Using JAX-RS Jersey API
Module Name: Student
Operation   : printResult()
Input   :
Student(sid,name,marks:Map<String,Integer>,faculty:List<String>).
Example: {
                "sid"   : 1001,
                "name"   : "Sankar",
                "marks" : {"ENG":85,"MAT":65,"SCI":95},
                "faculty" : ["ABC","MNO","PQR"]
            }
Output: String Output:

ID:_____
Name:_____
Total Marks:_____, AVG:_____
Result:_____,GRADE:_____
Not faculties:_____

Conditions:

Total Marks = s1+s2+s3;
Avg   =total/3;
Result   : PASS If each sub marks>40, else FAIL.
Grade   : If PASS Display one grade else—NA----

        avg: >75   A+
        avg: 60 to 75 A
        avg: 45 to 59 B+
        avg: 40 to 44 B

--------------Producer App------------------------

In pom.xml File:


```xml
 <properties>
            <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
            <maven.compiler.source>15</maven.compiler.source>
            <maven.compiler.target>15</maven.compiler.target>
```

```xml
        </properties>

        <dependencies>
                <!--
https://mvnrepository.com/artifact/org.glassfish.jersey.containers/jersey-
container-servlet -->
                <dependency>
                        <groupId>org.glassfish.jersey.containers</groupId>
                        <artifactId>jersey-container-servlet</artifactId>
                        <version>2.30</version>
                </dependency>
                <!--
https://mvnrepository.com/artifact/org.glassfish.jersey.inject/jersey-hk2 --
>
                <dependency>
                        <groupId>org.glassfish.jersey.inject</groupId>
                        <artifactId>jersey-hk2</artifactId>
                        <version>2.30</version>
                </dependency>
                <!-- To work with JSON -->
                <!--
https://mvnrepository.com/artifact/org.glassfish.jersey.media/jersey-
media-json-jackson -->
                <dependency>
                        <groupId>org.glassfish.jersey.media</groupId>
                        <artifactId>jersey-media-json-jackson</artifactId>
                        <version>2.30</version>
                </dependency>
                <!-- To work with XML -->
                <!-- https://mvnrepository.com/artifact/org.glassfish.jaxb/jaxb-
runtime -->
                <dependency>
                        <groupId>org.glassfish.jaxb</groupId>
                        <artifactId>jaxb-runtime</artifactId>
                        <version>2.3.0</version>
                </dependency>
                <!-- https://mvnrepository.com/artifact/com.sun.xml.bind/jaxb-
impl -->
                <dependency>
                        <groupId>com.sun.xml.bind</groupId>
                        <artifactId>jaxb-impl</artifactId>
                        <version>2.3.0</version>
                </dependency>
```

```xml
            <!-- https://mvnrepository.com/artifact/com.sun.xml.bind/jaxb-
core -->
            <dependency>
                <groupId>com.sun.xml.bind</groupId>
                <artifactId>jaxb-core</artifactId>
                <version>2.3.0</version>
            </dependency>

            <dependency>
                <groupId>junit</groupId>
                <artifactId>junit</artifactId>
                <version>4.11</version>
                <scope>test</scope>
            </dependency>
            <!--
https://mvnrepository.com/artifact/org.projectlombok/lombok -->
            <dependency>
                <groupId>org.projectlombok</groupId>
                <artifactId>lombok</artifactId>
                <version>1.18.16</version>
                <scope>provided</scope>
            </dependency>

    </dependencies>
```

In web.xml File:

```xml
<web-app>
  <display-name>Archetype Created Web Application</display-name>
  <servlet>
  <servlet-name>sample</servlet-name>
  <servlet-class>org.glassfish.jersey.servlet.ServletContainer</servlet-
class>
  <init-param>
  <param-name>jersey.config.server.provider.packages</param-name>
  <param-value>in.nit.controller</param-value>
  </init-param>
  </servlet>
  <servlet-mapping>
  <servlet-name>sample</servlet-name>
  <url-pattern>/rest/*</url-pattern>
  </servlet-mapping>
</web-app>
```

In Model class:

Student class:

```java
package in.nit.model;
import java.util.List;
import java.util.Map;

import lombok.Data;
@Data
public class Student {
private int sid;
private String sname;
private Map<String,Integer> marks ;
private List<String> faculties;
}
```

Java Assignment Operator:

Adding both values +=
Example:
```java
package in.test;

public class AssignmetOperator {

	public static void main(String[] args) {

		int a=10;
		a+=5;//here both values adding.
		System.out.println(a);//15

	}

}
```

In StudentProducerController:

```java
package in.nit.controller;

import java.util.Collection;
import java.util.Iterator;
import java.util.List;
import java.util.Map;

import javax.ws.rs.Consumes;
import javax.ws.rs.POST;
import javax.ws.rs.Path;

import in.nit.model.Student;
@Path("/std")
public class StudentRestController {
@Path("/result")
@POST
@Consumes("application/xml,application/json")
public String printResult(Student student) {
    int total=0;
    double avg=0.0;
    String result="PASS";
    String grade=null;
    int count=0;

    List<String> facultyList=student.getFaculties();
    if(facultyList!=null) {
        count=facultyList.size();
    }
    Map<String,Integer> marksMap=student.getMarks();
    Collection<Integer> values=marksMap.values();
    Iterator<Integer> itr=values.iterator();
    while(itr.hasNext()) {
        int v=itr.next();
        total+=v;
        if(v<40) {
            result="FAILD";
        }
        avg=total/3.0f;

        if(result.equals("PASS")) {
            if(avg>=75.0) {
                grade="A+";
            }
```

```java
                else if(avg>=60.0 && avg<=75.0) {
                        grade="A";
                }
                else if(avg>=45.0 && avg<=60.0) {
                grade="B+";
                }
                else if(avg>40.0 && avg<=45.0) {
                        grade="B";
                }
        }
        else {
                grade="---NA----";
        }
}

StringBuffer sb=new StringBuffer();
sb.append(" ID= ").append(student.getSid())
.append(" , NAME= ").append(student.getSname())
.append(" , Total Marks= ").append(total)
.append(" , Average= ").append(avg)
.append(" , Result= ").append(result)
.append(" , Grade= ").append(grade)
.append(" , No Faculties= ").append(count);

return sb.toString();
}
}
```

------------------output-----------------------------------

In chrome:

Not possible to see output in Chrome:

--------POSTMAN SCREEN-----------