What is Inheritance?

In this lesson, you will be introduced to Inheritance, a powerful concept of Object-Oriented Programming.

We'll cover the following

Now that you have got familiar with the concepts of *objects* and *classes*, let's discuss **inheritance** which is another key concept in the *Object-Oriented Programming*.

Definition

Inheritance provides a way to create a new class from an existing class. The new class is a specialized version of the existing class such that it inherits all the *non-private* fields (*variables*) and *methods* of the existing class. The existing class is used as a starting point or as a *base* to create the new class.

The *IS A* Relationship

After reading the above definition, the next question that comes to your mind is *What is the use case of inheritance?* Well, the answer is that wherever we come across an ***IS A*** relationship between objects, we can use inheritance.

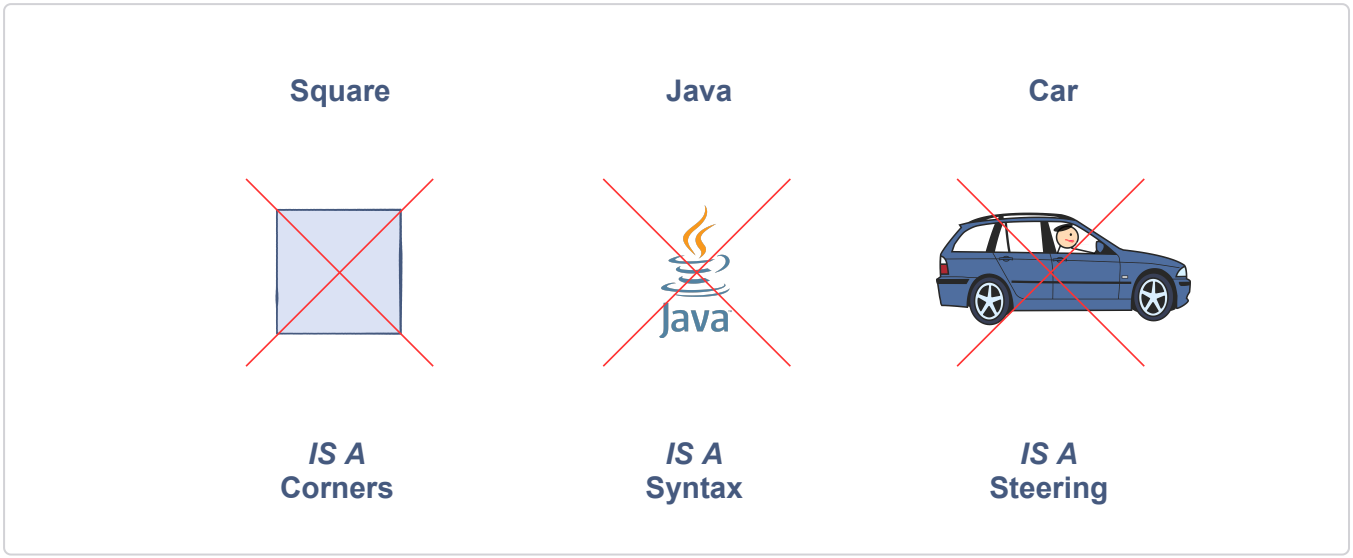
In the above illustration, we can see there are three objects having an ***IS A*** relationship between them. We can write it as:

- A square ***IS A*** shape
- Java ***IS A*** programming language
- Car ***IS A*** vehicle

So from the above descriptions regarding *inheritance,* we can conclude that we can build new classes by depending on the *existing classes.* We can build some new *classes*.

Existing Class	Derived Class
Shape	Square
Programming Language	Java
Vehicle	Car

Let's find out where an ***IS A*** relationship doesn't exist.



In the above illustration, it's obvious that we cannot use *inheritance* as an ***IS A*** relationship doesn't exist between the objects.

The Java Object class

The basic purpose of object-oriented programming is to enable a programmer to model the *real world objects* using a programming language. In Java whenever we create a `class`, it inherits all the `non-private` *methods* and *fields* from the builtin Java `Object class` by default which makes it a very good example of inheritance in Java. The methods defined in the `Object class` come in very handy when you create *new classes*. To find out more about the Java Object class and its functionalities, you can visit here.

Things are getting interesting? So, let's move to the next lesson in which we will discuss the syntax and terminologies related to inheritance.