ANGULAR FRAMEWORK

What is Angular

– Angular is a development platform, built on **TypeScript**. As a platform, Angular includes:

- A component-based framework for building scalable web applications

- A collection of well-integrated libraries that cover a wide variety of features, including routing, forms management, client-server communication, and more

- A suite of developer tools to help you develop, build, test, and update your code

CROSS PLATFORM

Progressive Web Apps	Native	Desktop
Use modern web platform capabilities to deliver app-like experiences. High performance, offline, and zero-step installation.	Build native mobile apps with strategies from Cordova, Ionic, or NativeScript.	Create desktop-installed apps across Mac, Windows, and Linux using the same Angular methods you've learned for the web plus the ability to access native OS APIs.

FEATURES & BENEFITS

SPEED AND PERFORMANCE

Code Generation	Universal	Code Splitting
Angular turns your templates into code that's highly optimized for today's JavaScript virtual machines, giving you all the benefits of hand-written code with the productivity of a framework.	Serve the first view of your application on Node.js®, .NET, PHP, and other servers for near-instant rendering in just HTML and CSS. Also paves the way for sites that optimize for SEO.	Angular apps load quickly with the new Component Router, which delivers automatic code-splitting so users only load code required to render the view they request.

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FEATURES & BENEFITS

PRODUCTIVITY

Templates	Angular CLI	IDEs
Quickly create UI views with simple and powerful template syntax.	Command line tools: start building fast, add components and tests, then instantly deploy.	Get intelligent code completion, instant errors, and other feedback in popular editors and IDEs.

Single Page Application (SPA)

- A single page application is a web application or a website which provides users a very fluid, reactive and fast experience similar to a desktop application.

- it dynamically rewrites the current page rather than loading entire new pages from a server. That's the reason behind its reactive fast speed.

- The goal is faster transitions that make the website feel more like a native app.

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TypeScript

- TypeScript is a programming language developed and maintained by Microsoft.

- TypeScript is a **statically-typed superset** of JavaScript.

- Every JavaScript program is also a TypeScript program. In TypeScript, there's some extra syntax: you can add type declarations, type annotations, type assertions, type guards, and type aliases.
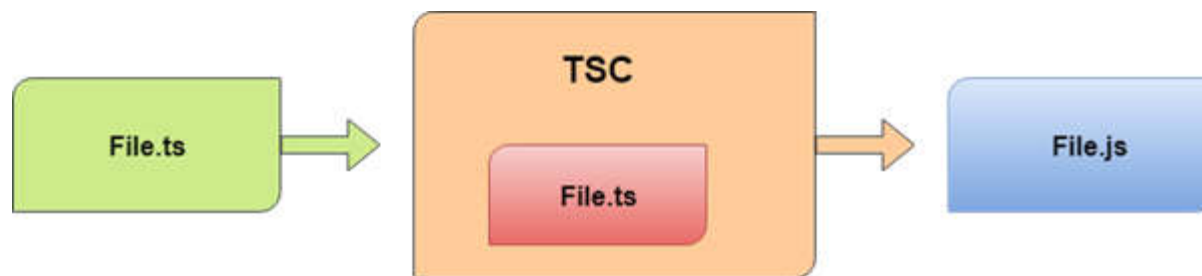
TypeScript

- TypeScript cannot run directly on the browser. It needs a compiler to compile the file and generate it in JavaScript file, which can run directly on the browser.

- The TypeScript source file is in ".ts" extension. We can use any valid ".js" file by renaming it to ".ts" file.

- TypeScript uses TSC (TypeScript Compiler) compiler, which convert Typescript code (.ts file) to JavaScript (.js file).

Advantages

- TypeScript supports Static typing, Strongly type, Modules, Optional Parameters, etc.

- TypeScript supports object-oriented programming features such as classes, interfaces, inheritance, generics, etc.

- TypeScript is fast, simple, and most importantly, easy to learn.

- TypeScript provides the error-checking feature at compilation time. It will compile the code, and if any error found, then it highlighted the mistakes before the script is run.

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Advantages

- TypeScript supports all JavaScript libraries because it is the superset of JavaScript.

- TypeScript support reusability because of the inheritance.

- TypeScript make app development quick and easy as possible, and the tooling support of TypeScript gives us autocompletion, type checking, and source documentation.

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Advantages

- TypeScript has a definition file with .d.ts extension to provide a definition for external JavaScript libraries.

- TypeScript supports the latest JavaScript features, including ECMAScript 2015.

- TypeScript gives all the benefits of ES6 plus more productivity.

- Developers can save a lot of time with TypeScript.

