# OOP

OOP is the short form of “Object Oriented Programming”. OOP allows us not to repeat our selves. It is the programming pattern which associates us with the concepts of Class and Objects. It has various other concepts like:

Polymorphism

Inheritance

Abstraction

Encapsulation

BENEFITS OF OOP:

These are some benefits of OOP:

## 1 .Modularity for easier troubleshooting

Suppose something has gone wrong, and you have no idea where to look for it. But in OOP you know where to look for the problem.

## 2. Reuse of code through inheritance

Suppose that in addition to your Car object, one colleague needs a Race Car object, and another needs a Limousine object. Everyone builds their objects separately but discover commonalities between them. In fact, each object is really just a different kind of Car. This is where the inheritance technique saves time: Create one generic class (Car), and then define the subclasses (Race Car and Limousine) that are to inherit the generic class’s traits.

## 3. Flexibility through polymorphism

Polymorphism allows for flexibility and loose coupling so that code can be extended and easily maintained.

## 4. Effective problem solving

Object-oriented programming is often the most natural and pragmatic approach, once you get the hang of it. OOP languages allows you to break down your software into bite-sized problems that you then can solve — one object at a time.

CLASS

A class is the design or blue print of an entity. Which define the property and functions. Class is the design where everything is defined or it’s the type of the object like car is a class.

OBJECT

Object is the instance of a class which has physical existence.

For example a car is a class and alto is an object.

ATTRIBUTE

**Attribute** is a **Python** variable that belongs to a class rather than a particular object. It is shared between all the objects of this class and it is defined outside the constructor function, \_\_init\_\_(self,...) , of the class

BEHAVIOR

Behavior is a function performed by an object. For example legs are to walk, hands are to work e.t.c.