Object and Class in Java

1. [Object in Java](http://www.javatpoint.com/object-and-class-in-java#object)
2. [Class in Java](http://www.javatpoint.com/object-and-class-in-java#class)
3. [Instace Variable in Java](http://www.javatpoint.com/object-and-class-in-java#objectinstancevariable)
4. [Method in Java](http://www.javatpoint.com/object-and-class-in-java#objectmethod)
5. [Example of Object and class that maintains the records of student](http://www.javatpoint.com/object-and-class-in-java#objectex2)
6. [Annonymous Object](http://www.javatpoint.com/object-and-class-in-java#objectannonymous)

In this page, we will learn about java objects and classes. In object-oriented programming technique, we design a program using objects and classes.

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

Object in Java

An entity that has state and behavior is known as an object e.g. chair, bike, marker, pen, table, car etc. It can be physical or logical (tengible and intengible). The example of integible object is banking system.

An object has three characteristics:

* **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.

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| For Example: Pen is an object. Its name is Reynolds, color is white etc. known as its state. It is used to write, so writing is its behavior. |

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| **Object is an instance of a class.** Class is a template or blueprint from which objects are created. So object is the instance(result) of a class. |

Class in Java

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| A class is a group of objects that has common properties. It is a template or blueprint from which objects are created. |

A class in java can contain:

* **data member**
* **method**
* **constructor**
* **block**
* **class and interface**

### Syntax to declare a class:

class <class\_name>{

data member;

Simple Example of Object and Class

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

class Student1{

int id;//data

[**Test it Now**](http://www.javatpoint.com/opr/test.jsp?filename=Student1)

Output:0 null

**Instance variable in Java**

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| A variable that is created inside the class but outside the method, is known as instance variable. Instance variable doesn't get memory at compile time. It gets memory at runtime when object(instance) is created. That is why, it is known as instance variable. |

**Method in Java**

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| In java, a method is like function i.e. used to expose behaviour of an object. |

**Advantage of Method**

* Code Reusability
* Code Optimization

**new keyword**

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| The new keyword is used to allocate memory at runtime. |

Example of Object and class that maintains the records of students

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| In this example, we are creating the two objects of Student class and initializing the value to these objects by invoking the insertRecord method on it. Here, we are displaying the state (data) of the objects by invoking the displayInformation method. |