Page No.
Date : / /

Intro to JAVA :-

Java File (.Java) {Human Readable} → Source Code

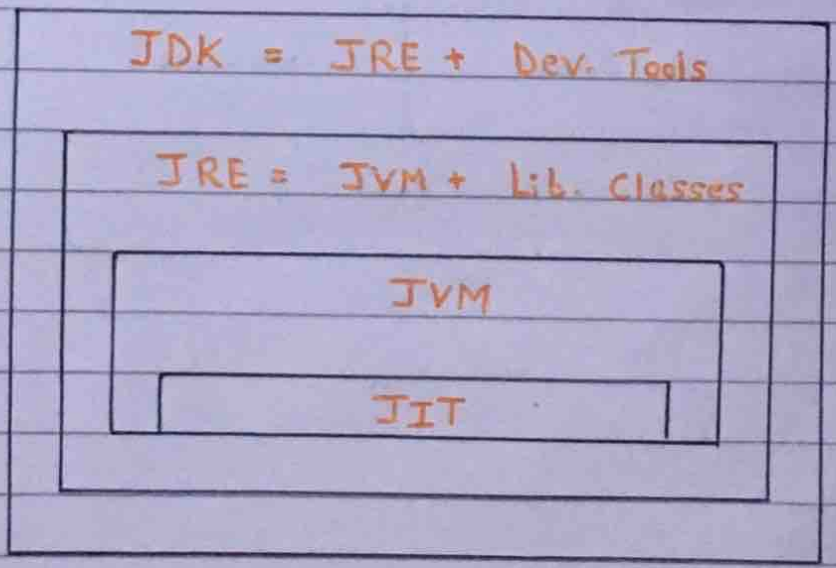
Compiler (entire file) → Class File (.Class) {Byte Code}

Interpreter (line by line) → Machine Code {0 and 1}

→ This will not directly run on a System
→ need JVM to run this.
→ The Reason why Java is platform independent.

in other languages there is no byte code step. Human readable code is directly converted into machine code.

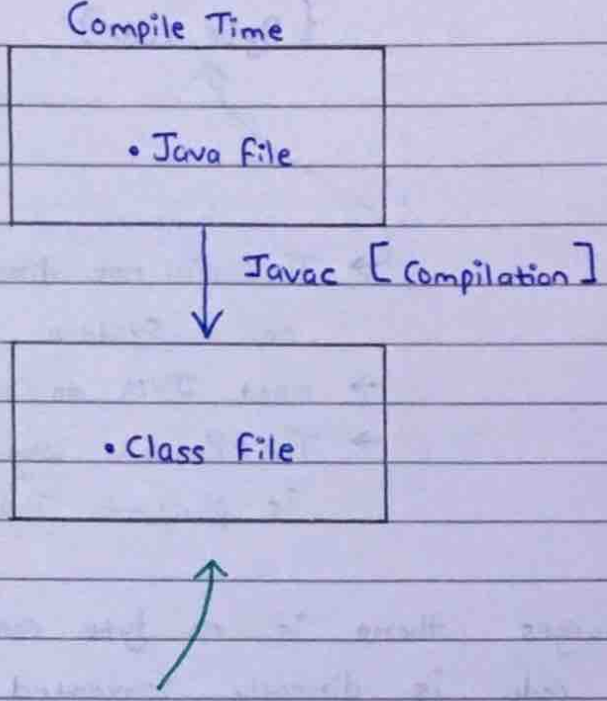
BYTE CODE Can run on all operating Systems.



