



DataTeach.ai

# JAVA FULL STACK CURRICULUM

Online/Offline





## JAVA FULL STACK

### Syllabus

#### **Java Basics & Introduction to Eclipse**

- Post Install Configuration
- compiling and executing
- Variables and Arrays
- Create packaged classes
- Writing a simple program
- Data types
- Using Eclipse
- Eclipse shortcuts

#### **Operators & Expressions**

- Arithmetic Operators
- Boolean Operators
- Logical Operators
- Binary Operators

#### **Control Statements**

- Branching Statements
- Iterative Statements
- Break & Continue with enhancements
- While
- For
- Do..While
- Break and Continue Statement

#### **Java Object-Oriented Programming**

- Basics of OOPS
  - Fundamentals of class & object
  - new keyword
  - Reference variables
  - Member methods of a class
  - Constructors
  - Finalize method
  - Overloading member methods
  - Overloading constructors
  - Passing and returning objects with methods
  - Access Control
  - Static Methods
  - Static Variables
  - Static Block
  - Using final keyword
  - Unit Testing using Junit-5
- Inheritance**
- Basics of Inheritance
  - Members accessibility in inheritance
  - Using super keyword

- The sequence of execution of constructors in inheritance
- Method Overriding
- Dynamic Method Dispatch, Abstract classes, Preventing overriding
- Preventing inheritance

#### **Exception Handling**

- Fundamentals of Exceptions
- Types of exceptions
- Using try and catch keywords
- Multiple catches, Nesting of try blocks, Using throw keyword
- Using throws keyword, Finally block
- Some predefined exceptions and their usage, User defined exceptions.

#### **Interfaces**

- Purpose of Interface
- Defining an interface
- Implementing interfaces
- Interface reference variables
- Interface with variables
- Extending interfaces

#### **Multi Threaded programming**

- Basics of threads
- Java threaded model
- Defining threads using Runnable interface
- Defining threads using Thread superclass
- Multiple threads
- Thread Priority values
- Thread Synchronization using synchronized methods
- Thread Synchronization using synchronized blocks

#### **Predefined Libraries**

- Using String class
- Using java.lang package
- Working with Data & Time
- Utility framework
- Collection framework
- I/O framework

#### **RDBMS (MySQL)**

- Introduction to Database & DBMS
- Data types
- Table, Record, Field
- SQL Queries,
- Database Normalization
- Joins, Sub Queries
- INSERT | UPDATE | DELETE Operations
- DDL Commands
- PL/Sql

#### **Database Programming**

- Overview of JDBC API
- Different types of JDBC Drivers
- JDBC URLs
- Driver Manager
- Establishing a connection with the database
- Creating and executing SQL Statements
- Working with Callable Statement

#### **Server-side Programming with Servlets**

- Deploying a simple servlet in a Servlet Container (Tomcat)
- Life cycle of a Servlet
- Servlet interface
- Servlet Request Interface
- Servlet Response Interface
- Additional capabilities of HTTPServlet, Session tracking
- Servlet Programming with JDBC CRUD Operations

#### **Java Server Pages (JSPs)**

- JSP Basics
- Differences between Servlets and JSPs
- Running a simple JSP
- The JSP generated Servlet code
- JSP Implicit Objects
- JSP Syntax for Different JSP Elements
- Developing JSP Beans



## Syllabus

### JPA-Hibernate (ORM FrameWork)

- Introduction to ORM, JPA
- SessionFactory, Session, Transaction
- Performing CRUD Operations with XML, Performing CRUD Operations with Annotations
- Different ID Generation Strategies
- Hibernate with Inheritance

### Spring

- Bean Factory and application Context, Container Concepts
- Spring Data JPA Template, AOP, MVC

### Spring Boot

- Introduction to STS, Di with STS, MVC, AOP, Security, Role-based Authentication, OAuth2, Token based authentication

### Spring Web Services

- Introduction to Web Service
- Basics of REST APIs
- Spring REST

### Microservices with Spring Boot, Spring Cloud

- Introduction to Micro Service architecture
- Advantages with Micro Service over Monolithic architecture
- Develop and Deploy Micro Service application in localhost
- Introduction to Service Discovery
- Client side Discovery pattern
- Server side Discovery pattern
- Load Balancing configuration

### DevOps Tools

- Introduction to DevOps and advantages
- Git
- Maven
- Jenkins Docker Unit Testing with JUnit

### Design Patterns

- Creational Design Patterns
- Behavioral Design Patterns

### Front-End Development

- HTML
- CSS3
- Bootstrap-CSS
- JavaScript

## KEY HIGHLIGHTS OF THE TRAINING

| 100+ hours of learning

| Instructor-Led LIVE Sessions

| Life-time LMS Access

| LIVE Doubt Resolution

| Topic-wise Assignments

| Weekly Quizzes

| Monthly Assessments

| 20+ Use Cases

| Mock Interviews

| Learners Community Access

| Guaranteed Internship

| Soft Skills

| Resume Building

| 100% Job Assistance

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