FOLDER STRUCTRE &BOOT PROCESS

13 April 2023 10:11

CREATE NEW PROJECT:
ng new <project_name>

E2e:
Protractor framework
By default
End to end test scripts
Will end with .e2e-spec.ts extension

Src
App.e2e-spec.ts
Login.e2e-spec.ts
Protractor.cong.js
->configuration settings for running the end to end test scripts
Tsconfig.json
-> basic typescript setting

3. Src
->entire source code of your application is inside src
-app
App.module.ts
-app component
-app.component.html-> view/ui/html code
-app.component.scss->stylesheet
-app.component.spec.ts-> unit test script
-app.component.ts-> class file

-assets
-images
-mock data
APIS
-environments
-dev
-local
-UAT
-QA
-prod

-index.html
SINGLE PAGE APPLICATION
Index.html
<app-root> : is inside the body , it generate the dynamic content in the body.

Main.ts
->it contains .bootstrapModule -> it defines with which modules the Application should start.
In most cases it is authentication module
(STARTING POINT OF YOUR APPLICATION)
-any other module can be our bootstrap module (not just AppModule)

Styles.css/scss
-global/common stylesheet for global

Test.ts

- Test script for the main.ts file
- Testing the main.ts file code

Angular.json

- Backbone of your application
- It has scripts, port, settings , schematics
- Angular cli - build, test

Package.json & package-lock.json

-tsconfig

- Build output directory
- Sourcemap

-tslint

- How the errors should be,
- Enforce coding standards
- Correct spacing , nomenclature

Boot process in ANGULAR

Ng serve - to start the app
First it compile the app
It first starts from main.ts
-bootstrapModule
- AppModule
  - AppCompnent
- AuthModule
  - Login
  - checkAuthentication
  - Forgot
  - Newuser
  - Loggedin

Test.ts

- Test scripts for main.ts

Index.html
No code in body , it has only one directive <app-root>
It put the output of app-root into body of index.html

App.component has app-root as a selector

FLOW OF THE APP
Index.htmll - starting point
AppModule - check the bootstrapModule, and starts with AppModule
It checksbootstrap: in app.module.ts , then go to ***AppComponent***
Then checks selector
Hence put app-root output into ***index.html.***

Whenever we do a ng serve/build/test
Compile your typescript code into javacript files.

Package.json

Contain all the scripts and info to run the application.

Dependencies

-> all the modules/libraires you must have to run in prod evn.

-> the prod code will mostly be optimised/minimum

Devdependencies

-> all the modules/libraries you must have to develop your app.

-> we may add packages/modules but we may not use them.

Package-lock.json

Contains dependencies required to dev , internal linking.

ANGULAR CLI

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Schematics: kind of command that generate code to do certain kind of work, like update component , install the component.

- Eg: ng serve
- Ng build
- Ng test
- Ng lint
- Ng e2e

Commands:

- Ng generate component <component_name>
- Ng generate module <module_name>
- Ng generate pipe <pipe_name>
- Ng generate directive

Ng build: build your app and make it ready for production env deployment.

Ng generate /ng g

- Components
- Pipes
- Modules
- Services
- Directives
- Applications

Angular APP ARCHITECTURE

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ANGULAR IS MADE UP OF COMPONENTS.

ANGULAR APP ARCHITECTURE CONTAINS FOLLOWING BUILDING BLOCKS -
MODULE
COMPONENTS
TEMPLATE
DIRECTIVE
SERVICES : services perform specific functionality , rather than wrirting a utility as a function it can be written seperatly as a servies, which can be used by other components.

METADATA

MODULES

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Every modules start with the decorator --- symbol @

Angular is a modular based architecture

- There are lot of module which are built in.
- Example
  - Browsermodule
  - Broweranimationsmodule
- Angular Material Library
  - MatButtonModule
  - MatDropDownModule

Before creating app, think of a modules to include in app
All the code and functionality is grouped in a module.

