

## Assignment - 2

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Q.1 What is the difference between JDK, JRE & JVM?

JDK	JRE	JVM
① JDK stands for 'Java Development kit.'	① JRE stands for 'Java Runtime Environment'	① JVM stands for Java virtual Machine.
② It is often called as 'Superset of JRE'	② It is a set of software tools responsible for execution of Java program or application	② Java loads memory & execute Java by bytecode.
③ It is foundational component that enables Java app & applet development.	③ It uses heap space for dynamic memory allocation for Java object.	③ It is known Interpreter.
JDK contains all the tools req. to compile, debug & run a program developed using Java platform	④ JRE is composed of a variety of other supporting software tools & features to get the most out of Java application.	④ It is responsible for converting bytecode to machine specific code & is necessary in both JDK & JRE ⑤ It is platform dependent

Q.2 what is JIT compiler?

JIT is integral part of JVM (Java in time)  
 It is long-running computer-intensive program that provide the best environment performance & optimize the performance of Java app? at compile or runtime.

### Advantages:-

1. It requires less memory usages.
2. The code optimization is done at runtime
3. It uses diff. level of optimization
4. It reduces the page faults

### Disadvantages:-

1. It increases the complexity of program
2. The program with less line of code does not take the benefit of JIT compiler.
3. It uses lot of cache memory.

### Q.3 what is class loader?

- 1. Java class loader is an abstract class
- 2. It belongs to java lang package.
- 3. It is used to load the classes at run-time.
- 4. Java class loader is based on 3 principle.

Delegation:- It forward the request for class loading to parent class loader.

Visibility:- It allows child class loader to see all the classes loaded by parent classloader but the parent classloader cannot see classes loaded by child class loader.

Uniqueness:- It allows to load a class once it is achieved delegation principle. It ensure that child classloader doesn't reload the class which is already by parent.

Bootstrap class loader.

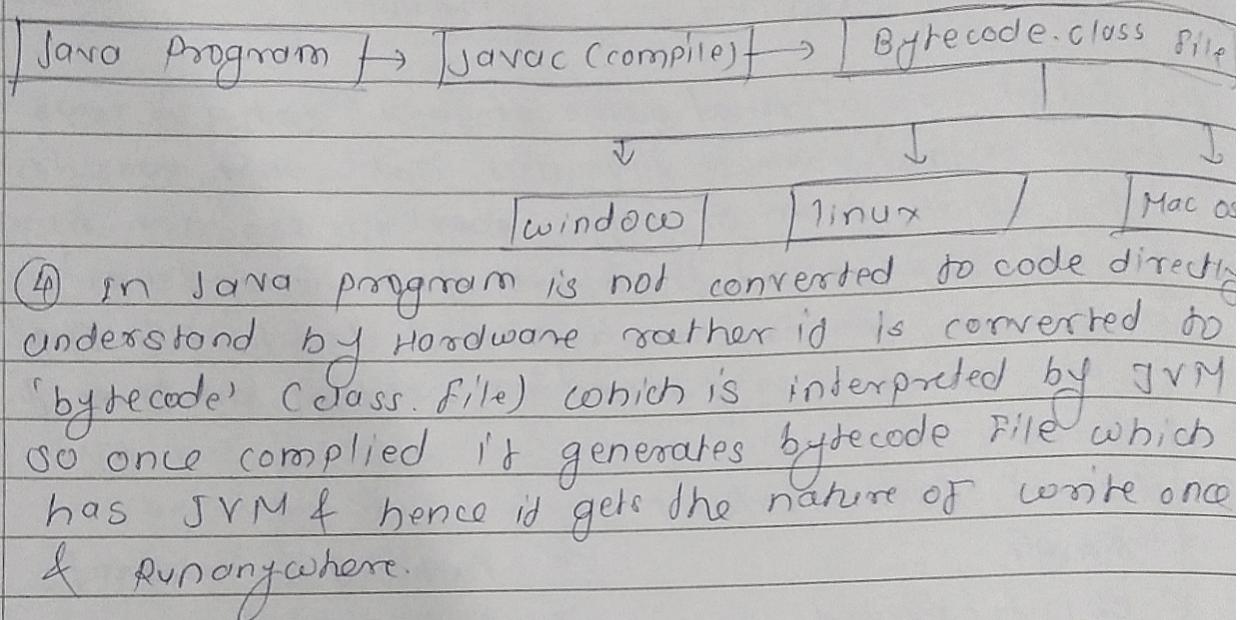
Extension class loader.

