



ANGULAR

C'EST PARTI

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TypeScript

JavaScript that scales.

TypeScript is a typed superset of JavaScript that compiles to plain JavaScript.

Any browser. Any host. Any OS. Open source.

[Download](#)[Documentation](#)

#iHeartTypeScript



Dave Herman
@littlecalculist
I ported my first nontrivial JS lib to @typescriptlang and it was a pure joy. What a



Gabriela Mendes
@Kappyh
@typescriptlang is really awesome O-O'



Thiago Script 🌴
🤖 @thiagoviski
#TypeScript is really awesome! I'm glad to see people are using it in some of #React projects



2



Visual Studio Code

[HOME](#)[ABOUT](#)[DOWNLOADS](#)[DOCS](#)[GET INVOLVED](#)[SECURITY](#)[CERTIFICATION](#)[NEWS](#)

Downloads

Latest LTS Version: **14.16.0** (includes npm 6.14.11)

Download the Node.js source code or a pre-built installer for your platform, and start developing today.

LTS

Recommended For Most Users

Current

Latest Features



Windows Installer

node-v14.16.0-x64.msi



macOS Installer

node-v14.16.0.pkg



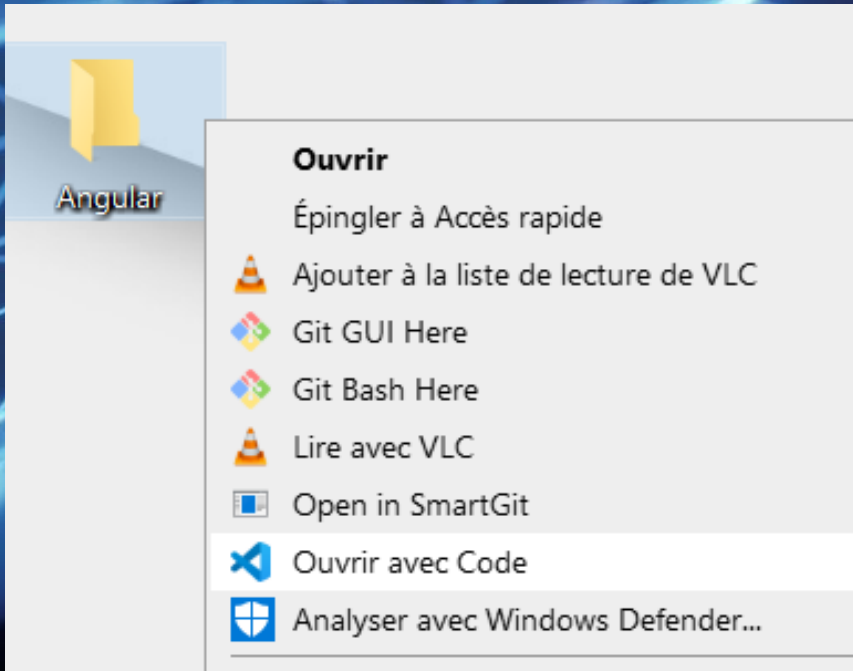
Source Code

node-v14.16.0.tar.gz

4
dernières versions LTS...

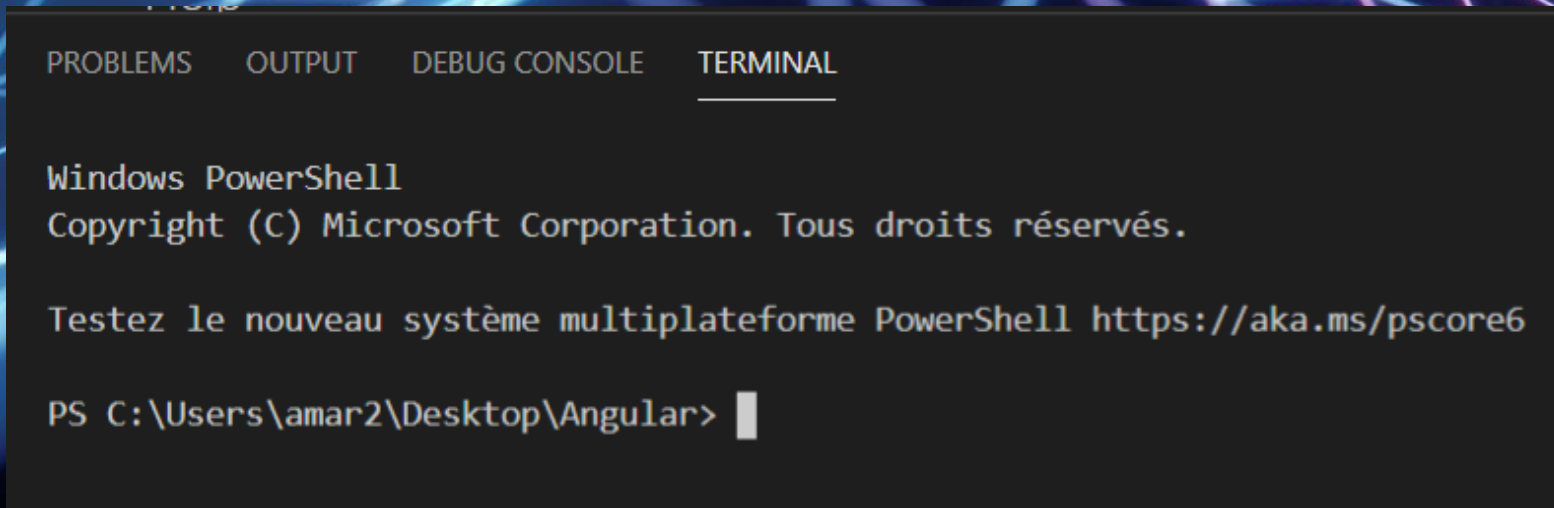
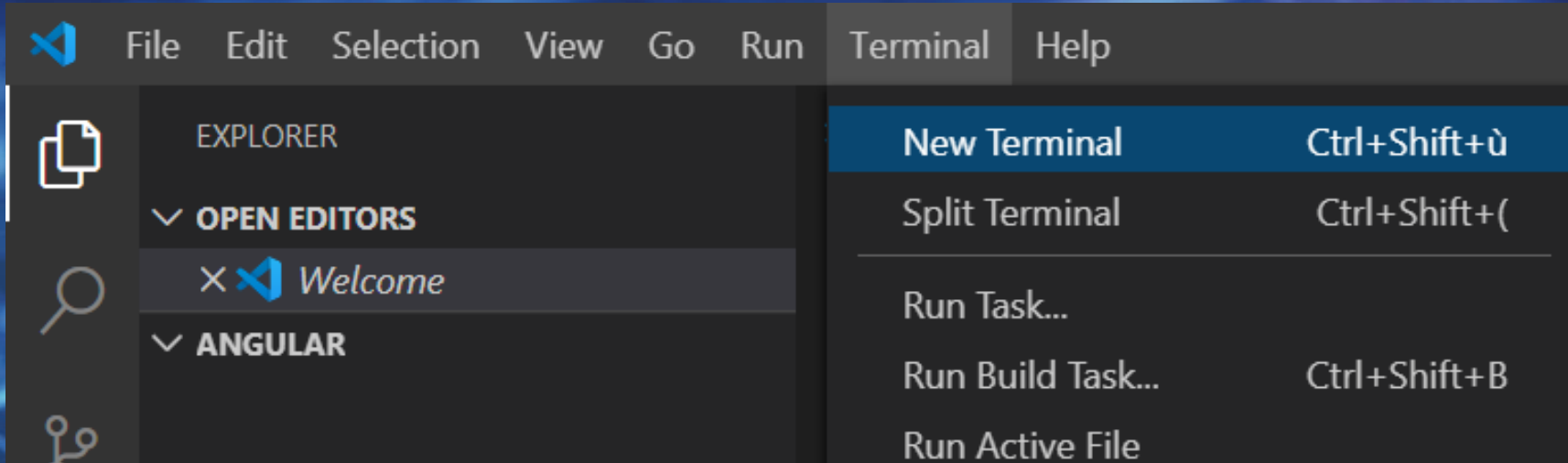


Créer un dossier Angular sur votre bureau
(ou ailleurs...)