Setf learning

- Free course:
  https://scrimba.com/learn/intrototypescript

Getting start Angular

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Getting start Angular

- Download: https://nodejs.org/en/download/
- Version: 64 bit

Getting start Angular

- Download:
https://www.jetbrains.com/webstorm/download/#section=windows
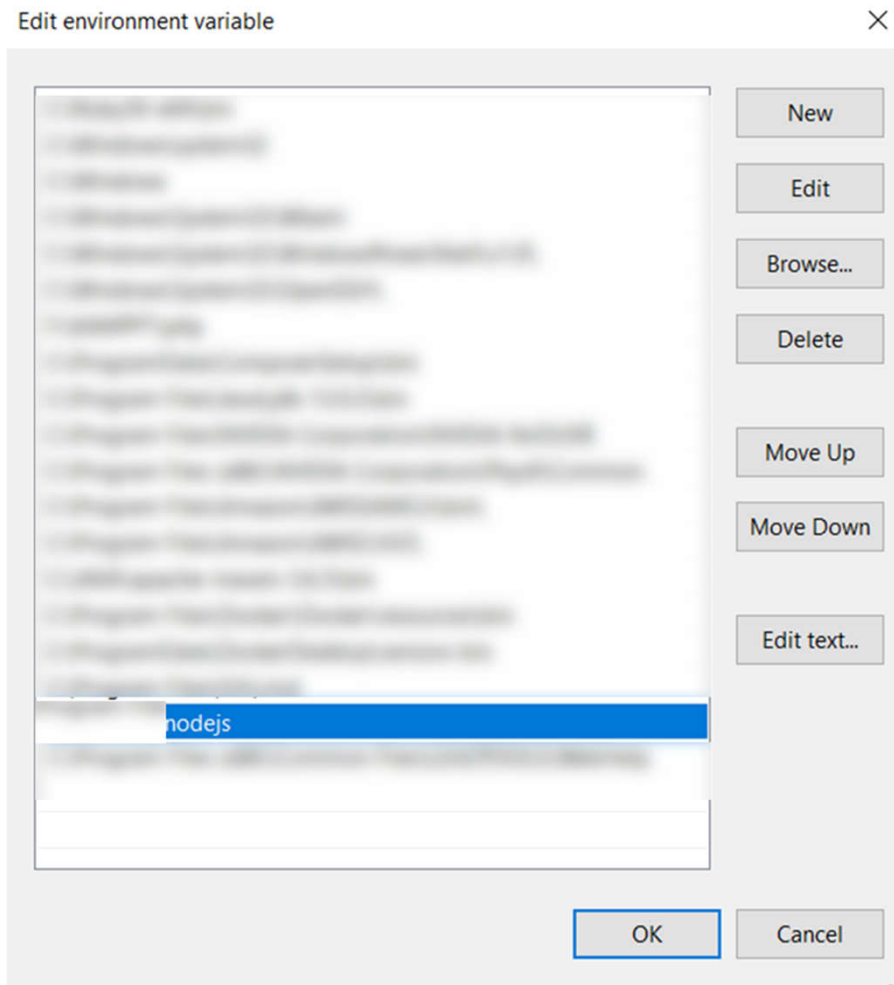
- Licenses: free for student
(https://www.jetbrains.com/community/education/#students)
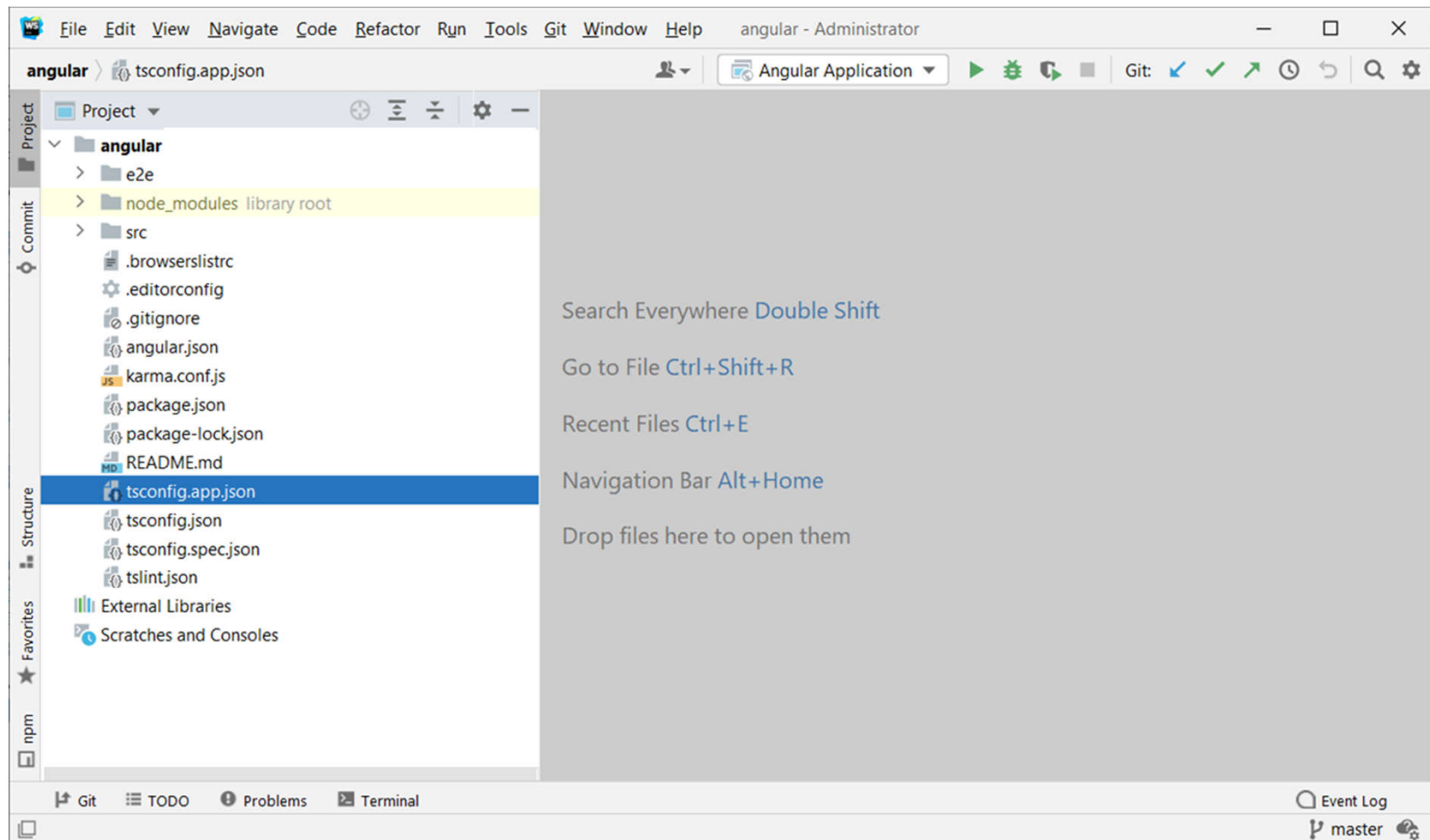
Angular CLI

