Introduction to Angular JS

Agenda

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Prerequisites

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HTML

Adds **Design/Structure** to the webpage

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What is HTML?

- Stands for HyperText Markup Language
- HyperText: Link between web pages.
- Markup Language: Text between tags which defines structure.
- It is a language to create web pages
- HTML defines how the web page looks and how to display content with the help of elements
- It forms or defines the structure of our Web Page
- Need to save your file with .html extension

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HTML Skeleton

```
<!DOCTYPE html>

<html>

<head>
        <title></title>
</head>

<body>

</body>

</html>
```

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CSS

Adds **Style/Colors** to the webpage

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What is CSS?

- Stands for Cascading Style Sheet.
- It’s a stylesheet language used for styling the HTML pages.
- It describes how the page will appear on the screen.
- It can control the layout of multiple webpages at all once.
- It adds styles like fonts, colors, layout to the webpages.
- CSS benefits accessibility primarily by separating document structure from presentation.
- CSS allows precise control over spacing, alignment and positioning.

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CSS Syntax

```
<!DOCTYPE html>
<html>
<head>
        <title></title>
        <style>
                selector1{
                        property1:value;
                        property2:value;
                        }
                selector2{
                        property1:value;
                        }
        </style>
</head>
<body>
</body>
</html>
```

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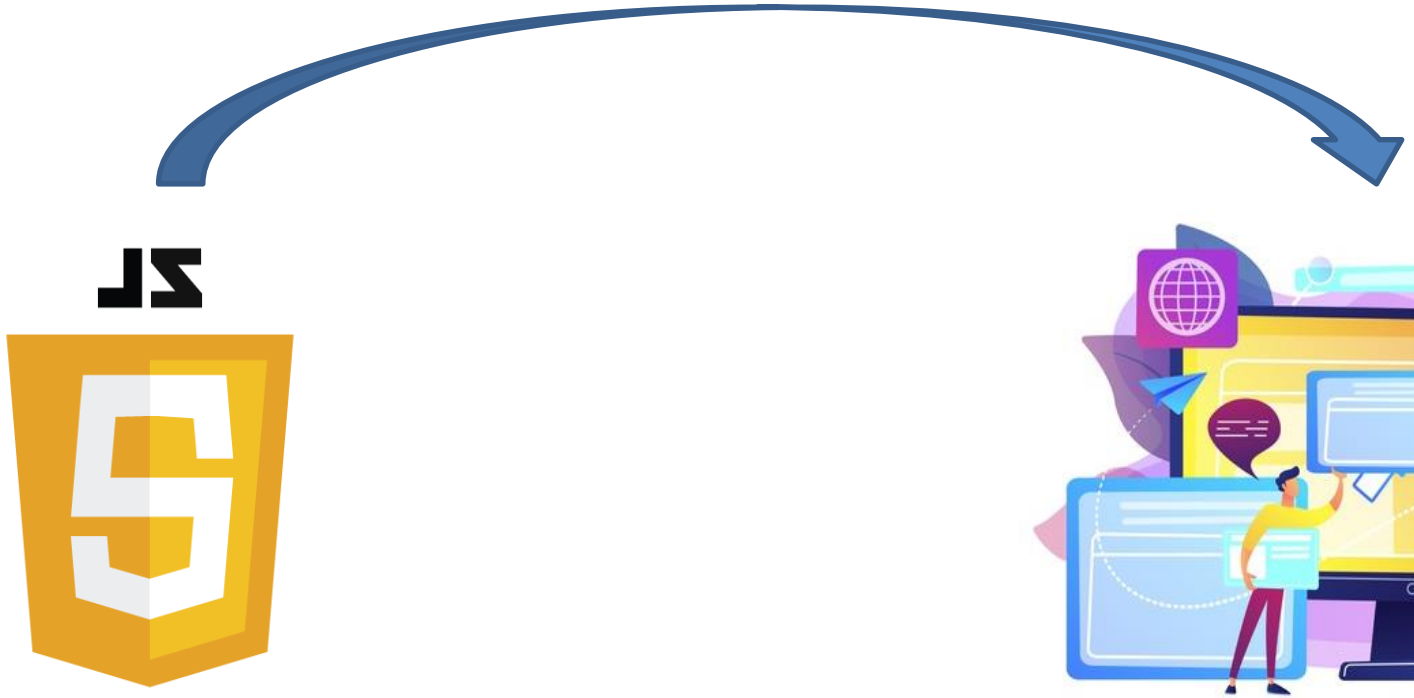

Adds **Behaviour/Interactivity** to the webpage

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What is JS?

- Stands for JavaScript.
- It’s a scripting language used for adding behavior to the webpages.
- It is a verb of the webpage that defines all the actions to be performed on a webpage.
- Its an object oriented programming language that uses JIT compiler.
- It is everywhere and all web browsers are installed with it.
- JS application ranges from web development, mobile development etc.
- JS is easy, simple and very compatible with HTML-CSS

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JS Syntax

```
<!DOCTYPE html>
<html>
<head>
        <title></title>
</head>
<body>
…..
…..
<script>
        document.write(“Hello World”);
        console.log(“Great Learning”);
</script>

</body>
</html>
```

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What are SPA's?

