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| Java FSD  Proficiency Level – Intermediate. |

**Program Overview:**

In this training, participants will explore in this training, participants will learn the below features and much more.

* Core Java
* Spring
* Hibernate
* Spring Boot
* Database
* Micro Services
* UI Development | HTML 5 | CSS3 |Java Script
* Boot strap | Angular
* DevOps Tools
* Cloud Application Deployment on the Cloud

**By participating in this program, learners would:**

* Learn and master the fundamentals of Angular such as components, data binding, directives, routing, and services.
* Making single-page applications using one of the top SPA frameworks of 2021– AngularJS.
* Leverage backend APIs to build a scalable, flexible CRUD Application.
* Become an Advanced AngularJS Developer after completing this course.



Duration/Methodology:

31 Half Days VILT Training + 10 Half Days Capstone Project Assessments

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| Methodology | Total Learning Effort | # Of Days | Full/Half Day |
| VILT | 124 Hours | 31 Days | Half Day |
| Capstone Project | 40 Hours | 10 Days | Half Day |
| Total | 164 Hours | 41 Days | Half Day |

Pre-requisites:

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| Members planning to take up this program need to:   * Desire to learn something awesome and new. * Basic knowledge of Any Programming Language. C, C++ Python, and Basic knowledge of Java or Java8, HTML, CSS, JavaScript, JDBC, SQL/PLSQL. |

Program Outcome:

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| Participants will learn to:   * Java * Spring framework * Typescript * Modern Angular development * DevOps * Cloud Concept * Microservice-based development |

Target Audience:

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| **This program is highly recommended for:**   * Developers who want to learn Full stack Development. * Architects who want to understand how to Develop fully Functional Microservice based applications. * Anyone looking to learn Java Full Stack |

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| Self-Paced Learning |
| **Self-Paced Learning (2 and half days)**  **Day 1**  **Bootstrap: (2 Hours)**     * Introduction * Containers, Grid System * Typography * Nav Bars, Cards, Alerts * Forms and Input Styling   **Git and GitHub: (2 Hours)**   * Welcome * Git Basics * Undoing Things * The Basics of GitHub * Working with Branches * Forking and Contributing * Collaboration   **Day 2**  **Node.js: (4 Hours)**   * Welcome * Installing and Exploring Node.js * Node.js Module System (Notes App) * File System and Command Line Args (Notes App) * Debugging Node.js (Notes Apps) * Asynchronous Node.js (Weather App) * Web Servers (Weather App) * Accessing API from Browser (Weather App) * Application Deployment (Weather App) * MongoDB and Promises (Task App) * REST APIs and Mongoose (Task App) * API Authentication and Security (Task App) * Sorting, Pagination, and Filtering (Task App) * File Uploads (Task App) * Sending Emails (Task App) * Testing Node.js (Task App) * Real-Time Web Applications with Socket.io (Chat App) * Wrapping UP   **Day 3**    **Express: (2 Hours)**   * Introduction * Environment Setup (skip if you have node installed already) * Express 301 - Req & Res revisited the router, and the express-generator. * Starter Project - Movie Fan App * Project - Building an API * Supplemental: Passport   Supplemental: DB connection |

Program Outline:

