Features of Java

The prime reason behind creation of Java was to bring portability and security feature into a computer language. Beside these two major features, there were many other features that played an important role in moulding out the final form of this outstanding language. Those features are:

1) Simple

Java is easy to learn and its syntax is quite simple, clean and easy to understand. The confusing and ambiguous concepts of C++ are either left out in Java or they have been re-implemented in a cleaner way.

E.g.: Pointers and Operator Overloading are not there in java but were an important part of C++.

2) Object Oriented

In java, everything is an object which has some data and behaviour. Java can be easily extended as it is based on Object Model. Following are some basic concepts of OOP's.

- Object
- Class
- Inheritance
- Polymorphism
- Abstraction
- Encapsulation

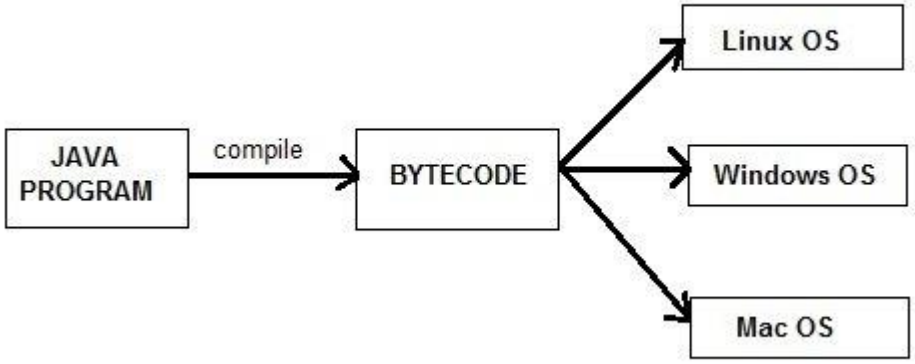
3) Robust

Java makes an effort to eliminate error prone codes by emphasizing mainly on compile time error checking and runtime checking. But the main areas which Java improved were Memory Management and mishandled Exceptions by introducing automatic Garbage Collector and Exception Handling.

4) Platform Independent

Unlike other programming languages such as C, C++ etc which are compiled into platform specific machines. Java is guaranteed to be write-once, run-anywhere language.

On compilation Java program is compiled into bytecode. This bytecode is platform independent and can be run on any machine, plus this bytecode format also provide security. Any machine with Java Runtime Environment can run Java Programs. Java is platform Independent Language



5) Secure

When it comes to security, Java is always the first choice. With java secure features it enables us to develop virus free, temper free system. Java program always runs in Java runtime environment with almost null interaction with system OS, hence it is more secure.

6) Multi-Threading

Java multithreading feature makes it possible to write program that can do many tasks simultaneously. Benefit of multithreading is that it utilizes same memory and other resources to execute multiple threads at the same time, like While typing, grammatical errors are checked along.

7) Architectural Neutral

Compiler generates bytecodes, which have nothing to do with a particular computer architecture, hence a Java program is easy to interpret on any machine.

8) Portable

Java Byte code can be carried to any platform. No implementation dependent features. Everything related to storage is predefined, example: size of primitive data types

9) High Performance

Java is an interpreted language, so it will never be as fast as a compiled language like C or C++. But Java enables high performance with the use of just-in-time compiler.

10) Distributed

Java is also a distributed language. Programs can be designed to run on computer networks. Java has a special class library for communicating using TCP/IP protocols. Creating network connections is very much easy in Java as compared to C/C++.

New Features of JAVA 8

Below mentioned are some of the core upgrades done as a part of Java 8 release. Just go through them quickly, we will explore them in details later.

- Enhanced Productivity by providing Optional Classes feature, Lamda Expressions, Streams etc.
- Ease of Use
- Improved Polyglot programming. A Polyglot is a program or script, written in a form which is valid in multiple programming languages and it performs the same operations in multiple programming languages. So Java now supports such type of programming technique.
- Improved Security and performance.

#New Features of JAVA 11

Java 11 is a recommended LTS version of Java that includes various important features. These features includes new and upgrades in existing topic. Just go through them quickly, we will explore them in details later.

- includes support for Unicode 10.0.0
- The HTTP Client has been standarized
- Lazy Allocation of Compiler Threads
- Updated Locale Data to Unicode CLDR v33
- JEP 331 Low-Overhead Heap Profiling
- JEP 181 Nest-Based Access Control
- Added Brainpool EC Support (RFC 5639)
- Enhanced KeyStore Mechanisms
- JEP 332 Transport Layer Security (TLS) 1.3
- JEP 330 Launch Single-File Source-Code Programs

Java Editions

Java Editions or we can say the platform is a collection of programs which helps to develop and run the programs that are written in Java Programming language. Java Editions includes execution engine, compiler and set of libraries. As Java is Platform independent language so it is not specific to any processor or operating system.

1. Java Standard Edition

Java Standard edition is a computing platform which is used for development and deployment of portable code that is used in desktop and server environments. Java Standard Edition is also known as Java 2 Platform, Standard Edition (J2SE).

Java Standard Edition has a wide range of APIs such as Java Class Library etc. the best implementation of Java SE is Oracle Corporation’s Java Development Kit (JDK).

2. Java Micro Edition

Java Micro Edition is a computing platform which is used for the development and deployment of portable codes for the embedded and mobile devices. Java Micro Edition is also known as Java 2 Platform Micro Edition (J2ME). The Java Micro Edition was designed by Sun Microsystems and then later on Oracle corporation acquired it in 2010.

Example: micro-controllers, sensors, gateways, mobile phones, printers etc.

3. Java Enterprise Edition

Java Enterprise Edition is a set of specifications and extending Java SE 8 with features such as distributed computing and web services. The applications of Java Enterprise Edition run on reference runtimes. This reference runtime handle transactions, security, scalability, concurrency and the management of components to be deployed. Java Enterprise Edition is also known as Java 2 Platform Enterprise Edition (J2EE), and currently, it has been rebranded as Jakarta EE.

Example: e-commerce, accounting, banking information systems.

4. JavaFX

JavaFX is used for creating desktop applications and also rich internet applications (RIAs) which can be run on a wide variety of devices. JavaFX has almost replaced Swing as the standard GUI library for Java Standard Edition. JavaFX support for desktop computers and web browsers.