ANGULAR

CONTENTS

Angular_13

- HTML, CSS, And JavaScript

1. TypeScript language – 2 week
   Basic to advanced
2. Angular end to end
3. Application
   MEAN
   MongoDB database
   Express middleware
   Angular client side
   Node.js server

45 Sessions

What are the challengs in modern web development?

1. Unified UX :-

- Application must have same exprence across all devices.
- Mobile uses must get access to every thing.

2. Fluid UX :-

- User must stay on one page and get access to everything on to the page.
- New details are added to page without reloading the page.

3. Loosely Coupled And Extensible :-

- Developer can add new features into application without re-installing the complete application.
- New features should not lead to catastrophic failures.

4. Simplified Deployment :-

- Without restarting the device new application should register
- Install and open.

What is solution?

- Can we solve these issues with traditional web application?

  No
- Better build SPA [Single Page Application]
- SPA is not new
- Twitter, Ebay

How to Build SPA?

- Can we use HTML, CSS, JavaScript and JQuery?

  Yes

What is problem with JavaScript and JQuery

- Lot of Dom manipulations
- Lot of coding
- Heavy application
- Hard to test
- Hard to extend
- Not support OOP features.

What is Solution?

- Better us a library or framework

- JQuery is a library but it required lot of explicit AJAX.
- It require lot of pluig-in.
- A libaray can build application but can't control application flow.
- You need lot of event binding.
- React.js is also a libarary

  When React ? only building UI

  When Angular? Framework – UI App

  Knockout.js | Angular – Google

What is Angular?

- Angular is open source, cross platform framework maintained by google and a large community of developers and organizations.
- Angular is an developers platform.
- Developers platform provides complete end to end solution for developer.

  i.e. from build, debugging, testing to deploying.
- Platform for building SPA and PWA.[Progressive Web Application]

Evolution :-

- Google started Angular.js – 2010
- JavaScript based
- Not completely OOP
- Extensibility issues
- Legacy library
- Slow in rendering
- Heavy
- Lot of gaps

- Depend on lot of 3rd party

Google alternative :-

- Started a new language called “atScript”
- Started a new technology called “Angular-2”
- Angular is an alternative for “Angular.js”
- Microsoft already have a language called “TypeScript”
- TypeScript built by “Anders Hejlberg” [Architect of C#]

Features of Angular :-

- Modular Library
- Fast [10x faster than angular.js]
- Platform for developer
- Reduces the intergration of 3rd party
- End to End solution for developer [Building to Deploying]
- It uses frameworks like MVC, MVVM [Handling Data Bindings]
- De-coupled from DOM

Versions :-

Angular 2	-	2014
Angular 13	-	2022

Note :- Angular upto 9 versions are no – longer supported.

Angular_13

- Angular is a developers platform.
- A developers platform provides end to end solution for developer i.e from building to deploying.

- Angular is alternative for Angular.js
- Angular is cross platform, open source framework suitable for building SPA.
- Angular is mantained by Google and a large community of developers and organizations.
- Angular started with 2.0 version
- Angular latest is 13.2.2 [stable]
- Angular Versions upto 12 LTS previous versions no-longer supported.

Features of Angular :-

1. Developer platform

2. Modular Library

- Application specific framework.
- Faster
- Light weight
- Suitable for low bandwidth devices

3. Differential Loading :-

- Reduces the compatibility issues
- Loads legacy library for legacy browsers and loads modern library for modern browsers

4. Asynchronous :-

- Implicitly uses Ajax for various interactions
- Improves the perfomance of application.

5. It uses AOT compiling techniques [Angular 9+] :-

[JavaScript uses JIT] Just-in-Time

- Ahead-of-Time

6. Material Library for Effective UI :-

What is new in Angular-13?

Setup Environment for Angular :-

1. Download and Install Node.js for Package Manager : NPM

2. Download and Install TypeScript

C:\>npm install -g typescript

`

3. Download and Install Visual Studio Code Editor

4. Download and Install Angular CLI

[CLI is a command line tool used for creating and managing angular applications]

C:\>npm install @angular/cli -g

C:\>ng –-version

Update from older version to latest :-

1. un-Install the existing version

C:\>npm uninstall -g @angular/cli

2. Clear Cache

C:\>npm cache verify

3. Install Latest version

```
C:\>npm  install -g  @angular/cli
```

Note :- For any specific angular version

```
C:\>npm  install  -g  @angular/cli@11.0.1
```

angular.io - version numbers

Create Angular Workspace :-

-Workspace provides a platform for handling multiple projects.

-It provides a global library or repository for projects.

1. Open any of your PC locations in command prompt

2. Run the following CLI command

```
D:\>ng new  my-angular-workspace  --createApplication=false
```

3. Open workspace in your VS code editor

File System in Workspace :-

1. tsconfig.json : It configures the rules for typescript. It also defines the environment for typescript in angular application.
2. package.json : It comprises of meta data.
3. package-lock.json : It comprises of meta data about every dependency installed for project.
4. angular.json : It configures the initial environment for

Projects created in workspace.
- what styles they have to use?
- what script they need to implement?

