

FEATURES OF JAVA

Java programming language was initially developed to work on embedded systems, settop boxes, television. So, by requirements it was initially designed to work on varied platforms. Over the period of multiple years, Java evolved to become one of the most popular languages used to develop internet-based applications.

Following are the major features of the Java language.

- Simple
- Object-Oriented
- Portable
- Platform Independent
- Secured
- Robust
- Interpreted
- Multithreaded
- High Performance
- Distributed
- Dynamic

1)Simple:

- Java is designed to be easy to learn.
- Java inherits many features of c, c++ .
- It does not have complex features like pointers, operator overloading, multiple inheritance etc.
- It automatically provides garbage collection.
- Java makes developers life easy.

2)Object-Oriented:

- Java is an object-oriented programming language.
- Object-oriented means we organize our software as a combination of distinct types of objects that incorporate both data and behavior.
- As a language that has the Object-Oriented feature, Java supports the following fundamental concepts of OOPS-
 - a) Object
 - b) Class
 - c) Method

- d) Polymorphism
- e) Inheritance
- f) Encapsulation
- g) Abstraction
- h) Instance

3)Portable:

- Java is portable because it facilitates you to carry the Java bytecode to any platform. It doesn't require any implementation.
- It was particularly useful for internet-based application where platforms varied from place to place, and same code base can be used across multiple platforms.
- So, collaboration between developers was easy across multiple locations.

4)Platform Independent:

- Java is platform independent because it is different from other languages like [C](#), [C++](#), etc. which are compiled into platform specific machines while Java is a write once, run anywhere language.
- A platform is the hardware or software environment in which a program runs.
- Java code is compiled by the compiler and converted into bytecode. This bytecode is a platform-independent code because it can be run on multiple platforms.

5)Secured:

- Java is best known for its security.
- We can develop virus-free systems.
- Java is secured because:
 - i) No explicit pointer
 - j) Java Programs run inside a virtual machine sandbox

6)Robust:

- Java uses strong memory management.
- There is a lack of pointers that avoids security problems.

- Java provides automatic garbage collection which runs on the Java Virtual Machine to get rid of objects which are not being used by a Java application anymore.
- There are exception handling and the type checking mechanism in Java. All these points make Java robust.

7)Multithreaded:

- A thread is like a separate program, executing concurrently. We can write Java programs that deal with many tasks at once by defining multiple threads.
- The main advantage of multi-threading is that it doesn't occupy memory for each thread. It shares a common memory area.
- Threads are important for multi-media, Web applications, etc.

8)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.
- With the use of Just-In-Time compilers, Java enables high performance.
- JVM uses JIT compiler to improves the execution time of the program.

9)Distributed:

- Java is distributed because it facilitates users to create distributed applications in Java.
- This feature of Java makes us able to access files by calling the methods from any machine on the internet.

10)Dynamic:

- Java is a dynamic language.
- It supports the dynamic loading of classes. It means classes are loaded on demand.
- It supports functions from its native languages, i.e., C and C++.