| **Program Name Java FSD** | **Day of Program** | **Practice Lab Available** |
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| Module - 1: My SQL | | |
| **Refresher to self-paced Topics Hands-on Practice**  **31 Half Days VILT Training+ 10 Half Days Capstone Project Assessments**   * Describe the features and benefits of MySQL. * Explain the basics of relational databases. * Design an effective database. * Issue MySQL statements from the MySQL command-line client * Perform database operations by using MySQL Workbench * Select appropriate data types for your database. * Build a database and tables by using SQL. * Modify the structure of your database. * Create indexes and keys. * Add or update database data. * Query data with SELECT statements. * Join data from multiple tables. * Use built-in MySQL functions. * Export and import database data.     **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional).** | Day 1  Day 2  Day 3  Day 4 | Yes  Yes  Yes  Yes |
| Module - 2: TypeScript | | |
| **Refresher to self-paced Topics Hands-on Practice**     * Getting Started * TypeScript Basics & Basic Types * The TypeScript Compiler (and its Configuration * Next-generation JavaScript & TypeScript * Classes & Interfaces * Advanced Types * Generics * Decorators * Practice Time! Let's build a Drag & Drop Project * Modules & Namespaces * Using Webpack with TypeScript * Time to Practice! Let's build a "Select & Share a Place" App (incl. Google Maps)     **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional).** | Day 5  Day 6 | Yes  Yes |
| Module - 3: Angular | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Getting Started * The Basics * Course Project - The Basics * Debugging * Components & Databinding Deep Dive * Course Project - Components & Databinding * Directives Deep Dive * Course Project - Directives * Using Services & Dependency Injection * Course Project - Services & Dependency Injection * Changing Pages with Routing * Course Project – Routing * Understanding Observables * Course Project – Observables * Handling Forms in Angular Apps * Course Project – Forms * Using Pipes to Transform Output * Making Http Requests * Course Project – Http * Authentication & Route Protection in Angular * Dynamic Components * Angular Modules & Optimizing Angular Apps * Deploying an Angular App * A Basic Introduction to Unit Testing in Angular Apps * Angular as a Platform & Closer Look at the CLI * Course Roundup     **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 7  Day 8  Day 9  Day 10  Day 11  Day 12  Day 13  Day 14 | Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes |
| Module - 4: Maven | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Introduction * Simple Software Setup * Maven Project Creation and Key Concepts * Maven in Eclipse * Maven Web Application * Multi-Module Project Creation * Organizing the multi-module project * Scopes * Profiles * Wrap Up   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 14 | Yes |
| Module - 5: Spring Framework | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Introduction * Software Setup * Spring Core Concepts * Setter Injection * Life Cycle Methods * Dependency Check, Inner beans and Scopes * Constructor Injection * Using Properties * Auto-Wiring * Standalone Collections * Stereotype Annotations * Injecting Interfaces * Spring JDBC * Spring ORM * Spring MVC * Sending data from Controller to UI * Sending data from UI to Controller * Using Model Map and String View * Spring MVC and ORM * Spring MVC and AJAX Using JQuery. * Spring AOP * Java Configuration * Java Configuration for Web Applications * Wrap Up   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 15  Day 16  Day 17 | Yes  Yes  Yes |
| Module - 6: Spring Boot | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Introduction * Software Setup * Basics * First Project * Spring Data JPA * Integration Spring Boot with JPA Repository, Spring Boot JPA Project Setup Maven Dependencies * Spring Boot MySQL Model Class Spring Boot JPA APIs * Spring Data MongoDB – Mongo Repository Defining MongoDB properties. * Defining the Spring Controller Defining the APIs * Getting all users Getting user by IDs Adding a new User * Create REST CRUD API * Creating a REST Client * Profiles * Logging * Health Checks and Metrics * Spring Security * Thyme leaf * Database Caching * Spring Batch * J-Unit Testing using Mock MVC(Mockito) * Messaging and Spring JMS * Swagger REST Documentation QuickStart * Validations   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 18  Day 19  Day 20  Day 21  Day 22 | Yes  Yes  Yes  Yes  Yes |
| Module - 7: REST APIs using Spring Data REST | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Introduction * Software Setup * Troubleshooting and Completed Projects      * Micro Services & REST Concepts * Spring Data REST In Action * Create a Micro Service REST API * Test the REST APIS Using Postman * Paging and Sorting * Customizing JSON Serialization * Implementing Custom Finder Methods * Create Custom Controller Methods * Securing the Micro Service API * Wrap UP   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 22  Day 23  Day 24  Day 25 | Yes  Yes  Yes  Yes |
| Module - 8: Microservices Software Architecture: Patterns and Techniques | | |
| **Refresher to self-paced Topics Hands-on Practice**   * Introduction * Codebase Practices * Communication * Data * Fault tolerance & Monitoring   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional)** | Day 26  Day 27  Day 28 | Yes  Yes  Yes |
| Module - 9: DevOps Basics | | |
| **Refresher to self-paced Topics Hands-on Practice**  **Docker:**   * Introduction * Docker Commands * Docker Run * Docker Images * Docker Compose * Docker Registry * Docker Engine, Storage and Networking * Docker on Mac & Windows * Container Orchestration - Docker Swarm & Kubernetes * Conclusion   **Kubernetes:**   * Introduction * Kubernetes Overview * Setup Kubernetes * Kubernetes Concepts * YAML Introduction * Kubernetes Concepts - PODs, Replica Sets   **Deployments**   * Networking in Kubernetes * Services * Conclusion * Appendix - Setup Multi Node cluster using Kubeadm   **Ansible**   * Course Overview * DevOps Principles and the Role of the Ansible * Ansible Components   **Hands-on Practice Assignments | Quiz/Q&A**  **Post assessment (MCQ -> Scenario based conceptional) - 40 Questions.** | Day 28  Day 29  Day 30  Day 31 | Yes  Yes  Yes  Yes |
| **Module – (10 Half a days) Capstone Project Assessments:** | | |
| **Project Assessments (10 Half Days Capstone)**  **Assessment 1**   * Bootstrap, Git & GitHub, Nodejs   **Assessment 2**   * MYSQL   **Assessment 3**   * Express, typescript   **Assessment 4**   * Angular   **Assessment 5**   * Maven, Spring framework, Spring boot.   **Assessment 6**   * Rest API, Microservices.   **Assessment 7**   * DevOps Basics (Docker, Kubernetes, Ansible, CI/CD)   **Assessment 8**   * Full Stack Development. | Day 1  Day 2  Day 3  Day 4  Day 5  Day 6  Day 7 & 8  Day 9 & 10 | Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes |