Introduction to Java

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Java

- It is programming language created by sun microsystems.

- Developed by ***James Gosling*** and team.

- It is a general purpose object oriented programming language.

- Most of the syntax derived from C and C++.

- Java is now acquired and maintained by Oracle Corporation.

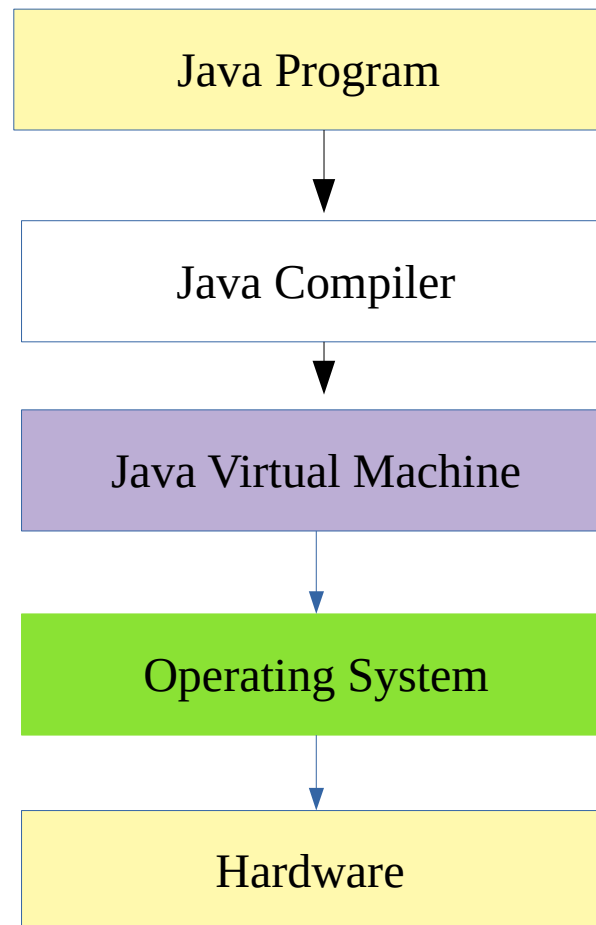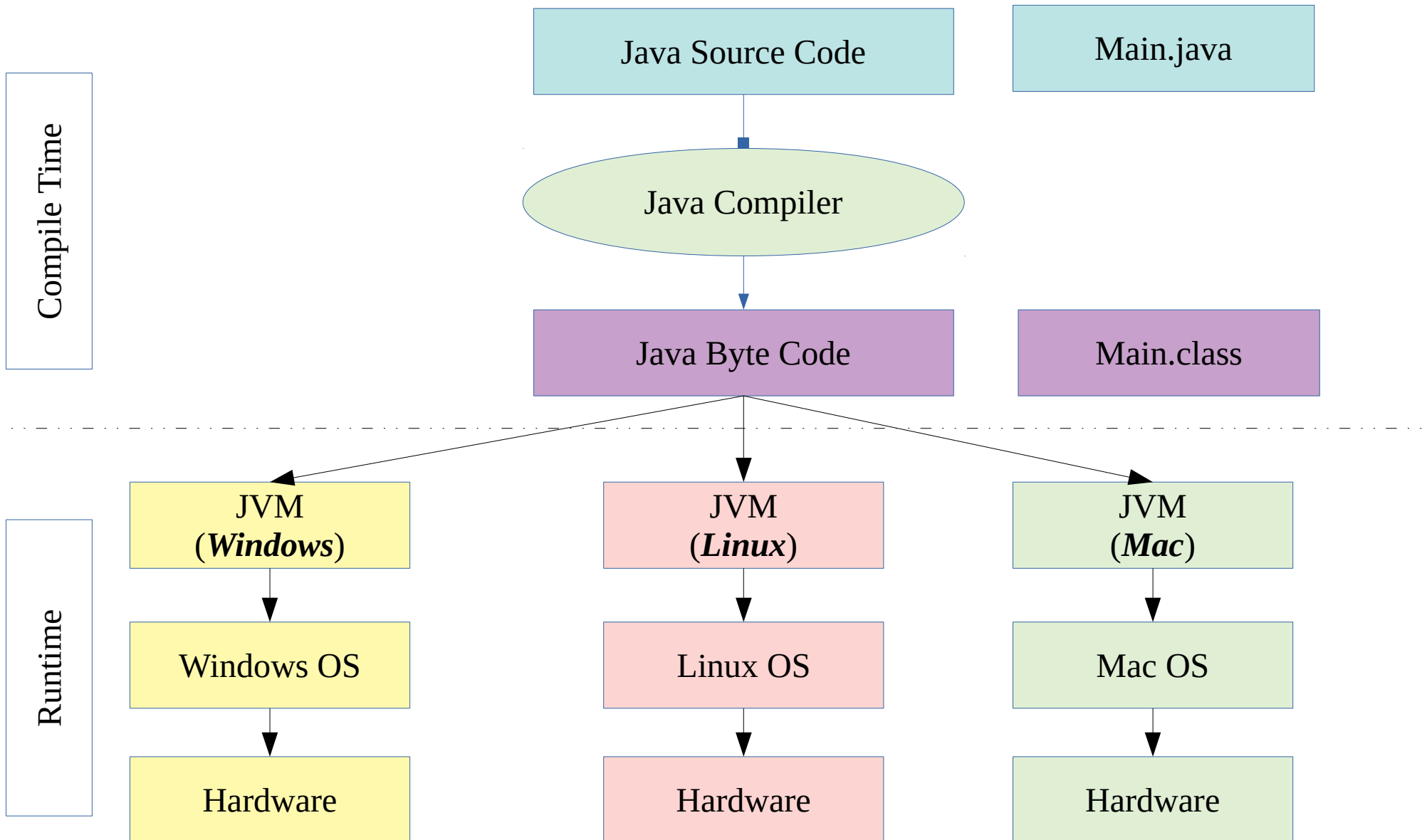# Creator of Java

