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Assignment - 3

Q.1 Explain the components of the JDK.

A. Here is the list of JDK (Java Developement Kit) components –

- Java compiler
- Java Runtime Environment which also includes the JVM.
- Java Debugger
- Java Documentation Generator

Q.2 Differentiate between JDK, JVM and JRE.

A. JDK is Java Development Kit which includes JRE and JVM. JDK provides the complete development kit from compiling a programm to Running it. ~~JRE~~ JRE includes JVM which convert byte code into the machine code. JRE also includes the libraries.

Q.3 What's the Role of the JVM in Java? How does JVM Execute the Java code?

A. The Main Role of JVM is the load the class file (Byte Code) and convert ~~it~~ into the Machine code. First JVM Load the class file into the class loader System into the JVM. Byte verification for security than Execution using Interpreter and JIT.

Q-4 Explain the Memory Management System in JVM?

A. Memory management system allocate and deallocate memory for objects. It has garbage collection which reclaims memory used by an object that are no longer needed.

Q 5 What are the JIT compiler and its Role in the JVM? what is the bytecode in Java and why is it important for Java?

A. JIT is a Just in time compiler inside the JVM which improves the performance of programs by Running the byte code into the machine code which is frequently.

Q 6 Describe the Architecture of JVM?

A. JVM has main components. First one is class loader system which Loads the class file into JVM. There are mainly three class Loaders. First one is Bootstrap, second is Extension class loader, and third one is System class loader. After Loading the class file into JVM it goes inside Memory areas which includes, Method Area, Heap, Stack, PC registers, Native Method Stack. Last one is Execution Engine which Interpreter and JIT.

Q.7 How does Java achieve platform Independence through the JVM?

A. Java compiler convert Java code into the Byte code, which can be easily Read and Executed by the JVM in any operating system. JVM acts as a layer between the byte code and the OS and the Hardware.

Q.8 What is the significane of the class loader in Java? what is the procen of garbage collection?

A. Class Loader helps JVM to load the class file during the Runtime of the code. which can save the memory. During. Garbage collecton procen, garbage collecton try to Reach all objects. of objects which are unreachable, it Reclioms the memory of it.

~~Q. What are the fow~~

Q.9. What are the Four acess modifier in Java, and How do the differ from each other?

A:- The Four accesn modifier in Java are Public, Protected, Package Private and Private. Public once can be accessed from anywhere. Protected can be accessed from Same package. Package Private is the defaut one. Private can be accesn only the same class.

Q.12. What is the differece between the Protected and Private Protected?

A. In Protected Package can be accessed in the same package also subclasses of other Package. But Private protected can not be accessed from other packages.

Q.13. Is it possible to make a class private in Java? If yes, where can it be done? what are the limitations?

A. Yes we can make the class private in Java. But if we cant Access that class from other classes.

Q.14. Can a top Level class in Java be declared as Protected on Private?

A. No, top classes cannot be Protected on Private. Nested can be.

Q.15. What Happens when you dellare a variable on method as private in a class and try to access it from another class within the same package?

A. We can not access because Private modifier can only accessed in the same class.

Q.16. Explain the concept of Package Private on defaut access. How doet is affect the visibility of class members?

A. In the default access which is Package Private, It can only access in the same class or the same Package. It cant access through the other Package.