- which testing framework to use? etc..

5. .gitignore : It comprises of configuration required for publishing on GIT.
6. .editorconfig : It comprises of rules for editor used by developers.
   www.editorconfig.org
7. node_modules : It comprises of all library files installed Through NPM.
8. .vscode : It is related to editor to keep migration and upgrade information.

Create a new application and add to workspace :-

1. Open workspace location in "Terminal" D:\my-angular-workspace>

2. Run the following CLI command
   1. ng generate application shopping

3. It will walk through few set of questions

? Would you like to add Angular routing? (y/N) n
? Which stylesheet format would you like to use? CSS
[select with arrow]

[Sass, Less]

4. This will add "Projects" folder into workspace, which contains your project => "Shopping"

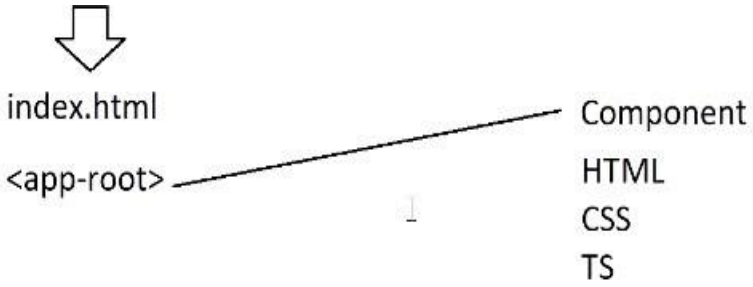
5. Start angular project

D:\my-angular-workspace>ng serve --project=shopping

Project runs on : http://localhost:4200

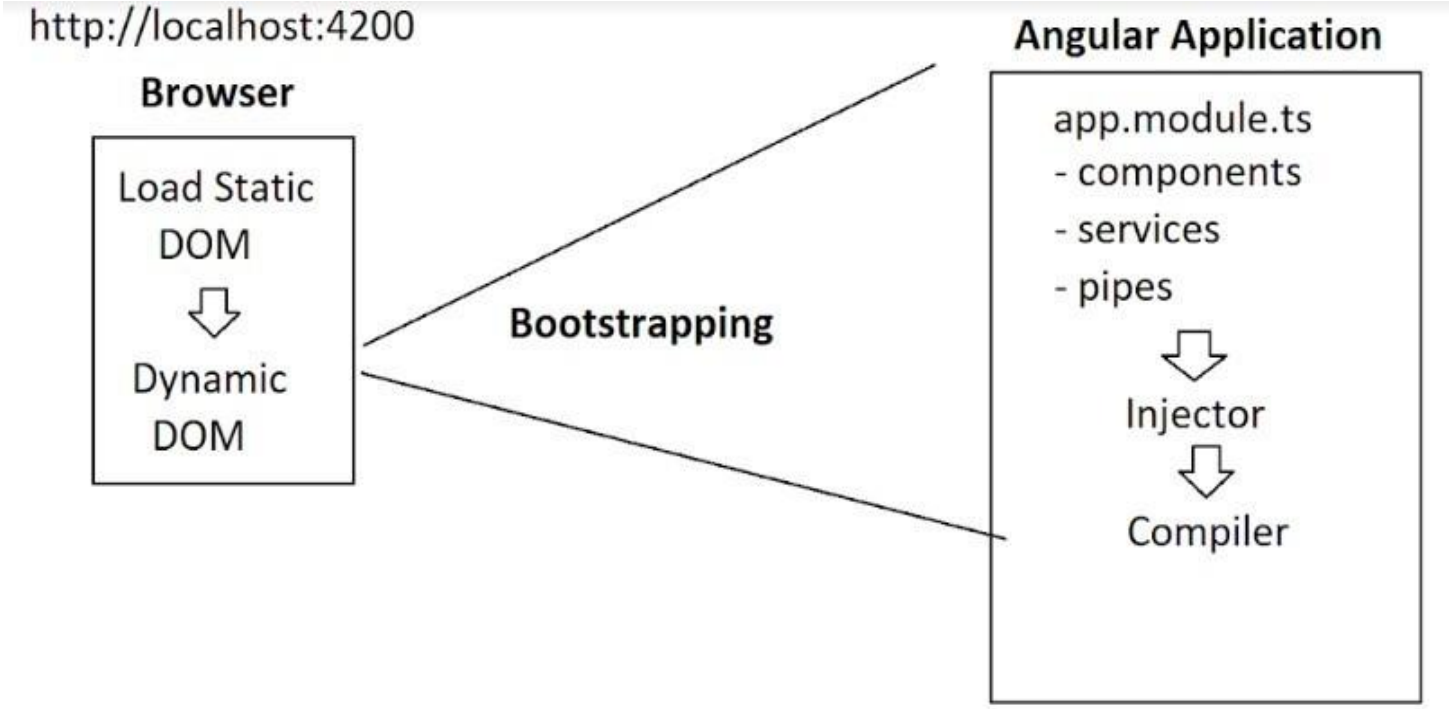
6. Open any browser and request the URL

http://localhost:4200



Angular Application Flow :-

1. You compile anuglar application
2. "app.module.ts" identifies all the library required for angular application and injects into memory.
3. Babel uses AOT mechanism and converts that static DOM into dynamic DOM.
4. The process of converting static DOM into dynamic DOM is known as "bootstrapping".