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What are SPAs?

Request for an item in search box

Request for Page X

Request for www.amazon.com

Homepage for www.amazon.com in response

Response for Page X

Request page with that item results

- Multiple page request sent to Server every time we click
- Client page getting loaded again and again.
- Hence, such pages are low on speed

- Single request sent to Server to load the whole application
- Multiple data Requests going to the server, not page.
- Client page doesn't get load again and again.

Request for Data

Request for www.gmail.com

Entire app package for www.gmail.com in response

Data in Response

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Introduction to AngularJS

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Why AngularJS?

Is JS ideal for SPAs? - "No, only JS is not ideal for SPAs. We have variety of Frameworks and Libraries instead which will make it possible for JS to create SPAs"

What is a Framework?

- Framework is the basic structure
- It helps in easy development
- It provides basic configuration

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What is AngularJS?

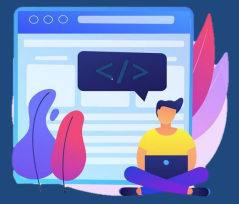
Angular JS is an open source JavaScript Framework

It is designed for web, desktop and mobile platforms

Maintained by Google

It is completely written in Typescript

It uses HTML's syntax to express your applications component clearly



Primarily aimed to develop Single Page Applications

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Features of AngularJS

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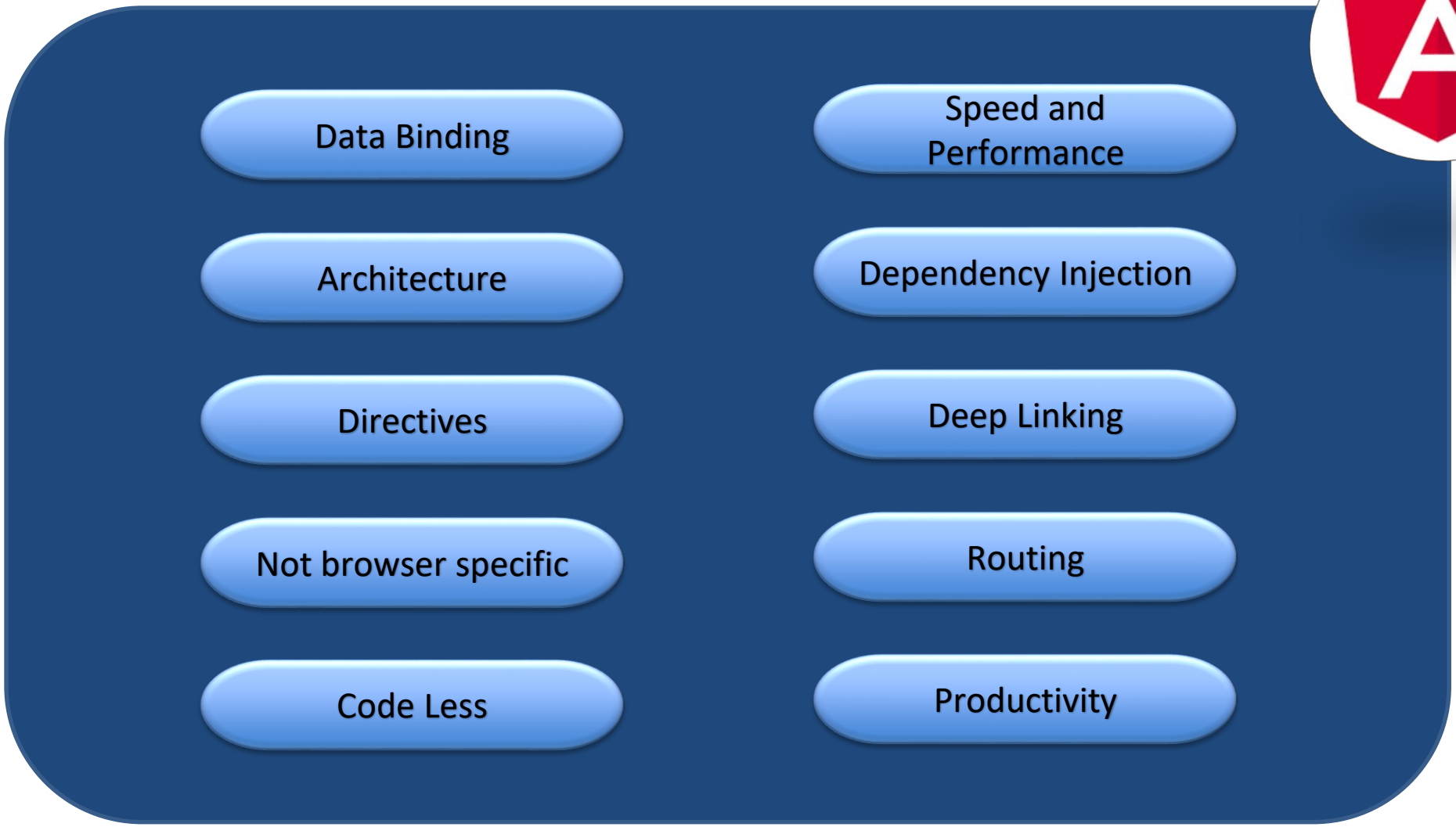

