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

	JDK	JRE	JVM
Full form	Java Development kit	Java Runtime environment	Java virtual machine
Defination	It's a software development kit used to develop applications in java	It's a software bundle that provides Java class libraries with the necessary components to run java code	It's an abstract machine that provide & environment to run & execute Java byte code.
Contain	It contains tools for developing, debugging, & monitoring Java code.	It contains class libraries & other supporting files that the JVM requires to execute the program	Software development tools are not included in the JVM.
Enables	JDK enables developers to create java programs that can be executed & run by the JRE & JVM	The JRE is the part of the JDK that creates the JVM.	It is the java platform component that execute source code.
Architecture	Superset	Subset	Subset

Q. What is JIT compiler.

→ JIT stands for Java-In-Time compiler. JIT is a part of the JVM that optimizes the performance of the application. It also known as dynamic compilation.

Q What is class loader?

→ Java classloader is an abstract class. It belongs to a java.lang package. It loads classes from different resources at run time. classes are loaded into the JVM according to need. If a loaded class depends on another class, that class is loaded as well.

Q4 Explain various memory logical partitions.

→ 1. A logical partition is the division of a computer's memory, & storage into multiple sets of resources so that each set of resources can be opeerated independently with its own operating system instance & application.

2. The number of logical partitions are used for different purpose such as database opeerative or client/server operation or the separate test & production environment.

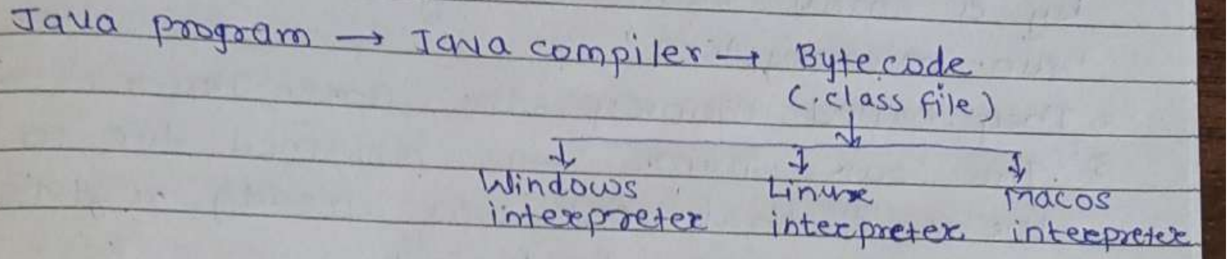
3. Each partitions can communicate with the other partitions as if other partitions is in a separate machine.

Q5 What gives Java its 'write once & run anywhere nature

→ 1. Java application are called WORA i.e. (Write once & Run anywhere)

2. This means programmer can develope java code on one system & can expect it to run on any other

3. Java enabled system without any adjustment.
This is all possible because of JVM.



4. In java, the program is not converted to 'bytecode code directly understood by Hardware, rather it is converted to 'bytecode (.classFile), which is interepreted by JVM. so once compiled it generate bytecode file, which can be run anywhere (any machine) which has JVM & hence it gets the nature of 'write once & run anywhere'.

Q6 Explain History of Java. who invented java?

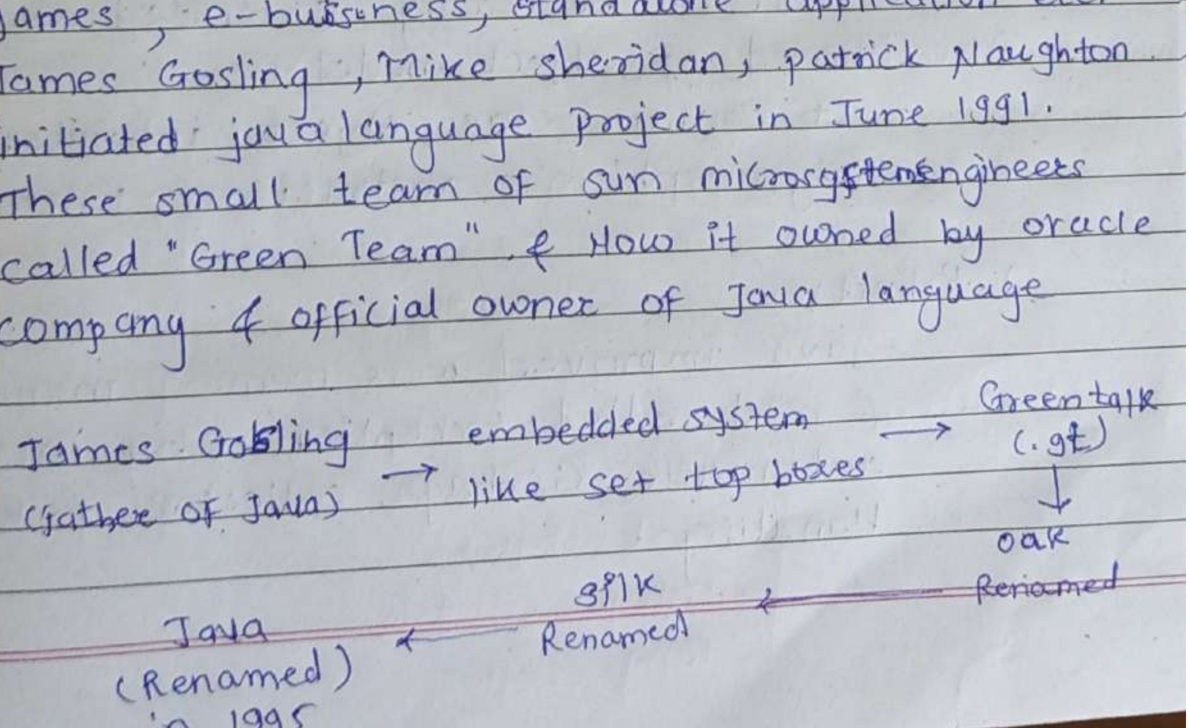
→ 1. History of Java starts with 'Green Team'.

