

A Brief Introduction

This lesson welcomes you to the world of Object Oriented Programming.

WE'LL COVER THE FOLLOWING



- Procedural Programming
- What Object-Oriented Programming is?
- Anatomy of Objects and Classes

Procedural Programming

Presumably, you are familiar with the basics of programming and you should have used methods in your programs.

Procedural programming is a programming paradigm. In procedural programming, a program is divided into smaller parts called methods. These **methods** are the **basic entities** used in this technique. The focal point of procedural programming technique is to use methods for code reusability. However, the implementation of a complex real-world scenario becomes a difficult task using this paradigm.

What Object-Oriented Programming is?

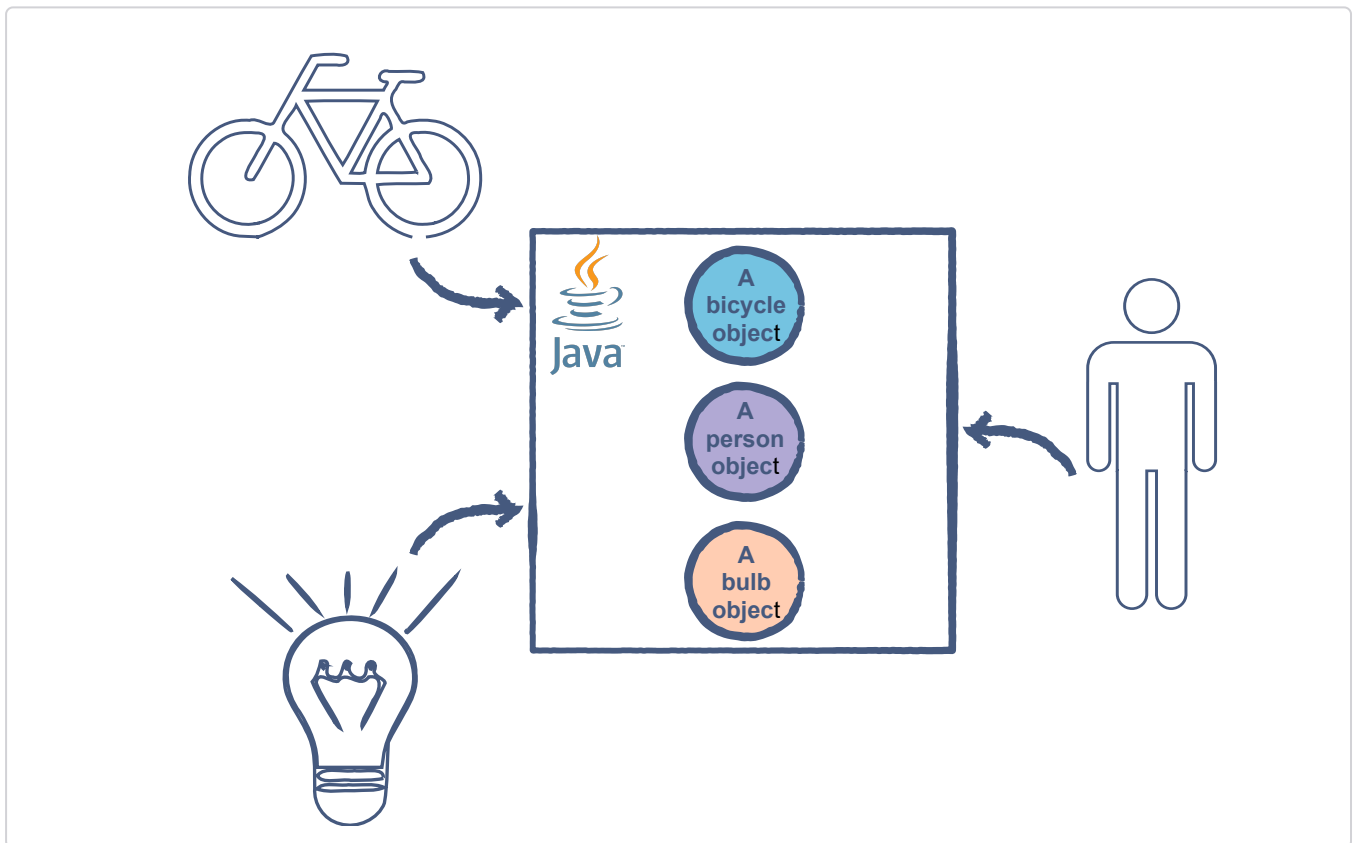
Object-oriented programming, also referred to as **OOP** is a programming paradigm that includes or relies on the concept of classes and objects.

The basic entities in object-oriented programming are **classes and objects**.

Programming won't make much sense if one can't model real-world scenarios using programming languages right? This is where Object-Oriented Programming comes into play!