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MVC Architecture

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Ingredients:
Milk
Tea Leaves
Water
Sugar
Cardamom

Chef

Customer

Waiter

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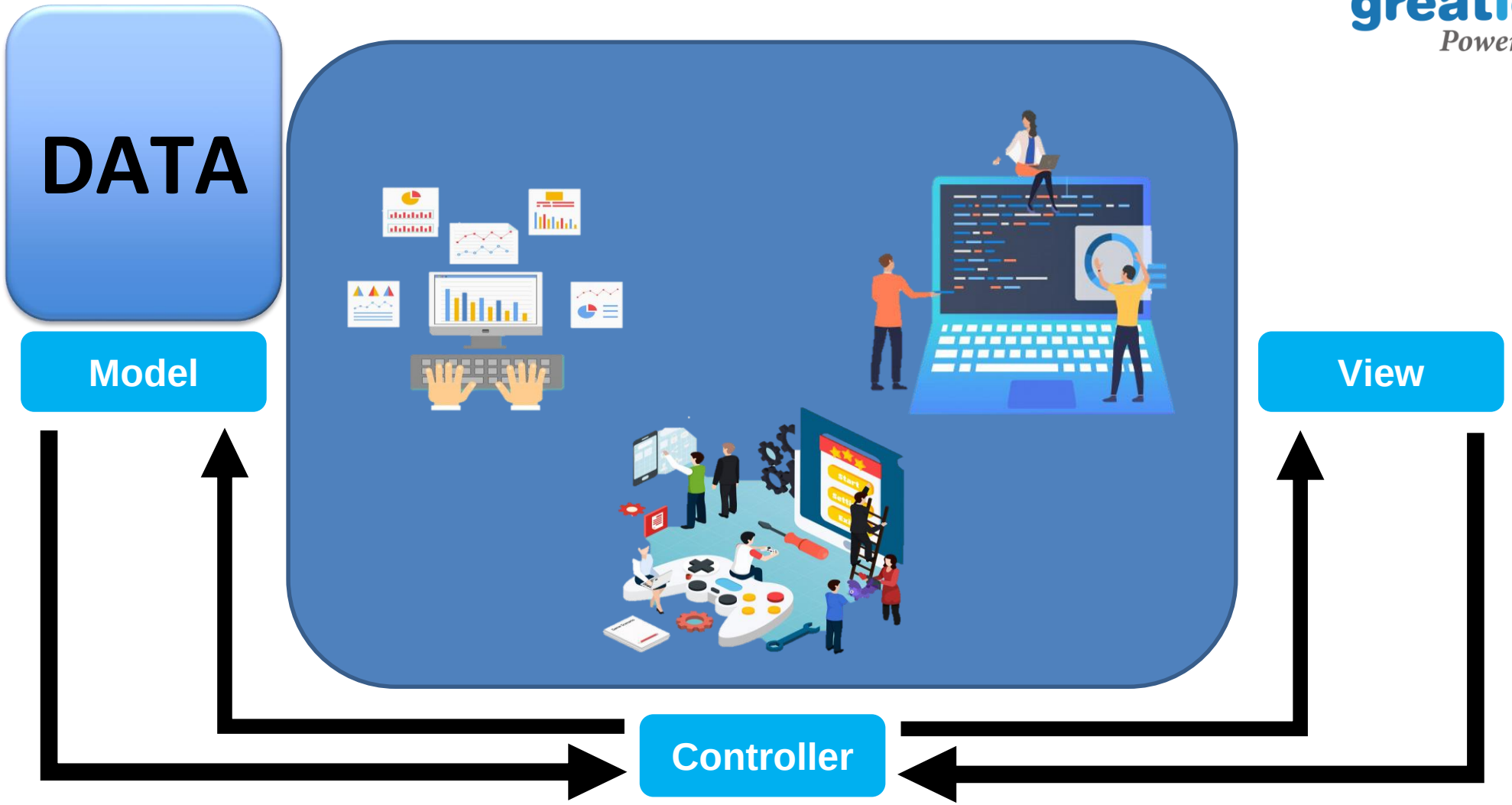

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Versions and Transition

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Angular JS/Angular 1.X – aimed to simplify both the development and the testing phase of applications.

Angular 2 – Mobile oriented, It provided more choices for languages from ES5, ES6, TS.

Angular 4 – Reduce the size of the code for the components with faster compilation, better bug fixes alert.

Angular 5,6 – Angular CLI got updated, New commands added like ng-update and ng-add.

Angular 7 – Prompts were introduced which provide tips in CLI. It help discover inbuilt SCSS support, routing.

Angular 8 – Ivy Compiler introduced, Differential loading of modern JS, Dynamic imports for lazy routes

Angular 9 – This came with new and improved Ivy compiler and runtime, faster testing, better debugging.

