

# FEATURES OF JAVA

Java is an Object-Oriented Programming language. It was developed by **James Gosling** in collaboration with Mike Sheridan, and Patrick Naughton in the year 1995.

Following are the main features of the Java language –

- Simple
- Object Oriented
- Platform independent
- Secure
- Robust
- Portable
- Dynamic
- Interpreted
- Portable
- High Performance
- Distributed
- Multithreading

## **SIMPLE:**

- ✓ Java is user-friendly.
- ✓ Its syntax is clear and concise making it suitable for both aspiring programmers and experienced professionals.
- ✓ It inherits many features from C, C++ and removes complex features like pointers, operator overloading, multiple inheritance, explicit memory allocation etc.

## **OBJECT ORIENTED:**

- ✓ Java is an Object Oriented Programming language.
- ✓ Everything in JAVA is an Object, Object is a real world entity.
- ✓ Java supports Fundamental concepts of OOPs-
  - Object
  - Class
  - Inheritance
  - Polymorphism
  - Abstraction
  - Encapsulation

## **PLATFORM INDEPENDENT:**

- ✓ Unlike other languages, Java is not limited to any specific machine and dependent on other factors to run. The Java platform is independent because:
  - It uses a runtime environment of its own, i.e. JVM.
  - It is a write-once, run-anywhere language.
  - It is a software-based platform that runs on top of other hardware-based platforms.

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## SECURE:

- ✓ Java is better known for its security, Java is secured because:
  - No explicit Pointer
  - Java runs inside a virtual machine(JVM)
- ✓ In Java run time, a class loader separates the package for the classes of the local file system from the files imported from network sources.
- ✓ Java also consists of Bytecode Verifier, which checks the code fragments for illegal code.

## ROBUST:

- ✓ Java is robust because of following:
  - Built-in Exception handling.
  - Strong type checking .

## PORTABLE:

- ✓ Java is portable because it facilitates you to carry the Java bytecode to any platform. It doesn't require any implementation.

## DYNAMIC:

- ✓ Java is a dynamic language. It supports the dynamic loading of classes. It means classes are loaded on demand. It also supports functions from its native languages, i.e., C and C++.
- ✓ Java supports dynamic compilation and automatic memory management (garbage collection).

## INTERPRETED:

- ✓ The source code is first compiled into bytecode by the Java compiler.
- ✓ Then this bytecode is interpreted by the JVM when the program runs.

## PORTABLE:

- ✓ Java is portable because it facilitates you to carry the Java bytecode to any platform. It doesn't require any implementation.

## HIGH PERFORMANCE:

- ✓ Java is faster than other traditional interpreted programming languages because Java bytecode is "close" to native code.
- ✓ It is still a little bit slower than a compiled language (e.g., C++).
- ✓ Java is an interpreted language that is why it is slower than compiled languages, e.g., C, C++, etc.

## DISTRIBUTED:

- ✓ Java provides the network facility. i.e. programs can be access remotely from any machine on the network rather than writing program on the local machine.
- ✓ HTTP and FTP protocols are developed in java.

## MULTITHREADING:

- ✓ Java provides multitasking facility with the help of lightweight processes called threads.