Assignment - 2

① What is difference between JDK, JRE & JVM?

→

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 s/w tools responsible for execution of Java program or appln	② Jvm loads, verifies and execute java byte code
③ It is foundational Component that enables 'Java Appln' & Java applet development	③ uses heap space for dynamic memory allocation for java object	③ It 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 s/w tools & features to get the most out of Java appln	④ Jvm is platform dependent

byte code + JVm makes Java
platform of independent
else Java is portable.

① what is JIT compiler ?

→ JIT is ~~tot integ~~ is a type of compiler that dynamically compiles code during run time, as opposed to ahead of time compilation. The JIT compiler ~~takes code~~ allows for faster program execution. By compiling code at runtime, the JIT compiler can optimize the compiled code based on the actual usage pattern of the program This can result in significant performance improvements over ahead-of-time compilation.

② what is Class loader ?

→ ~~Class loader~~ Class Loader is the component of Jvm that is responsible for loading Java classes into the memory during runtime. The class loader loads java classes from various sources such as local file system, remote file system or n/w locations, and makes them available to the Java program that is executing.

3 types of Class loader -
Bootstrap - loaded during the startup of the Jvm. It loads core Java classes, such as java.lang.Object, java.lang.String etc from the JRE

Extension - This class loader is responsible for loading classes that are part of the java Extension mechanism. These are located in jre/lib/ext

System class - This class loader is responsible for loading that are defined by the appl^n. It loads classes from the classpath which is a list of directories and JAR files that contain the appl^n classes.

④ what gives java its 'write once and Run Anywhere' nature?

→① Programmer can develop java code on one system and can expect it to run on any other java-enabled system without any adjustment.

② For WORA feature of Java has made it a popular choice for developing cross-platform applⁿ. It allows developers to create S/w that can run on multiple operating system and devices without having to write different versions of the code for each platform. This reduces development time and costs and also makes it easier to maintain and update s/w across multiple platforms.

⑤ Explain history of java & who invented java?

→ ① History of Java starts with 'Green Team'
② The principles for creating Java programming were "Simple, Robust, Portable, platform independent, secured, High Performance"
③ Java is used in internet programming, mobile devices, games, e-business solutions etc
④ James Gosling, Mike Sheridan, Patrick Naughton, initiated Java language project in June 1991
These small team of sun engineers called "Green Team"
⑤ Java was developed by 'James Gosling' who is known as father of Java, in 1995
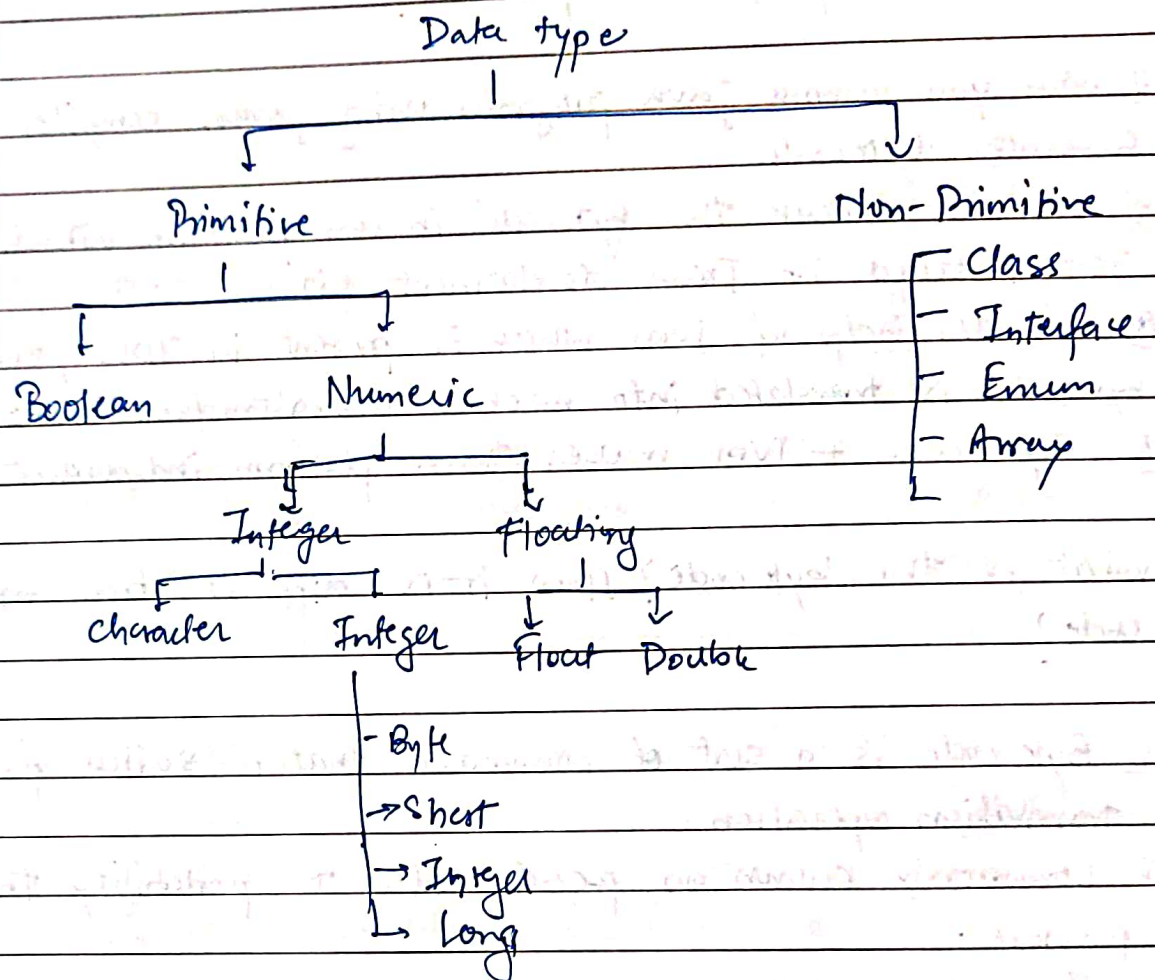
⑥ What was the original name of Java? Why it was renamed?

