

Introduction to Java and J2EE

Duration: 5 days; Instructor-led

WHAT WILL YOU LEARN

This content is for induction type training content for developers starting with Java. Upon completion they can be entitled as Web application development using J2EE.

Java Enterprise Edition (J2EE is a Java standard for running client-server Java applications on a "Java Application Server." Despite the fact that there are numerous commercial and open source application servers on the market, this specification ensures that the programming paradigm is consistent and that a Java EE application's mobility and rich capabilities are enhanced.

J2EE was the moniker given to earlier versions of the Java EE specification, and it is still used by many individuals.

OBJECTIVES

- Programming with Java
- Develop desktop application using Java and MySQL
- Create web application using JSP & servlets

PREREQUISITES

Participants must be experienced JavaScript and HTML developers having minimum 2-3 years of experience.

AUDIENCE

This course is ideal for developer who wish to start with Java.

COURSE CONTENTS

Module 1: Introduction

- Java SE Platform Versions
- Java in Server Environments
- Java Architecture
- JDK and JRE
- Features of Java

Module 2: Java Syntax and Class Review

- Java Class Structure
- Java Naming Conventions
- How to Compile and Run
- Primitive Data types
- Operators in Java
- Control statements
- For each loop
- Classes and Objects
- Using Java Arrays
- Static Keyword
- This Keyword
- Methods
- Constructors
- Garbage Collection

Module 3: Encapsulation and Subclassing

- OOP in java
- Using Access Control
- Import and package statement
- Inheritance
- Creating Subclasses
- Overloading Methods
- Overloaded Constructors
- Overriding Methods
- Invoking an Overridden Method
- Constructors in Subclasses
- Overriding Object methods
- Polymorphism

Module 4: Abstract and Nested Classes

- Defining Abstract Classes
- Defining Abstract Methods
- Final Methods
- Final Classes
- Final Variables
- Enumerations
- Nested Classes

Module 5: Interface and Lambda Expressions

- Java Interfaces
- Interface References
- default Methods in Interfaces
- static Methods in Interfaces
- Constant Fields
- Extending Interfaces
- Implementing and Extending
- Anonymous Inner Classes
- Lambda Expression Defined
- What Is a Lambda Expression
- Lambda Expression Shorthand
- Lambda Expressions as Variables

Module 6: Exception Handling

- Exception & Error
- Exception handling mechanism
- Custom Exception

Module 7: JAVA IO

- Discuss I/O
- Explain the concept of streams
- Explain the standard input/output streams
- Explain the classes InputStream and OutputStream
- Discuss Filtered and Buffered I/O operations
- Describe Reader and Writer classes

Module 8: MultiThreading in Java

- Define a thread
- Define multithreading
- List benefits of multithreading
- Create threads
- Discuss thread states
- Manage thread priorities
- Explain how to set thread priorities
- Explain thread synchronization
- Explain the 'wait-notify' mechanism

Module 9: Collections

- Java Collections framework
- List
- Set
- Map
- SortedMap
- Comparable interface
- Comparator interface
- Properties class

Module 10: Java Streams

- Streams
- Map and filter operations
- Parallel Processing
- Collectors

Module 11: Writing SELECT Queries

- Writing Simple SELECT Statements
- Eliminating Duplicates with DISTINCT
- Using Column and Table Aliases
- Writing Simple CASE Expressions

Module 12: Sorting and Filtering Data

- Sorting Data
- Filtering Data with Predicates

Module 13: Using DML to Modify Data

- Adding Data to Tables
- Modifying and Removing Data
- Generating Automatic Column Values

Module 14: Querying Multiple Tables

- Understanding Joins
- Querying with Inner Joins
- Querying with Outer Joins
- Querying with Cross Joins and Self Joins

Module 15: Java Database Connectivity

- JDBC Architecture
- Types of JDBC Drivers
- Loading JDBC Driver
- Connecting to Oracle Database
- Manipulate data in the Database
- Transaction Management

Module 16: JAVA SERVLET

- Introduction to web programming
- Apache Tomcat Web Server
- Role of Servlet in web programming
- Servlet Lifecycle
- Request Dispatching
- Handling Form Request in Servlets
- Servlet API to retrieve Form Parameters
- Configuring the web application
- Servlet Mapping
- ServletContext Information
- Servlet Initialization Parameters
- Parameters & Attributes and their differences
- ServletConfig and ServletContext
- Session Tracking&State Management
 - Cookie
 - Url Rewriting
 - Hidden Form Field
 - Session Object
- Events & Listeners
- Developing a Servlet Context Listener
- Filters
- Servlet with database connectivity

Module 17: JAVA SERVER PAGES (JSP)

- JSP Architecture
- JSP Elements
- JSP Life cycle
- JSP Translation
- JSP Compilation
- Comments
- Writing JSP Scripting Elements
- Directive Tag
- Handling Errors
- Declaration Tag
- Scriptlet Tag
- Expression tag
- Implicit Objects
- Implementing an MVC Design
- Understanding JavaBeans
- How to use Javabeen tag
- Custom Tags
- Using tags of JSTL
- Expression Language

Tools used:

- Eclipse
- Maven