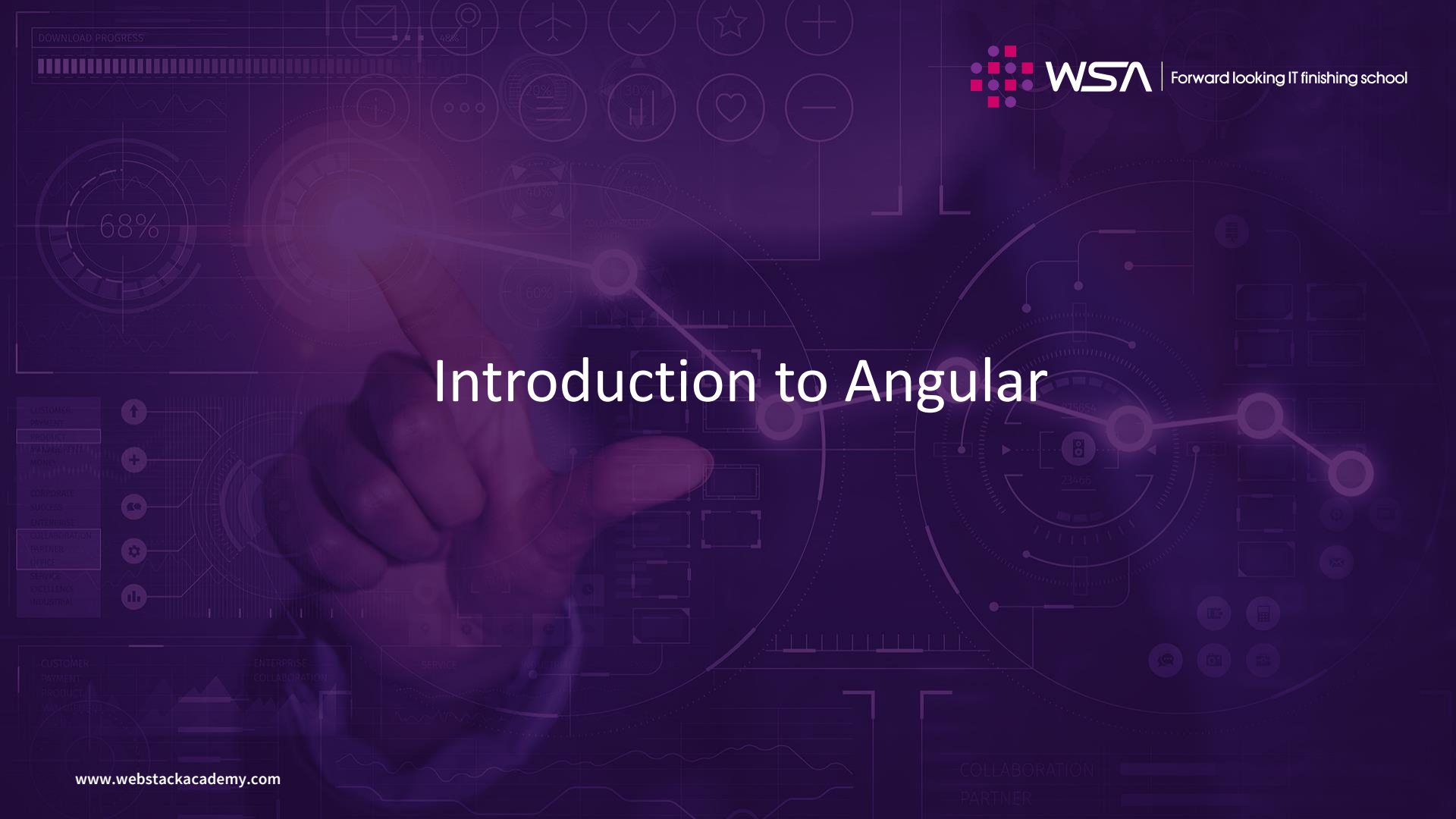
WSA | Forward looking IT finishing school

Introduction

Angular


WSA
Forward looking IT finishing school
Introduction to Angular
www.webstackacademy.com

What is Angular?

A structural **framework** for building dynamic web apps in HTML and either JavaScript or a language like TypeScript that compiles to JavaScript

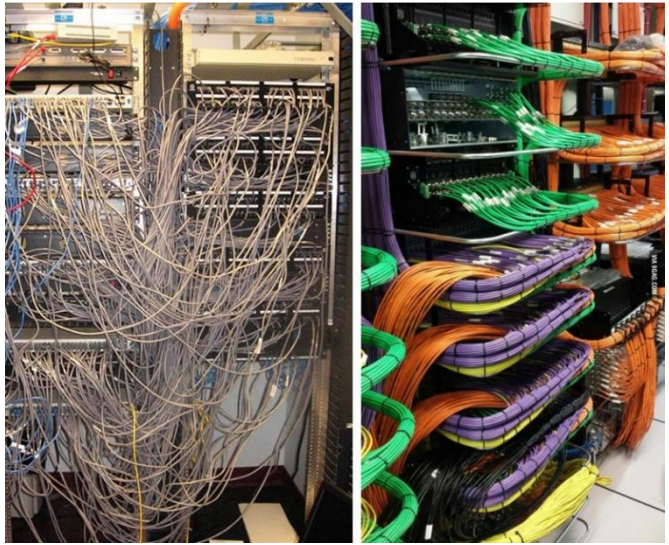
- Angular framework consist of:
  - Code / File organization
  - Libraries
  - Programming language support
  - Building project
  - And many more…

What is a Framework?

