

CORE JAVA



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

- 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
- 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
- ✓ Anonymous 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
- ✓ Metaspace memory area
- ✓ Different types of References

9. Exceptions

- ✓ Need of Exceptions
- ✓ 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
- ✓ 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 stream / Byte Array Output Stea

- Print Stream
- Data Input Stream / Data Output Stream
- Piped Input Stream / Piped Output Stream
- Sequence Input Stream
- Filter Input Stream / Filter Output Stream
- Push Back Input Stream

✓ 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
- ✓ 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



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