ES6/Typescript/Angular 13 Training (5 Days) 40 Hrs.

ANGULAR 13 TRAINING OBJECTIVES

All students will learn to:

- Understand how Angular is different from traditional web development frameworks
- Code using new ES6 and TypeScript language features
- Develop an application from scratch using Angular 13
- Explore Angular coding and architecture best practices
- Understand and use Angular Forms, Observables, Dependency Injection, and Routing
- Retrieve, update, and delete data using Angular's Http service
- Unit test all the parts of an Angular application including Modules, Components, Services, and Pipes
- Create, build, and deploy an Angular (Angular 13) application using the Angular CLI
- Develop reusable elements (even out of Angular applications) using angular elements
- Develop dynamic model-driven forms that are easier to unit test

ANGULAR 13 TRAINING PREREQUISITES

All attendees must have substantial prior experience developing with JavaScript. If attendees will not have prior JavaScript experience, we would be delighted to precede this class with a one- or two-day intensive JavaScript

Pre-requisites:

JavaScript with ES6 Exposure / HTML 5/CSS3

Lab Setup:

Node 16x

Vs code installation

Open internet connection

All major browsers installation : Firefox Chrome Edge

Windows professional 10 x with 16GB RAM

Notepad++

Adobe Acrobat Reader 6x

Course Outline

Module 1: Introduction

Angular 13 Introduction

Module 2: Why Angular

- **User Experience similar to a Desktop Application**
- **Productivity and Tooling**
- **Performance**
- **Community**
- **Full-featured Framework**
- **Platform for Targeting Native Mobile not just Web Browsers**

Module 3: Understanding Angular Version

New Feature in A12/A13

Default Ivy. ...
TestBed.get() to TestBed.inject() ...
<ngForm></ngForm> to <ng-form></ng-form> Improvement in Angular form. ...
Support for Node 10. ...
Support for TypeScript 3.1. ...
Angular Component Updates with hammer.js (gesture support)// import `HammerModule` from [@angular/platform-browser]
Angular Performance: CLI Budgets by Default.
Updating to Angular Version 9 easily

Module 4: TypeScript & ES6

- Introduction
    - What is Typescript
    - Why Typescript
    - Setup and installation
    - IDE support
- Scoping using Let and Const Keywords (ES6)
- Template Literals (ES6)
- Spread Syntax and Rest Parameters (ES6)
- Destructuring (ES6)

Module 5: Power of Types

- Introduction
- Type inference
- Type Annotations
- Number
- Boolean
- String
- Array
- Tuple
- Enum
- Any
- Void
- Null and Undefined
- Never (Typescript 2)

Module 6: Explore Function

- Introduction
- Using types in functions
- Function as types
- Optional and default parameters
- Arrow functions
- Function overloading

Module 7: Classes

- _Introduction
- Inheritance

- **Access modifiers**
- **Getters and setters**
- **Read only& static**
- **Abstract classes**

Module 8: Interfaces

- **Introduction**
- **Optional properties and methods**
- **Readonly&const**
- **Strict structural contract**
- **Extending interface**
- **Implementing interface**

Module 9: Module

- **Introduction**
- **Import**
- **Export**
- **Default**
- ## Module 10: Decorators(AOP)

- **Decorators (Typescript Aspect Oriented Programming)**

Module 11: Working with Angular CLI

- **Angular CLI**
- **Anatomy of the project**
- **Debugging Angular apps**
- **Working with Augury**

Module 12: Working with Angular CLI

- **Modules**
- **Components**
- **Templates**
- **Metadata**
- **Data binding**
- **Directives**
- **Services**
- **Dependency injection**

Module 13: Angular Module/Lib/Component

- **Angular Components/Module/Lib**

Module 14: Angular Template

- **HTML as template**
- **Data binding**
  - **Interpolation**
  - **Property Binding**
  - **Event Binding**
  - **Two way binding**
- **Template expressions**
- **Template syntax**
- **Attribute, class and style bindings**
- **@Input()**
- **@Output**
- **Template reference variables**
- **Safe navigation operator**

Module 15: Angular Directive

- Introduction
- Built-in directives
    - Structural directive
        - NgIf
        - NgFor
        - NgSwitch
    - Attribute directive
        - NgClass
        - NgStyle
        - NgModel
- @Directive decorator

Module 16: Pipes

- Introduction
- Built-in pipes
- @Pipe decorator
- Custom pipe development

Module 17: Forms

- Introduction
- @angular/forms library
- Template driven forms
- Form and field validation
- Validation check with ng-pristine,ng-dirty, ng-touched, ng-untouched, ng-valid, ng-invalid
- Show and hide validation error messages
- Form submission with ngSubmit
- Reactive/ Model drive forms
- ReactiveFormsModule
- FormGroup, FormControl classes
- FormBuilder for easy form building
- Validations using Validators
- Setting form model using setValue and patchValue
- Use FormArray to build repeated from controls or form groups
- Bootstrap 4 feature & component

- ## Module 17: Dependency Injection

- **Introduction**
- **Why DI**
- **@Injectable decorator**
- **Custom service development**
- **Registering the service with NgModule using providers key**
- **Provider Types**
  - **Class**
  - **Factory**
  - **Value**

- ## Module 18: Routing & Navigations

- **Introduction**
- **@angular/router library**
- **Configure routes**
- **RouterModule.forRoot and RouterModule.forChild**
- **RouterOutlet, RouterLink, RouterLinkActive**
- **Nested Routes**
- **Parametrized routes**
- **Route guards**
- **Router events**

- ## Module 19: RxJS Primer

- **Introduction**
- **Why RxJs**
- **Observable interface**
- **Streams**
- **Operators**
- **Subscription**
- **Subject**
- **Schedulers**

- ## Module 20: HTTP Deprecates & HttpClient

- **Setup installing the module**
- **Making a request for JSON data**
- **Typechecking the response**
- **Reading the full response**
- **Error handling**
- **Requesting non-JSON data**
- **Sending data to the server**
- **Making a POST request**
- **Configuring other parts of the request**
- **Working with HTTP interceptors for better error handling in http requests**

Module 21: More Add on Angular 10

- **New features in angular cli**
    - **ng update**
    - **ng add**
- **Angular Elements**
- **Updates to @angular/material**
- **CLI workspaces**
- **Building libraries**
- **Tree shakable providers**
- **RxJs 6 Support**

Module 22: Angular 11 Testing

- **Introduction**
- **Testing in Typescript**
- **Testing Component**
- **Testing Service/Provider**
- **Testing Pipe**

Module 23: PWA with Angular 11

- **Introduction of PWA**
- **Function of PWA Application (**service workers, offline storage, browser's device API**)**
- Browser dependencies (PWAs on Apple vs Android devices)
- **Add** add @angular/material for Angular PWA development
- **Analyze The Application Using Lighthouse**

Module 24: Angular 13 Security

- **Introduction of Angular 11 build in protections**
- **Preventing cross-site scripting (XSS)**
- **Server-side XSS protection**
- **HTTP-level vulnerabilities**

Module 25: Angular 13 State Management

- **Introduction to state management**
- **Stateful vs stateless component**
- **Redux Introduction**
- **ngRX integration with Angular**

Module 26: Angular 13 Deployment

- **Manually**
- **Using the Angular CLI with Ahead-Of-Time (AOT) Compilation and Tree-Shaking (removing unused library code)**