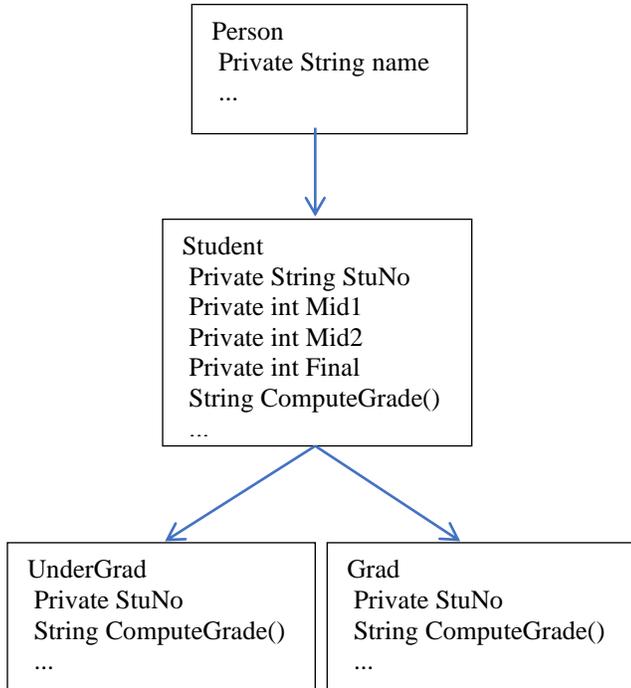


CMPE-CMSE416 Lab4

Due 24.08.22 (Wednesday)

Note: You should **prepare a report** and submit it to your assistant on due date. During the lab hour you should be ready for the questions that will be asked by the assistant related with this assignment.

Question 1: We have the following Inheritance hierarchy between Person, Student, UnderGrad and Grad Classes.



- a) (20 pnt.) Create all the classes given above by using a Java project.
- Write appropriate constructors,
 - Write all the setter and getter methods,

- b) (10 pnt.) ComputeGrade() method will have different operations in UnderGrad and Grad Classes.

This method will return to “A”, “B”, or “F” in UnderGrad class, and “Pass” or “Fail” in Grad class.

Operations in UnderGrad and Grad classes for this method are:

$$\text{Average} = (\text{Mid1} + \text{Mid2} + \text{Final}) / 3;$$

UnderGrad	Grad
If (Average > 70) → "A" If (70 > Average > 60) → "B" If (Average < 50) → "F"	If (Average >= 70) → "Pass" If (70 > Average) → "Fail"

- c) (20 pnt.) Your GUI Should be as follows:

The screenshot shows a window titled "Grades For Students" with standard window controls (minimize, maximize, close). The window is split into two main sections: "Undergraduate Student" on the left and "Graduate Student" on the right. Each section contains five text input fields labeled "Name:", "Stu No:", "Mid1:", "Mid2:", and "Final:". Below these fields are two buttons: "Add" and "Insert". The bottom half of the window is a large, empty rectangular area, which is intended for a JList to display the results of the calculations.

- d) (10 pnt.) Left Add button should take the information entered by the user for an Undergraduate student, calculate letter grade and add Name and computed letter grade to the end of the Jlist on the left bottom of the given Frame.
- e) (10 pnt.) Right Add button should take the information entered by the user for a Graduate student, calculate letter grade and add Name and computed letter grade to the end of the Jlist on the right bottom of the given Frame.

- f) (10 pnt.) Left Insert button should take the information entered by the user for an Undergraduate student, calculate letter grade and insert Name and computed letter grade to the first position of the Jlist on the left bottom of the given Frame.
- g) (10 pnt.) Right Insert button should take the information entered by the user for a Graduate , calculate letter grade and insert Name and computed letter grade to the first position of the Jlist on the right bottom of the given Frame.
- h) (5 pnt.) Put information on each button when you move mouse on them.

Sample Output:

Undergraduate Student		Graduate Student	
Name:	<input type="text"/>	Name:	Ali Mert
Stu No:	<input type="text"/>	Stu No:	180076
Mid1:	<input type="text"/>	Mid1:	70
Mid2:	<input type="text"/>	Mid2:	50
Final:	<input type="text"/>	Final:	100
Add		Add	
Insert		Insert	

Jhon Smith C Hasan Vehbi C	Felix Jhon Fail Ali Mert Pass
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