

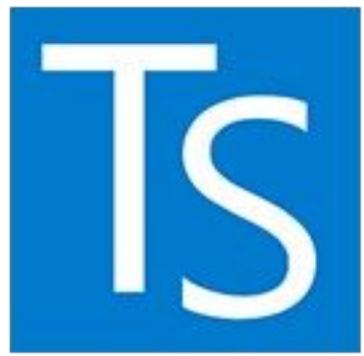


Graduação em Análise de  
Sistemas

Tecnologia Web III



# ANGULAR



# TypeScript

# O que é o Angular?

FrameWork para desenvolvimento de aplicações web, desktop e mobile.

Atua na parte front-end

Baseado em typescript



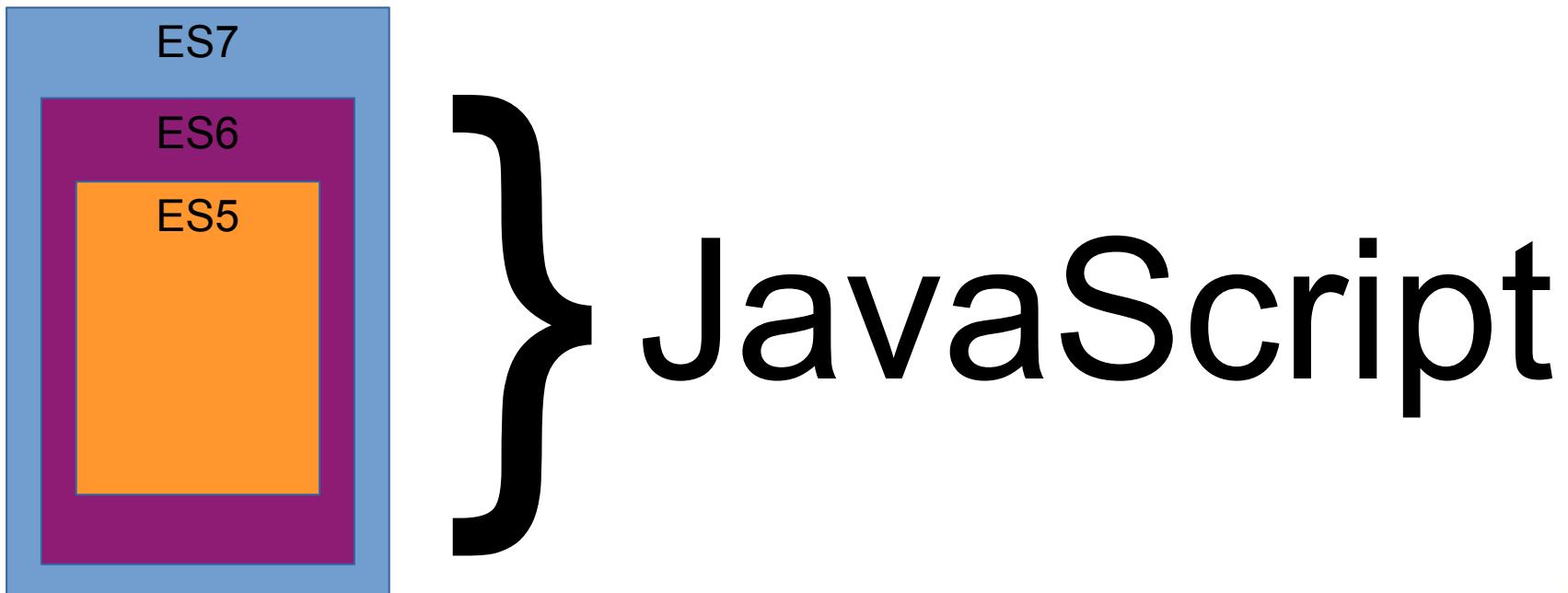
# **Antes de entrar no Angular precisamos trabalhar com TypeScript**

O que é o  
TypeScript?

TypeScript é um superconjunto de JavaScript desenvolvido pela Microsoft que adiciona tipagem e alguns outros recursos a linguagem.

# JavaScript e ECMAScript

ECMAScript é uma especificação de linguagem, ou seja, ela define os padrões para uma linguagem de programação, e o JavaScript é a implementação desses padrões



# JavaScript



# TypeScript

Todos os ECMAScript

Transpile

JavaScript



# Mão na Massa



# TypeScript vs JavaScript

<https://www.typescriptlang.org>

/



TS TypeScript

Download Docs Handbook Community Playground Tools

Playground

TS Config ▾ Examples ▾ What's New ▾

v4.1.5 ▾ Run Export ▾ Share



.JS .D.TS Errors

```
1 let nome:string
2
3 function validar(nome:string):number{
4     return 1
5 }
```

```
"use strict";
let nome;
function validar(nome) {
    return 1;
}
```

# Instalação das

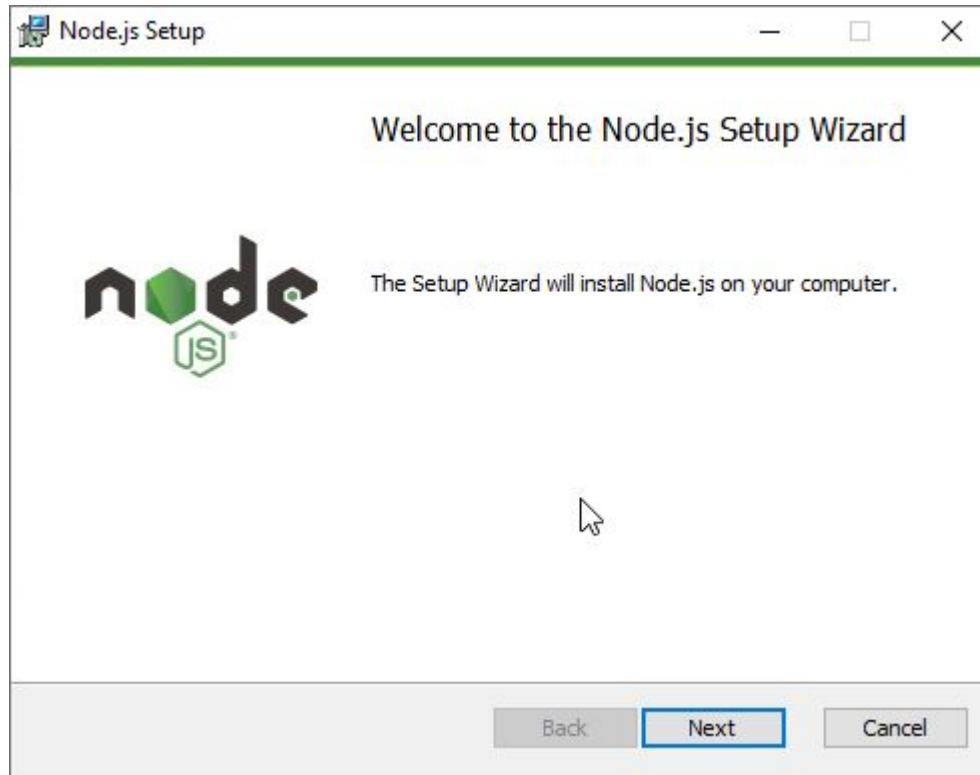
## ferramentas

<https://nodejs.org/en/>

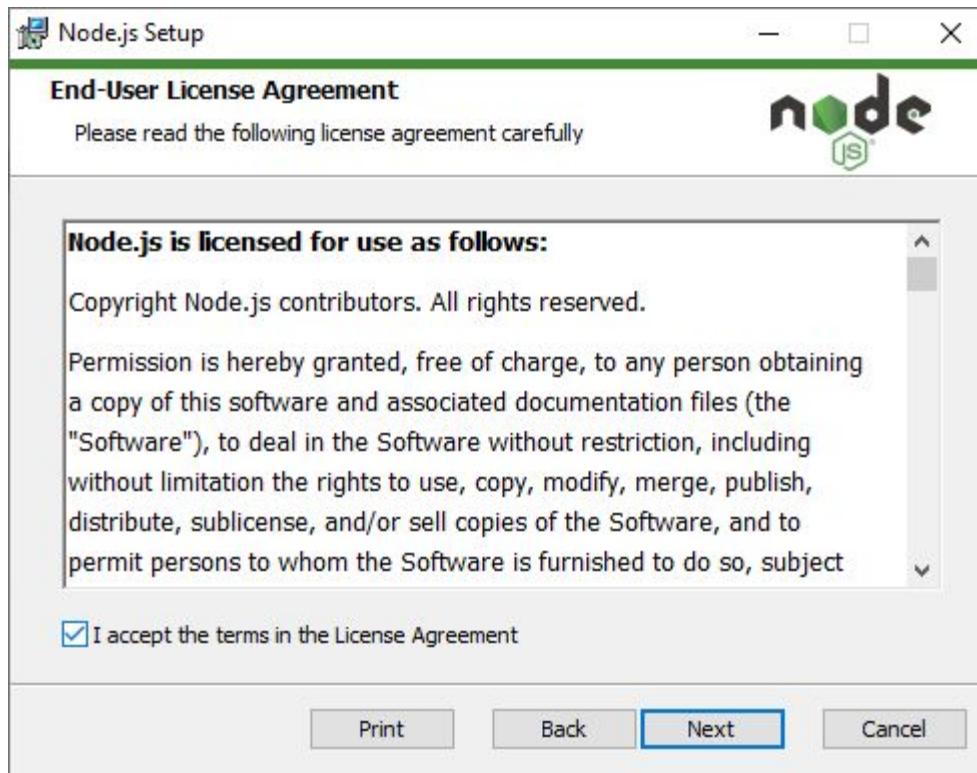
- Controla as dependências de um projeto
- Auxilia na execução do código
- Instalação do Angular e TypeScript

The screenshot shows the official Node.js website at [nodejs.org/en/](https://nodejs.org/en/). The page features a dark header with the Node.js logo and navigation links for HOME, ABOUT, DOWNLOADS, DOCS, GET INVOLVED, SECURITY, CERTIFICATION, and NEWS. Below the header, a green banner states "Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine." A "#BlackLivesMatter" button is visible. A green callout box highlights "New security releases to be made available February 23, 2021". The main content area is titled "Download for Windows (x64)" and offers two options: "14.15.5 LTS" (Recommended For Most Users) and "15.9.0 Current" (Latest Features). A blue arrow points to the "14.15.5 LTS" button. At the bottom, there are links for "Other Downloads | Changelog | API Docs" under each download option.

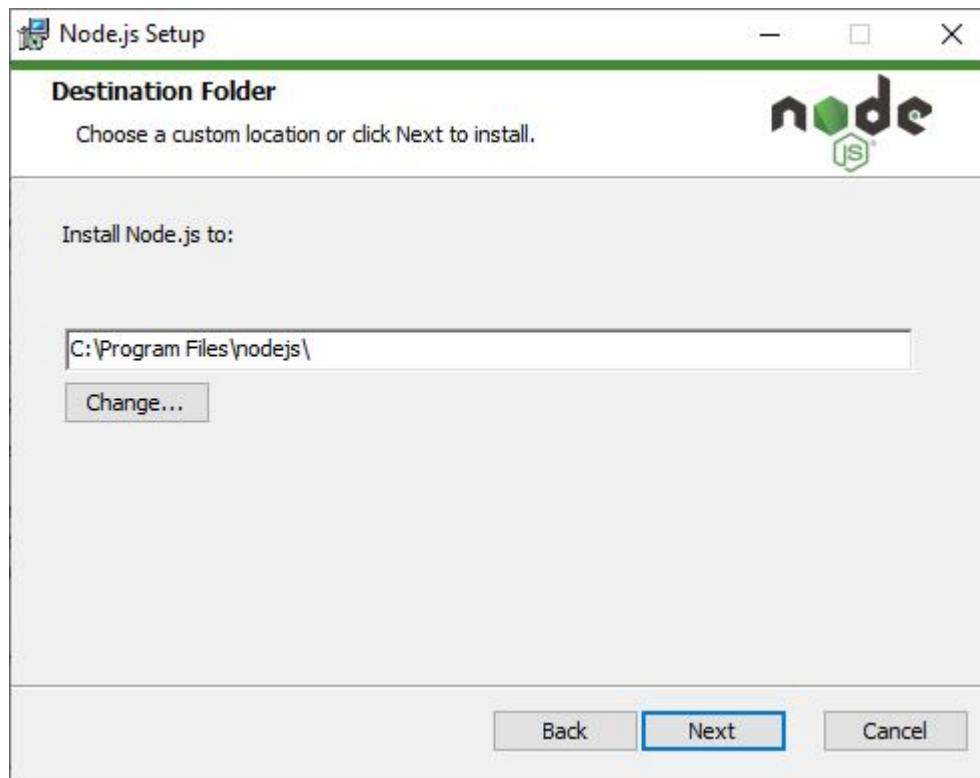
# Instalação nodejs



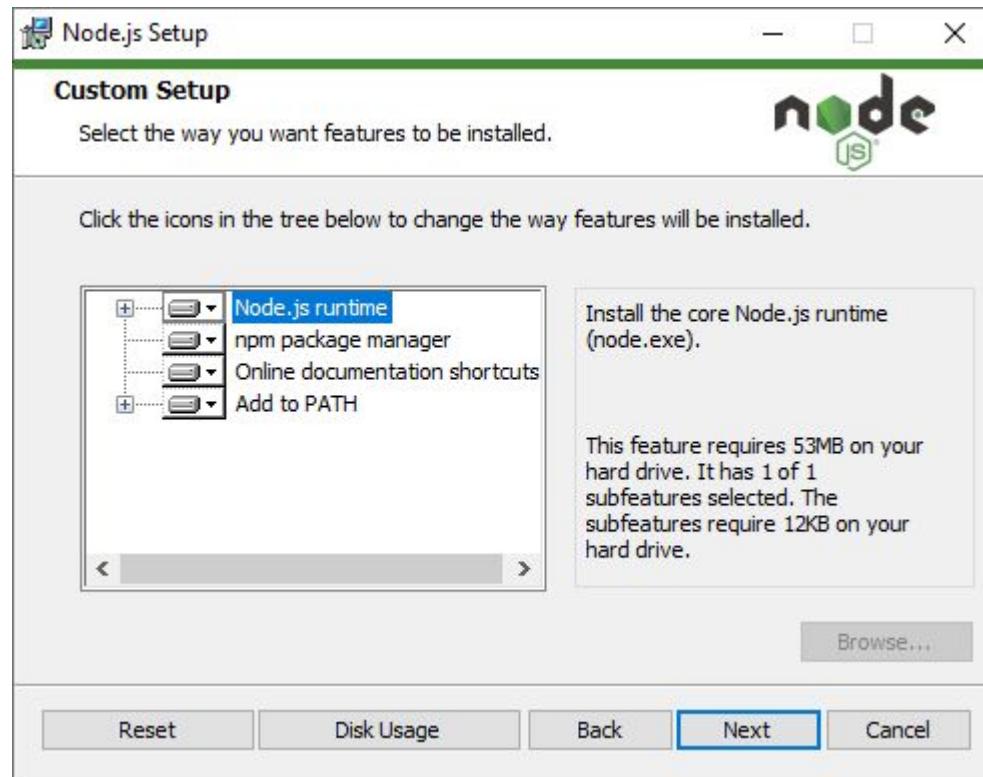
# Instalação nodejs



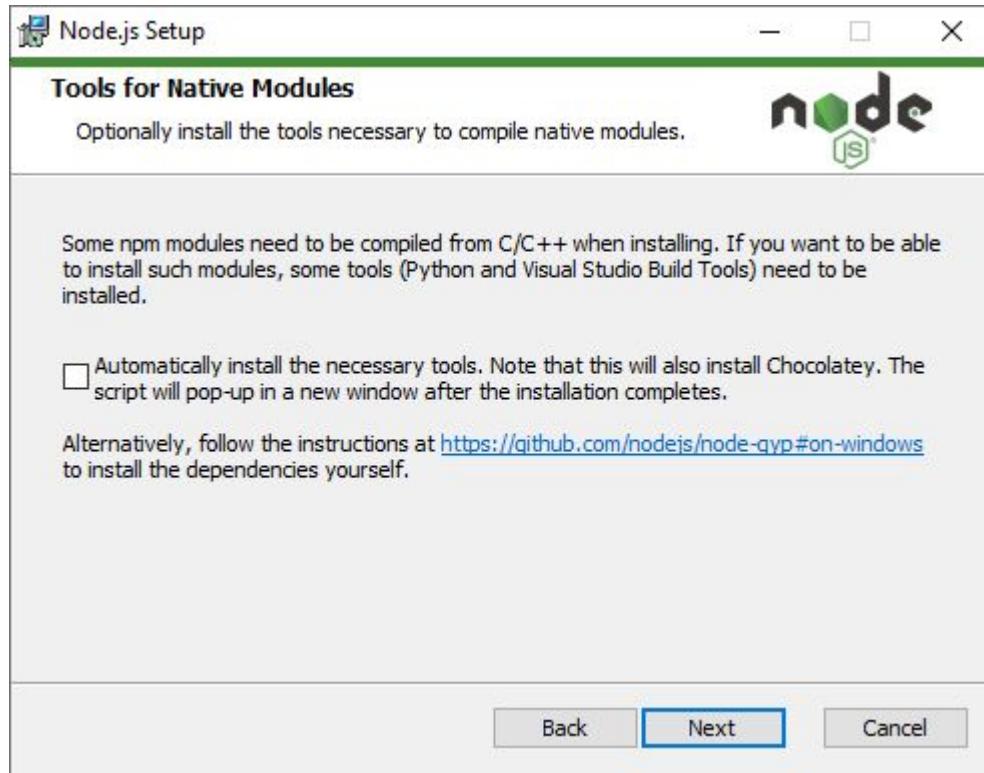
# Instalação nodejs



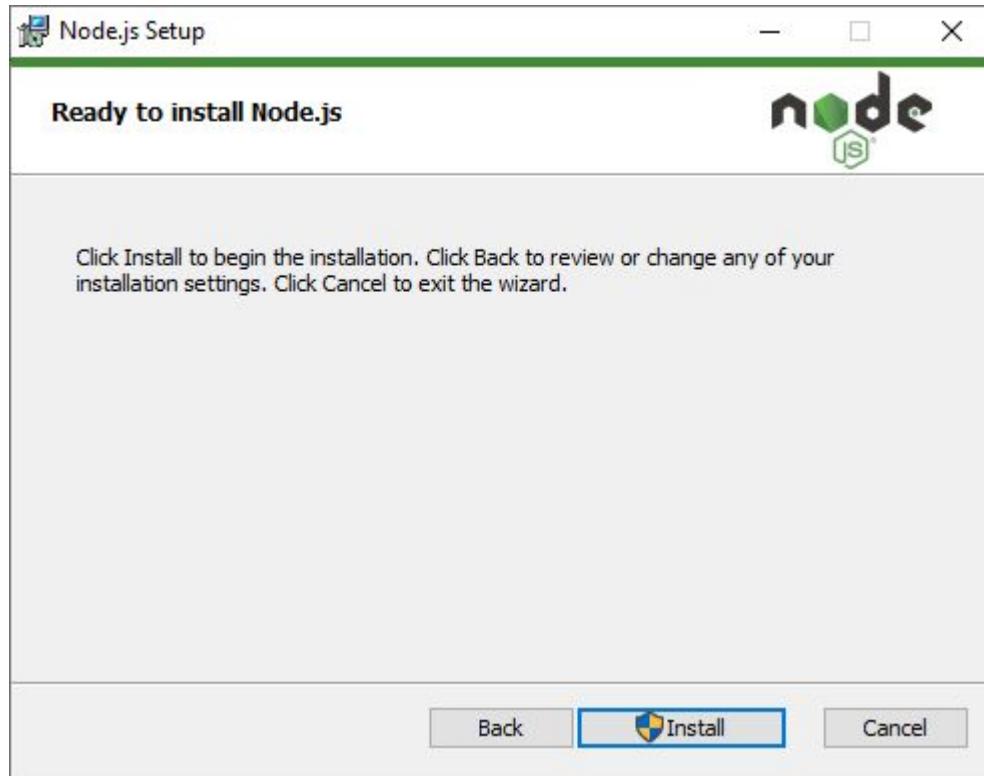
# Instalação nodejs



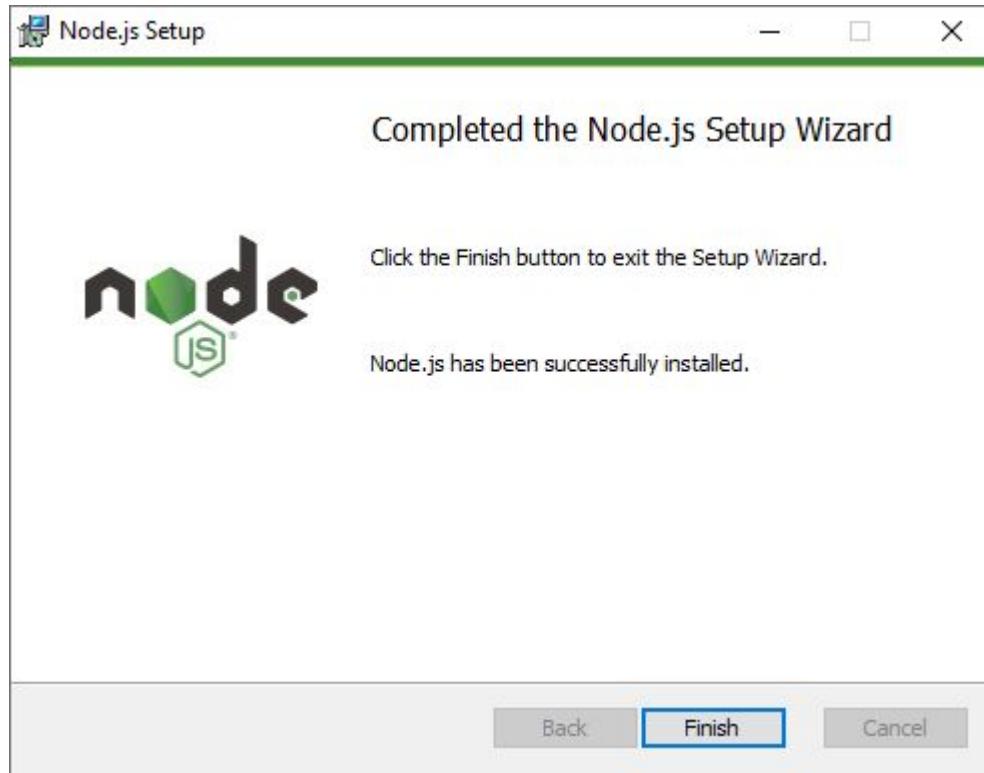
# Instalação nodejs



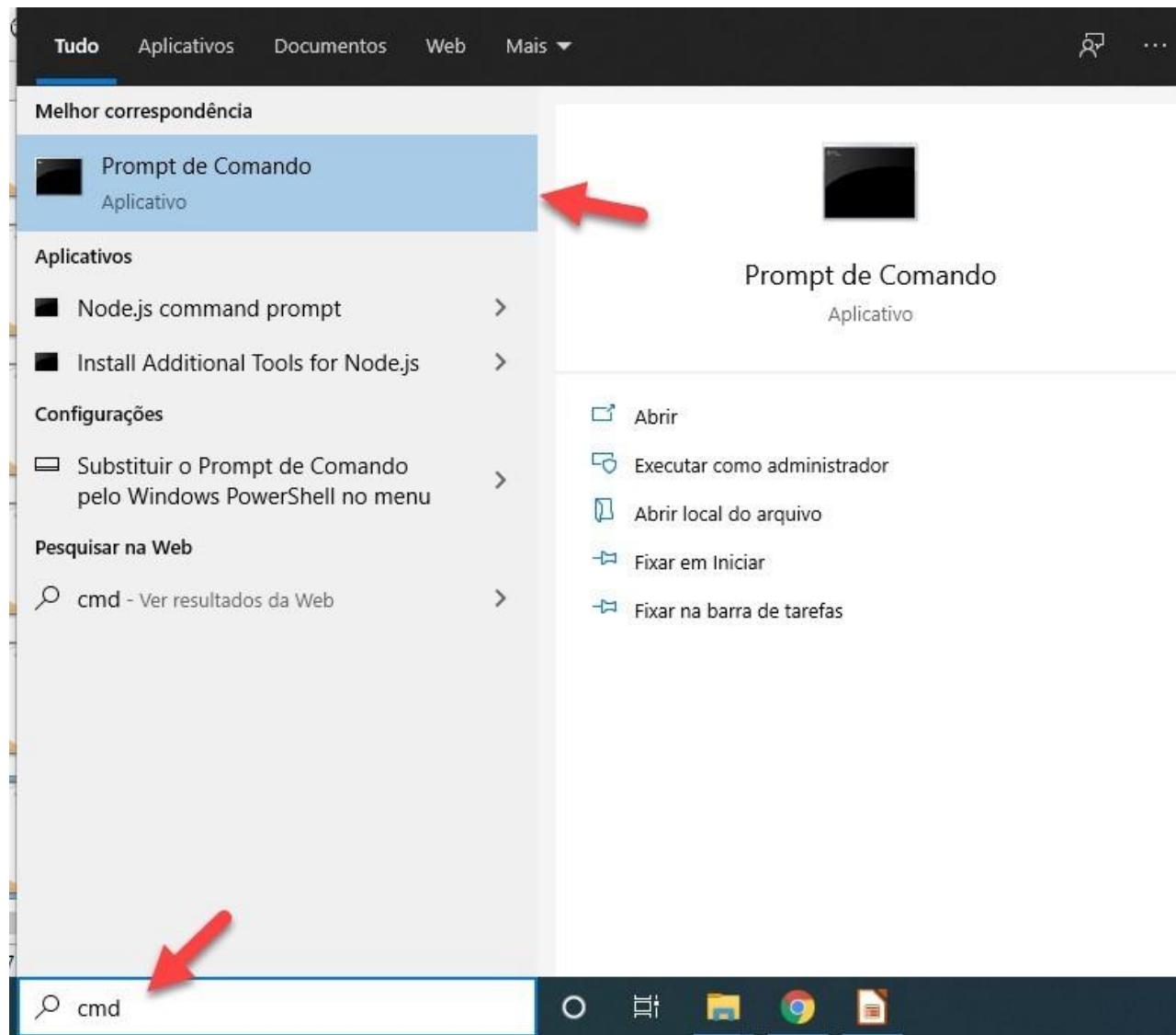
# Instalação nodejs



# Instalação nodejs



# Instalação nodejs



# Instalação nodejs

```
C:\ Prompt de Comando  
Microsoft Windows [versão 10.0.19042.804]  
(c) 2020 Microsoft Corporation. Todos os direitos reservados.  
  
C:\Users\Estruc>node -v  
v14.15.5  
C:\Users\Estruc>
```



# Instalação TypeScript

Prompt de Comando

Microsoft Windows [versão 10.0.19042.804]  
(c) 2020 Microsoft Corporation. Todos os direitos reservados.

C:\Users\Estruc>npm -v  
6.14.11

C:\Users\Estruc>npm install -g typescript  
C:\Users\Estruc\AppData\Roaming\npm\tsc -> C:\Users\Estruc\AppData\Roaming\npm\node\_modules\typescript\bin\tsc  
C:\Users\Estruc\AppData\Roaming\npm\tsserver -> C:\Users\Estruc\AppData\Roaming\npm\node\_modules\typescript\bin\tsserver+ typescript@4.1.5  
added 1 package from 1 contributor in 27.618s

C:\Users\Estruc>tsc -v  
Version 4.1.5



# Compilando um arquivo TypeScript com tsc (somente faz o transpile)

1) Abra o bloco de notas e digite o código abaixo:

```
2) let nome:string  
    console.log("Informação no console")
```

3) Salve o arquivo com o nome teste.ts

4) Abra a linha de comando (CMD)

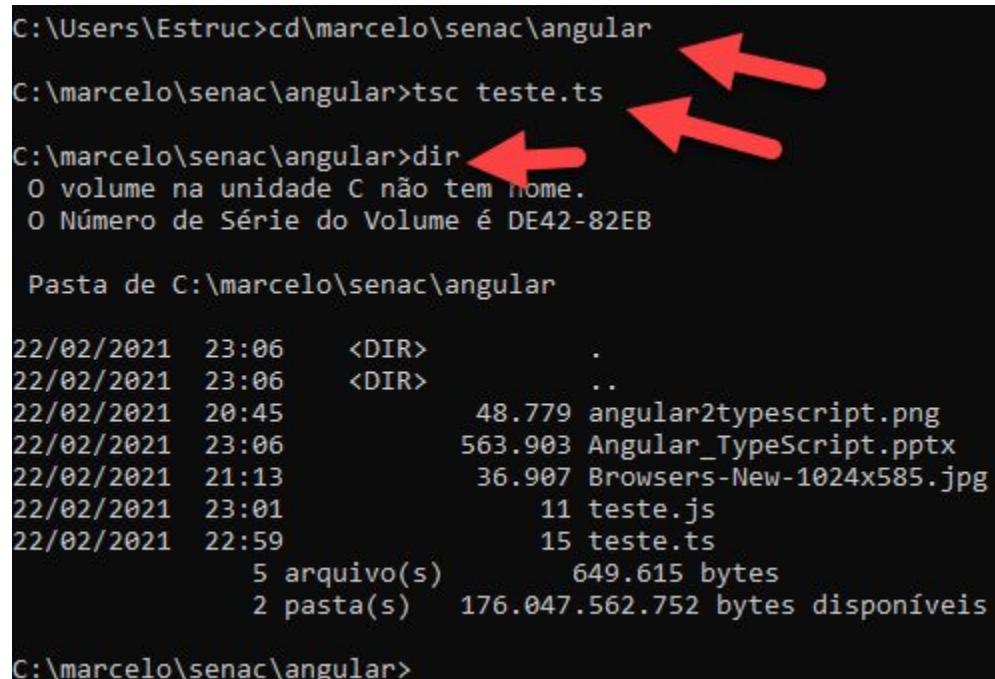
5) Vá para o diretório que o arquivo teste.ts foi criado

6) Digite tsc teste.ts

7) Abra a pasta que esta o seu arquivo

8) teste.ts pelo windows explorer

9) Encontre o arquivo teste.js



The screenshot shows a Windows Command Prompt window with the following text:

```
C:\Users\Estruc>cd\marcelo\senac\angular  
C:\marcelo\senac\angular>tsc teste.ts  
C:\marcelo\senac\angular>dir  
O volume na unidade C não tem nome.  
O Número de Série do Volume é DE42-82EB  
  
Pasta de C:\marcelo\senac\angular  
  
22/02/2021 23:06 <DIR> .  
22/02/2021 23:06 <DIR> ..  
22/02/2021 20:45 48.779 angular2typescript.png  
22/02/2021 23:06 563.903 Angular_TypeScript.pptx  
22/02/2021 21:13 36.907 Browsers-New-1024x585.jpg  
22/02/2021 23:01 11 teste.js  
22/02/2021 22:59 15 teste.ts  
5 arquivo(s) 649.615 bytes  
2 pasta(s) 176.047.562.752 bytes disponíveis  
  
C:\marcelo\senac\angular>
```

Three red arrows point to the command 'tsc teste.ts', the output 'O volume na unidade C não tem nome.', and the output '5 arquivo(s) 649.615 bytes'.

