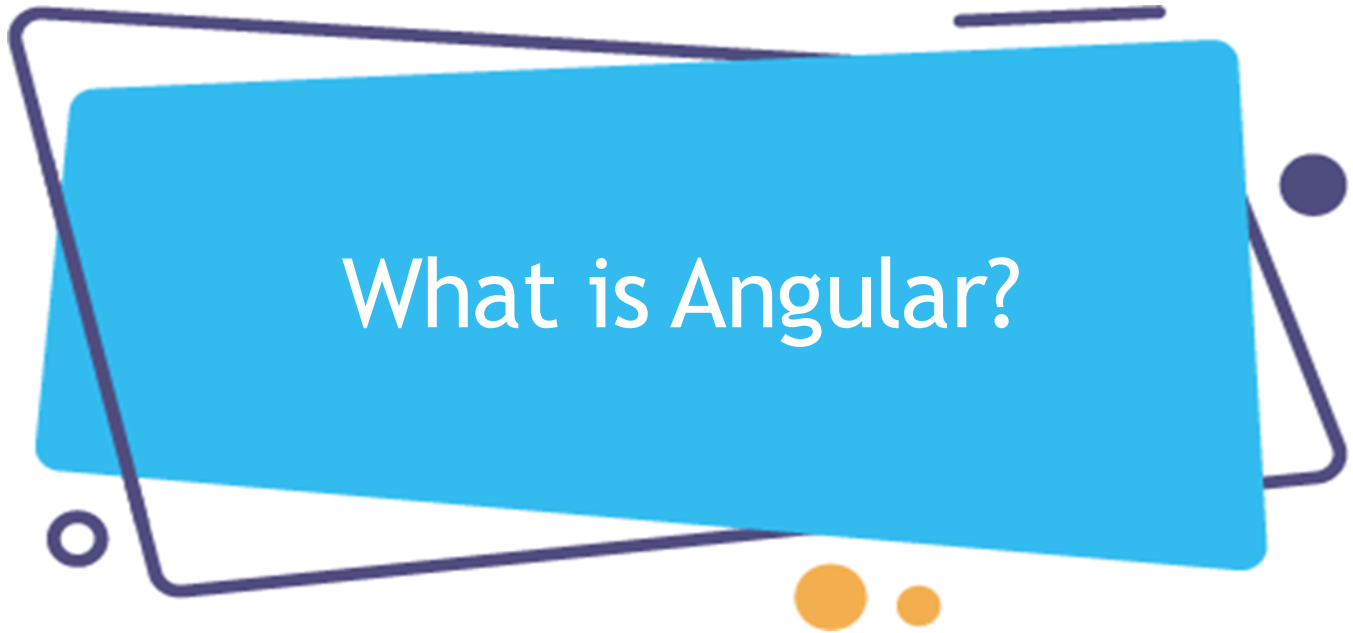
Angular TS

Education and Training Solutions 2023

1. What is Angular?
2. Advantages of Angular.
3. Angular Versions.
4. Single-Page Application.
5. Create Angular Project
6. The Flow of Execution of Angular App.
7. Component in Angular.
8. Generate a new component.



What is Angular?

Overview of Angular

Angular is a development platform for building Single Page Applications.

It uses TypeScript & HTML to build Apps.

The Angular itself is written using TypeScript.

It is a front-end framework comes with every feature you need to build a complex web or mobile application.

Overview of Angular

It comes with features like Component, Directives, Forms, Pipes, HTTP Services, Dependency Injection, etc.

Angular website:
https://angular.io/

Advantages of Angular

Advantages of Angular

1. Comprehensive:

The angular framework is a full-featured framework that provides out-of-the-box solutions for server communication, routing, and more.

2. Browser Compatibility:

Angular is cross-platform and compatible with multiple browsers.

3. Testing:

Testing is a first-class tool, and Angular was built to be testable from the beginning.

Advantages of Angular

4. Custom Components:

Angular allows users to build their own components that can pack functionality along with rendering logic into reusable pieces.

5. Data Binding:

Angular allows users to effortlessly move data from JavaScript/TypeScript code to the view and react to user events without having to write any code manually.

6. Dependency Injection:

Allows users to write modular services and inject them wherever they are needed.

