**Remote method invocation**

**Steps in RMI**

1)Creation of remote interface

import java.rmi.\*;

public interface Adder extends Remote{

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

}

2) Provide the implementation of the remote interface

package com.company;

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;}

}

3) Create the RMIClient

package com.company;

import java.rmi.\*;

public class RMIClient{

public static void main(String args[]){

try{

Adder stub=(Adder)Naming.lookup("rmi://localhost:5000/add");

System.out.println(stub.add(34,4));

}catch(Exception e){}

}

}

4) Create the RMIServer

package com.company;

import java.rmi.\*;

import java.rmi.registry.\*;

public class RMIServer{

public static void main(String args[]){

try{

Adder stub=new AdderRemote();

Registry rgsty = LocateRegistry.createRegistry(5000);

Naming.rebind("rmi://localhost:5000/add",stub);

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

}

}

**Problem Statement**

**1.Consider an application that implements a remote dictionary. The dictionary offers four**

**operations: count to return the word count, insert to insert a word and its content, delete to**

**delete a word, and lookup to search for a word and return the content of the word.**

1)Creation of remote interface

package com.company;  
  
import java.rmi.\*;  
import java.util.Dictionary;  
  
interface dictionary extends Remote{  
 public boolean insert(String x,String y) throws RemoteException;  
 public int count()throws RemoteException;  
 public boolean delete(String x)throws RemoteException;  
 public String search(String x)throws RemoteException;  
 public Dictionary<String,String> showContent()throws RemoteException;  
}

2) Provide the implementation of the remote interface

package com.company;  
import java.rmi.\*;  
import java.rmi.server.\*;  
import java.util.\*;  
  
class DictionaryRemote extends UnicastRemoteObject implements dictionary{  
 Dictionary<String,String> dict= new Hashtable<>();  
 DictionaryRemote() throws RemoteException{  
 super();  
 }  
  
 public boolean insert(String x,String y) throws RemoteException{  
 dict.put(x,y);  
 return true;  
 }  
  
 public int count()throws RemoteException{  
 return dict.size();  
 }  
  
 public boolean delete(String x)throws RemoteException{  
 return dict.remove(x) != null;  
 }  
 public String search(String x)throws RemoteException{  
 if(dict.get(x)==null)  
 return "";  
 return dict.get(x);  
 }  
 public Dictionary<String,String> showContent()throws RemoteException{  
 return dict;  
 }  
}

3) Create the RMIClient

package com.company;  
import java.net.MalformedURLException;  
import java.rmi.\*;  
import java.util.Scanner;  
class RMIClient {  
 public static void main(String args[]) {  
 try {  
 int choice = 0;  
 String word, content;  
 Scanner sc = new Scanner(System.*in*);  
 dictionary stub = (dictionary) Naming.*lookup*("rmi://localhost:5000/add");  
 while (choice !=6) {  
 switch (choice) {  
 case 1:  
 System.*out*.println("Word Count in Dictionary is: " + stub.count());  
 break;  
 case 2:  
 System.*out*.println("Enter the word to be entered into Dictionary: ");  
 word = sc.next();  
 System.*out*.print("\nEnter the content of the word to be entered into Dictionary: ");  
 content = sc.next();  
  
 if (stub.insert(word, content))  
 System.*out*.println("Word entered into dictionary successfully");  
 else  
 System.*out*.println("Word not found!");  
  
 break;  
 case 3:  
 System.*out*.println("Enter the word to be deleted: ");  
 word = sc.next();  
 if (stub.delete(word))  
 System.*out*.println("Word deleted from dictionary successfully");  
 else  
 System.*out*.println("Word not found!");  
 break;  
 case 4:  
 System.*out*.println("Enter the word to be looked up: ");  
 word = sc.next();  
 if("".equals(stub.search(word)))  
 System.*out*.println("Word not found!");  
 else  
 System.*out*.println("The Content of the word is: " + stub.search(word));  
 break;  
 case 5:  
 System.*out*.println("The Entire Dictionary is: "+stub.showContent());  
 break;  
 default:  
 System.*out*.println("Please enter a valid choice!");  
 break;  
  
 }  
 System.*out*.println("1 - Count\n2 - Insert\n3 - Delete\n4 - Lookup\n5 - Print Entire Dictionary\n6 - Exit\nEnter your choice: ");  
 choice = sc.nextInt();  
 }  
 } catch (Exception e) {  
 throw new RuntimeException(e);  
 }  
 }  
}

4) Create the RMIServer

package com.company;  
import java.rmi.\*;  
import java.rmi.registry.\*;  
class RMIServer{  
 public static void main(String args[]){  
 try{  
 dictionary stub=new DictionaryRemote();  
 Registry rgsty = LocateRegistry.*createRegistry*(5000);  
 Naming.*rebind*("rmi://localhost:5000/add",stub);  
 }catch(Exception e){System.*out*.println(e);}  
 }  
}