LUMIFY WORK Angular 12 Programming User Guide

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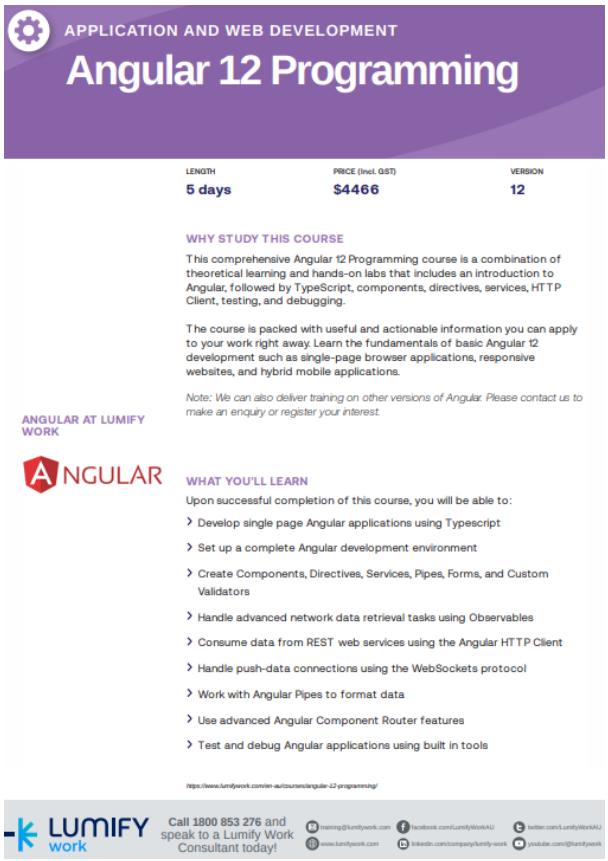
LUMIFY WORK Angular 12 Programming



WHY STUDY THIS COURSE

This comprehensive Angular 12 Programming course is a combination of theoretical learning and hands-on labs that includes an introduction to Angular, followed by TypeScript, components, directives, services, HTTP Client, testing, and debugging.
The course is packed with useful and actionable information you can apply to your work right away. Learn the fundamentals of basic Angular 12 development such as single-page browser applications, responsive websites, and hybrid mobile applications.
Note: We can also deliver training on other versions of Angular. Please contact us to make an enquiry or register your interest.

WHAT YOU'LL LEARN
Upon successful completion of this course, you will be able to:

- Develop single-page Angular applications using Typescript
- Set up a complete Angular development environment
- Create Components, Directives, Services, Pipes, Forms, and Custom Validators
- Handle advanced network data retrieval tasks using Observables Consume data from REST web services using the Angular HT T P Client Handle push-data connections using the WebSockets protocol
- Work with Angular Pipes to format data
- Use advanced Angular Component Router features
- Test and debug Angular applications using built-in tools.

COURSE SUBJECTS

Chapter 1. Introducing Angular

- What is Angular?

- Central Features of the Angular Framework Appropriate Use Cases
- Building Blocks of an Angular Application Basic Architecture of an Angular Application Installing and Using Angular
- Anatomy of an Angular Application Running the Application
- Building and Deploying the Application Angular for Native Mobile Apps
- Summary

Chapter 2. Introduction to TypeScript

- Programming Languages for Use with Angular TypeScript Syntax
- Programming Editors
- The Type System – Defining Variables
- The Type System – Defining Arrays
- Basic Primitive Types
- Type in Functions
- Type Inference
- Defining Classes
- Class Methods
- Visibility Control
- Class Constructors
- Class Constructors – Alternate Form Uninitialised Fields
- Interfaces
- Working with ES6 Modules
- var vs let
- Arrow Functions
- Arrow Function Compact Syntax Template Strings
- Generics in Class
- Generics in Function
- Summary

Chapter 3. Components

- What is a Component?
- An Example Component
- Creating a Component Using Angular CLI
- The Component Class
- The @Component Decorator
- Registering a Component to Its Module Component Template
- Example: HelloComponent Template
- Example: The HelloComponent Class Using a Component
- Run the Application
- Component Hierarchy
- The Application Root Component
- The Bootstrap File