Angular Versions

Angular Versions

The early version of Angular was named AngularJS.
Then later it was renamed just Angular.

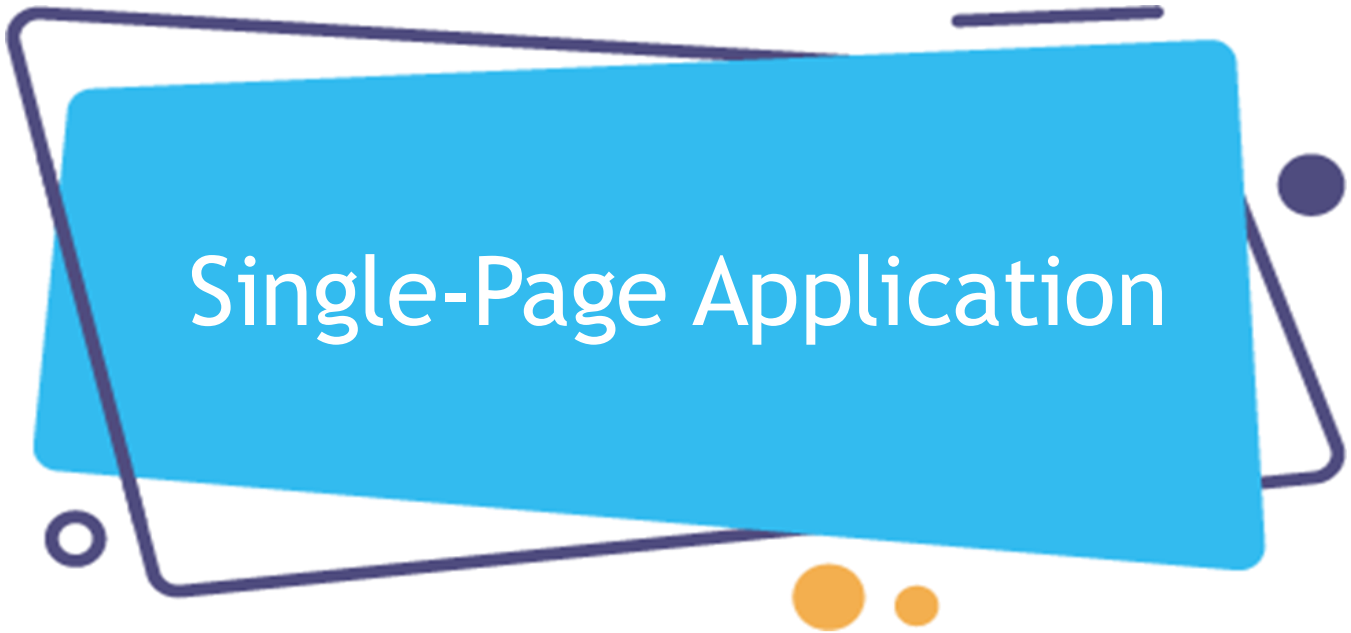
Angular Versions:

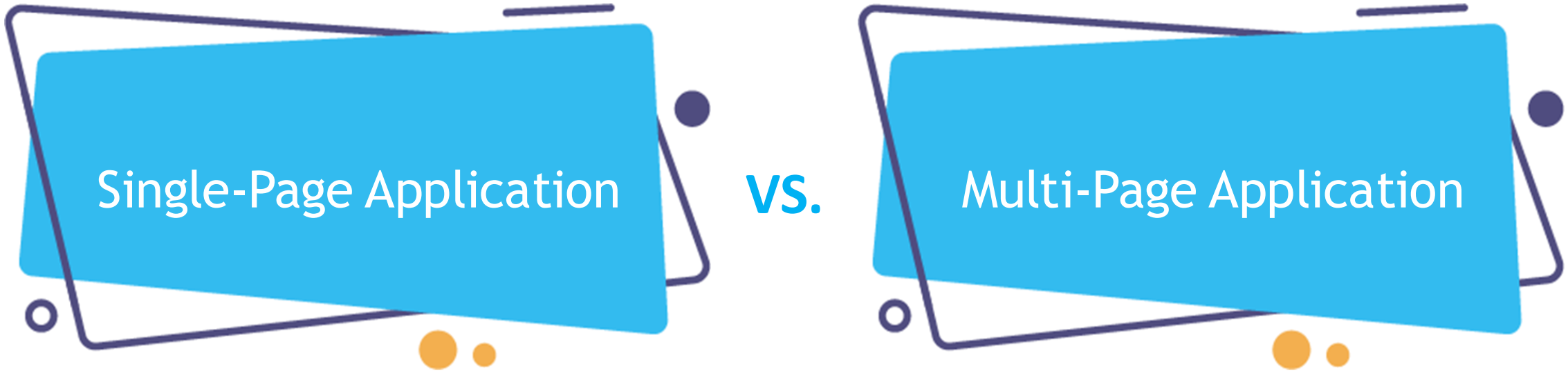
- AngularJS 1. X
- Angular 2
- Angular 3
- Angular 4
- Angular 5
- Angular 6
- Angular 7

