JAVA PRACTICE PROGRAM

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Write a simple Java program that fetches the students course-wise marks from a university database and computes the grade for each student using JDBC concept.

Program

```java
import java.sql.*;
public class Database{
      static String DRIVER = "com.mysql.cj.jdbc.Driver";
      static String DBMS_URL =
"jdbc:mysql://localhost/university";
      static String username = "root";
      static String password = "";
      static Connection conn = null;
      public static void main(String… args) throws Exception{
            Class.forName(DRIVER);
            conn = DriverManager.getConnection(DBMS_URL,
username, password);
            float[] grades = Student.getMarks();
            updateGrades(grades);
            System.out.println("Grades Successfully Updated!");
      }
      public static void updateGrades(float[] grades) throws
Exception{
            for(int i = 0;i < grades.length; i++){
                  String query = "Update marksheet set grades = "
+ grades[i] + " where id = " + (i + 1);
                  Statement stmt = conn.createStatement();
                  stmt.executeUpdate(query);
            }
      }
}
class Student{
      public static float[] getMarks() throws Exception{
            float[] grades;
            Statement stmt =
Database.conn.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,
ResultSet.CONCUR_READ_ONLY);
            String query = "Select * from marksheet";
            ResultSet rs = stmt.executeQuery(query);
            rs.last();
            int size = rs.getRow();
            rs.beforeFirst();
            grades = new float[size];
            int i = 0;
            int k = 1;
```

```java
                while(rs.next()){
                        String name = rs.getString("name");
                        float English = rs.getFloat("english");
                        float Language = rs.getFloat("language");
                        float Maths = rs.getFloat("maths");
                        float grade = makeGrade(English, Language,
Maths);
                        grades[i++] = grade;
                        System.out.println(k + "." + name + " - " +
grade);
                        k++;
                }
                return grades;
                }
                public static float makeGrade(float x, float y, float
z){
                        x /= 100;
                        y /= 100;
                        z /= 100;
                        return (x * 3 + y * 3 + z * 4);
                }
        }
```

Output

```
D:\Semester 5\Java Programming\Java 11-17>javac Database.java

D:\Semester 5\Java Programming\Java 11-17>java -cp .;mysql-connector-java-8.0.21.jar Database
1.cpp - 9.36
2.java - 9.309999
3.python - 9.85
Grades Successfully Updated!

D:\Semester 5\Java Programming\Java 11-17>_
```

```
mysql> select * from marksheet;
+------+--------+---------+----------+-------+--------+
| id   | name   | english | language | maths | grades |
+------+--------+---------+----------+-------+--------+
|    1 | cpp    |      94 |       90 |    96 | NULL   |
|    2 | java   |      95 |       90 |    94 | NULL   |
|    3 | python |      99 |       96 |   100 | NULL   |
+------+--------+---------+----------+-------+--------+
3 rows in set (0.00 sec)

mysql> select * from marksheet;
+------+--------+---------+----------+-------+--------+
| id   | name   | english | language | maths | grades |
+------+--------+---------+----------+-------+--------+
|    1 | cpp    |      94 |       90 |    96 |      9 |
|    2 | java   |      95 |       90 |    94 |      9 |
|    3 | python |      99 |       96 |   100 |     10 |
+------+--------+---------+----------+-------+--------+
3 rows in set (0.00 sec)
```

Create a distributed application in JAVA using RMI concept to find the presence of number in a given string. The program should use the concept of remote object invocation to implement this process.

Program

Client.java

```java
import java.rmi.*;
import java.rmi.registry.*;
import java.util.Scanner;
public class Client {
        static Scanner sc = new Scanner(System.in);
        public static void main(String… args) throws Exception{
        System.out.print("\n\nEnter the string to search for
numbers : ");
        String s = sc.nextLine();
        Registry reg = LocateRegistry.getRegistry(null);
        RemoteInterface stub = (RemoteInterface)
reg.lookup("RemoteInterface");
        int[] ans = stub.findNumbers(s);
        int i = 0;
        while(ans[i] != -1){
                System.out.println("" + (i + 1) + " Number : " +
ans[i]);
                i++;
        }
        if(i == 0)
        System.out.println("No Numbers Found!");
        System.out.print("\n\n");
        }
}
```

Server.java

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

public class Server{
      public static void main(String… args) throws Exception{
            RemoteClass obj = new RemoteClass();
            RemoteInterface stub = (RemoteInterface)
UnicastRemoteObject.exportObject(obj, 0);
            Registry reg = LocateRegistry.getRegistry();
            reg.bind("RemoteInterface", stub);
```

```
        }
}
class RemoteClass implements RemoteInterface{
        public int[] findNumbers(String input) throws Exception{
                int[] ans = new int[20];
                int index = 0;
                String temp = "";
                for(int i = 0;i < input.length(); i++){
                        char now = input.charAt(i);
                        if(isNumber(now))
                            temp += now;
                        else if(temp.length() > 0){
                                ans[index++] = Integer.parseInt(temp);
                                temp = "";
                        }
                }

                ans[index++] = -1;
                return ans;
                }
                boolean isNumber(char x){
                return (x >= '0' && x <= '9');
        }
}
```

RemoteInterface.java

```
import java.rmi.Remote;
import java.rmi.RemoteException;
public interface RemoteInterface extends Remote{
     int[] findNumbers(String input) throws Exception;
}
```

Output


```
C:\Windows\System32\cmd.exe

D:\Semester 5\Java Programming\Java 11-17>javac Client.java

D:\Semester 5\Java Programming\Java 11-17>java Client
Enter the string to search: abd17
1.Number: 17
D:\Semester 5\Java Programming\Java 11-17>_
```

```
D:\Semester 5\Java Programming\Java 11-17>java Client
Enter the string to search: abd
No Numbers Found!
D:\Semester 5\Java Programming\Java 11-17>
```