

Object and class in Java

Class: Class is a blue print which is containing only list of variables and method and no memory is allocated for them. A class is a group of objects that has common properties.

A class in java contains:

- Data Members
- Methods
- Constructor
- Blocks
- Class and Interface

Object: Object is an instance of class, object has state and behavior.

An Object in java has three characteristics:

- State
- Behavior
- Identity

State: Represents data (value) of an object.

Behavior: Represents the behavior (functionality) of an object such as deposit, withdraw etc.

Identity: Object identity is typically implemented via a unique ID. The value of the ID is not visible to the external user. But, it is used internally by the JVM to identify each object uniquely.

Class is also can be used to achieve user defined data types.

Object is the physical as well as logical entity where as class is the only logical entity.

Real life example of object and class

In real world many examples of object and class like dog, cat, and cow are belong to animal's class. Each object has state and behaviors. For example a dog has state:- color, name, height, age as well as behaviors:- barking, eating, and sleeping.



Vehicle class

Car, bike, truck these all are belongs to vehicle class. These Objects have also different different states and behaviors. For Example car has state - color, name, model, speed, Mileage. as we;; as behaviors - distance travel



Difference between Class and Object

	Class	Object
1	Class is a container which collection of variables and methods.	object is an instance of class
2	No memory is allocated at the time of declaration	Sufficient memory space will be allocated for all the variables of class at the time of declaration.
3	One class definition should exist only once in the program.	For one class multiple objects can be created.

Syntax to declare a Class

```
class Class_Name
{
    data member;
    method;
}
```

Simple Example of Object and Class

In this example, we have created a Employee class that have two data members eid and ename. We are creating the object of the Employee class by new keyword and printing the objects value.

Example

```
class Employee
{
    int eid; // data member (or instance variable)
    String ename; // data member (or instance variable)
    eid=101;
    ename="Hitesh";
    public static void main(String args[])
    {
        Employee e=new Employee(); // Creating an object of class Employee
        System.out.println("Employee ID: "+e.eid);
        System.out.println("Name: "+e.ename);
    }
}
```

Output

Employee ID: 101

Name: Hitesh

Note: “new” keyword is used to allocate memory at runtime, new keyword is used for create an object of class.