Angular Versions:

- Angular 8
- Angular 9
- Angular 10
- Angular 11
- Angular 12
- Angular 13
- Angular 14
- Angular 15
- Angular 16

Angular is constantly growing with better features and faster performance.





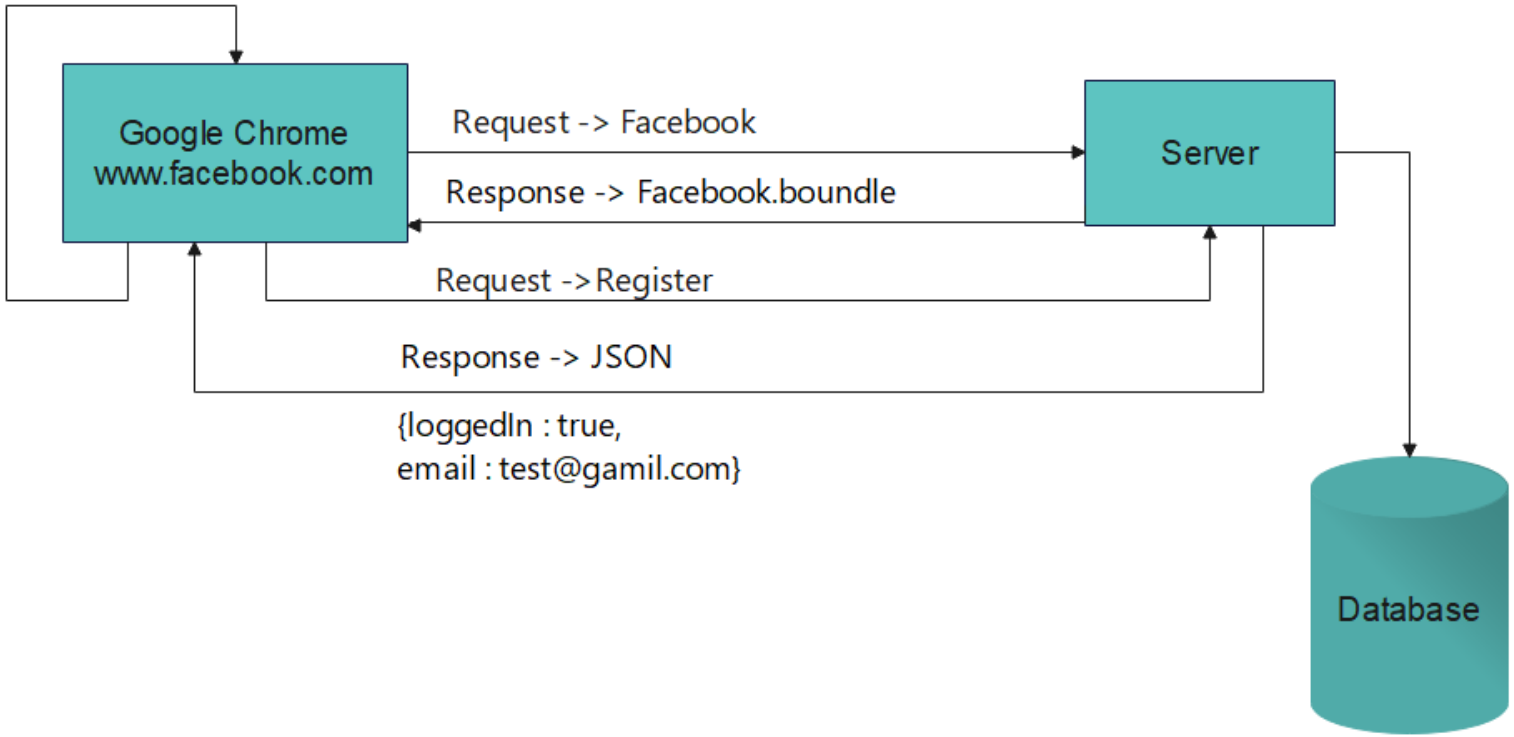
Multi-Page Applications

Multi-Page Applications (MPA) were traditionally used, where every time you clicked on a link, a new page was loaded from the server. Additionally, it was time-consuming and increased server load, which slowed the website.

Single Page Applications

The concept of a single page application refers to a web application that loads a single HTML page and only a part of the page gets updated on each mouse click rather than the entire page. There is no reloading of the page or transfer of control to another page during the process. The result is high performance and faster loading pages.

Single Page Application




Facebook


Gmail


Google Maps


Twitter


Google Drive


Git Hub


PayPal

Angular CLI

Angular CLI

Angular CLI is a command-line tool for developing, scaffolding and maintaining Angular applications.

Angular CLI

To install the Angular CLI - The CLI tool for Angular:
→ npm i -g @angular/cli → 17
→npm i –g @angular/cli@16.0.1

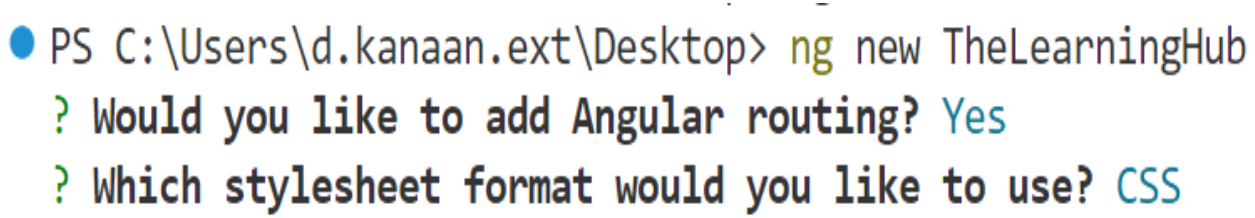
Read more about the angular package:
https://www.npmjs.com/package/@angular/cli

Create Angular Project

Create Angular Project

After installing the angular package (@angular/cli), use this command to create the Angular project:

→ ng new project_name



Create Angular Project

To run the project, use this command:
→ ng serve -o

```
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> ng serve -o
? Would you like to share pseudonymous usage data about this project with the Angular Team