Ouvrir le dossier dans VS Code

Terminal Command Line Interface



Vérifie la version et présence de Node et Npm

```
node -v
```

```
> node -v
```

```
> npm -v
```

```
npm -v
```

SI vous aviez **DEJA** Node ou Npm mais
pas à jour

```
npm install -g npm@latest
```

```
node install -g node@latest
```

Ou réinstaller via installer...

La CLI Angular ou mise à jour

```
npm install -g @angular/cli
```

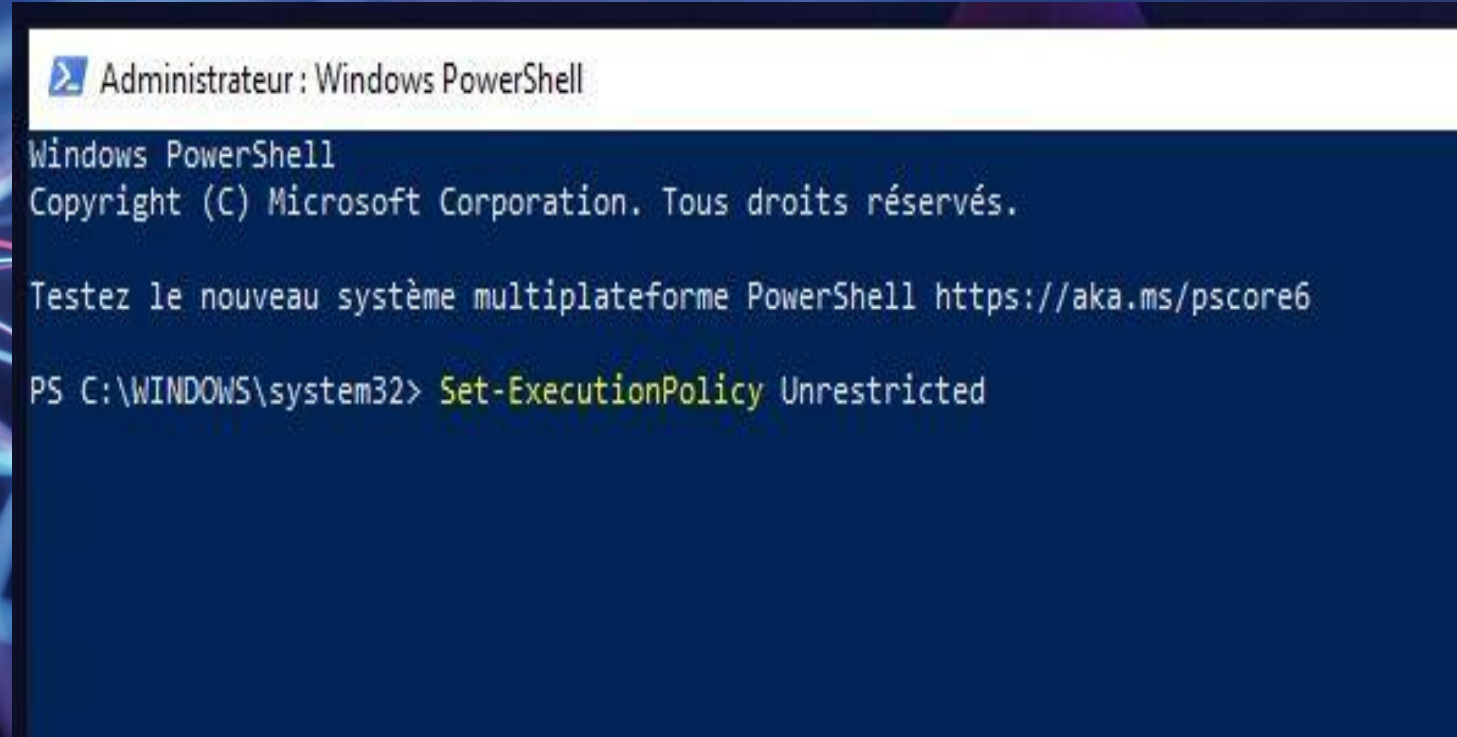
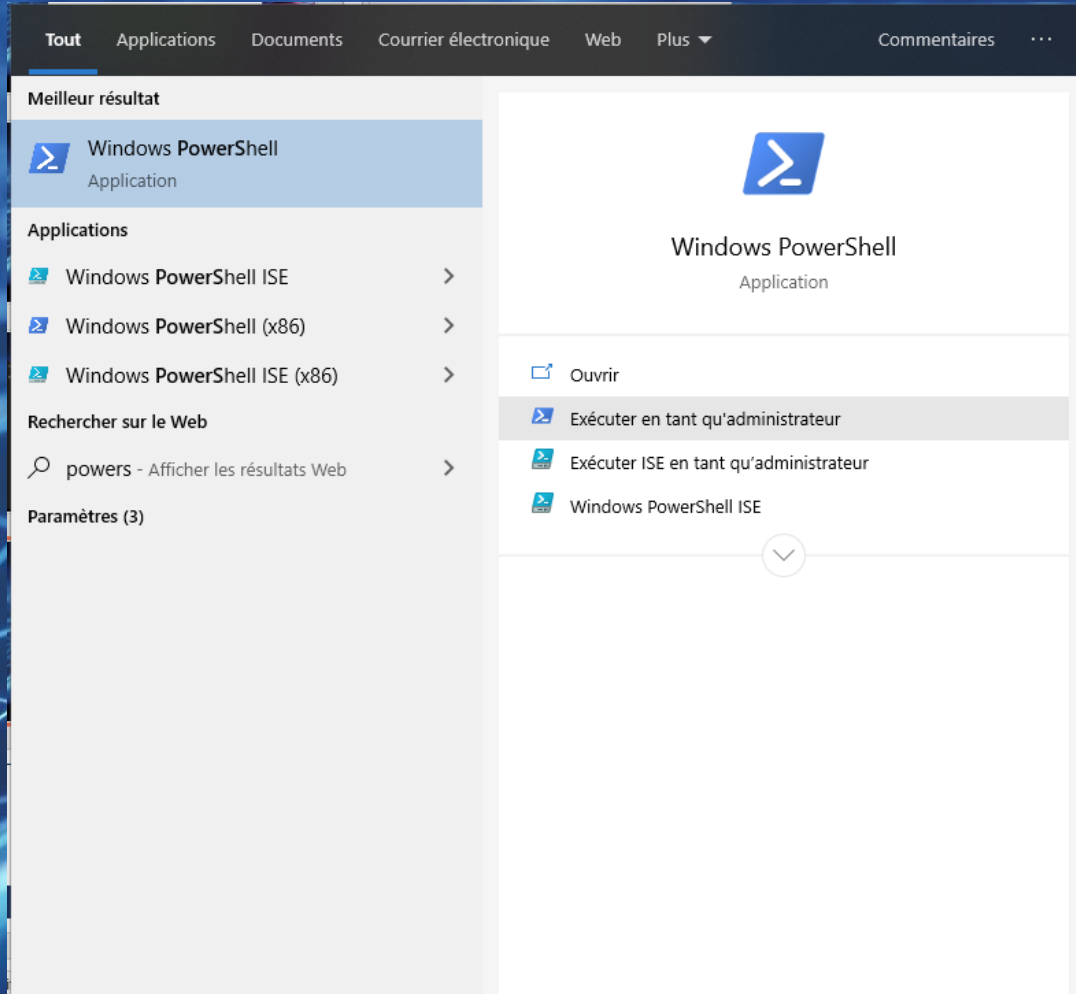
Pour mac



```
sudo npm install -g @angular/cli
```

```
npm install -g @angular/cli@latest
```

PowerShell En mode Administrateur



Set-ExecutionPolicy unrestricted

Possible bug

npm cache clean --force

Réinstaller node...et autres

NG pas npm
NG = Angular

ng help

GOOD



PAS COOL

```
updated 1 package in 6.449s
PS C:\Users\amar2\Desktop\Angular> ng help
Available Commands:
  add Adds support for an external library to
  analytics Configures the gathering of Angular
  build (b) Compiles an Angular app into an o
  y.
  deploy Invokes the deploy builder for a spec
  config Retrieves or sets Angular configurati
  doc (d) Opens the official Angular documenta
  e2e (e) Builds and serves an Angular app, th
  generate (g) Generates and/or modifies fil
```

```
For more detailed help run 'ng [command name] --help'
PS C:\Users\amar2\Desktop\Angular> ng help
ng : Impossible de charger le fichier C:\Users\amar2\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.I5594\B\about_Execution_Policies.ps1
plus d'informations, consultez about_Execution_Policies
Au caractère Ligne:1 : 1
+ ng help
+ ~~~
+ CategoryInfo          : Erreur de sécurité : (:) [
+ FullyQualifiedErrorId : UnauthorizedAccess
```


ng help

