CS 2401 Assignment #2

Due Date: Sunday, September 24, 11:59PM
(See the syllabus for late policy)

Objective: The goal of this assignment is to practice array of objects.

Background: El Paso Packaging and Supply Co. has contracted you to create a software to summarize their inventory.

The client saves dimensions of packages in the inventory in a text file. While it sounds inefficient, the client is an angel from programmer's point of view. ☺ This is because it is possible to write a program that will directly read from the file and create a summary of the inventory. A sample file is shown below.

```
20 10 8
4.5 8.45 12.2
8.0 2.5 4.0
1.0 15.0 18.0
3.5 3.5 3.5
6.0 5.0 10.0
```

That is, each line contains the width, height, and length of a package. The dimensions are separated by spaces.

Assignment: You need to write a program using object oriented programming idea for packages. That is, each package must be considered an object. To achieve this, you must write a class named `Package`. Make sure to create a Java file for the `Package` class. Some other required properties of the `Package` class are as follows.

1. All status variables of the `Package` class must be `private`.
2. Write no more than two constructors.
3. Must have a public method named `getVolume()` that will return the volume of the package.
4. Must have a public method named `isCube()` that will return true if the package is cubic, false otherwise.
5. The `Package` class must NOT contain any main method.

Feel free to write any additional method in the `Package` class, as you see fit.

The program file (the Java file that contains the main method) must be written in a file named `Runner.java`. **The Runner class must not have any status variable**. Runner must have the following functionalities. Each functionality must be implemented in a separate method in `Runner`.

1. Read the input text file provided by the client and create an array of `Package` objects. The sequence of the lines should be used in the sequence of objects in the array.
2. Find the largest package in the array. Report the index, dimensions, and volume of the largest object.
3. How many cubic and non-cubic packages are there in the array?
4. Report the indices and dimensions of the cubic packages.
5. Report average volume of cubic packages only.

Deliverables: You are expected to submit two Java files (`Package.java` and `Runner.java`) via Blackboard. You must demo your programs within one week after the due date. Your demo will be based on your last submission in the Blackboard. Your TA will instruct you with further details.