

· Assignment No. -3.

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| | · sugriment No3. |
| * | Interview questions. |
| 2 | The second letter at a strip |
| Q.17 | Explain the sommanes of TDK: |
| > | Explain the components of JDK:- |
| to si | D' Jana Compilet (janac) . It Converts Jana source |
| | dade unto bytecode. |
| -1 | 2) Jana Runtime Envisonment (JRE): - Peavides the |
| Pool | libraries necessary for java development, The |
| Lute | and Jum & other components needed the ten |
| | Java applications. |
| | 3) Jana Vietucel machine (JVM): - Executes Jana |
| 1. | bytecode. It provides an envisonment incubich jain |
| | programs can lun, regardlessof underlying O.S. |
| 1) | (4) Debugger (JDB): - A tool to shelp in Lebugging |
| | 5 Dolumentation generator (Javador):- generales |
| | 3) Dolumentation generator (Jaucadoc):- generates |
| £ | API idocumentation in HTML formet from |
| | Jana soute code. |
| \$ m | 6) Jur Jaal (Jur): - Packs of wapacks Java |
| 0) | archive ()AR) files, utiliar bunde de to |
| | class files a associated a leader to all les exercition |
| 21 | The docets - pres articles good granding |
| Prof. | (6) Sur Scool (Sat): - Takes twiffeness source archive (JAR) files, which bundle velated class files & associated metadata. (6) Sur Scool (Sat): - Which bundle velated archive (JAR) files, which bundle velated class files & associated metadata. (7) Anex docule: - This includes itaals if or generating sede, managing downertation of hundling sewify, among other dustres |
| | security, among |
| 1000 | modial scale interpretation to the |
| 14.10 | The state of the s |



9.2] Differentiate between JDK, JVM & JRE

1) JDn (Jana development Kit &: - It is a full featured software development kit used to develop jana apph. It includes the JRE; compiler of ather toools necessary for idevelopment.

2.] JRE (Jana Rurting Enwisonment): - It pravides the libraries & Jum reeded to resp jana app? It does not include development toools like compiler.

3.] Jum (Jana Vietual machine): - The engine the executes jana obytecode. It is fast of JRE dis responsible for converting bytecode: into machine code a executing it.

9.3) What is dele af Jum in Jana? & How does Jum execute jana wade?

D'youding: - The Jum loads the bytecade files (classfiles) intermentery.

2) Verification: - It werifies the bytecade

D'exification: - It mexifies the bytecode tou ensure it adheres the Jama's safety Constraints.

3 Execution: - It converts bytecade into machine cade into machine cade specific to the host machine d'executes it.

(1) Management: - The Jum manages memory allocation of gathage callection & applimize performance through Justin Time compilation



9.4) Explain the memory management system of the Jum:-The Jana wistual machine (Jum's) memory management system includes components like: D'Heap: - The area of memory used for dynamic callecation of objects and currents. It is divided into the young generation of old appreciation old igeneration. E) Stuck: - Each thread has its own stuck, which shows doed wariables, method salls & yutial computations. 3) Métrod carea: - Statues class - Joues duta, including tuntime constant good field of emethod date of method cade. (1) Pc Register: - Each Arread has a feagram Mounter (pc) elegister that keeps stack of cultent instruction being executed What are JIT compiler & its rale in Jum's what is bytecade of why is it important Hear Jana?

1) JIT Compiler: The Just - In - Jime compiler is a fact of Jun that implaces operformance by compiling beforede into native machine code at the luntime, tathet their interpreting it. It helps speed up concertion by converting yellowards sequences onto muchine code, which is their caches of sequences onto muchine code, which is their caches of secured.

2) Bytecode:-This is the infermedicale Expresentation of Janacocle, extraduced by jana compila Bytecado is platform undependent Loan be executed an any Jum. Its impartance enable the "wite once, we anywhere" capability.

9.6) Describe the architecture of Jum. The Jum aschitecture includes:

O class Laader Subsystem - Laach Jana Classes Linterfaces.

(2) Runtin eduta areas: - Includes , heap, stack,

Method alea. E PC register.

3 Execution Engine: - Contains the interpreter

a JIT compiler. It executes bytecode instruction

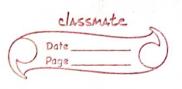
(4) Notice Interface: - Per violes access to native dibraries access to native

6) eyarbage sælle dor: - Handles memory dealles

How does achieve platform independance 9.7) through the Jum?