① The original name of Java was Oak which was developed by a small team of engineer weakly for Sun microsystem
② They called themselves the 'Green Team'
③ The 'Oak' name was renamed due to the fact that oak was already registered as part of another trademark

⑦ List features of Java?

→ ① Simple
② Object oriented
③ Portable
④ Platform Independent
⑤ Secured
⑥ Robust
⑦ Architure neutral
⑧ Interpreted
⑨ High Performance
⑩ Distributed

③ List various Datatypes in Java

```
                        Data type
                           |
        ┌──────────────────────────────────────┐
        ↓                                       ↓
    Primitive                            Non-Primitive
        |                                    ┌─ Class
    ┌───────────┐                            ├─ Interface
    ↑           ↓                            ├─ Enum
 Boolean     Numeric                         └─ Array
              ┌──────┐
              ↓      ↓
          Integer  Floating
        ┌──────┐      ┌────┐
        ↓      ↓      ↓    ↓
    character Integer Float Double
                 |
                 ├─ Byte
                 ├→ Short
                 ├→ Integer
                 └→ Long
```

⑨ What is difference b/w System.out.print();
                      System.err.print(); System.out.println()

→

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 Used to display error message.

⑩ How is Java platform independent?

→ 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 code.

④ byte code + JVM makes Java platform independent.

⑪ what is the byte code? How it is different from machine code?

→ ① Byte code is a sort of command that is suited for S/W translation operation.

② Commonly known as pcode 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 S/W interpreter.

(12) Explain various memory logical Partition?

(1) A logical partition is a division of a computer's memory and storage into multiple sets of resources so that each set of resources can be ~~operating~~ operated independently with its own operating system instance & appl^n

(2) The number of logical partitions are used for different purpose 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 partitions is in a separate machine.

(13) what is the difference b/w jar file & Runable jar file:

→

Jar file	Runable 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 jana 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) JAR is a package file format typically used to aggregate many java class files associated into one file to distribute appl^n, s/w, or lib. on the java platform	(2) A runnable jar allows java classes to be loaded just like when a user clicks on exe file.

(14) What is difference b/w Runnable jar file & exe file?

→ ① Jar file are like dead body. Jar file is the combination of compiled java classes.
② exe-file are like living men. Executable jar file is also Combination of compiled java classes with main class.

(15) How is C platform dependent language?

→ ① C is a portable programming language because it is not tied to any h/w of system
② We can say, it is h/w independent language or platform independent language.
③ That 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 many depends on platform.
⑤ When you use as you get other .th extension for executable files

(16) Difference b/w path & class path?

Path	Class path
① Path variable is used to set the path of all java s/w tools like javac.exe, java.exe jva.doc	① Class path variable is used to set the path for java classes.
② Variable name: path Variable value: a program Fies\ java\ jdk 1.7.0.21\bin	② Variable name: class path Variable value: c:\ program Files\ Java\ jre 1.6.0\ jre\rtb\ rt.jar.