1. **Introduction**

We can develop reactive single page applications by using angular.

1. **What is angular?**

Angular is a javascript framework which allows you to create reactive single page applications.

1. **What is SPA?**

The application which has only one HTML file and bunch of javascript code we got from the server and every change is render in browser.

The javascript changes the DOM, changes the content in browser, by changing the HTML code during run time.

1. **Difference between angular vs angular 2 vs angular 8**

Anjualr.js is the first version. It is also referred as angular1 or angular

Angular 2 is completely re –written. And it is different from angular.js

For every six months a new release of angular is happening. Now we are using angular 8. It has advanced features.

1. **How to set up angular project?**

We need angular command line interface (CLI) to create angular projects. So for that,

First install node.js

Then open command prompt. Type following command:

npm install –g @angular/cli@latest

1. **How to create app?**

Go to your required folder. From that open command prompt and type following command:

ng new firstapp

Now it will ask you to add routing or not, press y or n

Now it will ask style sheet format, choose CSS

1. **How to run angular application?**

Now go to application folder. Open command from that folder. Type following command:

ng serve

This application defaults runs on <http://localhost:4200> address.

1. **How to edit the angular firstapp?**

To edit a code we need code editor or an IDE. Ex. Visual studio Code.

Add your project folder to visual studio.

We have to write code in only src/app folder only.

**10. What is typescript?**

It is a super set of javascript. It is strongly typed. This type script does not load in bowser. It is compiled to javascript.

**11. How to integrate bootstrap with angular project in visual studio?**

Open terminal in vs code and type following command

Npm install --save bootstrap@3. Then a bootstrap folder is created in node modules folder.

Now go to angular.json folder in vs code and search for styles, now add bootstrap folder relative path there.

12. How to check whether bootstrap is successfully added or not?

Go to <http://localhost:4200> and go to inspect element and open styles tag there u will find bootstrap with version.

**13. What is module in angular?**

Group of components, services, directives, pipes and interceptors that are related and these modules can be combined with other **modules** to create an application.

**15. How an angular app gets loaded and started?**

When an angular app gets served, couple of css and javascript files imported to the **index.html** by the Angular CLI. One of the important file is imported to index.html file is **main.ts** file.

In **main.ts** file**,** we bootstrap the root module **app.module.ts** file.

In **app.module.ts** file, we bootstrap the root component **app.component.ts** file.

In **app.component.ts** file, **root-selector, template and style** are configured.

In **index.html file**, the **root-selector** is configured. So that angular framework will loads the app.component.ts element dynamically into index.html.

index.html >>main.ts >> app.module.ts >> app.component.ts >> index.html >>

app.component.html

design time index.html file

|  |
| --- |
| <!doctype html>  <html lang="en">  <head>    <meta charset="utf-8">    <title>Hrms</title>    <base href="/">    <meta name="viewport" content="width=device-width, initial-scale=1">    <link rel="icon" type="image/x-icon" href="favicon.ico">  </head>  <body>    <app-root></app-root>  </body>  </html> |

Runtime index.html file

|  |
| --- |
| <html lang="en">    <head>      <meta charset="utf-8" />      <title>Hrms</title>      <base href="/" />      <meta name="viewport" content="width=device-width, initial-scale=1" />      <link rel="icon" type="image/x-icon" href="favicon.ico" />      <link rel="stylesheet" href="styles.css" />    </head>    <body>      <app-root \_nghost-yov-c16="" ng-version="13.3.2"        ><h1 \_ngcontent-yov-c16="">This is app.component.html</h1></app-root      >      <script src="runtime.js" type="module"></script>      <script src="polyfills.js" type="module"></script>      <script src="styles.js" defer=""></script>      <script src="vendor.js" type="module"></script>  **<script src="main.js" type="module"></script>**    </body>  </html> |

main.ts file

|  |
| --- |
| import { enableProdMode } from '@angular/core';  import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';  import { AppModule } from './app/app.module';  import { environment } from './environments/environment';  if (environment.production) {    enableProdMode();  }  **platformBrowserDynamic().bootstrapModule(AppModule)**    .catch(err => console.error(err)); |

app.module.ts

|  |
| --- |
| import { NgModule } from '@angular/core';  import { BrowserModule } from '@angular/platform-browser';  import { AppRoutingModule } from './app-routing.module';  import { AppComponent } from './app.component';  @NgModule({    declarations: [      AppComponent    ],    imports: [      BrowserModule,      AppRoutingModule    ],    providers: [],    bootstrap: [AppComponent]  })  export class AppModule { } |

app.component.ts

|  |
| --- |
| import { Component } from '@angular/core';  @Component({    selector: 'app-root',    templateUrl: './app.component.html',    styleUrls: ['./app.component.css']  })  export class AppComponent {    title = 'hrms';  } |

**15. Why components are important?**

The components are important building block of angular. These are used to split one page into small components. Every component has selector, template, style and other properties.

