CS3CO32

Java Programming

The JAVA Technology

Java technology is both a programming language and a platform.

The JAVA Technology

JAVA is high level programming language and platform for development of standalone desktop applications, web application and mobile application developed by Sun Microsystem in year 1995.

Java Platform : Collection of programs that help to develop and run programs written in Java. It includes an execution engine (Interpreter), Compiler , set of library (Class and Methods) etc.

The JAVA Technology

A platform is the hardware or software environment in which a program runs. like Windows, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware.

The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platform

Java Platform : Collection of programs that help to develop and run programs written in Java. It includes an execution engine (Interpreter), Compiler , set of library (Class and Methods) etc.

The JAVA Technology

The Java platform has two components:

The Java Virtual Machine (Java VM)
The Java Application Programming Interface (Java API)

Java : History and Evaluation

1991-92

Originally called ‘Oak’ for development of software for consumer electronics devices like Tvs, VCRs, toasters etc.

The Team is called “Green Project Team”includes James Gosling and Patrick Naughton.

1993

Idea of developing Web applets (Tiny Program which can run on all types of machine connected to internet) using new language (‘Oak’).

Java : History and Evaluation

1994

The team developed a Web Browser called ‘HotJava’ to locate and run applet program on internet.

‘HotJava’ showed the power of new language and became popular among internet users.

1995

“Oak” was renamed as ‘Java’ due to some legal issue. Big companies like Microsoft and Netscape announced their support for Java.

Java : History and Evaluation

1996

Java established itself not only as a leader for internet programming but also as general purpose, OOP language .

JDK 1.00 was released by Sun.

1997

JDK 1.1 was released.

Java : History and Evaluation

1998

Sun release the Java 2 with version 1.2 of Software Development Kit (SDk 1.2).

1999

Sun released Java2 platform, J2SE and J2EE.

2000

J2SE with SDK 1.3 was released.

Java : History and Evaluation

2002

J2SE with SDK 1.4

2004

J2SE with JDK 5.0, not JDK 1.5, was release . This is known as J2SE 5.0.

2006

Java SE6 was released. With this release name changed from J2SE to Java SE and ‘.0’ removed from the version name.

Java : History and Evaluation

2011

Java SE 7

2014

Java SE 8

2017

Java SE 9

Java : History and Evaluation

2018

Java SE 10 (JDK 10)

2019

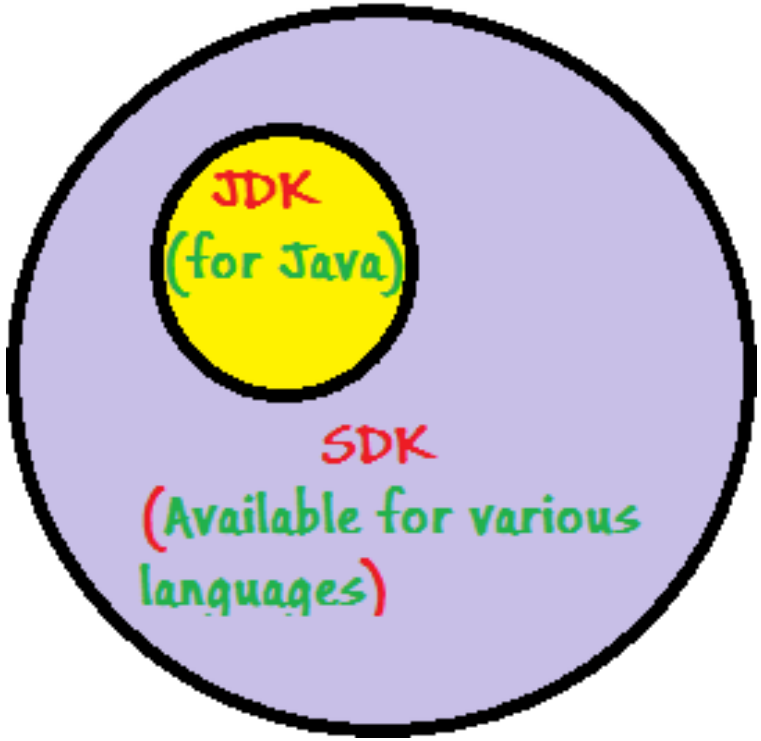
Java SE 11(JDK 11)

2019

Java SE 13(JDK13)

Java SE 18 is the latest release for the Java SE Platform

sdk and jdk



SDK is the generic bundle of software that supports and includes tools and APIs for software creation in a variety of languages like Clojure, Groovy, Scala, JRuby, and others.

