

COM 102 – OBJECT ORIENTED PROGRAMMING DURING LAB Assignment#6

Academic Year: Spring 2016

Date : April 26, 2016

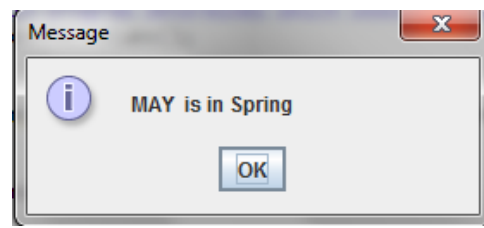
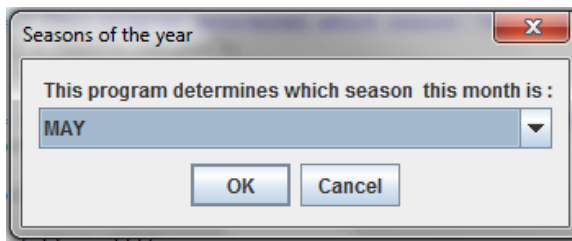
Course Instructor: Asst. Prof.Dr. I.Furkan Ince

Course Assistant: Res.Asst. Arzum Karatas &Res.Asst. Feyza GALIP

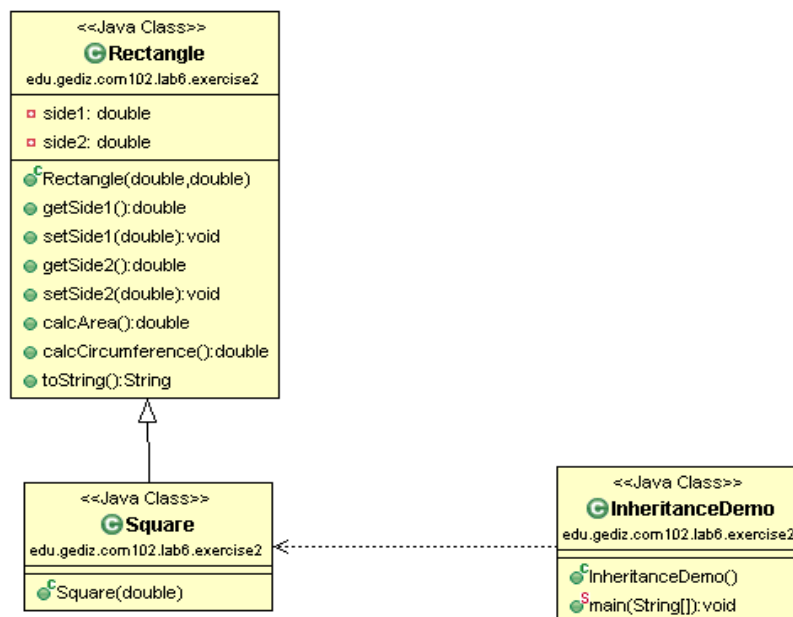
1- General Exercises:

a) Write an enum type named “Months” that contains months of the year information.

Then, write a java application with GUI components to produce an output similar to the following.



b) Implement the inheritance (is-a) relationship by using Java language for the UML given below.



c) Write a **Base** class, a **Derived** Class and an **InheritanceDemo** application to show inheritance and method overriding.

2- Implementing a Java application

In this application, your customer gives Introduction to Object Oriented Programming Course in Gediz University and she needs a piece of software that calculates term grades for both undergrad and grad students. In fact, each student has some common things like student ID, name, surname, date of birth, average grade for 5 grades for this course : midterm, lab midterm, avg of homeworks, term project and final and a compute grade functionality. You can find the weights for grade calculation. (Note that you can take the 5 grades as an array in the constructor, calculate the avg grade in the constructor, then assign it to the average grade. Also there is a Date class in java.util, you can use it if you want)

Criteria	Percent (%)
Midterm Exam	20
Lab Midterm	15
Homework	20
Term Project	15
Final Exam	30

Also each student has a functionality that **shows the passing state** : passed , or failed. If the student is undergrad, it is enough that the student's grade is higher or equal to 60. If the student is grad student, the passing condition is that the student's grade is higher or equal to 80.

Implement a **test** class by creating **at least three grad students** and **at least four undergrad students**. Then put them in a **Student collection**. Then **display** each of the **student's passing states** with the student information.

Note that you are supposed to **draw UML class diagram** for this question.

You can find sample output for the program.

```
The passing states for each student
*****
Student [studentID=11223344, name=Alice, surname=Bertrand, birthDate=Tue Nov 09 00:00:00 EET 3880, grades=[70.0, 90.0, 60.0, 60.0, 95.0]] Failed !
Student [studentID=11223355, name=Bob, surname=Bay, birthDate=Fri Feb 13 00:00:00 EET 3885, grades=[80.0, 82.0, 57.0, 92.0, 95.0]] Passed :)
Student [studentID=11223366, name=Carol, surname=Russel, birthDate=Sat Apr 15 00:00:00 EEST 3882, grades=[50.0, 43.0, 65.0, 70.0, 85.0]] Failed !
Student [studentID=44369876, name=Alex, surname=Gate, birthDate=Mon May 01 00:00:00 EEST 3893, grades=[20.0, 36.0, 50.0, 70.0, 75.0]] Failed !
Student [studentID=44369873, name=Beatrice, surname=Dior, birthDate=Sun Jul 08 00:00:00 EEST 3894, grades=[60.0, 60.0, 60.0, 65.0, 65.0]] Passed :)
Student [studentID=44369874, name=James, surname=Marshall, birthDate=Tue Mar 14 00:00:00 EET 3893, grades=[80.0, 78.0, 85.0, 75.0, 80.0]] Passed :)
Student [studentID=44369875, name=Jhonny, surname=Tack, birthDate=Mon May 01 00:00:00 EEST 3893, grades=[80.0, 80.0, 90.0, 100.0, 100.0]] Passed :)
```