Angular

Tahaluf Training Center 2021

Chapter 1

1. What is Angular?
2. Why Angular?
3. Difference between SSR & SPA
4. Create project using Angular
5. Flow of Execution of Angular App
6. Generate a new component
7. Declare variable and use it in HTML

What is Angular?

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Angular is a development platform built on TypeScript.

Open-source JavaScript framework for building web applications and apps in JavaScript, HTML, and Typescript.

It is used to develop single-page applications (SPA).

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Why Angular?

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- Add interactivity to the website.
- It provides scalability and maintainability.
- It is designed to support web, desktop, and mobile platforms.
- The angular code is organized with a high restriction, which reduces the error rate.

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Angular Versions:

- Angular JS 1.X
- Angular 2
- Angular 3
- Angular 4
- Angular 5
- Angular 6
- Angular 7
- Angular 8
- Angular 9

Angular Versions:

- Angular 10
- Angular 11
- Angular 12
- Angular 13

As you have seen above Angular is constantly growing with better features and faster performance.

Chapter 1

Server-Side Rendering

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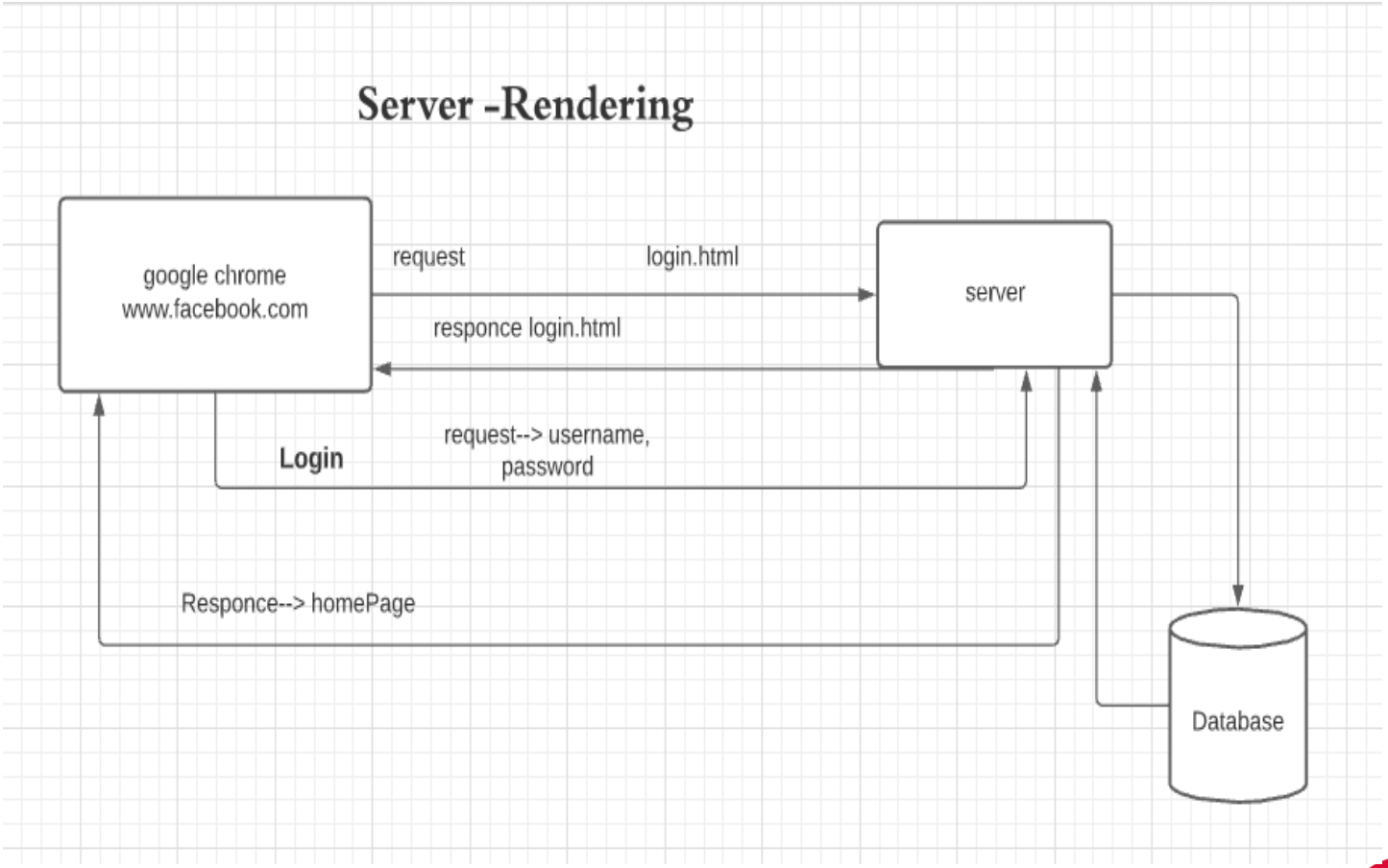
Server-Side Rendering (SSR), is the ability of an application to contribute by displaying the webpage on the server instead of rendering it in the browser.

