

Assignment 1

Step 1: Define the Remote Interface

File Name: Adder.java

Used by: Client & Server

Code:

```
import java.rmi.Remote;
import java.rmi.RemoteException;

// Remote interface
public interface Adder extends Remote {
    int add(int x, int y) throws RemoteException;
}
```

Step 2: Implement the Remote Interface (Server-Side)

File Name: AdderRemote.java

Used by: Server

Code:

```
import java.rmi.RemoteException;
import java.rmi.server.UnicastRemoteObject;

// Implementing the remote interface
public class AdderRemote extends UnicastRemoteObject implements Adder {

    // Constructor (Exports the remote object)
    protected AdderRemote() throws RemoteException {
        super();
    }

    // Remote method to perform addition
    public int add(int x, int y) throws RemoteException {
        return x + y;
    }
}
```

Step 3: Create the Server Application

File Name: Server.java

Used by: Server

Code:

```
import java.rmi.Naming;
import java.rmi.registry.LocateRegistry;
```

```

public class Server {
    public static void main(String args[]) {
        try {
            // Programmatically start the RMI registry on port 5000
            LocateRegistry.createRegistry(5000);

            // Create an instance of the remote object
            Adder stub = new AdderRemote();

            // Bind the remote object to the RMI registry with name "Adder"
            Naming.rebind("rmi://localhost:5000/Adder", stub);

            System.out.println("Server is ready.");
        } catch (Exception e) {
            System.out.println(e);
        }
    }
}

```

Step 4: Create the Client Application

File Name: Client.java

Used by: Client

Code:

```

import java.rmi.Naming;
import java.util.Scanner;

public class Client {
    public static void main(String args[]) {
        try {
            // Lookup the remote object from the RMI registry
            Adder stub = (Adder) Naming.lookup("rmi://localhost:5000/Adder");

            // Take input from the user
            Scanner sc = new Scanner(System.in);
            System.out.print("Enter first number: ");
            int a = sc.nextInt();
            System.out.print("Enter second number: ");
            int b = sc.nextInt();

            // Call the remote method
            int result = stub.add(a, b);
            System.out.println("Result: " + result);
        } catch (Exception e) {
            System.out.println(e);
        }
    }
}

```

Outputs:

```
aman@aman-linux-5470: ~/Desktop/DS Lab 01
aman@aman-linux-5470:~/Desktop/DS Lab 01$ javac *.java
aman@aman-linux-5470:~/Desktop/DS Lab 01$ java Server
Server is running....
```

```
aman@aman-linux-5470: ~/Desktop/DS Lab 01
aman@aman-linux-5470:~/Desktop/DS Lab 01$ java Client
Enter number 1 : 2
Enter number 2 : 2
Result = 2 + 2 = 4
aman@aman-linux-5470:~/Desktop/DS Lab 01$ java Client
Enter number 1 : 12
Enter number 2 : 21
Result = 12 + 21 = 33
aman@aman-linux-5470:~/Desktop/DS Lab 01$ java Client
Enter number 1 : 100
Enter number 2 : 200
Result = 100 + 200 = 300
aman@aman-linux-5470:~/Desktop/DS Lab 01$ |
```