at Google under Google's Privacy Policy at https://policies.google.com/privacy. For more
details and how to change this setting, see https://angular.io/analytics. Yes
```

Create Angular Project

To know what the Angular version , use this command :

→ ng version

```
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> ng version
```

```
Angular CLI: 16.0.4
Node: 18.16.0
Package Manager: npm 9.5.1
OS: win32 x64

Angular: 16.0.4
... animations, cli, common, compiler, compiler-cli, core, forms
... platform-browser, platform-browser-dynamic, router

Package                         Version
---------------------------------------------------------
@angular-devkit/architect       0.1600.4
@angular-devkit/build-angular   16.0.4
```

Exercise

Search about What happens when we do NG serve?

Note: By default, angular project run on port **4200.**

```
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> ng serve -o
✓ Browser application bundle generation complete.

Initial Chunk Files   | Names         |  Raw Size
vendor.js             | vendor        |   2.26 MB |
polyfills.js          | polyfills     | 328.94 kB |
styles.css, styles.js | styles        | 226.38 kB |
main.js               | main          |  48.12 kB |
runtime.js            | runtime       |   6.53 kB |

                      | Initial Total |   2.86 MB

Build at: 2023-06-05T13:05:58.878Z - Hash: 5339c3b817c18923 - Time: 7629ms

** Angular Live Development Server is listening on localhost:4200, open your browser on
 http://localhost:4200/ **


√ Compiled successfully.
```

Create Angular Project

We will create an LMS website (TheLearningHub) during this course, to create the angular project for our demo, use this command:
→ ng new TheLearningHub