```
PS C:\Users\amar2\Desktop\Angular> ng help
```

Available Commands:

add Adds support for an external library to your project.
analytics Configures the gathering of Angular CLI usage data.
build (b) Compiles an Angular app into an output directory.
deploy Invokes the deploy builder for a specified project.
config Retrieves or sets Angular configuration values.
doc (d) Opens the official Angular documentation (angular.io).
e2e (e) Builds and serves an Angular app, then runs end-to-end tests.
generate (g) Generates and/or modifies files based on blueprints.
help Lists available commands and their short descriptions.
lint (l) Runs linting tools on Angular app code in a workspace.
new (n) Creates a new workspace and an initial Angular application.
run Runs an Architect target with an optional custom builder.
serve (s) Builds and serves your app, rebuilding on file changes.
test (t) Runs unit tests in a project.
update Updates your application and its dependencies to the latest version.
version (v) Outputs Angular CLI version.
xi18n (i18n-extract) Extracts i18n messages from source files.

For more detailed help run "ng [command name] --help"

Création d'un projet Angular:

```
ng new HelloWorld --skip-tests=true
```

```
ng new HelloWorld --skip-tests=true --no-standalone
```

Routing Y Yes - - CSS en style

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

1:

```
e2e (e) Builds and serves an Angular app, then runs end-to-end tests using Protractor.  
generate (g) Generates and/or modifies files based on a schematic.  
help Lists available commands and their short descriptions.  
lint (l) Runs linting tools on Angular app code in a given project folder.  
new (n) Creates a new workspace and an initial Angular app.  
run Runs an Architect target with an optional custom builder configuration defined in your project.  
serve (s) Builds and serves your app, rebuilding on file changes.  
test (t) Runs unit tests in a project.  
update Updates your application and its dependencies. See https://update.angular.io/  
version (v) Outputs Angular CLI version.  
xi18n (i18n-extract) Extracts i18n messages from source code.
```

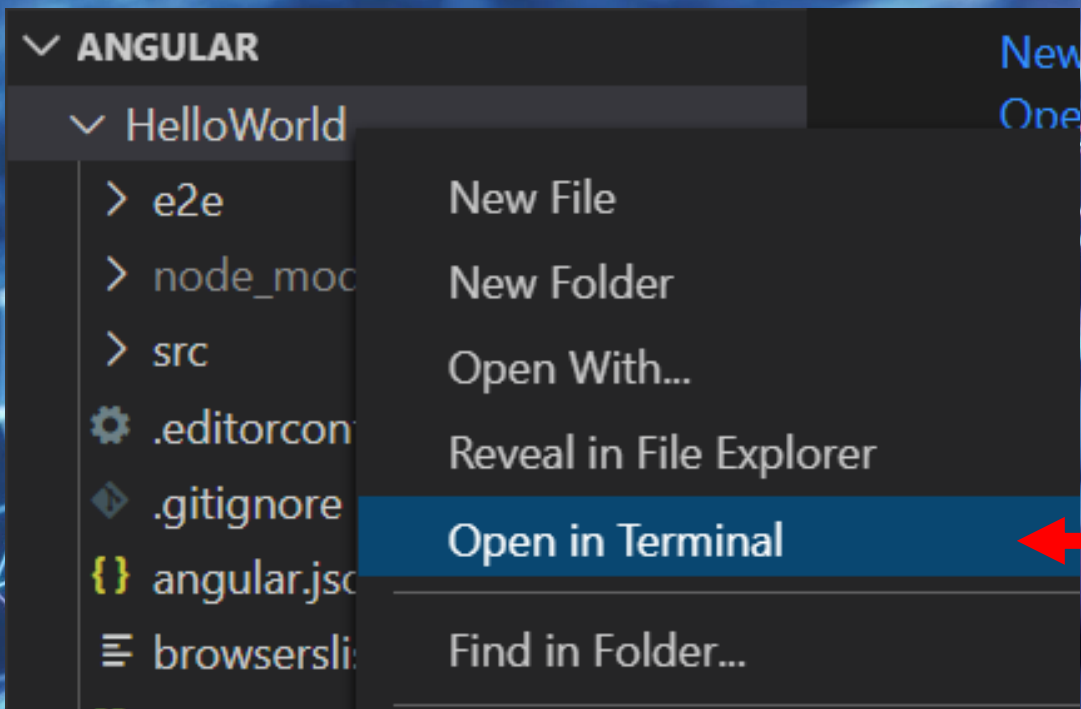
For more detailed help run "ng [command name] --help"

```
PS C:\Users\amar2\Desktop\Angular> ng new HelloWorld --skip-tests=true
```

I

Se déplacer dans le bon dossier

