The Java™ Tutorials

Trail: Learning the Java Language
Lesson: Classes and Objects

> *The Java Tutorials have been written for JDK 8. Examples and practices described in this page don't take advantage of improvements introduced in later releases.*

Classes

The introduction to object-oriented concepts in the lesson titled Object-oriented Programming Concepts used a bicycle class as an example, with racing bikes, mountain bikes, and tandem bikes as subclasses. Here is sample code for a possible implementation of a `Bicycle` class, to give you an overview of a class declaration. Subsequent sections of this lesson will back up and explain class declarations step by step. For the moment, don't concern yourself with the details.

```
public class Bicycle {

    // the Bicycle class has
    // three fields
    public int cadence;
    public int gear;
    public int speed;

    // the Bicycle class has
    // one constructor
    public Bicycle(int startCadence, int startSpeed, int startGear) {
        gear = startGear;
        cadence = startCadence;
        speed = startSpeed;
    }

    // the Bicycle class has
    // four methods
    public void setCadence(int newValue) {
        cadence = newValue;
    }

    public void setGear(int newValue) {
        gear = newValue;
    }

    public void applyBrake(int decrement) {
        speed -= decrement;
    }

    public void speedUp(int increment) {
        speed += increment;
    }

}
```

A class declaration for a `MountainBike` class that is a subclass of `Bicycle` might look like this:

```
public class MountainBike extends Bicycle {

    // the MountainBike subclass has
    // one field
    public int seatHeight;

    // the MountainBike subclass has
    // one constructor
    public MountainBike(int startHeight, int startCadence,
                        int startSpeed, int startGear) {
        super(startCadence, startSpeed, startGear);
```

```
            seatHeight = startHeight;
        }

        // the MountainBike subclass has
        // one method
        public void setHeight(int newValue) {
            seatHeight = newValue;
        }

    }
```

MountainBike inherits all the fields and methods of Bicycle and adds the field seatHeight and a method to set it (mountain bikes have seats that can be moved up and down as the terrain demands).