- A framework can be broadly defined as:
  - Exposes Application Programming Interface (API)
  - Is built to do things in a certain way (Methodology)
  - Has architecture to support methodologies

- Today's rich web applications requires complex functionalities where coding needs to be done faster and smarter

- Raise of Single Page Applications (SPA) demands excellent user experience



Should I call it as AngularJS or Angular?

- **AngularJS (Angular 1):**
  - Released in 2010
  - Primarily introduced as a front-end JavaScript based framework
- **Angular 2:**
  - Completely redesigned and rewritten (2016)
  - Not compatible with AngularJS
  - TypeScript as the programming language
- **Angular 3:**
  - Version compatibility issues
  - The version got skipped
- **Angular 4:**
  - Backward compatible with Angular 2 (2017)
  - The terminology of “AngularJS” or “Angular 2” has gone by then
  - Common terminology of Angular came into picture

- **Angular 5:** Released in Nov 2017
- **Angular 6:** Released in May 2018
- **Angular 7:** Planned in 4Q 2018

Key benefits of Angular

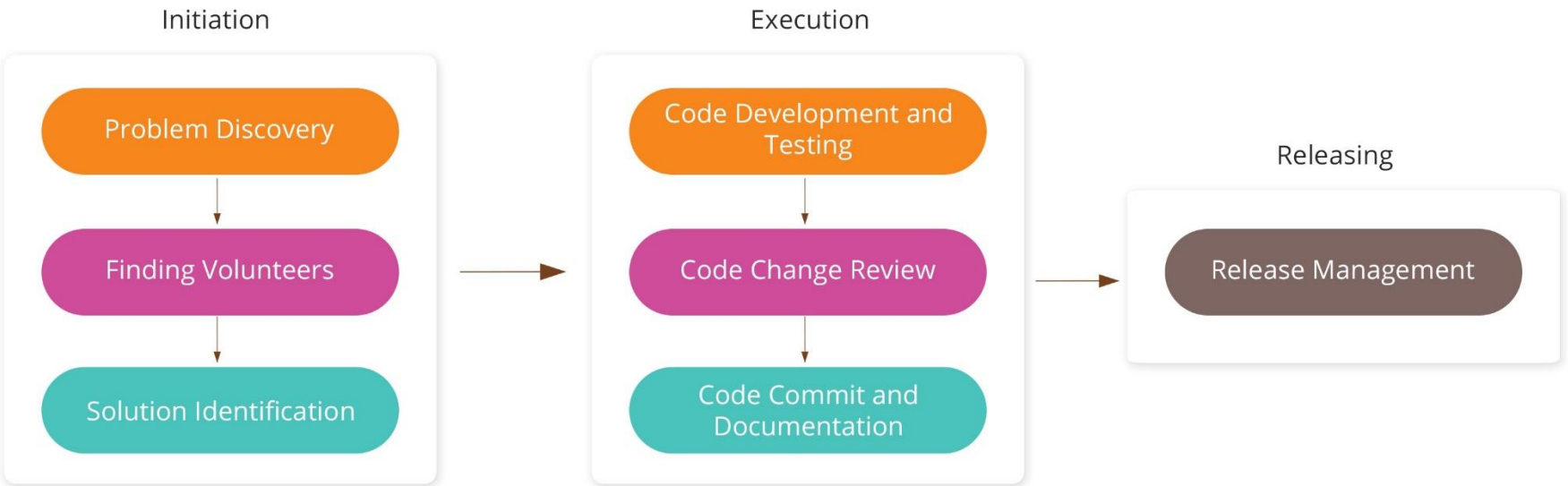
What Angular is NOT?

- Backend (server side) framework/technology
- A scripting or programming language (like JavaScript or Java)
- A library, plugin or extension
- Design Pattern

Angular is one of the recent success stories of OpenSource way of developing software.
Let us spend some time on:

- OpenSource software development – How?
- What do you mean by “free” software?
- What are the benefits of using OpenSource?

OpenSource – Development process

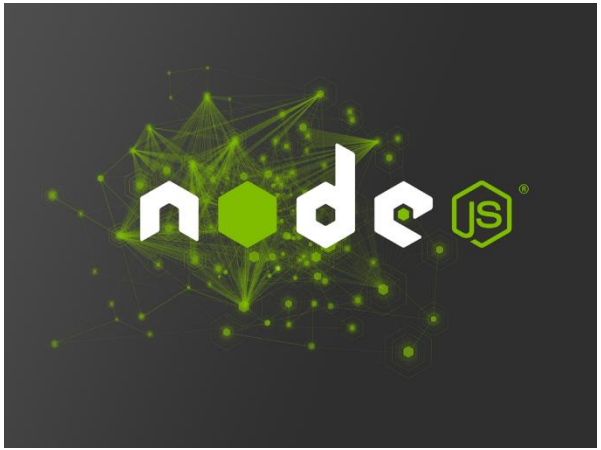


These OpenSource development keeps happening on a continuous manner. By the time you realize version X, it would have moved to Y with some changes. Most of the times OSS ensures backward compatibility, there could be some exceptions though (ex: Angular 1.0 vs. Angular 2.0)


WSA
Forward looking IT finishing school
Angular Development Environment
www.webstackacademy.com

Node.js

- Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine
- It uses an event-driven, non-blocking I/O model that makes it lightweight and efficient
- It helps to build scalable web applications for the backend
- One of the primary reasons why the "JavaScript Everywhere" has become a reality
- Over 9 million instances of Node.js is deployed across various servers across the globe



