

CORE JAVA

1. Introduction:

- 1. Java History**
- 2. Differences between java and others**
- 3. Java Features**
- 4. Java Naming Conventions**
- 5. Java Programming Format**

2. First Java Application Development:

- 1. Java Installation**
- 2. Editor**
- 3. Java Application and Java File Saving.**
- 4. Compile Java File**
- 5. Execute Java Applications.**

3. Language Fundamentals:

- 1. Tokens**
- 2. Identifiers**
- 3. Literals**
- 4. Keywords /Reserved Words**
- 5. Operators**

4. OOPS:

- 1. Types of Programming Languages**
 - 1. Unstructured Programming Languages**
 - 2. Structured Programming Languages**
 - 3. Object Oriented Programming Languages**
 - 4. Aspect Oriented Programming Languages**
- 2. Object Oriented Features**
 - 1. Class**
 - 2. Object**
 - 3. Encapsulation**
 - 4. Abstraction**
 - 5. Inheritance**
 - 6. Polymorphism**
 - 7. Message Passing**
- 3. Object Based PL VS Object Oriented PL**
- 4. Class syntax**
- 5. Method Syntax**
- 6. Var-arg method.**
- 7. Accessor Methods VS Mutator Methods**
- 8. Syntax to create an object**
- 9. Immutable Objects VS Mutable Objects**
- 10. Object Vs Instance**
- 11. Constructors**
 - 1. Default Con.**
 - 2. User defined con.**

1. 0-arg-con.
 2. Param-con.
12. Instance Context
 1. Instance variable
 2. Instance method
 3. Instance block.
13. This keywords
 1. To refer to the current class variable.
 2. To refer to current class methods.
 3. To refer to current class blocks.
 4. To return current class objects.
14. Static keyword
 1. Static variable
 2. Static method
 3. Static block
 4. Static import
15. Main () method
 1. Public static void main (String [] args)
 2. Why public?
 3. Why static?
 4. Why void?
 5. Why main
 6. Why String [] as parameter?
 7. Is it possible to overload main (-) method?
 8. Is it possible to override main (--) method?
 9. Is it possible to provide more than one main (--) method with in a single java appl?
 10. Is it possible to execute any java application without using main method?
16. Factory Method
17. Singleton classes and Doubleton classes
18. Final Keyword
 1. Final variable
 2. Final method
 3. Final class
19. Enum keyword
20. Relationships in JAVA
 1. IS-A Vs HAS-A Vs USE-A
21. Associations in Java
 1. one-one
 2. one-many
 3. Many-one
 4. many-many
22. Inheritance and Types of inheritances

1. Single
 2. Multiple
 3. Multilevel
 4. Hierarchical
 5. Hybrid.
23. Static flow in inheritance
24. Instance flow in inheritance
25. Super keyword
26. Class level type casting
27. PolyMorphism
 1. Static PM
 2. Method overloading
 3. Dynamic PM
28. Method overriding
29. Abstract Methods Vs Concrete Methods
30. Abstract class Vs concrete Class
31. Class Vs Abstract class Vs interface
32. "Instance of" operator
33. What is Adapter class?
34. What is the marker interface?
35. Object Cloning
 1. Shallow Cloning
 2. Deep Cloning
36. JAVA8 features in interfaces
5. Inner classes:
 1. Member Inner class
 2. Static Inner class
 3. Method local Inner class
 4. Anonymous Inner class
6. Wrapper classes: Byte,Short,Integer,Long,Float,Double, Boolean, Character
7. Packages:
 1. What is a package?
 2. Adv. of packages
 1. Modularity
 2. Abstraction
 3. Security
 4. Reusability
 5. Shareability
 3. Types of packages
 1. Predefined packages
 2. User defined packages
 4. Jar files preparation
 5. Executable Jar files
 6. Batch files preparation

8. String manipulations:

- 1. String**
- 2. String Buffer**
- 3. String Builder**
- 4. String tokenizer**

9. Exception Handling:

- 1. Error VS Exception**
- 2. Exception Def.**
- 3. Types of Exceptions**
 - 1. Predefined Exceptions**
 - 2. User defined Exceptions**
- 4. Checked Exception VS Unchecked Exception**
 - 1. Pure Checked Exceptions**
 - 2. Partially Checked Exceptions**
- 5. Throw Vs throws**
- 6. try-catch-finally**
- 7. Custom Exceptions**
- 8. Java7 Features in Exception Handling**
 - 1. Automatic Resource management**
 - 2. Multi catch block.**

10. Multi-Threading:

- 1. Process Vs Processor Vs Procedure**
- 2. Single Processing Mech. Vs Multi Processing Mech.**
- 3. Single Thread model And Multi Thread Model**
- 4. Thread Design**
 - 1. Extending Thread class**
 - 2. Implementing Runnable interface.**
- 5. Thread lifecycle**
 - 1. New/Born**
 - 2. Runnable**
 - 3. Running**
 - 4. Blocked**
 - 5. Dead**
- 6. Thread class library**
 - 1. Sleep ()**
 - 2. Join ()**
 - 3. Yield ()**
 - 4. Stop ()**
- 7. Daemon Thread**
- 8. Synchronization**
- 9. Inter Thread communication**
 - 1. Wait ()**
 - 2. Notify ()**
- 10. Deadlocks**