Platform Independence.

Jana achieves platform independence through the Jum by compiling Java cade into bytecode, which is then interpellated as dampiled water enative muching code by the Juman the target platform. This may Jana prageons can crus on any don't



cor Os that has compatible Jum.

9.8) What is significance of class leader in Java?
What is process of garbage collection in java?

—> @ class leader:—

The class loader is tesponsible for loading classes into JVM. It performs three main functions-Loading: - Finds and cloads the class file.

Linking: - Verifies, prepares & resolves symbolic Enfermances :- Initializes class matiables of executes

Static blocks.

(B) Lyarbage Collection:—
It is the optocess of cautomatically reclaiming operation of the form was successed that are no longer in use. The Jum was national of algorithms (eg., generational, mark-and-sweep) the identify and collect wrused abjects, thus preventing memory leaks of aptimising memory wage.

g. 9) what are the faux access madifier in Java, I how do they differ from each other?

In Jana, the four access madifiers contact the suisibility of classes, method & variables:

-Public: - Members are accessible your carry other dass, regardless of package.

- Protected: - members are accessible within the same package of by subtlass in different packages.

- Package Peincite (Default):- Members are accessit

theyword is used; if me cacess madified is specified



it defaults to this.
-Private: Members care caccessible conly within the class wheel they are adefined.

9.10] What is the difference between public, proteder and default access modifices?

- Public & - Allows access from any other class in any package. It is the least restricted access level.

-Restected: - Allows access within the same package and vary subclass, even if they are in different packages. It is less accessible them upublic.

- Package - Peivate (Pefault): - Allows access only unithin the scime package. This access four is more testicitive than protected spublic as it does not allow access from subdus outside the package.

9.11] Lan you overide ce method with a cliffetent access ancoclifier in a subclass? For Ex. Man a protected method in a superclass be overiched unith a private method in subclass? Explain.

No, rul cannot ouetricle a method with a more destrictive access modifiet. When ouetricing a method, the access level of oversiding method court be same or less destrictive than method in superclass. For En, rul cannot overside pratected comethod with a previate method



in a subclass obecause private is more restrict in in than prestected. The overriding method must imaintain or increase the level of access.

9.12] What is the difference between protected a default (Package - Peivate) access?

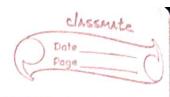
Protected: - Members care accessible within the same spackage of by subclass in other packages. This means that subclass, even if they are in different packages, can access prestected members.

default (lackage-leivate):- members are accessible only within the same (package. Subclass in other packages iconnot access these members.

The default access lovel does not allow access from outside the package, togardless of inheritance.

G.13] Is it passible to make a clas private in Java? If yes, ruhere can it be done I what are the dinitations?

No, we surrect idectarl a top-level class as private. Top-level classes can only be declared as yublic or package-private. The season is that the access madifiers protected & private are meant to contract visibility with the same of a package



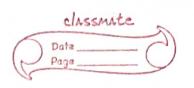
The private modifiet is capplicable only to crested (innet) class, & it restricts cases to within the containing class. Jap-level classes need to be accessible to other classes within the package or, if public to carry class outside package.

og. 14] Can a step-level class in Java be declared as protected or private? why or why not?

No, a itep-sevel iclass cannot be deduced as pretected or private. Top-sevel classes can only be declared as public or package private. The season is that the sacress modifiers prestected Extincete are meant to contact visibility within the scape of a yearlage or a specific class, which access next capply itee itop level classes. The Tana danguage design requires that top-sevel classes be either caccessible to all illustes in package or appropriate appropriate to accessible to all injublic.

Q. 15) What chappens if you declare a naicable ar method as private in a class of try the saucess it from another class class unithin the same package?

as private, it cannot be accessed from any other class, even if those classes



care in some package. The private modified elestricts access strictly to the class inwhich it is declared. This is designed to Inface encapardation of censure that internal details of a class are not emposed certicle of that class.

9.16] Explain the concept of "package - private" or "default "access. How does it affect wisibility of class members?

Yackage - private, calso known as default access, coccurs when no explicit access modifier is specified. Members with the package - private access are visible only to other classes within the same package. They are not accessible to classes in other package, are subclasses. The access due of those classes are subclasses. The access dead provides a way to restait wisibility while still allowing related class within the same package to interact with each cether.