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Environmental setup

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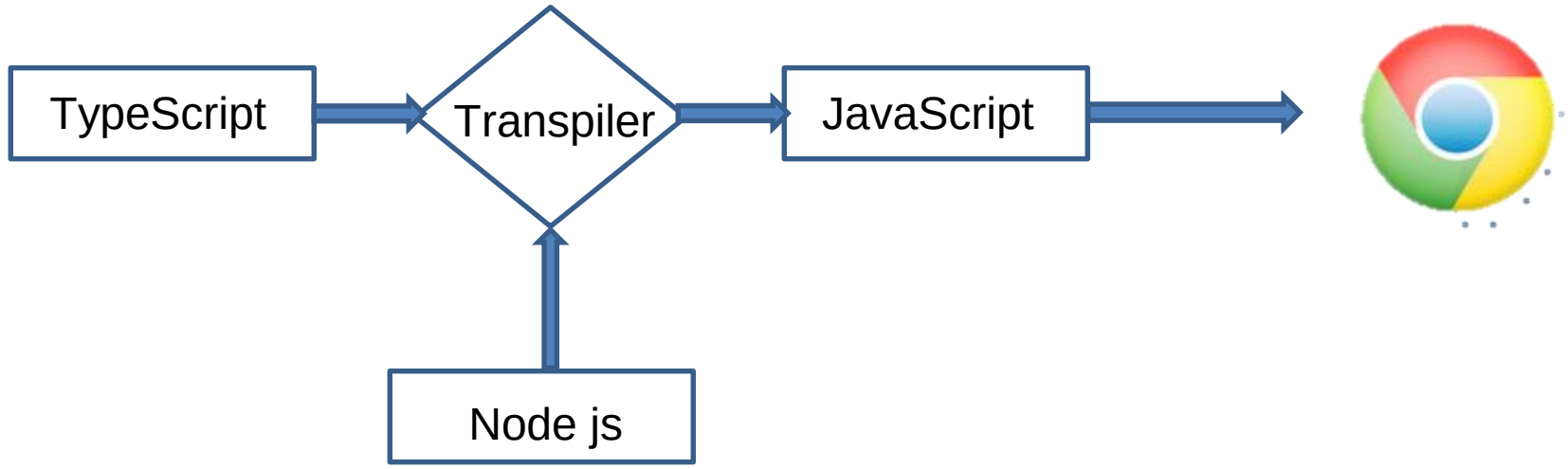
Installing Angular

1) Install **node.js and npm** - https://nodejs.org/en/

Verify that you are running at least Node.js version 13.x or greater and npm version 5.x or greater by running **node -v** and **npm -v** in a terminal/console window. Newer versions are fine.

Why node js ?



2) Install **angular-cli** - https://cli.angular.io/

Run command **npm install -g @angular/cli**

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AngularJS IDEs

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AngularJS IDEs

- Web storm
- Atom
- Sublime
- Best editor: Visual Studio

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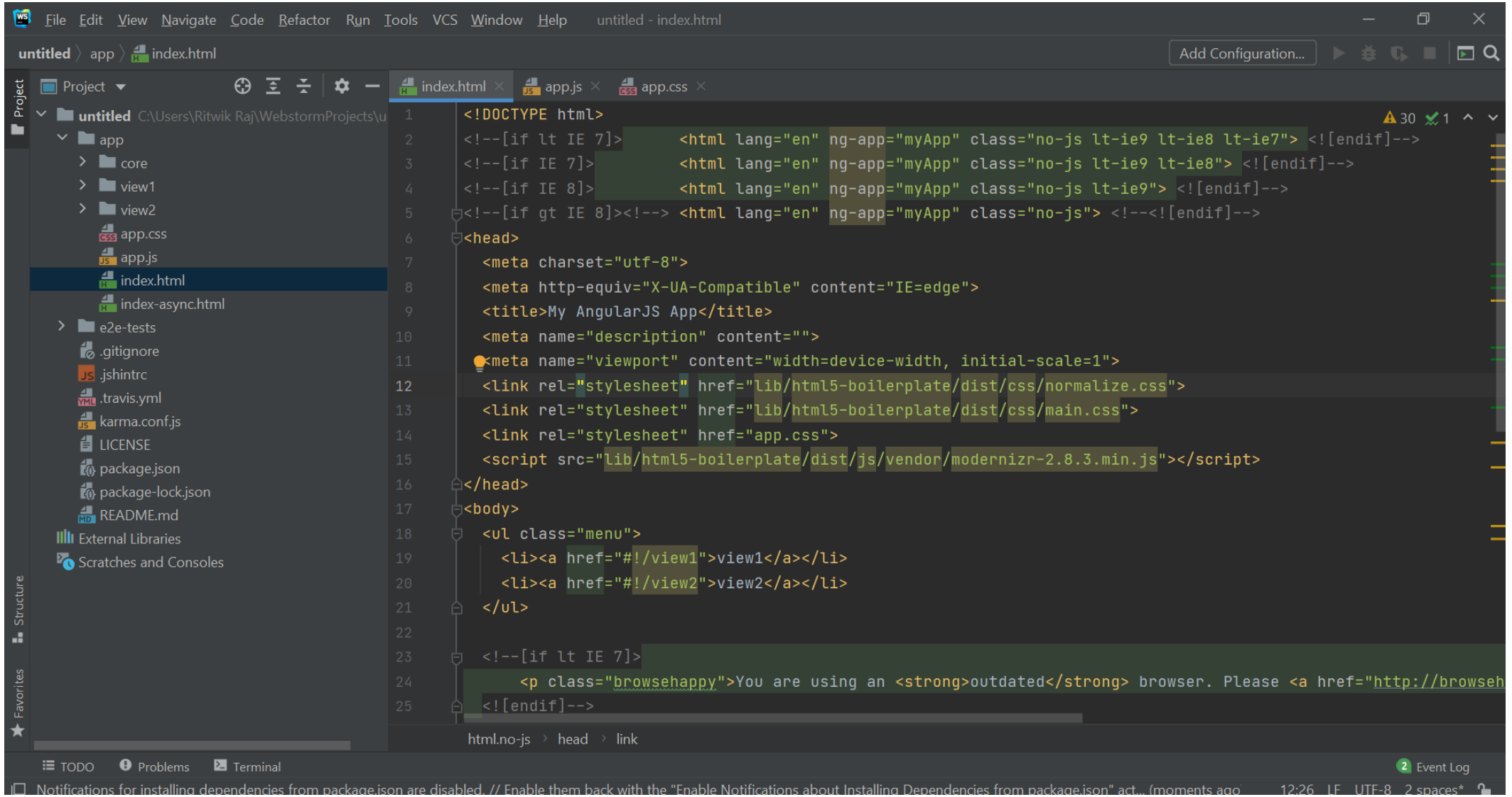
Web storm