# Instalação ts-node

Ele faz o transpile e executa

```
Prompt de Comando
Microsoft Windows [versão 10.0.19042.804]
(c) 2020 Microsoft Corporation. Todos os direitos reservados.

C:\Users\Estruc>npm install -g typescript
C:\Users\Estruc\AppData\Roaming\npm\tsserver -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\typescript\bin\tsserver
C:\Users\Estruc\AppData\Roaming\npm\tsc -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\typescript\bin\tsc
+ typescript@4.1.5
updated 1 package in 1.438s

C:\Users\Estruc>npm install -g ts-node 
C:\Users\Estruc\AppData\Roaming\npm\ts-node -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\ts-node\dist\bin.js
C:\Users\Estruc\AppData\Roaming\npm\ts-script -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\ts-node\dist\bin-script-deprecated.js
C:\Users\Estruc\AppData\Roaming\npm\ts-node-script -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\ts-node\dist\bin-script.js
C:\Users\Estruc\AppData\Roaming\npm\ts-node-transpile-only -> C:\Users\Estruc\AppData\Roaming\npm\node_modules\ts-node\dist\bin-transpile.js
npm WARN ts-node@9.1.1 requires a peer of typescript@>=2.7 but none is installed. You must install peer dependencies yourself.

+ ts-node@9.1.1
added 9 packages from 43 contributors in 1.56s

C:\Users\Estruc>
```

# Compilando um arquivo TypeScript com ts-node ( faz o transpile executa o typescript)

- 1) Abra o bloco de notas e digite o código abaixo:

```
let nome:string  
console.log("teste")
```

- 2) Salve o arquivo com o nome teste2.ts

- 3) Abra a linha de comando (CMD)

- 4) Vá para o diretório que o arquivo teste2.ts foi criado

- 5) Digite ts-node teste.ts

- 6) Abra a pasta que esta o seu arquivo teste2.ts pelo windows explorer

- 7) Encontre o arquivo teste2.js

Com isso, aprendemos que podemos utilizar o  
tsc quanto ts-node nos arquivos typescript

Se quisermos executar um javascript com o node basta chama  
como exemplo  
node tese2.js (ou sem o .ts)

# Instalação Visual Studio Code

<https://code.visualstudio.com/>



The screenshot shows the official Visual Studio Code website at the top, featuring a navigation bar with links to Docs, Updates, Blog, API, Extensions, FAQ, and Learn, along with a search bar and a 'Download' button. Below the header, a large white banner with the text 'Code editing. Redefined.' and 'Free. Built on open source. Runs everywhere.' is displayed. A prominent 'Download for Windows' button with a 'Stable Build' sub-link is visible. To the right, a large blue button with a downward arrow indicates the download process. The main content area shows the VS Code interface with three tabs: 'App.js', 'index.js', and 'serviceWorker.js'. The 'serviceWorker.js' tab contains code related to service workers. On the left, the 'Extensions: Marketplace' sidebar lists several popular extensions: Python, GitLens, C/C++, ESLint, Debugger for Chrome, Language Support, and vscode-icons, each with an 'Install' button.

# Instalação Visual Studio Code



## Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.



### ↓ Windows

Windows 7, 8, 10



User Installer [64 bit](#) [32 bit](#) [ARM](#)  
System Installer [64 bit](#) [32 bit](#) [ARM](#)  
.zip [64 bit](#) [32 bit](#) [ARM](#)

### ↓ .deb

Debian, Ubuntu

### ↓ .rpm

Red Hat, Fedora, SUSE

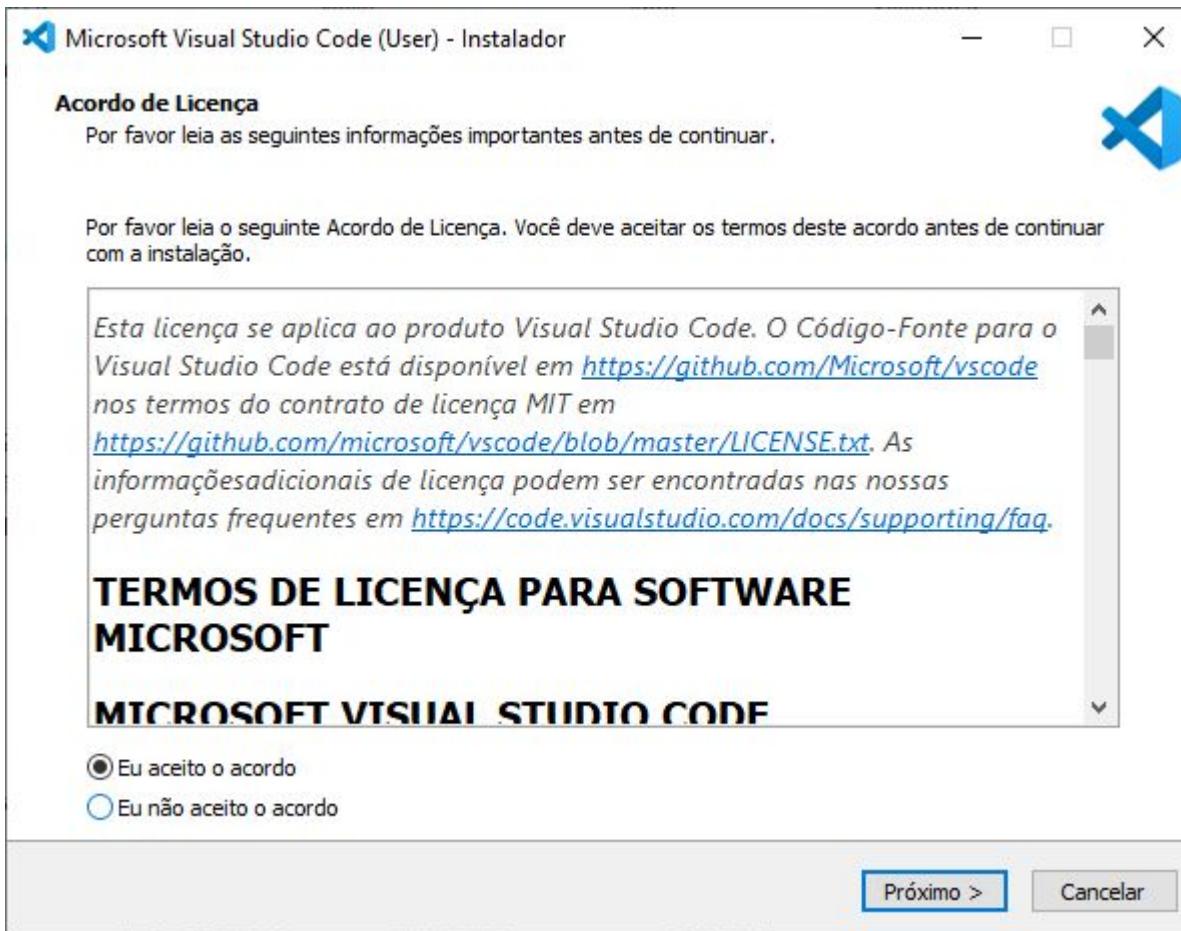
### ↓ Mac

macOS 10.10+

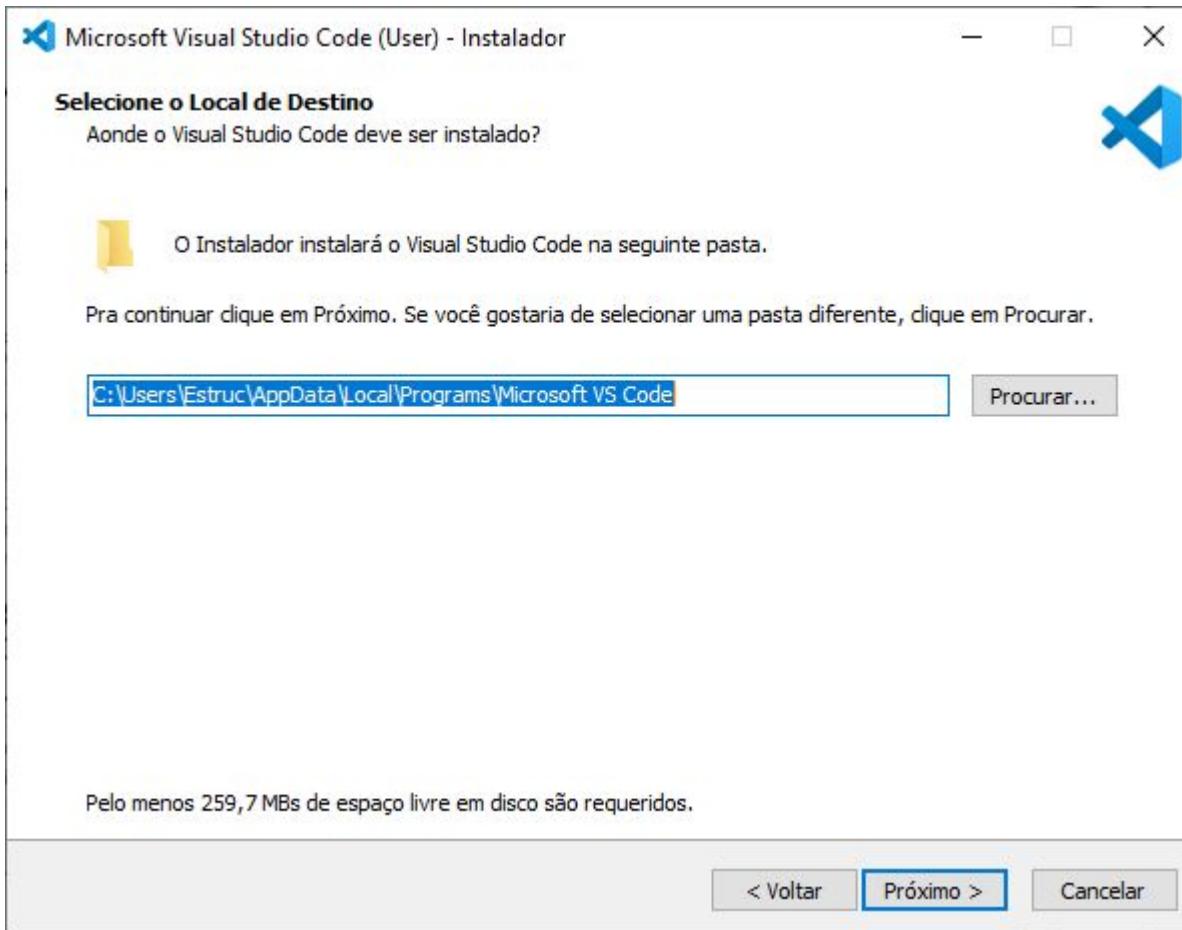
.deb [64 bit](#) [ARM](#) [ARM 64](#)  
.rpm [64 bit](#) [ARM](#) [ARM 64](#)  
.tar.gz [64 bit](#) [ARM](#) [ARM 64](#)

[Snap Store](#)

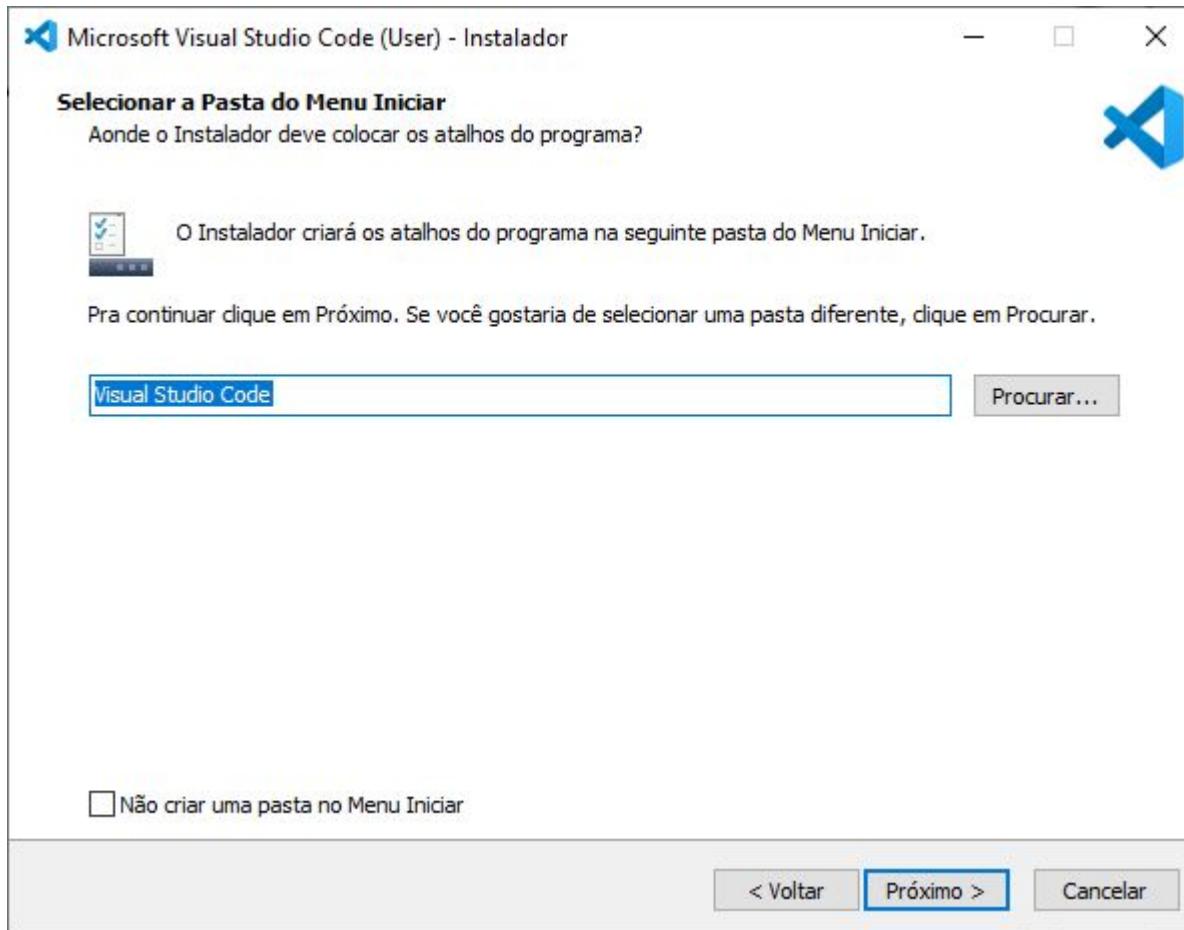
# Instalação Visual Studio Code



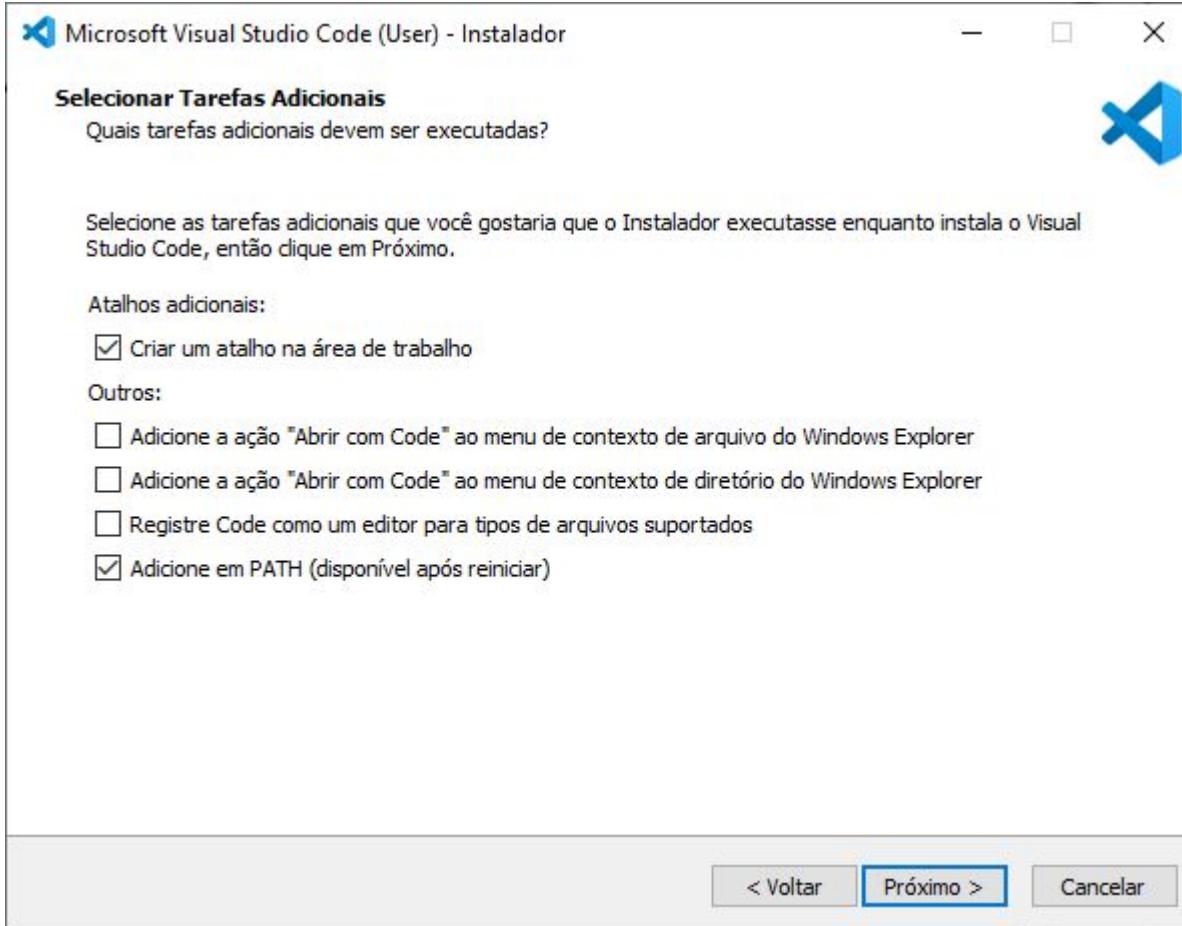
# Instalação Visual Studio Code



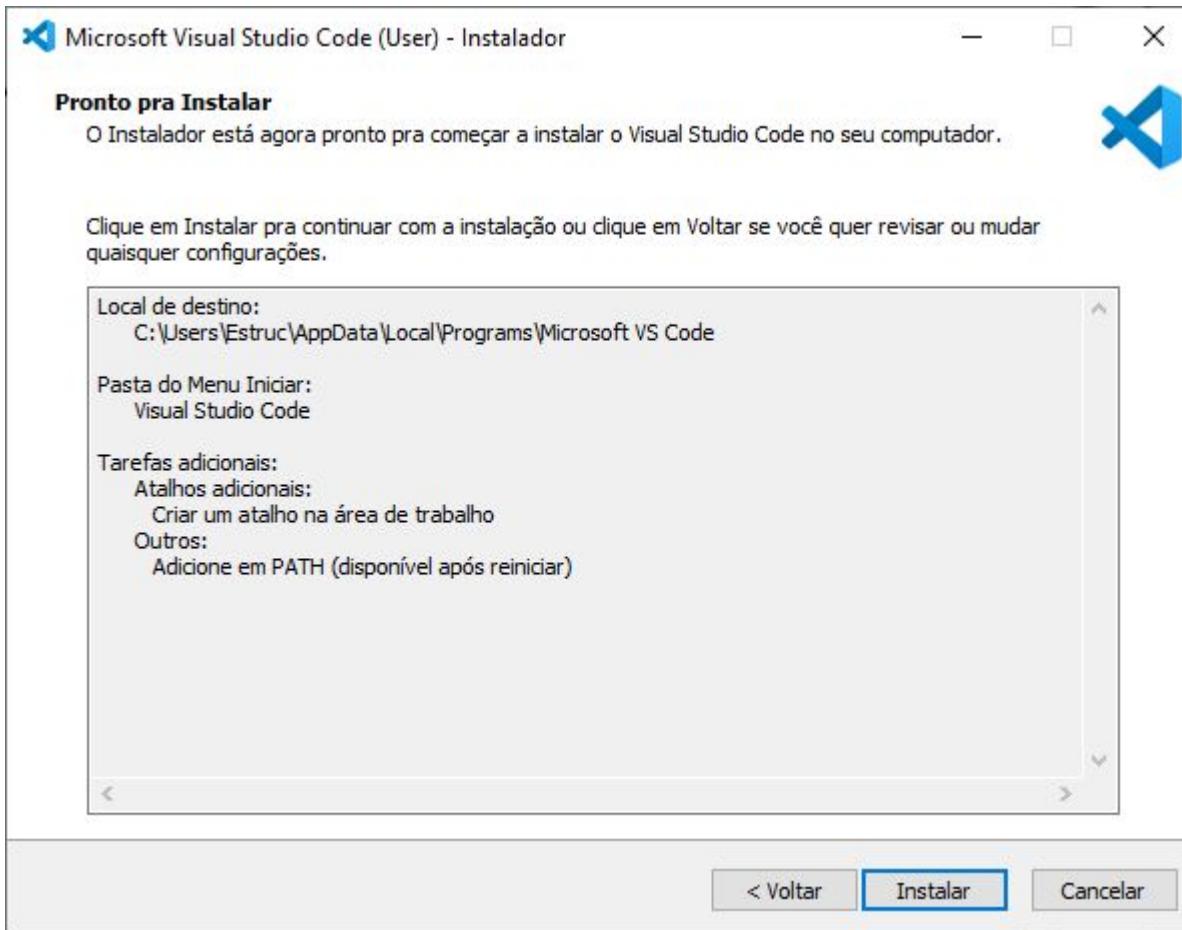
# Instalação Visual Studio Code



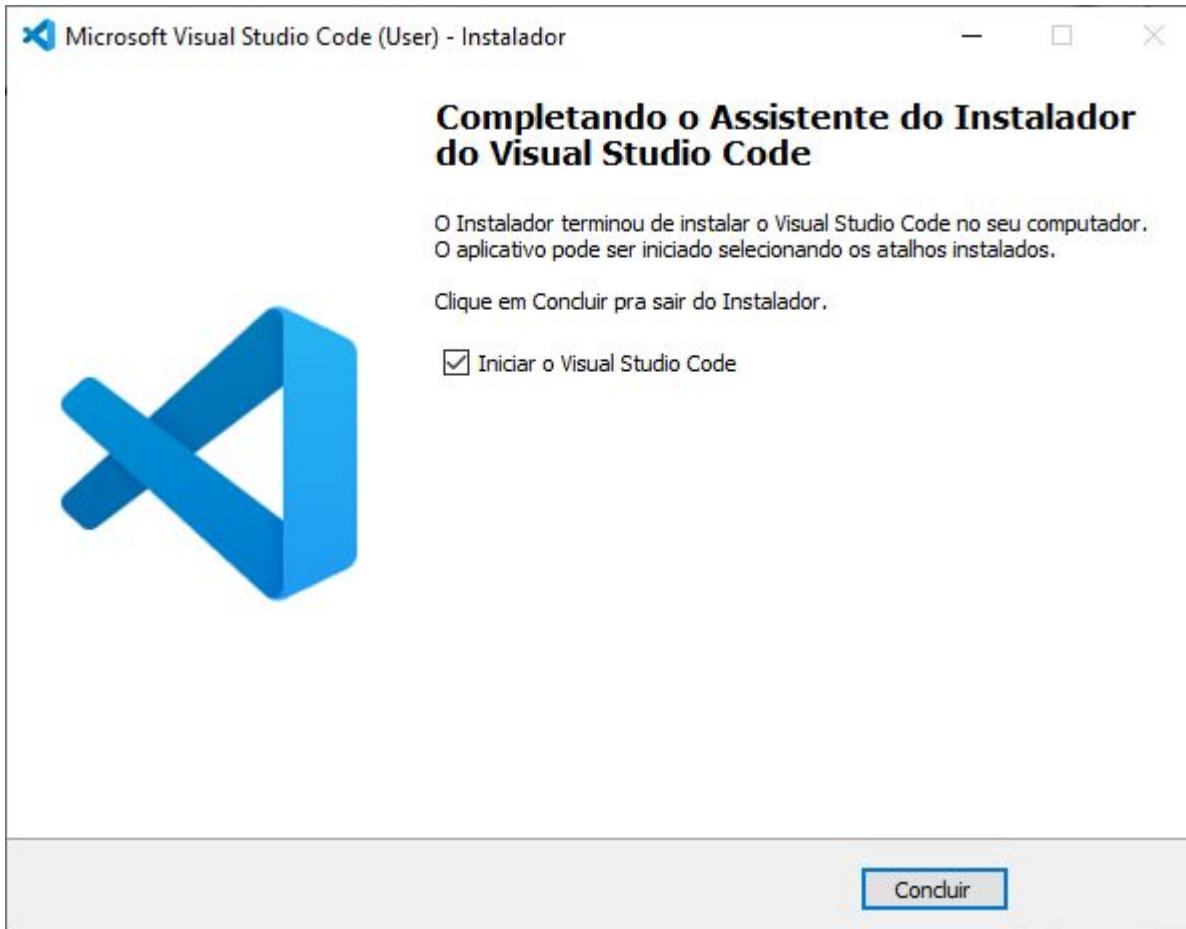
# Instalação Visual Studio Code



# Instalação Visual Studio Code



# Instalação Visual Studio Code



# Instalação Visual Studio Code

The screenshot shows the 'Welcome - Visual Studio Code' interface. At the top, there's a navigation bar with icons for File, Edit, Selection, View, Go, Run, Terminal, and Help. Below the navigation bar is a toolbar with icons for file operations like New file, Open folder, and Clone repository. The main area is divided into several sections:

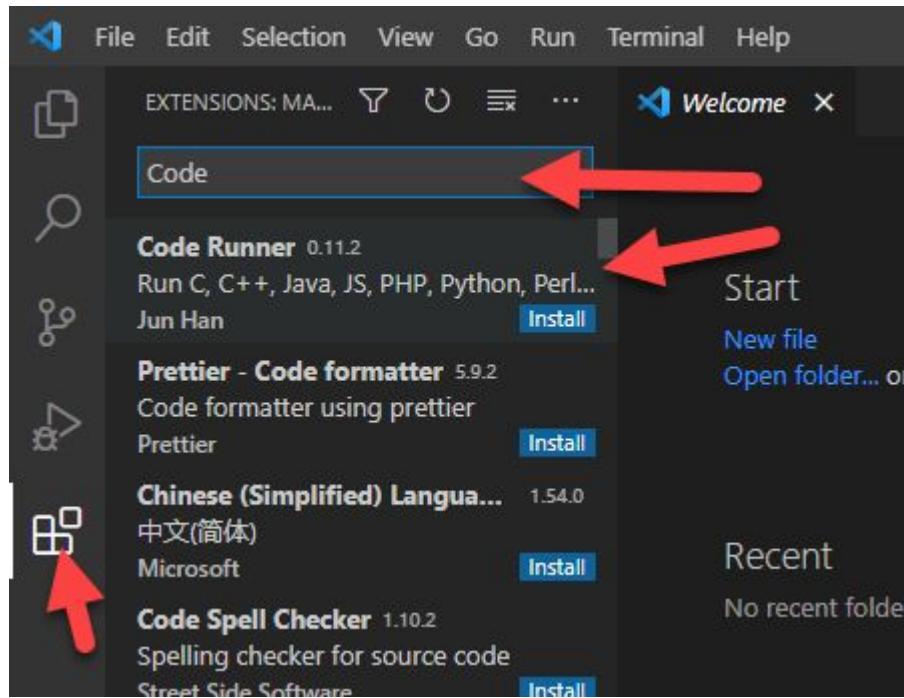
- Start**: Includes links for New file, Open folder... or clone repository..., and a note that says "No recent folders".
- Customize**: Includes sections for Tools and languages (with a note about support for JavaScript, Python, Java, PHP, Azure, Docker, and more), Settings and keybindings (with a note about Vim, Sublime, Atom, and others), and Color theme (with a note about making the editor and code look the way you love).
- Help**: Includes links for Printable keyboard cheatsheet, Introductory videos, Tips and Tricks, Product documentation, GitHub repository, Stack Overflow, and Join our Newsletter.
- Learn**: Includes sections for Find and run all commands (with a note about rapidly accessing and searching commands from the Command Palette), Interface overview (with a note about getting a visual overlay highlighting major components of the UI), and Interactive playground (with a note about trying out essential editor features). There's also a message encouraging users to help improve VS Code by allowing Microsoft to collect usage data, with a link to the privacy statement and an option to opt out.
- Bottom status bar**: Shows icons for file operations (New file, Open, Save, Close, Copy, Paste, Find, Replace, Undo, Redo) and a status message: "0 0 △ 0".

Show welcome page on startup

Help improve VS Code by allowing Microsoft to collect usage data. [Read our privacy statement](#) and learn how to [opt out](#).

[Read More](#)

# Instalação Code Runner



# Instalação Code Runner

File Edit Selection View Go Run Terminal Help Extension: Code Runner - Visual Studio Code EXTENSIONS: MA... ⌂ ⌓ ⌔ ⌕ ... Extension: Code Runner X

Code

**Code Runner** 0.11.2 Jun Han | ⚡ 6.442.600 | ★★★★★ | Repository | License | v0.11.2 Run C, C++, Java, JS, PHP, Python, Perl, Ruby, Go, Lua, Groovy, PowerShell, CMD, BASH, F#, C#, VBScript, TypeScript, CoffeeScript, Scala, Swift... Jun Han

Prettier - Code formatter 5.9.2 Prettier - Code formatter using prettier Prettier Install

Chinese (Simplified) Language Pack 1.54.0 Microsoft Chinese (Simplified) Language Pack Microsoft Install

Code Spell Checker 1.10.2 Spelling checker for source code Street Side Software Install

EditorConfig for VS Code 0.16.4 EditorConfig Support for Visual Studio... EditorConfig Install

JavaScript (ES6) code snippets 1.8.0 charalampos karypidis JavaScript (ES6) code snippets charalampos karypidis Install

Japanese Language Pack for VS Code 1.54.0 Microsoft Japanese Language Pack for VS Code Microsoft Install

AZ AL Dev Tools/AL Code Outline 2.0.25 Andrzej Zwierzchowski AZ AL Dev Tools/AL Code Outline Andrzej Zwierzchowski Install

Code Time 2.4.9 Software Code Time is an open source plugin to track your coding time Software Install

Spanish Language Pack for VS Code 1.54.0 Español Spanish Language Pack for VS Code Español

**Code Runner** formulahendry.code-runner Jun Han | ⚡ 6.442.600 | ★★★★★ | Repository | License | v0.11.2 Run C, C++, Java, JS, PHP, Python, Perl, Ruby, Go, Lua, Groovy, PowerShell, CMD, BASH, F#, C#, VBScript, TypeScript, CoffeeScript, Scala, Swift... .run Disable Uninstall This extension is enabled globally.