WHAT MODULES CONSIST OF-

-Declarations
This is where we will add the components of the module.
-imports
We can import modules inside a module
-providers
Services that we need will be injected here
-bootstrap
What is the first component, the module should load
-exports

Every module should have atleast one module.

The appmodule will have a component by the name
-appcomponent

FEATURE MODULES

- you can turn on or off the modules based on conditions

MODULES

Grouping

- Of components
- Services
- Pipes
- Directives

ANGULATR COMPONENTS

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BASIC BUILDING BLOCKS OF ANGULAR APPS

Component is a smallest functionality that you will implement in your application.

When we group multiple components it becomes a modules

We can have parent-child relationship of components.
We can have components inside component
We can create tree-hierarchy of components
like

Dashboard
Display-contact-list
Contact-grid
Contact-import
Contact-export
Contact options

Every component has 4 files auto generated in it.
.component.html
.component.ts
.component.spec.ts
.component.scss

In .ts file,
We have decorator ,
Selector -> unique identifier for the component
-> id of the component
-> using this selector we will use the component
templateUrl -> your HTML code
-> component.html file
styleURLS -> for linking your component stylesheet
- -> component.scss

COMPONENTS COMMUNICATION

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Example:

- Contact-listing
  - Contact-grid
  - Contact-tools
    - Downloaf-pdf
    - Download-excel

Components are hierarchical , build parents-child relationship

P1
- Child1
  - Sub-child1
- Child2

P2
- P2-child1

COMMUNICATIONS BETWEEN THE RELATED COMPONENTS

- Parent component -> child components
- @Input
- Parent component <- child components
- @Output

COMMUNICATIONS BETWEEN TOTALLY UNRELATED COMPONENTS

Component1 -> Services <- Component2

TEMPLATES(of components)

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So every newly created
- Module : have one file i.e. module.ts
- Component : have 4 files i.e,
  - Html
  - Style
  - Spec.ts
  - .ts

In .ts file we have,

Decorator : Starting with @

SELECTOR:
It is unique identifier to identify this component

PREFIX in selector in decorator is by default "app"
But can be changed to anything , it works!!!

HTML Template
templateURL:

Is only single HTML file.

Two ways to add html to it
- Link the html file(default way)
  - E.g.

```
templateUrl: './username.component.html',
```

template:

- Will the add code of html itself using backtick
  - E.g.

```
@Component({
  selector: 'tanaya-username',
  templateUrl: ` <h1>gdd f gdfsfg d<\h1>,
  styleUrls: ['./username.component.css']
})
```

stylesURL

Is an array
Can have multiple style sheets

DIRECTIVES

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Directive is a something which enable us to modify our html code its functionality acc to our requirement.
Example: ngIf using it we can add if -else condition to html code
(hence can display content acc to applied condition.)

STRUCTURAL DIRECTIVE

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It always start with *
Eg: *ngIf
Then we give a tag to it ,
Then we specify the value of tag (true/false) in .component.ts file
We can use if else similarly we use in any programming language
Eg. Using logical operator
For else
*ngIf = "tag_if_name"; else tag_else"

<ng template #tag_else>
</ng-template>
ngIf
ngIf else
*ngIf = " <> ; else <>"
ngIf then else
*ngIf = " <> ;then <>; else <>"

<ng-template <> >
</ng-template>

ngFor

Collection=[{
firstname: "}]
ngFor syntax:

<li *ngFor="let ele of collection">
{{ele.firstname}} {{ele}}

ngSwitch

Similar to switch case in any programming language.