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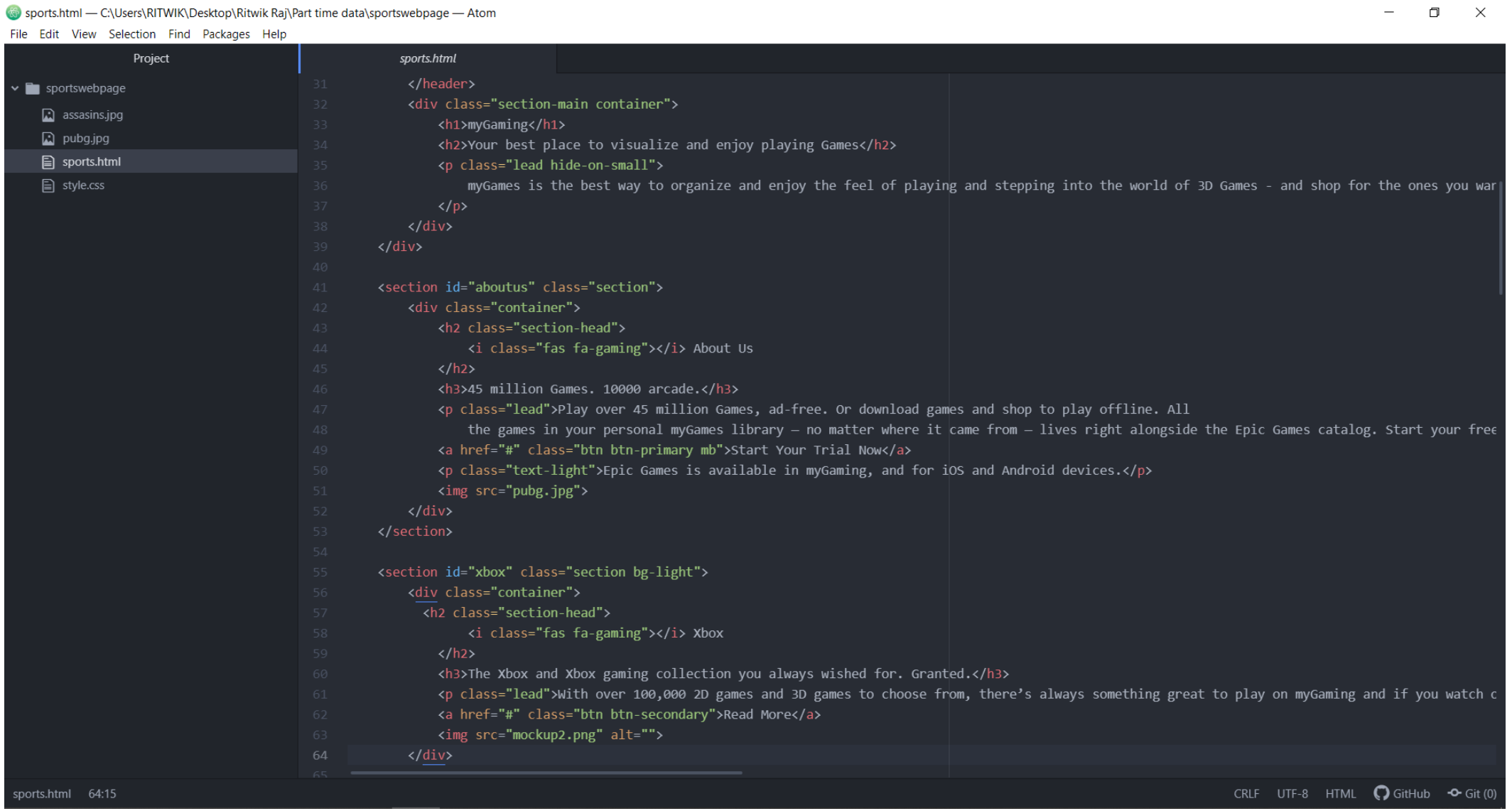
Atom



