Assignment - 2

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

Ans.

	JDK	JRE	JVM
1.	JDK stands for 'Java Development Kit'	1. JRE stands for 'Java Run-time 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 execution of Java program	2. JVM loads, Verifies and execute Java bytecode
3.	It is the foundational component that enables 'Java Application' & 'Java applet development.	3. It uses heap space for dynamic memory allocation for Java Objects.	3. JVM is known as 'Interpreter'.
4.	JDK contains all the tools required to compile, debug & run a program developed using the 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 specially responsible for converting byte code to machine specific code and is necessary in both JDK and
			5. It is also platform-dependent

Q.2 What is JIT compiler?

Ans.

1. JIT is an 'integral part of JVM' (Just-In-Time)
2. It is a long-running, computer-intensive program that provides the best performance environment.
3. It optimizes the performance of the java application at compile or runtime.

- Advantages : 1. It requires less memory usages.
  2. The code Optimization is done at run-time
  3. It reduces the page faults.
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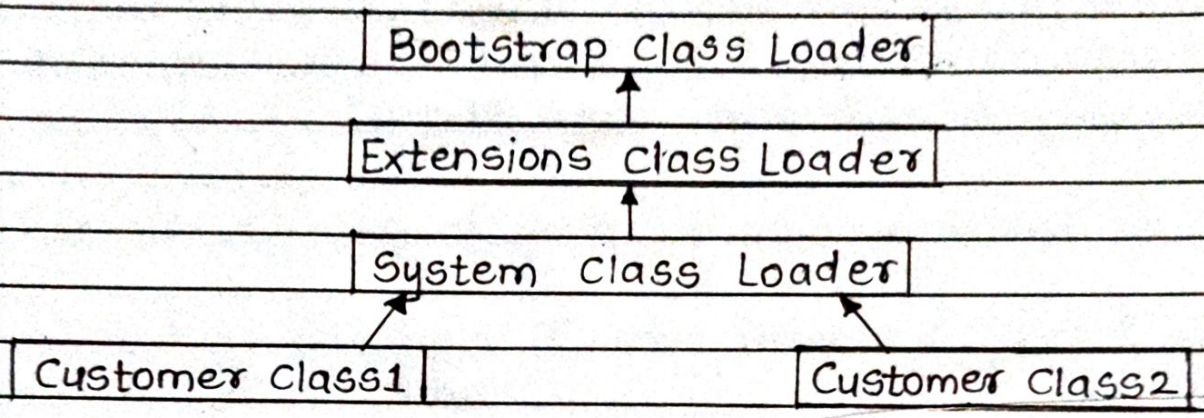
- Disadvantages :
  1. It increases the complexity of program.
  2. The program with less line of code does not take the benefit of the JIT compiler.
  3. It uses lots of cache memory.

Q.3 What is class loader?

Ans.

1. Java Classloader is an abstract class
2. It belongs to a java.lang package.
3. It is used to load the classes at run-time.
4. Java classloader is based on 3 principle :
   a. Delegation : It forwards the request for class loading to parent class loader.
   b. Visibility : It allows child classloader to see all the classes loaded by parent Classloader, but the parent classloader cannot see classes loaded by child class-loader.

C. Uniqueness : It allows to load a class once. It is achieved by delegation principle. It ensures that child class loader doesn't reload the class, which is already loaded by the parent.