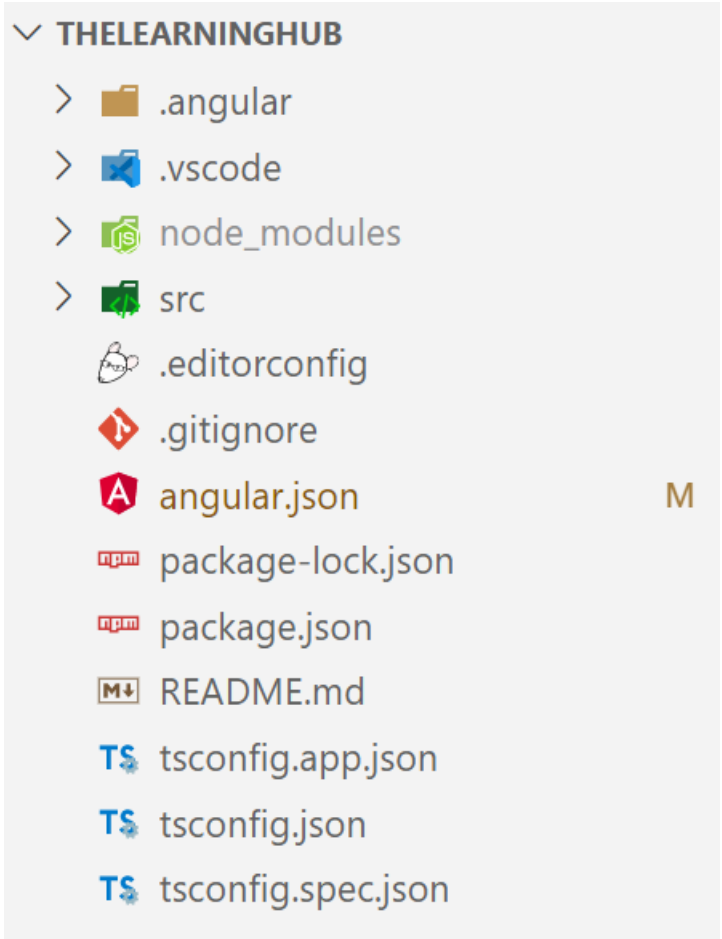
```
PS C:\Users\d.kanaan.ext\Desktop> cd .\TheLearningHub\
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub>
```

Create Angular Project

Go to The Learning Hub project using the cd command.

```
PS C:\Users\d.kanaan.ext\Desktop> cd .\TheLearningHub
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> code .
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub>
```

TheLearningHub project files:



Angular project files

node_modules: You can think of the node_modules folder as a cache for the external modules that your project depends upon. NPM installs these modules with the NPM service, which downloads them from the web and copies them into the node_modules folder.

src: The project will be worked on in this folder.
Inside the src, the app folder was created during the project setup and holds all the required files for the project.

Angular project files

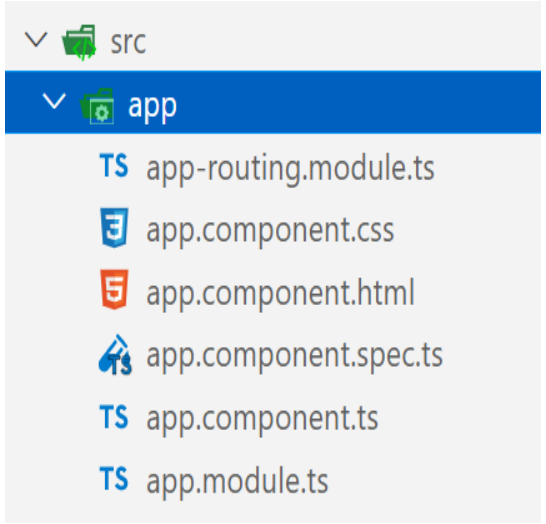
assets: It contains the resources such as images, videos, audio, and bootstrap files.

index.html: It is the first file that will be loaded in the angular project.