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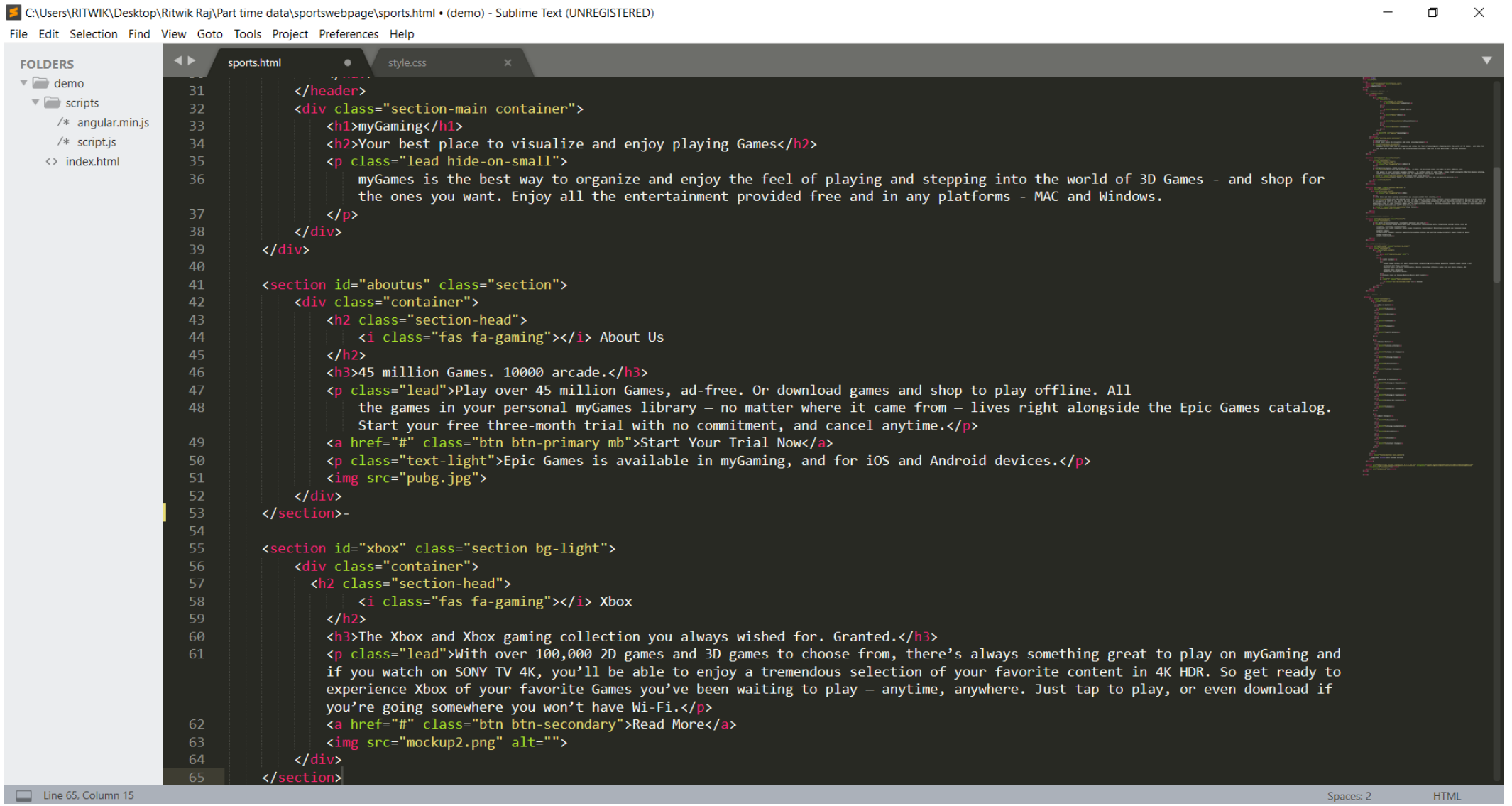
Sublime Text