[Details](#) [Feature Contributions](#) [Changelog](#)

## Code Runner

chat on gitter VS Marketplace v0.11.2 downloads 20.89M rating 4.46/5 (195) build passing

Run code snippet or code file for multiple languages: C, C++, Java, JavaScript, PHP, Python, Perl, Perl 6, Ruby, Go, Lua, Groovy, PowerShell, BAT/CMD, BASH/SH, F# Script, F# (.NET Core), C# Script, C# (.NET Core), VBScript, TypeScript, CoffeeScript, Scala, Swift, Julia, Crystal, OCaml, Script, R, AppleScript, Elixir, Visual Basic .NET, Clojure, Haxe, Objective-C, Rust, Racket, Scheme, AutoHotkey, AutoIt, Kotlin, Dart, Free Pascal, Haskell, Nim, D, Lisp, Kit, V, SCSS, Sass, CUDA, Less, Fortran, and custom command

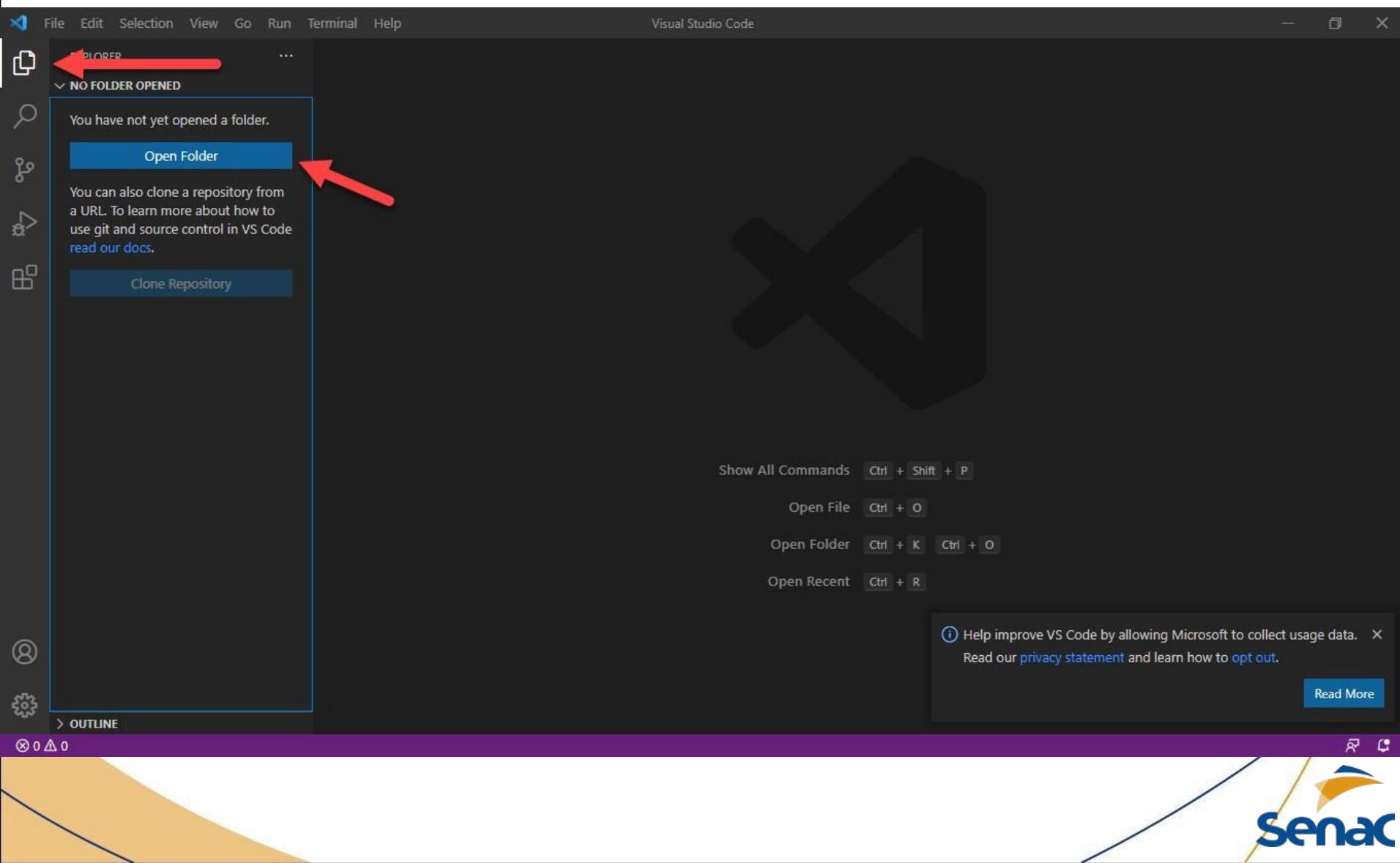
## Sponsors

 tabnine

Increase your coding productivity with Tabnine's AI code completions! Tabnine is a free productivity tool that helps you write faster, reduce mistakes, and discover best coding practices - without ever leaving the code editor. Help improve VS Code by allowing Microsoft to collect usage data. Read our [privacy statement](#) and learn how to [opt out](#).

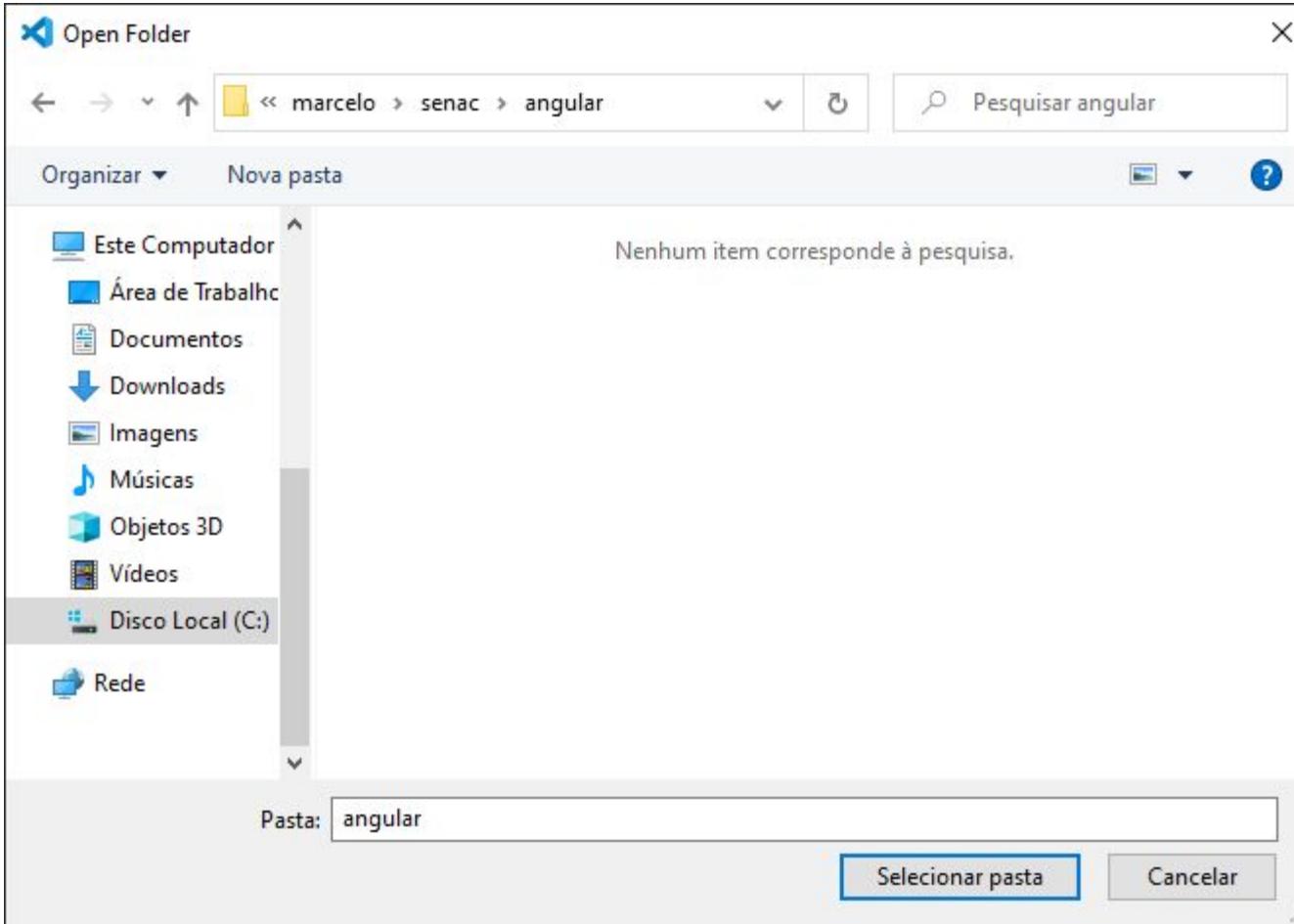
Tabnine is trusted by more than a million developers worldwide. [Get it now.](#) [Read More](#)

# Testando VSC com Code Runner



# Testando VSC com Code Runner

Escolha uma pasta



# Testando VSC com Code Runner

The screenshot shows the Visual Studio Code (VSC) interface with the "Welcome - testeVS - Visual Studio Code" title bar. On the left, the Explorer sidebar is open, showing a folder named "TESTEVS". A red arrow points to the refresh icon in the Explorer toolbar. The main area displays the "Welcome" page with sections for "Start", "Recent", "Help", and "Learn". The "Start" section includes links for "New file", "Open folder... or clone repository...", "Tools and languages", "Settings and keybindings", "Color theme", "Find and run all commands", "Interface overview", and "Interactive playground". The "Recent" section lists a single item: "angular C:\marcelo\senac". The "Help" section provides links to various resources like "Printable keyboard cheatsheet", "Introductory videos", and "Product documentation". At the bottom, there is a checkbox for "Show welcome page on startup" which is checked. The status bar at the bottom shows "OUTLINE > 0 △ 0" and the Senac logo.

File Edit Selection View Go Run Terminal Help

Welcome - testeVS - Visual Studio Code

EXPLORER TESTEVS

Start

New file  
Open folder... or clone repository...

Recent

angular C:\marcelo\senac  
More... (Ctrl+R)

Help

Printable keyboard cheatsheet  
Introductory videos  
Tips and Tricks  
Product documentation  
GitHub repository  
Stack Overflow  
Join our Newsletter

Show welcome page on startup

Customize

Tools and languages  
Install support for JavaScript, Python, PHP, Docker and more

Settings and keybindings  
Install the settings and keyboard shortcuts of Vim, Sublime, Atom and others

Color theme  
Make the editor and your code look the way you love

Learn

Find and run all commands  
Rapidly access and search commands from the Command Palette (Ctrl+Shift+P)

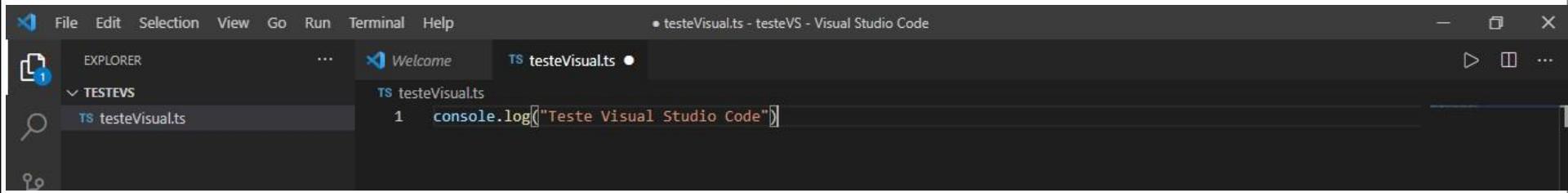
Interface overview  
Get a visual overlay highlighting the major components of the UI

Interactive playground  
Try out essential editor features in a short walkthrough

OUTLINE > 0 △ 0

Senac

# Testando VSC com Code Runner



A screenshot of the Visual Studio Code interface. The menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar shows "testeVisual.ts - testeVS - Visual Studio Code". The Explorer sidebar on the left shows a folder named "TESTEVSC" containing "testeVisual.ts". The main editor area displays the following TypeScript code:

```
1  console.log("Teste Visual Studio Code")
```

# Testando VSC com Code Runner

Se executar, vai dar erro.  
Precisamos configurar o Code  
Runner para executar o  
TypeScript



File Edit Selection View Go Run Terminal Help

• testeVisual.ts - testeVS - Visual Studio Code

EXPLORER TESTES TS testeVisual.ts

1 `console.log("Teste Visual Studio Code")`

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

[Running] `ts-node "c:\marcelo\senac\angular\testeVS\testeVisual.ts"`  
'ts-node' não é reconhecido como um comando interno  
ou externo, um programa operável ou um arquivo em lotes.

[Done] exited with `code=1` in 0.039 seconds

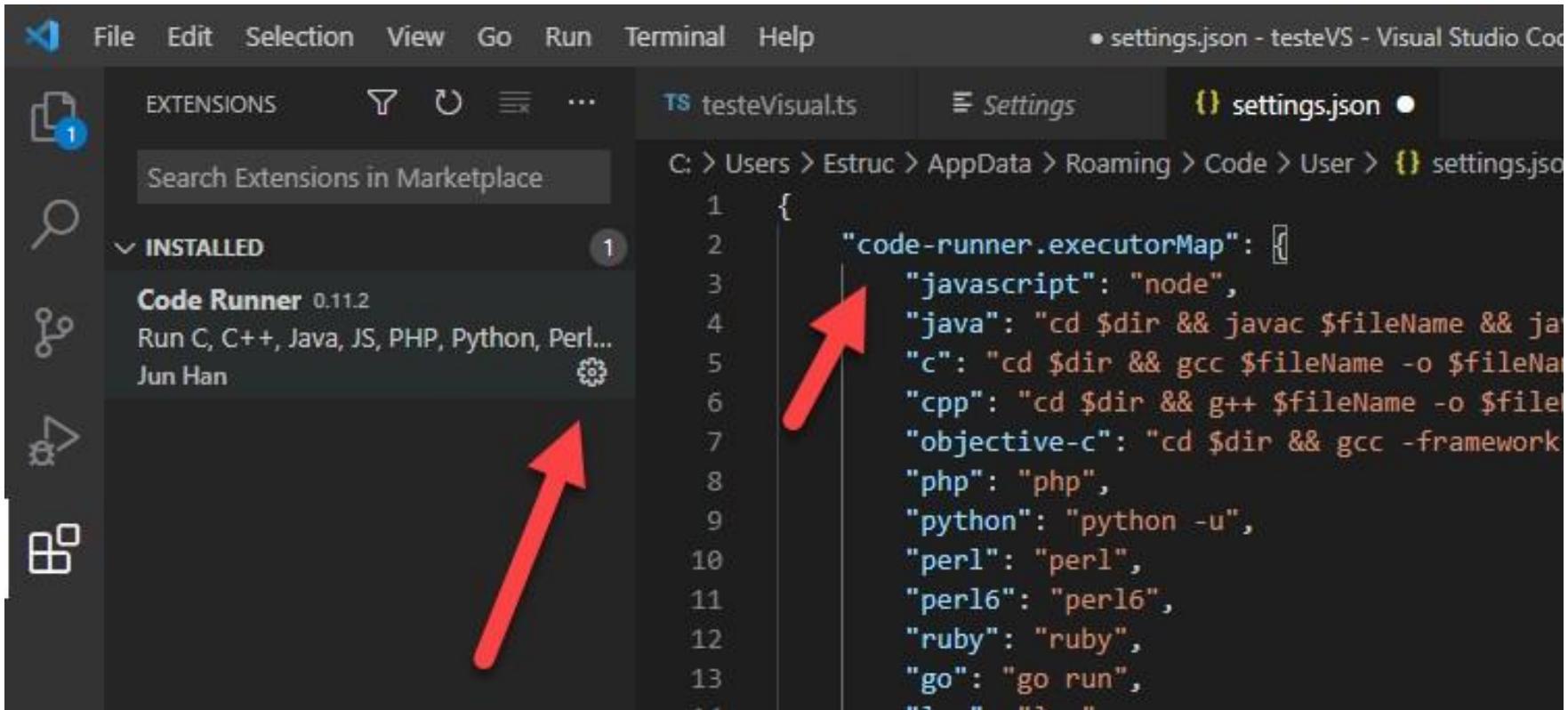
Ln 1, Col 40 Spaces: 4 UTF-8 CRLF TypeScript 4.1.5

Quando clicar no botão do code runner vai apresentar esse erro



# Testando VSC com Code Runner

Vamos configurar como o code runner deve executar o typescript



The screenshot shows the Visual Studio Code interface. On the left, the Extensions sidebar is open, displaying the 'INSTALLED' section with 'Code Runner 0.11.2' listed. A red arrow points from the top of the sidebar towards the center editor area. In the center, the 'settings.json' file is open in the editor, showing configuration for Code Runner. A second red arrow points from the bottom of the file content upwards towards the 'code-runner.executorMap' section. The file path 'C:\Users\Estruc\AppData\Roaming\Code\User\settings.json' is visible at the top of the editor.

```
1  {
2    "code-runner.executorMap": [
3      "javascript": "node",
4      "java": "cd $dir && javac $fileName && java $fileName",
5      "c": "cd $dir && gcc $fileName -o $fileName",
6      "cpp": "cd $dir && g++ $fileName -o $fileName",
7      "objective-c": "cd $dir && gcc -framework",
8      "php": "php",
9      "python": "python -u",
10     "perl": "perl",
11     "perl6": "perl6",
12     "ruby": "ruby",
13     "go": "go run",
14     "haskell": "stack exec $fileName --"
15   ]
```

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** settings.json - Nova2 - Visual Studio Code.
- Search Bar:** Search Extensions in Mark...
- Extensions Sidebar:** INSTALLED: Code Runner 0.11.2 (Run C, C++, Java, JS, PHP, P... by Jun Han).
- Code Editor:** settings.json (C:\Users\Estruc\AppData\Roaming\Code\User\settings.json). The code content is:

```
1 "code-runner.executorMap": {  
2     "typescript": "tsc",  
3 }  
4  
5  
6  
7 }
```
- Output Panel:** PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL. The OUTPUT tab shows:

```
[Done] exited with code=0 in 1.562 seconds  
[Running] tsc "c:\marcelo\senac\angular\Nova2\arquivo.ts"  
[Done] exited with code=0 in 1.603 seconds
```
- Status Bar:** Ln 7, Col 2, Spaces: 4, UTF-8, LF, JSON with Comments.

Blue arrows point from the right side of the image towards the code editor and the terminal output area.

# Agora usando o ts-node

The screenshot shows the Visual Studio Code interface. On the left, the sidebar displays extensions like 'Code Runner' and 'Docker'. The main area shows the 'settings.json' file with the following content:

```
C:\> Users > Estruc > AppData > Roaming > Code > User > settings.json > code-runner
1 {
2   "code-runner.executorMap": [
3     "typescript": "ts-node",
4   ]
5 }
6 }
7 }
```

A red arrow points to the line 'typescript": "ts-node",'. Below the editor, the terminal window shows the command being run and its output:

```
[Running] ts-node "c:\marcelo\senac\angular\Nova2\arquivo.ts"
teste
[Done] exited with code=0 in 1.026 seconds
```

Another red arrow points to the word 'teste' in the terminal output.

Importante lembrar que só irá fazer o transpile caso seja digitado no cmd tsc  
-W

# Criando um projeto em TypeScript

# Criando um arquivo de configuração do typescript

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** tasks.json - Nova2 - Visual Studio Code.
- Explorer Bar (Left):** Shows the project structure: NOVA2 > .vscode > tasks.json (selected), arquivo.js, arquivo.ts.
- Terminal (Bottom):** Displays a Windows PowerShell window with the following text:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL
Windows PowerShell
Copyright (C) Microsoft Corporation. Todos os direitos reservados.

Experimente a nova plataforma cruzada PowerShell https://aka.ms/pscore6
PS C:\marcelo\senac\angular\Nova2> tsc --init
```

A red arrow points to the command "tsc --init".
- Status Bar (Bottom):** Shows 0 errors, 0 warnings, and 0 info messages.

Fazer o comando tsc -w  
E explicar para que serve



File Edit Selection View Go Run Terminal Help

tasks.json - Nova2 - Visual Studio Code



EXPLORER

...

TS arquivo.ts

Settings

settings.json

{} tasks.json X



NOVA2

...

.vscode

{} tasks.json

JS arquivo.js

TS arquivo.ts

{} tsconfig.json



> OUTLINE

0 △ 0



PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Windows PowerShell

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Experimente a nova plataforma cruzada PowerShell <https://aka.ms/pscore6>

PS C:\marcelo\senac\angular\Nova2> tsc --init

message TS6071: Successfully created a tsconfig.json file.

PS C:\marcelo\senac\angular\Nova2>



The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows a project structure under "NOVA2". The "dist" folder is highlighted with a red arrow.
- Editor:** The active file is "tsconfig.json". The code content is as follows:

```
1  {
2    "compilerOptions": [
3      /* Visit https://aka.ms/tsconfig.json to read more about this file */
4
5      /* Basic Options */
6      // "incremental": true,                                /* Enable incremental compilation */
7      "target": "es5",                                     /* Specify ECMAScript target version: 'ES3' (default), 'ES5', 'ES2015', */
8      "module": "commonjs",                               /* Specify module code generation: 'none', 'commonjs', 'amd', 'system', */
9      // "lib": [],                                         /* Specify library files to be included in the compilation. */
10     // "allowJs": true,                                  /* Allow javascript files to be compiled. */
11     // "checkJs": true,                                 /* Report errors in .js files. */
12     // "jsx": "preserve",                             /* Specify JSX code generation: 'preserve', 'react-native', or 'react'. */
13     // "declaration": true,                           /* Generates corresponding '.d.ts' file. */
14     // "declarationMap": true,                         /* Generates a sourcemap for each corresponding '.d.ts' file. */
15     // "sourceMap": true,                            /* Generates corresponding '.map' file. */
16     // "outFile": "./",                                /* Concatenate and emit output to single file. */
17     | "outDir": "./dist",                           /* Redirect output structure to the directory. */
18     // "rootDir": "./",                                /* Specify the root directory of input files. Use to control the output directory structure. */
19     // "composite": true,                             /* Enable project compilation */
20     // "tsBuildInfoFile": "./",                        /* Specify file to store incremental compilation information */
21     // "removeComments": true,                         /* Do not emit comments to output. */
22     // "noEmit": true,                                /* Do not emit outputs. */
23     // "importHelpers": true,                          /* Import emit helpers from 'tslib'. */

```

Two red arrows point to the "outDir" configuration in the tsconfig.json file, indicating its purpose.

Agora os arquivos gerados irão para a pasta dist

TS arquivo.ts    JS arquivo.js    {} settings.json    {} tasks.json    {} tsconfig.json X

{} tsconfig.json > ...

```
51 // "allowSyntheticDefaultImports": true,    /* Allow default imports from modules with no default export. This does n
52 "esModuleInterop": true,                        /* Enables emit interoperability between CommonJS and ES Modules via crea
53 // "preserveSymlinks": true,                    /* Do not resolve the real path of symlinks. */
54 // "allowUmdGlobalAccess": true,                /* Allow accessing UMD globals from modules. */

55
56 /* Source Map Options */
57 // "sourceRoot": "",                              /* Specify the location where debugger should locate TypeScript files ins
58 // "mapRoot": "",                                  /* Specify the location where debugger should locate map files instead of
59 // "inlineSourceMap": true,                        /* Emit a single file with source maps instead of having a separate file.
60 // "inlineSources": true,                         /* Emit the source alongside the sourcemaps within a single file; require

61
62 /* Experimental Options */
63 // "experimentalDecorators": true,                /* Enables experimental support for ES7 decorators. */
64 // "emitDecoratorMetadata": true,                 /* Enables experimental support for emitting type metadata for decorators

65
66 /* Advanced Options */
67 "skipLibCheck": true,                            /* Skip type checking of declaration files. */
68 "forceConsistentCasingInFileNames": true,      /* Disallow inconsistently-cased references to the same file. */
69 }, "include": ["./src"]
70 }
71
72 }
```

Colocando o arquivo.ts na pasta src  
E escrever essa primeira função

The screenshot shows the Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar indicates "arquivo.ts - Nova2 - Visual Studio". The Explorer sidebar on the left shows a project structure under "NOVA2": ".vscode", "dist", "node\_modules", and "src". A red arrow points to the "src" folder. Inside "src", there is a file named "arquivo.ts". The code editor tab for "arquivo.ts" is open, showing the following TypeScript code:

```
src > TS arquivo.ts > ...
1  console.log("teste20")
2  let telefone5:string
3
4  function sub(num:number,num2:number){
5      console.log(num)
6  }
7
8  sub(1,3)
```

Praticar um pouco mais de função e colocar essas funções  
No arquivo.ts

```
1 // function
2 function somar(x:number, y:number):number {
3     return x + y;
4 }
5
6 // function anonima
7 let myAdd = function (x:number, y:number) {
8     //return x + y;
9     console.log(x + y)
10 };
11
12 somar(2,4) // console.log(somar(2,4))
13 myAdd(1,2)
```

Praticar um pouco mais de função e colocar essas funções no arquivo.ts

TS funcoes.ts ●

```
src > TS funcoes.ts > ⚡ expurgar
1  function carregar(nome:string,sobreNome:string):string{
2
3    return `O nome escolhido foi ${nome} ${sobreNome}`
4    //ou
5    //return "O nome escolhido foi " + nome + " " + sobreNome
6
7  }
8  let nomeCompleto:string = carregar("Gustavo","Lima")
9  console.log(nomeCompleto)
10
```

```
11 function expurgar(nome:string,idade?:number):string{
12   return `O nome escolhido foi ${nome} sua idade é ${idade}`
13   //ou
14   //return "O nome escolhido foi " + nome + " " + sobreNome
15 }
16
17 let nomeExpurgado:string = expurgar("Gustavo", 18)
18
19 //ou - o parametro não é obrigatorio porque foi colocado o ?
20 nomeExpurgado = expurgar("Gustavo")
```

```
function calcular(valor1:number, valor2:number){
  let soma: number = valor1 + valor2

  if(soma > 100){
    console.log("está muito caro")
  }else{
    console.log("está com bom preço")
  }
}

calcular(20,40)
```

## Passo a passo para configuração e execução do typescript em um html

- 1) No terminal precisamos digitar tsc –init na pasta do nosso projeto
- 2) Em seguida, tsc -w . Com isso, iremos informar ao type script para que qualquer mudança em um arquivo .ts ele saiba e faça o transpile para um arquivo .js
- 3) Dentro da pasta do projeto crie a pasta src
- 4) Crie o arquivo app.ts dentro da pasta src
- 5) Altere o arquivo tsconfig.json para colocar o js gerado na pasta dist e faça o include da pasta src
- 6) Abra o arquivo app.ts
- 7) Digite nesse arquivo – console.log("teste do app no html"). Em seguida salve o arquivo. Veja se o arquivo js foi criado na pasta dist
- 8) crie um novo arquivo chamado index.html
- 9) dentro dele digite html. Perceba que vai apresentar a opção html:5.  
Selecione essa opção. Isso irá formatar um template de html.
- 10) Na linha antes do </body> digite  
<script src="dist/app.js"></script>
- 11) Abra o browser e chame o arquivo index.html
- 12) Abra o console do chrome com F12. Veja que no console está escrito o que definimos.

The screenshot shows the VS Code interface with three tabs open: `app.js`, `tsconfig.json`, and `index.html`. The `app.js` tab contains the following code:

```
1 "use strict";
2 console.log("teste 2");
3 
```

The `tsconfig.json` tab shows the configuration file:

```
1 {
2   "compilerOptions": [
3     "target": "es5",
4     "module": "commonjs",
5     "outDir": "./dist",
6     "strict": true,
7     "esModuleInterop": true,
8     "skipLibCheck": true,
9     "forceConsistentCasingInFileNames": true
10   ],
11   "include": ["./src"]
12 }
```

A red arrow points to the `outDir` field, and another red arrow points to the `include` field.

The screenshot shows the VS Code interface with three tabs open: `app.js`, `tsconfig.json`, and `index.html`. The `index.html` tab contains the following HTML code:

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8">
5     <meta http-equiv="X-UA-Compatible" content="IE=edge">
6     <meta name="viewport" content="width=device-width, initial-scale=1.0">
7     <title>Document</title>
8   </head>
9   <body>
10    Nossa pagina
11    <script src="dist/app.js"></script>
12  </body>
13 </html>
```

A red arrow points to the `src` attribute of the `<script>` tag.

