Encapsulation

In this lesson, you'll get familiar with one of the components of data hiding, encapsulation.

WE'LL COVER THE FOLLOWING

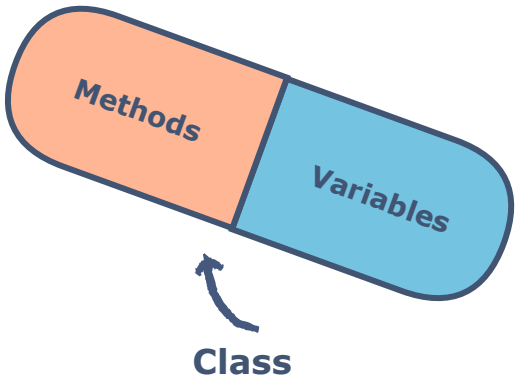
- Definition
  - Advantages of Encapsulation

Definition

Encapsulation is a fundamental programming technique used to achieve data hiding in OOP.

> **Encapsulation** in OOP refers to binding the **data** and the **methods to manipulate that data** together in a single *unit*, that is, class.

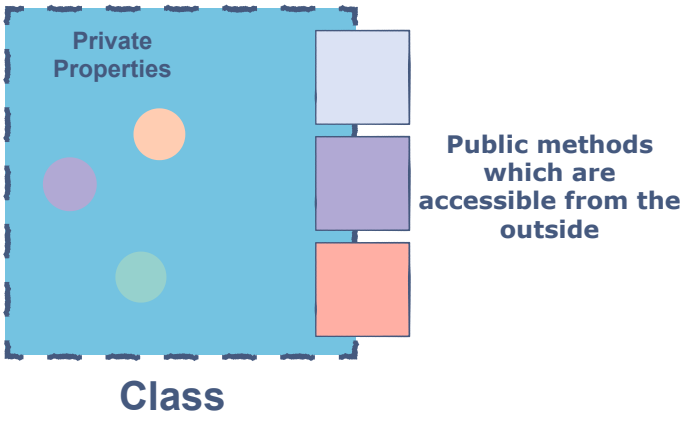
Depending upon this *unit*, objects are created. Encapsulation is usually done to hide the state and representation of an object from outside. A class can be thought of as a **capsule** having *methods* and *properties* inside it.



When encapsulating classes, a good convention is to declare all variables of a class `private`. This will restrict direct access by the code outside that class.

At this point, a question can be raised that if the methods and variables are encapsulated in a class, then *"how can they be used outside of that class"*?

Well, the answer to this is simple. One has to implement `public` methods to let the outside world communicate with this class. These methods are called **getters** and **setters**. We can also implement other custom methods.



Advantages of Encapsulation

- Classes make the code easy to change and maintain.
- Properties to be hidden can be specified easily.
- We decide which outside classes or functions can access the class properties.

In the next lesson, we'll learn about some special methods called getters and setters.