

# JAVA

## FULL STACK PROFESSIONAL



### CURRICULUM

#### Introduction to Web Technologies

- » Careers in Web Technologies and Job Roles
- » How the Website Works?
- » Client and Server Scripting Languages
- » Difference between a Web Designer and Web Developer
- » Types of Websites (Static and Dynamic Websites)
- » Responsive design and layout

## Web Designing Frontend Native

### HTML

#### What is Markup Language

#### Basic Structure of HTML

#### Document Overview

- The Structure Tags
- Getting Started With HTML
- Writing the Code
- Head Section
- Meta Tags
- External Link Tags
- HTML Tags
- HEAD Tags
- Title Tags
- Body Tags
- Displaying a web page in a web Browser

#### HTML Elements

- Block level elements
- Inline elements
- Empty elements

#### Working with Forms

- Creating a Form
- Form Tag
- POST and GET Method
- Text Input, Text Area, Checkbox, Image Input and Radio
- Select Option
- Option Group
- File Upload and Hidden Fields
- Submit Button, Reset Button
- Relation between HTML Form and PHP

#### Adding Special Characters

#### Block Oriented Elements

- Defining Paragraphs and new Lines
- Inserting Spaces
- Perforating the Text
- Changing Background Color

## List

- Ordered List
- Unordered List
- Definition List

## Attributes of List

- Using Type attribute with Unordered list
- Using Stat attribute with Ordered List
- Some other elements
- Visual Markup

## Uniform Resource Locators

- Types of URLs
- Absolute URLs
- Relative URLs
- Document-Relative URLs
- Server-relative URLs

## Hypertext Links

- Why links fail?

## Images

- Adding Images
- Adding Border to an image

## Tables

- How to create table
- Adding Border to a Table
- Apply Formatting Features to Table
- Merge row and columns

## Introduction to style Sheets

- How style sheets work
- Style Sheet Structure

## Changing the Background

- Changing the color of the text
- Changing the front
- Changing the Indent of the text
- Changing the Line Spacing
- Hide a Style Sheet

## Creating Style Classes

- Div
- Span
- Frame
- Layer
- Meta
- HTML Frames
- Frame
- iframe

## CSS

### CSS

- CSS Introduction
- CSS Syntax
- CSS Id & Class
- Types of CSS links

## Colors and Backgrounds

- color
- background-color
- background-image
- background-repeat
- background-position
- background-attachment
- background

## Text and Fonts

- font
- font-family
- font-size
- font-weight
- font-style
- line-height
- letter-spacing
- word-spacing
- text-align
- text-decoration
- text-transform
- white-space

## Lists

- list-style
- list-style-type
- list-style-image
- list-style-position

## Tables

- table-layout
- border-collapse
- border-spacing

## CSS Selectors

- Universal Selector
- Type Selector
- Class Selector
- ID Selector
- Child Selector
- Descendant Selector
- Attribute Selector
- Adjacent Sibling Selector
- General Sibling Selector
- Query Selector

## CSS Box Model

- CSS Border
- CSS Outline
- CSS Margin
- CSS Padding

## CSS Advanced

- CSS Grouping/Nesting
- CSS Dimension
- CSS Display
- CSS Positioning
- CSS Floating
- CSS Align
- CSS Pseudo-class
- CSS Pseudo-element
- CSS Navigation Bar
- CSS Image Gallery
- CSS Image Opacity
- CSS Attribute Selectors
- Styling Links

## JAVASCRIPT

### Introduction to JavaScript

- Syntax
- Statements
- Comments

## Enabling in various browsers

### Popup Boxes

- Alert
- Confirm
- Prompt

### Variables

### Operators

- Arithmetic
- Assignment
- Comparison
- Logical
- Conditional

### Conditional Statements

- if
- if...else
- if...else if...else
- Switch

### Loops

- while
- do...while
- for
- for...in Statement
- Break
- Continue

### Functions

- User-defined Functions
  - Function Syntax
  - Function with Arguments
  - Returning Values from Functions
- Built-in Functions
- parseInt and parseFloat

### Events

- Introduction
- Mouse Events
- Keyboard Events
- Form Events
- Document/Window Events

### Cookies

### Page redirection

### Built-in Objects

- Introduction
- Number
- Strings
- Math
- Arrays
- Associative Array
- Array Properties and Methods
- Date
- Boolean
- Regexp

### Advanced javascript

- Form Validations
  - Basics of Form Validation
  - Validating Radio Buttons
  - Validating Checkboxes
  - Validating Select Menus
  - Validating Textareas