Fazer a aula 1 até aqui

# Variáveis do TypeScript

# Variáveis em TypeScript – tipos de dados

Podem ser do tipo string, number, boolean e any

Exemplos:

- let nome:string
- let idade: number
- let flag:boolean
- let quantidade: any

```
TS variavel.ts ✘
src > TS variavel.ts > ...
1  let nome:string
2
3  let idade: number
4
5  let flag:boolean
6
7  let quantidade: any
8
9
10 quantidade = 10
11
12 quantidade = "10" //isso é possivel por que esta definido como any. mas não é recomendado
13
14 nome = "Lucas"
15
16 idade = 10
17
18 //idade = "10" isso da erro
```

# **Tipo especial - Tupla**

## Tipo tuple – tipo especial

```
let tipoTuple : [number,string] = [1,"Lucas"]

//ou

let tipoTuple2 : [number,string]
tipoTuple2 = [1,"Lucas"]
```

```
tipoTuple[0] = 8

console.log(tipoTuple[0])

tipoTuple.forEach(function (value) {
  console.log(value);
});

for(var index in tipoTuple)
{
  console.log(tipoTuple[index]);
}

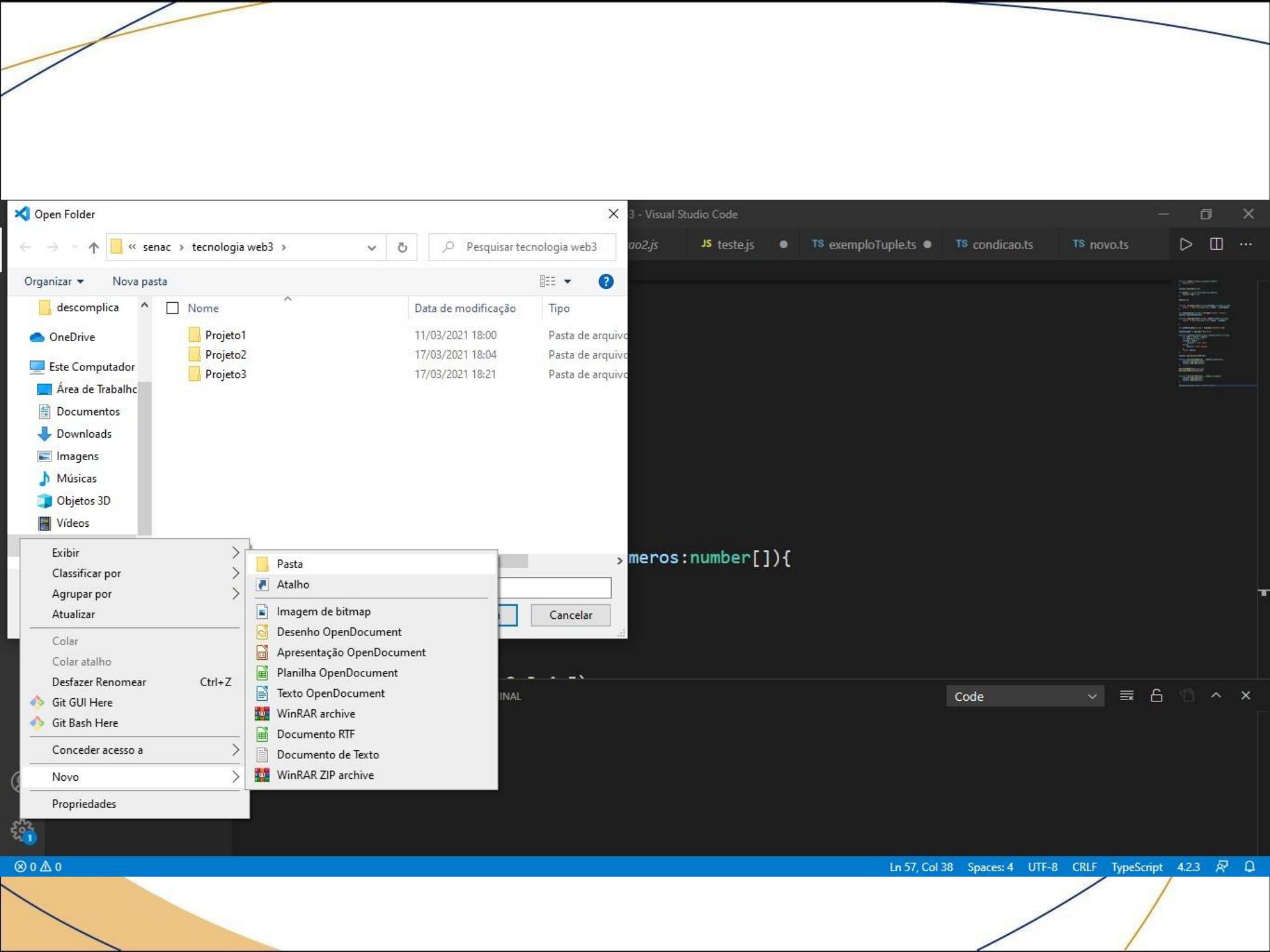
for(var i = 0; i < tipoTuple.length; i++)
{
  console.log(tipoTuple[i]);
}
```

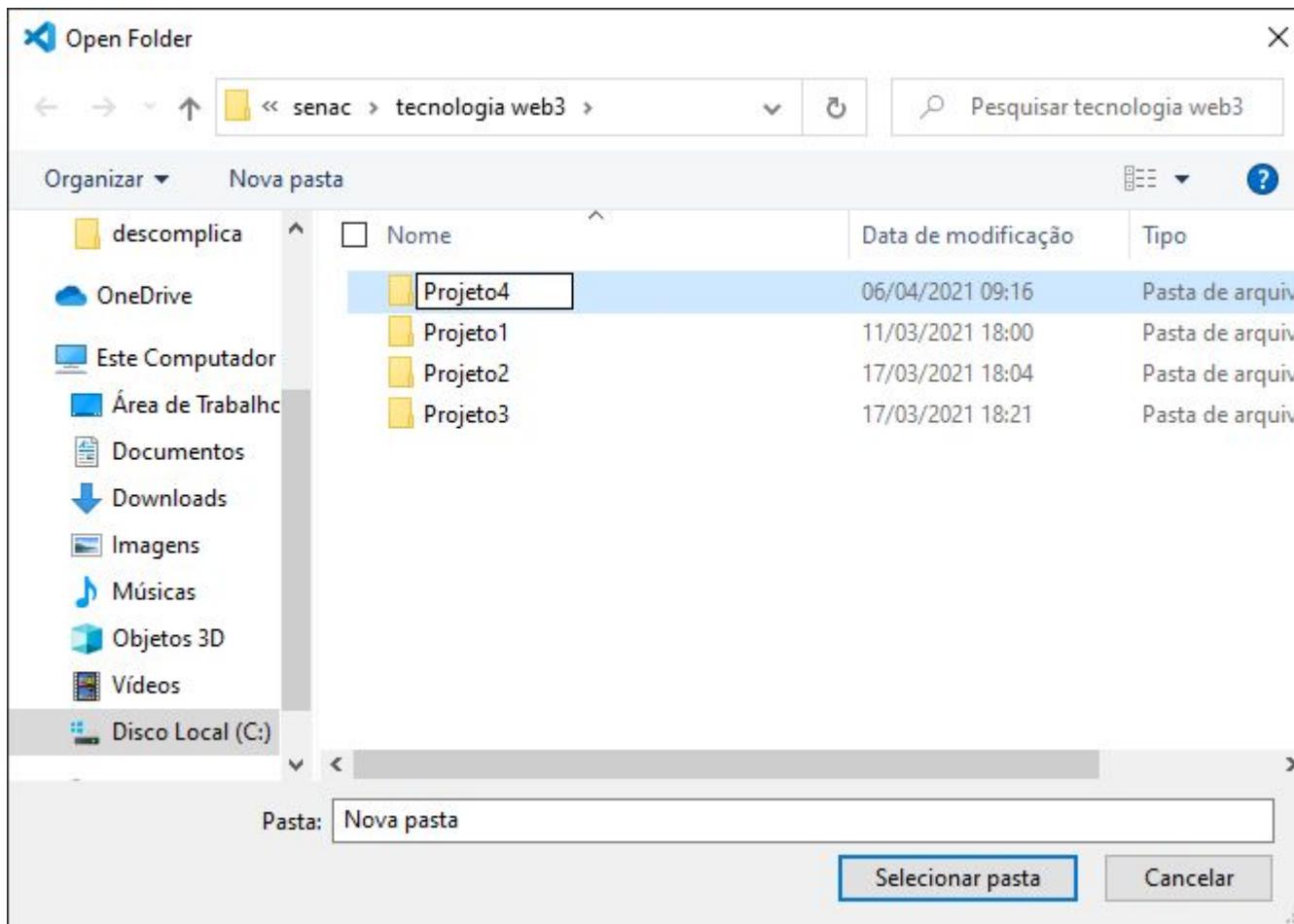
Formas de iterar em um tuple

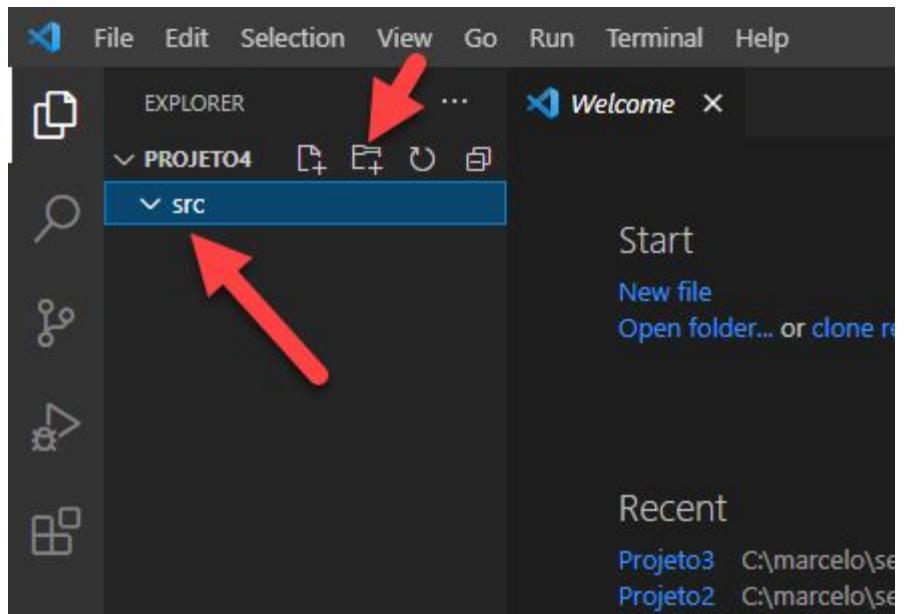
# Início Aula 2

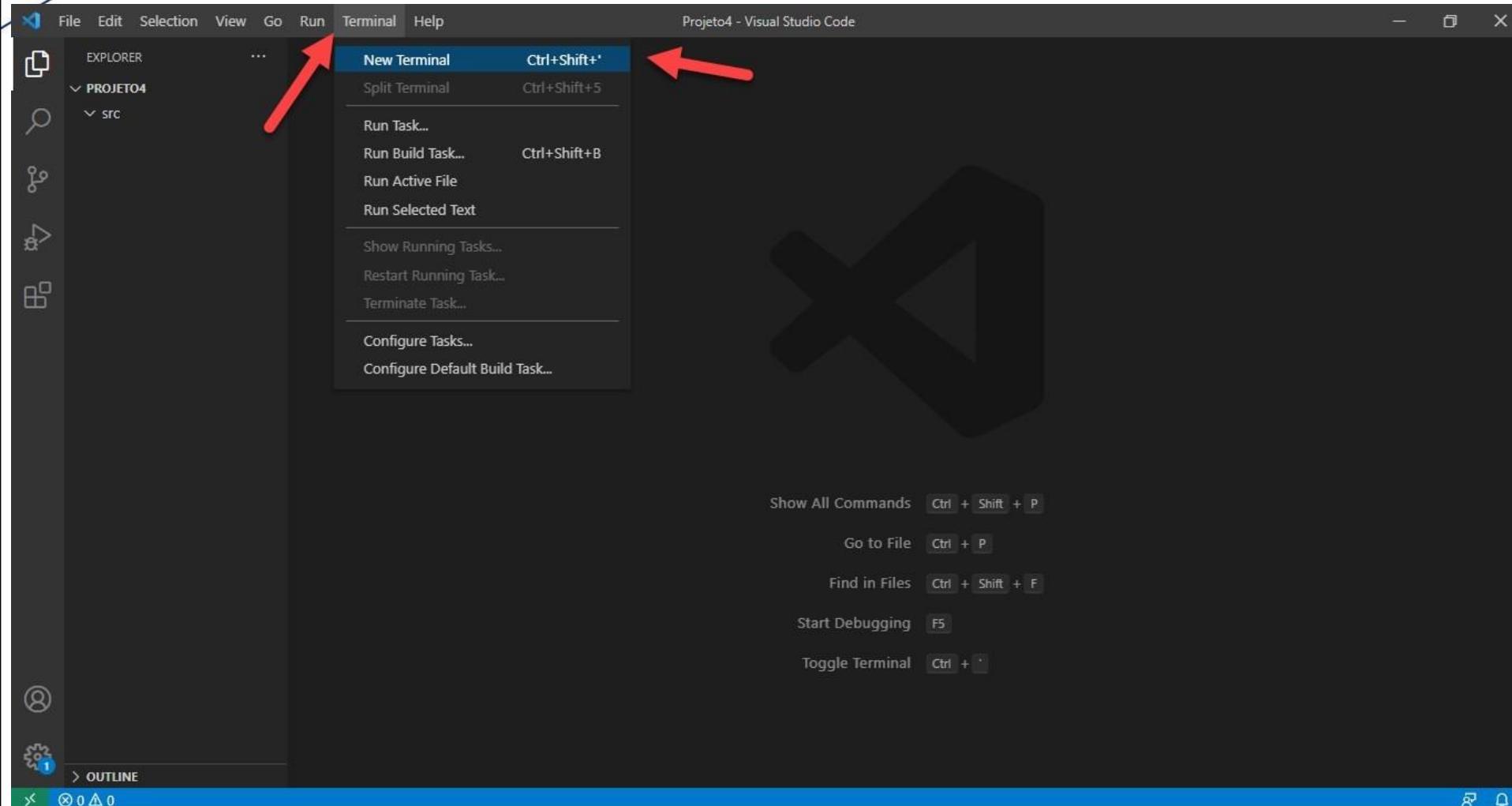
## Pegando dados de um formulário com TypeScript

Vamos construir nosso projeto em typeScript e fazer nossas configurações iniciais









File Edit Selection View Go Run Terminal Help Projeto4 - Visual Studio Code

EXPLORER  
PROJETO4  
src

Show All Commands **Ctrl + Shift + P**  
Go to File **Ctrl + P**  
Find in Files **Ctrl + Shift + F**  
Start Debugging **F5**  
Toggle Terminal **Ctrl + T**

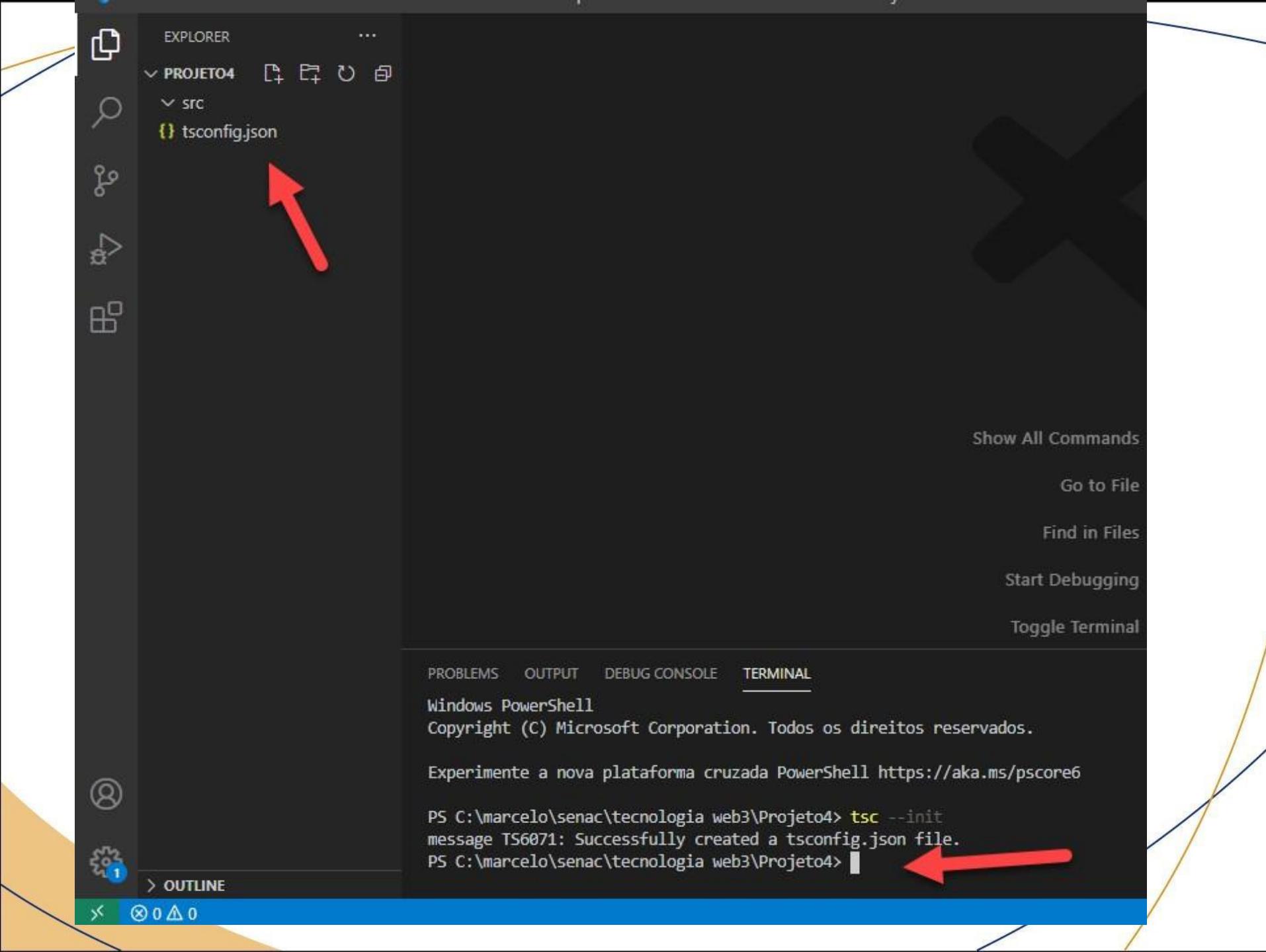
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL  
Windows PowerShell  
Copyright (C) Microsoft Corporation. Todos os direitos reservados.  
Experimente a nova plataforma cruzada PowerShell <https://aka.ms/powershell>  
PS C:\marcelo\senac\tecnologia web3\Projeto4> tsc --init

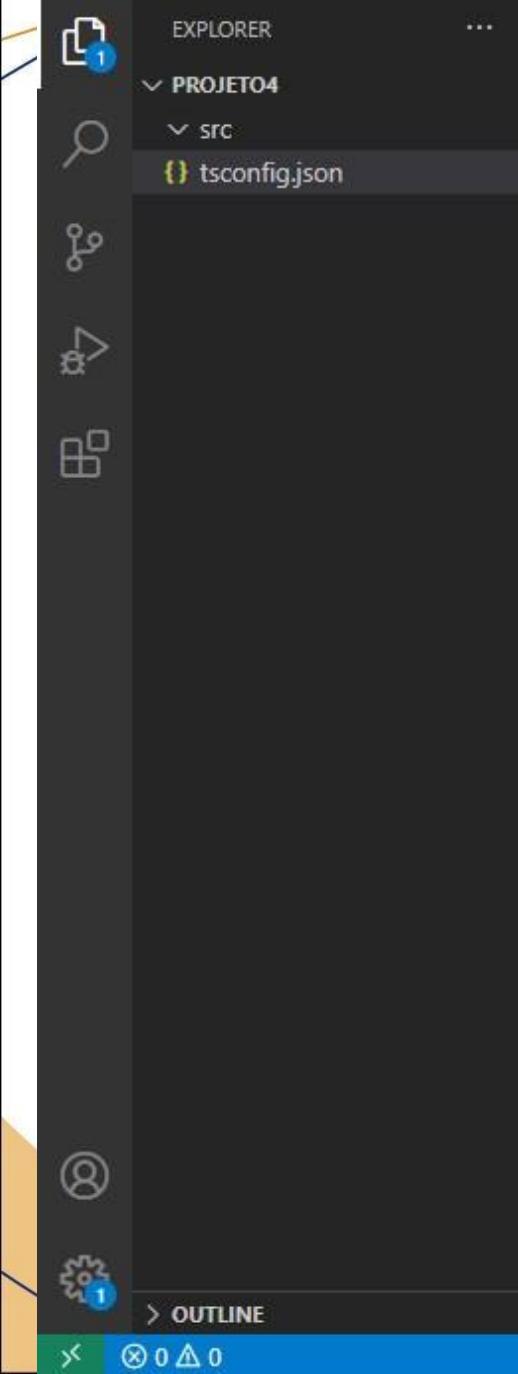
1: powershell + ×

OUTLINE

0 △ 0







```
1  {
2    "compilerOptions": {
3      "target": "es5",
4      "module": "commonjs",
5      "outDir": "./dist",
6      "strict": true,
7      "esModuleInterop": true,
8      "skipLibCheck": true,
9      "forceConsistentCasingInFileNames": true
10     },
11     "include": ["./src"]
12   }
```

Two red arrows point to the closing brace '}' on line 12, indicating a syntax error or highlighting a specific part of the code.

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Windows PowerShell

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Experimente a nova plataforma cruzada PowerShell <https://aka.ms/pscore6>

PS C:\marcelo\senac\tecnologia web3\Projeto4>

A screenshot of the Visual Studio Code interface. The top bar shows the menu: File, Edit, Selection, View, Go, Run, Terminal, Help. The title bar indicates the current file is "teste.ts - Projeto4 - Visual Studio Code".

The Explorer sidebar on the left shows a project structure under "PROJETO4": "dist", "src", "teste.ts", and "tsconfig.json". A red arrow points from the "tsconfig.json" item in the sidebar to the "tsconfig.json" tab in the main editor area.

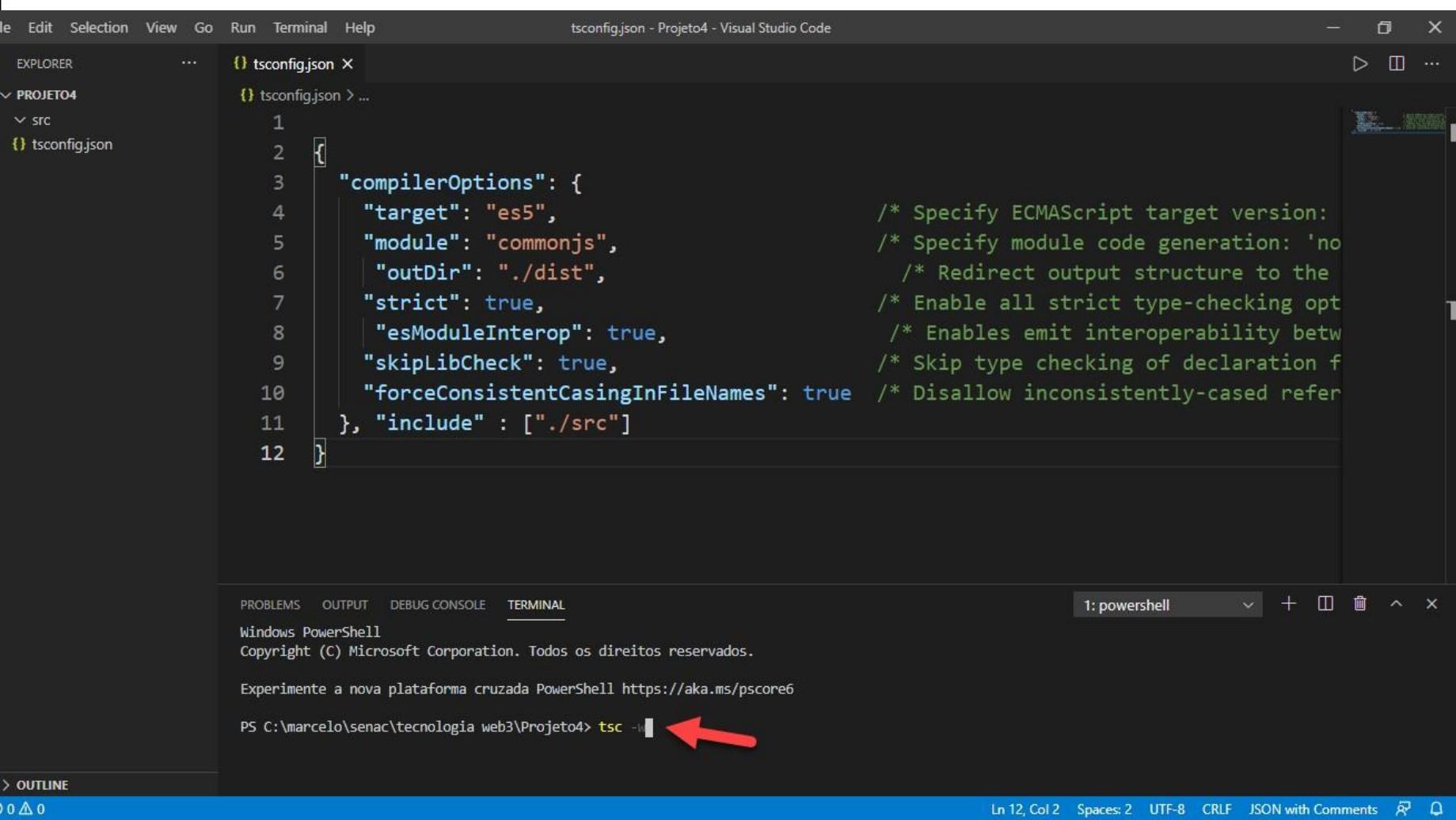
The main editor area displays the "teste.ts" file with the following code:

```
1  console.log("teste")
```

The bottom right corner of the editor shows status information: "Ln 1, Col 19", "Spaces: 4", "UTF-8", "CRLF", "TypeScript 4.2.3", and icons for "Format Document" and "Save".

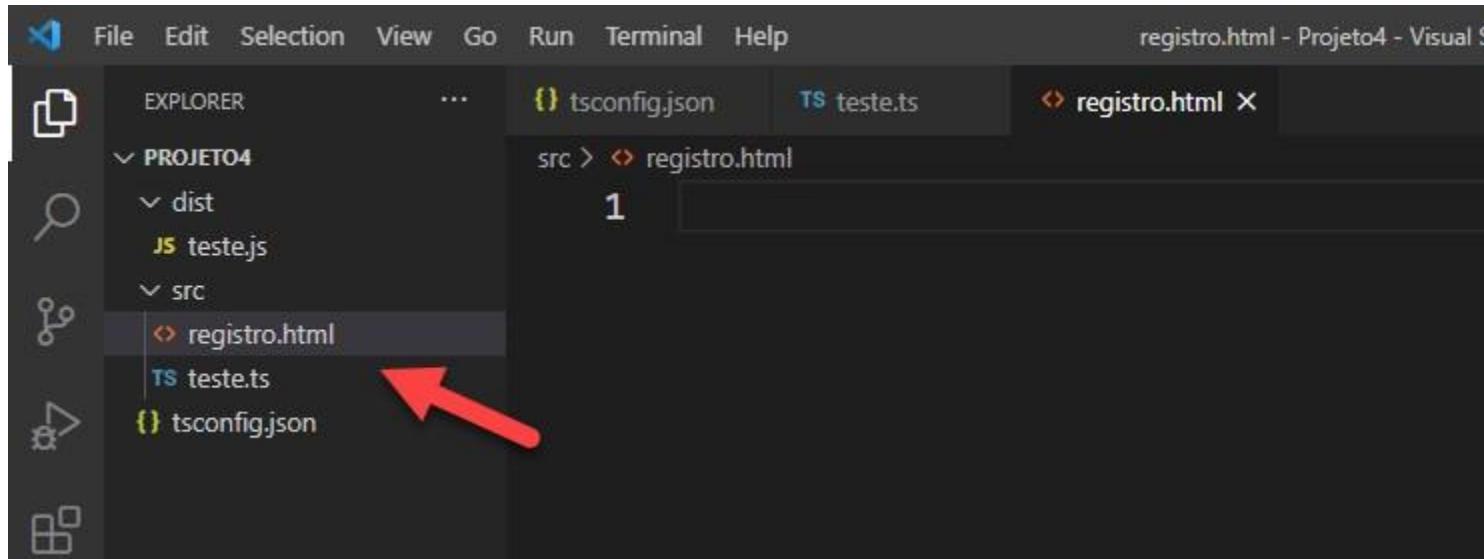
The Terminal panel at the bottom has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL. The TERMINAL tab is active, showing the output of a Node.js process:

```
[09:22:39] File change detected. Starting incremental compilation...
[09:22:39] Found 0 errors. Watching for file changes.
```



A screenshot of the Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar shows "teste.ts - Projeto4 - Visual Studio Code". The Explorer sidebar on the left displays a project structure under "PROJETO4": "dist" (selected), "src" (with "teste.ts" and "tsconfig.json"), and "teste.js". A red arrow points to the "src" folder. The main editor area shows the file "teste.ts" with the code: "1 console.log("teste")". The bottom right corner of the editor shows status information: "Ln 1, Col 19", "Spaces: 4", "UTF-8", "CRLF", "TypeScript 4.2.3". The bottom navigation bar includes PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and a terminal tab showing the command "1: node". The status bar at the bottom also includes "Ln 1, Col 19", "Spaces: 4", "UTF-8", "CRLF", "TypeScript 4.2.3".

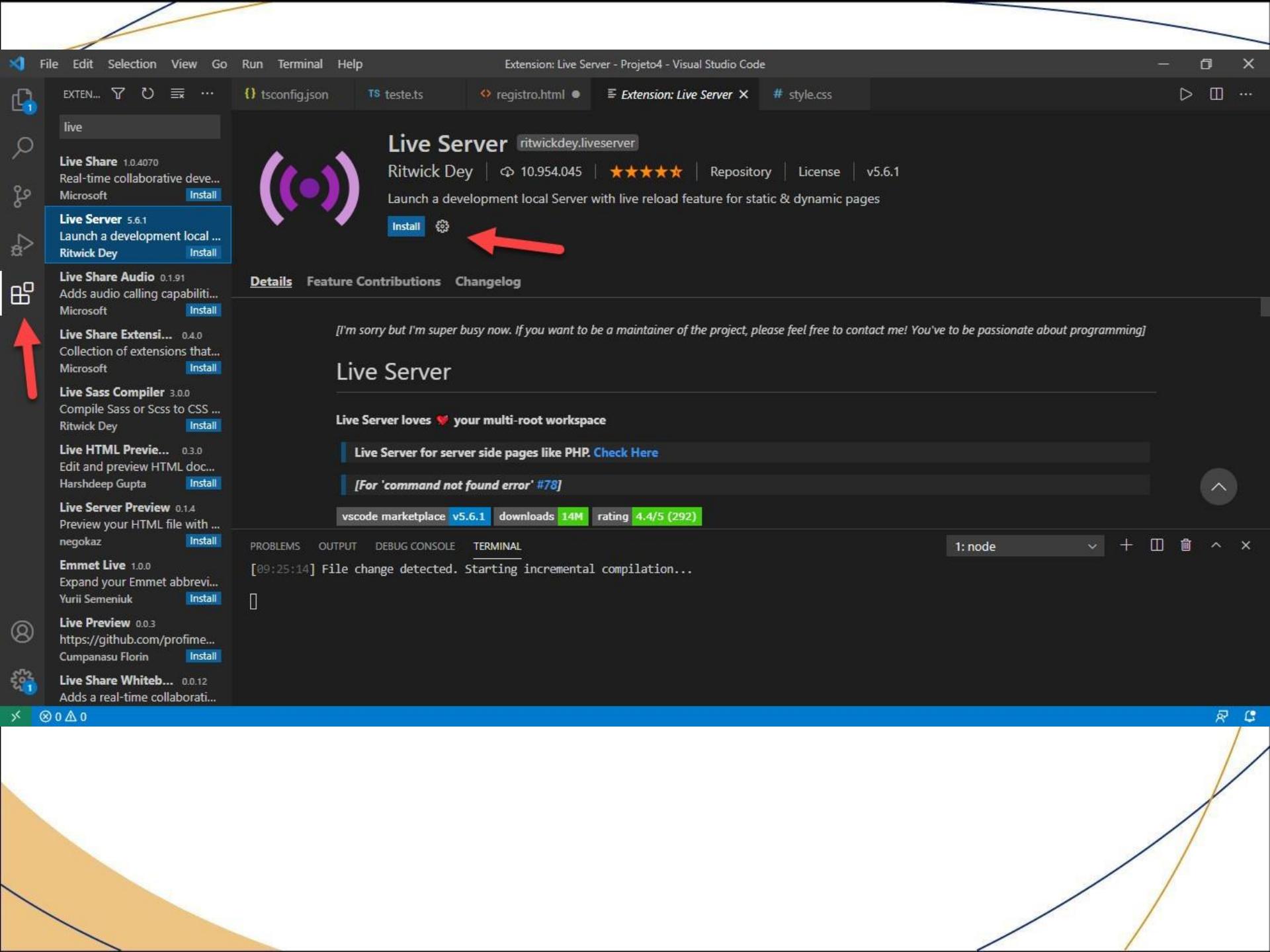
Vamos construir nossa página HTML



<https://codepen.io/colorlib/pen/aaaovJ>

```
<title>Creative Colorlib SignUp Form</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<script type="application/x-javascript"> addEventListener("load", function()
{ setTimeout(hideURLbar, 0); }, false); function hideURLbar(){ window.scrollTo(0,1);
}
</script>
<!-- Custom Theme files -->
<link href="css/style.css" rel="stylesheet" type="text/css" media="all" />
<!-- //Custom Theme files -->
<!-- web font -->
<link
href="//fonts.googleapis.com/css?family=Roboto:300,300i,400,400i,700,700i"
rel="stylesheet">
<!-- //web font -->
</head>
<body>
    <!-- main -->
    <div class="main-w3layouts wrapper">
        <h1>Creative SignUp Form</h1>
        <div class="main-agileinfo">
            <div class="agileits-top">
                <input class="text" type="text" id="nome" name="Nome"
placeholder="Nome" required="">
                <input class="text email" type="email" name="Email"
placeholder="Email" required="">
                <input class="text" type="text" id="password" name="Senha"
placeholder="Senha" required="">
            </div>
            <div class="agileits-bottom">
                <input type="checkbox" checked="" name="checkbox" value="checkbox">
                <label for="checkbox"> I agree to the
                <a href="#">Privacy Policy</a>
            </div>
            <div class="w3-agileits-form">
                <input type="submit" value="Sign Up" />
            </div>
        </div>
    </div>
</body>
```

```
mark, audio, video {  
    margin: 0;  
    padding: 0;  
    border: 0;  
    font-size: 100%;  
    font: inherit;  
    vertical-align: baseline;  
}  
  
article, aside, details, figcaption, figure, footer, header, hgroup, menu, nav, section  
{  
    display: block;  
}  
  
ol, ul {  
    list-style: none;  
    margin: 0px;  
    padding: 0px;  
}  
  
blockquote, q {  
    quotes: none;  
}  
  
blockquote:before, blockquote:after, q:before, q:after  
{  
    content: ":";
```



File Edit Selection View Go Run Terminal Help registro.html - Projeto4 - Visual Studio Code

EXPLORER ... tsconfig.json teste.ts registro.html Extension: Live Server style.css

PROJETO4

dist teste.js

SRC

css style.css

registro.html

Open with Live Server Alt+L Alt+O

Run Code Ctrl+Alt+N

Open to the Side Ctrl+Enter

Open With...