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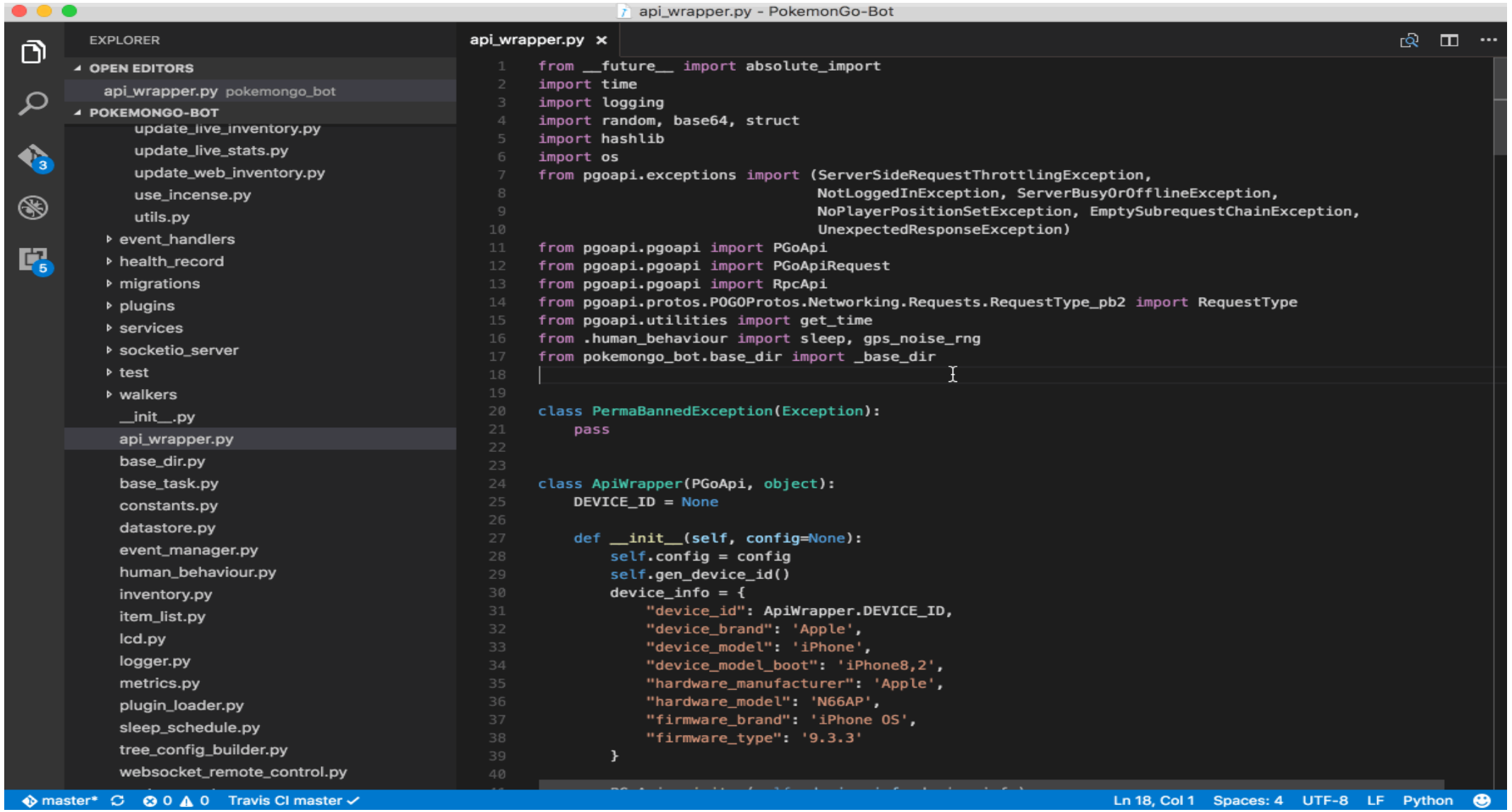
Visual studio code



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Introduction to Visual studio code

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Angular App Fundamentals

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Create Angular App

Once angular-cli is installed, create a new app

run command - **ng new <name of the app>**

Once the application is created, go to the application folder and run command - **ng serve** to serve the application.

Serve/Run Angular App :-

The angular is by default served at http://localhost:4200

Open this link in your browser

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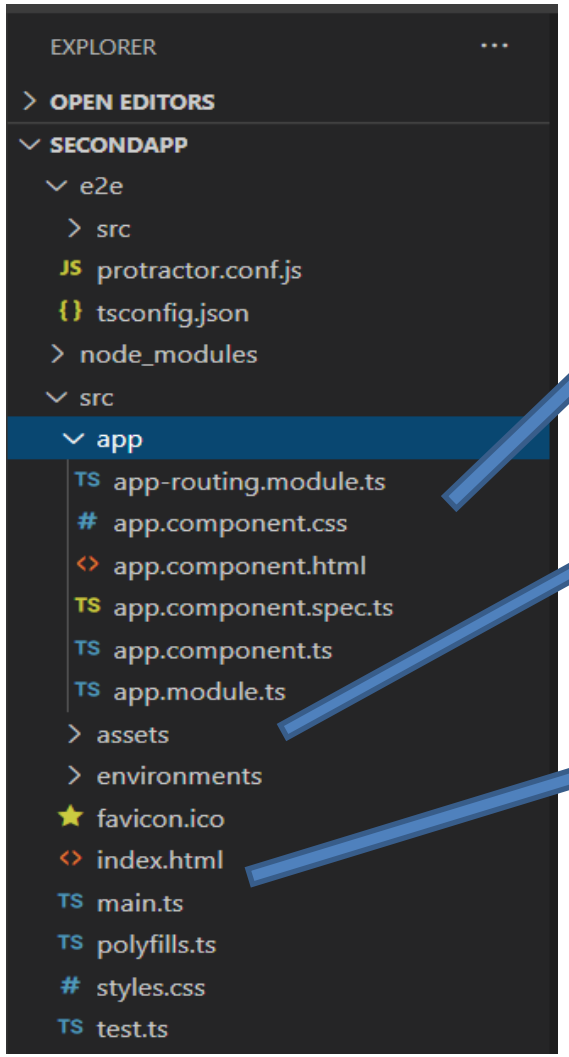
Angular Project Structure