– The Angular CLI is a **command-line interface** tool that you use to initialize, develop, scaffold, and maintain Angular applications directly from a command shell.

– Install the CLI using the npm package manager:

npm install -g @angular/cli

Angular CLI

- Check Version

    ng version

- Angular app initialize

    ng init

- Angular New App creation

    ng new <app-name>

- Angular serve application

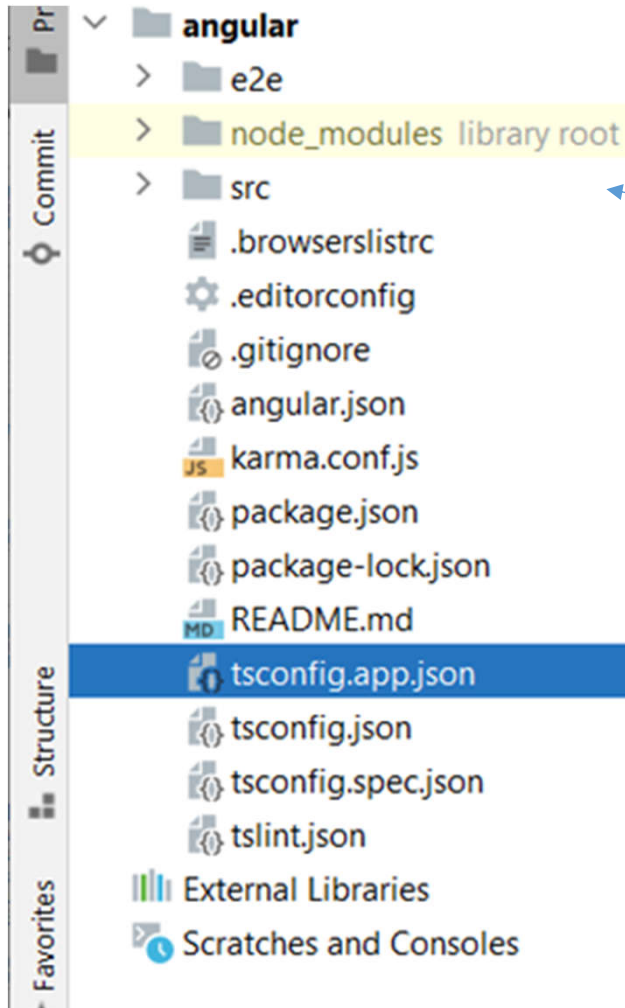   ng serve

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– Angular ng genrate component