```
Successfully initialized git.  
PS C:\Users\amar2\Desktop\Angular>
```



```
PS C:\Users\amar2\Desktop\Angular\HelloWorld>
```

Pour vous plus tard

```
ng serve --help
```

```
For more detailed help run "ng [command name] --help"
```

```
--port  
  Port to listen on.
```

Lancer deux projets
Angular

ou un port différent

On va s'organiser comme ça

HelloWorld

Brouillon/Test/Prise de
note codant

VraiProjet

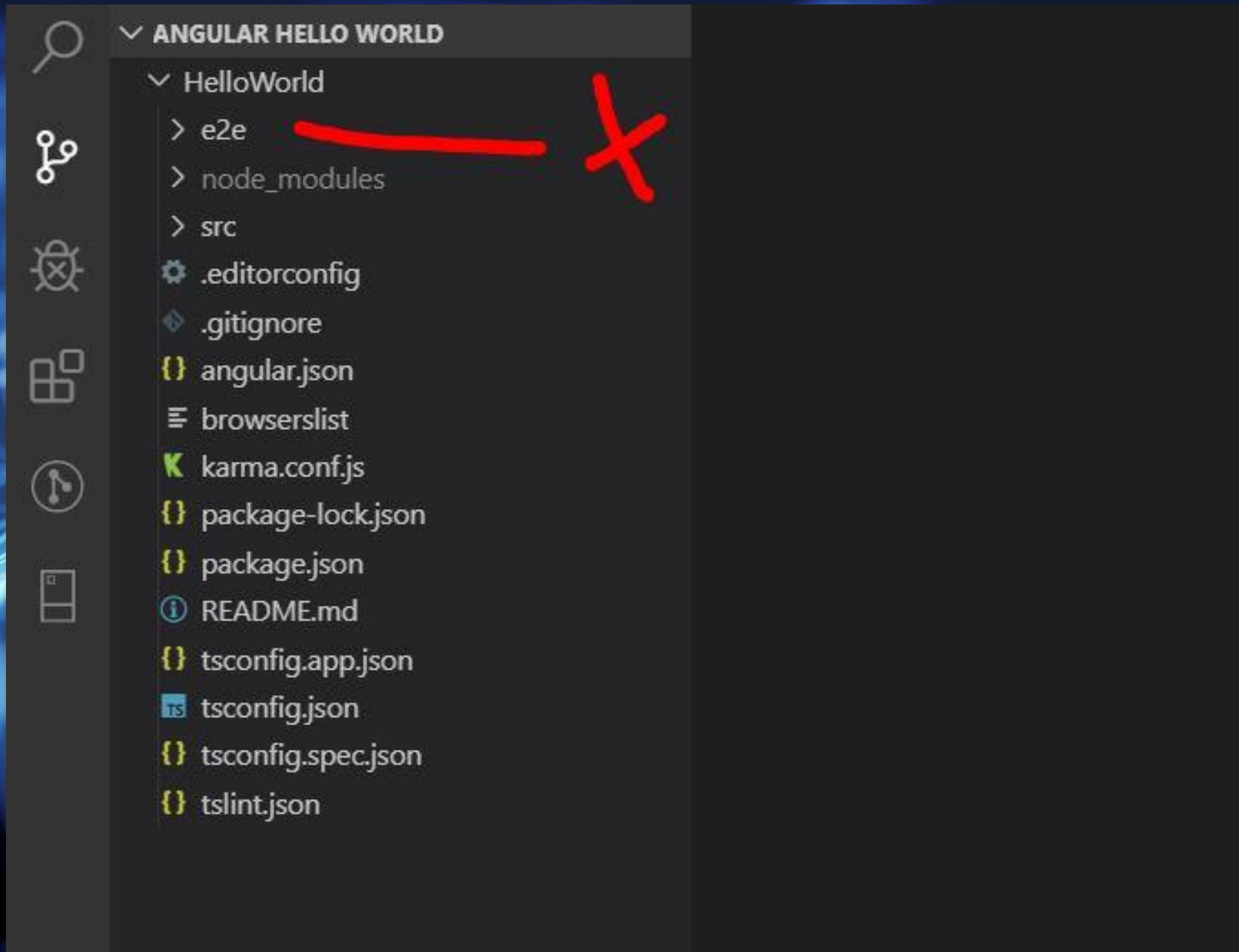
Au propre & tous pareils

Petite visite guidée d'un projet Angular

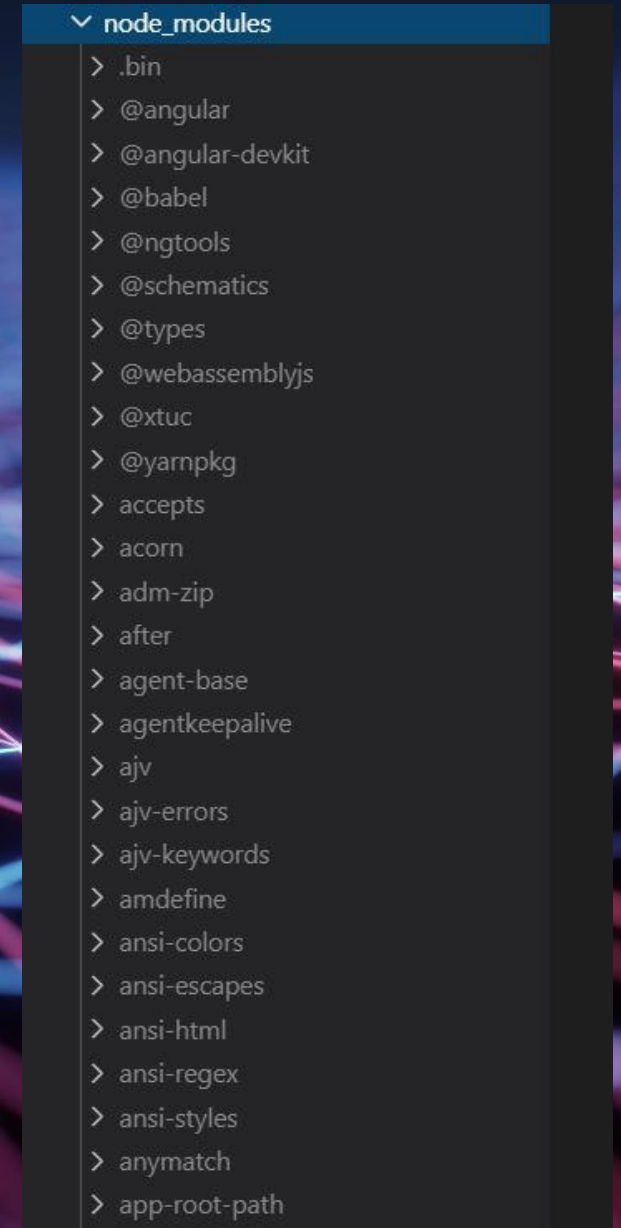
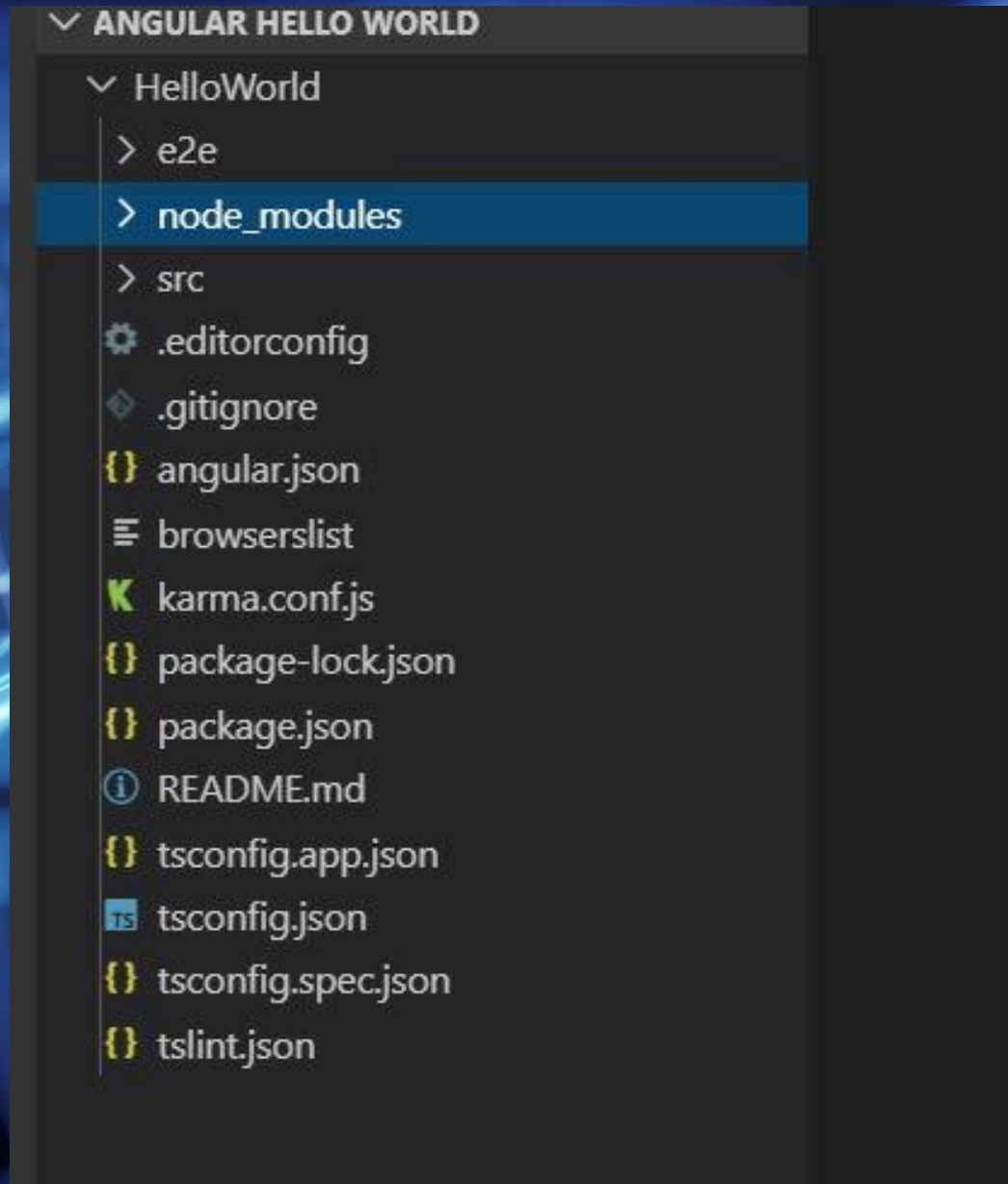
C'est partie !



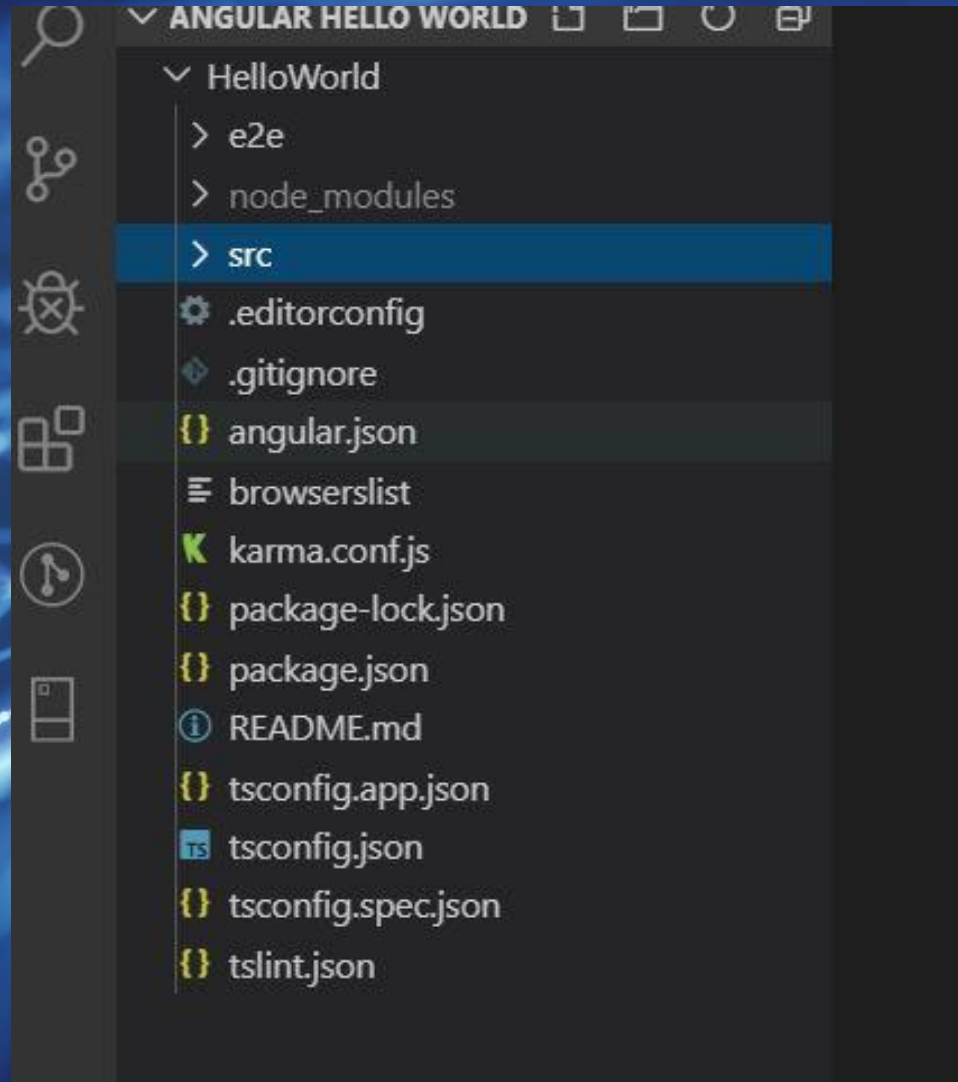
Dossier: e2e End to End



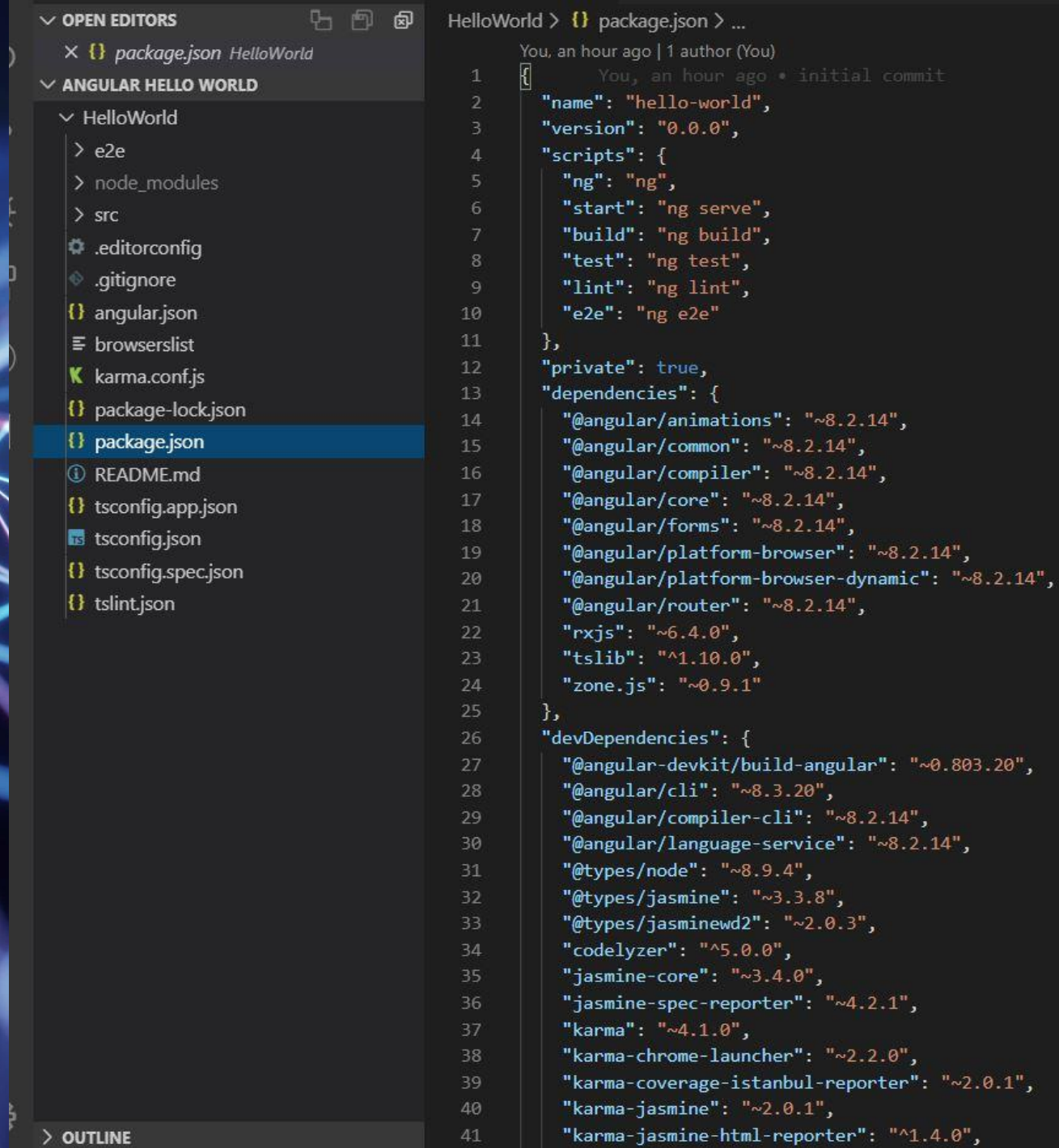
