1) Component of JDK =>

The Java development Kit (JDK) is a Software development environment used to develop Java application and applets.
It Contains JRE and several development tools, an interpreter / loader (Java), a Compiler (Javac), an act archiver (Jar) a dacumentation generator (javadoc) accompanied with another tool.

JDK is an implementation of any one of the below given Java platform released by Oracle Corporation =>

1) Standard Edition Java platform
2) Enterprise Edition Java platform
3) Micro Edition Java platform.

2) Diff^r b/w JDK, JRE and JVM

* JDK => It is stand for Java development Kit It is a Software development environment which is Used to develop Java application and physically exists. It Contains JRE + development tools.

* JRE => It is stand for Java Runtime environment. it is also written as Java Runtime environment is a set of Software tools which are used for developing Java

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applications it is Used to provide the runtime environment it is the implementation of JVM It Contains a Set of libraries + other files that JVM uses at runtime.

* JVM ⇒ It is stand for Java Virtual Machine It doesn't physically exist it is a specification that provides a runtime environment in which Java bytecode Can be execute It Can also run those program which are written in other language and Compile to java bytecode JVM are available for many hardware and Software platform

3) Role of the JVM in Java ~~and~~ Execute Java Code ⇒

A Java virtual machine is a virtual machine that enables a Computer to run Java program as well as programs written in other lenguage that are also Compiled to Java bytecode it acts as a run time engine to run Java application JVM is the one that actually calls the main method present in a Java Code. JVM is a part of JRE. Java application are Called WORA (write once run anywhere

4) Memory Management System of the JVM ⇒

The JVM devides its memory into two main Categories ⇒ heap memory and Non heap memory

Heap memory is the part with which people are typically the most familiar. Its where objects, that are Created by JVM and one that does not need explicit intervention. Jave being a block structure language uses a model where its memory is devided into two main type -> stack and heap.

5) JIT Compiler and roles =>

-> JIT it is stand for Just in time Compiler

-> It help to improved the performance of Java program by Compiling bytecode into native machine code at run time

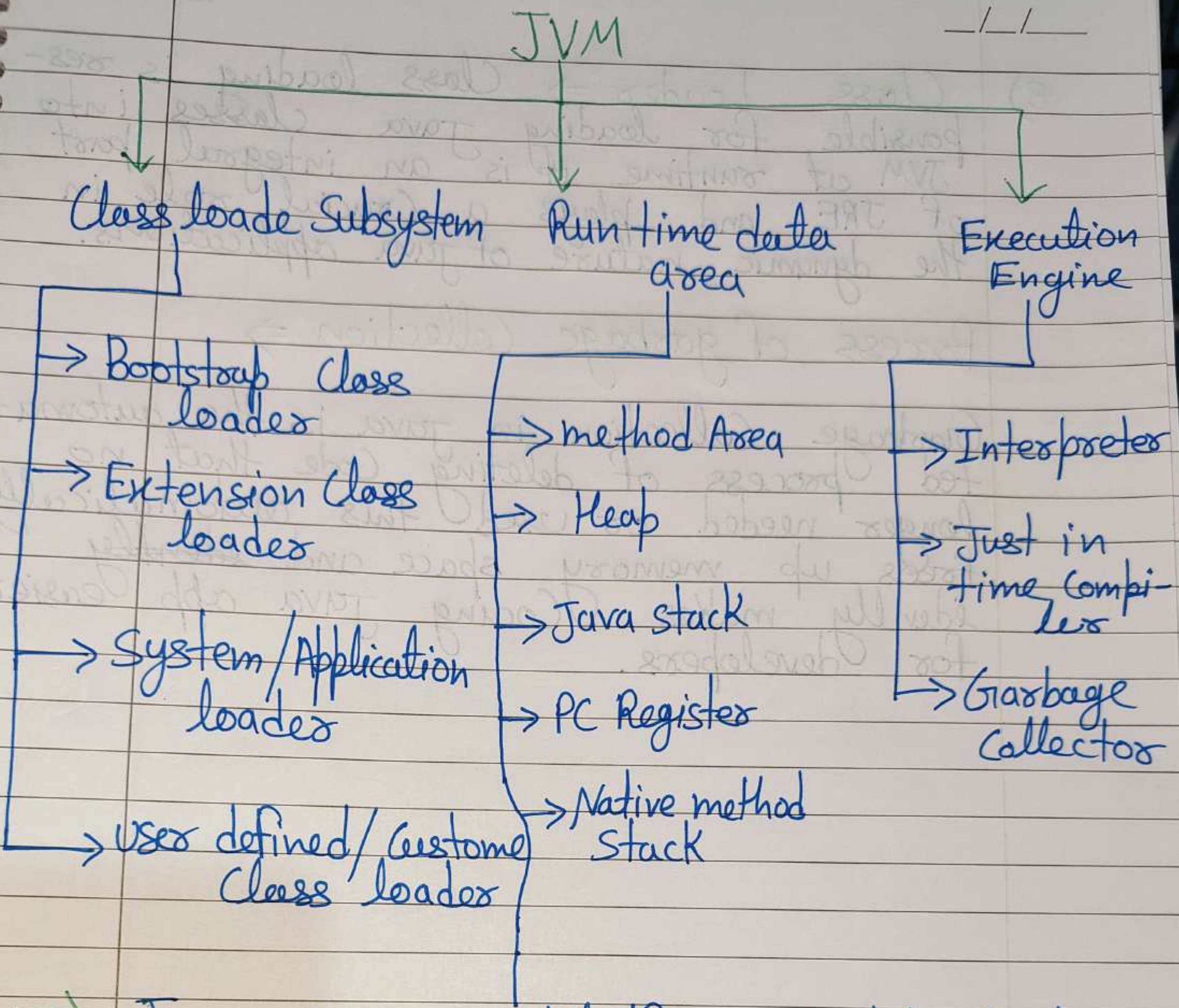
-> It is optimise efficiency.

-> JVM interrupts the same sequence of bytecode repeatedly and incurs a longer execution time the hardware executes the native code of repeated method Calls.

6) Architecture of JVM =>

A JVM is the engine that drives the Java code it Converts Java bytecode into machine language

JVM main Contains ->



7) Java is a platform independent because it is Compiled to a bytecode that can be run on any device that has a Java virtual machine this means that we can write a Java program on one platform and then run it on a different platform without making any changes to the code. Java is considered a platform independent programming language.

8) Class Loader ⇒ Class loading is responsible for loading Java classes into JVM at runtime it is an integral part of JRE and plays a Crucial role in the dynamic nature of Java applications.

Process of garbage Collection ⇒

Garbage Collection in Java is the automated process of deleting Code that no longer needed or used this automatically frees up memory space and ~~idenlly~~ idenlly makes Coding Java app easier for developers.