

# 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 1995.

Following are the main features of the Java language

- **Object Oriented**
- **Platform Independent**
- **Simple**
- **Secure**
- **Architecture-neutral**
- **Portable**
- **Robust**
- **Multithreaded**
- **Interpreted**

## 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

1. Object
2. Class
3. Inheritance

4. Polymorphism
5. Abstraction
6. 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.

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