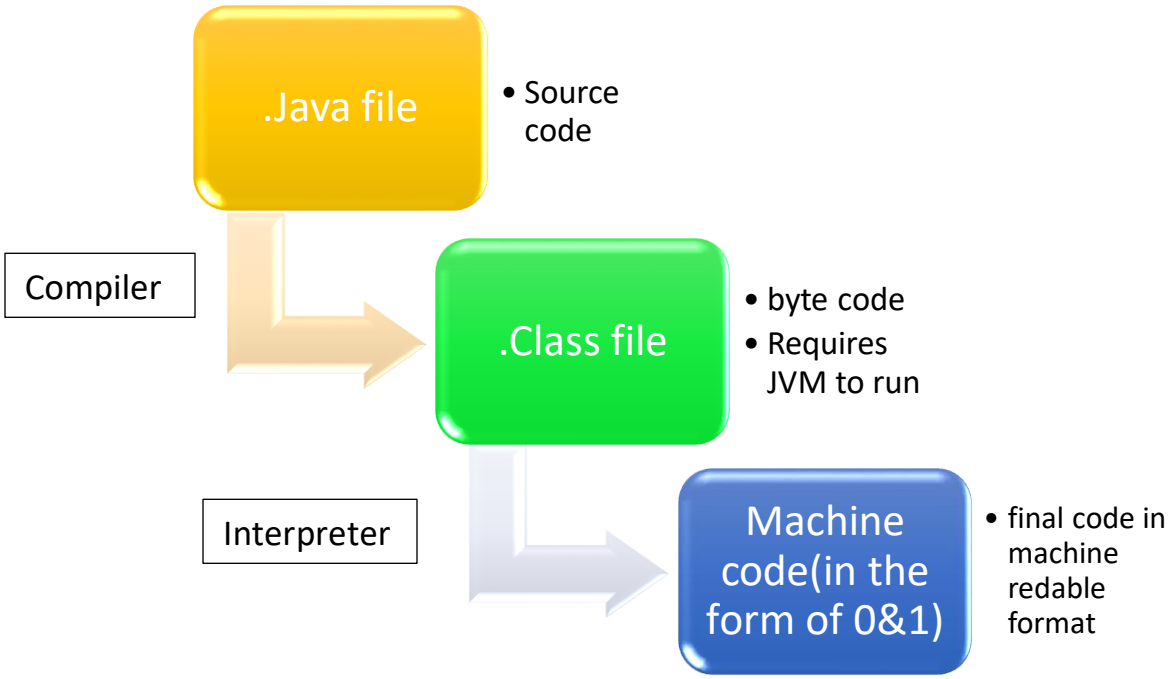
Introduction to java:

Definition:

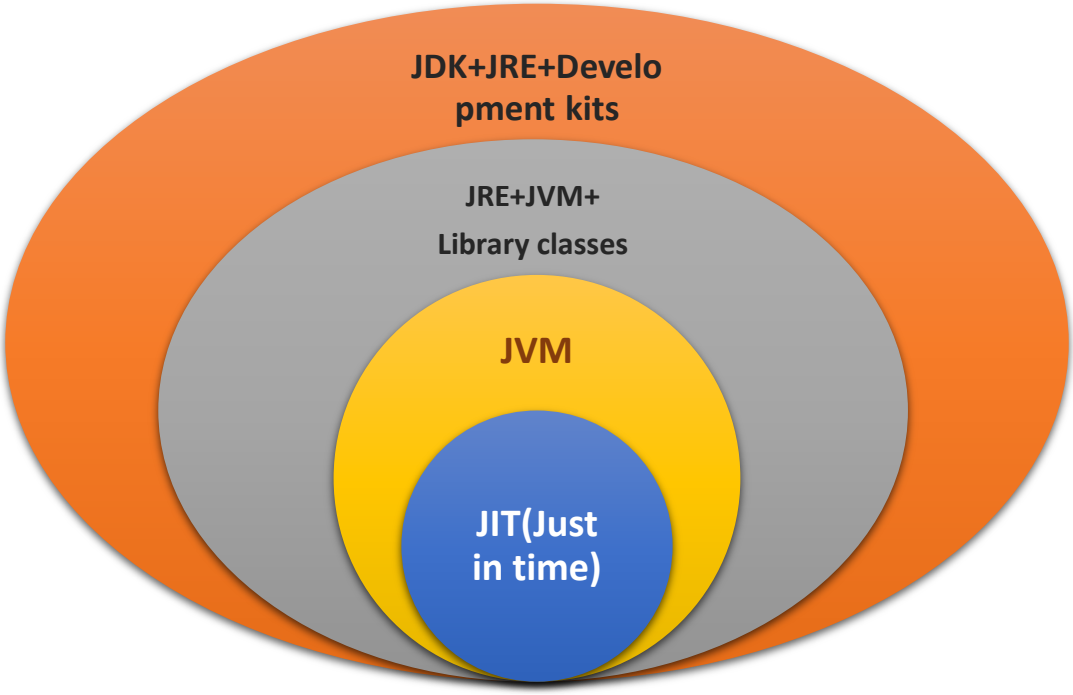
- Java is a Platform independent programming language.
- It is used to develop mobile apps, web apps, desktop games, etc.
- It is high level, class based, object oriented programming language.
- It is general purpose programming language.
- It id compiler based as well as interpreted language.

How Java code executes:



- 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.