**Definition:** **Object-oriented programming** (**OOP**) is a [programming paradigm](https://en.wikipedia.org/wiki/Programming_paradigm) based on the concept of "[**objects**](https://en.wikipedia.org/wiki/Object_(computer_science))", which can contain [data](https://en.wikipedia.org/wiki/Data) and code: data in the form of [fields](https://en.wikipedia.org/wiki/Field_(computer_science)) (often known as *attributes* or *properties*), and code, in the form of procedures (often known as [*methods*](https://en.wikipedia.org/wiki/Method_(computer_science))).

Object-oriented programming combines a group of variables (properties) and functions (methods) into a unit called an "object." These objects are organized into classes where individual objects can be grouped together. OOP can help you consider objects in a program's code and the different actions that could happen in relation to the objects.

This programming style widely exists in commonly used programming languages like Java, C++ and PHP. These languages help simplify the structure and organization of software programs. Programmers often use OOP when they need to create complex programs.

**The four basics of object-oriented programming:**

Object-oriented programming has four basic concepts: encapsulation, abstraction, inheritance and polymorphism. Even if these concepts seem incredibly complex, understanding the general framework of how they work will help you understand the basics of a computer program. Here are the four basic theories and what they entail:

* Encapsulation
* Abstraction
* Inheritance
* Polymorphism

**Encapsulation:** In computer networking, encapsulation is a method of designing modular communication protocols in which logically separate functions in the network are abstracted from their underlying structures by inclusion or information hiding within higher level objects.

The different objects inside of each program will try to communicate with each other automatically. If a programmer wants to stop objects from interacting with each other, they need to be encapsulated in individual classes. Through the process of encapsulation, classes cannot change or interact with the specific variables and functions of an object.

Just like a pill "encapsulates" or contains the medication inside of its coating, the principle of encapsulation works in a digital way to form a protective barrier around the information that separates it from the rest of the code. Programmers can replicate this object throughout different parts of the program or other programs.

### Abstraction: Abstraction is like an extension of encapsulation because it hides certain properties and methods from the outside code to make the interface of the objects simpler. Programmers use abstraction for several beneficial reasons. Overall, abstraction helps isolate the impact of changes made to the code so that if something goes wrong, the change will only affect the variables shown and not the outside code.