GEDİZUNIVERSITY

Faculty of Engineering and Architecture
Computer Engineering Department

COM 102 – OBJECT ORIENTED PROGRAMMING
DURING LAB Assignment#8

**Academic Year:** Spring 2016
Date   : May 10, 2016
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1- General Exercises:

a) Write <u>an enum</u> type named "**Months**" that contains months of the year information. Then test it via a console application.

b)   Update the above application so that it can be a GUI application that producing an output similar to the following.
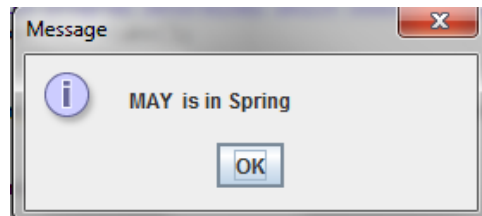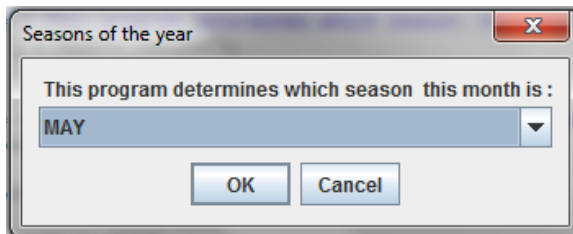
c) Export the application.

d) Write an application related to abstract classes and interfaces for demonstration purpose. Please use Animal, Cat, Dog and Human classes and Climb, Think, Learn, and Speak interfaces. Note that you can find a sample UML class diagram of the application in Figure 1.
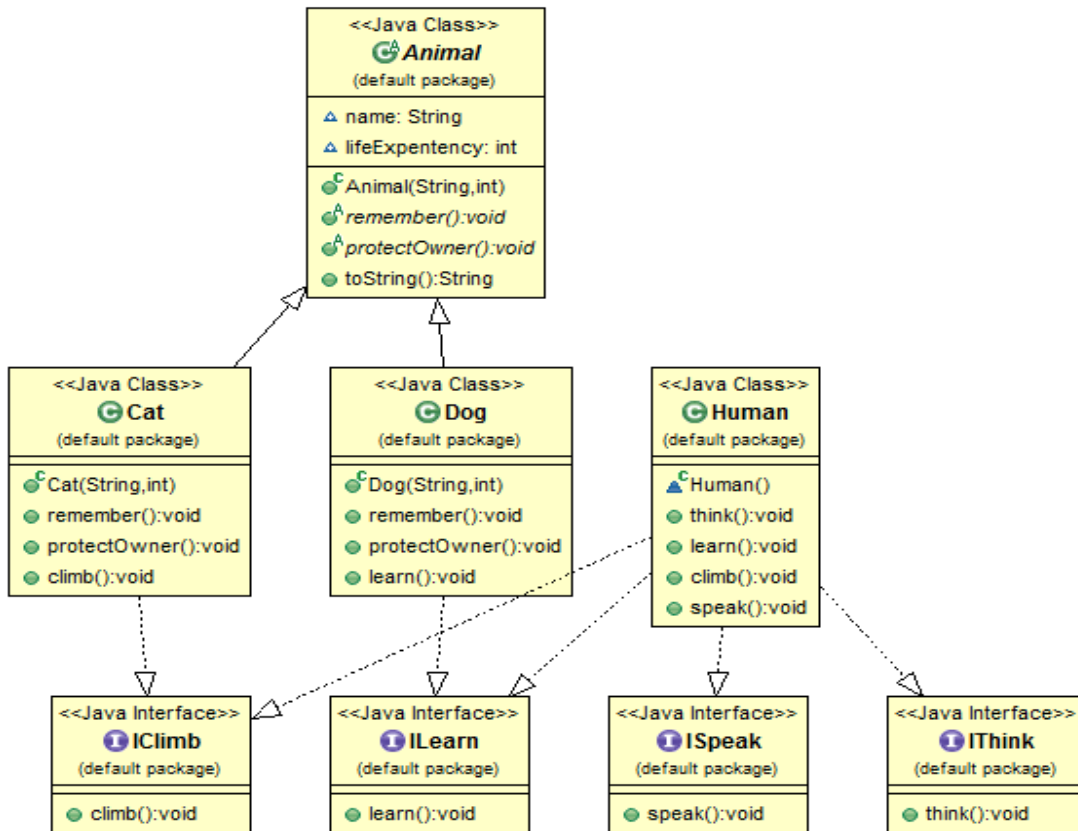
Figure 1 : A Sample UML Class Diagram of the Application

e) Write an application to demonstrate how to extend interfaces. In Figure2, you can see a sample UML class diagram for demo application.
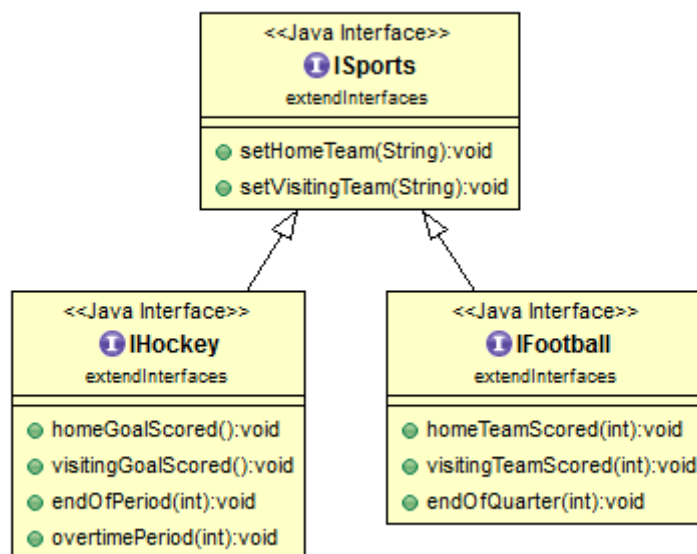

Figure 2: A Sample UML Class Diagram of the Interface Extension

f) Assume that you have a <u>Shape</u> class. From this class you can derive <u>Circle</u> and <u>Rectangle</u> shapes. Note that, Circle and Rectangle classes have different area calculations. Moreover, Shape class implements interfaces called <u>Movement</u> and <u>Comparison</u>. Movement interface has a method called <u>move</u> specifies how many units the shape will move and differs in each shape instance. Comparison interface has a method called <u>compare</u> and differs in each shape instance. According to that information, create your abstract base class, derived classes and interfaces.
(When you compare two objects, they should be instances of same classes)

2- Area and Perimeter Calculator for Some Geometric Shapes(Last week's application)

Update the last week application so that each shape implements the following Comparable interface.

```
public interface Comparable{

// this (object calling isLargerAreaThan and isLargerCircumferenceThan) other
must be instances of the same class returns 1, 0, -1
// if this is greater than,equal to, or less than other
public int isLargerAreaThan(Comparable other);
public int isLargerCircumferenceThan(Comparable other);
}
```

Then in your test class, please compare a square and rectangle object's area and circumferences.

Note that you need to IMPORT the last's week application resides at the lab web-page.