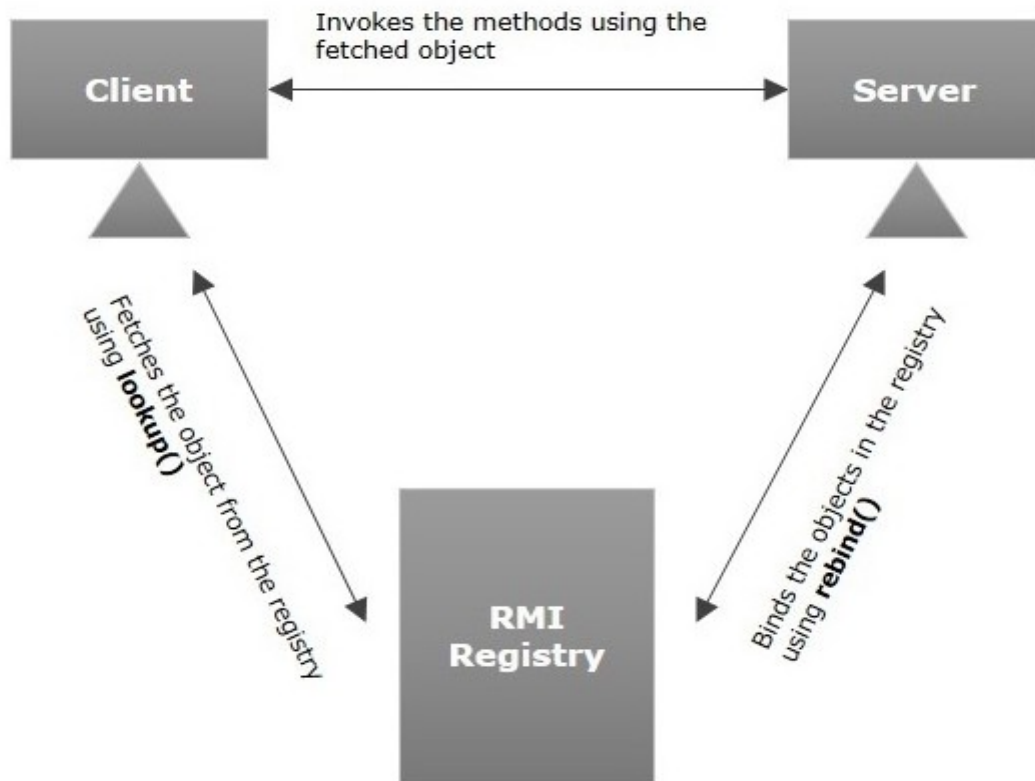


Figure 1: RMI Registry Process

( Ref: [https://www.tutorialspoint.com/java\\_rmi/java\\_rmi\\_introduction.htm](https://www.tutorialspoint.com/java_rmi/java_rmi_introduction.htm))

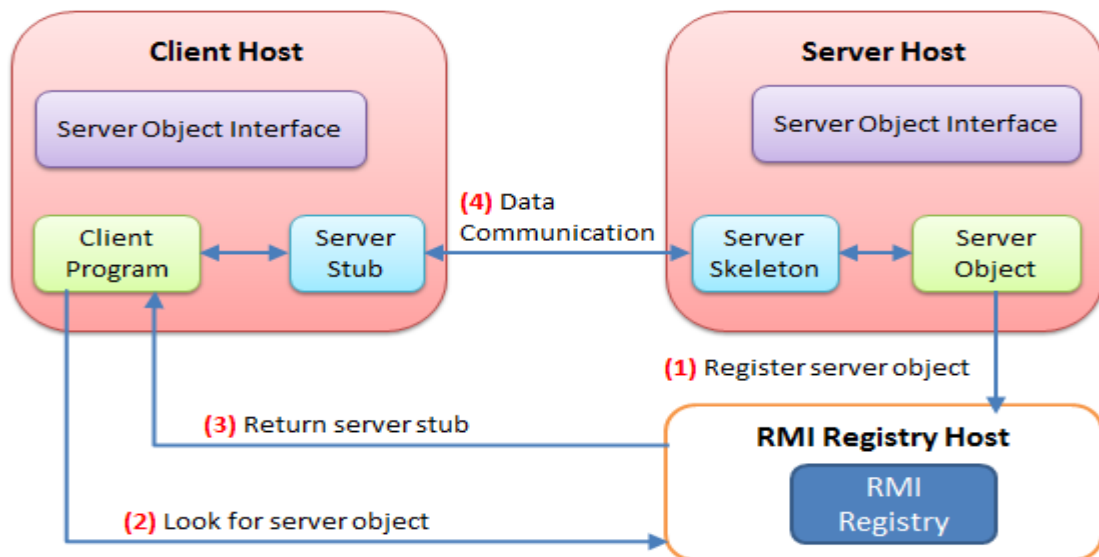


Figure 1: Implementation of RMI

(Ref: [https://1.bp.blogspot.com/-](https://1.bp.blogspot.com/-jermqESwjQ4/UpA7MYydVKI/AAAAAAAAAwQ/Eiia19mMqnU/s1600/Proxy+Design+Pattern.JPG)

[jermqESwjQ4/UpA7MYydVKI/AAAAAAAAAwQ/Eiia19mMqnU/s1600/Proxy+Design+Pattern.JPG](https://1.bp.blogspot.com/-jermqESwjQ4/UpA7MYydVKI/AAAAAAAAAwQ/Eiia19mMqnU/s1600/Proxy+Design+Pattern.JPG))

Input	Output
Add function, Parameters (operands)	Return value
200, 300	500

## To RUN

Open two command prompt and set the java path & class path (if not set)

1) Compile all java prog- java file(Client & Server), using `javac *.java`, in any one prompt

2) At Server-side, run RMIRegistry using: **start rmiregistry**, an additional prompt will be opened, and rmiregistry gets started. Do not close it until the demonstration is not finished.

4) Start server program using: **java MyServer**

```
C:\SASTRA\Computer Networks Lab\2021\Lab 3 - Impl_of_RMI>javac *.java
C:\SASTRA\Computer Networks Lab\2021\Lab 3 - Impl_of_RMI>start rmiregistry
C:\SASTRA\Computer Networks Lab\2021\Lab 3 - Impl_of_RMI>java MyServer
Server Started...
```

5) Run client program from another system or prompt using server ip: **java MyClient <IP or localhost>**

```
C:\SASTRA\Computer Networks Lab\2021\Lab 3 - Impl_of_RMI>java MyClient localhost
Addition: 500.0
```