### JS Document Object Model (DOM)

- Introduction
- DOM HTML

- DOM CSS
- DOM Events

## JS Browser Object Model (BOM)

- JS Cookies
- JS Window
- JS Location
- JS Popups
- JS Time

## Introduction to OOP concept

## JQUERY

### What is JQuery?

### Overview of JQuery features

### Using JQuery links

### JQuery Selectors

### JQuery Events

### JQuery Effects

- Hide() & show()
- Fade()
- Slide()
- Animate()
- Callback function
- Chaining

### JQuery HTML

- Get() & Set()
- Add() & Remove()
- CSS()
- Dimensions()

### JQuery Traversing

- Parent() & children()
- Next() & Prev()
- Find()

### Jquery AJAX

### Image slider using JQuery plugins

### Form Validation

## HTML5

- Introduction to HTML5
- Introduction to HTML5
- What's new in HTML5

### HTML5 Syntax

- The DOCTYPE
- The <script> tag
- The <link> tag
- HTML5 Document

### New input Elements

- Color
- Date
- Datetime
- datetime-local
- email
- month
- number
- range
- search
- tel
- time
- url
- week

## New Input attributes

- autofocus
- formaction
- formmethod
- formnovalidate
- height and width
- list
- min and max
- multiple
- pattern (regexp)
- placeholder
- required
- step

## Audio and Video

- <audio>
- <video>
- <source>

## New Structural Elements

- <details>
- <dialog>
- <summary>
- <meter>
- <main>
- <header>&<footer>
- <section>
- <aside>
- <figure>

## SVG

- What is SVG?
- SVG Advantages
- SVG in HTML
- SVG Shapes
- SVG Text
- SVG Stroke properties
- SVG Animation

## Canvas

- What is canvas?
- Lines
- Curves
- Paths
- Shapes
- Color, gradients
- Image
- Arc
- Text
- Shadow

## HTML5 APIs

- Google Map
- Drag & Drop

## CSS 3.0

### Introduction to CSS3.0

### What's new in CSS 3.0

#### Border

- border-image
- border-radius

## CSS Shadows

- Text-shadow
- Box-shadow

## Background

- background-clip
- background-size
- background-origin
- background-image

## Outline

## Transitions

- transition
- transition-delay
- transition-duration
- transition-property

## Transform

### 2D Transforms

- transform
- matrix()
- translate(x,y)
- scale(x,y)
- rotate(angle)
- skew(x-angle,y-angle)

### 3D Transforms

- transform
- transform-style
- perspective
- transform-origin

## Animations

- @keyframes
- animation
- animation-direction
- animation-duration
- animation-name

## Selectors

- CSS combinations
- Pseudo Elements

## Gradients

- Linear Gradients
- Radial Gradients

## Multiple Columns

- column-count
- column-fill
- column-gap
- column-width
- columns
- column-rule
- column-rule-color
- column-rule-style
- column-rule-width

## User Interface

- resize
- box-sizing
- outline-offset

## CSS Filters

- Blur
- Brightness
- Contrast
- Grayscale
- Hue-rotate

- Invert
- Opacity
- Saturate
- Sepia
- Drop-shadow

## Media Query

- What is Responsive Web Design
- Intro to the Viewport
- The Viewport Tag
- Media Queries
- Fluid Layouts
- Tablet Styles
- Mobile Styles
- Making a Mobile Drop-down Menu
- Responsive Images & Polyfills

## Web Fonts

- @font-face
- font-family
- src
- font-stretch
- font-style
- font-weight

## Flexbox

- flex-grow
- flex-shrink
- flex-basis
- flex
- flex-wrap
- flex-direction
- flex-flow
- justify-content
- align-items
- order

## Bootstrap Framework

### Getting started with Bootstrap

### Grid system in Bootstrap

### Adding Header & Navigation

### Adding Logo in Navigation Bar & Adding Banner

### Adding Jumbotron

### Adding Rows, Columns & Containers

### Adding Column Width using offset

### Ordering Columns using push or pull

### Nesting Columns in Bootstrap

### Adding Footer top Website

### Typography in Bootstrap

### Adding glyphsicons

### Styling Tables

### Adding Responsive or Utilities in Bootstrap

### Styling Button using between classes

### Styling Images and making images Responsive

### Adding description list in bootstrap

### Adding Panels

## Photoshop

- Introduction to Adobe Photoshop
- Color mode & resolution
- Types of Graphics
- Export image
- Animated Image
- Tools



- Ruler and scaling
- Create Logos
- Photos masking
- Smart Objects
- Merge Layers
- Group Layers
- Layer Styles
- Blending Options
- View Menu / Window Menu
- Filter Effects
- Image Adjustments
- Realtime Website Layout Design

