Object Oriented Programming (OOP)

Objective of learning object oriented programming is developing user defined data types or classes.

Python is object oriented programming language but object oriented is not a language. Object oriented is a programming paradigm which defines set of rules and regulations for organizing data and instructions. Python is multi paradigm programming language. It supports multiple programming paradigms like procedural oriented programming (functions), modular oriented programming (modules) and object oriented programming (classes).

The following are called object oriented concepts

1. Encapsulation
2. Polymorphism
3. Inheritance
4. Abstraction
5. Class
6. Object

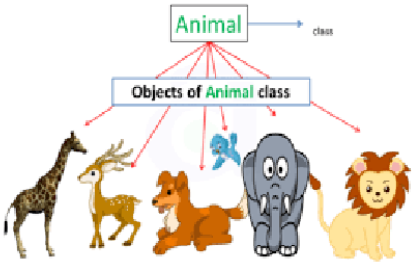
These concepts are used for building user defined data types or classes.

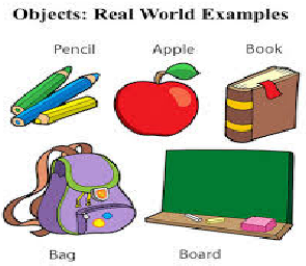
In object oriented application development every data type is a class and data is represented as objects.

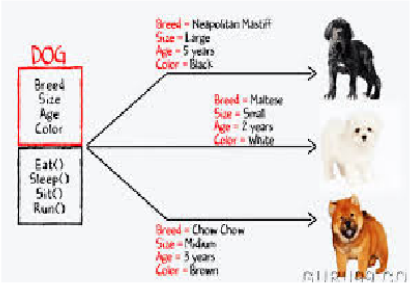
What is object?

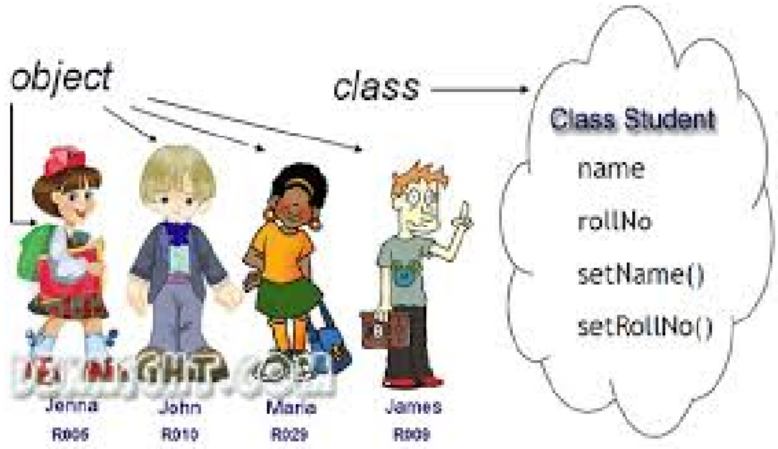
Object real world entity.
Object is implementation of a class.
Every object is having two characteristics

1. Properties
2. Behavior









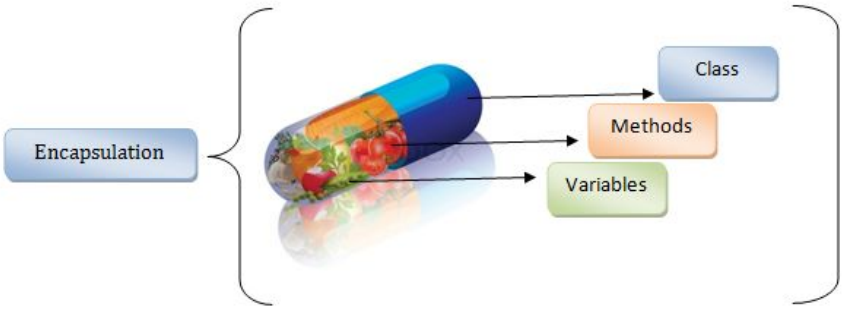
Class is data type which allocates memory for object.

Class

In object oriented programming every class is one data type.
This data type is used to allocate memory for objects.
Class defines the structure of object.
Class defines the properties and behavior of object.
Class is a blueprint of object.
Object is an instance of class. Instance is nothing but allocating memory for members of class or properties of class.
Properties define the state of the object. State is nothing values hold by object.
Behavior defines the functionality of object. Behavior is nothing operations of object.
Class is an implementation of encapsulation.

Encapsulation

Encapsulation is a process of grouping the properties and behavior of object within a single entity.
Binding data with related operations is called encapsulation.
Wrapping of data and functions within one single entity is called encapsulation.



Advantage of encapsulation

1. Data Hiding
2. Binding

What is data hiding?

Preventing data access from unrelated operations is called data hiding.
This allows developing secured applications.

What is binding?

Linking data with related operation is called binding.

Syntax of writing class in python

Defining or writing class is nothing but creating user defined data type.

class <class-name>/<datatype-name>():
    properties (variables)
    behavior (functions/methods)