Node.js – NVM and NPM

- **Node Version Manager (NVM):**
  - It is a tool (script) to install Node.js into the system
  - Main use is to help managing multiple versions of Node.js in the same machine

```
$ node --version  // Version of Node.js
$ nvm  --version  // Version of NVM
```

- **Node Package Manager (NPM):**
  - NPM is the package manager for JavaScript
  - World's largest software registry
  - Primary aim to promote re-usability

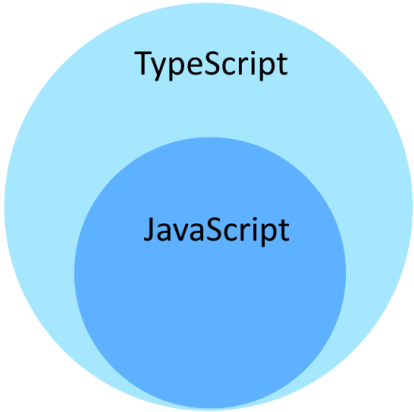

```
$ npm --version  // Version of NPM
$ npm list       // List all the packages
```

Angular CLI

- Command line interface for Angular
- Part of the NPM, required NVM to launch web apps
- It generates **components, routes, services and pipes**
- Helps to launch and test applications
- All commands start with **`ng`** in the beginning. Two samples are given below, more to come!


```
$ ng new helloApp          // Creates a new app
$ ng serve --open          // Launches the app at port 4200
```

What is TypeScript?



- TypeScript is JavaScript for application-scale development
- TypeScript is a **strongly typed, object oriented, compiled language**
- It was designed by Anders Hejlsberg (designer of C#) at Microsoft
- TypeScript is superset of JavaScript compiled to JavaScript. Its unique philosophy is to make sure good development practices and develop applications at scale
- Since frameworks like Node.js is designed to run JavaScript in the server side, TypeScript "Transpiles" into JavaScript

```
$ tsc --version          // Check typescript version
```

And finally….our friends!

Bracket

VS code

Hot Module Replacement (HMR)


WSA
Forward looking IT finishing school
Creating YOUR First Application
www.webstackacademy.com

Creating First App

- Create and launch your first application using the following two commands

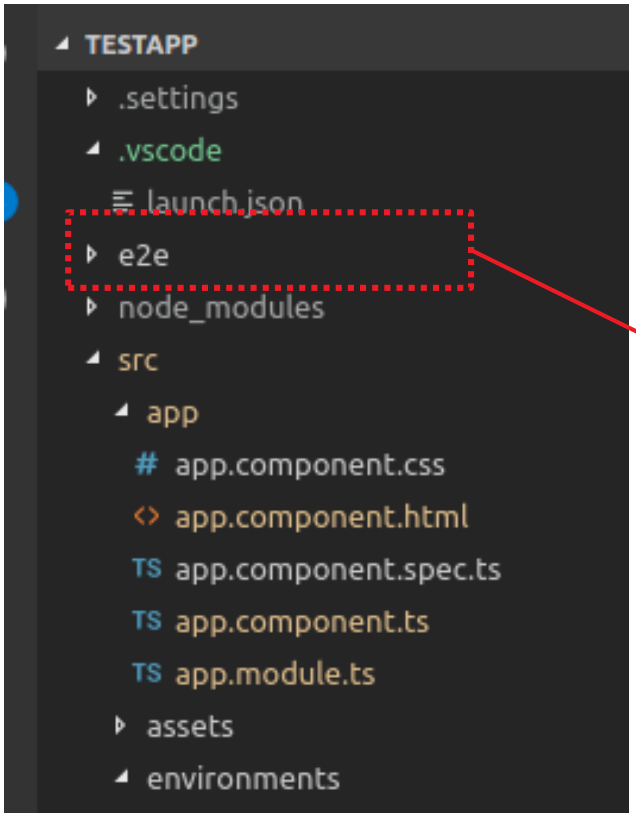
```
$ ng new myFirstApp     // Creates the application
$ ng serve --open       // Launches the app automatically
```

- This would generate a particular directory structure with so many pre-populated directories, sub-directories, files etc..

- At first sight it will be overwhelming for anybody, till we get used to it ☺

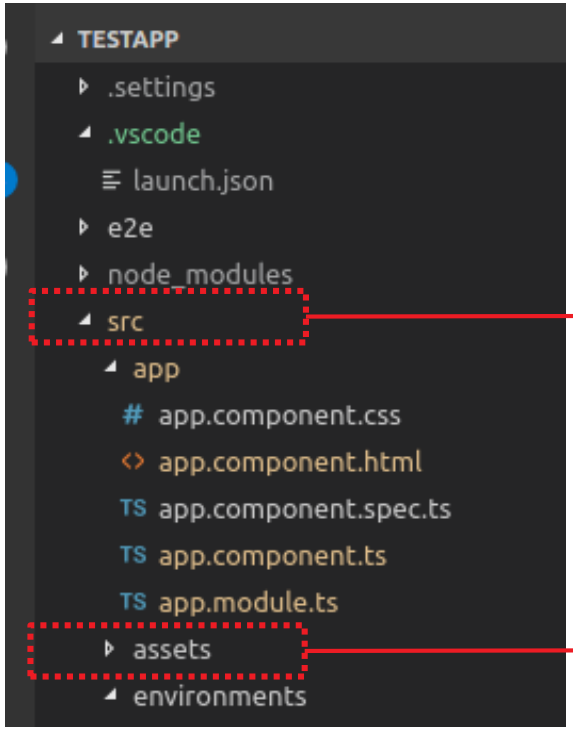
- Let us take a overview of all these files and what they mean. Please note knowing all possible files and options may not be required at this instance, even some of them are out of scope of this course!