JDK is the specific bundle to develop software in Java language, containing all Java standard API to do so.

sdk and jdk

JDK is the most widely used SDK and for writing and running Java programs.

Jdk includes:

Javac : java complier

Java : jvm/ java interpreter Appletviewer : for viewing java applet

Javadoc : For creating HTML documents Jdb : Java debugger

SDK : Includes tools and APIs

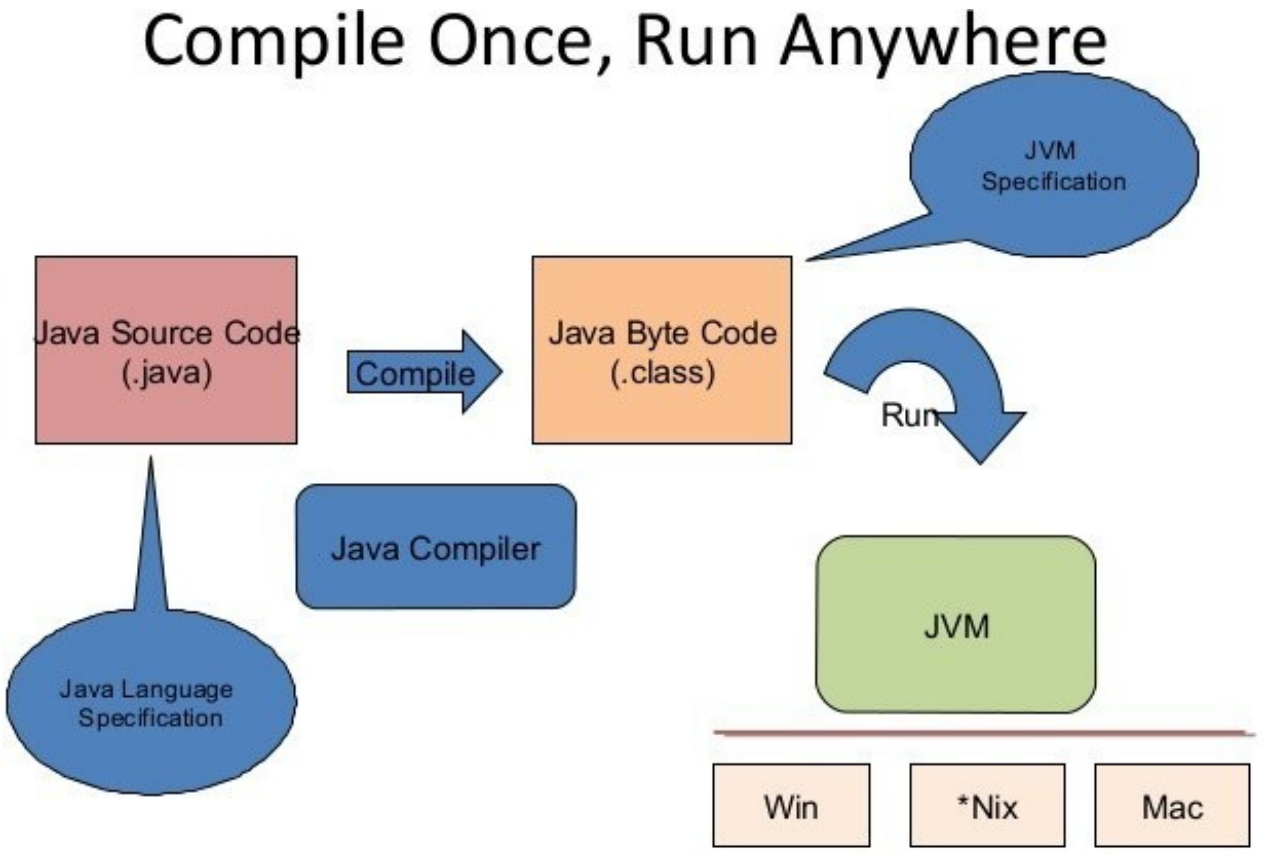
API(Application Progamming Interface) : Java standard Library which includes hundreds of classes, interfaces and Methods.