< tag [ngSwitch] ="tag_name">
<tag*ngSwitchCase = "value"> print any statement.</tag>
<tag*ngSwitchCase = "value"> print any statement.</tag>

<tag*ngSwitchCase = "value"> print any statement.</tag>

<tag*ngSwitchCase = "value"> print any statement.</tag>
<tag*ngSwitchCase = "value"> print any statement.</tag>
// for no values matches then use default
<tag*ngSwitchDefaul> print any statement.</tag>

In .ts file
Tag_name ="tag_value"

ngStyle is most used structural directive.
Similar to style in html uses curly bracket {}
< tag [ngStyle]= "{ 'property' : 'value' , 'property' : 'value'}> hsdshsbdshb </tag>
This is dynamic allocator to the property ----->
< tag [ngStyle]= "{ 'property' : 'value' , 'property' : variable_name} hsdshsbdshb </tag>
< tag [ngStyle]= "{ 'property' : 'value' , 'property' : variable_name} hsdshsbdshb </tag>
< tag [ngStyle]= "{ 'color' : txtcolor === 'blue' ? 'blue' :'green'} hsdshsbdshb </tag>

ngClass used for setting css using class.

1. Way: directly writing class variable name in single quote.
   <tag [ngClass] =" 'c1' "
2. Two class name together
   <tag [ngClass] = " 'c1 c2' "
3. Using dynamic variable and setting value in .ts file
4. Using conditions
   E.g.:

```
<div [ngClass]="conditionsPro === 'c1' ? 'c1':'c3' " >
    this is for ngclass in angular 10 .
</div>

<div [ngClass]="{c1: false , c3:true} ">
    this is using object example ngclass in angular 10 .
</div>
```

5. This is used when we can use multiple classes on text and turn it off and on the classes.

COMMON MISTAKE:

- **Not writing in correct quotes.**
- **Not putting ngClass in square brackets.**
- **Using quotes for variables.**

```
<p style = "font-size: 30px; color: yellow"> {{title1}}</p>

<div [ngSwitch]=visitor style = "font-size: 30px; color: yellow">
    <div *ngSwitchCase="'employee' " style = "font-size: 30px; color: yellow">
Person is a employee.</div>
    <div *ngSwitchCase="'intern' " style = "font-size: 30px; color: yellow">
Person is a intern.</div>
    <div *ngSwitchCase="'guest'" style = "font-size: 30px; color: yellow">
Person is a employee.</div>
    <div *ngSwitchCase="'contractor'" style = "font-size: 30px; color:
yellow"> Person is a contractor.</div>
    <div *ngSwitchDefault="" >OOps noone there!</div>
</div>
<router-outlet></router-outlet>
```

Data Binding

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Data binding is a way in which we bind data to view .
Eg. Component to view
It can one -way or two-way binding

Property binding :

We can bind any html properties to an DOM element.
Syntax:
[title] ="surname"

Define surname in .ts file

surname : "firke"

Title is property , we bind it with surname variable.

Attribute Binding:
[attr.attribute_name] = "expression"

Define in .ts file
expression : " "

Similar to property binding but with prefix attr
In some cases, the attribute does not work with property binding so need attribute binding.
Eg. Colspan

Event binding :
Event are binded from view to component.
Events are the events in javascript.
Eg. Onclick

Onblur
Onfocus
Onmouseover

It is one way binding
Syntax:
<button (click)=" function()" >
Click me
</button>

Use event without on
Define function in .ts file

Pipes

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Pipes are used to transform the data.
There are different types of pipes:
Built - in pipes
Paramterized pipes
Chaining pipes