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

→ Root project folder, all components reside here

assets

→ Assets folder, all images, stylesheets, JavaScript or third party libraries reside in assets

index.html
main.ts

→ main.ts, index.html - entry point of application

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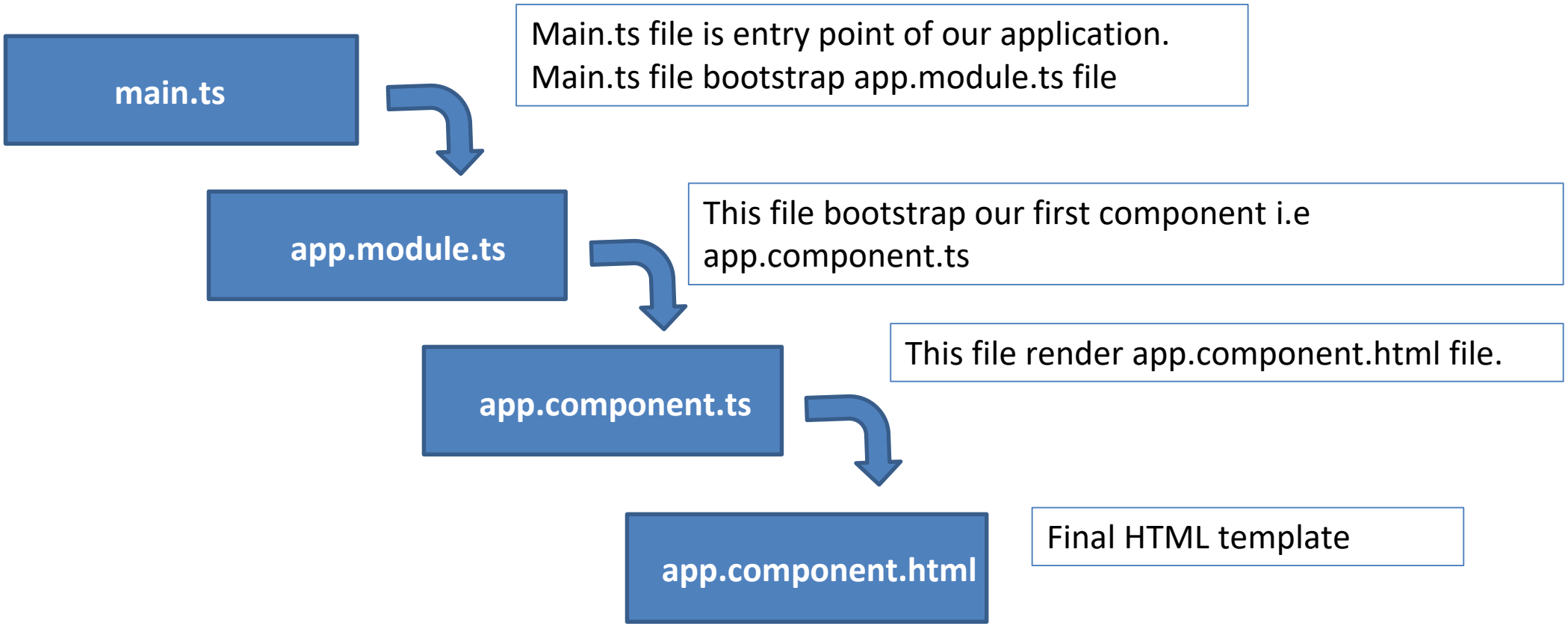
How Angular App Starts?



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Bootstraping the AppModule

TS main.ts

```
1  import { enableProdMode } from '@angular/core';
2  import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';
3
4  import { AppModule } from './app/app.module';
5  import { environment } from './environments/environment';
6
7  if (environment.production) {
8    enableProdMode();
9  }
10
11 platformBrowserDynamic().bootstrapModule(AppModule)
12   .catch(err => console.log(err));
13
```

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Bootstraping the AppComponent

app.module.ts

```
1  import { BrowserModule } from '@angular/platform-browser';
2  import { NgModule } from '@angular/core';
3
4  import { AppComponent } from './app.component';
5
6  @NgModule({
7    declarations: [
8      AppComponent
9    ],
10   imports: [
11     BrowserModule
12   ],
13   providers: [],
14   bootstrap: [AppComponent]
15 })
16 export class AppModule { }
17
```

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Simple AngularJS App

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Companies using AngularJS

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Advantages of AngularJS

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Advantages of AngularJS

- Number of errors or issues will be minimal as it's an open source framework
- Two-way binding – we used to write extra JS code to keep the data in HTML code and data later in sync. Now, Angular will do this automatically
- Routing – Moving from one view to another is pretty easy here as it will be a SPA.
- It supports both Unit testing and Integration testing.
- Directives – It provides its own libraries and directives which makes it more easy to use and code.

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Thank You

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