# Frontend SPA

## Introduction To Angular

- What is Angular
- What is SPA
- Comparison between different versions
- Advantages and Disadvantages
- Key features

## Environmental Setup

- Node /NPM
- Angular CLI
- Setup Project
- Directory Structure
- Code Editors
- How Angular Application Boot

## Modules

- What is Module
- Decorator
- NgModule
- Core Module
- Bootstrapping
- Shared Modules

## Components

- Introduction to Components
- Component Architecture Patterns
- Metadata
- State and Behaviors

## Templates

- Template Expression or Interpolation
- Data Binding (Event ,Property , Two Way)
- \*ngIf , \*ngFor , \*ngSwitch
- Built-in Structural and Attributes Directive

## Pipes

- Built-in Pipes
- Custom Pipes

## Routing

- Routes , RouterModule , routerLink
- Child Routing
- Params
- Guards

## Custom Directives

- Structured Directives
- Attribute Directives

## Validations

- Template Driven
- Reactive Form
- Custom Validators

## Asynchronous Operations

- Observable vs Promise
- Network Call
- HTTP Request | Response

## Services

- Introduction to Services
- Building a Service
- Dependency Injections
- Injectors and Providers

## Lifecycle Hooks

- Component LifeCycle
- All LifeCycle Hooks

## Local Data Storage

- Local Storage
- Session Storage
- Cookies

## Communication Between Components

- @Input()
- @Output() with EventEmitter
- @ViewChild()  
Shared Service  
Subject

## Server-side Rendering

- Introduction to Server-Side Rendering
- Angular Universal

## Angular Testing

- Introduction to Testing
- Unit Testing with Karma and Jasmine

## LAZY LOADING

## UI COMPONENTS

- Angular Material
- PrimeNG

## Third Party Modules

- Social Login
- Pagination
- Search
- Filter
- JWT Token
- File Upload
- Many More

## Angular Application Deployment

- Build Application
- Deploy in Heroku

## Introduction To React Js

- What is React JS?
- What is SPA?
- DOM vs Virtual DOM
- Advantages and Disadvantages
- Key Features

## Environmental Setup

- Node | NPM
- Installation of CLI
- Setup Project
- Directory Structure
- Code Editors
- How React JS Application Boot

## Key Features Of React Js

- Conditional Rendering
- List and Keys
- Forms Handling
- Forms Validations

## Component Lifecycle Hook

- Understanding component lifecycle
- All Lifecycle Hooks

## Event Handling React

- Understanding React Event System
- Passing arguments to event Handlers

## Network Call

- Fetch
- Axios

## Custom Services

- Introduction to Services
- Building a Service

## Local Data Storage

- Local Storage
- Session Storage
- Cookies

## Routing With React Router

- Setting up React Router
- Configuring route with Route Component
- Making routes dynamic with Route Params
- Working with nested routes
- Link and NavLink
- Redirect Routes

## Ui Components

- Material Design
- PrimeNG

## Introduction To Redux

- Why Redux
- Install and setup
- Store ,Reducer , actions
- Dispatcher
- High order Components
- mapStateToProps and mapDispatchToProps usage

## Advance Redux

- Async Actions
- Middleware
- Redux Thunk and Redux Saga

## React Hooks

- Why We Need Hooks.
- Different Types Of Hooks
- Using State And Effect Hooks
- Usereducer , Useref Etc.
- Custom Hooks
- Rules Of Hooks

## Third Party Modules

- Social Login
- Pagination
- Search
- Filter
- JWT Token
- File Upload
- Many More

## BASIC FEATURES OF REACT JS

- React Concepts
- JSX and TSX
- Render Elements
- Function and Class Components
- Props and State
- Handling Events
- Dynamic Data Rendering
- Property Binding

## Rest Js Testing

- Jest with Enzyme

## Develop a CRUD Application in React Js

### React JS Application Deployment

- Build Application and Deployment

# Backend Server Side

## Introduction To Java

- Why Java was Developed
- Application Areas of Java
- History of Java
- Platform Independency in Java
- USP of Java: Java Features
- Sun-Oracle Deal
- Different Java Platforms
- Difference between JDK,JRE,JVM
- Java Versions
- JVM Architecture
- Installing Java on Windows
- Understanding Path Variable: Why Set Path

## Creating First Java Program

- Understanding Text Editors to Write Programs
- How to compile java file
- Byte Code and class file
- How to run class file

## Java Language Fundamentals

- Identifiers
- Keywords
- Variables
- Literals
- Data Types
- Operators
- Comments
- Looping Statements
- Condition Statements
- Type Casting

