**Object and class in Java**

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

**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 Member
* Method
* Constructor
* Block
* Class and Interface

**Object:** Object is a instance of class, object has state and behaviors.

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.

**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 a 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:**A new keyword is used to allocate memory at runtime, new keyword is used for create an object of class, later we discuss all the way for create an object of class.