- Component Lifecycle Hooks Example Lifecycle Hooks
- CSS Styles
- Summary

Chapter 4. Component Templates

- Templates
- Template Location
- The Mustache {{ }} Syntax
- Setting DOM Element Properties
- Setting Element Body Text
- Event Binding
- Expression Event Handler
- Prevent Default Handling
- Attribute Directives
- Apply Styles by Changing CSS Classes
- Example: ngClass
- Applying Styles Directly
- Structural Directives
- Conditionally Execute Template
- Example: ngIf
- Looping Using ngFor
- ngFor Local Variables
- Manipulating the Collection Example – Deleting an Item
- Item Tracking with ngFor Swapping Elements with ngSwitch Grouping Elements
- Template Reference Variable Summary

Chapter 5. Inter Component Communication

- Communication Basics
- The Data Flow Architecture
- Preparing the Child to Receive Data
- Send Data from Parent
- More About Setting Properties
- Firing Event from a Component
- @Output() Example – Child Component @Output() Example – Parent Component
- Full Two Way Binding
- Setting up Two Way Data Binding in Parent
- Summary

Chapter 6. Template Driven Forms

- Template Driven Forms
- Importing Forms Module

- Basic Approach
- Setting Up a Form
- Getting User Input
- Omitting ngForm Attribute
- Initialise the Form
- Two Way Data Binding
- Form Validation
- Angular Validators
- Displaying Validation State Using Classes Additional Input Types
- Checkboxes
- Select (Drop Down) Fields
- Rendering Options for Select (Drop Down) Date fields
- Radio Buttons
- Summary

Chapter 7. Reactive Forms

- Reactive Forms Overview
- The Building Blocks
- Import ReactiveFormsModule
- Construct a Form
- Design the Template
- Getting Input Values
- Initialising the Input Fields
- Setting Form Values
- Subscribing to Input Changes
- Validation
- Built-In Validators
- Showing Validation Error
- Custom Validator
- Using a Custom Validator
- Supplying Configuration to Custom Validator
- FormArray – Dynamically Add Inputs
- FormArray – The Component Class
- FormArray – The Template
- FormArray – Values
- Sub FormGroups – Component Class
- Sub FormGroups – HTML Template
- Why Use Sub FormGroups
- Summary

Chapter 8. Services and Dependency Injection

- What is a Service?

- Creating a Basic Service
- The Service Class
- What is Dependency Injection?
- Injecting a Service Instance
- Injectors
- Injector Hierarchy
- Registering a Service with the Root Injector
- Registering a Service with a Component’s Injector
- Register a Service with a Feature Module Injector
- Where to Register a Service?
- Dependency Injection in Other Artifacts Providing an Alternate Implementation Dependency Injection and @Host
- Dependency Injection and @Optional
- Summary

Chapter 9. HTTP Client

- The Angular HT T P Client
- Using T he HT T P Client – Overview
- Importing HttpClientModule
- Service Using HttpClient
- Making a GET Request
- What does an Observable Object do?
- Using the Service in a Component
- The PeopleService Client Component Error Handling
- Customizing the Error Object
- Making a POST Request
- Making a PUT Request
- Making a DELETE Request

Chapter 10. Pipes and Data Formatting

- What are Pipes?
- Built-In Pipes
- Using Pipes in HTML Template Chaining Pipes
- Internationalised Pipes (i18n) Loading Locale Data
- The date Pipe
- The number Pipe
- Currency Pipe
- Create a Custom Pipe
- Custom Pipe Example
- Using Custom Pipes
- Using a Pipe with ngFor
- A Filter Pipe

- Pipe Category: Pure and Impure
- Summary
- Pure Pipe Example
- Impure Pipe Example
- Summary

Chapter 11. Introduction to Single Page Applications

- What is a Single Page Application (SPA) Traditional Web Application
- SPA Workflow
- Single Page Application Advantages HTML5 History API
- SPA Challenges
- Implementing SPA's Using Angular Summary

Chapter 12. The Angular Component Router

- The Component Router
- View Navigation
- The Angular Router API
- Creating a Router Enabled Application
- Hosting the Routed Components
- Navigation Using Links and Buttons
- Programmatic Navigation
- Passing Route Parameters
- Navigating with Route Parameters
- Obtaining the Route Parameter Values
- Retrieving the Route Parameter Synchronously
- Retrieving a Route Parameter Asynchronously
- Query Parameters
- Supplying Query Parameters
- Retrieving Query Parameters Asynchronously
- Problems with Manual URL entry and Bookmarking
- Summary