Dossier: node_modules



Dossier: src



Dossier: package.json



The screenshot displays the Visual Studio Code interface. On the left, the Explorer sidebar shows the project structure for 'ANGULAR HELLO WORLD', with 'package.json' selected. The main editor area shows the content of 'package.json'.

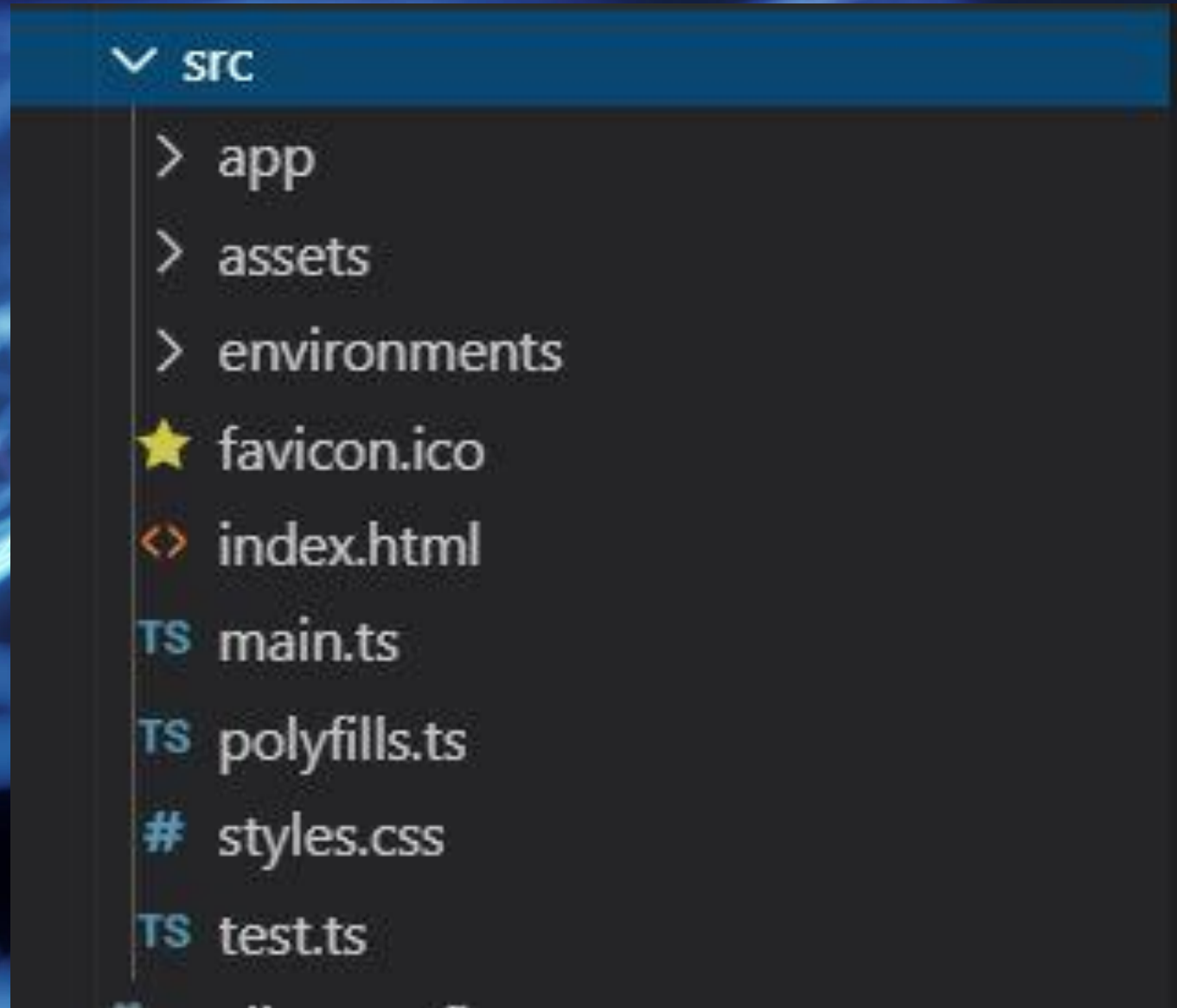
File Explorer (Left):

- OPEN EDITORS
 - package.json HelloWorld
- ANGULAR HELLO WORLD
 - HelloWorld
 - e2e
 - node_modules
 - src
 - .editorconfig
 - .gitignore
 - angular.json
 - browserslist
 - karma.conf.js
 - package-lock.json
 - package.json
 - README.md
 - tsconfig.app.json
 - tsconfig.json
 - tsconfig.spec.json
 - tslint.json

package.json Content (Right):

```
1  {
2    "name": "hello-world",
3    "version": "0.0.0",
4    "scripts": {
5      "ng": "ng",
6      "start": "ng serve",
7      "build": "ng build",
8      "test": "ng test",
9      "lint": "ng lint",
10     "e2e": "ng e2e"
11   },
12   "private": true,
13   "dependencies": {
14     "@angular/animations": "~8.2.14",
15     "@angular/common": "~8.2.14",
16     "@angular/compiler": "~8.2.14",
17     "@angular/core": "~8.2.14",
18     "@angular/forms": "~8.2.14",
19     "@angular/platform-browser": "~8.2.14",
20     "@angular/platform-browser-dynamic": "~8.2.14",
21     "@angular/router": "~8.2.14",
22     "rxjs": "~6.4.0",
23     "tslib": "^1.10.0",
24     "zone.js": "~0.9.1"
25   },
26   "devDependencies": {
27     "@angular-devkit/build-angular": "~0.803.20",
28     "@angular/cli": "~8.3.20",
29     "@angular/compiler-cli": "~8.2.14",
30     "@angular/language-service": "~8.2.14",
31     "@types/node": "~8.9.4",
32     "@types/jasmine": "~3.3.8",
33     "@types/jasminewd2": "~2.0.3",
34     "codemirror": "^5.0.0",
35     "jasmine-core": "~3.4.0",
36     "jasmine-spec-reporter": "~4.2.1",
37     "karma": "~4.1.0",
38     "karma-chrome-launcher": "~2.2.0",
39     "karma-coverage-istanbul-reporter": "~2.0.1",
40     "karma-jasmine": "~2.0.1",
41     "karma-jasmine-html-reporter": "^1.4.0",
```


Dossier: le fameux src



Dossier: index du projet

`<> index.html` ✕

HelloWorld > src > `<> index.html` > ...

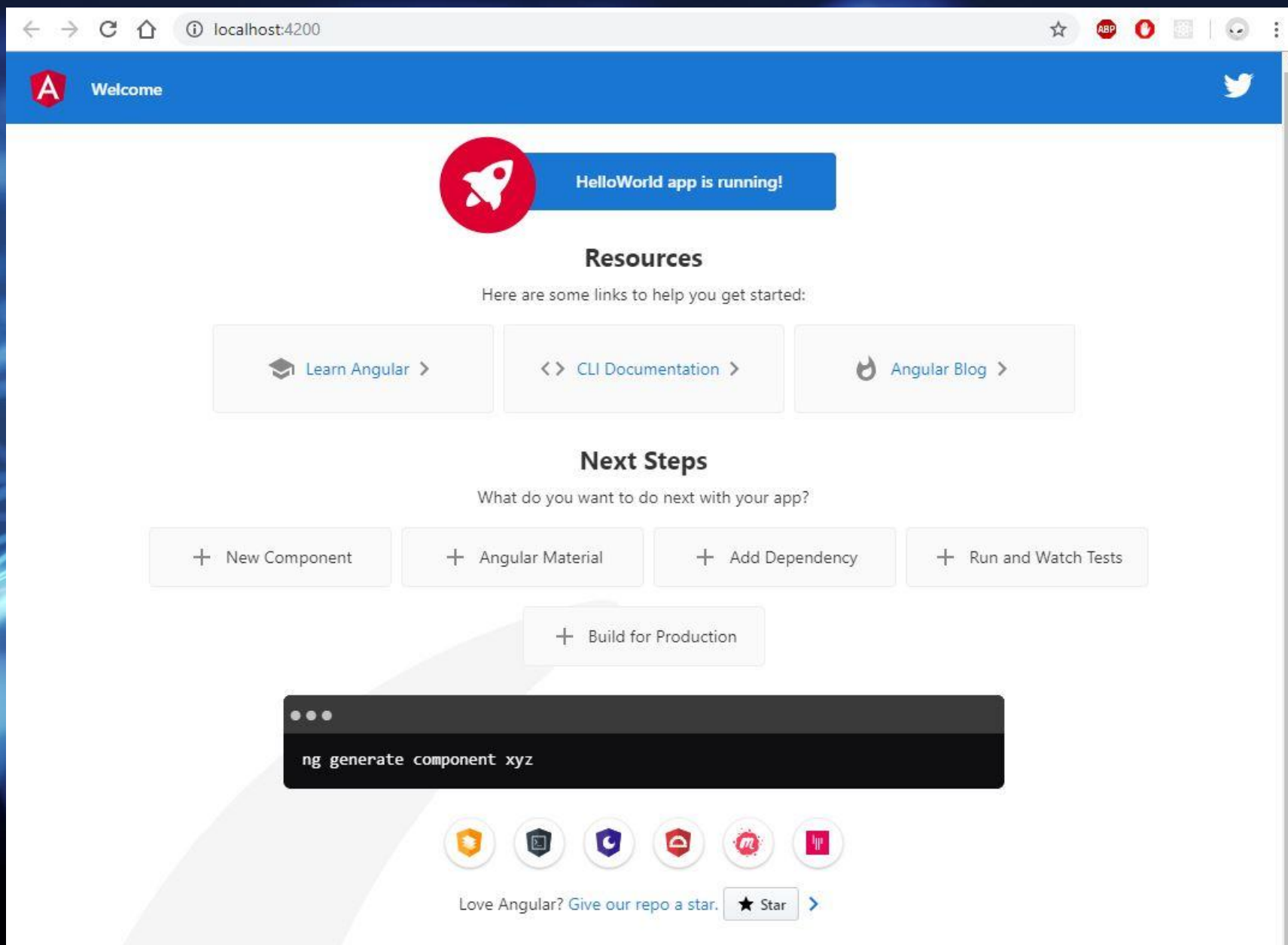
You, a day ago | 1 author (You)

```
1  <!doctype html>
2  <html lang="en">
3  <head>
4    <meta charset="utf-8">
5    <title>HelloWorld</title>
6    <base href="/">
7    <meta name="viewport" content="width=device-width, initial-scale=1">
8    <link rel="icon" type="image/x-icon" href="favicon.ico">
9  </head>
10 <body>
11   <app-root></app-root>
12 </body>
13 </html>
14 |
```


ng serve

```
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/environments/environment.ts.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/index.html.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/main.ts.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/polyfills.ts.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/styles.css.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/test.ts.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in tsconfig.app.json.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in tsconfig.json.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in tsconfig.spec.json.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in tslint.json.
The file will have its original line endings in your working directory
Successfully initialized git.
PS C:\Users\Amar2050\Desktop\Angular Hello World> cd HelloWorld
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld> |
```

<app-root></app-root>



<app-root></app-root>

The image shows a screenshot of the Visual Studio Code editor interface. On the left, the Explorer sidebar displays the project structure:

- EXPLORER
 - OPEN EDITORS
 - `index.html` HelloWorld\src
 - ANGULAR HELLO WORLD
 - HelloWorld
 - e2e
 - node_modules
 - src
 - app** (selected)
 - app-routing.module.ts
 - app.component.css
 - `app.component.html` (highlighted with a red bracket)
 - app.component.ts
 - app.module.ts
 - assets

On the right, the editor shows the `index.html` file with the following content:

```
1 <!doctype html>
2 <html lang="en">
3 <head>
4   <meta charset="utf-8">
5   <title>HelloWorld</title>
6   <base href="/">
7   <meta name="viewport" content="width=device-width, initial-s
8   <link rel="icon" type="image/x-icon" href="favicon.ico">
9 </head>
10 <body>
11 <app-root></app-root>
12 </body>
13 </html>
14
```

A red line connects the `app` folder in the Explorer to the `<app-root></app-root>` tag in the `index.html` file, indicating the relationship between the application component and its root element.

Dans `app.component.html` Hello World !

<> app.component.html X

HelloWorld > src > app > <> app.component.html >  div.container

You, a few seconds ago | 1 author (You)

```
1 <div class="container">
2   <h1 class="my-5 bg-dark text-center text-danger">
3     Hello World !
4   </h1>
5 </div>
```

You, 2 minutes ago • Uncommitted changes

app.component.ts

```
1  import { Component } from '@angular/core';
2
   You, a day ago | 1 author (You)
3  @Component({
4    selector: 'app-root',
5    templateUrl: './app.component.html',
6    styleUrls: ['./app.component.css']
7  })
8  export class AppComponent {
9    title = 'HelloWorld';
10 }
11
```

Test css

EXPLORER

OPEN EDITORS

✕ <> index.html HelloWorld\src

ANGULAR HELLO WORLD

HelloWorld

> e2e

> node_modules

✓ src

app

TS app-routing.module.ts

app.component.css

<> app.component.html

TS app.component.ts

TS app.module.ts

> assets

<> index.html ✕

HelloWorld > src > <> index.html > ...

```
1      You, a day ago | 1 author (You)
2      <!doctype html>
3      <html lang="en">
4      <head>
5          <meta charset="utf-8">
6          <title>HelloWorld</title>
7          <base href="/">
8          <meta name="viewport" content="width=device-width, initial-s
9          <link rel="icon" type="image/x-icon" href="favicon.ico">
10     </head>
11     <body>
12         <app-root></app-root>
13     </body>
14 </html>
```


npm install bootstrap --save

npm install bootstrap@4.6.1 --save

```
2  "private": true,  
3  "dependencies": {  
4    "@angular/animations": "~8.2.14",  
5    "@angular/common": "~8.2.14",  
6    "@angular/compiler": "~8.2.14",  
7    "@angular/core": "~8.2.14",  
8    "@angular/forms": "~8.2.14",  
9    "@angular/platform-browser": "~8.2.14",  
10   "@angular/platform-browser-dynamic": "~8.2.14",  
11   "@angular/router": "~8.2.14",  
12   "rxjs": "~6.4.0",  
13   "tslib": "^1.10.0",  
14   "zone.js": "~0.9.1"  
15 },  
16 "devDependencies": {
```

You, a day ago • initial commit

PROBLEMS DEBUG CONSOLE TERMINAL OUTPUT

C:\Users\Amar2050\Desktop\Angular Hello World\helloworld> npm install bootstrap --save

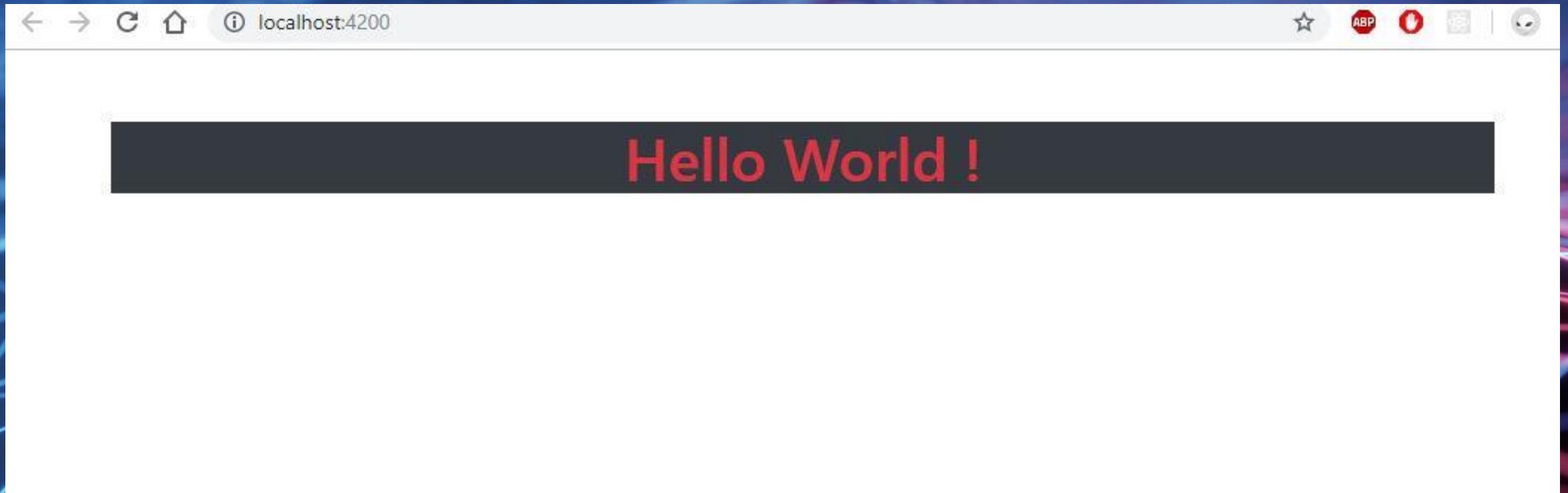
I

angular.json


```
31 "root": "",
32 "sourceRoot": "src",
33 "prefix": "app",
34 "architect": {
35   "build": {
36     "builder": "@angular-devkit/build-angular:browser",
37     "options": {
38       "outputPath": "dist/HelloWorld",
39       "index": "src/index.html",
40       "main": "src/main.ts",
41       "polyfills": "src/polyfills.ts",
42       "tsConfig": "tsconfig.app.json",
43       "aot": false,
44       "assets": [
45         "src/favicon.ico",
46         "src/assets"
47       ],
48       "styles": [
49         "node_modules/bootstrap/dist/css/bootstrap.css",
50         "src/styles.css"
51       ],
52       "scripts": []
```

You, a day ago • initial commit

Hello World + Bootstrap



String Interpolation – dans le template

src > app > <> app.component.html >  div.container

You, a few seconds ago | 1 author (You)