    ng generate component <component-name>

    ng g c <component-name>

– Generate class

    ng g c <class-name>

– Generate module

    ng g c <module>

– Generate service

    ng g p <service-name>

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Angular App structure

- angular
  - e2e
  - node_modules library root
  - src
  - .browserslistrc
  - .editorconfig
  - .gitignore
  - angular.json
  - karma.conf.js
  - package.json
  - package-lock.json
  - README.md
  - tsconfig.app.json
  - tsconfig.json
  - tsconfig.spec.json
  - tslint.json
- External Libraries
- Scratches and Consoles

Root Lib

Source files for the root-level application project.

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Angular App structure

e2e

node_modules library root

src
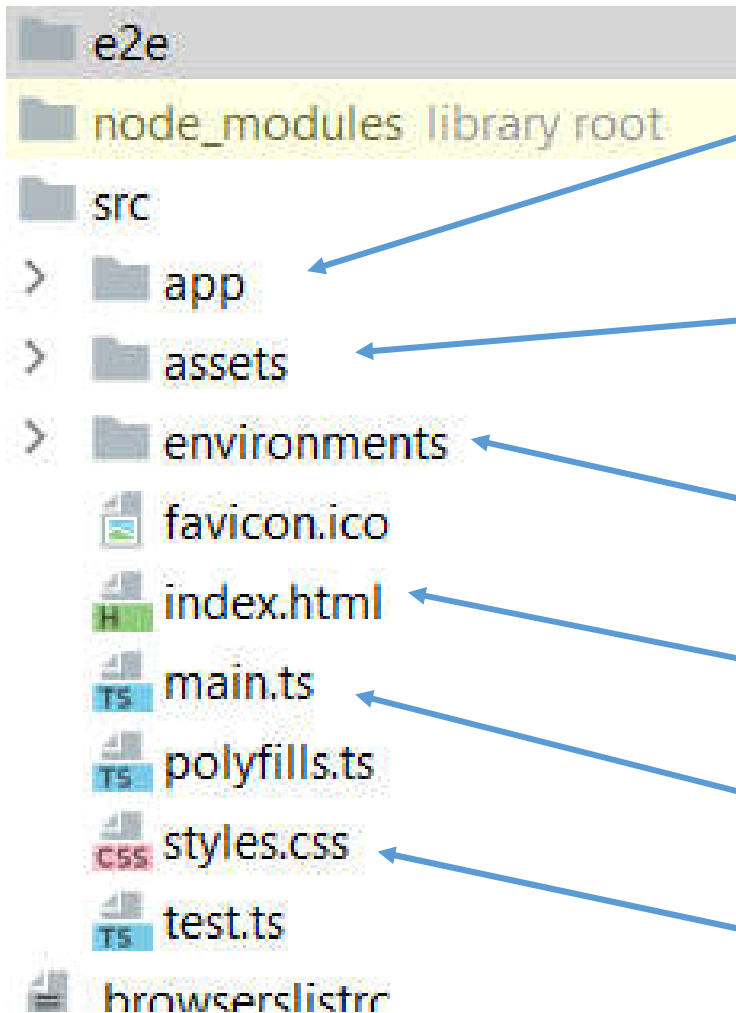
> app — Contains the component files in which your application logic and data are defined.

> assets — Contains image and other asset files to be copied as-is when you build your application.

> environments — Contains build configuration options for particular target environments

favicon.ico

index.html — The main HTML page that is served when someone visits your site.

main.ts — The main entry point for your application.

polyfills.ts

styles.css — Lists CSS files that supply styles for a project.

test.ts

browserslistrc

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Component

- Components are the main building block for Angular applications. Each component consists of:
  - An HTML template that declares what renders on the page
  - A Typescript class that defines behavior
  - A CSS selector that defines how the component is used in a template
  - Optionally, CSS styles applied to the template

Template

– In Angular, a template is a chunk of HTML. Within a template, you can use special syntax to leverage many of Angular's features.

– Each Angular template in your app is a section of HTML that you can include as a part of the page that the browser displays. An Angular HTML template renders a view, or user interface, in the browser, just like regular HTML, but with a lot more functionality.

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Q & A

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