System class loader.

Customer class

Customer class 2

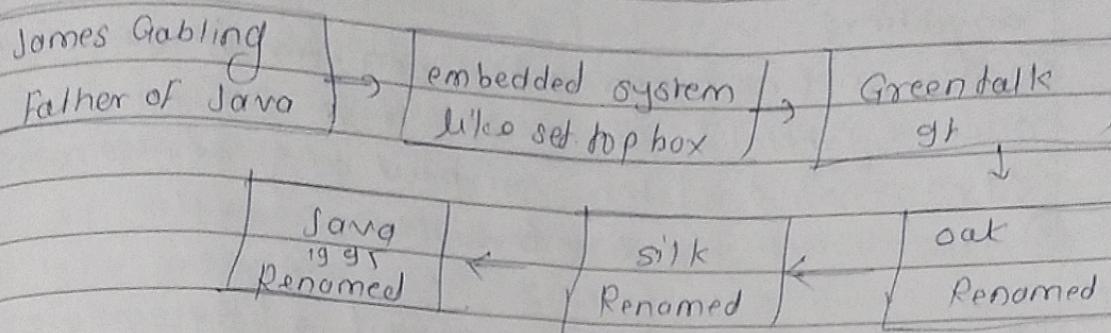
- Q.4 what gives Java its "write once & Run anywhere" nature
- ① Java app's are called WORA ( write once Run anywhere)
- ② This means programmer can develop Java code on one system & can expect it to run on any other Java-enable system without any adjustment.
- ③ This is all possible because of JVM



Q.5 Explain history of Java & who invented Java?

- 1. History of Java start with 'Green Team'
2. The principle for creating Java programming is "simple, robust, portable, platform-independent, secured, high-performance" etc.
3. Java is used in internet programming, mobile dev, games, e-business solution etc.
4. Java Gosling, Mike Sheridan, Patrick Naughton initiated Java language project in June 1991. These team of sun engineers called Green Team.

5. Java was developed by "James Gosling" who is known as "father of java" in 1995



- Q6. What was original name of java? Why it was renamed?
- The original name of java was 'Oak' which was developed by small team of engi. working for sun microsystem.
  - They 'Oak' called themselves the 'Green team'
  - B. The oak name was renamed due to fact that oak was already registered as part of another trademark.

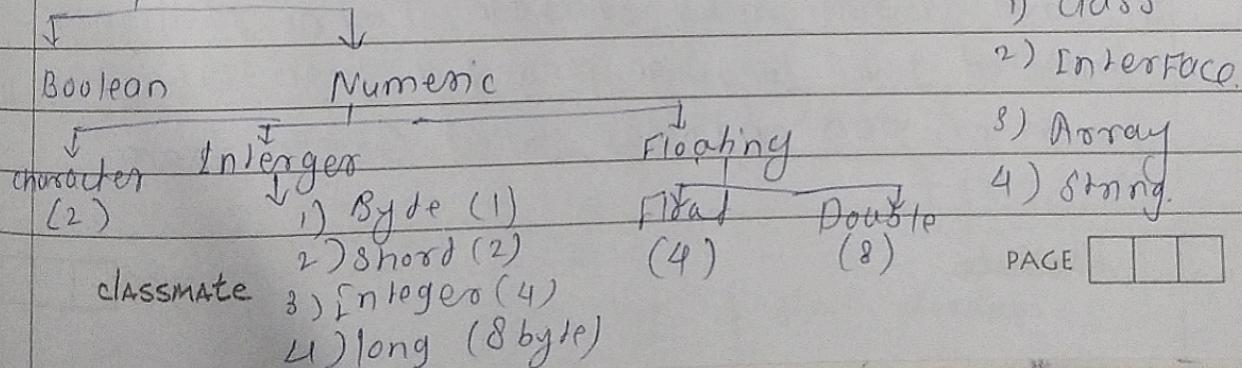
#### Q7. List of Java Features?