**16. How to create a new component?**

Type following command in terminal in vs code

Ng g c componentName

# 17. What is the role of app module and component declaration?

Modules basically bundle different pieces, for example components of app, into packages.

Creating a component is not sufficient we have declare in ngmodule in appmodule.ts as angular don’t know about these components.

# 18. How to use custom components?

By using selector after adding them (COMONENTS) to app module

# 19. How to create new components with CLI and nested components?

Open terminal and enter “ng g c componentname” press enter.

Nested components means components within components. If we want generate component in another component then follow below command

Ng g c oldcomponent or folder/newcomponentname

# 20. How to work with component templates?

Here template means HTML code. We can use internal or external templates. Both internal and external templates are represented in templateUrl property.

# 21. How to work with styles?

We can use internal or external styles. Both internal and external style sheets are represented in stylesUrl property. Here any no. of external style sheets can be added.

# 22. What is component selector?

The **selector** attribute allows us to define how **Angular** is identified when the component is **used** in HTML. It tell **Angular** to create and insert an instance of this component where it finds the **selector** tag in the Parent HTML file in your **angular** app.

# 24. What is data binding?

Communication between typescript code (business logic) and template.

# 25. What is string interpolation?

Data transfer from type script to html in one direction by this technique. {{}}

# 26. What is Property binding?

**Property binding** allows Angular to directly access the elements property in the html. When you say [value] = "hello" Angular is grabbing the value property of the element, and setting your variable as that property's value.

# 27. Difference between property binding and event binding?

If you want to output something in your template, print some text, use string interpolation.

If you want to change some property, be that of html element or of directive, or a component, and then use property binding.

# 28. What is event binding?

A click, hover, or a keyboard action are all **events** that you can use to call component logic within **Angular**. That's what **Angular event binding** is all about. It's one-way data **binding**, in that it sends information from the view to the component class.

Example: (onClick)=”submit()”;

# 30. How to pass data with event binding?

We will create onClick or any even action and for that, method will be passed. And that method is implemented where it is needed. When the user click on button that method will be called and the implementation logic will be executed.

# 32. What is two way data binding?

The angular is not only watching your variables for changes. It also keeps track of changes that are made by the user and updates the variables accordingly. The transfer between model (typescript) and view (html) takes place at a time by the decorator ngModel

example: [(ngModel)] = ”firstName”;

# 33. Combining all forms of data binding

Even binding to listen to the click

String interpolation to output the data

Property binding to enable the button in the first place after some duration

Two way binding, to fetch our input data.

# 35. What are the directives?

Directive are the instructions in the DOM. These are add extra behavior to html.

Directives are used to manipulate the DOM. By using Angular directives, you can change the appearance, behavior or a layout of a DOM element. It also helps you to extend HTML.

There 3 types of directives are available.

Component Directives

Structural Directives

Attribute Directives

<https://www.javatpoint.com/angular-8-directives>

# 36. What is ngIf directive?

It works like if statement. It is a structural directive. The **ngif** element is used to add elements to the HTML code if it evaluates to true, else it will not add the elements to the HTML code. It changes DOM dynamically.

# 37. How to enhance ngIf with else?

We will be using <ng-template #else Block>

If the ngIf condition fails then else block will be executed, hence program will not terminated.

# 38. What is ngStyle directive?

It is an attribute directive. The ngStyle directive facilitates you to modify the style of an HTML element using the expression. You can also use ngStyle directive to dynamically change the style of your HTML element.

Example: p [ngStyle] = "{'background-color':red;}">

# 39. What is ngClass directive?

The ngClass directive is used to add or remove CSS classes to an HTML element dynamically.

[ngClass]="{'text-success': true}". Here if the condition is true then it adds text-success style to HTML.

# 40. What is ngFor?

It is a structural directive. The \*ngFor directive is used to repeat a portion of HTML template once per each item from an iterable list (Collection).

Example: \*ngFor= let employee of employees

# 41. What are angular forms?

# Template Driven

# Reactive Forms

Template Driven

We will create a form in template

**78 lifecycle hooks**

**ngOnChanges**() Called after a bound input property changes.

**ngOnit**() Called once the component is initialized.

**ngDoCheck**() Called during every change detection.

ngAfterContentInit Called after content (ng-content) has projected into.

ngafterContentChecked Called every time the projected content has been checked.

ngAfterViewInit Called after component’s view and child views has been initialized.

ngAfterViewChecked Called every time the view and child view has been checked.

**ngOnDestroy**() Called once the component is about to be destroyed.

# 