

Object Oriented Programming

The main objective of learning object oriented programming is developing user defined data types.

Object oriented programming is a paradigm which defines set of rules and regulations for developing user defined data types.

Object oriented concepts

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

Every data type in python is class and data is represented as objects.

What is object?

Object is an instance of class.

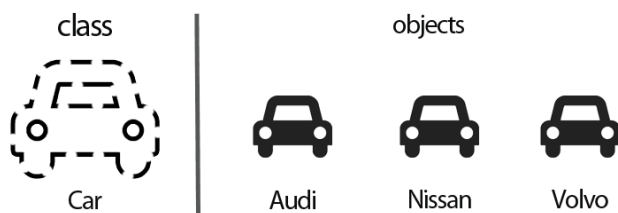
Every object behind there is a class.

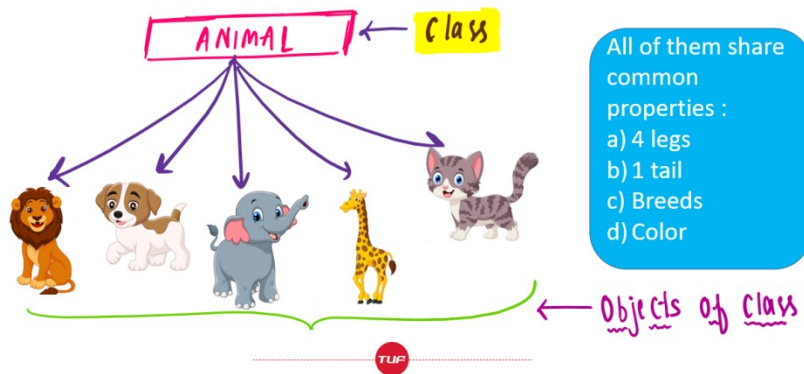
Class is used for creating object.

Object required space with main memory (RAM). This space is created by class.

Every object is having two characteristics.

1. Properties
2. Behavior

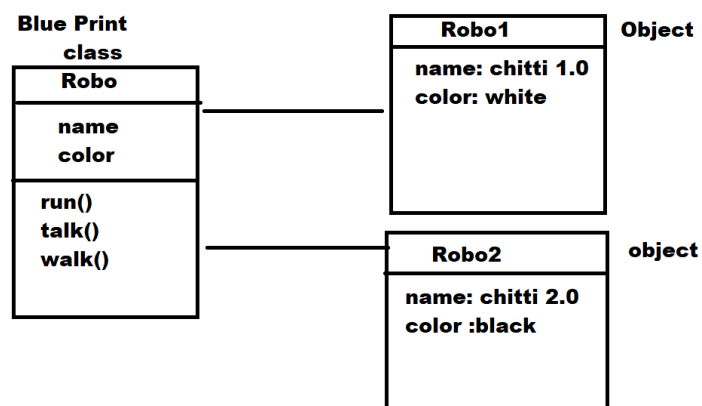




Properties define the state/data of the object.
Behavior defines the functionality of the object.

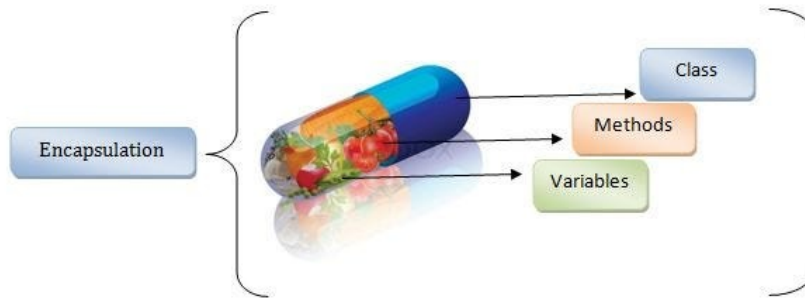
Class

In object oriented programming class represents data type.
Class is a blue print of object
Class defines the structure of object
Class is encapsulated with properties and behavior of object.
Class is a collection of variables and methods/functions.



Encapsulation

Encapsulation is process of grouping properties and behavior of object within single entity called class.
Binding data with related operations is called encapsulation.

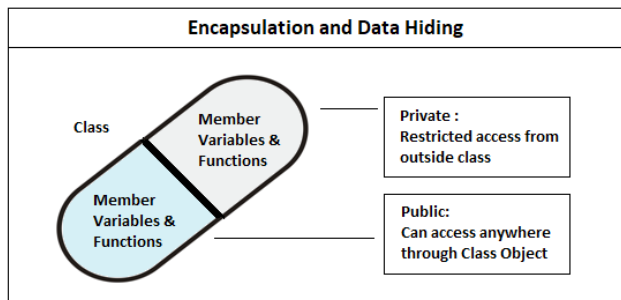


Advantage of encapsulation

1. Data Hiding
2. Binding

Data Hiding

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



Binding

Linking variables and function is called binding.

Syntax of class:

```
class <data-type-name>/<class-name>:
    variables
    methods
```

variables defines the properties of object.
methods defines the functionality of object.

The variables declared inside class are two types

1. Instance variables/Object level variables
2. Class variables

The methods defined inside class are 3 types

1. Instance method
2. Class method
3. Static method

Note: Writing class is nothing but creating data type.