

Core JAVA Syllabus

1. Introduction to JAVA

- Need of JAVA
- How JAVA works
- Features of JAVA
- Installation of JAVA
- Path Variable
- JDK, JVM & JRE
- Working of JVM
- First program of JAVA

2. Language Fundamentals

- Variables of data type
- Operators
- Type casting

3. Flow Control

- IF – Else
- Switch – Case
- While – Loop
- For – Loop
- For – Each – Loop
- Labelled, Break & continue statement

4. OOPs

- What is OOPs
- Encapsulation
 - Class, Object & Instance (DM+MF)
 - Static (DM+MF)
 - One object & multiple reference variable
- Polymorphism
 - Need of Polymorphism

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- Type of Polymorphism
- Operator Overloading
- Function Overloading
- This Keyword
- Constructor
 - Need of Constructor
 - Implementation of Constructor
 - No Argument or default Constructor
 - Parameterised Constructor
 - Function name as class name
 - Copy constructor
 - Constructor Chaining
 - Call by reference & call by Value
 - Init Block
 - Local Block
- Static block or Static constructor
- Inheritance
 - Need of Inheritance
 - Type of Inheritance
 - Data member in Inheritance
 - Function Overriding
 - Constructor in Inheritance
 - Association
- Final keyword
- Abstraction
 - Need of Abstraction
 - Abstraction class
 - Interface
 - Function in Interface
 - Data member in Interface
 - Object class function in Interface

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➤ Difference between Abstract class & Interface

5. Packages

- Need of Packages
- How to use Packages
- How to create packages
- Static Import & Sub Packages
- Access Modifiers

6. Nested Classes

- Need Of Nested classes
- Static Nested class
- Non static Nested Class
- Local Nested class
- Annonymouse Nested class

7. Arrays

- Need of Array
- Implementation of Array
- Array of Arrays
- Array of reference variable

8. Garbage Collection

- Need of Garbage collection
- Unreachable Objects
- How Garbage collection is done
- Finalize() Method
- Metaspase memory area
- Different types of References

9. Exceptions

- Need of Exceptions

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- Type of Exceptions
- Try Catch block
- Automatic resource handling
- Throw keyword
- Throws keyword
- Custom Exceptions

10. String Handling

- Introduction to String
- Immutable class
- Creating String class object via Literal
- Creating string class object via Constructor
- String comparison
- String concatenation
- String class Method
- String Buffer class constructor
- String buffer class Method

11. AWT (Abstract Window Toolkit)

- Introduction to AWT
- Creating frame
- Event handling

12. JAVA Swing

- Need of Swing
- Creating J frame
- Layout
- Look & feel
- Formatting caption of component using HTML
- Color Dialog box
- J radio Button
- Creating Menu

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- J file Chooser
- J Internal Frame
- J Combo & j List
- J Table & J tree
- Graphics

13. Multi-Threading

- Need of Threading
- Creating A thread via Association
- Creating A Thread via Inheritance
- Thread Life Cycle
- Methods of Thread Class
- Synchronization
- Synchronized Method
- Synchronized Block
- Wait & Notify Method
- Dead Lock condition
- Task Scheduling & Shutdown Hooks
- Thread Group, Interrupting Thread, Yield() Method

14. I/O Stream

- Need of Stream
- Type of Stream
- Byte Stream Classes
 - File Input Stream / File Output Stream
 - Byte Array Input steam / Byte Array Output Steam
 - Print Steam
 - Data Input Steam / Data Output Steam
 - Piped Input Steam / Piped Output Steam
 - Sequence Input Steam
 - Filter Input Steam / Filter Output Steam
 - Push Back Input Steam

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- Character Stream Classes
 - File reader / File Writer
 - Char Array Reader / Char Array Writer
 - Input Stream Reader / Output Stream Writer
 - Print Writer
 - Buffered reader / Buffered Writer
 - Piped Reader / Piped Writer
 - String Reader / String Writer
 - Filter Reader / Filter Writer
 - Push Back Reader
- Serialization
 - Need of Serialization
 - Implementation of Serialization
- Externalization
 - Need of Externalization
 - Implementation of Externalization
- Nio Package
 - Path/ Paths Access
 - File Class
 - File Visitor Class
- Scanner Class
- Console Class
- Zip Output Stream
- File Class
- File Permission/ File Descriptor
- Jar File Class

15. Networking

- Need of Networking
- Networking Terminology
- Socket Programming
- Creating Echo Server

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- Creating Multi-threaded Server
- UDP Protocol
- URL Class
- File Transfer

16. Reflection

- Need of Reflection
- JAVA.Lang.Class
- Creating Object without new operator
- Reflection with Modifiers
- Reflection with Fields
- Reflection with Constructor
- Reflection with Methods
- Reflection with Super Class
- Reflection with Packages
- Using Private (DM+MF) Outside the Class
- Changing Final variable value
- Creating Own Java p tool
- Array Class