## Oop Implementation (Pie)

- Why OOP
- OOP Concepts with Real life examples
- Class& it's Syntax
- Object& it's Syntax
- Reference Variable
- Constructors
- Instance(Non-Static)& Static Variables
- Instance(Non-Static) & Static Methods
- this Keyword and it's usages
- Object & Static Initializers(Anonymous Blocks)
- Understanding '+' Operator
- Inheritance& it's Syntax
- Types of Inheritance

- Object Class as Root of Java Class Hierarchy
- Variable Hiding
- Method Hiding
- Method Overriding
- Method Overloading
- Super keyword and its usages
- Final keyword and its usages
- Constructor Chaining
- Upcasting and Downcasting
- Static & Dynamic Binding
- Run Time Polymorphism
- Abstract Keyword (Abstract classes and methods)
- Understanding Interfaces
- Implementation of Encapsulation
- Association with Implementation

## **Packages**

- Understanding Packages
- Setting Class path
- Reading Input from Keyboard
- Access Modifiers

## **Nested Types**

- Static Nested Class
- Non-static Nested Class
- Local Class
- Anonymous Class
- Nested Interface

## **Arrays**

- General Definition of Array
- Advantages from Array
- Arrays in Java
- 1-d Arrays
- 2-d Arrays
- Jagged Arrays
- Array of reference type
- Operations on Arrays

## **Command Line Arguments And Wrapper Classes**

- How to read command line arguments
- Wrapper Classes
- Parsing of Numeric Strings
- String representation of Primitives

## **Exception Handling**

- Types of Runtime Errors
- Understanding Exceptions
- Exception Class Hierarchy
- Try & Catch Blocks
- Patterns of Catch Block
- Nested Try statements
- Throw, throws and finally
- Creating Custom Exceptions
- Checked & Unchecked Exceptions
- Assertion

## **Working With Strings**

- What is String
- String Class
- Creating String Object
- Operations on String
- String Buffer Class and its Methods
- Difference between String and StringBuffer class
- String Builder Class and its Methods
- Difference between StringBuffer and StringBuilder

## Swing

- Introduction to AWT
- Introduction to Swing Components
- Look And Feel of Swing Components
- MVC Architecture of Swing Components
- Working with Image
- Advance Swing Components
  - JOptionPane,JTree,JTable,JTabbedPane
  - JFileChooser,JcolorChooser
- Menu Components
  - JMenu
  - JMenuItem
  - JMenubar

## Multithreaded Programming

- Multitasking: Why Concurrent Execution
- Multiprocessing v/s Multithreading
- Main Thread (Default Java Thread)
- Creating Child Threads and understanding context switching
- Thread States
- Thread Group
- Thread Synchronization: Methods and Blocks
- Inter-Thread communication
- Daemon Threads
- Deadlock

## I/O Streams

- What is I/O
- Why Need Streams
- Byte Streams and Character Streams
- Read/Write operations with file

## Reflection

- Understanding the Need Of Reflection
- Getting information about class's modifiers, fields, methods, constructors and super classes
- Finding out constant and method declaration belong to an interface
- Creating an instance of the class whose name is not known until runtime
- Getting and setting values of an object's field if field name is unknown until runtime
- Invoking a method on an object if the method is unknown until runtime
- Invoking Private Methods

## Extended & Utility Concepts

- Generics
- Lambda Expression
- Annotations
- Object Cloning
- Vargs
- Static-import
- Enum
- Static, Default and Private Methods of Interface
- Var Type
- Java Modules

## Collections Framework

- What is Collection?
- What is Framework?
- Collections Framework
- Core Interfaces
- Collection, List, Queue,Deque
- Set,NavigableSet, SortedSet
- Map,NavigableMap, SortedMap
- Core Classes
- ArrayList, LinkedList,PriorityQueue,ArrayDeque
- HashSet,LinkedHashSet,TreeSet,
- HashMap,IdentityHashMap,WeakHashMap,LinkedHashMap,Tree Map

- Accessing a Collection via an Iterator
- Accessing List via ListIterator
- Accessing a Collection via for each loop
- Working with User Defined Objects
- The Comparator and Comparable Interfaces
- The Legacy classes and Interfaces.
- Enumeration, Vector ,Stack
- Hashtable, Properties

### **Date & Time Api**

- java.util.Date
- java.util.Calendar
- java.sql.Date

### **Joda Api**

- java.time.LocalDate
- java.time.LocalDateTime
- java.time.LocalTime

### **System Properties & Internationalization (I18N)**

- Understanding Locale
- Resource Bundle
- Usage of properties file
- Fetching text from Resource Bundle
- Displaying the text in HINDI
- Displaying date in Hindi