Java Environment

Java development tools

APIS

Java : Platform independent



C++ came with object-oriented programming features. C++ is the extension of C language which has been used extensively. It is a powerful modern language that includes the power and simplicity of C and the characteristics of OOP. C++ provides more functional software benefits than C.

C ++ with OOP became quite famous but then a new problem arose, to control the software on different machines, a separate compiler is required for that CPU. But building a C++ compiler was quite expensive. Therefore, an efficient and easy solution was needed, and this requirement became the reason for the creation of Java, which is a portable and platform- independent language.

JDK, JRE and JVM

JDK : Java Development Kit:

Collection of tools /software that are used for developing and running java program. JDK includes

Javac : java complier

Java : jvm/ java interpreter Appletviewer : for viewing java applet Javadoc : For creating HTML documents Jdb : Java debugger

JRE: Java Runtime Environment:

It is tools and software for running of program developed in Java. It is part of jdk.

It Includes:

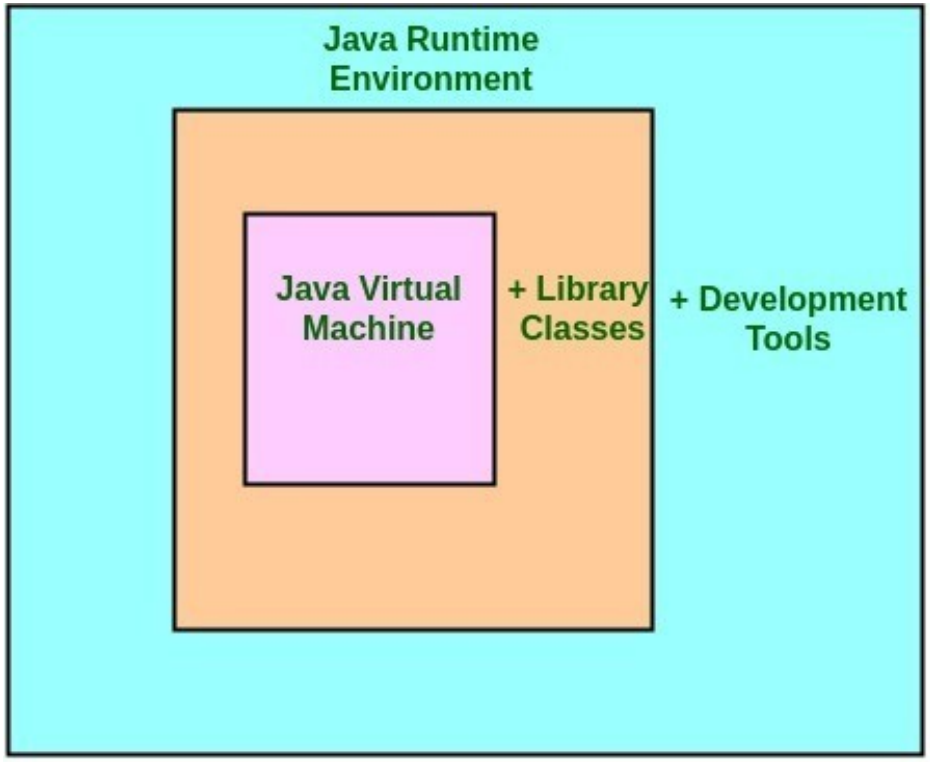
1. Java Virtual Machine
2. Run time class libraries
3. Java plugins for applet execution on web browser.
4. Java Web start to launch an application directly from browser.

JVM

Java Virtual Machine

It is program, also known as java interpreter, which interprets and execute java byte code and generate output of the java program. It is the program which makes java portable and plate-form independent programming language.

JVM is part of JDK and JRE.



JDK = JRE + Development Tool
JRE = JVM + Library Classes

JDK = JRE + (javac + javadoc + jdb)

JRE = JVM(java) + class libraries + plugings

Java APIs

Application Programming Interface:

It is Java standard library which includes various class and methods grouped into several packages.

Most commonaly used packages:

Language Support packege : java.lang Utility Pacakge : java.util

I/O package : java.io Database Package : java.sql

GUI package : java.awt and javax.swing