

CS-303A: Object-Oriented Programming and Data Structures

Northeastern Illinois University

PLTL Workshop

Week 2

Problem 1:

- Create a UML diagram of the Automobile class.
- Create the Automobile.java class. It should have the instance variables, constructor(s) and methods located below.
- Compile the Automobile.java class and correct any errors.
- Create another file named TestAutomobile.java that contains the main method. Create several Automobile objects and test that your constructor and methods work as described.

Automobile Instance variables

Reminder: + indicates public, - indicates private

- - make (String): The automobile make (Ford, Acura, etc).
- - model (String): The automobile model (Escapade, ZDX, etc).
- - power (boolean): Holds the value true if the power is on and false if the power is off. The default value is false.
- - gear (char): Holds the value of the gear that the automobile is in. The default value is P (Park). Other values include D (Drive), and R (Reverse).
- - volume (int): Holds a value representing the loudness (0 being no sound). The default value is 6.

Automobile constructors

- One constructor that takes two parameters and sets the make and model instance variables.

Automobile methods

- + getMake: Returns the value stored in the make instance variable.
- + getModel: Returns the value stored in the model instance variable.
- + getGear: Returns the value stored in the gear instance variable.
- + getVolume: Returns the value stored in the volume instance variable.
- + getPower: Returns the value stored in the power instance variable.

- + `setGear`: Sets the value stored in the `gear` instance variable.
- + `increaseVolume`: Increases the value stored in the `volume` instance variable by 2. The max value is 30.
- + `decreaseVolume`: Decreases the value stored in the `volume` instance variable by 2. The minimum value is 0.
- + `setPower`: Toggles the value stored in the `power` variable to true if the value is currently false and changes it to false if the value is currently true.