Page No.
Date

Assignment - 3

1. Explain the components of the JDK.

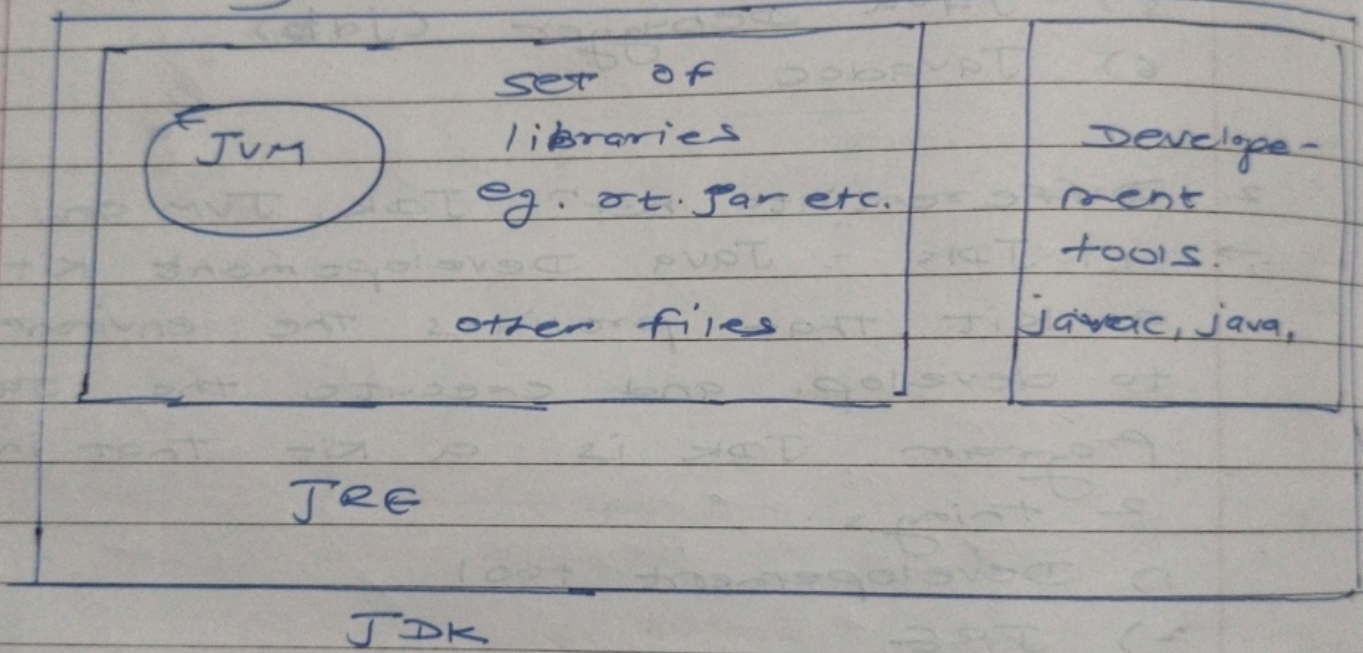
→ 1) JRE (Java Runtime Environment)
2) Java interpreter / loader.
3) Java ~~compiler / loader~~. compiler (Javac)
4) Java Archive (jar)
5) Java Debugger (jdb)
6) Javadoc

2. Differentiate betⁿ JDK, JVM and JRE.

→ 1) JDK - Java Developement Kit is a kit that provides the environment to develop and execute the Java program. JDK is a kit that includes 2 things:
1) Developement tool
2) JRE

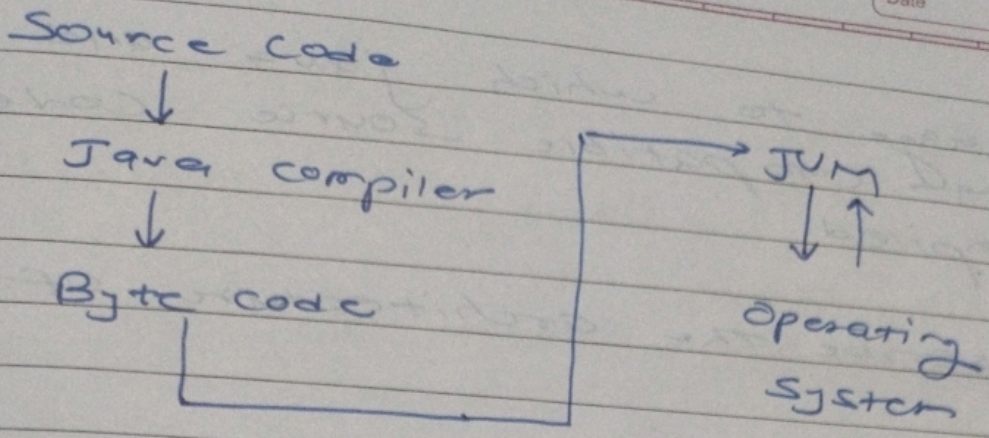
2) JRE - is a installation package that provide an environment to only run that java program to machine. JRE is only used by those who only want to run java programs that are end users of system.