```
1 <div class="container">
2   <h1 class="my-5 bg-dark text-center text-danger">
3     {{ title }}
4   </h1>
5 </div>
```

You, a few seconds ago • Uncommitted changes

String Interpolation – dans la class

```
src > app > TS app.component.ts > ...  
You, a few seconds ago | 1 author (You)  
1 import { Component } from '@angular/core';  
2  
You, a few seconds ago | 1 author (You)  
3 @Component({  
4   selector: 'app-root',  
5   templateUrl: './app.component.html',  
6   styleUrls: ['./app.component.css']  
7 })  
8 export class AppComponent {  
9   title = 'Hello World 2.0 !';  
10 }  
11 |
```

Un component

Hello World 2.0 !

Un composant

=

Une Classe + Une Vue (Template)

app.module.ts

src > app > TS app.module.ts > ...

You, a minute ago | 1 author (You)

```
1 import { BrowserModule } from '@angular/platform-browser';
2 import { NgModule } from '@angular/core';
3
4 import { AppRoutingModule } from './app-routing.module';
5 import { AppComponent } from './app.component';
6
```

You, a minute ago | 1 author (You)

```
7 @NgModule({
8   declarations: [
9     AppComponent,
10  ],
11  imports: [
12    BrowserModule,
13    AppRoutingModule
14  ],
15  providers: [],
16  bootstrap: [AppComponent]
17 })
18 export class AppModule { }
19 |
```

Créer un component

ng generate component header

EXPLORER

> OPEN EDITORS

✓ HELLOWORLD

> e2e

> node_modules

✓ src

✓ app

> header

TS app-routing.module.ts

app.component.css

<> app.component.html

TS app.component.ts

TS app.module.ts

> assets

> environments

★ favicon.ico

<> index.html

TS main.ts

TS polyfills.ts

styles.css

TS test.ts

⚙ .editorconfig

📄 .gitignore

angular.json

TS app.module.ts

app.component.html

TS app.component.ts

TS app-routing.module.ts

src > app > TS app.module.ts > ...

You, a few seconds ago | 1 author (You)

```
1 import { BrowserModule } from '@angular/platform-browser';
2 import { NgModule } from '@angular/core';
3
4 import { AppRoutingModule } from './app-routing.module';
5 import { AppComponent } from './app.component';
6 import { HeaderComponent } from './header/header.component';
7
8 @NgModule({
9   declarations: [
10     AppComponent,
11     HeaderComponent,
12   ],
13   imports: [
14     BrowserModule,
15     AppRoutingModule
16   ],
17   providers: [],
18   bootstrap: [AppComponent]
19 })
20 export class AppModule {}
```

PROBLEMS

DEBUG CONSOLE

TERMINAL

OUTPUT

```
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld> ng generate component header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.ts (269 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (476 bytes)
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld>
```


Life Cycle

```
src > app > header > ts header.component.ts > ...  
1  import { Component, OnInit } from '@angular/core';  
2  
3  @Component({  
4    selector: 'app-header',  
5    templateUrl: './header.component.html',  
6    styleUrls: ['./header.component.css']  
7  })  
8  export class HeaderComponent implements OnInit {  
9  
10     constructor() { }  
11  
12     ngOnInit() {  
13     }  
14  
15  }  
16
```

Life Cycle

1er

- **ngOnChanges**

2e

- **ngOnInit**

3e

- **ngDoCheck**

4e

- **ngAfterViewInit**

5e

- **ngOnDestroy**

header.component.html

src > app > header > <> header.component.html > nav.navbar.navbar-expand.navl

```
1  <nav class="navbar navbar-expand navbar-dark bg-dark">
2
3      <a class="navbar-brand text-danger" href="#">Drive-X</a>
4
5      <ul class="navbar-nav ">
6          <li class="nav-item">
7              <a class="nav-link" href="#">Voitures</a>
8          </li>
9          <li class="nav-item active">
10             <a class="nav-link" href="#">Pilotes</a>
11          </li>
12      </ul>
13
14  </nav>
```

Intégrer un component statique

➤ app.component.html X

You, 10 minutes ago | 1 author (You)

```
1 <app-header></app-header>
```

```
2 <div class="container">
```

```
3   <h1 class="my-5 bg-dark text-center text-danger">
```

```
4     {{ title }}
```

```
5   </h1>
```

```
6 </div>
```

You, 10 minutes ago • Uncommitted changes

Drive-X Voitures Pilotes

Drive-X

Créer carsList et driversList component

```
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld> ng generate component carsList
CREATE src/app/cars-list/cars-list.component.html (24 bytes)
CREATE src/app/cars-list/cars-list.component.ts (280 bytes)
CREATE src/app/cars-list/cars-list.component.css (0 bytes)
UPDATE src/app/app.module.ts (568 bytes)
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld> ng generate component driversList
CREATE src/app/drivers-list/drivers-list.component.html (27 bytes)
CREATE src/app/drivers-list/drivers-list.component.ts (292 bytes)
CREATE src/app/drivers-list/drivers-list.component.css (0 bytes)
UPDATE src/app/app.module.ts (672 bytes)
PS C:\Users\Amar2050\Desktop\Angular Hello World\HelloWorld> █
```

ng generate component carsList

ng generate component driversList

ponent.html

<> cars-list.component.html X

...

<> drivers-list.component.html X

src > app > cars-list > <> cars-list.component.html > ...

```
1 <h1 class="my-5">
2   Nos Vehicules
3 </h1>
4
```

src > app > drivers-list > <> drivers-list

```
1 <h1 class="my-5">
2   Nos Pilotes
3 </h1>
```

QUIZ 1/5

`npm -v` et `node -v`

C'est pour installer la version lts

• A

Vérifier la présence de node et npm et la version installé

• B

ça démarre un projet node ou npm avec la dernière version

• C

Ça configure notre machine pour npm et node

• D

QUIZ 1/5

npm -v et node -v

C'est pour installer la version lts

• A

Vérifier la présence de node et npm et la version installé

• B

ça démarre un projet node ou npm avec la dernière version

• C

Ça configure notre machine pour npm et node

• D

QUIZ 2/5

Après avoir installer la CLI de Angular

On peut utiliser le terme ng si notre machine nous permet l'utilisation de script

• A

Il faut télécharger Angular sur le site officiel

• B

On peut faire un **ng** create new MonProjet

• C

On peut faire un **ng** new MonProjet et rajouter des flags pour skipper des choses...

• D

QUIZ 2/5

Après avoir installer la CLI de Angular

On peut utiliser le terme ng si notre machine nous permet l'utilisation de script

• A

Il faut télécharger Angular sur le site officiel

• B

On peut faire un **ng** create new MonProjet

• C

On peut faire un **ng** new MonProjet et rajouter des flags pour skipper des choses...

• D

QUIZ 3/5

Un projet Angular c'est

Un ensemble de fichiers JS et HTML

• A

C'est bien !

• B

Un peu de toutes extensions mais on bosse dans le dossier SRC principalement

• C

Un framework de Google et un langage de programmation de Microsoft

• D

QUIZ 3/5

Un projet Angular c'est

Un ensemble de fichiers JS et HTML

• A

C'est bien !

• B

Un peu de toutes extensions mais on bosse dans le dossier SRC principalement

• C

Un framework de Google et un langage de programmation de Microsoft

• D

QUIZ 4/5

AppComponent

C'est un component de base

• A

Il faut le créer avec un ng generate component

• B

Je ne l'ai pas !

• C

C'est le component qui va accueillir les autres

• D

AppComponent

C'est un component de base

• A

Il faut le créer avec un ng generate component

• B

Je ne l'ai pas !

• C

C'est le component qui va accueillir les autres

• D

QUIZ 5/5

Un component c'est

C'est 3 fichiers minimum

• A

C'est 1 fichier

• B

C'est une brique indépendante

• C

C'est des modules de services

• D

QUIZ 5/5

Un component c'est

C'est 3 fichiers minimum

• A

C'est 1 fichier

• B

C'est une brique indépendante

• C

C'est des modules de services

• D