Course Plan

Angular 16 / 17

Title: short line

# Duration

6 Days or 48 Hours

# Audience

This course is for Web Developers who have little experience in front end.

# Objectives

1. Learn and master the fundamentals of Angular
2. Learn and master the intermediate to Advanced concepts of Angular
3. Making single page application using the one of the top SPA frameworks of 2024– Angular 2+
4. Become Advanced Angular Developer after completing this course
5. Develop Angular Project in a hand-on session

# Prerequisites

* This course requires experience in HTML, CSS and JS
* Laptop with minimum of 8GB RAM and [NodeJS](https://nodejs.org/en/download/current/) and [Visual Studio Code](https://code.visualstudio.com/) Editor Preinstalled

# Course Outline

**Day 1**

**Introduction to Web Apps Development**

* **Module 1: ECMAScript 2015 (Prerequisite for Angular)**
  + - What’s ES6/ ECMAScript 2015
    - Variables
      * let & its scope
      * const
      * Variable hoisting and let
      * let in for loops
    - Template Literals
    - Functions
      * Arrow / Fat arrow Functions
      * Arrow functions and Lexical 'this' Keyword
      * Default parameters
    - Introducing Classes in JavaScript
      * Class
      * Expressions
      * Inheritance with derived class
      * Prototypes
    - Modules in ES6
      * Exporting Classes
      * Import and Export
    - Promises
    - De-structuring in Objects and Arrays

**Module 2: Essentials for Angular**

* + Introduction to NodeJS as runtime and Ecosystem
  + Introduction to TypeScript
    - Typings, Variables and Functions
    - Arrow Functions
    - Interfaces and Custom Types
    - Classes
    - Inheritance
    - Understanding Imports and Exports
    - Generics

(We will not build any project on this day as we will learn the essential skillset for

Angular App Development)

**Day 2:**

**Module 3: Angular App Development**

* + Modern web app Development
  + Big picture of SPA Frameworks and JS libraries.
  + Introduction to Angular 2+ (Angular 16/17)
  + Developing Angular App
    - Angular Dev Environment Setup
    - Angular CLI
    - Create New Angular Project
    - Project Structure
    - Understanding App code
    - How does Angular App Start?
    - Introduction to Webpack
    - Introduction to Components
      * App Module
      * App Component
      * Component Decorator
    - Deep Dive into Components
    - Custom Components
      * Generating Components using CLI
      * Understanding Custom Components
      * Component with inline Templates and CSS
      * Flat Components
    - Multiple/Inner Components
      * Content Projection
  + Angular Routing
  + Single Page Application using Angular Router
    - Understanding Router
    - Setting up URL and Configuring Router
    - Changing component using router-outlet and changing page title
    - Making active menu
    - Understanding Router params
    - Child Routing
    - Routing through Typescript
    - Route Params, Query Params

**Course Project: Phone Book / Blog App Development**

**Day 3**

**(Module 3 Continues…)**

* + Data Binding
    - String Interpolation
    - Property Binding
    - Event Binding
    - Two way Binding
    - Cross Component Interaction
      * Custom Property Binding - @Input()
      * Custom Event Binding - @Output()
      * Using @ViewChild()
      * Any to Any component Communication
  + Directives
    - Attribute Directives
      * ngClass, ngStyle
    - Structural Directives
      * \*ngIf, \*ngFor, ngSwitch
    - Custom Attribute Directives
      * Generating Directives using CLI
  + Debugging

**Course Project: Phone Book / Blog App Development**

**Day 4**

**(Module 3 Continues…)**

* + Services and Dependency Injections
    - Dependency Injection – Intro
    - Configuring Injector and Injectable Decorators
  + Angular Forms
    - Template Driven Forms
    - Reactive Forms
    - Validating Forms
    - Submitting Form data to services
  + HTTP Services – GET, POST, PUT, DELETE
    - Generating Services using CLI
    - Setting up services as providers? Why Not Needed?
    - Completing CRUD app
  + Angular Lifecycle Hooks
    - ngOnInit
    - ngOnDestroy
    - Subscribing and Unsubscribing to Observables

**Course Project: Phone Book / Blog App Development**

**Day 5**

**(Module 3 Continues…)**

* + Interfaces or Models
  + Observables
    - Understanding Observables
  + RxJS – Quick Intro
    - Http vs HttpClient
    - Operators
  + Feature Modules & Feature Routing Modules
    - Creating feature modules for our application
    - Creating Feature Routing Modules
    - Nested Routing
    - Lazy Loading Modules
  + Introduction to Pipes
    - What are Pipes
    - Two Types of Pipes (Pure and Impure)
    - Creating Custom Pipe in Course Project
  + Router Guard
    - Protecting routes with Login Page
    - Auth and Route Protection and Redirection
    - Authentication
    - JWT Tokens
    - Http Interceptors
  + Polishing the Angular App using Bootstrap
  + Deploying App

**Course Project: Completing Phone Book / Blog App Development in Angular**

**Day 6**

* + Performance Tuning
    - 10 Tips to improve performance in Angular Apps
    - Security Aspects - Quick Intro

**Module 3: Unit Testing - Basics**

* + Introduction to Automated Testing
    - Various Levels of Testing
    - Overview of Static Type Checking
    - Overview of Unit Testing
    - Overview of Integration Testing, E2E Testing
  + Understanding Testing Approches
    - TDD
    - BDD
  + Understanding Testing Patterns
    - AAA Pattern
    - Given/When/Then Pattern
  + Deep Dive into Unit Testing with Jasmine and Karma
    - Testing Components
      * Testing HTML of a Component
      * Testing CSS of a Component
      * Testing TS of a Component

**Course Materials**

* **1 Demo App** – (1 in Angular)
* **Source Codes in [github.com](http://github.com)**
* **Reference Materials in PDF (E-Book written by Arun Vijayarengan)**