3) JVM - JVM is very important part of both JDK and JRE because it is contained or inbuit in both. whatever java program you run using JRE or JDK goes into JVM and JVM is responsible for executing the java program line by line, hence it is interpreted

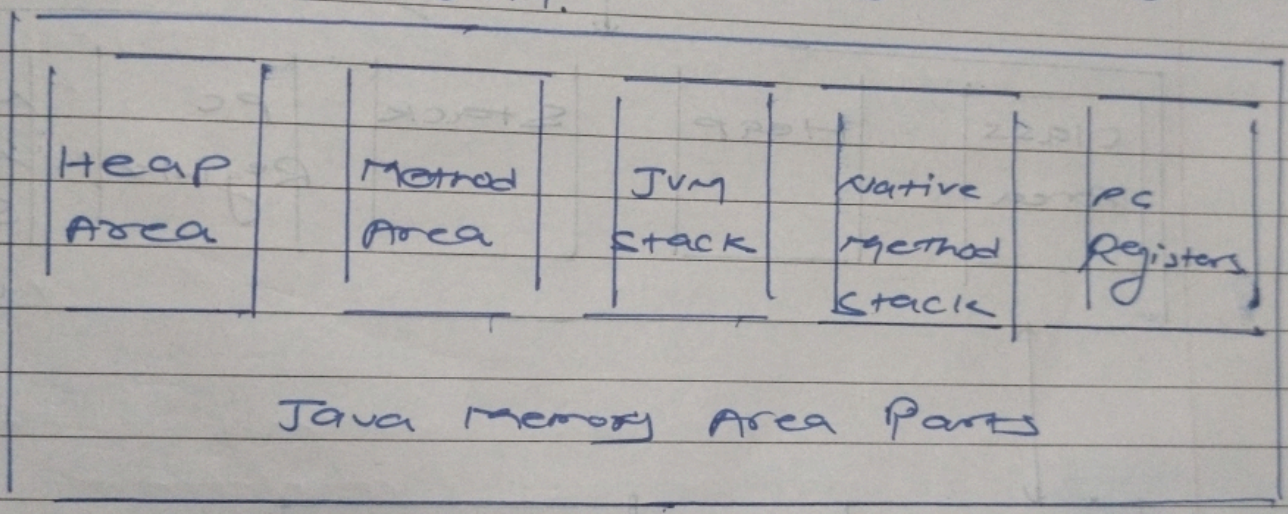


3. What is the role of the JVM in Java? How does JVM execute code?

→ A Java virtual machine (JVM) is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to java bytecode.



4. Explain the memory management system of the JVM.



5. What are the JIT compiler and its role in the JVM? What is bytecode and why is it important.

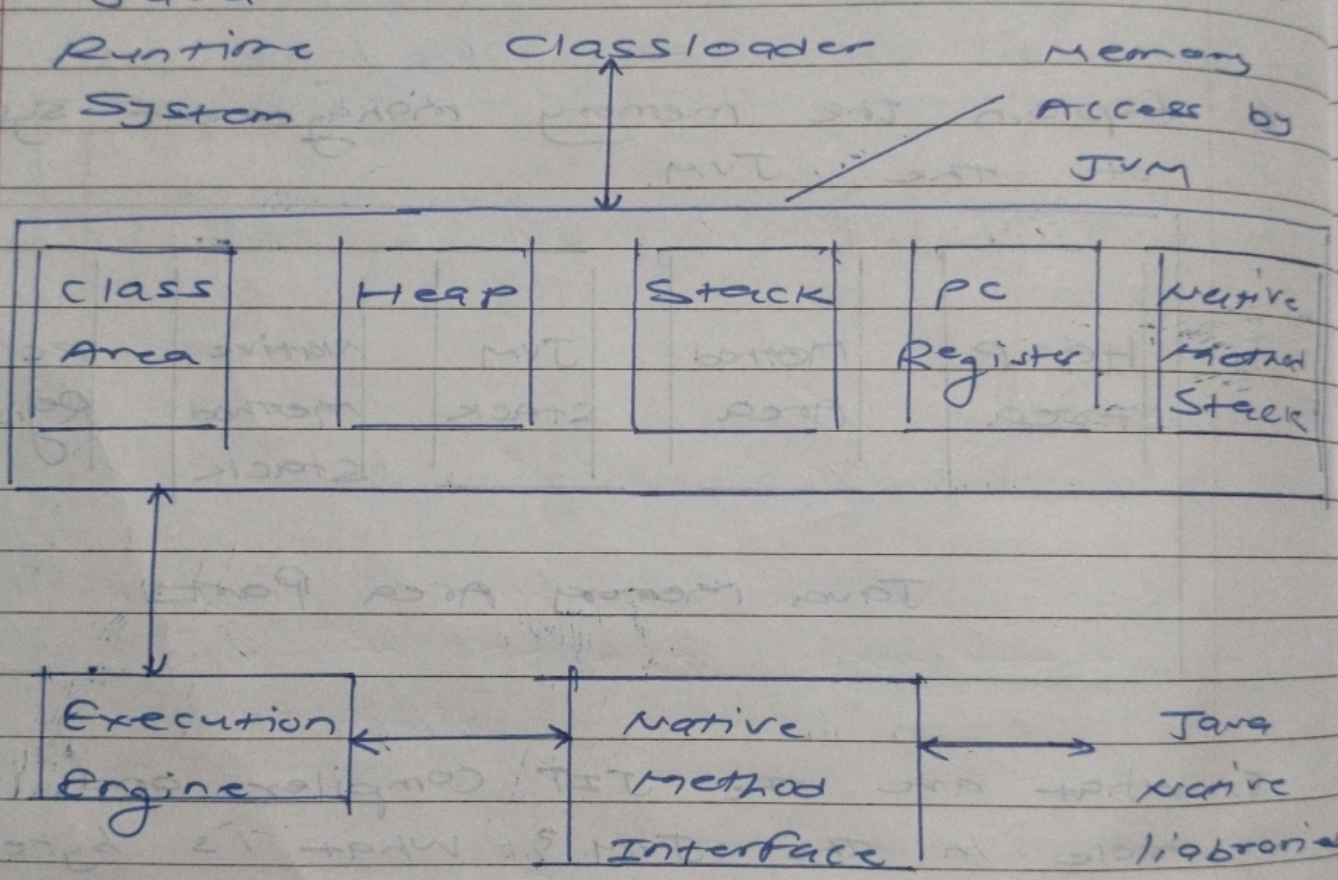
→ i) The Just-In-Time (JIT compiler) is a component of the JVM the compiler bytecode into machine code at runtime to improve the performance of Java applications.

ii) Java bytecode is the instruction set of Java virtual machine, the

language to which java and other JVM compatible source code is compiled.

6. Describe the architecture of JVM.

→



7. How does Java acheive platform independence through JVM?

→ Java achieves platform independence through JVM by compiling code into a bytecode that run on any system with a compatible JVM.

Page No.
Date

8. What is significance of the class loader in Java? What is the process of garbage collection in Java?

→ i) Java ClassLoader is an abstract class. It belongs to a java.lang package. It load classes from different resources. ClassLoader is used to load the classes at run time

ii) Garbage collection in a java is the automated process of deleting code that's not longer needed or used.

9. What are the four access modifiers in java.

→ i) Default
ii) Public
iii) Private
iv) Protected.

10. What is the difference between access modifiers?

→ 1. Public: The access level of Public modifier is everywhere.

2. Protected: The access level of a protected modifier is within the Package and outside the package

through child class.

3. Default: The access level of a default modifier is only within the package.

4. Private: The access level of a private modifier is only within the class.

Modifier	Class	Package	Subclass	World
Public	Y	Y	Y	Y
protected	Y	Y	Y	N
default	Y	Y	N	N
private	Y	N	N	N

11. Can you override method with a different access modifier in a subclass.

→ Yes, the protected method of a superclass can be overriden by a subclass.

12. What is the difference between protected and default?

→ 1. Default: The access level of a default modifier is only within package.

2. Protected: The access level of a protected modifier is within

the package and outside the package through child class.

13. Is it possible to make a class private in Java?

→ Yes we can do that.

14. Can a top level class in java can be declared as protected or private?

→ If a top class is declared as private the compiler will complain that modifier private is not allowed here. This means the top-level class cannot be private. Same for protected.

15. What happens if you declare a variable method as private in a class and try to access it from another class within same package.

→ The methods or data members declared as private are accessible only within the class in which they are declared. Any other class of the same package will not able to access these members.

16. Explain the concept of Package - Private or default access. How does it affect the visibility of class members.

→ Private restricts access to elements only within the class they are declared.