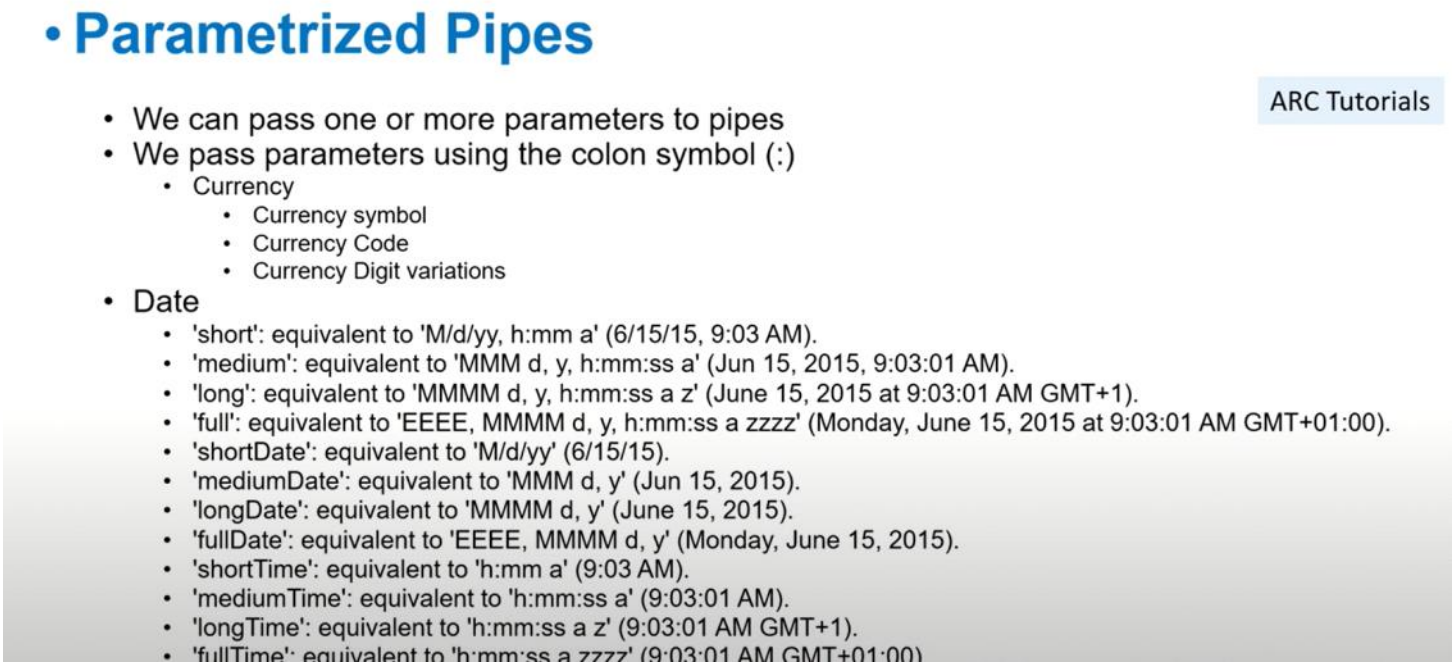
Built- in pipes:
This can change the data and give output.

Syntax :
 {{ lowerCaseExample | lowercase }}
Define lowerCaseExample in .ts file
lowerCaseExample = " IAMHUMAN@GMAIL.COM"
It will lowercase the whole mail and through lowercase pipe.
Examples of pipes:

- Lowercase
  - For mails
- Uppercase
  - For airport codes
- Json
  - For debugging to see the json object.
- Date
  - Default mon dd yyyy
- Currency
  - In dollars float
- Percent
  - Rounded off with symbol %

We can use multiple pipes on elements in templates.

PARAMETERIZED PIPE:



CHAINING PIPE:

We can add multiple pipes on a single example.
Eg.

```
<div>  {{jsonex.mail | json | lowercase}} </div>
```

ROUTES

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ROUTES:
URL NAVIGATION
USED TO NAVIBATE BETWEEN DIFFERENT COMPONENT.
There is only one router module in one application.

Each component can have its own routes.

In app-routing module,
We can define routes in routes array:
Syntax:
=[
{
path : 'component_name',
component:
},
]
and import the component in imports

E.g.
:-

```
const routes: Routes = [
  {
    path :'users',
    component: UsersComponent
  }
];
```

If we go localhost:4200/users -> it will show users.component.html view

ROUTER-OUTLET:

Router-outlet *is a directive that's available from the router library where the router inserts the component that gets matched based on the current browser's URL.*

Router-outlet is a built-in directive.
App component should have at least one router-outlet.
Router outlet will match the matching routes for the components take the input from the view and put it in the page.

