3 - Core Java

Introduction of JAVA

- History of Java/ Features
- Java Versions
- JDK Installation
- First Program/Flow of Execution
- Set PATH Variable
- JDK, JRE and JVM
- Memory Allocation By JVM
- Class Loaders
- Unicode System
- Naming Convention

Basics of JAVA

- Class and Object, Constructor
- Keywords / Reserved
- Primitive Data Types
- Variables and Identifiers
- static & final Keywords
- Statements

Methods and Blocks

- Non Static
- Static Method
- IIB (Instance Initializer Block)
- SIB (Static Initializer Block)
- Synchronized Block

Command line Arguments , Scanner

- Advantage & Disadvantage Of CLA

Packages In Java

- Predefined Package (Java API's)
- User Defined Package

Operators

- Arithmetic , Bitwise , Relational , Assignment
- Conditional (?) Operators

Control statement

- Conditional Statements (if , if else, switch)
- Iteration statements(while, do while ,for, for:each)

Array

1. Introduction/Memory Allocation
2. One Dimensional Array
3. Multi Dimensional Array

OOPS Concepts

- Object
- Class
- Encapsulation
- Inheritance
- Polymorphism
- Abstraction

Abstraction

- Abstract class
- Interface , Marker Interface

Access Modifiers

- Private
- Default
- Protected
- Public

Constructor

- Overloading
- Constructor Chaining
- this & super keywords

Exception Handling

- What is an exception ?
- Introduction to Throwable
- Types Of Exception
- Hierarchy of Exception

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- How to throw an exception
- Exception Handler
- Try with catch /Multiple Catch
- Try with finally
- Try with resource
- Throw vs throws
- Exception propagation
- Exception in method overloading
- Custom exception

String Handling

- String Class
- String Comparison
- String Concatenation
- String Conversion
- String class methods
- String Builder Class
- String Buffer Class

Multithreading

- What is multitasking ?
- Multiprocessing ?
- Multithreading ?
- What is thread ?
- How to create a thread ?
- Methods of Thread class
- Deadlock
- Thread Synchronization
- Wait() ,notify() , notifyAll()
- Thread pool and Thread group

Nested Class

- static Nested Class
- Non static nested class
- Local Nested class
- Anonymous Nested class

Wrapper Classes

- What is and Why do we use it ?
- Auto Boxing & Unboxing

Collections Framework

- Introduction
- Generic
- Collection and Collections
- Iterable , Iterator & for-each.
- ArrayList
- LinkedList
- Vector
- Stack
- HashSet
- LinkedHashSet
- TreeSet
- Map
- HashMap
- LinkedHashMap
- TreeMap
- IdentityHashMap
- WeakHashMap
- Comparable vs Comparator

Stream API (Java 8)
- Functional Interface
- Lambda Expression
- Stream Interfaces/Classes
- Uses of filter and map/flatMap

Java I/O and NIO

- Byte stream
- Character stream
- Buffer Stream
- Scanning & Formatting
- Data stream
- Object stream
- Serialization and deserialization

JDBC

- What is JDBC ?
- Architecture of JDBC (2 tier & 3 tier)
- JDBC drivers
- Creating database connection
- Creating statement
- Query execution
- Processing the result (ResultSet)