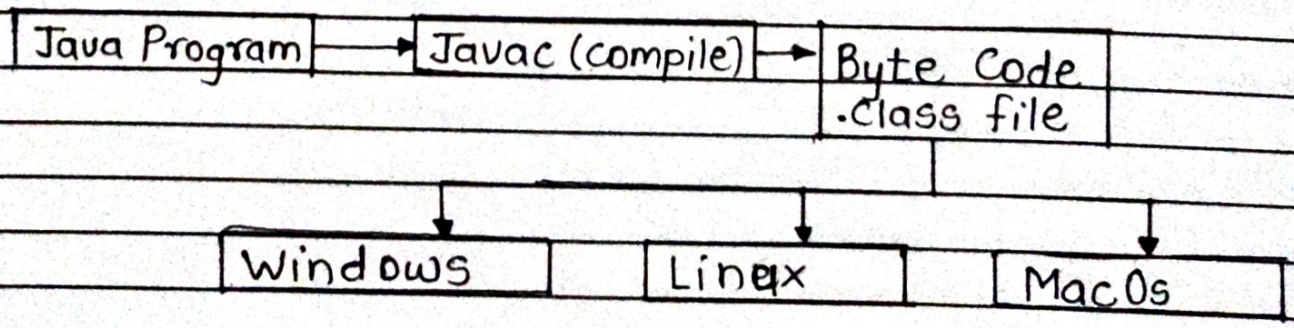


Hierarchy of class Loader

Q.4 What gives java its "Write Once and Run Any where nature?

Ans.

1. Java applications are called WORA i.e (write Once and Run Anywhere)
2. This means programmer can develop java code on one system and can expect it to run on any other Java-enabled system without any adjustment.
3. This is all possible because of 'JVM'.

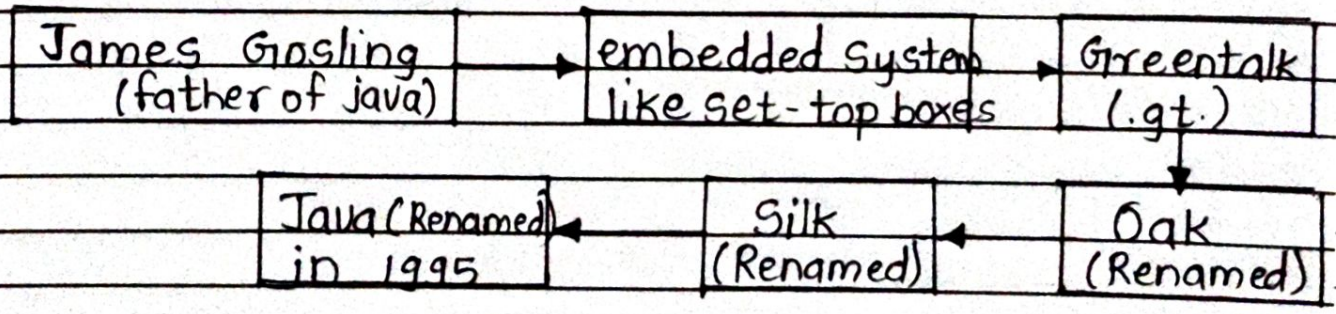


4. In java, the program is not converted to code directly understood by Hardware rather it is Converted to bytecode (.classfile), which is interpreted by JVM so Once Compiled it generates bytecode file, which can be run anywhere (any machine) which has JVM & hence it gets the nature of 'write Once and Run Anywhere'

Q.5 Explain History of java & who invented java?

Ans.

1. History of Java & who invented java? starts with 'Green Team.'
2. The principles for creating Java programming were "Simple, Robust, Portable, platform-independant Secured, High-Performance" etc
3. Java is used in internet programming, mobile devices, games, e-bussiness solutions etc.
4. James Gosling, Mike Sheridan, Patrick Naughton initiated java language project in June 1991. This Small team of Sun engineer called "Green Team".
5. Java was developed by "James Gosling" who is known as father of Java, in 1995.



Q.6 What was the original name of java? why it was renamed?

Ans. 1. The Original name of java was 'Oak' which was developed by a small team of engineer working for 'Sun Microsystems'.
2. They called thenselves the 'Green Team'.
3. The 'Oak' name was renamed due to the fact that Oak was already registered as part of another trademark.

Q.7. List Features of Java?

Ans. The following are the features of Java:
1. Simple
2. Object - Oriented
3. Portable
4. Platform - Independent
5. Secured
6. Robust
7. Architecture neutral
8. Interpreted
9. High Performance
10. Multithread
11. Distributed
12. Dynamic

Q.8

Q.8 List Various Datatypes in Java.