We can have multiple router outlets in application

If we access like :
Localhost:4200/users
Then it will check routes
Then see path :'users'
Ok then it matches with component that is userscomponent.
Put the view of users.component.view in index.html

MULTIPLE-ROUTER OUTLET (NOT RECOMMENDED TO USE)
<router-outlet></router-oulet>
<router-outlet name = "route1></router-oulet>

{
path: 'add'
Component: AddloansComponent
Outlet:'route1'
}
To access on web-page:
http://localhost:4200/loans(route1:add)

IMP VIDEO:
Angular 10 Tutorial #41 - Configure Component Routes in Angular | Angular 10 Tutorial For Beginners

PARAMETERIZED-ROUTES

We need to configure the route and mention that the value is dynamic.
{path : 'product/:id' ,
component :'componentName'}

We can send dynamic data or parameter.

Some IMP BLOGS related to routing:

https://dev.to/raj_sekhar/angular-route-pathmatch-full-when-to-not-use-4mb1

ROUTER-LINKS

When applied to the element it make that element a link that initiates navigation to a route.

Syntax:
<a [routerLink] = "['/edit']" > some link

Example:

```
<table>
        <th>Task_ID</th>
        <th>Task</th>
        <th>Task-Budget</th>
        <th>Task-Expenses</th>
        <tr *ngFor="let tasks of events">
            <td>{{ tasks.id}}</td>
            <td>{{ tasks.task_name}}</td>
            <td>{{ tasks.task_budget}}</td>
            <td>{{ tasks.expenses}}</td>
            <td><a [routerLink]="['edit' , tasks.id]">Edit</a> | <a
[routerLink]="['/delete' , tasks.id]">Delete</a></td>

        </tr>
    </table>
```

CRUD-OPERATION

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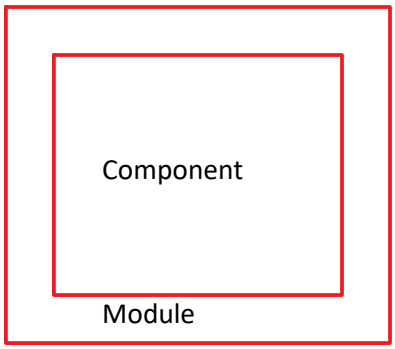
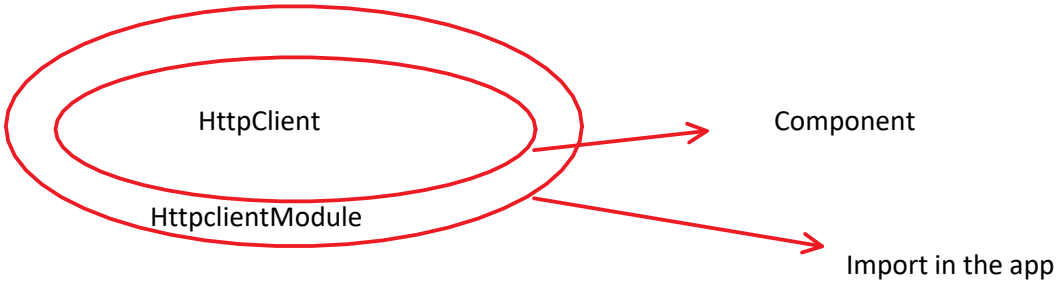
Modules & Components :



HttpclientModule and Httpclient



Routing module defines the routes array that is gives path of the component.

You can call HttpClientModule as a "feature-bundle" that comes as a core part in Angular. In this "feature-bundle", you have many other small features like HttpClient (in Angular language, it's "service"), Interceptors etc.

From <https://stackoverflow.com/questions/48124136/angular-4-difference-between-httpclient-and-httpclientmodule>

ROUTE-guards

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Route outlet loads the page/component for u when u click the option/icon/component.

the root component's html which is app-component.html. The reason being, It is the first page/component to get loaded in the application.

From <https://medium.com/@limitlesscoders/routing-in-angular-applications-f1a8b431a5d8>