Directory Structure



For End to End testing

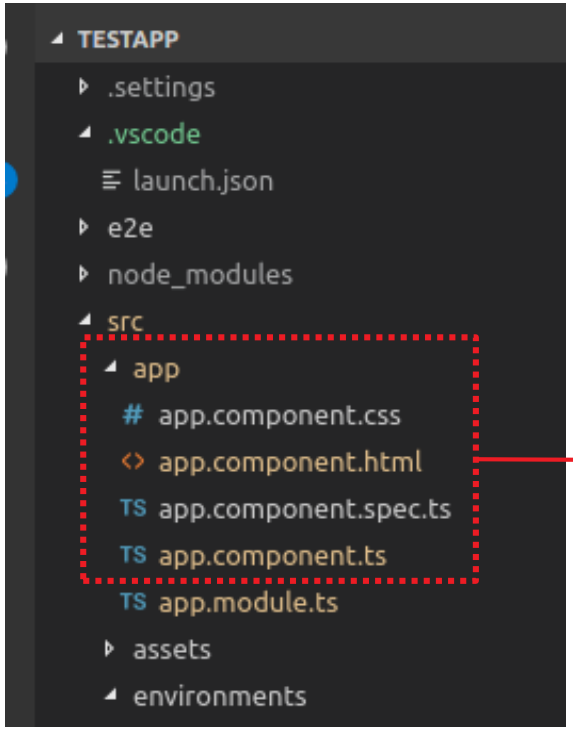
Directory Structure



- Contains app code. All Angular components, templates, styles, images, and anything else your app needs go here
- Any files outside of this folder are meant to support building your app

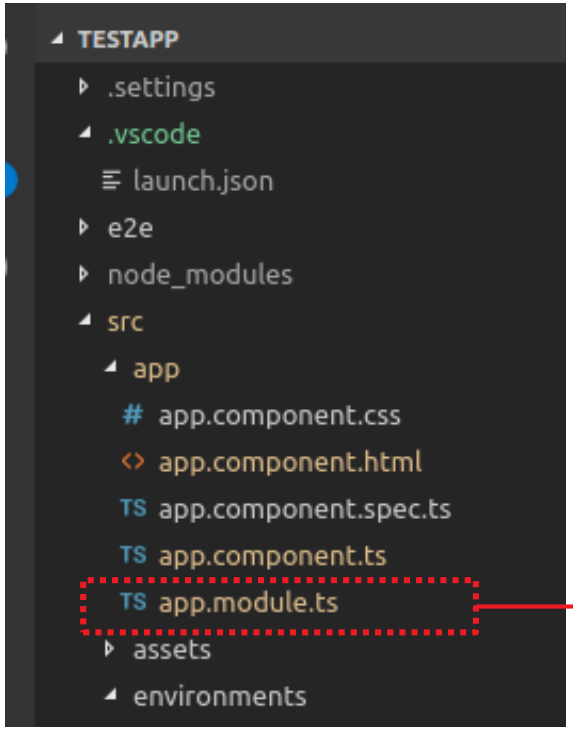
- App resources such as images can be kept here

Directory Structure



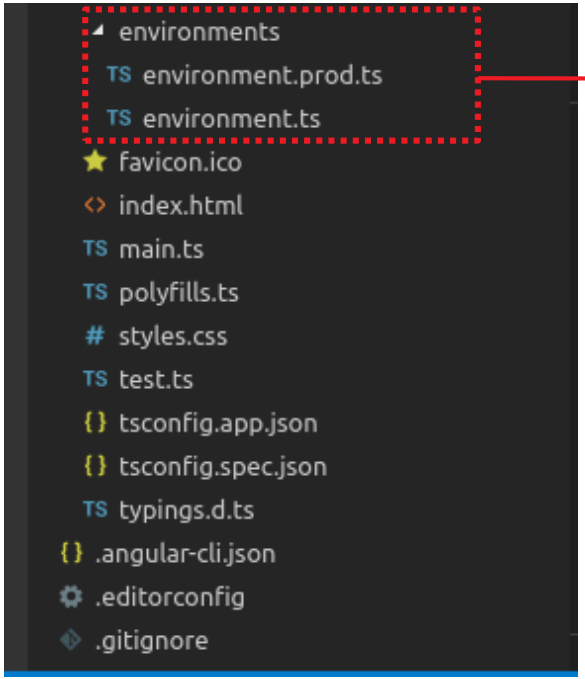
- Defines the AppComponent along with an HTML template, CSS stylesheet, and a unit test
- It is the root component of what will become a tree of nested components as the app evolves

Directory Structure



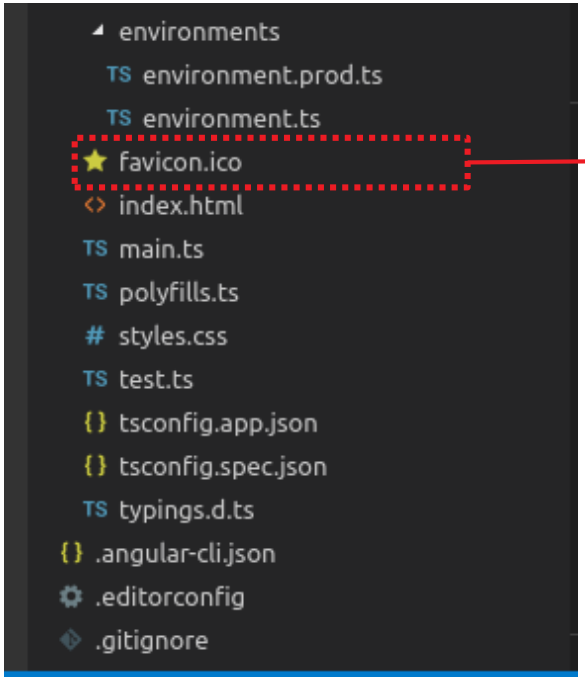
- Defines AppModule, the root module that tells Angular how to assemble the app