Page No.
Date : / /

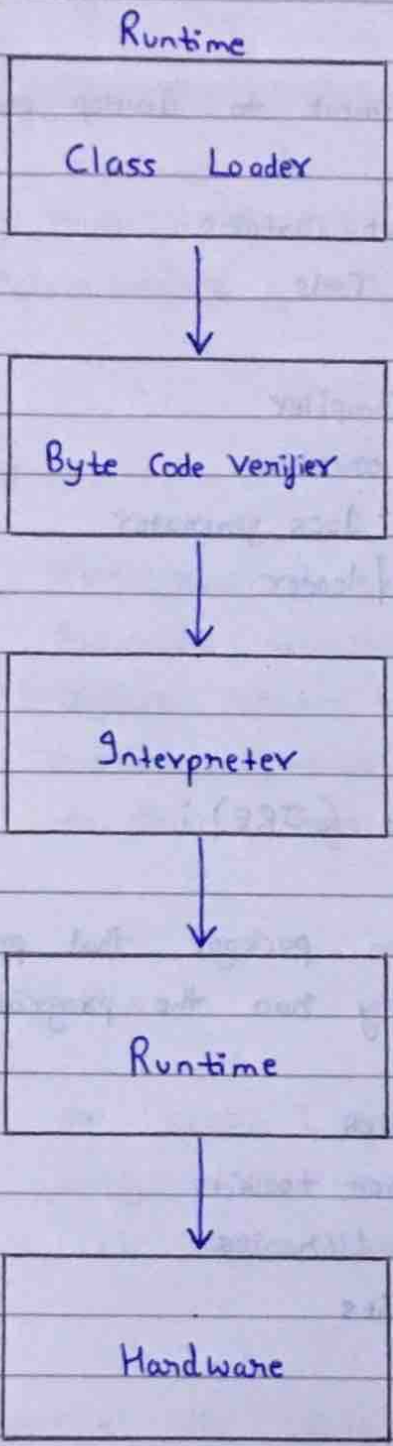
JDK → Java Development kit
JRE → Java Runtime Environment
JVM → Java
JIT → Just in time Compiler

#



This is what happens when
• Java file is converted
to byte code (.class file)

#



This is what happens when bytecode is converted into Machine code.

Page No.
Date : / /

Java Development kit (JDK):

↳ Provides an environment to develop and run Java programs

↳ It is a Package that contains.

- → Development Tools
- → JRE
- → Javac - Compiler
- → Jar - archiver
- → Javadoc - docs generator
- → interpreter / loader

Java Runtime Environment (JRE):

↳ It is an installation package that provides environment to only run the program.

↳ It contains

- → Deployment tech
- → User interface toolkits
- → Integration Libraries
- → Base Libraries
- → JVM

Page No.
Date : / /

JVM Working :

→ Loading
  ↳ reads .class file and generate binary data.
  ↳ an object of this class is created in heap.

→ Linking
  ↳ JVM verifies the .class file
  ↳ Allocates memories for Class Variable and default values.
  ↳ replaces Symbolic references from the type to direct references.

→ Initialization
  ↳ all Static (object independent) Variables are assigned with their values defined in the code and Static Block.

JVM Contains the Stack and heap memory Allocations.

- Static Variable → Population of Earth
  ↑ Same for everyone every object

Page No.
Date : / /

JVM Execution :

↳ Interpreter
  ↳ line by line execution
  ↳ When one method is called many times it will interpret again and again.

Just in time Compiler (JIT) :

↳ Those methods which are repeated, JIT provides direct machine code so that re-interpretation is not required.
↳ Makes Execution faster
  garbage collector

Downloading JAVA :

↳ Download JDK latest edition by typing "Download Java" in the browser

and then install.

Page No.
Date : / /

Structure of Java Program :

```
public class Main {
    public static void main (String[] args) {
        System.out.println ("Hello World");

    }
}
```

File extension → .Java

Named group of Properties.

Everything written will be in classes
Every file that ends with .Java is a class itself.

- If you are making a class, make the first letter Capital

```
public class Main {
```

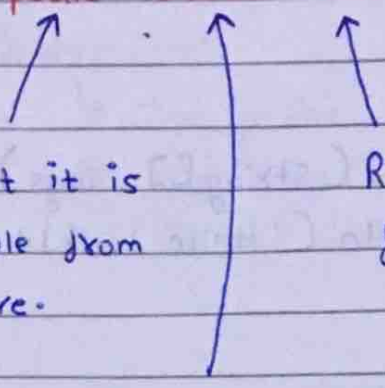
Inside this we create a fnc.

public ↑ means that this can be accessed from anywhere.

→ To run this using Terminal

- ↳ cd to the Directory
- ↳ Javac filename.Java to create Byte code
- ↳ Java filename.Java to Run and get output.

```
public class Main {
    public static void main (String [] args){
```



So that it is available from anywhere.

Return type of the function.

We want to run main function without creating object of class Main.

(String [] args) → Array : Collection of String Command line arguments.

→ Changing location of Byte code :

```
Javac -d
```

- Println → new line Print.
  Print → same line Print.