

## JAVA/J2EE Course Syllabus

### ➤ Introduction to Java

- What is Java?
- Background/History of Java
- The Internet and Java's place in it
- Java Virtual Machine
- Byte code - not an executable code
- Procedure-Oriented vs. Object-Oriented Programming
- Compiling and running a simple "Hello World" program

- ✓ Setting Up Your Computer
- ✓ Writing a Program
- ✓ Compiling, Interpreting and Running the program
- ✓ Common errors

### ➤ Holding Data

- Primitive Data Types
  - ✓ Integers
  - ✓ Floating-Point types
  - ✓ Characters
  - ✓ Booleans
- User-Defined Data Types
- Declarations
- Constants
- Identifiers, Literals
- Type Conversion and Casting
- Objects and Wrapper Classes
- Variables
- Command-Line Arguments
- Arrays of Primitive Data Types
- Comment Syntax
- Garbage Collection

### Special Topics:

- Real Time Software Development Life Cycle Training and Demo
- Cloud and Big Data Workshop with certificate

### Highlights:

- MNC Trainers
- Practical Training (No classroom sessions)
- Quality study materials.
- Flexible Timings.
- Real Time project involvement
- Professional Certificates.
  - Course Completion
  - Project Completion



## ➤ Controlling the flow

- Expressions
- Using Operators
  - ✓ Arithmetic, Bitwise, Relational, Logical, Assignment, Conditional, Shift, Ternary
  - ✓ Auto-increment and Auto-decrement
- Using control statements
  - ✓ Selection statements - If, Switch
  - ✓ Loops and loop options - While, do-while, for
  - ✓ Jump statements - Break, continue and return

## ➤ Object Oriented Programming Concepts

- Abstraction
- Encapsulation
- Polymorphism and Overloading
- Fundamentals of Classes
  - ✓ A simple class
  - ✓ Creating Class Instances
  - ✓ Adding methods to a class
  - ✓ Calling Functions/Methods
- Using 'this' keyword
- Constructors
  - ✓ Default constructors
  - ✓ Parameterized constructors
- More on methods
  - ✓ Passing by Value, by Reference
  - ✓ Access Control
  - ✓ Methods that Return Values
  - ✓ Method Overloading
  - ✓ Recursion
- Nested and Inner classes

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## ➤ Inheritance & Packaging

- Inheritance
  - ✓ Using 'extends' keyword
  - ✓ Subclasses and Superclasses
  - ✓ 'super' keyword usage
  - ✓ Overriding Methods
  - ✓ Dynamic Method Dispatch
- The Object class
- abstract and final Classes
- Packages
  - ✓ Defining a package
  - ✓ Importing a package
  - ✓ Access Control
- Interfaces
  - ✓ Defining an interface
  - ✓ Implementing and applying interfaces

## ➤ Handling Error/Exceptions

- Basic Exceptions
  - ✓ try
  - ✓ catch
- Throwing and re-throwing
  - ✓ throw
  - ✓ throws
- Cleaning up using the finally clause

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## ➤ Handling Strings

- Creation, Concatenation and conversion of a string
- Changing case
- Character Extraction
- String Comparison
- Searching strings
- Modifying strings
- String Buffer

## ➤ Threads

- Create/instantiate/start new threads
  - ✓ Extending java. lang. Thread
  - ✓ Implementing java. lang. Runnable Interface
- Understand thread execution
- Thread Priorities
- Synchronization
- Inter-thread communication, Deadlock

## ➤ I/O and Streams

- java.io package
- Files and directories
- Streams
  - ✓ Byte Streams and Character Streams
- Reading/Writing Console Input/Output
- Reading and Writing files

## ➤ Understanding core packages

- Using java.lang Package
  - ✓ java. lang. Math
  - ✓ Wrapper classes and associated methods
    - Number
    - Double, Float

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- Integer, Byte
- Short, Long
- Character
- Boolean

## ➤ Holding Collection of data

- Arrays and collection classes/interfaces
- Map/List/Set implementations
  - ✓ Map interface, List interface, Set interface
- Collection classes
  - ✓ ArrayList, LinkedList, HashSet and TreeSet

## ➤ Java Applications

- Intro to AWT and Swing
- Working with Frame, windows, graphics, color, fonts
- AWT controls - Buttons, Checkbox, Choice, List and TextField
- Layout Managers - Flow Layout, Grid Layout and Border Layout
- JFrame and JPanel containers

## ➤ Introduction to Java Applets

- What is a Java applet?
- Applet lifecycle methods
- Build a simple applet
- Using AppletViewer

## ➤ Basic Networking Concepts

- What is a Client/Server Application?
- Manipulating URL's
- Establishing a simple server
- Establishing a simple client

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## J2EE COURSE SYLLABUS

### ➤ JSP Overview

- What is JSP
- Why use JSP
- Advantages Of JSP

### ➤ JSP Architecture

- JSP Processing
- JSP – Life Cycle
- JSP Syntax
- JSP Implicit Objects
- The request Object
- The response Object
- The out Object
- The session Object
- The page Object
- The exception Object

### ➤ Servlets Overview

#### ➤ What is Web Application

- Web Architecture
- MVC Architecture

#### ➤ What is Java Servlets

- Introduction to Servlet
- Introduction to basic Servlet programming
- Servlet Life Cycle
- Building HTML

#### ➤ Servlet

- Basic Servlet Structure
- Servlet that generate html
- Servlet Packaging
- GenericServlet
- HttpServlet
- Advantages Of HttpServlet
- Servlet Methods