Directory Structure

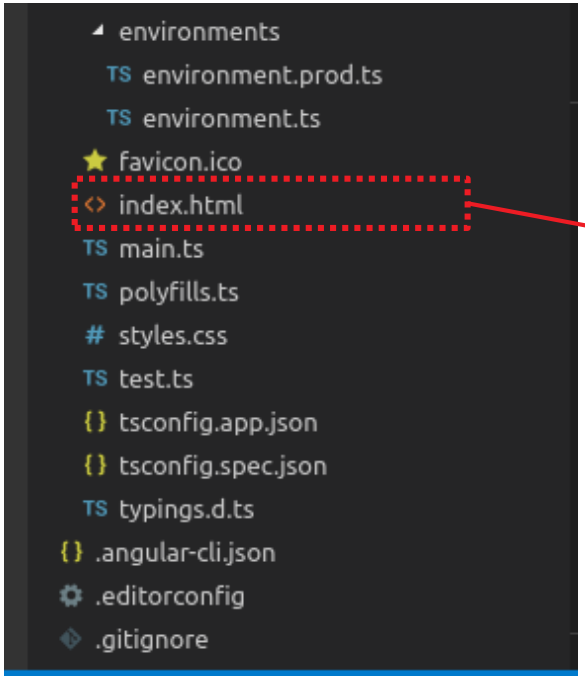


- This folder contains one file for each of your destination environments, each exporting simple configuration variables to use in your app
- The files are replaced on-the-fly when you build your app

Directory Structure

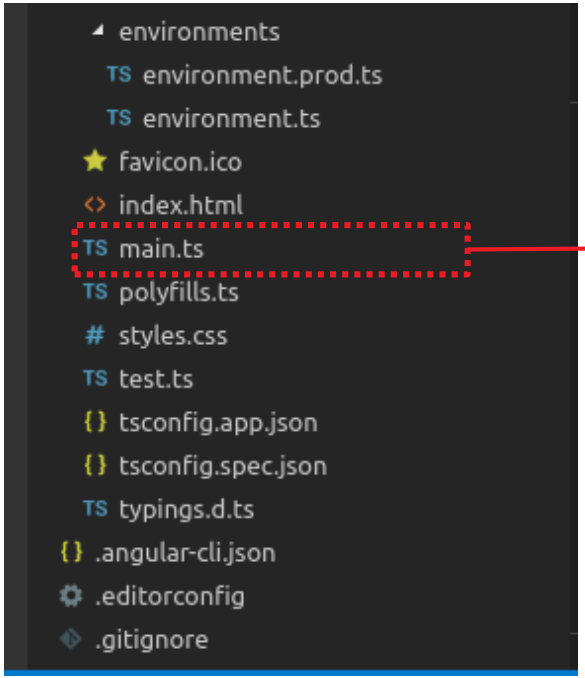


Directory Structure



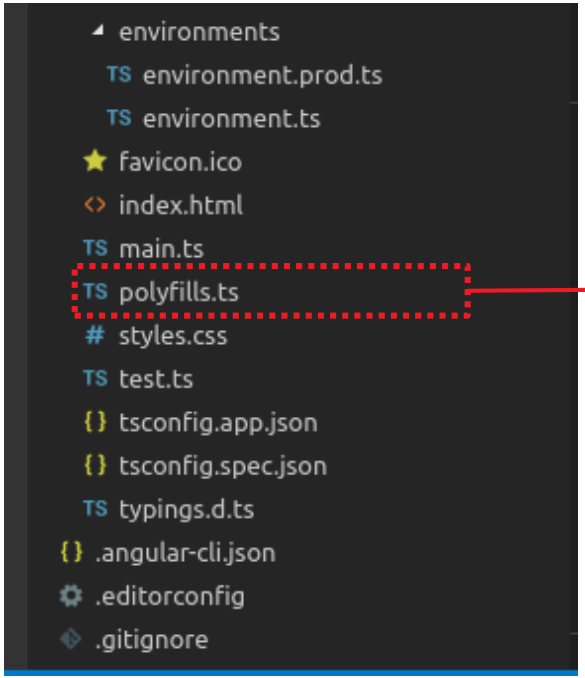
- The main HTML page that is served when someone visits your site
- Most of the time you'll never need to edit it
- The CLI automatically adds all js and css files when building your app so you never need to add any <script> or <link> tags here manually