Reveal in File Explorer Shift+Alt+R

Open in Integrated Terminal

Select for Compare

Open Timeline

Cut Ctrl+X

Copy Ctrl+C

Copy Path Shift+Alt+C

Copy Relative Path Ctrl+K Ctrl+Shift+C

Rename F2

Delete Delete

viewport" content="width=device-width, initial-scale=1" />

quiv="Content-Type" content="text/html; charset=utf-8" />

= "application/x-javascript" > addEventListener("load", function() { setTi

Theme files -->

css/style.css rel="stylesheet" type="text/css" media="all" />

m Theme files -->

OLE TERMINAL

ted. Starting incremental compilation...

1: node

Server is Started at port : 5500

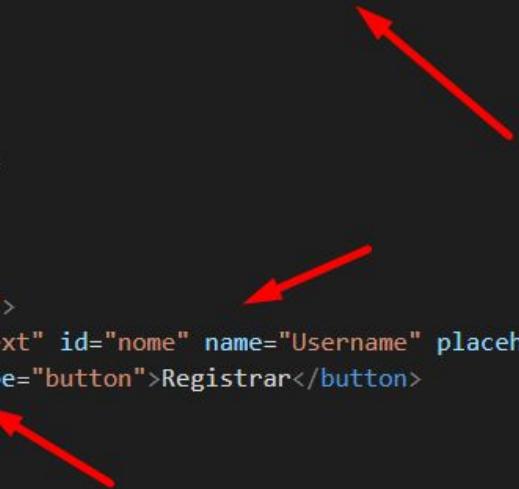
Source: Live Server (Extension)

Don't show again

Ln 64, Col 8 Spaces: 4 UTF-8 CRLF HTML Port: 5500

## Temos que colocar o bootstrap

```
teste.ts      index.html X  # style.css
index.html > html > body > div.main-w3layouts.wrapper > div.colorlibcopy-agile
22  </script>
23  <!-- Custom Theme files -->
24  <link href="css/style.css" rel="stylesheet" type="text/css" media="all" />
25  <!-- //Custom Theme files -->
26  <!-- web font -->
27  <link href="//fonts.googleapis.com/css?family=Roboto:300,300i,400,400i,700,700i" rel="stylesheet">
28  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/bootstrap.min.css" integrity="sha384-Gn5"
29  <script src="https://code.jquery.com/jquery-3.2.1.slim.min.js" integrity="sha384-KJ3o2DKtIkVYIK3UENzmM7KCkRr/rE9/Qpg6aAZGJwF
30  <script src="https://cdn.jsdelivr.net/npm/popper.js@1.12.9/dist/umd/popper.min.js" integrity="sha384-ApNbgh9B+Y1QKtv3Rn7W3mgPx
31  <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/js/bootstrap.min.js" integrity="sha384-JZR6Spejh4U02d8j0t6vLEHF
32  <!-- //web font -->
33  </head>
34
35 <body>
36  <!-- main -->
37  <div class="main-w3layouts_wrapper">
38    <h1>Creative SignUp Form</h1>
39    <div class="main-agileinfo">
40      <div class="agileits-top">
41        <form action="#" method="post">
42          <input class="text" type="text" id="nome" name="Username" placeholder="Username" required="">
43          <button id="btnRegistro" type="button">Registrar</button>
44        </form>
45
46      </div>
47    </div>
48
```



```
47     </div>
48
49     <div class="container col-md-8">
50         <ul id="conteudo" class="list-group" >
51
52             </ul>           ←
53     </div>           ←
54     <!-- copyright -->
55     <div class="colorlibcopy-agile">
56         |   <p>© 2018 Colorlib Signup Form. All rights reserved.
57         |   </p>
58     <!-- //copyright -->
59
60     </div>
61     <!-- //main -->           ←
62     <script src="teste.js">
63         </script>
64     </body>
65
```

Trabalhando com os elementos do DOM utilizando TypeScript

File Edit Selection View Go Run Terminal Help • teste.ts - Projeto4 - Visual Studio Code

EXPLORER ... { tsconfig.json TS teste.ts ● ⚡ registro.html Extension: Live Server # style.css

PROJETO4

dist

JS teste.js

src

> css

registro.html

TS teste.ts

{ tsconfig.json

```
src > TS teste.ts > ...
1 let nome: HTMLInputElement
2 let botao: HTMLButtonElement
3 nome = document.getElementById("nome") as HTMLInputElement
4 botao = document.getElementById("btnRegistro") as HTMLButtonElement
5
6 botao.addEventListener("click",function(){
7     console.log("nome: " + nome.value)
8 })
9 |
```



# Creative SignUp Form

© 2018 Colorlib Signup Form. All rights reserved | Design by Colorlib

File Edit Selection View Go Run Terminal Help registro.html - Projeto4 - Visual Studio Code

EXPLORER ... tsconfig.json teste.ts • registro.html X Extension: Live Server # style.css

PROJETO4  
dist teste.js  
src  
css  
registro.html  
teste.ts  
tsconfig.json

```
src > registro.html > html > body
21  <body>
22      <!-- main -->
23      <div class="main-w3layouts wrapper">
24          <h1>Creative SignUp Form</h1>
25          <div class="main-agileinfo">
26              <div class="agileits-top">
27                  <input class="text" type="text" id="nome" name="Nome" placeholder="Name" required="required" />
28                  <input class="text email" type="email" name="email" placeholder="Email" required="required" />
29                  <button id="btnRegistro" type="button">Registrar</button>
30          </div>
31      </div>
32      <!-- copyright -->
33      <div class="colorlibcopy-agile">
34          <p>© 2018 Colorlib Signup Form. All rights reserved | Design by <a href="http://colorlib.com">Colorlib</a></p>
35      </div>
36
37  </div>
38  <script src="../../dist/teste.js"/>
39 </body>
40 </html>
```

OUTLINE

Ln 22, Col 18 Spaces: 4 UTF-8 CRLF HTML Port : 5500

The screenshot shows a Visual Studio Code interface with the following details:

- File Explorer (Left):** Shows a project structure named "PROJETO4". It contains a "dist" folder (indicated by a red arrow) and a "src" folder which includes "css", "registro.html", "teste.ts", and "tsconfig.json". Inside "src", there is also a "teste.js" file (also indicated by a red arrow).
- Code Editor (Center):** Displays the content of "registro.html". The code includes HTML structure like `<body>`, `<div>`, and `<script>`. A red arrow points to the `<script src="../../dist/teste.js"/>` line.
- Status Bar (Bottom):** Shows the line number (Ln 22), column number (Col 18), and other settings like "Spaces: 4", "UTF-8", "CRLF", "HTML", and "Port : 5500".

# Creative SignUp Form

Sara

Email

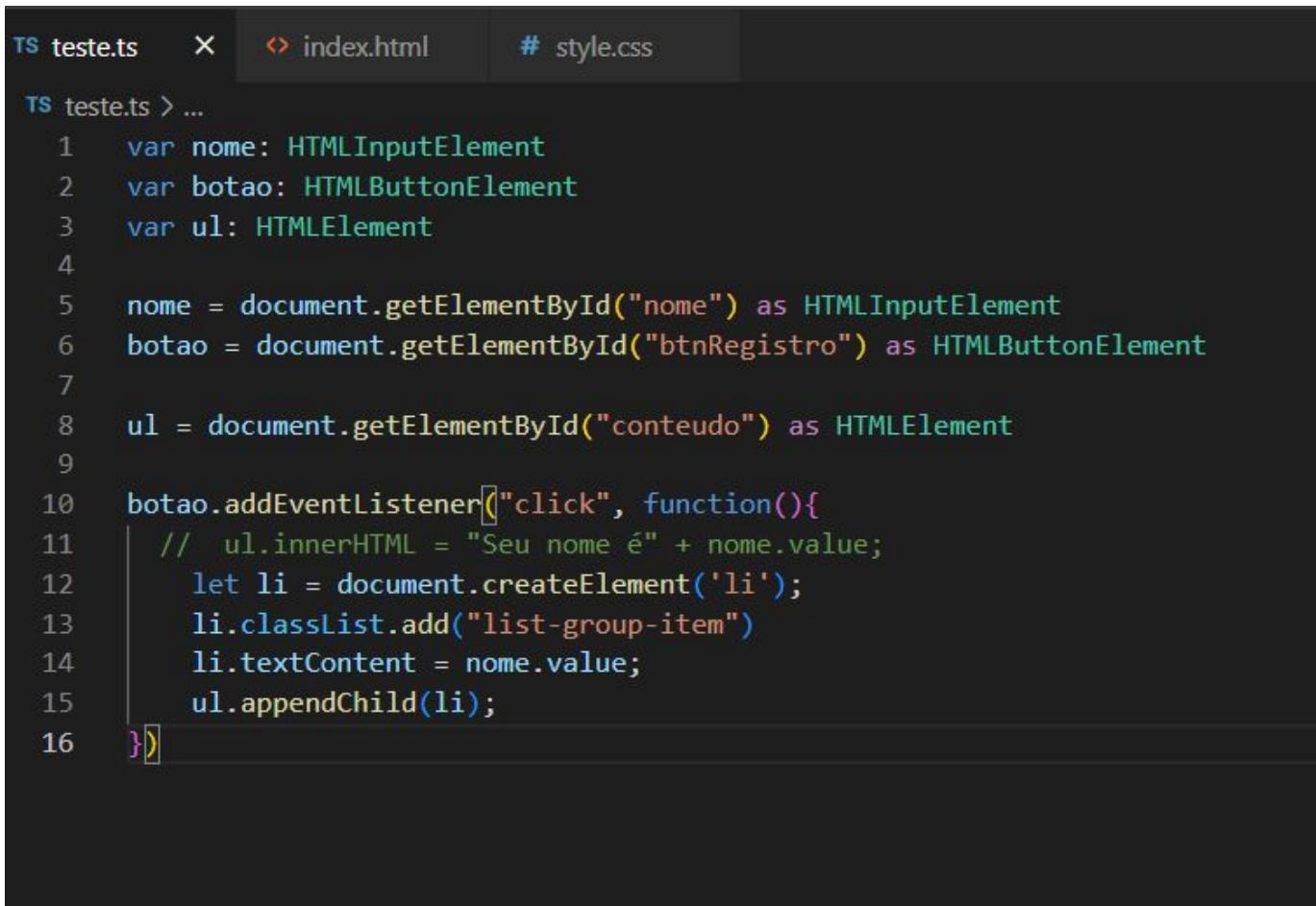
Registrar

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teste.js:8

## Vamos aprimorar



```
TS teste.ts    X  index.html  # style.css
TS teste.ts > ...

1  var nome: HTMLInputElement
2  var botao: HTMLButtonElement
3  var ul: HTMLElement
4
5  nome = document.getElementById("nome") as HTMLInputElement
6  botao = document.getElementById("btnRegistro") as HTMLButtonElement
7
8  ul = document.getElementById("conteudo") as HTMLElement
9
10 botao.addEventListener("click", function(){
11     // ul.innerHTML = "Seu nome é" + nome.value;
12     let li = document.createElement('li');
13     li.classList.add("list-group-item")
14     li.textContent = nome.value;
15     ul.appendChild(li);
16 })
```

marcelo

Registrar

marcelo

## **Hands-ON - Criação e Validação de um formulário com TypeScript**

1. Criar um projeto em TypeScript
2. Configurar a pasta src
3. Configurar a pasta dist
4. Criar um formulário com 4 campos(colocar o nome do class conforme abaixo:  
username, email, password e password2)
5. Criar um botão de submit
6. Pegar os valores de cada um dos campos usando querySelector e colocar em uma variável

# **Correção do Exercício**

## **Validação de formulário**

The image shows a code editor interface with a search overlay. The search bar at the top contains the text "src > index.html > html > body > div.container > form#form.form > div.form-fields > button". The main code editor area displays the following HTML code:

```
4  <head>
5    <meta charset="UTF-8">
6    <meta name="viewport" content="width=device-width, initial-scale=1.0">
7    <title>Faça seu registro</title>
8    <link rel="stylesheet" href="css/style.css">
9  </head>
10 <body>
11   <div class="container">
12     <form action="" id="form" class="form">
13       <h2>Faça seu cadastro</h2>
14       <div class="form-fields">
15         <label for="username">Seu usuário</label>
16         <input type="text" name="username" class="username" id="username" placeholder="Seu usuário">
17         <span class="error-message">Campo inválido por algum motivo qualquer</span>
18       </div>
19       <div class="form-fields">
20         <label for="email">Seu e-mail</label>
21         <input type="email" name="email" class="email" id="email" placeholder="Seu e-mail">
22         <span class="error-message">Campo inválido por algum motivo qualquer</span>
23       </div>
24       <div class="form-fields">
25         <label for="password">Sua senha</label>
26         <input type="password" name="password" class="password" id="password" placeholder="Sua senha">
27         <span class="error-message">Campo inválido por algum motivo qualquer</span>
28       </div>
29       <div class="form-fields">
30         <label for="password2">Repetir senha</label>
31         <input type="password" name="password2" class="password2" id="password2" placeholder="Repetir senha">
32         <span class="error-message">Campo inválido por algum motivo qualquer</span>
33       </div>
34       <div class="form-fields">
35         <button type="submit">Enviar</button>
36       </div>
37     </form>
38   </div>
39
40   <script src="../../dist/init.js"></script>
41
42 </body>
43
44 </html>
```

## PROJETOVALIDACAOFORMULARIO

```
> dist  
  < src  
    < css  
      # style.css  
      < index.html  
      TS init.ts  
      tsconfig.json
```

## src &gt; css &gt; # style.css &gt; .form input[type]

```
1   :root {  
2     --dark-color: #111;  
3     --light-color: #f3f3f3;  
4     --medium-color: #bbb;  
5     --border-color: #ddd;  
6     --main-color: #0074D9;  
7     --error-color: #FF4136;  
8     --border-radius: 4px;  
9   }  
10  
11   * {  
12     margin: 0;  
13     padding: 0;  
14     outline: none;  
15     box-sizing: border-box;  
16   }  
17  
18   body {  
19     background-color: var(--dark-color);  
20     font-family: sans-serif;  
21     color: var(--dark-color);  
22   }  
23  
24   .container {  
25     display: flex;  
26     align-items: center;  
27     justify-content: center;  
28     margin: 50px auto;  
29   }  
30  
31   .form {  
32     padding: 20px;  
33     background: #fff;  
34     width: 100%;  
35     max-width: 400px;  
36     box-shadow: 0 0 5px rgba(0, 0, 0, .2);  
37     border-radius: var(--border-radius);  
38     border: 1px solid var(--border-color);  
39     margin: auto 20px;  
40   }  
41  
42   form > .c
```

```
c > TS inits > verifcarCamposVazios
```

```
1 const form = document.querySelector('.form') as HTMLFormElement;
2 const username = document.querySelector('.username') as HTMLInputElement
3 const email = document.querySelector('.email') as HTMLInputElement
4 const password = document.querySelector('.password') as HTMLInputElement
5 const password2 = document.querySelector('.password2') as HTMLInputElement
6
```

```
// função que vai verificar se os campos estão vazios
function verifcarCamposVazios(...inputs: HTMLInputElement[]):void{
    inputs.forEach((campo) =>{
        if(!campo.value){
            console.log(` ${campo.className} está vazio`)
        }
    })
}
```

```
// definindo o evento do form
form.addEventListener('submit', function(event: Event){

    // eu quero que ele cancele o evento de submeter para ir para uma outra pagina
    event.preventDefault();
    verifcarCamposVazios(username,email,password,password2)

});
```

## Faça seu cadastro

Seu usuário

Seu e-mail

Sua senha

Repetir senha

**Enviar**

Elements Console Sources Network Performance  
top Filter

```
username está vazio
email está vazio
password está vazio
password2 está vazio
```

```
31
32
33 function apresentaMSGErro(input:HTMLInputElement,msg:string){
34     const formField = input.parentElement as HTMLDivElement
35     const errorMessage = formField.querySelector('.error-message') as HTMLSpanElement
36     errorMessage.innerText = msg
37     formField.classList.add(SHOW_ERROR_MESSAGES)
38 }
39
40 apresentaMSGErro(username,"Mensagem")
41
42 |
```

## Faça seu cadastro

Seu usuário

Mensagem  
*Mensagem*

Seu e-mail

Sua senha

Repetir senha

**Enviar**

```
<!DOCTYPE html>
<html lang="pt-BR">
  <head>...</head>
  <body> == $0
    <div class="container"> </div>
    <form action="#" id="form" class="form">
      <h2>Faça seu cadastro</h2>
      <div class="form-fields show-error-message">
        <label for="username">Seu usuário</label>
        <input id="username" name="username" placeholder="Seu usuário" type="text" value="Seu usuário" />
        <span class="error-message">Mensagem</span>
      </div>
      <div class="form-fields">...</div>
      <div class="form-fields">...</div>
      <div class="form-fields">...</div>
      <div class="form-fields">...</div>
    </form>
  </div>
  <script src="../dist/init.js"></script>
  <!-- Code injected by live-server -->
  <script type="text/javascript">...</script>
</body>
</html>
```

File Edit Selection View Go Run Terminal Help

index.html tsconfig.json TS init.ts # style.css

EXPLORER PROJETOVALIDACAOFORMULARIO

src > TS init.ts > form.addEventListener("submit") callback

```
14 event.preventDefault();
15 excluirMSGErro(form)
16 verificarCamposVazios(username,email,password,password2)
17
18 });
19
20
21 //função que vai verificar se os campos estão vazios
22 function verificarCamposVazios(...inputs: HTMLInputElement[]):void{
23
24     inputs.forEach((campo) =>{
25         if(!campo.value){
26             console.log(` ${campo.className} está vazio`)
27         }
28     })
29 }
30
31 }
32
33 //apagar todas as mensagens de erro ←
34 function excluirMSGErro(form: HTMLFormElement):void{
35     form.querySelectorAll('.' + SHOW_ERROR_MESSAGES).forEach((item) => {
36         item.classList.remove(SHOW_ERROR_MESSAGES)
37     })
38 }
39
40
41
42 // apresenta mensagem de erro abaixo do input que não foi preenchido
43 function apresentaMSGErro(input:HTMLInputElement, msg:string):void{
44     // vamos pegar o pai do elemento que está vazio para colocarmos a mensagem de erro no local correto
45     const formField = input.parentElement as HTMLDivElement // <div class="form-fields">
46     const errorMessage = formField.querySelector('.error-message') as HTMLSpanElement // local onde vamos colocar a mensagem de erro
47     errorMessage.innerText = msg
48     formField.classList.add(SHOW_ERROR_MESSAGES) // vou adicionar uma classe para apresentar a mensagem de erro.
49 }
50
51 apresentaMSGErro(username,"Mensagem")
52
53
54
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

[13:02:44] Found 0 errors. Watching for file changes.

1: node

Ln 15, Col 19 (14 selected) Spaces: 4 UTF-8 CRLF TypeScript ⚡ Port: 5500 4.2.3

File Edit Selection View Go Run Terminal Help

index.html tsconfig.json TS init.ts # style.css

PROJETOVALIDACAOFORMULARIO

dist

src

css

# style.css

index.html

TS init.ts

tsconfig.json

```
src > TS init.ts > form.addEventListener('submit') callback
1 const SHOW_ERROR_MESSAGES = 'show-error-message'
2
3 const form = document.querySelector('.form') as HTMLFormElement;
4 const username = document.querySelector('.username') as HTMLInputElement
5 const email = document.querySelector('.email') as HTMLInputElement
6 const password = document.querySelector('.password') as HTMLInputElement
7 const password2 = document.querySelector('.password2') as HTMLInputElement
8
9
10 // definindo o evento do form
11 form.addEventListener('submit', function(event: Event){
12
13     // eu quero que ele cancele o evento de submeter para ir para uma outra pagina
14     event.preventDefault();
15     excluirMSGErro(form) ←
16     verificarCamposVazios(username,email,password,password2)
17 });
18
19
20
21 //função que vai verificar se os campos estão vazios
22 function verificarCamposVazios(...inputs: HTMLInputElement[]):void{
23
24     inputs.forEach((campo) =>{
25         if(!campo.value){
26             console.log(` ${campo.className} está vazio`)
27         }
28     })
29 }
30
31 }
32
33 //apagar todas as mensagens de erro
34 function excluirMSGErro(form: HTMLFormElement):void{
35     form.querySelectorAll(`.${SHOW_ERROR_MESSAGES}`).forEach((item) => {
36         item.classList.remove(SHOW_ERROR_MESSAGES)
37     })
38 }
39
40
41
42 // apresenta mensagem de erro abaixo do input que não foi preenchido
43 function apresentaMSGErro(input:HTMLInputElement, msg:string):void{
44     // vamos pegar o pai do elemento que está vazio para colocarmos a mensagem de erro no local correto

```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

1: node

[13:02:44] Found 0 errors. Watching for file changes.

Ln 15, Col 19 (14 selected) Spaces: 4 UTF-8 CRLF TypeScript ⚡ Port: 5500 4.2.3

File Edit Selection View Go Run Terminal Help

• init.ts - ProjetoValidacaoFormulario - Visual Studio Code

EXPLORER

PROJETOVALIDACAOFORMULARIO

- > dist
- src
  - css
    - # style.css
  - index.html
  - tsconfig.json
  - TS init.ts
  - # style.css

init.ts

```
1 const SHOW_ERROR_MESSAGES = 'show-error-message'
2
3 const form = document.querySelector('.form') as HTMLFormElement;
4 const username = document.querySelector('.username') as HTMLInputElement
5 const email = document.querySelector('.email') as HTMLInputElement
6 const password = document.querySelector('.password') as HTMLInputElement
7 const password2 = document.querySelector('.password2') as HTMLInputElement
8
9
10 // definindo o evento do form
11 form.addEventListener('submit', function(event: Event){
12
13     // eu quero que ele cancele o evento de submeter para ir para uma outra pagina
14     event.preventDefault();
15     excluirMSGErro(form)
16     verificarCamposVazios(username,email,password,password2)
17 });
18
19
20
21 //funçao que vai verificar se os campos estão vazios
22 function verificarCamposVazios(...inputs: HTMLInputElement[]):void{
23
24     inputs.forEach((campo) =>{
25         if(!campo.value){
26             // console.log(` ${campo.className} está vazio`)
27             apresentaMSGErro(campo,"Este campo não pode ser vazio")
28         }
29     })
30
31 }
32
33
34 //apagar todas as mensagens de erro
35 function excluirMSGErro(form: HTMLFormElement):void{
36     form.querySelectorAll('.' + SHOW_ERROR_MESSAGES ).forEach((item) => {
37         item.classList.remove(SHOW_ERROR_MESSAGES)
38     })
39 }
40
41
42
43 // apresenta mensagem de erro abaixo do input que nao foi preenchido
44 function apresentaMSGErro(input:HTMLInputElement, msg:string):void{
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

[13:02:44] Found 0 errors. Watching for file changes.

1: node

Ln 52, Col 1 Spaces: 4 UTF-8 CRLF TypeScript ⚡ Port: 5500 4.2.3 🔍

## Faça seu cadastro

Seu usuário

*Este campo não pode ser vazio*

Seu e-mail

*Este campo não pode ser vazio*

Sua senha

Repetir senha

**Enviar**

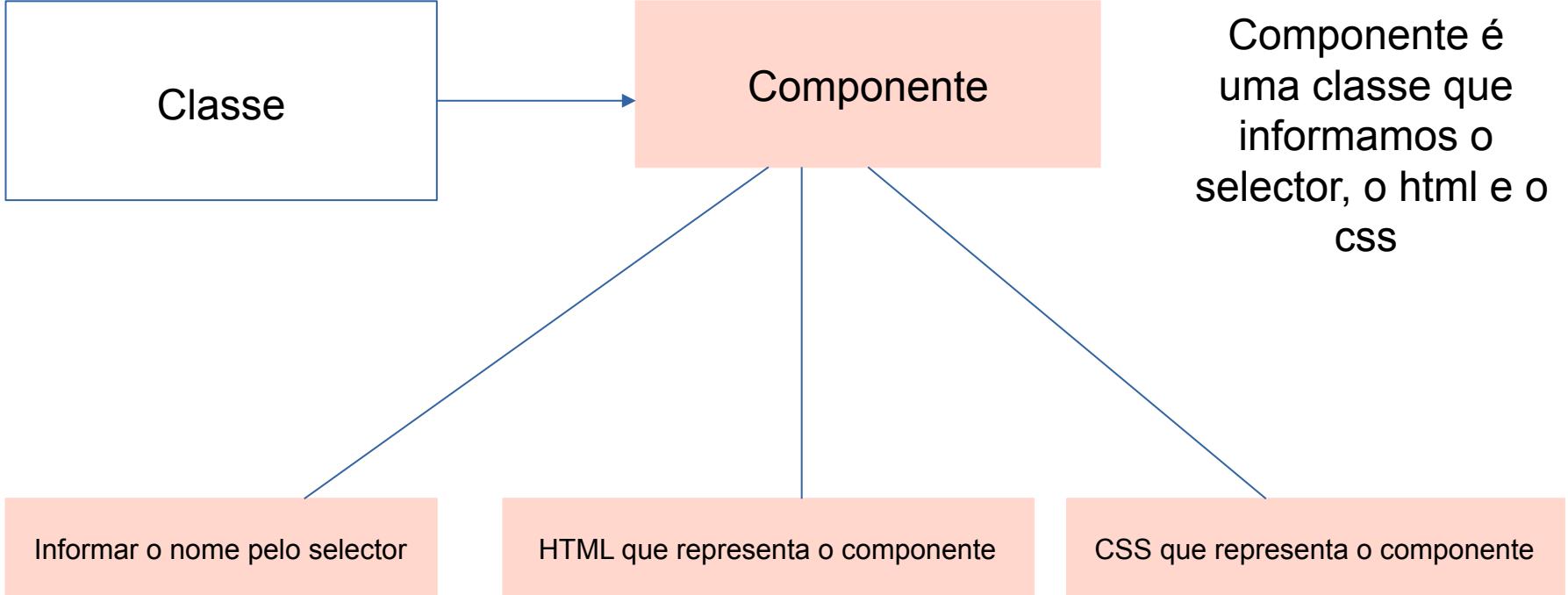
# Angular

AppComponent

CabecalhoComponent

MenuComponent

ConteudoComponent



Tudo

Aplicativos

Documentos

Web

Mais ▾



Melhor correspondência



Prompt de Comando

Aplicativo



Prompt de Comando

Aplicativo

Aplicativos



Git CMD



Node.js command prompt



Install Additional Tools for Node.js



Pesquisar na Web



cmd - Ver resultados da Web



Abrir



Executar como administrador



Abrir local do arquivo



Fixar em Iniciar



Fixar na barra de tarefas

cmd



Prompt de Comando

Microsoft Windows [versão 10.0.19042.985]

(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>

Prompt de Comando

Microsoft Windows [versão 10.0.19042.985]  
(c) Microsoft Corporation. Todos os direitos reservados.  
C:\Users\marce>npm install -g @angular/cli\_ 

```
npm
Microsoft Windows [versão 10.0.19042.985]
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>npm install -g @angular/cli
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
C:\Users\marce\AppData\Roaming\npm\ng -> C:\Users\marce\AppData\Roaming\npm\node_modules\@angular\cli\bin\ng

> @angular/cli@12.0.1 postinstall C:\Users\marce\AppData\Roaming\npm\node_modules\@angular\cli
> node ./bin/postinstall/script.js

? Would you like to share anonymous usage data 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. (y/N) -
```



Prompt de Comando

```
Microsoft Windows [versão 10.0.19042.985]
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>npm install -g @angular/cli
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
C:\Users\marce\AppData\Roaming\npm\ng -> C:\Users\marce\AppData\Roaming\npm\node_modules\@angular\cli\bin\ng

> @angular/cli@12.0.1 postinstall C:\Users\marce\AppData\Roaming\npm\node_modules\@angular\cli
> node ./bin/postinstall/script.js

? Would you like to share anonymous usage data 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. No + @angular/cli@12.0.1
+ @angular/cli@12.0.1
added 234 packages from 180 contributors in 52.63s

C:\Users\marce>
```

C:\ Prompt de Comando

C:\Users\marce>ng v 

# Angular CLI (CLI)

Angular CLI: 12.0.1  
Node: 14.16.1  
Package Manager: npm 6.14.12  
OS: win32 x64

Angular:

...

