



Question 4

Write a RMI program to calculate interest on a particular amount.

InterestCalculator.java:

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

public interface InterestCalculator extends Remote {
    double calculateSI(double principal, double rate, int time) throws RemoteException;
}
```

InterestCalculatorImpl.java:

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

public class InterestCalculatorImpl extends UnicastRemoteObject implements InterestCalculator {

    public InterestCalculatorImpl() throws RemoteException {
        super();
    }

    public double calculateSI(double principal, double rate, int time) throws RemoteException {
        return (principal * rate * time) / 100.0;
    }
}
```

Server.java:

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

public class Server {
    public static void main(String args[]) {
        try {
            InterestCalculatorImpl calculator = new InterestCalculatorImpl();

            //Create and start the RMI registry on port 1099
            LocateRegistry.createRegistry(1099);

            //Bind the remote object's stub in the registry
            Naming.rebind("rmi://localhost/InterestCalculator", calculator);
            System.out.println("Server started");
        } catch (Exception e) {
            System.err.println("Server exception: " + e.toString());
        }
    }
}
```

```
        e.printStackTrace();
    }
}
```

Client.java:

```
import java.rmi.Naming;

public class Client {
    public static void main(String args[]) {
        try {
            InterestCalculator calculator = (InterestCalculator) Naming.lookup("rmi://localhost/InterestCalculator");

            double principal = 1000;
            double rate = 5.0; // rate in percentage
            int time = 2; // time in yr

            double interest = calculator.calculateSI(principal, rate, time);

            System.out.println("Simple Interest: " + interest);
        }
        catch (Exception e) {
            System.err.println("Client exception: " + e.toString());
            e.printStackTrace();
        }
    }
}
```

Output:

Compile all the files, then:

1. Run **Server** file first:

```
Server started
```

2. Then, open a new tab in the same path where your java files are, then run **Client** file:

```
Simple Interest: 100.0
```