Directory Structure



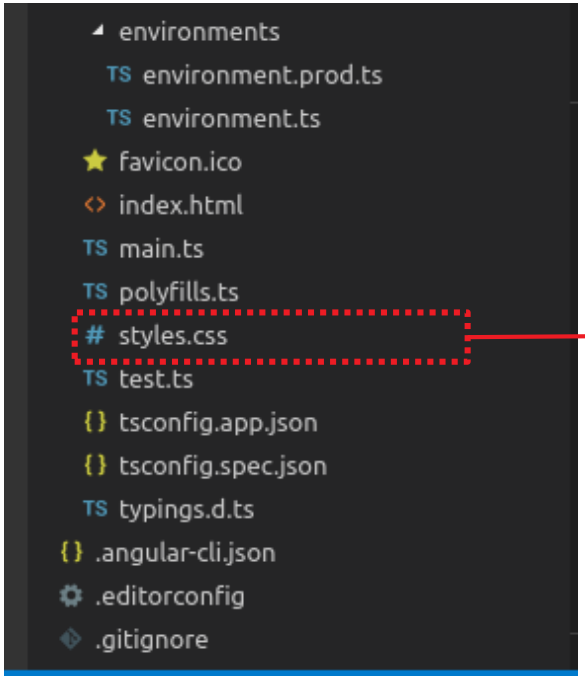
The main entry point for your app

Directory Structure



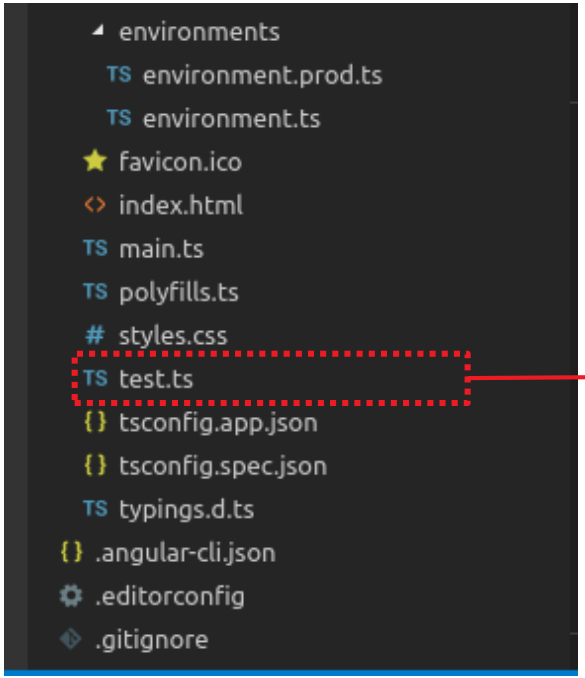
- Different browsers have different levels of support of the web standards
- Polyfills help normalize those differences

Directory Structure



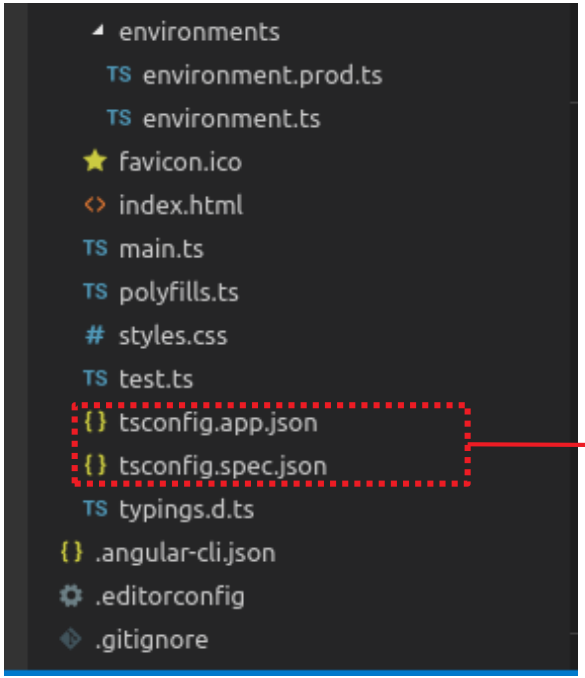
- Global styles that affect all of your app need to be in a central place

Directory Structure



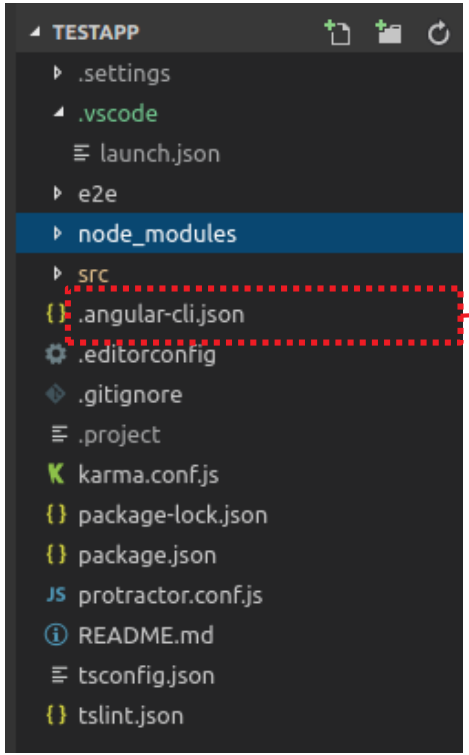
- This is the main entry point for your unit tests
- It has some custom configuration that might be unfamiliar, but it's not something you'll need to edit