Package	Version
@angular-devkit/architect	0.1200.1 (cli-only)
@angular-devkit/core	12.0.1 (cli-only)
@angular-devkit/schematics	12.0.1 (cli-only)
@schematics/angular	12.0.1 (cli-only)

C:\Users\marce>

```
prompt de Comando - X  
C:\Users\marce>ng v  
  
Angular CLI: 12.0.1  
Node: 14.16.1  
Package Manager: npm 6.14.12  
OS: win32 x64  
  
Angular:  
...  
  
Package Version  
-----  
@angular-devkit/architect 0.1200.1 (cli-only)  
@angular-devkit/core 12.0.1 (cli-only)  
@angular-devkit/schematics 12.0.1 (cli-only)  
@schematics/angular 12.0.1 (cli-only)  
  
C:\Users\marce>ng new projetoAngular --prefix=senac
```

```
npm
For more detailed help run "ng [command name] --help"
C:\Users\marce>ng v
Angular CLI: 12.0.1
Node: 14.16.1
Package Manager: npm 6.14.12
OS: win32 x64

Angular:
...
Package          Version
-----
@angular-devkit/architect    0.1200.1 (cli-only)
@angular-devkit/core         12.0.1 (cli-only)
@angular-devkit/schematics   12.0.1 (cli-only)
@schematics/angular          12.0.1 (cli-only)

C:\Users\marce>ng new projetoAngular --prefix=senac
? Would you like to add Angular routing? (y/N)
```

Só dar enter, para escolher NO

## Defina css

```
npm
21/04/2021 19:11 <DIR> ProjetoForm
21/04/2021 11:46 <DIR> ProjetoValidacaoFormulario
20/04/2021 20:46 138 resolvendo o problema do tscinit.txt
20/04/2021 20:51 48.755 resolvendo o problema tscinit.png
21/04/2021 18:21 2.049 style.css
    13 arquivo(s) 7.469.683 bytes
    8 pasta(s) 372.309.422.080 bytes disponíveis

D:\marcelo\senac\tecnologiaweb3>ng new projetoAngular --prefix=senac
? Would you like to add Angular routing? No ←
? Which stylesheet format would you like to use? CSS ←
CREATE projetoAngular/angular.json (3089 bytes)
CREATE projetoAngular/package.json (1077 bytes)
CREATE projetoAngular/README.md (1060 bytes)
CREATE projetoAngular/tsconfig.json (783 bytes)
CREATE projetoAngular/.editorconfig (274 bytes)
CREATE projetoAngular/.gitignore (604 bytes)
CREATE projetoAngular/.browserslistrc (703 bytes)
CREATE projetoAngular/karma.conf.js (1431 bytes)
CREATE projetoAngular/tsconfig.app.json (287 bytes)
CREATE projetoAngular/tsconfig.spec.json (333 bytes)
CREATE projetoAngular/src/favicon.ico (948 bytes)
CREATE projetoAngular/src/index.html (304 bytes)
CREATE projetoAngular/src/main.ts (372 bytes)
CREATE projetoAngular/src/polyfills.ts (2820 bytes)
CREATE projetoAngular/src/styles.css (80 bytes)
CREATE projetoAngular/src/test.ts (743 bytes)
CREATE projetoAngular/src/assets/.gitkeep (0 bytes)
CREATE projetoAngular/src/environments/environment.prod.ts (51 bytes)
CREATE projetoAngular/src/environments/environment.ts (658 bytes)
CREATE projetoAngular/src/app/app.module.ts (314 bytes)
CREATE projetoAngular/src/app/app.component.html (23777 bytes)
CREATE projetoAngular/src/app/app.component.spec.ts (964 bytes)
CREATE projetoAngular/src/app/app.component.ts (220 bytes)
CREATE projetoAngular/src/app/app.component.css (0 bytes)
```

Prompt de Comando

Microsoft Windows [versão 10.0.19042.985]  
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>cd projetoAngular 

C:\Users\marce\projetoAngular>

```
ngcc  
Microsoft Windows [versão 10.0.19042.985]  
(c) Microsoft Corporation. Todos os direitos reservados.  
C:\Users\marce>cd projetoAngular  
C:\Users\marce\projetoAngular>ng serve  
- Generating browser application bundles...■
```

```
ngcc (worker)

Microsoft Windows [versão 10.0.19042.985]
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>cd projetoAngular

C:\Users\marce\projetoAngular>ng serve 
- Generating browser application bundles...Compiling @angular/core : es2015 as esm2015
Compiling @angular/common : es2015 as esm2015
Compiling @angular/platform-browser : es2015 as esm2015
Compiling @angular/router : es2015 as esm2015
Compiling @angular/platform-browser-dynamic : es2015 as esm2015
✓ Browser application bundle generation complete.

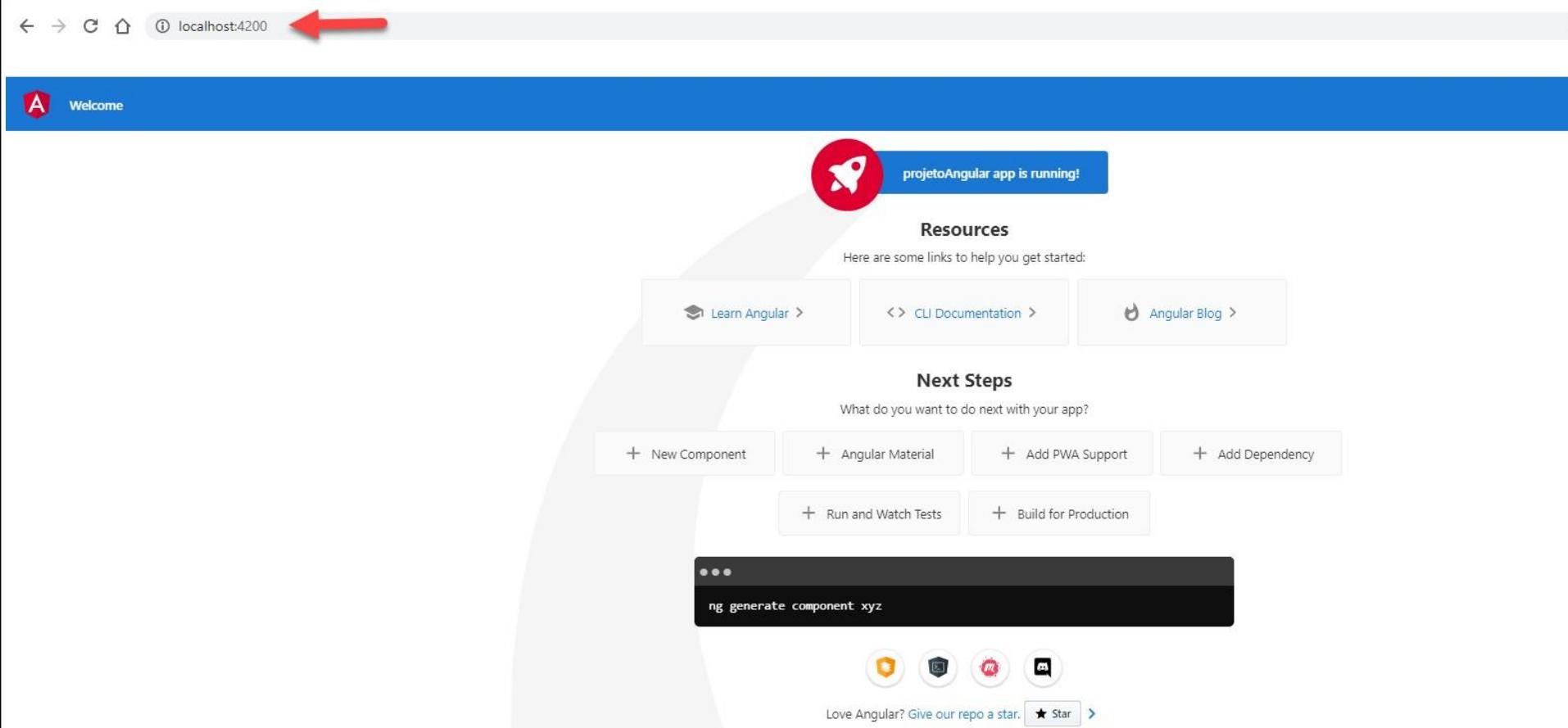
Initial Chunk Files | Names           |      Size
vendor.js           | vendor          | 2.37 MB
polyfills.js        | polyfills       | 508.83 kB
styles.css, styles.js | styles          | 381.01 kB
main.js             | main            | 54.84 kB
runtime.js          | runtime         | 6.58 kB

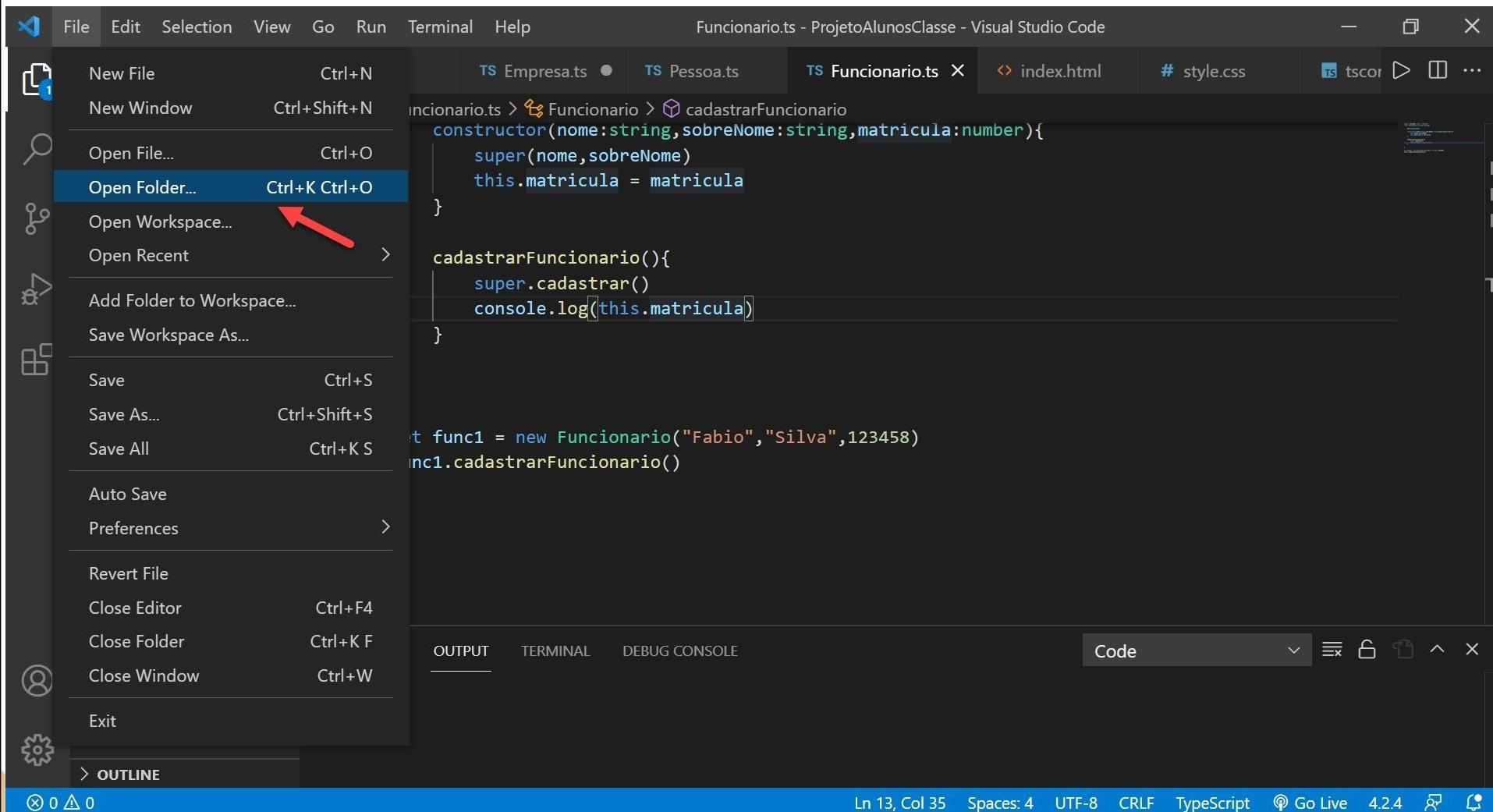
| Initial Total | 3.30 MB

Build at: 2021-05-24T18:55:43.639Z - Hash: 3c75cf5a4d90a50ae12 - Time: 44275ms
** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ ** 
✓ Compiled successfully.
✓ Browser application bundle generation complete.

5 unchanged chunks

Build at: 2021-05-24T18:55:45.379Z - Hash: 8ca3373f7fac48c9d177 - Time: 863ms
✓ Compiled successfully.
```





## Open Folder

← → ⌂ ⌃ ⌄ Este Computador > Disco Local (C:) > Usuários > marce > projetoAngular

Pesquisar projetoAngular

Organizar ▾ Nova pasta

⋮ ?

- javaweb2
- material
- tecnologiaciweb3

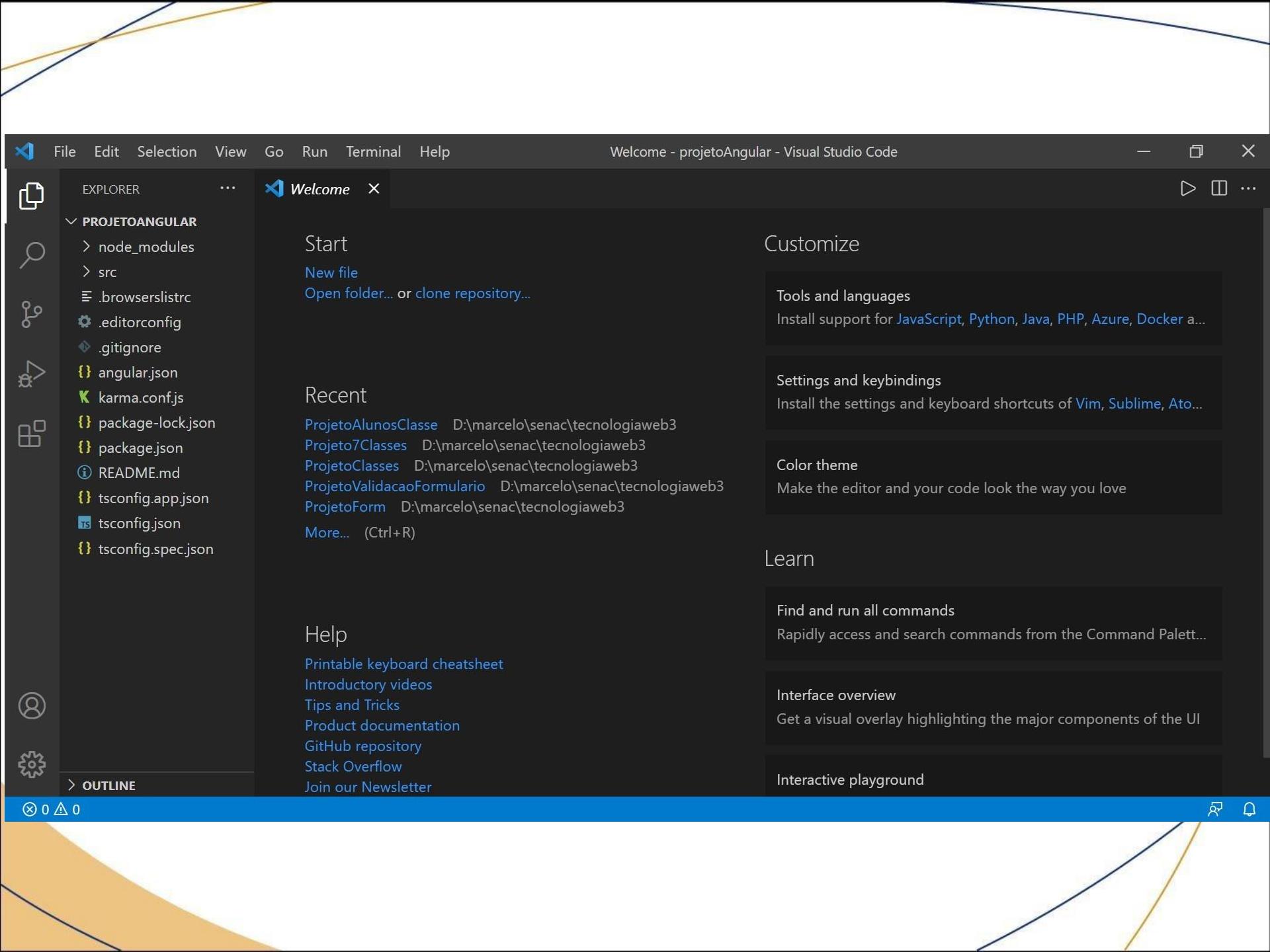
OneDrive

- Este Computador
- Área de Trabalho
- Documentos
- Downloads
- Imagens
- Músicas
- Objetos 3D
- Vídeos
- Disco Local (C:)
- Novo volume (D:)

Pasta: projetoAngular

Selecionar pasta

Cancelar



# Arquivo de configuração e relaciona as dependências do projeto

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** package.json - projetoAngular - Visual Studio Code.
- Left Sidebar (Explorer):** Shows the project structure under "PROJETOANGULAR". The "package.json" file is selected and highlighted with a red arrow. Other files listed include node\_modules, src, .browserslistrc, .editorconfig, .gitignore, angular.json, karma.conf.js, package-lock.json, README.md, tsconfig.app.json, tsconfig.json, and tsconfig.spec.json.
- Right Side (Editor):** Displays the content of the package.json file. The code is as follows:

```
1  {
2    "name": "projeto-angular",
3    "version": "0.0.0",
4    "scripts": {
5      "ng": "ng",
6      "start": "ng serve",
7      "build": "ng build",
8      "watch": "ng build --watch --configuration development",
9      "test": "ng test"
10 },
11 "private": true,
12 "dependencies": {
13   "@angular/animations": "~12.0.1",
14   "@angular/common": "~12.0.1",
15   "@angular/compiler": "~12.0.1",
16   "@angular/core": "~12.0.1",
17   "@angular/forms": "~12.0.1",
18   "@angular/platform-browser": "~12.0.1",
19   "@angular/platform-browser-dynamic": "~12.0.1",
20   "@angular/router": "~12.0.1",
21   "rxjs": "~6.6.0",
22   "tslib": "^2.1.0",
23   "zone.js": "~0.11.4"
24 },
25 "devDependencies": {
```

**Bottom Status Bar:** Ln 11, Col 19 Spaces: 2 UTF-8 LF JSON ⚡ Go Live 🔍

# Arquivo de configuração do Angular

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** angular.json - projetoAngular - Visual Studio Code.
- Explorer Panel:** Shows the project structure with files like node\_modules, src, .browserslistrc, .editorconfig, .gitignore, karma.conf.js, package-lock.json, package.json, README.md, tsconfig.app.json, tsconfig.json, and tsconfig.spec.json. The file "angular.json" is selected and highlighted with a red arrow pointing to it.
- Code Editor:** Displays the content of the angular.json file, which is a JSON object defining an Angular application's build configuration. The code includes sections for schematics, strict mode, root, sourceRoot, prefix, architect, build, options, assets, styles, scripts, and configurations.
- Bottom Status Bar:** master+ 0 0 ▲ 0 Ln 1, Col 1 Spaces: 2 UTF-8 LF JSON Go Live

```
9      "@schematics/angular:application": {  
10        "strict": true  
11      },  
12      "root": "",  
13      "sourceRoot": "src",  
14      "prefix": "senac",  
15      "architect": {  
16        "build": {  
17          "builder": "@angular-devkit/build-angular:browser",  
18          "options": {  
19            "outputPath": "dist/projetoAngular",  
20            "index": "src/index.html",  
21            "main": "src/main.ts",  
22            "polyfills": "src/polyfills.ts",  
23            "tsConfig": "tsconfig.app.json",  
24            "assets": [  
25              "src/favicon.ico",  
26              "src/assets"  
27            ],  
28            "styles": [  
29              "src/styles.css"  
30            ],  
31            "scripts": []  
32          },  
33          "configurations": {  
34            "production": {  
35              "optimization": true,  
36              "outputHashing": "all",  
37              "sourceMap": false,  
38              "extractCss": true,  
39              "namedChunks": true,  
40              "aot": true,  
41              "fileReplacements": {  
42                "replace": "src/environments/environment.ts",  
43                "with": "src/environments/environment.prod.ts"  
44              }  
45            }  
46          }  
47        }  
48      }  
49    }  
50  }  
51 }  
52 }  
53 }  
54 }
```

# Tudo começa aqui

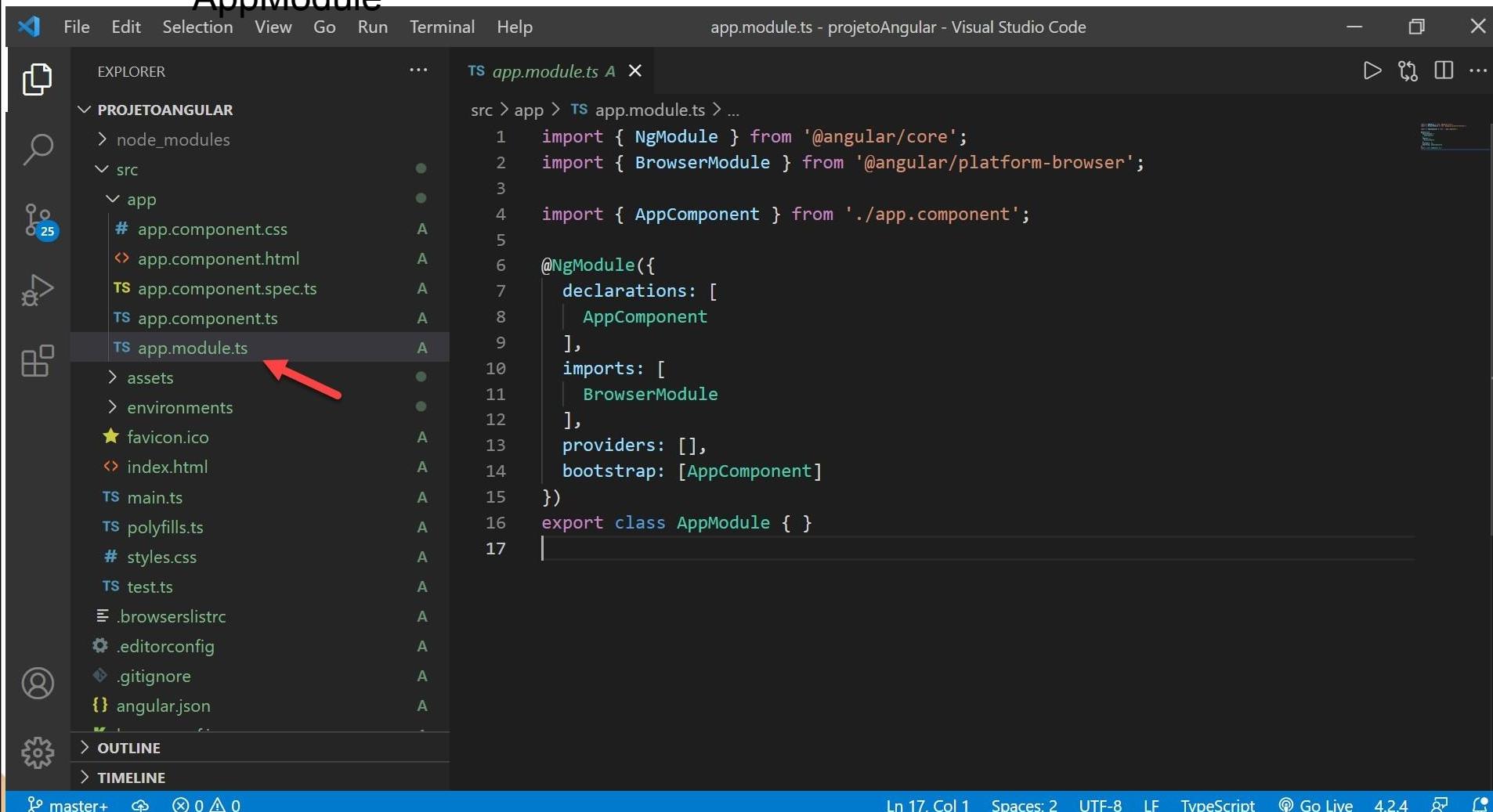
The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** main.ts - projetoAngular - Visual Studio Code.
- Explorer Bar (Left):** Shows the project structure under 'PROJETOANGULAR'. Files listed include node\_modules, src (with app, app.component.css, app.component.html, app.component.spec.ts, app.components.ts, app.module.ts), assets, environments, favicon.ico, index.html, main.ts, polyfills.ts, styles.css, test.ts, .browserslistrc, .editorconfig, .gitignore, and angular.json. A red arrow points to the 'main.ts' file in the list.
- Code Editor (Right):** Displays the content of main.ts. The code is as follows:

```
src > 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.error(err));
13
```

A red arrow points to the line 'platformBrowserDynamic().bootstrapModule(AppModule)'.
- Bottom Status Bar:** Shows 'Ln 13, Col 1' and other status indicators like 'Spaces: 2', 'UTF-8', 'LF', 'TypeScript', 'Go Live', '4.2.4', and a refresh icon.

Import são as bibliotecas que vamos usar  
@NgModule são metadados que serão inseridos na classe  
AppModule



The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.module.ts - projetoAngular - Visual Studio Code.
- Explorer Sidebar:** Shows the project structure under 'PROJETOANGULAR'. The file 'app.module.ts' is selected and highlighted with a red arrow pointing to it.
- Editor Area:** Displays the code for 'app.module.ts':

```
src > app > TS app.module.ts > ...
1 import { NgModule } from '@angular/core';
2 import { BrowserModule } from '@angular/platform-browser';
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 { }
```
- Bottom Status Bar:** master+ 0 0 △ 0, Ln 17, Col 1, Spaces: 2, UTF-8, LF, TypeScript, Go Live, 4.2.4.

bootstrap: [AppComponent] indicado para informar  
qual o componente da classe

File Edit Selection View Go Run Terminal Help app.component.ts - projetoAngular - Visual Studio Code

EXPLORER ... TS app.component.ts A X

PROJETOANGULAR D E F 25

- > node\_modules
- src
  - app
    - # app.component.css
    - app.component.html
    - TS app.component.spec.ts
  - 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
- .browserslistrc
- .editorconfig
- .gitignore
- { angular.json

> OUTLINE  
> TIMELINE

```
src > app > TS app.component.ts > ...
1 import { Component } from '@angular/core';
2
3 @Component({
4   selector: 'senac-root',
5   templateUrl: './app.component.html',
6   styleUrls: ['./app.component.css']
7 })
8 export class AppComponent {
9   title = 'projetoAngular';
10 }
```

Ln 1, Col 1 Spaces: 2 UTF-8 LF TypeScript Go Live 4.2.4

Perceba que o nome utilizado é exatamente o nome do selector que está definido

EXPLORER

... *index.html A X*

PROJETOANGULAR

- > node\_modules
- src
  - app
    - # app.component.css
    - app.component.html
    - TS app.component.spec.ts
    - TS app.component.ts
    - TS app.module.ts
  - > assets
  - > environments
  - ★ favicon.ico
- <> index.html A
- TS main.ts
- TS polyfills.ts
- # styles.css
- TS test.ts
- .browserslistrc
- .editorconfig

src > <> index.html > ...

```
1 <!doctype html>
2 <html lang="en">
3   <head>
4     <meta charset="utf-8">
5     <title>ProjetoAngular</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    <senac-root></senac-root>
12  </body>
13 </html>
```

# Criando nosso primeiro componente

```
Prompt de Comando
Microsoft Windows [versão 10.0.19042.985]
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>d:

D:\>cd\marcelo\senac\tecnologiacore3\projetoAngular

D:\marcelo\senac\tecnologiacore3\projetoAngular>ng generate component cabecalho
```

OU

Prompt de Comando

```
Microsoft Windows [versão 10.0.19042.985]
(c) Microsoft Corporation. Todos os direitos reservados.

C:\Users\marce>d:

D:\>cd\marcelo\senac\tecnologiacweb3\projetoAngular

D:\marcelo\senac\tecnologiacweb3\projetoAngular>ng g c cabecalho
CREATE src/app/cabecalho/cabecalho.component.html (24 bytes)
CREATE src/app/cabecalho/cabecalho.component.spec.ts (647 bytes)
CREATE src/app/cabecalho/cabecalho.component.ts (289 bytes)
CREATE src/app/cabecalho/cabecalho.component.css (0 bytes)
UPDATE src/app/app.module.ts (408 bytes)

D:\marcelo\senac\tecnologiacweb3\projetoAngular>
```

The screenshot shows a Visual Studio Code interface with the following details:

- File Path:** app.module.ts - projetoAngular - Visual Studio Code
- Explorer View:** Shows the project structure under 'PROJETOANGULAR'. A red arrow points to the 'cabecalho' folder in the 'app' directory.
- Editor View:** The 'app.module.ts' file is open. A red arrow points to the file tab in the top bar.
- Code Content:**

```
src > app > TS app.module.ts > AppModule
1 import { NgModule } from '@angular/core';
2 import { BrowserModule } from '@angular/platform-browser';
3
4 import { AppComponent } from './app.component';
5 import { CabecalhoComponent } from './cabecalho/cabecalho.component';
6
7 @NgModule({
8   declarations: [
9     AppComponent,
10    CabecalhoComponent
11   ],
12   imports: [
13     BrowserModule
14   ],
15   providers: [],
16   bootstrap: [AppComponent]
17 })
18 export class AppModule { }
```
- Status Bar:** Shows the file is 'master\*' and has 0 changes. It also displays the current line (Ln 14, Col 5), character count (2 selected), encoding (UTF-8), line separator (LF), language (TypeScript), and version (4.2.4).

# Excluir todo o conteúdo do arquivo

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.component.html - projetoAngular - Visual Studio Code.
- Explorer Pane:** Shows the project structure under 'PROJETOANGULAR'. The 'app' folder contains 'cabecalho' (with files cabecalho.component.css, cabecalho.component.html, cabecalho.component.spec.ts, cabecalho.component.ts), 'app.component.css', 'app.component.html' (highlighted with a red arrow), 'app.component.spec.ts', 'app.component.ts', 'app.module.ts', 'assets', 'environments', 'favicon.ico', 'index.html', 'main.ts', 'polyfills.ts', and '# styles.css'. Other files like 'OUTLINE' and 'TIMELINE' are also listed.
- Editor Pane:** Displays the content of 'app.component.html'. The code includes HTML and SVG elements for a navigation bar with links to Animations, CLI, and Meetup, along with some Angular-specific components like 'cardu-container' and 'circle-link'.
- Bottom Status Bar:** Shows the current file path (master\*+), line and column information (Ln 509, Col 1 (23777 selected)), encoding (Spaces: 2), and character set (UTF-8). It also includes icons for LF, HTML, Go Live, and other settings.

