

# JAVA



## CURRICULUM

6 WEEKS

### INTRODUCTION TO JAVA

- Understanding Requirement: Why Java
- Why Java is important to the Internet
- JAVA on LINUX Platform

### INTRODUCTION TO JAVA VIRTUAL MACHINE

- Java Virtual Machine Architecture
- Class loading process by Classloaders
- Role of Just in Time Compiler (JIT)
- Execution Engine

### AN OVERVIEW OF JAVA AND BUZZWORDS

- Data Types, Variables and Arrays
- Operators
- Control statements
- Object oriented Paradigms
- Abstraction
- The Three OOP Principles  
(Encapsulation, Inheritance and Polymorphism)

### JAVA CLASSES AND OOP IMPLEMENTATION

- Class Fundamentals
- Command Line Arguments
- Learning static initializer
- Declaration on of Objects
- Instance Variable Hiding
- Overloading and Overriding of Methods
- Understanding of Access Controls:
  - Private, Public and Protected
- Learning Nested and Inner Classes
- Dynamic method Dispatching
- Using Abstract Classes
- Using final to prevent Overriding & Inheritance
- Garbage Collection

### PACKAGES AND INTERFACES

- Defining a Package
- Understanding CLASSPATH
- Access Protection
- Importing Packages
- Defining and implementing an Interface
- Abstract classes Vs Interfaces
- Generics
- Annotations

- Vargs
- For Each

## **INTRODUCTION TO ARRAY**

- Single dimension array
- Multi dimension array

## **EXCEPTION HANDLING**

- Fundamentals of exception on handling
- Types of exceptions
- Learning exception handlers
- Try and catch
- Multiple catch clauses
- Nested try statements
- Throw, throws and finally
- Custom Exception

## **STRING HANDLING**

- Learning String Operations
- Learning Character Extraction
- Learning String Comparison
- Understanding of String Buffer Class & String Builder Class

## **MULTITHREADED PROGRAMMING**

- The Java Thread Model
- Creating a Thread: Extending Thread, Implementing Runnable
- Creating Multiple Threads and Context Switching
- Synchronization: Methods and Statement
- Interthread Communication

## **MANAGING INPUT AND OUTPUT IN JAVA**

- Introduction to I/O streams
- File Handling
- Binary Streams
- Character Streams
- Data Streams
- Serialization

## **NETWORKING**

- Introduction to Networking
- URL, InetAddress
- Socket and Server Socket
- Datagram Socket

## **COLLECTION API**

- Collection Overview
- The Collection Interfaces (List, Set, SortedSet)
- The Collection Classes (ArrayList, LinkedList, HashSet, TreeSet)
- Accessing a Collection via an Iterator
- Working with Maps

## **J2EE (JAVA 2 ENTERPRISE EDITION)**

### **INTRODUCTION TO JAVA**

- Introduction to J2EE Architecture
  - Tier Architecture
    - Single Tier
    - Two Tier
    - Three Tier
    - N Tier

## J2EE COMPONENTS

- Web Components
- Business Components

## J2EE CONTAINERS

- Container Types
- Container Services

## JDBC

- Introduction to JDBC
- JDBC Drivers
- Statements
- Metadata
- Scrollable & Updatable ResultSet
- Batch Updates

## JAVA SERVLET

- Introduction to Web
- Programming
- Advantages of Servlets
- Servlet Lifecycle
- Packing and Deployment
- Session Tracking
- Request Dispatching

## Jquery

- Jquery with Ajax
- Jquery Event
- Jquery Selectors
- JSON

## RMI

- Distributed Applications
- RMI Architecture
- Implementation

## JAVA Mail API

### Utilities

- My Eclipse
- Net Beans

### Web Server

- Apache Tomcat

### Application Server

- Bea's Web logic

### Introduction to Framework

- Spring
- Hibernate

## PROJECT WORK

## JAVA SERVER PAGES (JSP)

- JSP Architecture
- JSP Elements
- JSP Objects
- Custom Tags

## Ajax

- XMLHttpRequest
- Ready State
- Onreadystatechange
- ResponseText
- ResponseXML
- Status

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