# Worksheet 3

In the previous lessons, the example files used a single class in a file, which was required to have a name matching the file name. It also contained the main method. In this lesson, we will expand the use of classes by defining a second class in the same file.

In the example file, there are two classes now, the one matching the file name and a second class called DriveShape. The DriveShape class has its own set of methods and variables all related to its purpose, driving LocoXtreme.

Inside the class are two “constructors”. These are segments of the class that “construct” a class instance with default values or provided values.

1. **Inspect the two constructors in the DriveShape class. How does each one differ in setting up a class instance?**

To make an instance of a class, like for DriveShape, the class is named followed by the name of the instance of the class. This is then set equal to the keyword “new” in front of a constructor call with any provided inputs.

1. **Which constructor for DriveShape is used in the example file?**

Besides the constructors, inside of the DriveShape class are variables and methods.

1. **All of the methods used are “public”. Hypothesize why certain methods in general might be made private.**

The driveSpeed float variable is private in the class. Therefore, in order to change it after the class instance is made, “Accessor” and “Mutator” methods are used. The getDriveSpeed() and setDriveSpeed() methods allow the main program to check and set the value of the speed without directly accessing the driveSpeed variable. These types of methods ensure the data is strictly controlled, preventing erroneous behavior such as trying to set driveSpeed as a double.

1. **Describe the additional logic in the Mutator method setDriveSpeed().**

The DriveShape class allows for very few lines of code needed in the main method to execute the logic for LocoXtreme to drive in the shape options. To call a method from the class instance, the class instance name can be typed followed by a period and then the method name, along with any inputs.

1. **Suppose you wanted the robot to drive in a square with 7 centimeters per side making right hand turns at a speed of 0.5 and then wanted the robot to drive the same square behavior at 0.7 speed. What are the lines of code you would need to achieve this? Assume that your DriveShape instance was already created and is called shape.**