Server-side sends a fully rendered page to the client.

Server-Side Rendering



Single Page Application

Traditionally, applications were Multi-Page Application (MPA) where with every click a new page would be loaded from the server. This was not only time consuming but also increased the server load and made the website slower.

Single Page Application

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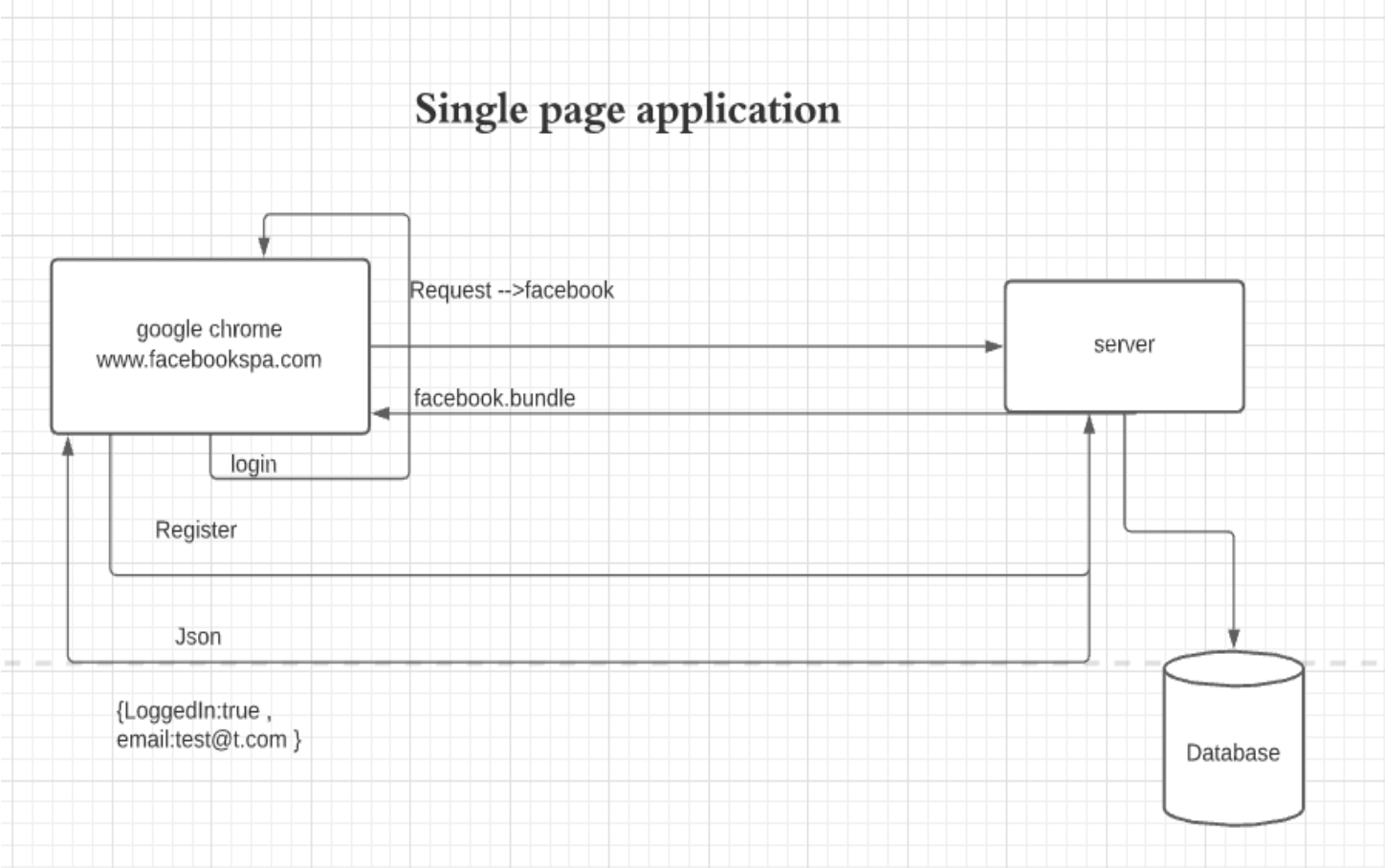
Single Page Applications are web applications that load a single HTML page and only a part of the page instead of the entire page gets updated with every click of the mouse. The page does not reload or transfer control to another page during the process. This ensures high performance and loading pages faster.

