**Introduction to java:**

Definition:

* Java is a Platform independent programming language.
* It is used to develop mobile apps, web apps, desktop games, etc.
* It is high level, class based, object oriented programming language.
* It is general purpose programming language.
* It id compiler based as well as interpreted language.

How Java code executes:

Interpreter

Compiler

* Java is a platform independent language.
* The code is saved in .java file.
* Then compiler compiles it into byte code that is platform independent
* Platform independent means it can be run on any operating system no need to compile again.
* Byte code requires JVM (Java Virtual Machine) to run. And Jvm is platform dependent it should be downloaded according to OS and then we run byte code on it.
* Then this byte code is converted into machine code using interpreter line by line.
* Thus, Java is compiled as well as interpreted language.

Architecture of Java:

JDK:

* JDK is java development kit
* Provides environment to develop and run the java program

JRE

* JRE is java runtime environment.
* It is an installation package that provides environment to only run the program.

JVM

* JVM is a java virtual machine.
* It interprets the code line by line.
* When the method is called multiple times it will interpret again and again.
* JVM contains Stack and Heap memory allocations.

JIT

* JIT means Just in time
* Those methods that are interpreted again and again by jvm, that repetition will be avoided by jit.
* It provides direct machine code for that repeated methods.
* Make execution faster.
* Provides garbage collection.

Execution of java program according to architecture:

* Firstly, the java source code is created on Jdk using development kit.
* Then the code is converted into byte code.
* And then it is run on Jre using jvm.