

Core Java
[Upto Date JDK 8]
Duration – 2 Months

- **Module – I [Introduction]**
 - What is Java
 - History of Java
 - Features of Java
 - How to Get Java
 - Installation and Configuration
 - Java IDE's
 - Structure of Java Program
 - Environment Variables
- **Module – II [Language Elements]**
 - Keyword
 - Identifiers
 - Data Types
 - Variables
 - Operators
 - Control Statements
 - Arrays
- **Module – III [OOP's & Java Programming]**
 - Object Oriented Programming
 - Pure Object Oriented Programming
 - Object Based v/s Object Oriented Language
 - Features Of OOP's
 - Class & Object
 - Methods
 - Variable-Length Arguments
 - Overloading
 - Argument Passing
 - Constructors
 - Static Members
 - Access Modifiers
 - Garbage Collection
 - 'finalize' method
 - Understanding this & this()
 - Inner Classes
 - Anonymous Classes
 - Inheritance
 - Inheritance Hierarchies
 - Using 'super' & super()
 - Constructor Calling
 - Overriding Methods
 - Abstract Classes
 - Using 'final'
- Packages and Interfaces
 - Creating Packages
 - Concept of CLASS PATH
 - Jar files
 - Diff b/w jar, war and ear
 - System properties
 - Creating Interfaces
 - Implementing Interfaces
 - Properties Of Interfaces
- **Module – IV [Java Library]**
 - String Handling
 - String class constructors
 - Methods of String class
 - String constant pool (SCP)
 - Creating our immutable class
 - StringBuffer
 - StringBuilder (1.5v)
 - Exception Handling
 - Handling Exception
 - try, catch and finally block
 - Inner try-catch block
 - Diff b/w throw and throws
 - Exceptions Hierarchy
 - Built-in Exceptions
 - Exception Types
 - Checked, Unchecked exception
 - Custom Exception
 - Exception Propagation
 - Java.lang package
 - java.lang.Object
 - toString() method
 - hashCode() method
 - equals() method
 - Diff b/w '==' and .equals()
 - clone() method
 - Shallow cloning
 - Deep cloning
 - getClass()
 - finalize()
 - wait(), notify(), notifyAll()
 - Wrapper classes
 - Autoboxing and Autounboxing
 - java.lang.Class
 - java.lang.Runtime
 - java.lang.System

- Multithreading
 - Concept Of Threads
 - Thread Class in Java
 - Runnable Interface
 - Thread life cycle
 - Thread Priorities
 - sleep(),wait(),notify(),join()
 - Daemon threads
 - Synchronization
 - Inter-thread communication
 - Deadlock starvation

- Input / Output
 - java.io package
 - Input and Output Streams
 - Reader and Writer Classes
 - Handling I/O Exceptions

- Collection Framework
 - Diff b/w Array and collection
 - 9 key interfaces of collection
 - List interface
 1. ArrayList
 2. LinkedList
 3. Vector
 4. Stack
 - 3 Cursors of java
 1. Enumeration
 2. Iterator
 3. ListIterator
 - Set interface
 1. HashSet
 2. LinkedHashSet
 3. SortedSet
 4. TreeSet
 - Map interface
 1. HashMap
 2. LinkedHashMap
 3. SortedMap
 4. TreeMap
 5. HashTable
 - Properties
 - Queue Interface
 - Priority Queue

- Regular Expression
 - Pattern class
 - Matcher class
 - Character classes
 - Quantifiers
 - StringTokenizer

- **Module – V [JVM Architecture]**
 - Virtual Machine
 - Types of JVM
 - Basic JVM Architecture
 - Class Loader Sub System
 - Loading
 - Linking
 - Initialization
 - Memory Areas of JVM
 - Method Area
 - Heap Area
 - Stack
 - PC Register Area
 - Native Stack
 - Execution Engine

- **Module – VI [New Features]**
 - Generics
 - StringJoiner (1.8 v)
 - Lambda Expressions
 - Assertions
 - try-with-resource
 - catch with multiple Exception Types
 - Annotations
 - static import
 - String in Switch Statements
 - Binary Literals
 - Underscore in Numeric Literals
 - Default Interface Methods

 - Internationalization (I18N)
 - Introduction
 - Locale
 - NumberFormat
 - DateFormat

 - Other Utility Classes
 - Date
 - Calendar
 - Random
 - Timer and Timer Task
 - Currency
 - Timezone
 - Formatter
 - Scanner
 - Reflection