For example :

Facebook, Google Maps, Gmail, Twitter, Google Drive, or even GitHub.

Single Page Application



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Create project using angular

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First, install the angular package:
npm i -g @angular/cli

To create the angular project, use this command:
ng new project_name

To run the project:
ng serve -o

By default angular project run in port:
4200

Create project using angular

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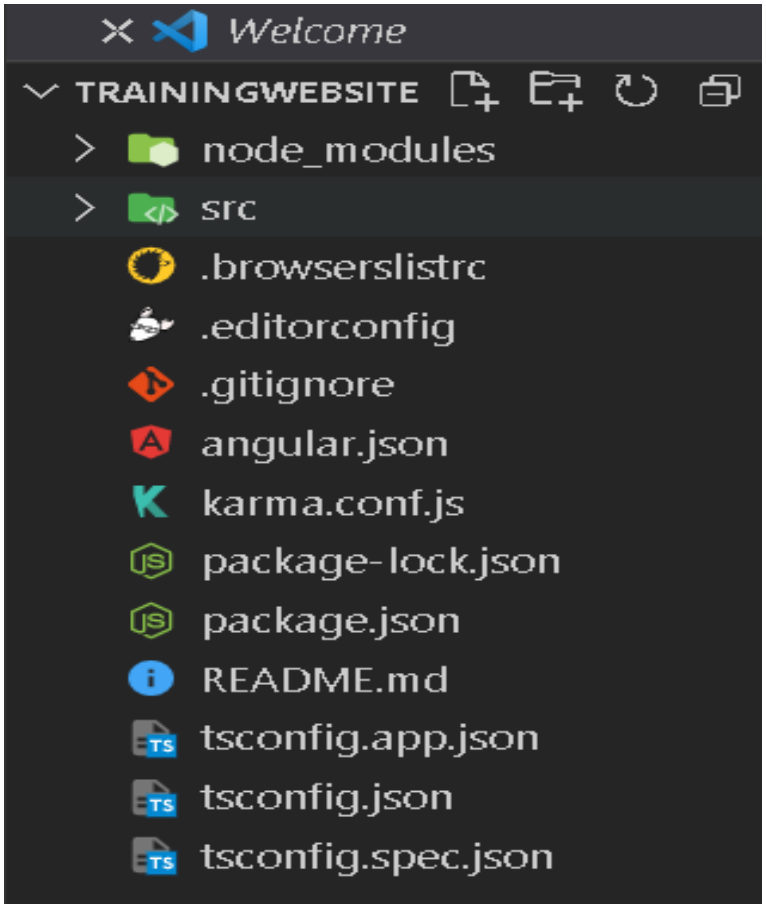
ng new TrainingWebSite

```
PS C:\Users\User\OneDrive\Desktop> cd .\Training\
PS C:\Users\User\OneDrive\Desktop\Training> ng new TrainingWebSite
? Would you like to add Angular routing? Yes
? Which stylesheet format would you like to use? CSS
```

Project Files



Project Files

node_modules: You can think of the node_modules folder as a cache for the external modules that your project depends upon. When you NPM install them, they are downloaded from the web and copied into the node_modules folder.

src: This folder is where we will work on the project.
Inside src, the app folder was created during the project setup and holds all the required files for the project.

