Lab 4
Polymorphism

Learning outcome:

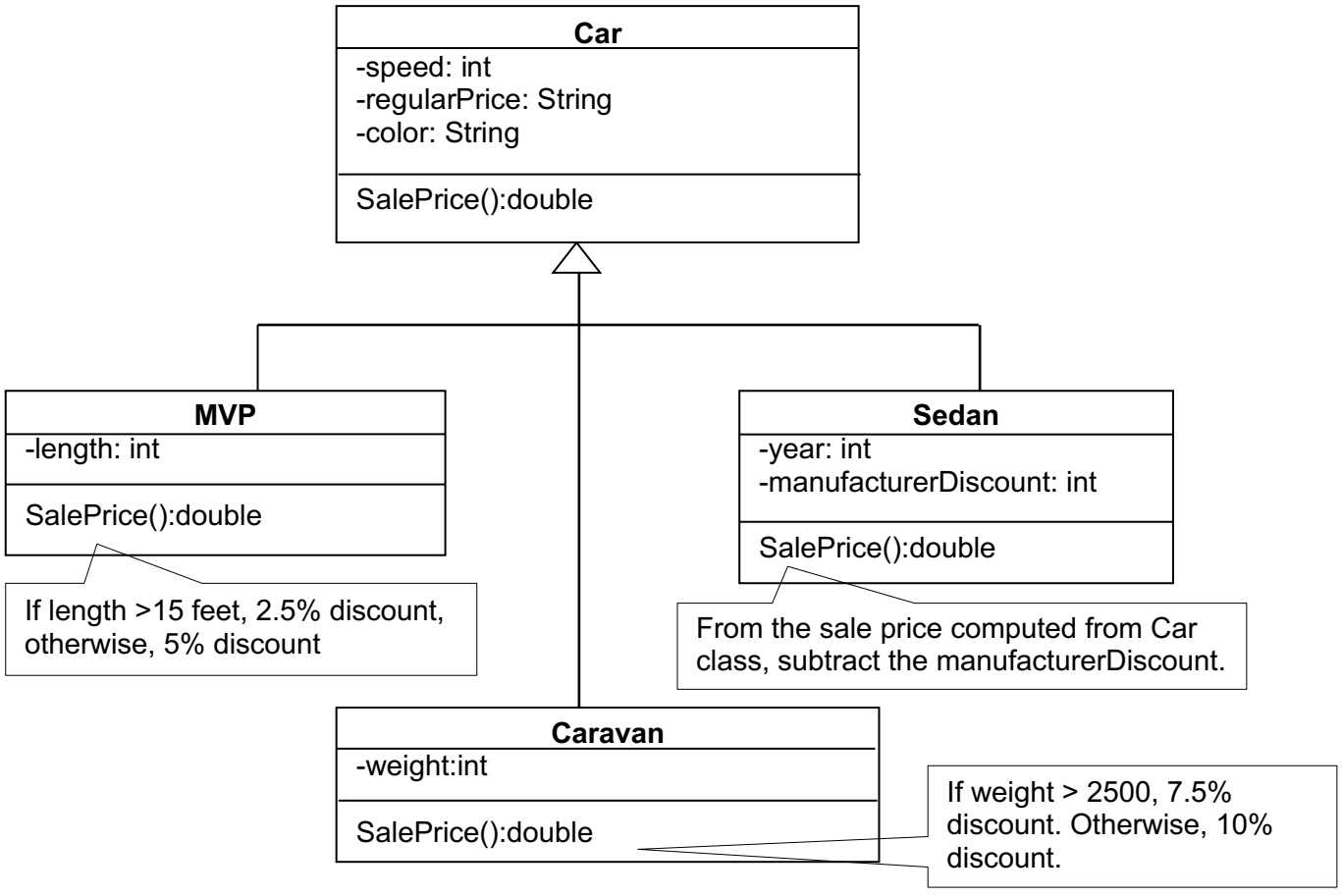
At the end of this lab, student should be able:

1. to understand the relationship among classes.
2. to analyze the problem and construct an object-oriented program using generic programming.

Dateline: Depending on your lab hour on week 7. Submit to your demonstrator before the lab session ends. Upload to Putrablast.

** Copy or other forms of cheating is forbidden. The standard penalty for the first offence is to award 0 to all parties concerned.

Questions:



1. The UML diagram above shows the relationships between MPV, Sedan, Caravan and the car supercategory. The arrows point from specific entities to generic categories. Create a program that creates objects of each classes, places those objects in ArrayList, polymorphically invoking each object's salePrice() method. For each object, print some identifying information and the sales prices.

2. Write a program to create a class named shape, which have two sub classes two dimensional and three dimensional shapes. The two dimensional shape have three sub classes: circle, triangle and square, and contain calArea() method to calculate the area. While the three dimensional shape have two sub classes: cube and sphere and have calArea() and calVolume() methods to calculate the surface area and volume, respectively. Create a program that implements polymorphism concepts. In your program, create an ArrayList that can adds all the objects created and use loop to display all the elements in a list by invoking the object calArea() method.