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Editor:** The active file is `app.component.html`. The code contains the following snippet:

```
src > app > app.component.html > senac-cabecalho
1 | <senac-cabecalho>/senac-cabecalho>
```

A red arrow points from the terminal output above to the opening tag in the code editor.
- Terminal:** The terminal shows the path: `src > app > app.component.html > senac-cabecalho`, followed by the number `1` and the tag `<senac-cabecalho>/senac-cabecalho>`.
- Explorer:** The project structure is displayed under `PROJETOANGULAR`:
  - `node_modules`
  - `src`:
    - `app`:
      - `cabecalho`:
        - `# cabecalho.component.css`
        - `<> cabecalho.component.html`
        - `TS cabecalho.component.spec.ts`
        - `TS cabecalho.component.ts`
        - `# app.component.css`
        - `<> app.component.html` (highlighted)
        - `TS app.component.spec.ts`
        - `TS app.component.ts`
        - `TS app.module.ts`
      - `assets`
  - Sidebar:** Includes icons for Explorer, Search, Problems (with 31), and Diff.

## **Trabalhando com Layout**

File Edit Selection View Go Run Terminal Help index.html - Empresas - Visual Studio Code

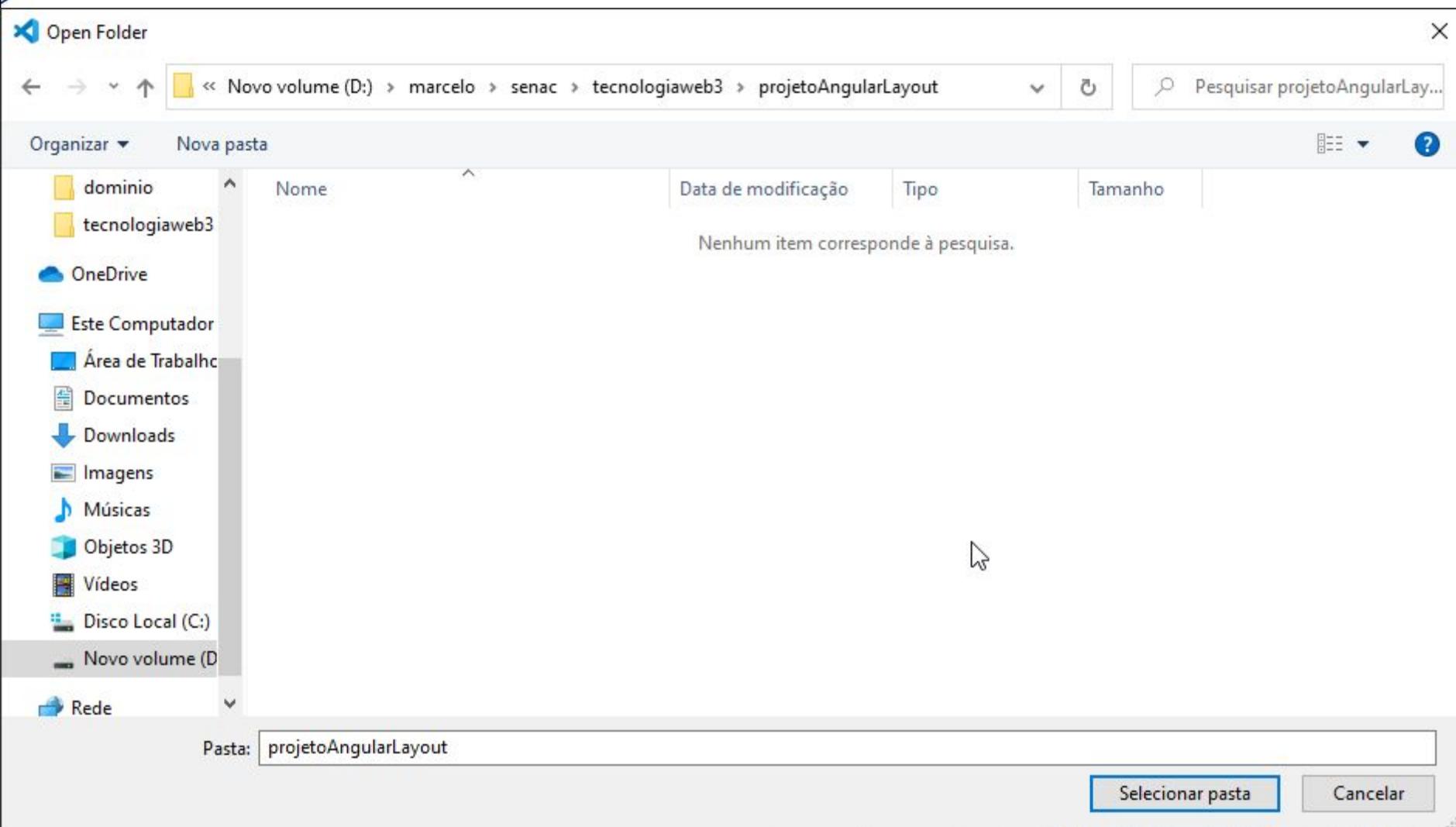
New File Ctrl+N  
New Window Ctrl+Shift+N  
Open File... Ctrl+O  
**Open Folder... Ctrl+K Ctrl+O**   
Open Workspace...  
Open Recent >  
Add Folder to Workspace...  
Save Workspace As...  
Save Ctrl+S  
Save As... Ctrl+Shift+S  
Save All Ctrl+K S  
Auto Save  
Preferences >  
Revert File  
Close Editor Ctrl+F4  
Close Folder Ctrl+K F  
Close Window Alt+F4

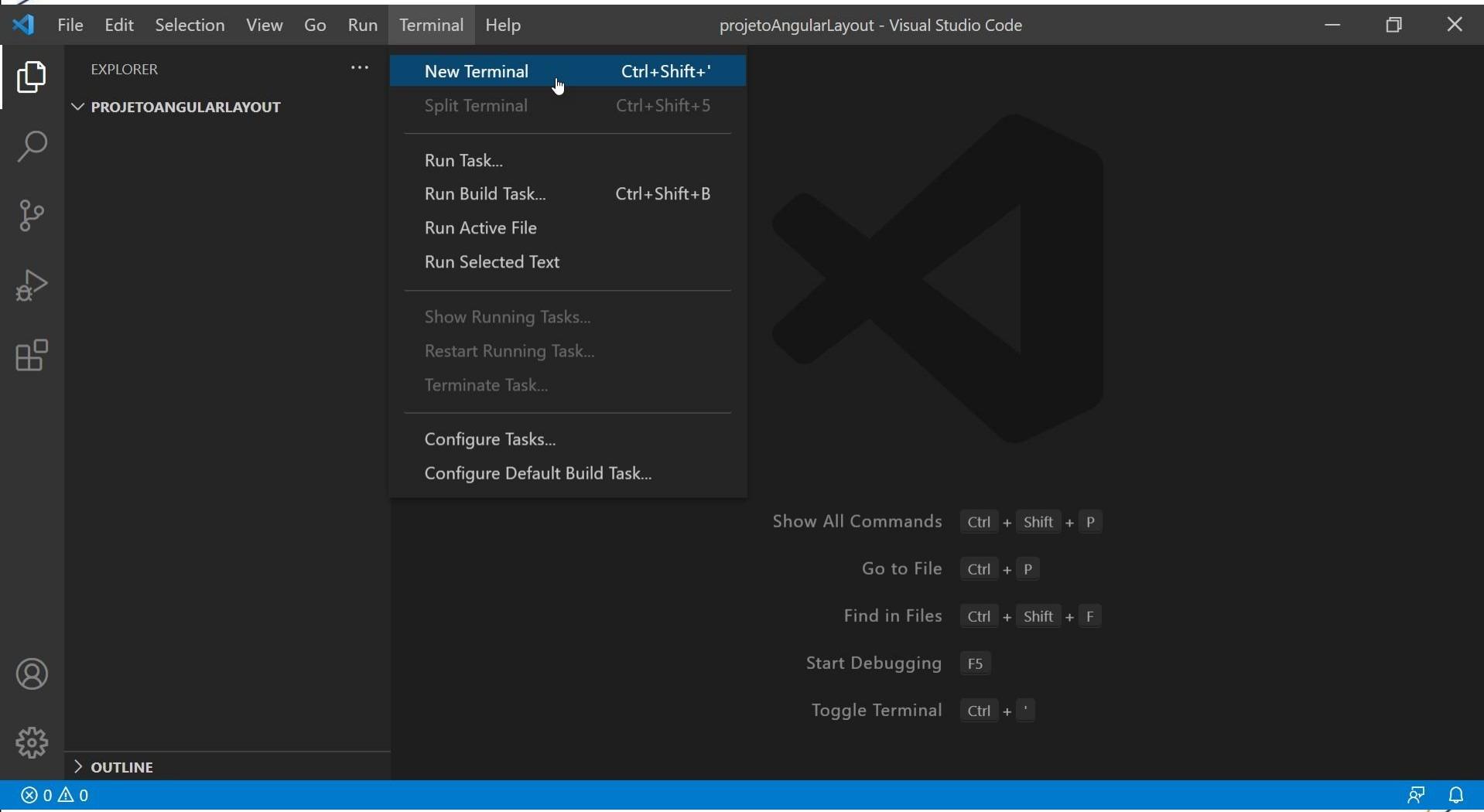
> OUTLINE

index.html X  
src > index.html > ...

```
17 |     <input type="text" name="username" class="username" id="username" placeholder="S" />
18 |     <span class="error-message">Campo inválido por algum motivo qualquer</span>
19 |   </div>
20 |
21 |   <div class="form-fields">
22 |     <button type="submit" id="button">Enviar</button>
23 |   </div>
24 | </form>
25 | </div>
26 | <div style="color: #white" class="lista">
27 |   <h1>Nome das Empresas</h1>
28 |   <ul id="list"></ul>
29 | </div>
30 |
31 | <script src="../dist/Empresa.js"></script>
32 | </body>
33 |
34 | </html>
```

Ln 1, Col 1 Spaces: 2 UTF-8 CRLF HTML ⚡ Port : 5500 🔍 🔔





A screenshot of the Visual Studio Code interface. The title bar reads "projetoAngularLayout - Visual Studio Code". The left sidebar contains icons for File, Edit, Selection, View, Go, Run, Terminal, and Help, along with sections for EXPLORER, PROJETOANGULARAYOUT, SEARCH, SYMBOLS, and OUTLINE. The main area shows a large "X" logo, indicating a terminal window. The terminal tab is selected, showing the command line interface of Windows PowerShell. The output is:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. Todos os direitos reservados.

Experimente a nova plataforma cruzada PowerShell https://aka.ms/pscore6

PS D:\marcelo\senac\tecnologiacore6\projetoAngularLayout> ng new projetoAngularLayout --prefix=senac
```

A red arrow points to the command "ng new projetoAngularLayout --prefix=senac" in the terminal.

File Edit Selection View Go Run Terminal Help projetoAngularLayout - Visual Studio Code

EXPLORER ...

PROJETOANGULARAYOUT

> projetoAngularLayout

TERMINAL DEBUG CONSOLE

node + ^ X

```
Windows PowerShell
Copyright (C) Microsoft Corporation. Todos os direitos reservados.

Experimente a nova plataforma cruzada PowerShell https://aka.ms/pscore6

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayout> ng new projetoAngularLayout --prefix=senac
? Would you like to add Angular routing? No ←
? Which stylesheet format would you like to use? CSS ←
CREATE projetoAngularLayout/angular.json (3125 bytes)
CREATE projetoAngularLayout/package.json (1084 bytes)
CREATE projetoAngularLayout/README.md (1066 bytes)
CREATE projetoAngularLayout/tsconfig.json (783 bytes)
CREATE projetoAngularLayout/.editorconfig (274 bytes)
CREATE projetoAngularLayout/.gitignore (604 bytes)
CREATE projetoAngularLayout/.browserslistrc (703 bytes)
CREATE projetoAngularLayout/karma.conf.js (1437 bytes)
```

OUTLINE



EXPLORER

...

## PROJETOANGULARAYOUT

- › projetoAngularLayout
- › node\_modules
- › src
- ≡ .browserslistrc
- ⚙ .editorconfig
- ❖ .gitignore
- { angular.json
- K karma.conf.js
- { package-lock.json
- { package.json
- ⓘ README.md
- { tsconfig.app.json
- ts tsconfig.json
- { tsconfig.spec.json



PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

```
warning: LF will be replaced by CRLF in tsconfig.spec.json.  
The file will have its original line endings in your working directory  
Author identity unknown  
  
*** Please tell me who you are.
```

Run

```
git config --global user.email "you@example.com"  
git config --global user.name "Your Name"
```

```
to set your account's default identity.  
Omit --global to set the identity only in this repository.
```

```
fatal: unable to auto-detect email address (got 'marce@DESKTOP-4H6STEG.(none)')  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayout> cd projetoAngularLayout
```





EXPLORER

...

## PROJETOANGULARAYOUT

- › projetoAngularLayout
- › node\_modules
- › src
- ≡ .browserslistrc
- ⚙ .editorconfig
- ❖ .gitignore
- { angular.json
- K karma.conf.js
- { package-lock.json
- { package.json
- ⓘ README.md
- { tsconfig.app.json
- ts tsconfig.json
- { tsconfig.spec.json



&gt; OUTLINE

&gt; TIMELINE

master+ ↗ 0 ⚡ 0

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

 powershell + ^ x

The file will have its original line endings in your working directory  
Author identity unknown

\*\*\* Please tell me who you are.

Run

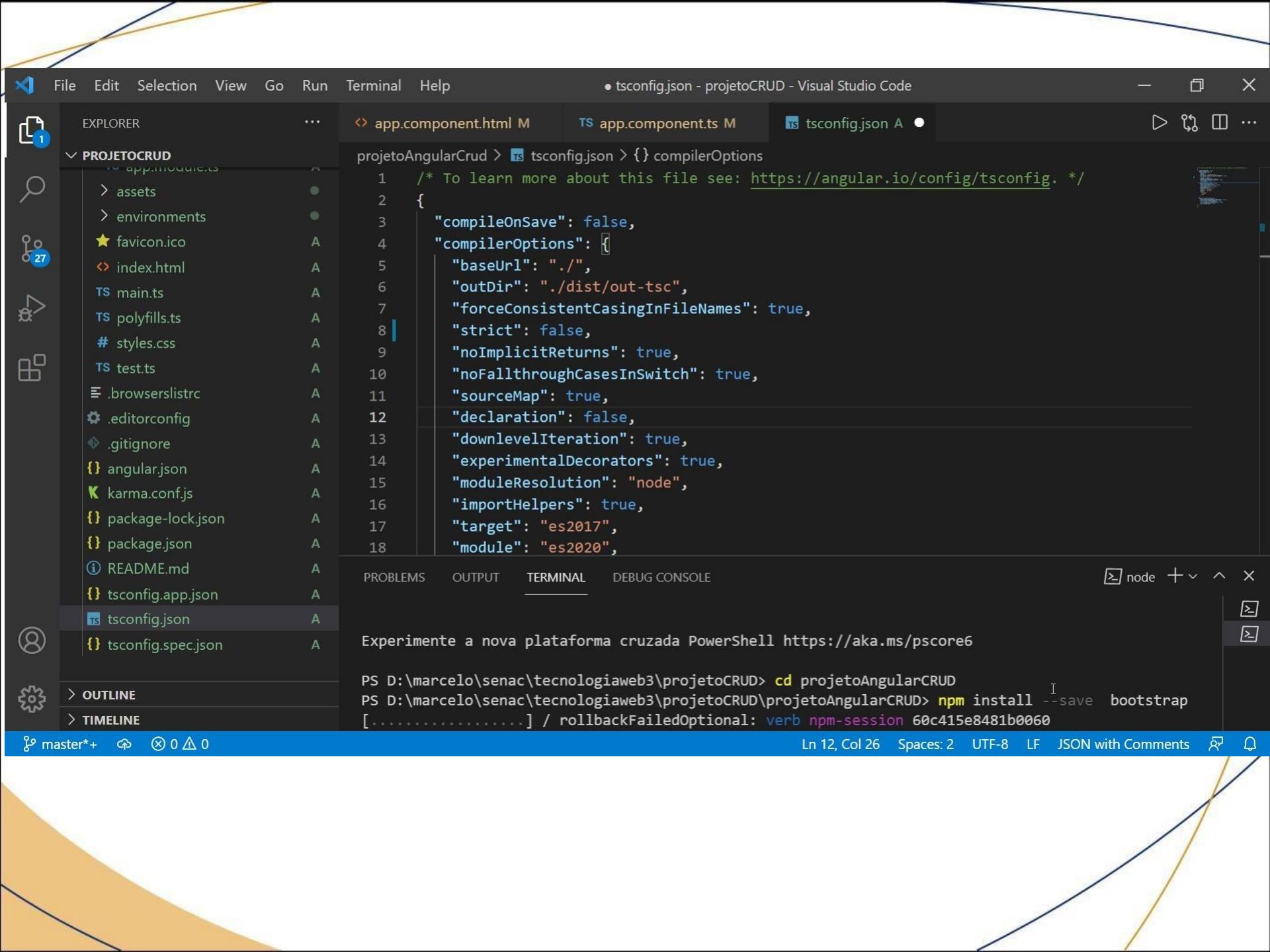
```
git config --global user.email "you@example.com"
git config --global user.name "Your Name"
```

to set your account's default identity.  
Omit --global to set the identity only in this repository.

```
fatal: unable to auto-detect email address (got 'marce@DESKTOP-4H6STEG.(none)')
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayout> cd projetoAngularLayout
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayout\projetoAngularLayout> ng serve
```

⌞ ⌠

Instalar o bootstrap para trabalhar com o Angular



File Edit Selection View Go Run Terminal Help • tsconfig.json - projetoCRUD - Visual Studio Code

EXPLORER ...

PROJETOCRUD 1

- > babel-plugin-polyfill-corejs3
- > babel-plugin-polyfill-regenerator
- > balanced-match
- > base
- > base64-arraybuffer
- > base64-js
- > base64id
- > batch
- > bcrypt-pbkdf
- > big.js
- > binary-extensions
- > bl
- > body-parser
- > bonjour
- > boolbase
- > bootstrap
- > brace-expansion
- > braces
- > browserslist
- > buffer

OUTLINE

TIMELINE

ts app.component.html M ts app.component.ts M ts tsconfig.json A ●

projetoAngularCrud > ts tsconfig.json > {} compilerOptions

```
1  /* To learn more about this file see: https://angular.io/config/tsconfig. */
2  {
3    "compileOnSave": false,
4    "compilerOptions": [
5      "baseUrl": "./",
6      "outDir": "./dist/out-tsc",
7      "forceConsistentCasingInFileNames": true,
8      "strict": false,
9      "noImplicitReturns": true,
10     "noFallthroughCasesInSwitch": true,
11     "sourceMap": true,
12     "declaration": false,
13     "downlevelIteration": true.
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

```
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.13: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})
```

```
+ bootstrap@5.0.2
added 1 package from 2 contributors, removed 1 package and audited 1328 packages in 20.436s
```

```
88 packages are looking for funding
  run `npm fund` for details
```

```
found 1 moderate severity vulnerability
  run `npm audit fix` to fix them, or `npm audit` for details
PS D:\marcelo\senac\tecnologiaweb3\projetoCRUD\projetoAngularCRUD>
```

Ln 12, Col 26 Spaces: 2 UTF-8 LF JSON with Comments

File Edit Selection View Go Run Terminal Help angular.json - projetoCRUD - Visual Studio Code

EXPLORER ... app.component.html M app.component.ts tsconfig.json A angular.json M X D ⌂ ⌂ ⌂

PROJETOcrud app.module.ts

- > assets
- > environments
- ★ favicon.ico
- index.html
- TS main.ts
- TS polyfills.ts
- # styles.css
- TS test.ts
- .browserslistrc
- .editorconfig
- .gitignore
- { angular.json M
- K karma.conf.js A
- { package-lock.json M
- { package.json M
- README.md A
- { tsconfig.app.json A
- tsconfig.json A
- { tsconfig.spec.json A

projetoAngularCrud > { angular.json > {} projects > {} projetoAngularCrud > {} architect > {} build

```
11 },
12 },
13 "root": "",
14 "sourceRoot": "src",
15 "prefix": "senac",
16 "architect": {
17     "build": [
18         "builder": "@angular-devkit/build-angular:browser",
19         "options": {
20             "outputPath": "dist/projetoAngularCrud",
21             "index": "src/index.html",
22             "main": "src/main.ts",
23             "polyfills": "src/polyfills.ts",
24             "tsConfig": "tsconfig.app.json",
25             "assets": [
26                 "src/favicon.ico",
27                 "src/assets"
28             ],
29             "styles": [
30                 "src/styles.css",
31                 "node_modules/bootstrap/dist/css/bootstrap.min.css"
32             ],
33             "scripts": []
34         }
35     ]
36 }
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE I powershell + ^ X

run `npm audit fix` to fix them, or `npm audit` for details  
PS D:\marcelo\senac\tecnologiaweb3\projetoCRUD\projetoAngularCRUD>

Ln 34, Col 13 Spaces: 2 UTF-8 LF JSON ⌂ ⌂ ⌂

master\*+ ⌂ ⌂ ⌂ 0 △ 0

A screenshot of a web browser displaying the Start Bootstrap website at [startbootstrap.com](https://startbootstrap.com). A red arrow points to the URL bar, which shows the website's address. The page features a large central heading: "Bootstrap themes, templates, and UI tools to help you **start your next project!**". Below this, a paragraph explains the site's purpose: "Start Bootstrap creates free, open source, MIT license, Bootstrap themes, templates, and code snippets for you to use on any project, guides to help you learn more about designing and developing with the Bootstrap framework, and premium Bootstrap UI products." A prominent red button labeled "Browse Templates & Themes" is centered below the text. To the right, there is a stylized illustration of a person working on a large whiteboard, surrounded by code snippets like "</>" and a laptop displaying similar code. At the bottom, there are filters for "Category" (with "All" selected), "Technologies" (HTML, Angular, Vue checked), and "Price" (Pro, Free checked). The background of the page has abstract blue and yellow geometric shapes.

startbootstrap.com

**S** Start Bootstrap Themes > Templates > Bundles > Forms Resources > New! Blog Log In

# Bootstrap themes, templates, and UI tools to help you **start your next project!**

Start Bootstrap creates free, open source, MIT license, Bootstrap themes, templates, and code snippets for you to use on any project, guides to help you learn more about designing and developing with the Bootstrap framework, and premium Bootstrap UI products.

Browse Templates & Themes

Category All >

Technologies  HTML  Angular  Vue  Pro  Free

Category

All >

Technologies

HTML

Angular

Vue

Pro

Free

Price



Start Bootstrap

Themes > Templates > Bundles > Forms Resources >

New!

Blog

Log In

A Stylish Bootstrap portfolio theme

467,793

A coming soon landing page

148,159

A multipurpose website template

518,985

**Scrolling Nav**  
A scrolling navigation template

Free  
264,026

**SB Admin Angular**  
An Angular version of SB Admin

Free  
30,376

**Bare**  
A Bootstrap HTML starter template

Free  
242,465

**One Page Wonder**  
Will Rock Your Socks Off

For those about to rock...

Free  
188,874

**Blog Home**  
A blog home page template

Free  
138,787

**Business Casual**  
A fully developed business website

Free  
374,049

**Welcome to Blog Post!**

900 x 400

**A warm welcome!**

Bootstrap utility classes are used to create this landing since the old component has been removed from the framework. Why create custom CSS when you can use utility.

**Showcase your app beautifully.**



Start Bootstrap

Themes >

Templates >

Bundles >

Forms

Resources >

New!

Blog

Log In

Start Bootstrap

Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Clickable nav links that smooth scroll to page sections
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options

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## Scrolling Nav

A basic, unstyled Bootstrap page layout for creating smooth scrolling, one page websites

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License	MIT License
Downloaded	264,026
Released	Feb 3, 2014
Last Update	10 days ago
Product Version	6.0.1
Bootstrap Version	5.0.1





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New!

Blog

Log In

Start Bootstrap

Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Smooth scroll by clicking links
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options

Live Preview View Source Code

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## Scrolling Nav

A basic, unstyled Bootstrap page layout for creating smooth scrolling, one page websites

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Free Download

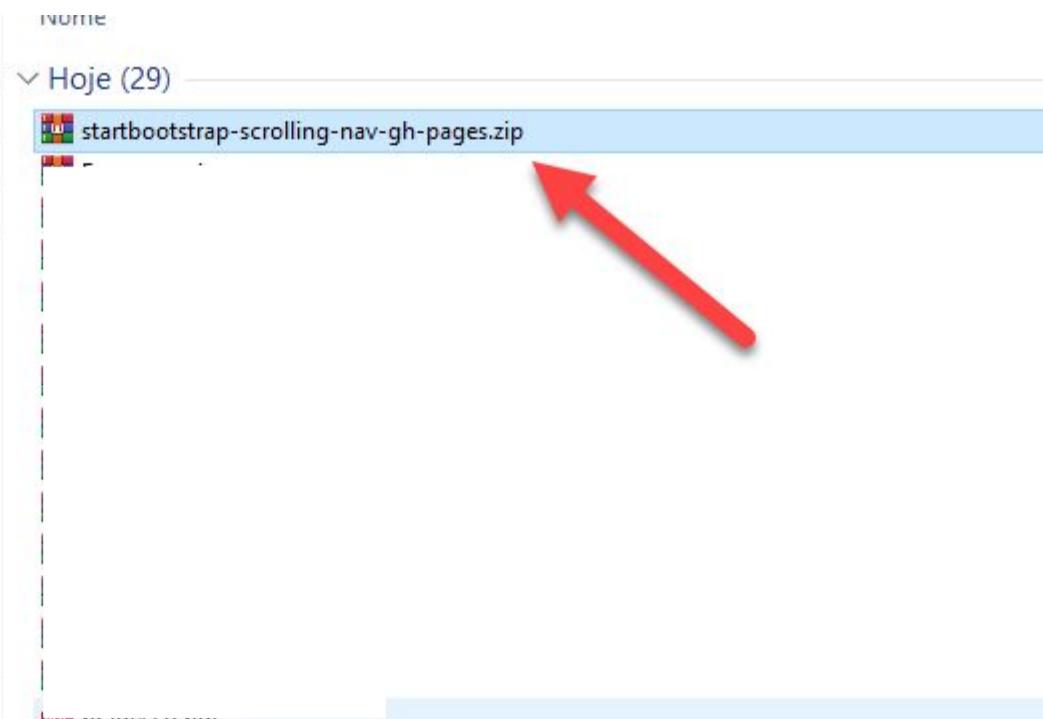
Upgrade to Pro

License	MIT License
Downloaded	264,026
Released	Feb 3, 2014
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startbootstrap-scro...zip ^

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- Vídeos
- Disco Local (C:)
- Novo volume (D:)
- Rede

Nome	Data de modificação	Tipo	Tamanho
startbootstrap-sc...	14/06/2021 19:32	Arquivo ZIP do Wi...	31 KB
Empresas.zip	14/06/2021 18:48	Arquivo ZIP do Wi...	4 KB
ProjetoWeb3.zip	14/06/2021 18:47	Arquivo ZIP do Wi...	5 KB
Prova_Ciclo1.zip	14/06/2021 18:46	Arquivo ZIP do Wi...	4 KB
Prova_mayara.zip	14/06/2021 18:41	Arquivo ZIP do Wi...	6 KB
weblll.zip	14/06/2021 18:39	Arquivo ZIP do Wi...	6 KB
Prova1 - Luiza Am...	14/06/2021 17:27	Arquivo ZIP do Wi...	5 KB
ProvaEstruc.rar	14/06/2021 17:25	Arquivo do WinRAR	3 KB
Avaliação I.zip	14/06/2021 17:21	Arquivo ZIP do Wi...	7 KB
TecWebll.rar	14/06/2021 17:20	Arquivo do WinRAR	3 KB
Prova 1.rar	14/06/2021 17:17	Arquivo do WinRAR	3 KB
Avaliação.rar	14/06/2021 17:13	Arquivo do WinRAR	3 KB
Av1.zip	14/06/2021 17:06	Arquivo ZIP do Wi...	32 KB
Prova.rar	14/06/2021 17:01	Arquivo do WinRAR	4 KB
PDF bradesco.pdf	14/06/2021 15:43	Microsoft Edge P...	68 KB
backup_5.0.0.179.j...	14/06/2021 12:11	Arquivo PRT	835 KB
Empresas	14/06/2021 18:48	Pasta de arquivos	
ProjetoWeb3	14/06/2021 18:47	Pasta de arquivos	
Prova_Ciclo1	14/06/2021 18:46	Pasta de arquivos	
Prova_mayara	14/06/2021 18:41	Pasta de arquivos	
weblll	14/06/2021 18:39	Pasta de arquivos	
Prova1 - Luiza Am...	14/06/2021 17:27	Pasta de arquivos	
ProvaEstruc	14/06/2021 17:25	Pasta de arquivos	
Avaliação I	14/06/2021 17:21	Pasta de arquivos	
TecWebll	14/06/2021 17:20	Pasta de arquivos	
Prova 1	14/06/2021 17:17	Pasta de arquivos	
Avaliação	14/06/2021 17:13	Pasta de arquivos	
Av1	14/06/2021 17:06	Pasta de arquivos	
Prova	14/06/2021 17:01	Pasta de arquivos	
Semana passada (27)			
drive-download-20210610T235126Z-001.zip	10/06/2021 21:19	Arquivo ZIP do Wi...	2.083.285 KB
drive-download-20210610T235126Z-002.zip	10/06/2021 21:19	Arquivo ZIP do Wi...	2.095.573 KB

Este Computador > Downloads > startbootstrap-scrolling-nav-gh-pages > startbootstrap-scrolling-nav-gh-pages >

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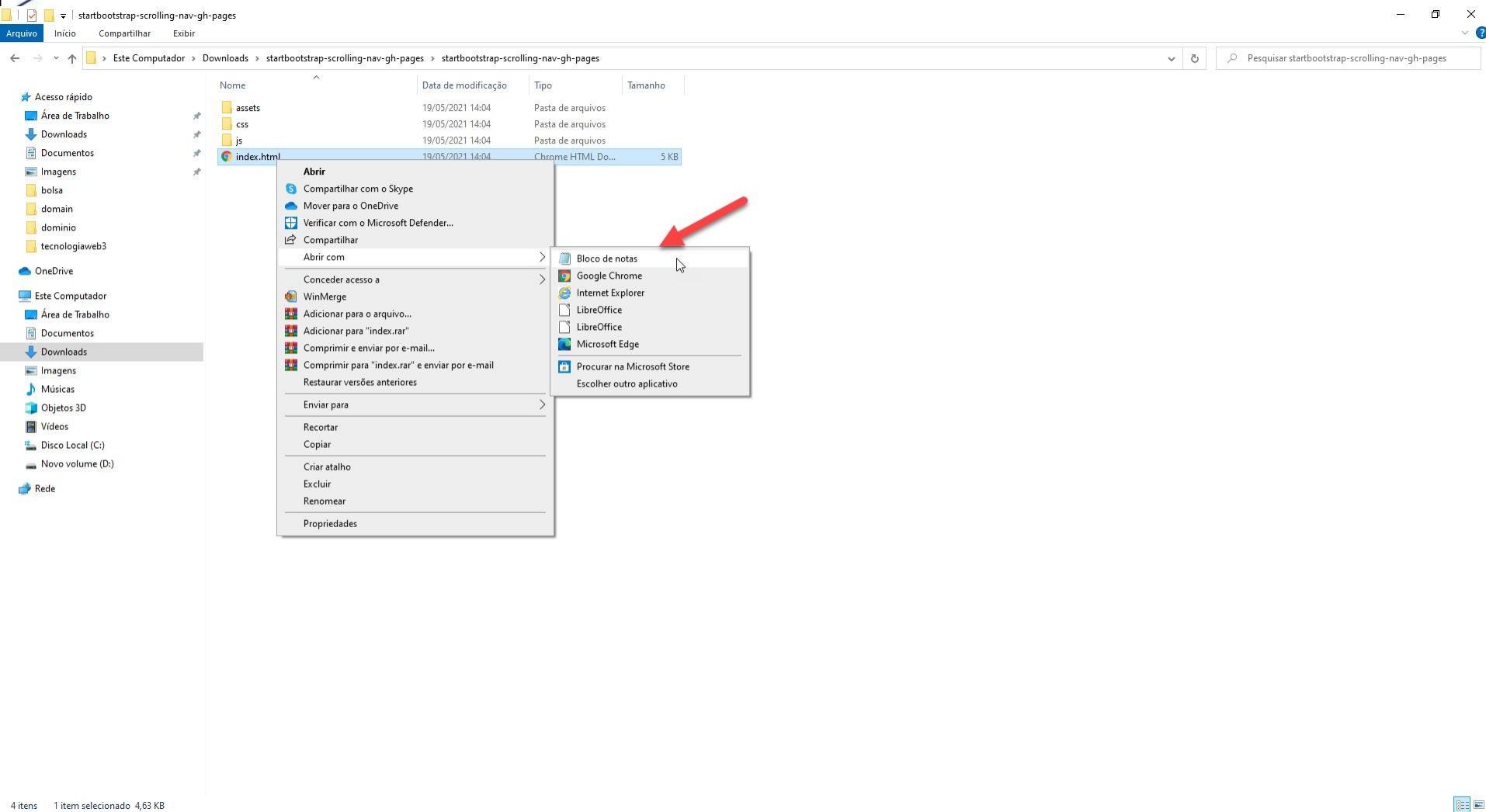
Disco Local (C:)

Novo volume (D:)

Rede

Nome	Data de modificação	Tipo	Tamanho
assets	19/05/2021 14:04	Pasta de arquivos	
css	19/05/2021 14:04	Pasta de arquivos	
js	19/05/2021 14:04	Pasta de arquivos	
index.html	19/05/2021 14:04	Chrome HTML Do...	5 KB