Project Files

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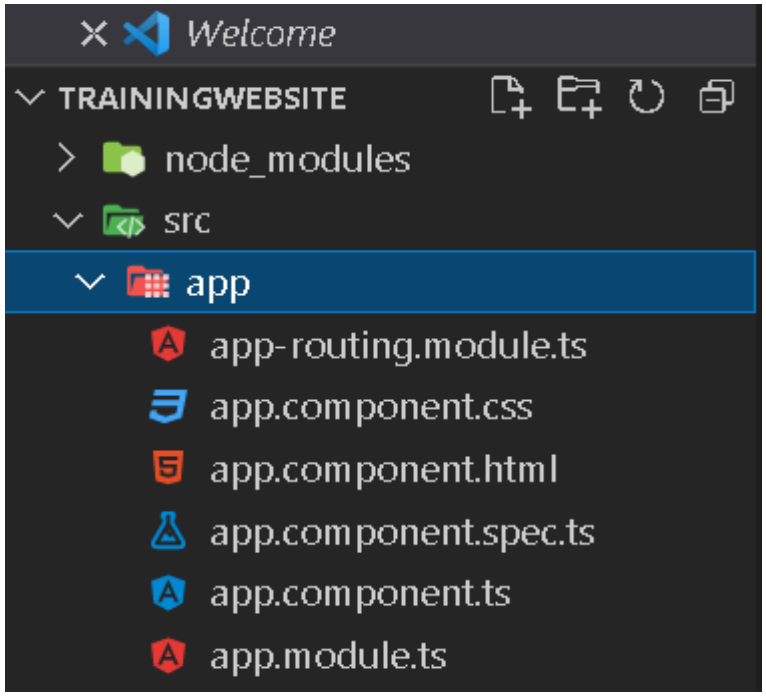
assets: Contains the resources such as the images, videos and audios.

index.html: The first file will be loaded in the angular project.

styles.css: The CSS styling applies to the whole project.

Project Files

By default angular project contains one component called app and which include:



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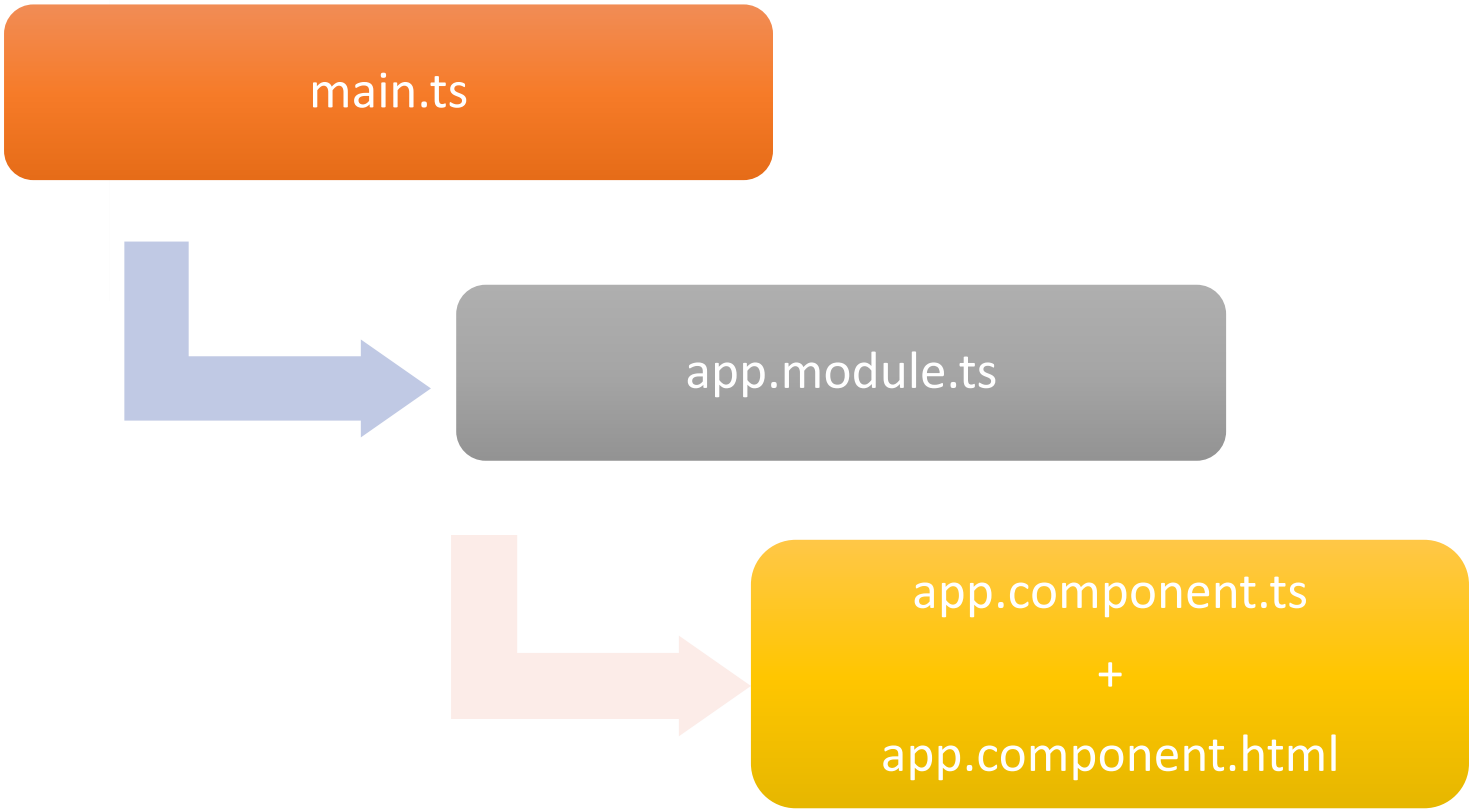
Flow of Execution of Angular App



