COMP2232 - Lab Practical #2

Purpose: to build your familiarity with creating classes and the concept of overloading, access levels and arrays.

A – The Garage

1. Using the **Vehicle** class you created in last week's lab, complete the following tasks.
   a. Previously, the vehicle would accelerate at a rate of 5km. **Overload** the **accelerate** method such that the new method now takes an **additional** parameter, **int rate**, which indicates the rate at which the car will accelerate.
   b. Previously, the vehicle would brake and decrease its speed until it reached 0. **Overload** the **brake** method such that the new method now takes a parameter, **int newSpeed**, which indicates the speed at which the braking should stop at. This would essentially slow the vehicle down but not bring it to a full stop. It will then display the message "You have slowed to your new speed of *xx*." Where *xx* indicated the new speed of the vehicle.

2. Create a class called **WorkShop** which contains:
   a. a **private** data member called **vehicleBays** which is an array of type *Vehicle*.
   b. a constructor which instantiates vehicleBays to a size of 5.
   c. a method **void addVehicle(Vehicle v, int position)** which will insert the Vehicle object into vehicleBays at the location indicated by the **position** parameter.
   d. a method **Vehicle getVehicle(int position)** which will return the Vehicle object located at **position** in vehicleBays.

3. Create a class called **CarWorld** which contains a **main** method. This method will:
   a. create an instance (object) of a **WorkShop** called *myShop*.
   b. ask the user for the model (a string) and engine size (float value) of 5 vehicles.
   c. For each vehicle, create a Vehicle object, store the data in the object and then use the addVehicle method to add it to vehicleBays in the WorkShop object.
   d. Once done, ask the user for a number between 0 and 4 inclusive, and use it to get the vehicle from that position in the vehicleBays. Display the model and engine size of the vehicle.
   e. After this, you should
      i. ask the user what speed they want to accelerate to
      ii. ask if they want to specify rate of acceleration. If yes, ask them for rate and call the appropriate method. If no, call the appropriate method.
      iii. Do the same for braking: ask them if they want to come to a full stop or slow down. If full stop, call the appropriate method. If slowing, ask for new speed and call appropriate method.

Why would the following line produce an error? (*Hint: access levels*)

```
myShop.vehicleBays[0] = new Vehicle();
```

<End of Lab>