Directory Structure



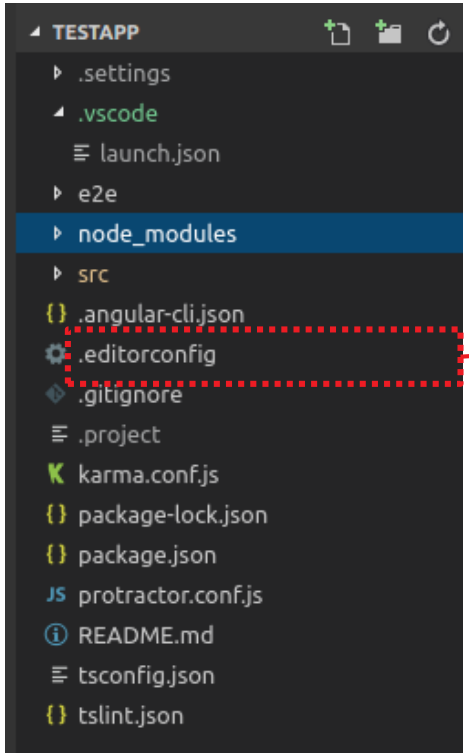
- TypeScript compiler configuration for
  - ✓ Angular app (tsconfig.app.json)
  - ✓ Unit tests (tsconfig.spec.json)

Directory Structure



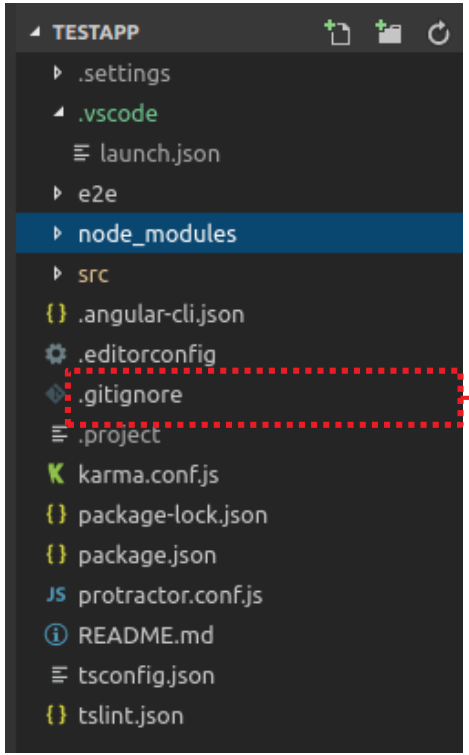
- Configuration for Angular CLI
- In this file you can set several defaults and also configure what files are included when your project is built

Directory Structure



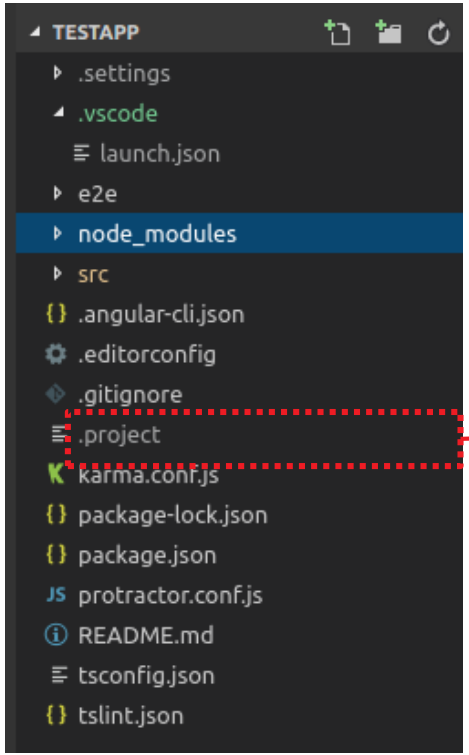
Simple configuration for your editor to make sure everyone that uses your project has the same basic configuration

Directory Structure



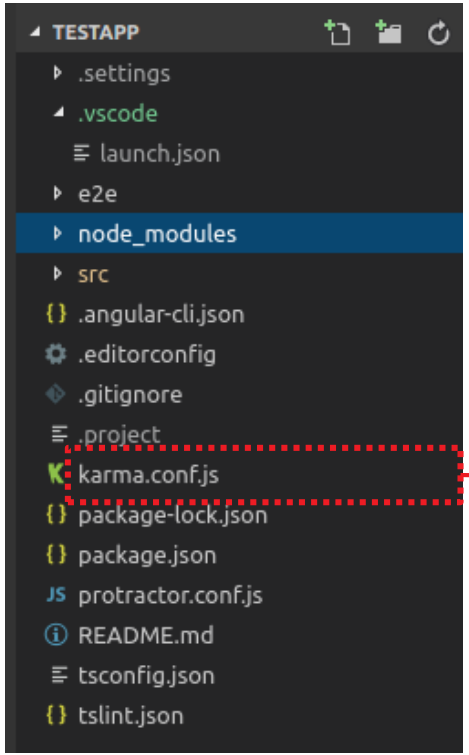
Git configuration to make sure auto-generated files are not committed to source control