2. The principles for creating Java programming were "simple, Robust, portable, Platform-independent, secured, "high performance" etc.

3. Java is used in web programming, mobile device, games, e-business, standalone application etc.

4. James Gosling, Mike sheridan, patrick Naughton initiated java language project in June 1991. These small team of sun microsystem engineers called "Green Team". & How it owned by oracle company & official owner of Java language

5.



Q.7. What was original name of Java? why it was renamed

→ 1. The original name was 'oak' which was develope by a small team of engineers workigg for 'sun microsystem'.

2. They called themself the 'Green Team'.

3. The 'oak' name was renamed due to the fact that oak was already registered as part of another trademark.

Q.8 List features of Java.

→ The following are advantage of Java.

A) Simple

- rules & syntax of java are based on the C & C++ language.
- The confusing & ambiguous concepts of C++ are either left out in java & they are reimplemented cleanerway.

e.g. pointer & operator overloading are not there in java but were an important part of C++.

B) Object oriented.

- Java can be easily extended as it is based of object model.
- It contain class, object, inheritance, polymorphism, abstraction, Encapsulati

C) Robust -.

- java improved were memory managemen & mishandled Exceptions by introduci automatic Garbage collector & Excepti Handling.

Java makes an effort to eliminate error prone codes by emphasizing mainly on compiler time error checking & runtime checking.

D) platform independent →

- Java Program → Bytecode → Linux OS
  → Windows OS
  → Mac OS
- Java is write once & run anywhere language
- on compilation java program is compiled into bytecode. This byte code is platform independent and can be run on any machine & this bytecode format also provide security.
- Any machine having JVM can run Java program| bytecode.

E) Secure -

- it enable us to develop virus free, temper free system.
- Java program always runs in JRE with almost null interaction with system OS, hence it is more secure.

F) Multi Threading -

- Multiple ~~pro~~ task of program runs simultaneously
- It uses same memory & other resources to execute multiple threads at the same time, like while typing grammatical errors are checked along.

G) Architectural Neutral → Java bytecode runs on any computer architecture & hence it easy to interprete.

H) Portable -

- Java Byte code can be carried to any platform. No implementation dependent features. Everything related to storage is predefined. e.g. size of primitive datatype

