OOPS -

OOP concepts let us create working methods and variables then reuse all or part of them without compromising security. Using oops concepts we can create code which is reusable and simple to use.

Python lets us solve a problem by creating objects and classes which are important aspects of OOPS concepts. So, Python is called an object oriented programming language.

An object has two characteristics:

* Attribute – It is the thing which describes the object
* Behaviour – It is the way an object behaves

For eg –

Lion is an object –

* Color, age, size are attributes
* Roaring, eating are behaviours

Overall a OOPS code has 4 parts:

* Class – It is a general term for a combination of some objects. Eg – Parrot object comes under the class Bird.
* Object – An object (instance) is an instantiation of a class .These are the items or things which the class contains. Eg – Under class Bird there may be many types of birds.
* Method/Function – Methods are functions which are defined inside the body of a class. They define the behaviour of the objects.
* Reference Variable - These variables are used for storing the results of the functions and using them further in the code. Basically it is an alias for some variables.

Basic Principles of OOPS concepts –

* Inheritance - Inheritance is the way of inheriting the properties of a class by any other sub class. The class which inherits is called the child class or derived class and the class from which it is inherited is called parent class pr base class.
* Encapsulation – We can restrict access to private methods and variables in Python. So, the data modification by objects can be prevented. This is called encapsulation. Hiding details from objects to prevent the data from getting modified.
* Polymorphism – The same function can be used by different objects. This is called polymorphism. Eg- The method sound can be used by lion as well as dog.