James Gosling

- Initially named as Oak.

- Later it renamed to Java.

- Later Java is realised as Free Open Source Software (***FOSS***) under GNU General Public Licence.
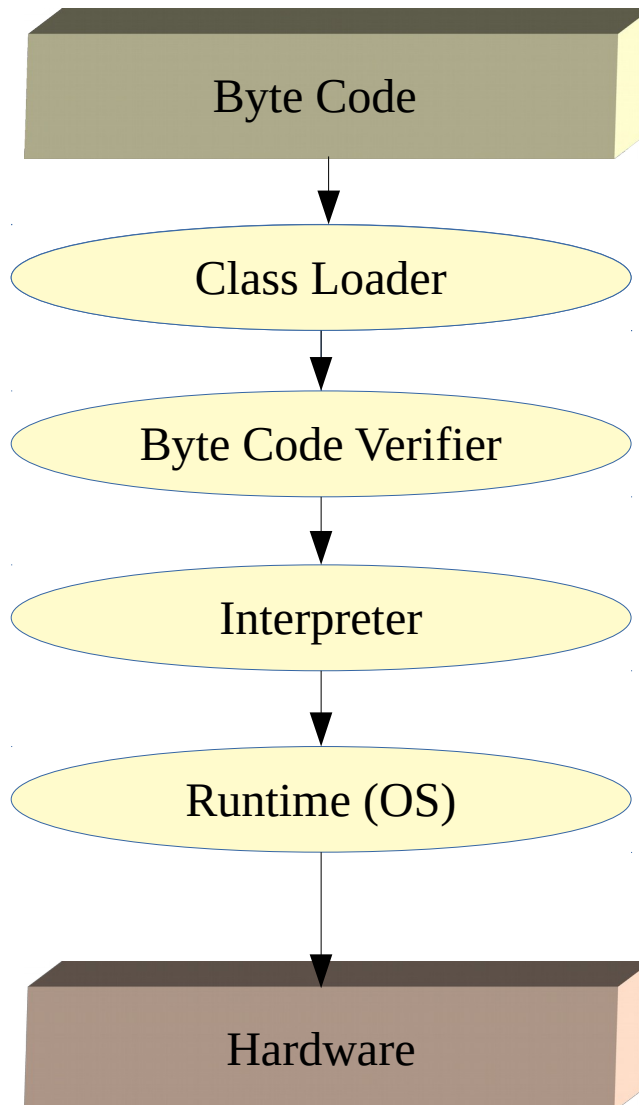
Architecture of Java

Java Program

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Java Compiler

↓

Java Virtual Machine

↓

Operating System

↓

Hardware

How Java Code Works

Compile Time

Java Source Code

Main.java

Java Compiler

Java Byte Code

Main.class

Runtime

JVM
(*Windows*)

JVM
(*Linux*)

JVM
(*Mac*)

Windows OS

Linux OS

Mac OS

Hardware

Hardware

Hardware

Java Compiler [*Compile Time*]

- Java Compiler Compiles the Java Source Code [*Main.java*].

- It checks for syntax errors and if none found then compiler generates Byte code [*Intermediate Code called Main.class*] as class file.

- This class file targeted to JVM not the actual operating system of target machine.

- This class file can run by any OS which has a JVM.

Inside JVM [*Runtime*]

Java Interpretation

- *Classloader*
  - It is the subsystem of JVM that is used to load class files.

- *Bytecode Verifier*
  - Checks the code fragments for illegal code that can violate access right to objects.

- *Interpreter*
  - read bytecode stream then execute the instructions in a native code.