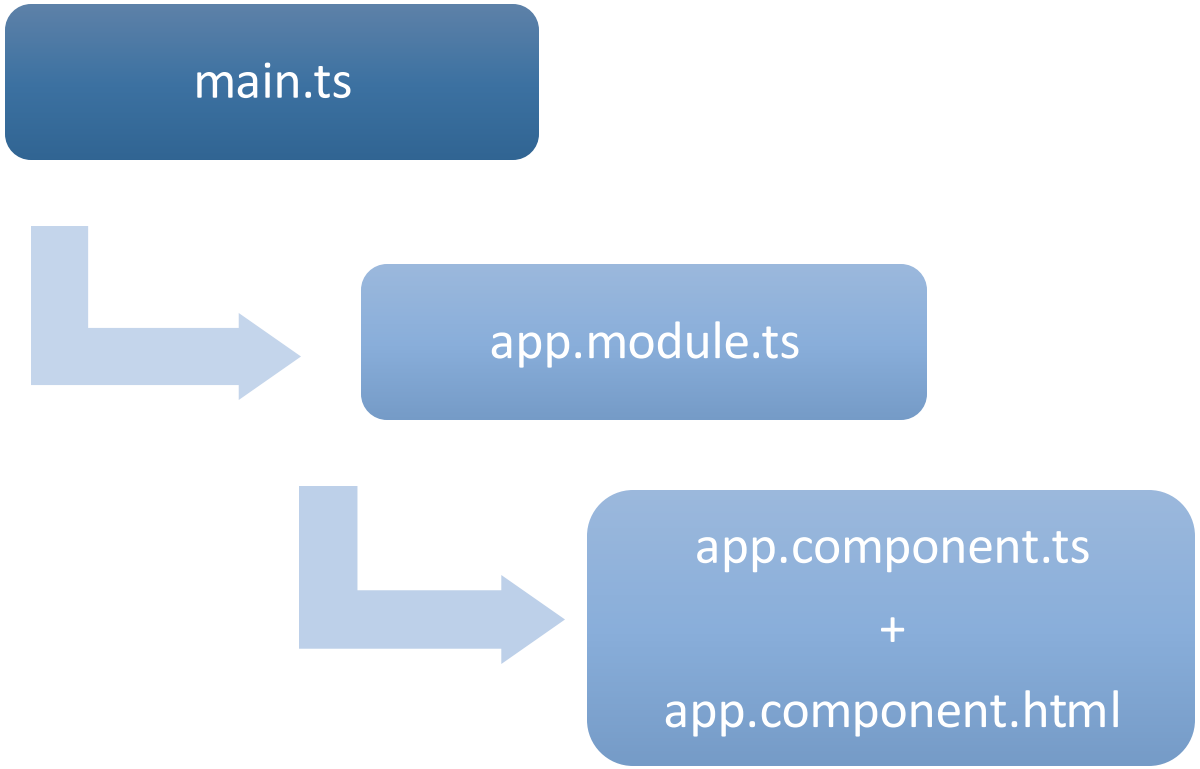
styles.css: It contains the CSS style that you would apply to the whole project.

Angular project files

By default, the angular project contains one component called the **app component.**



The Flow of Execution of Angular App.