Angular Project File System :-

1. src : It comprises of all project resources.
2. browserslistrc : It comprises of information about supported browser.
   [Angular 13 removed support for IE]
3. karma.conf.js : It comprises of configuration for testing framework used in angular.
   [Angular is supported with Jasmine - Karma]
4. tsconfig.app.json : It defines the rules for typescript.
5. tsconfig.spec.json : 'spec' refers to testing file.

Project Resources [SRC] :-

1. app : It comprises of application resources like
   - modules
   - components
   - services
   - pipes etc..

2. assets : It comprises of static resources like

- images
- text documents
- pdf, word, audio , video etc..

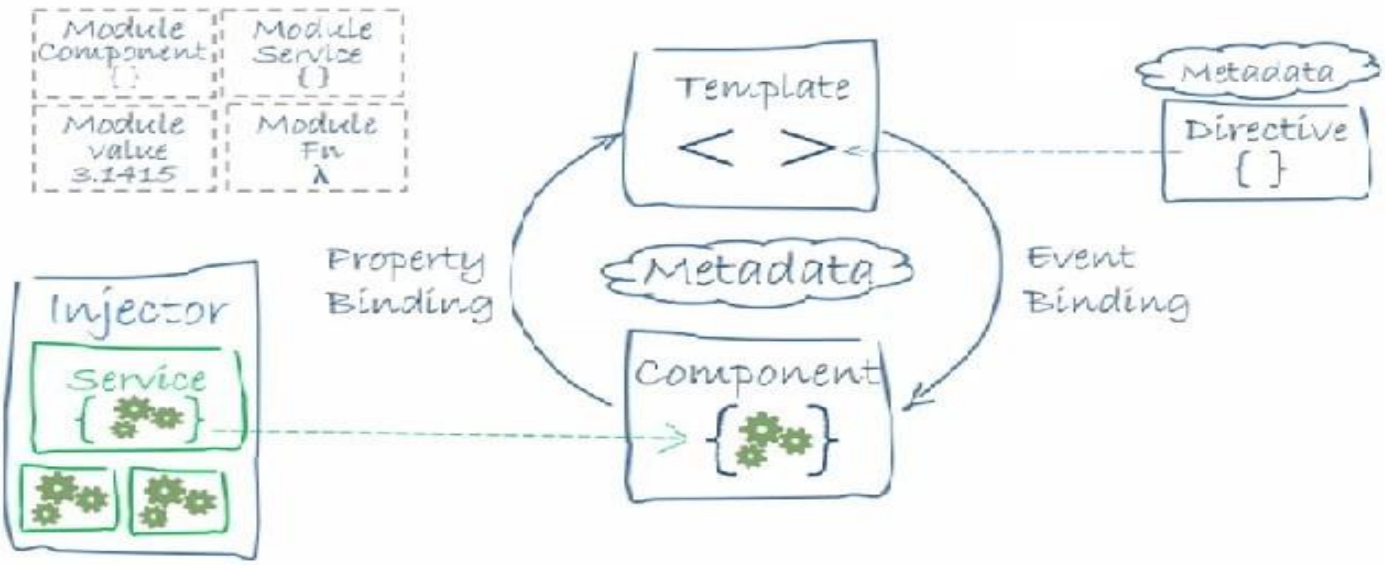
3. environments : It contains the files required for configuring project environment from development to production.
4. favicon.ico : It is the favorite icon for website.
5. index.html : It is the startup page
6. main.ts : Entry point, from here your application starts compiling, processing.
7. polyfills.ts : It handles differential loading
   It loads library according to browser.
8. styles.css : It comprises of global styles.
   Styles used for all components.
9. test.ts : It is used to start testing of application.

Resources of "app" :-

1. Angular Framework comprises :-

- Modules
- Components
- Services
- Factories
- Templates
- Pipes
- Routing

- State Management [Client Side]



Module : Module comprises of set of factories, services components, pipes etc..

Factory : Factory comprises of related type of value and functions.

Service : Service comprises of related type of factories.

Template : It comprises of a layout rendered into application

Pipe : It is used for transforming data.

Routing : It is a technique used for configuring navigation is SPA.

State : It is a technique used to store and manage data across requests.

Note:

- This is a **preview Angular Framework e-Book** containing **only 30 pages**.
- It is provided to help you understand **how the full Angular Framework e-Book and is structured**.
- The **complete Angular Framework e-Book** includes detailed concepts, real-world examples, and career guidance.
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