Chapter 13. Advanced HTTP Client

- Request Options
- Returning an HttpResponse Object
- Setting Request Headers
- Creating New Observables
- Creating a Simple Observable
- The Observable Constructor Method Observable Operators
- The map and filter Operators
- The flatMap() Operator

- The tap() Operator
- The zip() Combinator
- Caching HT T P Response
- Making Sequential HT T P Calls
- Making Parallel Calls
- Customizing Error Object with catchError()
- Error in Pipeline
- Error Recovery
- Summary

Chapter 14. Angular Modules

- Why Angular Modules?
- Anatomy of a Module Class
- @NgModule Properties
- Feature Modules
- Example Module Structure
- Create a Domain Module
- Create a Routed/Routing Module Pair
- Create a Service Module
- Creating Common Modules

Chapter 15. Advanced Routing

- Routing Enabled Feature Module
- Using the Feature Module
- Lazy Loading the Feature Module
- Creating Links for the Feature Module Components
- More About Lazy Loading
- Preloading Modules
- Default Route
- Wildcard Route Path
- redirect To
- Child Routes
- Defining Child Routes
- for Child Routes
- Links for Child Routes
- Navigation Guards
- Creating Guard Implementations
- Using Guards in a Route
- Summary

Chapter 16. Unit Testing Angular Applications

- Unit Testing Angular Artifacts
- Testing Tools
- Typical Testing Steps
- Test Results
- Jasmine Test Suites
- Jasmine Specs (Unit Tests)
- Expectations (Assertions)
- Matchers
- Examples of Using Matchers
- Using the not Property
- Setup and Teardown in Unit Test Suites
- Example of beforeEach and afterEach Functions
- Angular Test Module
- Example Angular Test Module
- Testing a Service
- Injecting a Service Instance
- Test a Synchronous Method
- Test an Asynchronous Method
- Using Mock HT T P Client
- Supplying Canned Response
- Testing a Component
- Component Test Module
- Creating a Component Instance
- The ComponentFixture Class
- Basic Component Tests
- The DebugElement Class
- Simulating User Interaction
- Summary

Chapter 17. Debugging

- Overview of Angular Debugging
- Viewing TypeScript Code in Debugger
- Using the debugger Keyword
- Debug Logging
- What is Angular DevTools?
- Using Angular DevTools
- Angular DevTools – Component Structure
- Angular DevTools – Change Detection Execution
- Catching Syntax Errors
- Summary

Lab Exercises

- Lab 1. Introduction to Angular
- Lab 2. Introduction to TypeScript
- Lab 3. Introduction to Components
- Lab 4. Component Template
- Lab 5. Create a Photo Gallery Component
- Lab 6. Template Driven Form
- Lab 7. Create an Edit Form
- Lab 8. Reactive Form
- Lab 9. Develop a Service
- Lab 10. Develop an HT T P Client
- Lab 11. Use Pipes
- Lab 12. Basic Single Page Application Using Router Lab 13. Build a Single Page Application (SPA)
- Lab 14. Advanced HT T P Client
- Lab 15. Using Angular Bootstrap
- Lab 16. Lazy Module Loading
- Lab 17. Advanced Routing
- Lab 18. Unit Testing
- Lab 19. Debugging Angular Applications

WHO IS THE COURSE FOR?
This course is aimed at anyone who needs to learn the fundamentals of Angular 12 development and apply it to creating web applications straight away. We can also deliver and customize this training course for larger groups – saving your organization time, money and resources.

PREREQUISITES
Web development experience using HTML, CSS and JavaScript is required to get the most out of this Angular course. Knowledge of the browser DOM is also useful. Prior Angular experience, with AngularJS or any version of Angular, is not required.
https://www.lumifywork.com/en-au/courses/angular-12-programming/

Documents / Resources

	LUMIFY WORK Angular 12 Programming [pdf] User Guide Angular 12 Programming, Angular, 12 Programming, Programming

References

- **Lumify Work | Lumify Work AU**
- **Lumify Work | Lumify Work AU**

- Angular 12 Programming | Lumify Work AU
- User Manual

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