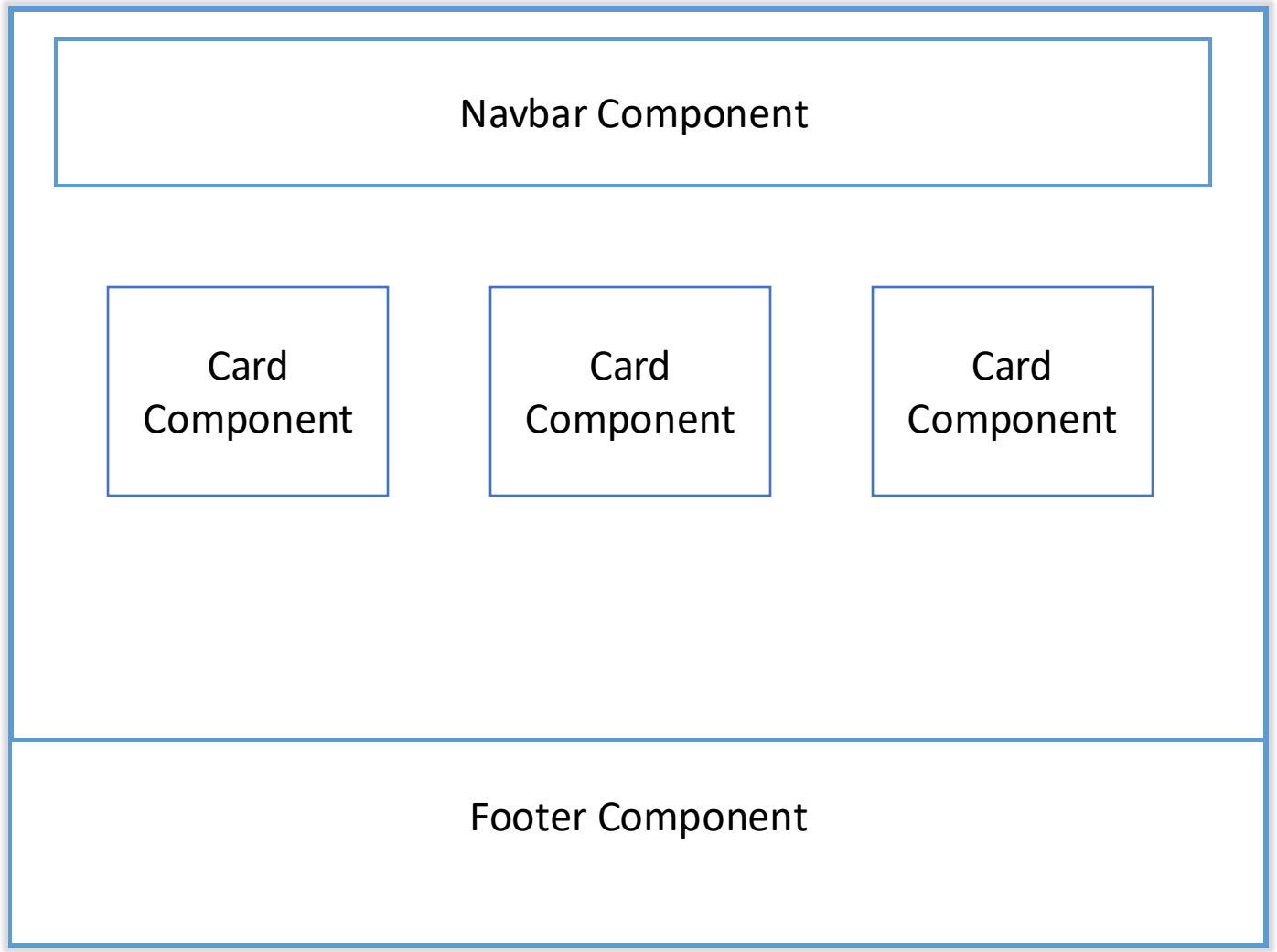
The Flow of Execution of Angular App.

Component in Angular

Overview of Angular Component

Components are the basic building blocks of an Angular application.

The Component defines the view and its data, which determine how the view appears and behaves.



Overview of Angular Component

Components in Angular are JavaScript/TypeScript classes that are defined using @component Decorators.

Using the Decorator, the component can display a view & get metadata about the class.

Data Binding is the process used by the component to pass data to the view. (We will discuss it in Chapter 02).

Generate a new component

How to generate a new component

To generate a new component, use this command:
→ ng generate component component_name
or
→ng g c component_name

By default, this generates four files:

- componentName.component.css
- componentName.component.html
- componentName.component.spec.ts
- componentName.component.ts

The spec files are unit tests for your source files.

To skip the spec file:
→ ng g c --skip-tests=true component_name

Example of generating a new component

```
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> ng g c navbar
CREATE src/app/navbar/navbar.component.html (21 bytes)
CREATE src/app/navbar/navbar.component.spec.ts (559 bytes)
CREATE src/app/navbar/navbar.component.ts (202 bytes)
CREATE src/app/navbar/navbar.component.css (0 bytes)
UPDATE src/app/app.module.ts (475 bytes)
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub>
```

Example of generating a new component

Use this link to add the navbar from our template:

https://www.smarteyeapps.com/free-stylish-school-website-template

The Output:

Home About Us Courses Contact Us Join Us

Exercise

Generate a new component called a footer and write the copyright statement with the current year ex. Copyright @2023 The Learning Hub and do the style for it.