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Generate a new component

To add new component , use this command:

ng generate component component_name

Or:

ng g c component_name

To skip the spec file

ng g c --skip-tests=true component_name

By default this generate four files:

app.component.css
app.component.html
app.component.spec.ts
app.component.ts

Generate a new component

Example: (Generate a navbar component)

```
PS C:\Users\User\OneDrive\Desktop\Training\TrainingWebSite> ng g c navbar
CREATE src/app/navbar/navbar.component.html (21 bytes)
CREATE src/app/navbar/navbar.component.spec.ts (626 bytes)
CREATE src/app/navbar/navbar.component.ts (275 bytes)
CREATE src/app/navbar/navbar.component.css (0 bytes)
UPDATE src/app/app.module.ts (475 bytes)
PS C:\Users\User\OneDrive\Desktop\Training\TrainingWebSite>
```

Example: (navbar Html-file)

```
<nav>
    <div>
        <span>Angular App</span>
        <span>Home</span>
        <span>About</span>
    </div>
    <div>
        <span>Login</span>
    </div>
</nav>
```

Example: (navbar CSS-file)

```
nav {
    display: flex;
    flex-direction: row;
    justify-content: space-between;
    background-color: #2a6887cf;
    padding: 20px;
    color: white;
    font-size: 20px;
    font-weight: bold;
}
span {
    margin-left:20px;
    cursor: pointer;
}
```

Generate a new component

To include navbar component in app component:

In app.component.html

```
<app-navbar></app-navbar>
```

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Declare a variable and use it in HTML

To call variable from TypeScript file, use **{{variable-name}}.**

Example:

In app.component .html

```
<h1>{{ title }}</h1>
```

In app.component .ts

```
constructor(){
    setTimeout(() => {
        this.title = 'Updated firstProject';
    }, 3000)
}
```

Call the component from another component

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```
1   <app-navbar></app-navbar>
2   <h1>Current name is : {{name}}</h1>
3   <h1>Current email is : {{email}}</h1>
4   <h1>Current salary is : {{salary}}</h1>
5   <h1>Current annual salary is : {{salary *12}}</h1>
6   <!--
7       your name is: ''
8       your email is :''
9       monthly salary is : ''
10      annual salary: monthly salary *12
11  -->
12  <app-footer></app-footer>
```

Call the component from another component


```
export class AppComponent {
    title: string= = 'firstProject';
    name: string='';
    email: string='';
    salary: number=0;

}
```

Call the component from another component

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You can do some operation on the variable like this :

```
1   <app-navbar></app-navbar>
2   <h1>Current name is : {{name}}</h1>
3   <h1>Current email is : {{email}}</h1>
4   <h1>Current salary is : {{salary}}</h1>
5   <h1>Current annual salary is : {{salary *12}}</h1>
6   <!--
7       your name is: ''
8       your email is :''
9       monthly salary is : ''
10      annual salary: monthly salary *12
11  -->
12  <app-footer></app-footer>
```

Exercise:

Generate a new component called footer and write the copyright statement on the HTML page and do the style for it.

Exercise Solution:

```
PS C:\Users\User\OneDrive\Desktop\Training\TrainingWebSite> ng g c footer
CREATE src/app/footer/footer.component.html (21 bytes)
CREATE src/app/footer/footer.component.spec.ts (626 bytes)
CREATE src/app/footer/footer.component.ts (275 bytes)
CREATE src/app/footer/footer.component.css (0 bytes)
UPDATE src/app/app.module.ts (557 bytes)
PS C:\Users\User\OneDrive\Desktop\Training\TrainingWebSite>
```

Exercise Solution:

HTML file:

```
<p> All right reserved &copy {{currentYear}} </p>
```

CSS file:

```
p {background-color: lightblue;}
```

Exercise Solution:

TypeScript file:

```
export class FooterComponent implements OnInit {
    currentYear: Date | any = undefined;

    constructor()
    {
        //2021
        this.currentYear = new Date().getFullYear();
    }
}
```