Directory Structure



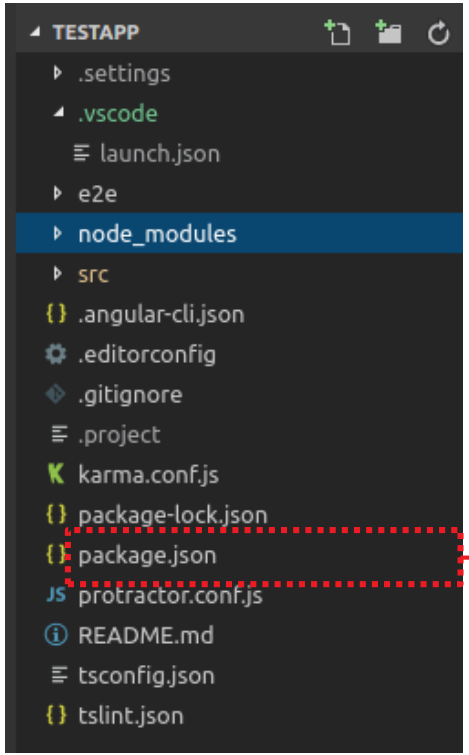
Contains project description

Directory Structure



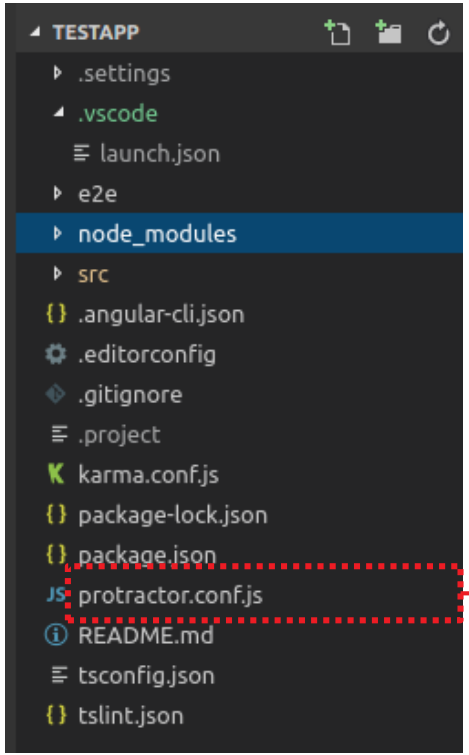
Unit test configuration for the Karma test runner, used when running ng test

Directory Structure



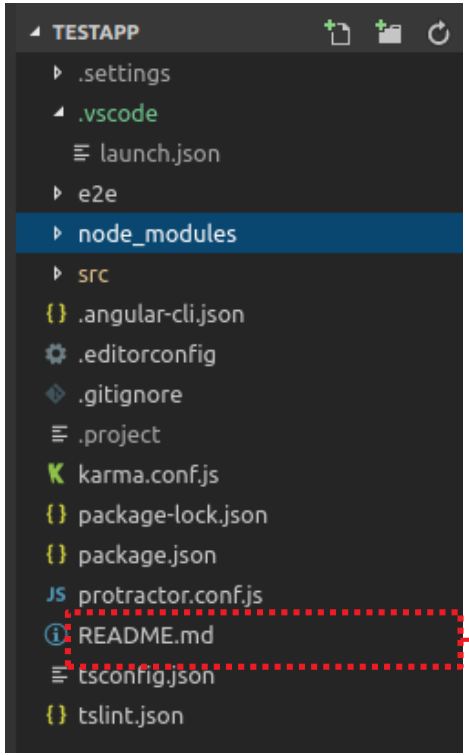
npm configuration listing the third party packages your project uses

Directory Structure



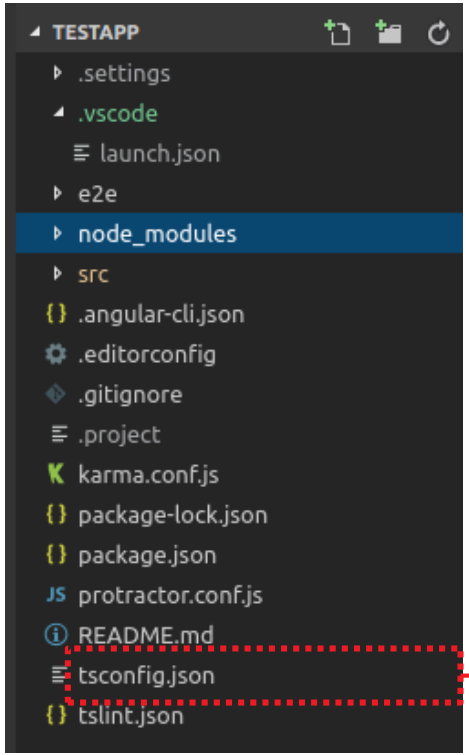
End-to-end test configuration for Protractor, used when running ng e2e

Directory Structure



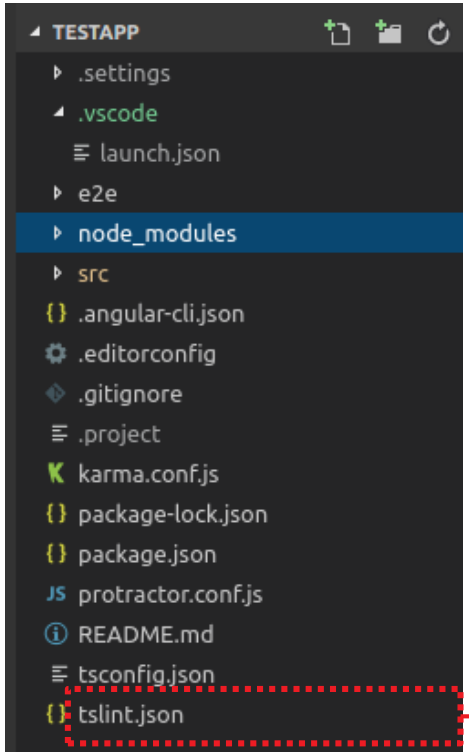
Basic documentation for your project

Directory Structure



TypeScript compiler configuration for your IDE to pick up and give you helpful tooling

Directory Structure



- Linting configuration for TSLint together with Codelyzer, used when running ng lint
- Linting helps keep your code style consistent

WSA | Forward looking IT finishing school

Thank you

WebStack Academy

#83, Farah Towers,
1st Floor, MG Road,
Bangalore – 560001

M: +91-809 555 7332
E: training@webstackacademy.com

WSA in Social Media: