

# COURSE CONTENT

## • Basics of Java

- ✓ Java - What, Where and Why?
- ✓ History and Features of Java
- ✓ Internals of Java Program
- ✓ Difference between JDK,JRE and JVM
- ✓ Internal Details of JVM
- ✓ Variable and Data Type
- ✓ Unicode System
- ✓ Naming Convention

## • OOPS Concepts

- ✓ Advantage of OOPs
- ✓ Object and Class
- ✓ Method Overloading
- ✓ Constructor
- ✓ static variable, method and block
- ✓ this keyword
- ✓ Inheritance (IS-A)
- ✓ Aggregation and Composition(HAS-A)
- ✓ Method Overriding
- ✓ Covariant Return Type
- ✓ super keyword
- ✓ Instance Initializer block
- ✓ final keyword
- ✓ Runtime Polymorphism
- ✓ static and Dynamic binding
- ✓ Abstract class and Interface
- ✓ Downcasting with instanceof operator
- ✓ Package and Access Modifiers
- ✓ Encapsulation
- ✓ Object class
- ✓ Object Cloning
- ✓ Java Array
- ✓ Call By Value and Call By Reference
- ✓ strictfp keyword
- ✓ Creating API Document

## • String Handling

- ✓ String : What and Why?
- ✓ Immutable String
- ✓ String Comparison
- ✓ String Concatenation
- ✓ Substring
- ✓ Methods of String class
- ✓ StringBuffer class
- ✓ StringBuilder class
- ✓ Creating Immutable class
- ✓ toString method
- ✓ StringTokenizer class

## • Exception Handling

- ✓ Exception Handling : What and Why?
- ✓ try and catch block
- ✓ Multiple catch block
- ✓ Nested try
- ✓ finally block
- ✓ throw keyword
- ✓ Exception Propagation
- ✓ throws keyword
- ✓ Exception Handling with Method Overriding
- ✓ Custom Exception

## • Nested Classes

- ✓ Nested Class : What and Why?
- ✓ Member Inner class
- ✓ Anonymous Inner class
- ✓ Local Inner class
- ✓ static nested class
- ✓ Nested Interface

## • Multithreading

- ✓ Multithreading : What and Why?
- ✓ Life Cycle of a Thread
- ✓ Creating Thread

- ✓ Thread Scheduler
- ✓ Sleeping a thread
- ✓ Joining a thread
- ✓ Thread Priority
- ✓ Daemon Thread
- ✓ Thread Pooling
- ✓ Thread Group
- ✓ ShutdownHook
- ✓ Performing multiple task by multiple thread
- ✓ Garbage Collection
- ✓ Runnable class

## • Synchronization

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- ✓ Synchronization : What and Why?
- ✓ synchronized method
- ✓ synchronized block
- ✓ static synchronization
- ✓ Deadlock
- ✓ Inter-thread Communication
- ✓ Interrupting Thread

## • Input and output

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- ✓ FileOutputStream & FileInputStream
- ✓ ByteArrayOutputStream
- ✓ SequenceInputStream
- ✓ BufferedOutputStream & BufferedInputStream
- ✓ FileWriter & FileReader
- ✓ CharArrayWriter
- ✓ Input from keyboard by InputStreamReader
- ✓ Input from keyboard by Console
- ✓ Input from keyboard by Scanner
- ✓ PrintStream class
- ✓ PrintWriter class
- ✓ Compressing and Uncompressing File
- ✓ Reading and Writing data simultaneously
- ✓ DataInputStream and DataOutputStream
- ✓ StreamTokenizer class

## • Serialization

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- ✓ Serialization & Deserialization
- ✓ Serialization with IS-A and Has-A
- ✓ transient keyword

## • Networking

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- ✓ Socket Programming
- ✓ URL class
- ✓ Displaying data of a web page
- ✓ InetAddress class
- ✓ DatagramSocket and DatagramPacket
- ✓ Two way communication

## • AWT and EventHandling

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- ✓ AWT Controls
- ✓ Event Handling by 3 ways
- ✓ Event classes and Listener Interfaces
- ✓ Adapter classes
- ✓ Creating Games and Applications

## • Swing

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- ✓ Basics of Swing
- ✓ JButton class
- ✓ JRadioButton class
- ✓ JTextArea class
- ✓ JComboBox class
- ✓ JTable class
- ✓ JColorChooser class
- ✓ JProgressBar class
- ✓ JSlider class
- ✓ Digital Watch
- ✓ Graphics in swing
- ✓ Displaying Image
- ✓ Edit Menu for Notepad
- ✓ Open Dialog Box
- ✓ Creating Notepad
- ✓ Creating Games and applications

## • LayoutManagers

- - ✓ BorderLayout
  - ✓ GridLayout
  - ✓ FlowLayout
  - ✓ BoxLayout
  - ✓ CardLayout
- **Applet**
- - ✓ Life Cycle of Applet
  - ✓ Graphics in Applet
  - ✓ Displaying image in Applet
  - ✓ Animation in Applet
  - ✓ EventHandling in Applet
  - ✓ JApplet class
  - ✓ Painting in Applet
  - ✓ Digital Clock in Applet
  - ✓ Analog Clock in Applet
  - ✓ Parameter in Applet
  - ✓ Applet Communication
  - ✓ Creating Games
- **Reflection API**
- - ✓ Reflection API
  - ✓ newInstance() & Determining the class object
  - ✓ javap tool
  - ✓ creating javap tool
  - ✓ creating appletviewer
  - ✓ Accessing private method from outside the class
- **Collection**
- - ✓ Collection Framework
  - ✓ ArrayList class
  - ✓ LinkedList class
  - ✓ ListIterator interface
  - ✓ HashSet class
  - ✓ LinkedHashSet class
  - ✓ TreeSet class
  - ✓ PriorityQueue class
  - ✓ ArrayDeque class
  - ✓ Map interface
  - ✓ HashMap class
  - ✓ LinkedHashMap class
  - ✓ TreeMap class
- - ✓ Hashtable class
  - ✓ Comparable and Comparator
  - ✓ Properties class
- **JDBC**
- - ✓ JDBC Drivers
  - ✓ Steps to connect to the database
  - ✓ Connectivity with Oracle
  - ✓ Connectivity with MySQL
  - ✓ Connectivity with Access without DSN
  - ✓ DriverManager
  - ✓ Connection interface
  - ✓ Statement interface
  - ✓ ResultSet interface
  - ✓ PreparedStatement
  - ✓ ResultSetMetaData
  - ✓ DatabaseMetaData
  - ✓ Storing image
  - ✓ Retrieving image
  - ✓ Storing file
  - ✓ Retrieving file
  - ✓ Stored procedures and functions
  - ✓ Transaction Management
  - ✓ Batch Processing
  - ✓ JDBC New Features
  - ✓ Mini Project
- **Java New Features**
- - ✓ Assertion
  - ✓ For-each loop
  - ✓ Varargs
  - ✓ Static Import
  - ✓ Autoboxing and Unboxing
  - ✓ Enum Type
  - ✓ Annotation
  - etc.