- Datatype
  - Primitive
    - Boolean
    - Numeric
      - Integer
        - Character (2 Byte)
        - Integer
          - Byte - 1 byte
          - Short - 2 byte
          - Integer - 4 byte
          - Long - 8 bytes
      - Floating
        - Float (4 bytes)
        - Double (8 bytes)
  - Non-Privitive (user-Defined)

Q.9 What is difference between System.out.print(); System.err.print; System.out.println();

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System.Out.print()	System.out.Println()	System.err.print()
1. The Control or Cursor remains on the same line after printing	1. The Control/Cursor moves to the next line after printing	1. System.err.print() is used to display error messages.

Q.10 How is java platform independent?

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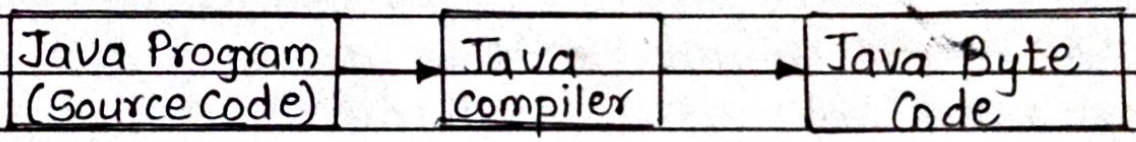
1. When you compile java programs using javac compiler it generates bytecode.
2. We can execute the bytecode in any platform which has JDK installed. i.e. Java Development kit.
3. With the help of JVM which is present in JDK the java bytecode is translated into machine understandable on JDK

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

Ans.

Byte Code:



1. Bytecode is a sort of command that is suited for software translation operation.
2. Commonly known as 'p-code' due to portability that it provides.
3. It is intermediate code compiled into a low level code from the source code for efficient execution by a software interpretes.

	Byte code	Machine Code
1.	It is an intermediate code designed to run on a Virtual machine instead of a CPU	1. It is a computer program made up of the native instructions associated with that particular computer.
2.	The function of bytecode is to be a format that can be executed efficiently by the Virtual machine's interpreter	2. Machine Code is the language which all programs must be convert into before they can be run
3.	It is platform independent because it can be executed on any platform using the Virtual Machine	3. It is not platform independent means it cannot be run on just any platform with same operating system.

Q.12 Explain Various memory logical Partitions ?

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1. A logical Partition (LPAR) is the division of a computer's memory, and storage into multiple sets of resources so that each set of resources can be operated independently with its own operating system instance & applications.
2. The number of logical partitions are used for different purposes such as database operative or client/server operation or the separate test & production environment.

3. Each partitions can communicate with the other partitions as if other partition is in a Separate Machine.

Q.13 What is difference between jar file & Runnable jar file?

Ans.

Jar file	Runnable jar file
1. Jar file is a java appl^n which requires a command line to run, a runnable JAR file can be directly executed by double clicking	1. Runnable jar file allows a use to run java classes without having to know class names and type them in command prompt, rather the user can just double click on the jar file and the program will fire up.
2. A JAR (Java Archive) is a package file format typically used to aggregate many java class files associated metadata and resources into one file to distribute application software or libraries on the java platform	2. A runnable jar allows java classes to be loaded just like when a user clicks on exe. file.

Q.14 What is difference betn Runnable jar file & exe. file?

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	Runnable jar file	exe. file
1.	Jar file are like deadbody	1. exe. file are like living men
2.	Jar file is the combination of compiled java classes	2. Executable jar file is also combination of compile java classes with main class.

Q.15 How is C platform dependant language?

Ans.

1. C is a portable programming language because it is not tied to any hardware of system.
2. We can say, it is a hardware independent language or platform independant language.
3. This is why C is called 'Portable language'.
4. C programs does not depend on actually but the executable file that is generated at the end for running the C - program.
5. When you use OS you get other extension for executable files.

Q.16 What is difference between path & class path?

Ans.

	Path	Class Path
1.	Path variable is used to set the path for all java software tools like javac.exe, java.exe, javadoc.exe, and so on	1. Class path variable is used to set the path for java classes.
2.	Variable name : PATH Variable Value : C:\Programfiles\Java\jdk1.7.0.21\bin;	2. Variable name : classpath Variable Value : C:\Program Files\Java\jre1.6.0\jre\lib\rt.jar.