The basic idea of OOP is to divide a complex program into a bunch of **objects** talking to each other.

Objects in a program frequently represent real-world objects.



Many other objects serve application logic and have no direct real-world parallel objects that manage authentication, templating, request handling, or any of the other myriad features needed for a working application.

Anatomy of Objects and Classes

Objects may contain data in the form of *fields* (variables) and methods to operate on that data. For a while, think about the real-world objects around you. "*What are the characteristics of these objects?* Take the example of a *light bulb*. It has a **state** i.e. either it is *on* or *off*. It also has a **behavior** i.e. when you turn it on it lights up and when turned off, it stops spreading light. To conclude this one can say:

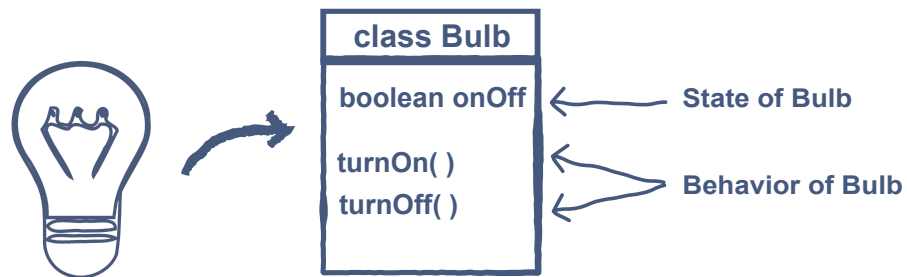
Objects have **state** and **behavior**.

Interesting! isn't it? But the question is "*where do these objects come from?*"

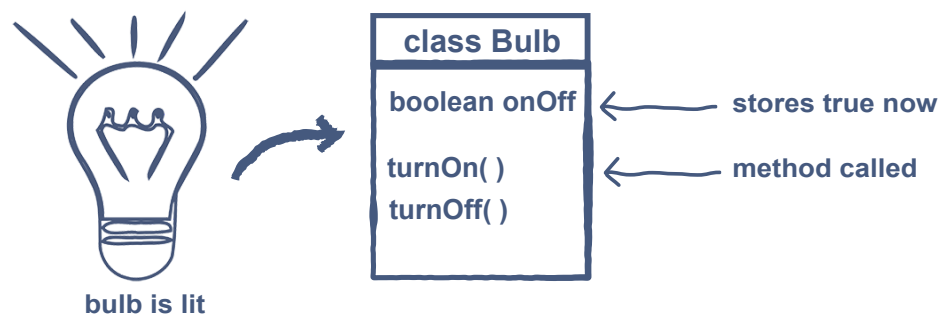
Well, the answer to the above question is **classes**.

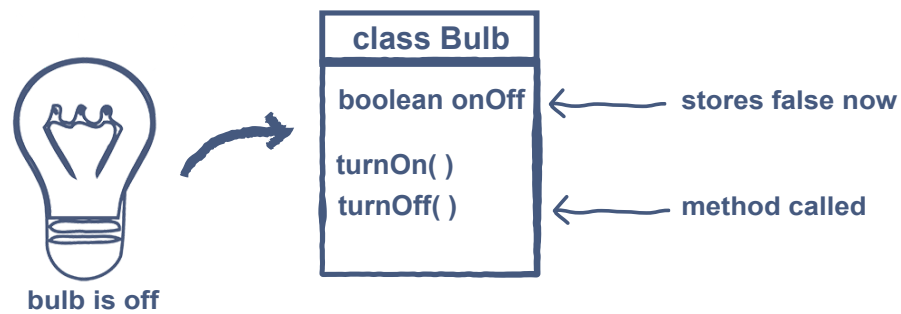
A **Class** can be thought of as a *blueprint* for creating objects.

The below illustration shows what a **LightBulb** class should look like.

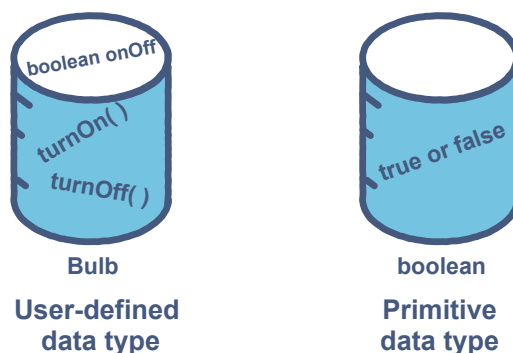


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From the above illustration, it can be concluded that the state of the objects is generally modeled using *variables* in a class and the behavior is modeled by implementing the *methods*.



It can be inferred from the discussion above that classes are user-defined data types implemented using the primitive data types e.g. `boolean`, `int`, `char` etc.

We will leave this discussion for now and come back to it in a later section.

In the next lesson, you will get to know about the modern Object-Oriented languages and how Java is one of these.