## **INTRODUCTION TO SQL(PROJECT BASED)**

### **DATABASE PROGRAMMING USING JDBC**

- Need Of JDBC
- JDBC Drivers
- Statement, PreparedStatement, CallableStatement
- Scrollable and Updatable ResultSet
- Batch Updates
- Transaction
- Metadata

### **Java Ee(java Platform Enterprise Edition)**

- Understanding the Concept of Java EE : JEE Specification
- Java EE Architecture
  - Single Tier
  - Two Tier
  - Three Tier
  - N-Tier
- Java EE Components
- Web Components
- Distributed(Business) Components
- Java EE Containers& Servers
- Web Container& Web Server(Apache Tomcat)
- EJB Container& Application Server(Weblogic,Glassfish,Websphere)
- Java EE Services
  - JNDI Service
  - Java Transaction Service
  - JAAS
  - JMS

### **Java Servlet**

- Introduction to web programming
- Role of Servlet in web programming
- Servlet Lifecycle
- Servlet with Annotations
  - @WebServlet
  - @WebInitParam
  - @WebListener
  - @WebFilter

- @MultipartConfig
- Request Dispatching
- Parameters & Attributes and their differences
- ServletConfig and ServletContext
- File Uploading and Downloading
- Session Tracking&State Management
  - Cookie
  - Url Rewriting
  - Hidden Form Field
  - Session Object
- Events & Listeners
- Dependency Injection
- Refreshing Servlet
- Filters

### Java Server Pages (jsp) & Jstl

- JSP Architecture
- JSP Elements
- JSP Objects
- Understanding JavaBeans
- Custom Tags
- Using tags of JSTL
- Expression Language

### Project Classes

- Front End Coding
- FORM DESIGNING
  - HTML
  - CSS
  - JAVA SCRIPT
  - BOOTSTRAP
- Back End Coding
- DATABASE DESIGNING
- Connecting forms to database
- Writing Business Logic
- Project Hosting

### Design Pattern

- Why Design Patterns...?
- Front Controller
- Composite View
- Factory Pattern
- Singleton Pattern
- DAO Pattern

### Java Mail Api

- Email System and Protocols
- Sending & Receiving Mails
- Handling Attachments

### Introduction To Distributed Programming

- RMI
- Web Services

### Introduction To Restfull Services

- @PathParam
- @Path
- @FormParam
- @QueryParam
- @DefaultValue

### Overview Of Jpa Framework



# SPRING

## Spring

- What is Spring?
- Spring modules
- Understanding dependency Injection
- Applying aspect-oriented programming

## Basic Bean Wiring

- Containing your Bean
- Creating bean
- Injecting into bean properties
- Auto wiring
- Controlling bean creation

## Advanced Bean Wiring

- Declaring parent and Child Bean
- Applying method injection
- Injecting Non-spring Beans
- Registering Custom property editors

## Advising Beans

- Introducing AOP
- Creating classic spring aspects
- Creating advice
- Defining Pointcuts and Advisors
- Using proxyFactory Bean
- Autoproxying

## Hitting The Database

- Learning spring's data Access Philosophy
- Configuring a data source

# HIBERNATE

## Introduction To ORM

- Need of ORM
- Problems using JDBC Directly
- ORM Implementation

## Introduction To Hibernate

- Hibernate Architecture
- Hibernate configuration
- Hibernate's Support for Other Technologies
- Installing Hibernate
- A "Hello world" stand alone application
- A Servlet-Based Hibernate application

## Creating Persisting Classes

- Mapping a basic Java Class
- Mapping a Class with Binary Data
- Mapping a Serializable Class
- Mapping a class with Data/ calendar attributes
- Mapping a Read-only class
- Mapping a class using Versioning /Timestamps

## Mapping Inheritance With Java Classes

- Table-Per -class Hierarchy Mapping
- Table-Per -subclass Hierarchy Mapping
- Table-Per -concrete-subclass Hierarchy Mapping
- Persistence interfaces

## Working With Collections

- Associations
- Lazy initialization
- Mapping Maps/Sorted Maps
- Mapping Sets/Sorted Sets
- Mapping lists
- Mapping Arrays
- Mapping a Bidirectional Association

## Scalar Queries And Hibernate Query Language

- Queries
- Named Queries
- SQL Queries
- Hibernate Queries language

## Hibernate Transactions And Locking

- Configuration
- Database support
- Using Transactions
- The Transactions API
- Transaction Example Using Oracle
- Locking

## Hibernate Caching

- How caching improves performance
- First level lache
- Second level cache

Partners :



Java

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