Exercise Solution:

Generate a footer component

```
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub> ng g c footer
CREATE src/app/footer/footer.component.html (21 bytes)
CREATE src/app/footer/footer.component.spec.ts (559 bytes)
CREATE src/app/footer/footer.component.ts (202 bytes)
CREATE src/app/footer/footer.component.css (0 bytes)
UPDATE src/app/app.module.ts (557 bytes)
PS C:\Users\d.kanaan.ext\Desktop\TheLearningHub>
```

Exercise Solution:

Use this link to add the footer from our template:

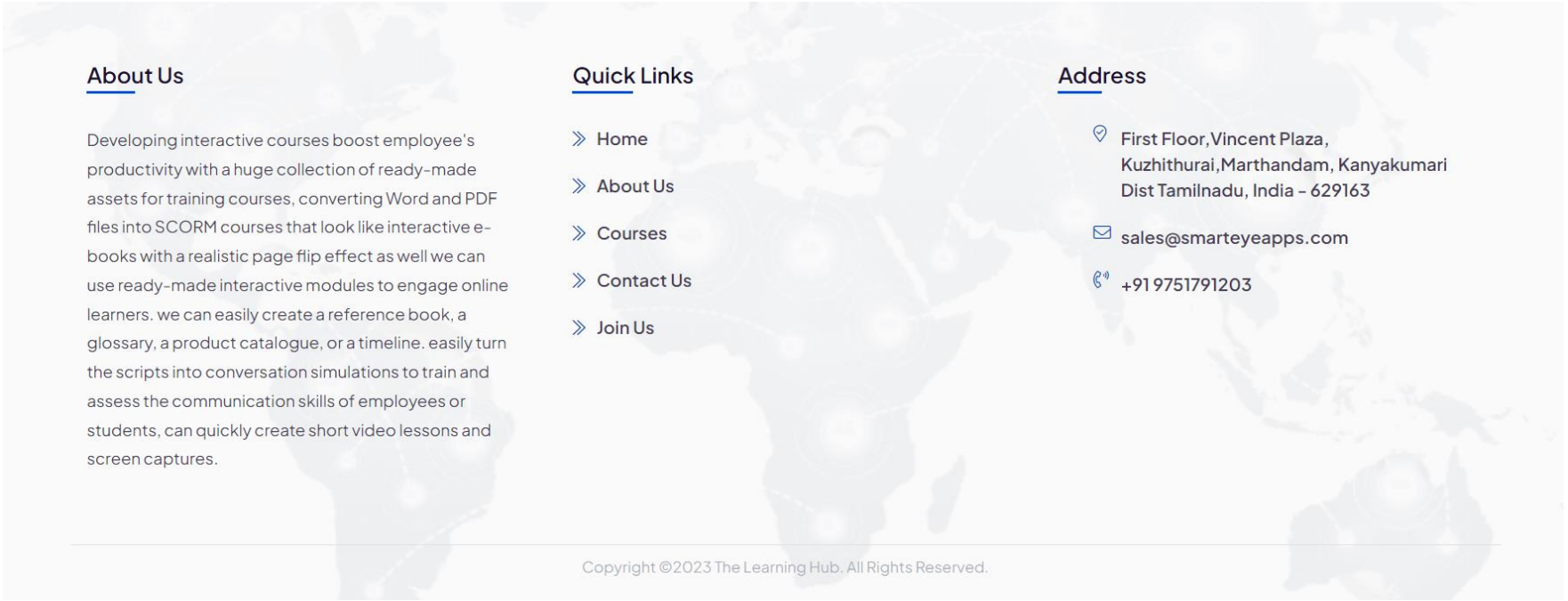
https://www.smarteyeapps.com/free-stylish-school-website-template

Exercise Solution:

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

    constructor()
    {
        //2022
            this.currentYear = new
    Date().getFullYear();
    }
}
```

The Output:



References

[1] Angular, "Angular," *Angular.io*, 2019. https://angular.io/

[2] "Complete Angular Tutorial For Beginners," *TekTutorialsHub*. https://www.tektutorialshub.com/angular-tutorial/

[3]"npm | build amazing things," *Npmjs.com*, 2019. https://www.npmjs.com/

[4]"Angular Tutorial for Beginners | Simplilearn," *Simplilearn.com*. https://www.simplilearn.com/tutorials/angular-tutorial (accessed Aug. 19, 2022).

The Learning Hub

Break

9:00 - 10:00