- |                         |                         |
|-------------------------|-------------------------|
| 1. simple               | 7. Architecture neutral |
| 2. object oriented      | 8. Interpreted          |
| 3. Portable             | 9. High performance     |
| 4. Platform Independent | 10. Multithreaded       |
| 5. Secured              | 11. Distributed         |
| 6. Robust               | 12. Dynamic.            |

#### Q8. Various datatype in Java.

primitive

Non primitive (userdef)



Q.9 what is difference between `System.out.print()`:

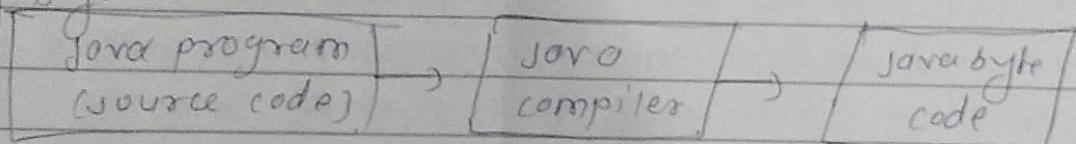
<code>System.out.print()</code>	<code>System.out.println()</code>	<code>System.out.println();</code>
1. One control or user remains on same line after printing.	1. The control / user moves to next line after printing.	1. System error print Used to display error message. O/P is display in red color.

Q.10. How is Java platform independent?

- 1. When you compile Java program using Javac compiler it generates bytecode.
- 2. We can execute the bytecode in any platform which has JDK installed i.e. Java Development Kit.
- 3. With the help of JVM which is present in JDK the Java bytecode is translated into machine understandable code.
- 4. Hence, Java is platform independent but it is purely depended on JDK.

Q.11. What is bytecode? How it is diff. from machine code

→ Bytecode:-



Bytecode is sort of command i.e. suited for software translation operation commonly known as (p-code) due to portability that is possible. It is a intermediate code completed into low level code from source code for efficient execution by a software interpreter.

## Bytecode

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1. It is an intermediate code designed to run on a virtual machine instead of a central processing unit (CPU).
2. The form of bytecode is to be format that can be executed efficiently by virtual machine interpreter.
3. It is platform independent because it can be executed on any platform using virtual machine.

## Machine code

1. It is a compiler program made up of native instruction associated with that particular computer.
2. Machine code is the language which all programs must be converted into before they can be run.
3. It is not independent meaning it cannot be run on just any platform with same operating system.

Q2 Explain various memory logical partitions?

- ① A logical partition (LPAR) is the division of computer memory & storage into multiple set of resources so that each of features can be operated independently with its own operating system instance & application.
- ② The no. of logical partition are used for diff. purpose such as data base operation or client / server operation or the separate test & productive environment.
- ③ Each partition can communicate with the other partition as if other partition is in a separate machine.

Q3 what is diff bet<sup>n</sup> jar file & Runnable jar file

## Jar File

## Runnable Jar File

- 1. Jar file is Java application. Runnable Jar file allows a which requires a command line to run a runnable JAR files can be directly executed by double clicking. to run Java classes without having to know class name & type them in command prompt rather the user to CLASSMATE

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just double click on the jar file & program will fire up.

2. A JAR Java archive is a package file format typically used to aggregate many Java class files associated metadata & resources into one file to distributed app" software or libraries on Java platform.
2. A runnable Java allows Java class to be loaded just like when a user clicks on exe. File

Q.14 what is diff bet " Runnable java file & exe. file  
Runnable jar file & exe. file.

1. Jar file are like dead body
1. exe. file like living me
2. jar file is the combination of compiled Java class.
2. Executable jar file is also combination of compiled Java class with main class.

Q.15 How is c platform dependent language?

- 1. C is portable programming language because it is not tied to any hardware or system
2. we can say. it is a hardware independent lang or platform independent lang.
3. That is why C is called 'portable language'
4. C program does not depend on actually but the execution file i.e. generated at the end for running C program many depend on a platform.
5. When you use as you get other execution for executable file.

what is diff b/w path & class path

- \* Path variable is used to set the path for all Java software tools like Java c. exe, java.exe, Java decompiler etc.
- 1. Variable Name: PATH
- a. Variable value:  
C:\Program Files  
Java 1.8.0\_21\bin;
- b. Class path variable is used to set the path for Java classes.

2. Variable Name: Classpath  
Variable value:- C:\program  
files\java\jre1.6.0\jre\lib  
\rt.jar.