

CSC 615 ASSIGNMENT 1

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1. GRADING WEB SERVICE

Write a Java project that implements a SOAP-based Course-Grading web service. Assume that a professor uses the class

```
public class StudentData
{
    private String name;
    private List<Integer> scores;

    public String getName()
    {
        return name;
    }
    public void setName(String name)
    {
        this.name = name;
    }
    public List<Integer> getScores()
    {
        return scores;
    }
    public void setScores(List<Integer> scores)
    {
        this.scores = scores;
    }
}
```

to represent data for a single student: the student has a name, and a list of test scores.

The Service has uses the following class to return results to the profesor:

```
public class StudentGrade
{
    private String name;
    private double average;
    private String letterGrade;

    public String getName()
    {
        return name;
    }
}
```

```

public void setName(String name)
{
    this.name = name;
}

public double getAverage()
{
    return average;
}

public void setAverage(double average)
{

}

public String getLetterGrade()
{
    return letterGrade;
}

public void setLetterGrade(String letterGrade)
{
    this.letterGrade = letterGrade;
}
}

```

The idea is that the service will create a `StudentGrade` object for each `StudentData` object that it receives from the client. The name field will be the same as the name in `StudentData`, but the `average` and `letterGrade` fields will be computed from the list of scores in the `StudentData`. Letter grades are assigned according to the usual

100 A 90 B 80 C 70 D 60 F 0

grading scale.

Both of these classes will be defined on the service side.

The Service should expose the following method:

```
List<StudentGrade> computeGrades(List<StudentData> courseData)
```

This method will receive a list of `StudentData` object and return a list of corresponding `StudentGrade` objects *sorted in decreasing order of test score average*.

2. JAVA WEB SERVICE CLIENT

Write second Java project, a Web Service Client, and use it to invoke the web service. Your client should assume that the professor has a class of 4 students, and that each student has 3 test scores. Your program should prompt the user to enter data for each student on a line, beginning with the name (each name is a single word, so you can assume data items on the line are whitespace delimited.)

Example

Enter data for student 1: Donald 34 68 99

Enter data for student 2: Hillary 78 34 74
Enter data for student 3: Ted 99 12 63
Enter data for student 4: Bernie 45 86 47

The client should use this data to build the data structures necessary to call the service. Once the web method returns the result, the program should print results, with grading data for each student being on a line by itself: name, average, and letter grade.

The client should print the data in the same order received from the service.

3. C# WEB SERVICE CLIENT

Write a third project, a C# console application, that implements a web service client equivalent to the Java Web Service client.

4. SUBMISSION AND DUE DATE

Zip up all three project folders and submit via email. This is due Saturday at the end of Week 3.