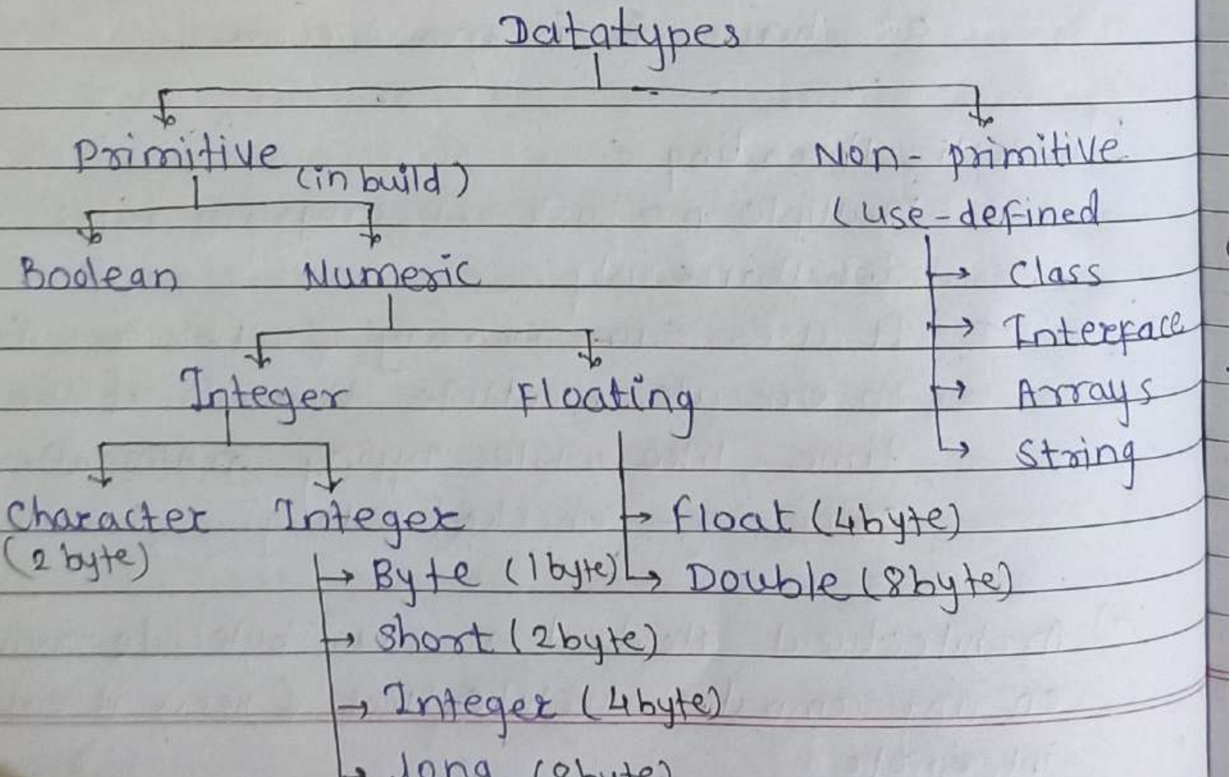
I) High Performance -:

- Java is an interpreted language here it increase its speed of execution using just in time compiler.

J) Distributed -:

- programs can be designed to run on computers networks. Java has a special Class library for communication on network using TCP/IP protocols.
- creating network connection is verymuch easy as compare to C/C++.

Q9. List various Datatypes of Java.



Q.10. What is difference between

1) system. out. print
   - The control or cursor remains on th same line after printing.

2) system. out. println()
   - The control / cursor moves to the next line after printing.

3) System. err. print ();
   - system. err. print() is used to display error messages.
   - output display in red colour.

Q.11. How is java platform indendent.

→ 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. Here, Java is platform independent but it is purely depended on JDK.

Q.12 What is bytecode? How it is different from machine code.

→ Bytecode -

Java program (source code) → Java compiler → Java Byte code.

1. Bytecode is a ~~sort~~ set of command that is suited for software translation operation.

2. commonly known as 'p-code' due to poratability that it provides.

3. It is a intermediate code compiled into a low level code from the source code for efficient execution by a software interpreter

Bytecode	Machine code.
1. It is an itermediate code designed to run on a virtual machine instead of CPU	It is computer program made up of the native instructions associated with that particular computer.
2. The bytecode is to be a format that can be executed efficiently by the virtual machines interpreter.	Machine code is the language which all programs must be converted into before they can be run.
3. It is platform independent because it can be executed on any platform using the virtual machine.	It is not platform independent meaning it cannot be run on just any platform with the same operating system.

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

→

Jar file	Runnable jar file
1. Jar file is a Java application which require a command line to run, a runnable JAR file can be directly executed by double clicking.	1. Runnable jar file allows user to run java classes without having to know class names & type them in cmd, rather than 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 aggreate many java class files associated metadata & 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.

Q14 Difference between Runnable jar file & exe file.

Runnable jar file	exe file
1. Jar file are like dead body	Executable file are like living thing e.g. men.
2. Jar file is the combination of compiled java classes	Executable jar file is also combination of compiled java classes with main class.

Q.15 How is c platfoorm dependent language.

→ 1. C is a portable programming language becau it is not tied to any hordware of system.

2. We can say, it is a hardware independent language or platform indendent 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 depe on a platform.

5. When you use as you get other extensio for executable files.

Q.16 What is difference path & class path?

→

Path	Class path.
1. Path variable is used to set the path for all java software tools like javac.exe, Java. exe, Javadoc. exe, & so on.	1. Classpath variable is used to set the path for java classes
2. Variable name :- PATH variable Value :- c:\program Files\ Java\jdk\ 7.0.21\bin	2. variable name:- Classpat variable value :- c:\program Files\Jav jre 1.6.0\jre\lib\ rt.jar.