What is Java?

* It is a programming language.
* It is high level, robust, object oriented and secure programming language.
* It is platform independent. It was introduced in 1995.

<https://docs.oracle.com/javase/8/docs/api/index.html>

OpenJDK

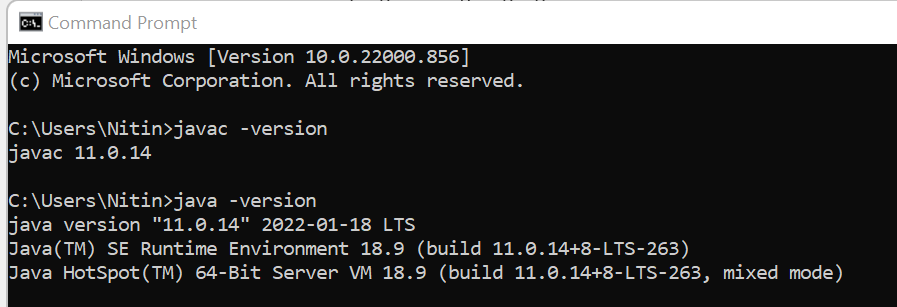
<https://www.oracle.com/java/technologies/downloads/>

Oracle JDK

<https://www.oracle.com/java/technologies/downloads/>

after installation - verify the installation

go to command prompt / terminal and ensure the version for javac & java are the same.



If it doesn’t work,

Set the environment variable that is PATH.

set PATH = %PATH%; C:\Program Files\Java\jdk-11.0.14\bin

alternatively we can go to Edit System Variable and add Java Home path to Path variable.

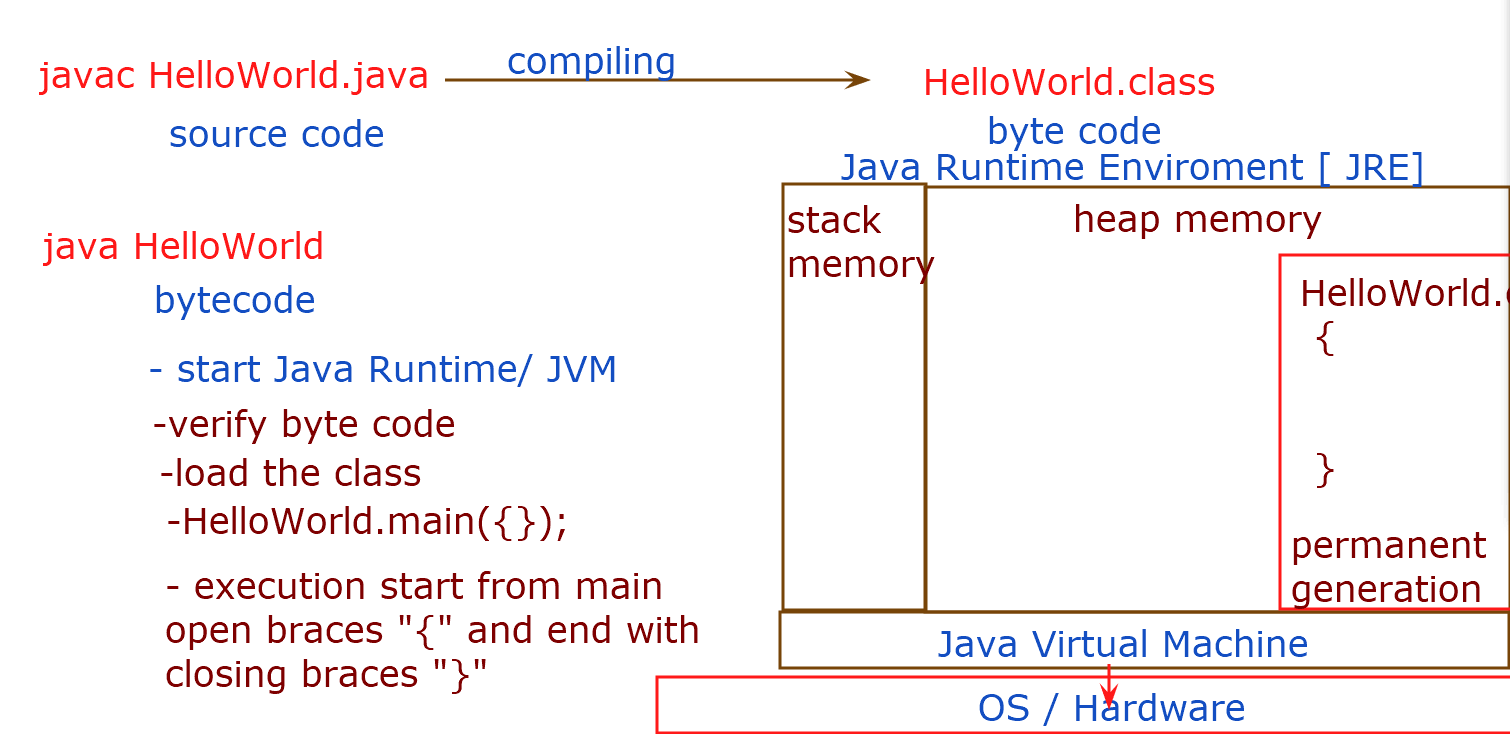
MacOS [ pls check the java home path ]

export PATH = $PATH: /usr/java/jdk-11.0.14/bin

javac === Java compiler / it is used to translate high-level Language to Byte Code.

java == Java Runtime / it is responsible for starting JVM and executing Java Main class that is the starting point of your java application.

**Write Once and Run Anywhere**



**Types of Java Edition**

1. Java Standard Edition [ Java SE ]
   * Desktop applications
   * Console Application [ No GUI ]
   * Java Libraries
2. Java Enterprises Edition [ Java EE ]
   * Web Application
   * Distributed Applications [ Enterprise Application]
3. Java Micro Edition [ Java ME ]
   * Mobile Application
   * Java TV
   * Java Card [ program information for smart card chipset]

**Object Oriented Programming**

1. Encapsulation & Data Hiding
2. Inheritance
3. Abstraction
4. Polymorphism
5. **Encapsulation & Data Hiding**

Wrapping up data & behavior into one capsule / block is known as encapsulation. A class is a way to encapsulate the state[ data ] & behavior.

This is to form blue print.

Data hiding - To hide the data from direct accessibility to prevent direct modification.

Graphical user interface, text

Description automatically generated

**Syntax for Creating Object**

<ClassName> ref-variable = new <ClassName>();

* Java is case Sensitive
* Java follows certain naming convention

1. ClassName - upper camel case
2. Field members [ state ] & methods [ behavior ] – lower camel case
3. Constant variable -- UPPER CASE

Text

Description automatically generated

**Types of Variables**

1. Primitive Type [ 8 types ]
   1. byte 8 bits -128 to 127
   2. short 16 bits -32768 to 32767
   3. **int**  32 bits -2147483648 to -2147483647
   4. long 64 bits
   5. float 32 bits
   6. **double**  64 bits
   7. char 16 bits Unicode char ‘A’
   8. boolean \*1 bit [ actual size may vary depending on OS] true/false

Any number with a precision literal value like 1.0 , is by default double type

All whole numbers 10 are by default-int

1. Reference Type or Non-Primitive

Class, Interface, Enum & Array types of variables are known as reference types.

**Scope of Variables**

1. Instance Variable / Field members – Accessible in all methods in the given class.
2. Local Variables - Accessible only in the block that they are declared in.
3. Static Variables / Class Variable – Accessible by all instances and maintains only copy per JVM.