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# Introduction

- Our core Java programming tutorial is designed for students and working professionals. Java is an object-oriented , class-based, concurrent, secured and general-purpose computer-programming language. It is a widely used robust technology

# What is Java?

- Java is a programming language and a platform. Java is a high level, robust, object-oriented and secure programming language.
- Java was developed by Sun Microsystems (which is now the subsidiary of Oracle) in the year 1995. James Gosling is known as the father of Java. Before Java, its name was Oak. Since Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java.

# Application

1. Embedded
2. Mobiles
3. Robotics
4. Smart card
5. Desktop apllications
6. Web Applications such as irctc.co.in, javatpoint.com, etc.
7. Enterprise Applications such as banking applications.

# Types of applications

1. Standalone Application
2. Web Application
3. Enterprice application
4. Mobile apllication

# OOPs (Object-Oriented Programming System)

Object means a real-world entity such as a pen, chair, table, computer, watch, etc. Object-Oriented Programming is a methodology or paradigm to design a program using classes and objects. It simplifies software development and maintenance by providing some concepts

## Object

Any entity that has state and behavior is known as an object. For example, a chair, pen, table, keyboard, bike, etc. It can be physical or logical

## class

Collection of objects is called class. It is a logical entity

## Inheritance

When one object acquires all the properties and behaviors of a parent object, it is known as inheritance. It provides code reusability. It is used to achieve runtime polymorphism.

## Polymorphism

- If one task is performed in different ways, it is known as polymorphism. For example: to convince the customer differently, to draw something, for example, shape, triangle, rectangle, etc
- In Java, we use method overloading and method overriding to achieve polymorphism
- Another example can be to speak something; for example, a cat speaks meow, dog barks woof, etc

## Abstraction

Hiding internal details and showing functionality is known as abstraction. For example phone call, we don't know the internal processing

# Constructors in JAVA

- In Java, a constructor is a block of codes similar to the method. It is called when an instance of the class is created. At the time of calling constructor, memory for the object is allocated in the memory.
- It is a special type of method which is used to initialize the object
- Every time an object is created using the new() keyword, at least one constructor is called

## Rules for creating java constructor

There are two rules defined for the constructor

1. Constructor name must be the same as its class name
2. A Constructor must have no explicit return type
3. A Java constructor cannot be abstract, static, final, and synchronized

## Type of constructors

There are two types of constructors in Java:

1. Default constructor
2. Parameterized constructor

## Java Default constructor

A constructor is called "Default Constructor" when it doesn't have any parameter.

## Java paramaterized constructor

A constructor which has a specific number of parameters is called a parameterized constructor.