



Curriculum Of Core Java

Duration: 6 Weeks

MODULE 1: INTRODUCTION TO JAVA

- Why Java was Developed
- Application Areas of Java
- History of Java
- Platform Independency in Java
- USP of Java: Java Features
- Sun-Oracle Deal
- Different Java Platforms
- Difference between JDK, JRE, JVM
- Java Versions
- JVM Architecture
- Installing Java on Windows
- Understanding Path Variable: Why Set Path

MODULE 2: CREATING FIRST JAVA PROGRAM

- Understanding Text Editors to Write Programs
- How to compile java file
- Byte Code and class file
- How to run class file

MODULE 3: JAVA LANGUAGE FUNDAMENTALS

- Identifiers
- Keywords
- Variables
- Literals
- Data Types
- Operators
- Comments
- Looping Statements
- Condition Statements
- Type Casting

MODULE 4: OOP IMPLEMENTATION (PIE)

- Why OOP

- OOP Concepts with Real life examples
- Class & it's Syntax
- Object & it's Syntax
- Reference Variable
- Constructors
- Instance(Non-Static) & Static Variables
- Instance(Non-Static) & Static Methods
- this Keyword and it's usages
- Object & Static Initializers (Anonymous Blocks)
- Understanding '+' Operator
- Inheritance & it's Syntax
- Types of Inheritance
- Object Class as Root of Java Class Hierarchy
- Variable Hiding
- Method Hiding
- Method Overriding
- Method Overloading
- Super keyword and it's usages
- Final keyword and it's usages
- Constructor Chaining
- Upcasting,
- Down casting
- Static Binding
- Dynamic Binding
- Run Time Polymorphism
- Abstract Keyword (Abstract classes and methods)
- Understanding Interfaces
- Implementation of Encapsulation
- Association with Implementation

MODULE 5: PACKAGES

- Understanding Packages
- Setting Class path
- Reading Input from Keyboard
- Access Modifiers



Curriculum Of Core Java

MODULE 6: NESTED TYPES

- Static Nested Class
- Non-static Nested Class
- Local Class
- Anonymous Class
- Nested Interface

MODULE 7: ARRAYS

- General Definition of Array
- Advantages from Array
- Arrays in Java
- 1-d Arrays
- 2-d Arrays
- Jagged Arrays
- Array of reference type
- Operations on Arrays

MODULE 8: COMMAND LINE ARGUMENTS AND WRAPPER CLASSES

- How to read command line arguments
- Wrapper Classes
- Parsing of Numeric Strings
- String representation of Primitives

MODULE 9: EXCEPTION HANDLING

- Types of Runtime Errors
- Understanding Exceptions
- Exception Class Hierarchy
- Try & Catch Blocks
- Patterns of Catch Block
- Nested Try statements
- Throw, throws and finally
- Creating Custom Exceptions
- Checked & Unchecked Exceptions
- Assertion

MODULE 10: WORKING WITH STRINGS

- What is String

- String Class
- Creating String Object
- Operations on String
- String Buffer Class and it's Methods
- Difference between String and String Buffer class
- String Builder Class and it's Methods
- Difference between String Buffer and StringBuilder

MODULE 11: SWING

- Introduction to AWT
- Introduction to Swing Components
- Look and Feel of Swing Components
- MVC Architecture of Swing Components
- Working with Image
- Advance Swing Components
- JOptionPane, JTree, JTable, JTabbedPane, JFileChooser, JcolorChooser
- Menu Components
- J Menu
- JMenuitem
- Jmenubar

MODULE 12: MULTITHREADED PROGRAMMING

- Multitasking: Why Concurrent Execution
- Multiprocessing v/s Multithreading
- Main Thread (Default Java Thread)
- Creating Child Threads and understanding ontext switching
- Thread States
- Thread Group
- Thread Synchronization: Methods and Blocks
- Inter-Thread communication
- Daemon Threads
- Deadlock



Curriculum Of Core Java

MODULE 13: EXTENDED & UTILITY CONCEPTS

- Generics
- Lambda Expression
- Annotations
- Object Cloning
- Vargs
- Static-import
- Enum
- Static, Default and Private Methods of Interface
- Var Type
- Java Modules

MINOR PROJECT IMPLEMENTATION