```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
    <meta name="description" content="" />
    <meta name="author" content="" />
    <title>Scrolling Nav - Start Bootstrap Template</title>
    <link rel="icon" type="image/x-icon" href="assets/favicon.ico" />
    <!-- Core theme CSS (includes Bootstrap)-->
    <link href="css/styles.css" rel="stylesheet" />
  </head>
  <body id="page-top">
    <!-- Navigation-->
    <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
      <div class="container px-4">
        <a class="navbar-brand" href="#page-top">Start Bootstrap</a>
        <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-label="Toggle navigation">
          <div class="collapse navbar-collapse" id="navbarResponsive">
            <ul class="navbar-nav ms-auto">
              <li class="nav-item"><a class="nav-link" href="#about">About</a></li>
              <li class="nav-item"><a class="nav-link" href="#services">Services</a></li>
              <li class="nav-item"><a class="nav-link" href="#contact">Contact</a></li>
            </ul>
          </div>
        </div>
      </div>
    </nav>
    <!-- Header-->
    <header class="bg-primary bg-gradient text-white">
      <div class="container px-4 text-center">
        <h1 class="fw-bolder">Welcome to Scrolling Nav</h1>
        <p class="lead">A functional Bootstrap 5 boilerplate for one page scrolling websites</p>
        <a class="btn btn-lg btn-light" href="#about">Start scrolling!</a>
      </div>
    </header>
```



EXPLORER

...

PROJETOANGULARLA...

- projetoAngularLayout
  - node\_modules
  - src
    - app
      - # app.component.css
      - app.component.html
    - TS app.component.spec.ts
    - TS app.component.ts
    - TS app.module.ts
  - assets
  - environments
    - TS environment.prod.ts
    - TS environment.ts
  - ★ favicon.ico
  - index.html
  - TS main.ts
  - TS polyfills.ts
  - # styles.css
  - TS test.ts
  - .browserslistrc



&gt; OUTLINE

&gt; TIMELINE

&lt; app.component.html A X

```
projetoAngularLayout > src > app > app.component.html > style > toolbar
335   <svg id="rocket" xmlns="http://www.w3.org/2000/svg" width="101.678" height="101.678">
336     <title>Rocket Ship</title>
337     <g id="Group_83" data-name="Group 83" transform="translate(-141 -696)">
338       <circle id="Ellipse_8" data-name="Ellipse 8" cx="50.839" cy="50.839" r="50.839" />
339       <g id="Group_47" data-name="Group 47" transform="translate(165.185 720.185)">
340         <path id="Path_33" data-name="Path 33" d="M3.4,42.615A3.084,3.084,0,0,0,3.553,<br/>
341           <path id="Path_34" data-name="Path 34" d="M53.3,3.221A3.09,3.09,0,0,0,50.081,0<br/>
342         </g>
343       </g>
344     </svg>
345
346   <span>{{ title }} app is running!</span>
347
348   <svg id="rocket-smoke" xmlns="http://www.w3.org/2000/svg" width="516.119" height="100">
349     <title>Rocket Ship Smoke</title>
350     <path id="Path_40" data-name="Path 40" d="M644.6,141S143.02,215.537,147.049,870.20<br/>
351   </svg>
352
353 </div>
354
355 <!-- Resources -->
356 <h2>Resources</h2>
357 <p>Here are some links to help you get started:</p>
358
359 <div class="card-container">
360   <a class="card" target="_blank" rel="noopener" href="https://angular.io/tutorial">
```

File Edit Selection View Go Run Terminal Help • app.component.html - projetoAngularLayout - Visual Studio Code

EXPLORER ... < app.component.html A ●

projetoAngularLayout > src > app > app.component.html > html > head

```
1  <!DOCTYPE html>
2  <html lang="en">
3  |   <head>
4  |       <meta charset="utf-8" />
5  |       <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=>
6  |       <meta name="description" content="" />
7  |       <meta name="author" content="" />
8  |       <title>Scrolling Nav - Start Bootstrap Template</title>
9  |       <link rel="icon" type="image/x-icon" href="assets/favicon.ico" />
10 |       <!-- Core theme CSS (includes Bootstrap) -->
11 |       <link href="css/styles.css" rel="stylesheet" />
12 |   </head>
13 |   <body id="page-top">
14 |       <!-- Navigation-->
15 |       <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
16 |           <div class="container px-4">
17 |               <a class="navbar-brand" href="#page-top">Start Bootstrap</a>
18 |               <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-label="Toggle navigation">
19 |                   <span class="navbar-toggler-icon" />
20 |               <div class="collapse navbar-collapse" id="navbarResponsive">
21 |                   <ul class="navbar-nav ms-auto">
22 |                       <li class="nav-item"><a class="nav-link" href="#about">About</a>
23 |                       <li class="nav-item"><a class="nav-link" href="#services">Services</a>
24 |                       <li class="nav-item"><a class="nav-link" href="#contact">Contact</a>
25 |                   </ul>
26 |               </div>
27 |           </div>
```

PROJETOANGULARAYOUT 1

projetoAngularLayout node\_modules

src 25

app

# app.component.css A

< app.component.html A

TS app.component.spec.ts A

TS app.component.ts A

TS app.module.ts A

> assets

environments

TS environment.prod.ts A

TS environment.ts A

★ favicon.ico A

< index.html A

TS main.ts A

TS polyfills.ts A

# styles.css A

TS test.ts A

.browserslistrc A

> OUTLINE

> TIMELINE

master+ 0 △ 0

Ln 11, Col 5 (51 selected) Spaces: 2 UTF-8 LF HTML

A screenshot of the Visual Studio Code interface. The top bar includes the standard menu items: File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar indicates the current file is "styles.css - projetoAngularLayout - Visual Studio Code".

The left sidebar contains several icons: a document icon with a '1' (EXPLORER), a magnifying glass (SEARCH), a gear (SETTINGS), and a user icon (ACCOUNT). The main area shows the project structure in the Explorer view:

- PROJETOANGULAR... (with a warning icon)
- projetoAngularLayout (with a warning icon)
- node\_modules
- src (with a '25' badge)
- app (with a '1' badge)
- # app.component.css
- <> app.component.html
- TS app.component.spec.ts
- TS app.component.ts
- TS app.module.ts
- > assets
- environments (with a '1' badge)
- TS environment.prod.ts
- TS environment.ts
- ★ favicon.ico
- <> index.html
- TS main.ts
- TS polyfills.ts
- # styles.css** (highlighted with a red arrow)
- TS test.ts
- .browserslistrc

The Editor view shows the content of "styles.css":

```
1  /* You can add global styles to this file, and also import other style files */
```

The bottom status bar displays the file path "projetoAngularLayout > src > # styles.css", line and column information "Ln 1, Col 1", and encoding "UTF-8 LF CSS".

Nome	Data de modificação	Tipo	Tamanho
assets	19/05/2021 14:04	Pasta de arquivos	
css	19/05/2021 14:04	Pasta de arquivos	
js	19/05/2021 14:04	Pasta de arquivos	
index.html	19/05/2021 14:04	Chrome HTML Do...	5 KB



The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** styles.css - projetoAngularLayout - Visual Studio Code.
- Left Sidebar (Explorer):** Shows the project structure under 'PROJETOANGULARAYOUT'. The 'styles.css' file is selected and highlighted with a red arrow pointing to it.
- Editor Area:** Displays the contents of 'styles.css'. The code includes various CSS rules like padding-right and padding-bottom, along with comments explaining the shorthand property and its syntax.
- Help Bar:** Includes links to MDN Reference and other documentation.
- Bottom Status Bar:** Shows the current file path (master+), line count (Ln 10848), column count (Col 2), spaces used (Spaces: 4), encoding (UTF-8), line endings (LF), and the current language mode (CSS).

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

## About this page

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- Clickable nav links that smooth scroll to page sections
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options

# **Compreender o uso de componente**

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... app.component.html M X # styles.css M

projetoAngularLayoutAluno > src > app > app.component.html > html > head > meta

```
1  <!DOCTYPE html>
2  <html lang="en">
3      <head>
4          <meta charset="utf-8" />
5          <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no" />
6          <meta name="description" content="" />
7          <meta name="author" content="" />
8          <title>Scrolling Nav - Start Bootstrap Template</title>
9          <link rel="icon" type="image/x-icon" href="assets/favicon.ico" />
10         <!-- Core theme CSS (includes Bootstrap)-->
11
12      </head>
13      <body id="page-top">
14          <!-- Navigation-->
15          <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

```
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno> cd projetoAngularLayoutAluno
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno> ng g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```

Ln 4, Col 32 Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⚡ 🔍

master\*+ 0 0 △ 0

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Explorer:** Shows the project structure under "PROJETOANGULARAYOUTALUNO". A red arrow points to the "header" folder in the "app" directory.
- Code Editor:** Displays the file "app.component.html" with the following content:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1, s
    <meta name="description" content="" />
    <meta name="author" content="" />
    <title>Scrolling Nav - Start Bootstrap Template</title>
    <link rel="icon" type="image/x-icon" href="assets/favicon.ico" />
    <!-- Core theme CSS (includes Bootstrap)-->
  </head>
  <body id="page-top">
    <!-- Navigation-->
    <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="

```
- Terminal:** Shows the command-line output of "ng g c header":

```
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng
g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
```
- Status Bar:** master\*, 1 file, 0 changes, 0 errors, 0 warnings, 0 info, 0 hints.
- Bottom Status:** Ln 4, Col 32, Spaces: 4, UTF-8, LF, HTML, Go Live, etc.

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.component.html - projetoAngularLayoutAluno - Visual Studio Code.
- Explorer View:** Shows the project structure under PROJETOANGULARAYOUTALUNO:
  - projetoAngularLayoutAluno
  - node\_modules
  - src
    - app
      - header
        - # header.component.css
        - header.component.html
        - TS header.component.spec.ts
        - TS header.component.ts
      - # app.component.css
      - app.component.html
      - TS app.component.spec.ts
      - TS app.components.ts
      - TS app.module.ts
    - assets
    - environments
    - favicon.ico
    - index.html
    - TS main.ts
    - TS polyfills.ts
  - Terminal:** PowerShell, powershell, +, ^, X. It shows command-line output:

```
o
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```
  - Status Bar:** master\*, 0 △ 0, Ln 35, Col 18 (420 selected), Spaces: 4, UTF-8, LF, HTML, Go Live, etc.

A red arrow points to the line containing the comment `<!-- Header-->` in the code editor.

```
<!-- Header-->
<header class="bg-primary bg-gradient text-white">
  <div class="container px-4 text-center">
    <h1 class="fw-bolder">Welcome to Scrolling Nav</h1>
    <p class="lead">A functional Bootstrap 5 boilerplate for one page scrolling!</p>
    <a class="btn btn-lg btn-light" href="#about">Start scrolling!</a>
  </div>
</header>
<!-- About section-->
<section id="about">
  <div class="container px-4">
    <div class="row gx-4 justify-content-center">
```

File Edit Selection View Go Run Terminal Help • header.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- node\_modules
- src
  - app
    - header
      - # header.component.css
      - header.component.html

header.component.css

header.component.html

header.component.spec.ts

header.component.ts

app.component.css

app.component.html

app.component.spec.ts

app.components.ts

app.module.ts

assets

environments

favicon.ico

index.html

main.ts

polyfills.ts

OUTLINE

TIMELINE

master\*+ 0 0 △ 0

app.component.html M header.component.html U styles.css M

```
1 <!-- Header-->
2 <header class="bg-primary bg-gradient text-white">
3   <div class="container px-4 text-center">
4     <h1 class="fw-bolder">Welcome to Scrolling Nav</h1>
5     <p class="lead">A functional Bootstrap 5 boilerplate for one page scrolling v
6     <a class="btn btn-lg btn-light" href="#about">Start scrolling!</a>
7   </div>
8 </header>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

```
o
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```

Ln 8, Col 10 Spaces: 4 UTF-8 LF HTML Go Live

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** header.component.ts - projetoAngularLayoutAluno - Visual Studio Code
- Explorer:** Shows the project structure under 'PROJETOANGULARAYOUT...'. The file 'TS header.component.ts' is selected.
- Code Editor:** Displays the 'header.component.ts' file content:

```
import { Component, OnInit } from '@angular/core';
@Component({
  selector: 'app-header',
  templateUrl: './header.component.html',
  styleUrls: ['./header.component.css']
})
export class HeaderComponent implements OnInit {
  constructor() { }
  ngOnInit(): void {
  }
}
```

A red arrow points to the line 'styleUrls: ['./header.component.css']'.
- Terminal:** Shows command-line output for file creation and update:

```
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
```
- Status Bar:** master\*+, 0 △ 0, Initializing JS/TS language features, Ln 1, Col 1, Spaces: 2, UTF-8, LF, TypeScript 4.3.2, Go Live, 4.3.2.

File Edit Selection View Go Run Terminal Help • header.component.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ...

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- node\_modules
- src
  - app
    - header
      - # header.component.css
      - header.component.html
      - TS header.component.spec.ts
      - TS header.component.ts**

32

header.component.ts

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

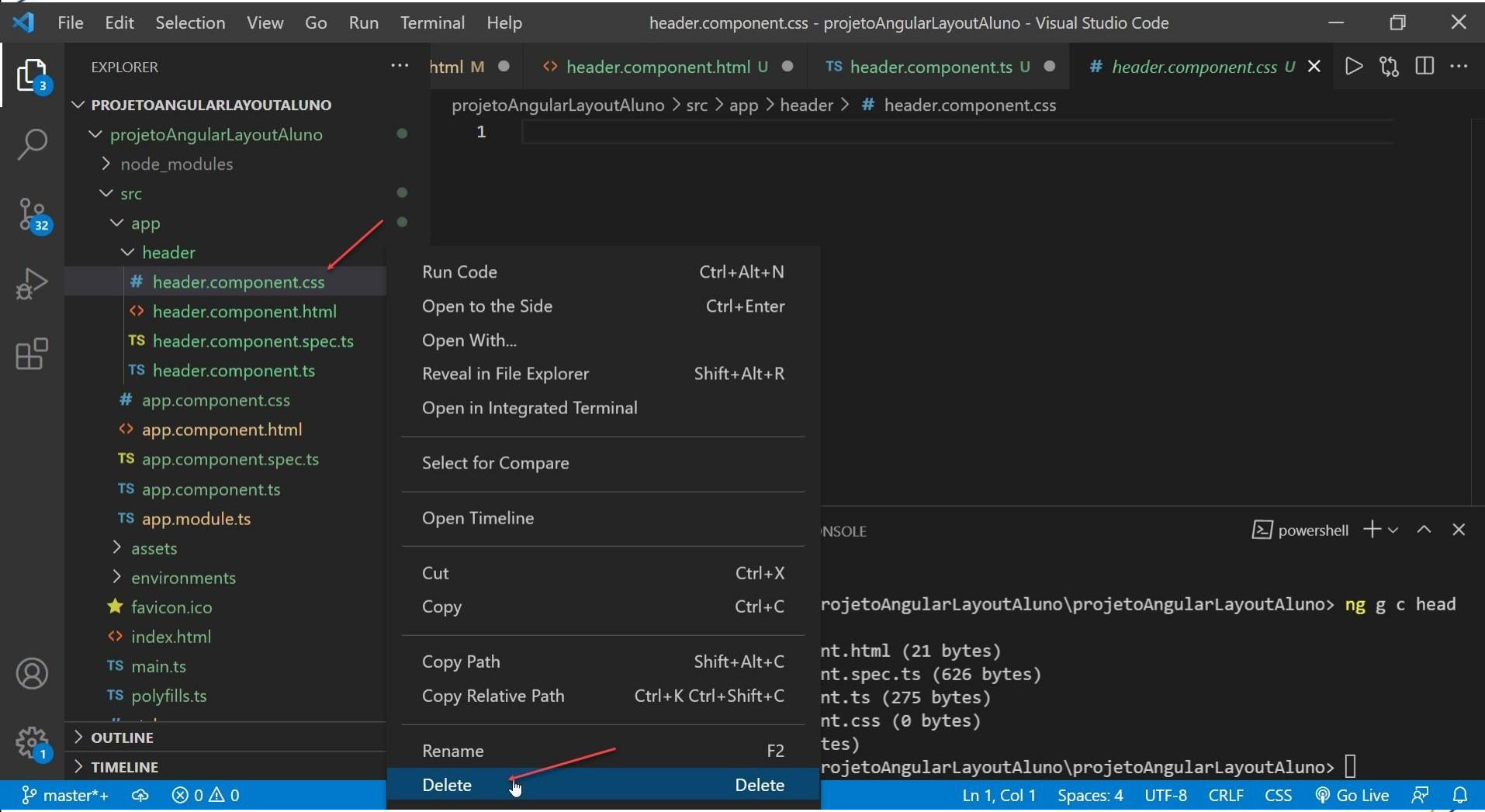
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ ×

```
o
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header
CREATE src/app/header/header.component.html (21 bytes)
CREATE src/app/header/header.component.spec.ts (626 bytes)
CREATE src/app/header/header.component.ts (275 bytes)
CREATE src/app/header/header.component.css (0 bytes)
UPDATE src/app/app.module.ts (396 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```

master\*+ 0 0 △ 0

Ln 6, Col 2 Spaces: 2 UTF-8 LF TypeScript 4.3.2 Go Live



File Edit Selection View Go Run Terminal Help • header.component.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... component.html M ● header.component.html U ● TS header.component.ts U ● # styles.css M ▶ ⌂ ⌂ ...

PROJETOANGULARAYOUTALUNO projetoAngularLayoutAluno > src > app > header > TS header.component.ts > HeaderComponent

node\_modules

src

app

header

header.component.html

TS header.component.spec.ts

TS header.component.ts

# app.component.css

app.component.html

TS app.component.spec.ts

TS app.component.ts

TS app.module.ts

assets

environments

favicon.ico

index.html

TS main.ts

TS polyfills.ts

# styles.css

OUTLINE

TIMELINE

```
import { Component, OnInit } from '@angular/core';
@Component({
  selector: 'app-header',
  templateUrl: './header.component.html'
})
export class HeaderComponent implements OnInit {
  constructor() { }
  ngOnInit(): void {
  }
}
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ↻

o

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header

CREATE src/app/header/header.component.html (21 bytes)

CREATE src/app/header/header.component.spec.ts (626 bytes)

CREATE src/app/header/header.component.ts (275 bytes)

CREATE src/app/header/header.component.css (0 bytes)

UPDATE src/app/app.module.ts (396 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 4, Col 14 (10 selected) Spaces: 2 UTF-8 LF TypeScript Go Live 4.3.2

File Edit Selection View Go Run Terminal Help • app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- node\_modules
- src
  - app
    - header
      - header.component.html
      - header.component.spec.ts
      - header.component.ts
    - app.component.css
    - app.component.html
    - app.component.spec.ts
    - app.component.ts
    - app.module.ts
  - assets
  - environments
  - favicon.ico
  - index.html
  - main.ts
  - polyfills.ts
  - styles.css

OUTLINE

TIMELINE

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

Ln 28, Col 19 Spaces: 4 UTF-8 LF HTML ⚡ Go Live 🔍

```
projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > app-header
25      </div>
26      </div>
27      </nav>
28      <app-header>[/app-header] ←
29      <!-- About section-->
30      <section id="about">
31          <div class="container px-4">
32              <div class="row gx-4 justify-content-center">
33                  <div class="col-lg-8">
34                      <h2>About this page</h2>
35                      <p class="lead">This is a great place to talk about your webp
36
37
38
39
```

o  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c header  
CREATE src/app/header/header.component.html (21 bytes)  
CREATE src/app/header/header.component.spec.ts (626 bytes)  
CREATE src/app/header/header.component.ts (275 bytes)  
CREATE src/app/header/header.component.css (0 bytes)  
UPDATE src/app/app.module.ts (396 bytes)  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

## About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Clickable nav links that smooth scroll to page sections
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- > node\_modules
- > src
  - app
    - header
      - header.component.html U
      - TS header.component.ts... U
      - TS header.component.ts U
    - app.component.html M
    - TS app.component.spec.ts A
    - TS app.component.ts A
    - TS app.module.ts M
  - > assets
  - > environments
  - ★ favicon.ico
  - index.html
  - TS main.ts
  - TS polyfills.ts A
  - # styles.css M

31

OUTLINE

TIMELINE

master\*+ 0 △ 0

app.component.html M X header.component.html U TS header.component.ts U # styles.css M

projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > section#about

```
27      </nav>
28      <app-header></app-header>
29      <!-- About section-->
30      <section id="about">
31          <div class="container px-4">
32              <div class="row gx-4 justify-content-center">
33                  <div class="col-lg-8">
34                      <h2>About this page</h2>
35                      <p class="lead">This is a great place to talk about your webpage.</p>
36                      <ul>
37                          <li>Clickable nav links that smooth scroll to page sections</li>
38                          <li>Responsive behavior when clicking nav links perfect for a</li>
39                          <li>Bootstrap's scrollspy feature which highlights which sect</li>
40                          <li>Minimal custom CSS so you are free to explore your own ur</li>
41                      </ul>
42                  </div>
43              </div>
44          </div>
45      </section>
46      <!-- Services section-->
47      <section class="bg-light" id="services">
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

✓ Compiled successfully.

Ln 45, Col 19 (1059 selected) Spaces: 4 UTF-8 LF HTML Go Live

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ...

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- > node\_modules
- src
  - app
    - header
      - header.component.html U
      - header.component.tsx U
      - header.component.spec.ts A
    - app.component.html M
    - app.component.spec.ts A
    - app.component.ts A
    - app.module.ts M
    - > assets
    - > environments
    - favicon.ico A
    - index.html A
    - main.ts A
    - polyfills.ts A
    - # styles.css M

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

✓ Compiled successfully.

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c about

Ln 45, Col 19 (1059 selected) Spaces: 4 UTF-8 LF HTML Go Live

master\*+ 0 △ 0

The screenshot shows a Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.component.html - projetoAngularLayoutAluno - Visual Studio Code
- Explorer:** Shows the project structure under PROJETOANGULARALU... (projetoAngularLayoutAluno). The **about** folder in the **src/app** directory is selected, highlighted with a blue background and a red arrow pointing to it from the left.
- Editor:** Displays the **app.component.html** file with the following code:

```
</nav>
<app-header></app-header>
<!-- About section--&gt;
&lt;section id="about"&gt;
    &lt;div class="container px-4"&gt;
        &lt;div class="row gx-4 justify-content-center"&gt;
            &lt;div class="col-lg-8"&gt;
                &lt;h2&gt;About this page&lt;/h2&gt;</pre>
```
- Terminal:** Shows the command output:

```
✓ Compiled successfully.
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c about
CREATE src/app/about/about.component.html (20 bytes)
CREATE src/app/about/about.component.spec.ts (619 bytes)
CREATE src/app/about/about.component.ts (271 bytes)
CREATE src/app/about/about.component.css (0 bytes)
UPDATE src/app/app.module.ts (474 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```
- Status Bar:** master\*+, 0 △ 0, Ln 45, Col 19 (1059 selected), Spaces: 4, UTF-8, LF, HTML, Go Live, etc.

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARA... D E U PROJETOANGULARA...

projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > section#about

node\_modules

src

app

about

# about.component.css U

< app.component.html U

TS about.component.spec... U

TS about.component.ts U

header

< header.component.html U

TS header.component.spec... U

TS header.component.ts U

# app.component.css A

< app.component.html M

TS app.component.spec.ts A

TS app.component.ts A

TS app.module.ts M

assets

environments

OUTLINE

TIMELINE

27 </nav>

28 <app-header></app-header>

29 <!-- About section-->

30 <section id="about">

31 <div class="container px-4">

32 <div class="row gx-4 justify-content-center">

33 <div class="col-lg-8">

34 <h2>About this page</h2>

35 <p class="lead">This is a great place to talk about your webpage.

36 <ul>

37 <li>Clickable nav links that smooth scroll to page sections</li>

38 <li>Responsive behavior when clicking nav links perfect for a

39 <li>Bootstrap's scrollspy feature which highlights which sect

40 <li>Minimal custom CSS so you are free to explore your own ur

41 </ul>

42 </div>

43 </div>

44 </div>

45 </section>

46 <!-- Services section-->

47 <section class="bg-light" id="services">

48 <div class="row gx-4 justify-content-center">

49 <div class="col-lg-8">

50 <h2>Services</h2>

51 <ul>

52 <li>Fully responsive services cards with smooth scroll to

53 <li>Customizable service cards with different colors and icons

54 <li>Smooth scroll to each service card via navigation links

55 </ul>

56 </div>

57 </div>

58 </div>

59 </div>

60 </div>

61 </div>

62 </div>

63 </div>

64 </div>

65 </div>

66 </div>

67 </div>

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91 </div>

92 </div>

93 </div>

94 </div>

95 </div>

96 </div>

97 </div>

98 </div>

99 </div>

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

UPDATE src/app/app.module.ts (474 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 45, Col 19 (1059 selected) Spaces: 4 UTF-8 LF HTML Go Live

File Edit Selection View Go Run Terminal Help • about.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
  - node\_modules
  - src
    - app
      - about
        - # about.component.css
        - about.component.html
        - TS about.component.spec.ts
        - TS about.component.ts
      - header
        - header.component.html
        - TS header.component.spec.ts
        - TS header.component.ts
      - assets
      - environments

header.con

projetoAngularLayoutAluno > src > app > about > about.component.html > section#about

```
1 <section id="about">
2   <div class="container px-4">
3     <div class="row gx-4 justify-content-center">
4       <div class="col-lg-8">
5         <h2>About this page</h2>
6         <p class="lead">This is a great place to talk about your webpage. This te
7         <ul>
8           <li>Clickable nav links that smooth scroll to page sections</li>
9           <li>Responsive behavior when clicking nav links perfect for a one pag
10          <li>Bootstrap's scrollspy feature which highlights which section of t
11          <li>Minimal custom CSS so you are free to explore your own unique des
12        </ul>
13      </div>
14    </div>
15  </div>
16 </section>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

UPDATE src/app/app.module.ts (474 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 16, Col 11 Spaces: 4 UTF-8 LF HTML Go Live

File Edit Selection View Go Run Terminal Help about.component.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... < app.component.html M ● TS about.component.ts U X < about.component.html U < header.compon D ⌂ ⌂ ...

PROJETOANGULARA... 1

projetoAngularLayoutAluno node\_modules

src app about # about.component.css U < about.component.html U TS about.component.spec.... U

TS about.component.ts U

header header.component.html U TS header.component.spe... U TS header.component.ts U # app.component.css U < app.component.html M TS app.component.spec.ts A TS app.component.ts A TS app.module.ts M

assets environments

OUTLINE

TIMELINE

13:30 1 35

about.component.ts - projetoAngularLayoutAluno - Visual Studio Code

projetoAngularLayoutAluno > src > app > about > TS about.component.ts > ...

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

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ ×

UPDATE src/app/app.module.ts (474 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 1, Col 1 Spaces: 2 UTF-8 LF TypeScript Go Live 4.3.2

File Edit Selection View Go Run Terminal Help • about.component.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... < app.component.html M ● TS about.component.ts U ● < about.component.html U < header.compo... D ... 2

PROJETOANGULARAYOUTALUNO projetoAngularLayoutAluno > src > app > about > TS about.component.ts > AboutComponent

projetoAngularLayoutAluno node\_modules  
src  
app  
about  
# about.component.css U  
< about.component.html U  
TS about.component.spec.... U  
TS about.component.ts U

header  
< header.component.html U  
TS header.component.spe... U  
TS header.component.ts U  
# app.component.css A  
< app.component.html M  
TS app.component.spec.ts A  
TS app.component.ts A  
TS app.module.ts M

assets environments

OUTLINE 1  
TIMELINE

1 import { Component, OnInit } from '@angular/core';  
2  
3 @Component({  
4 selector: 'app-about',  
5 templateUrl: './about.component.html'  
6 })  
7  
8 export class AboutComponent implements OnInit {  
9  
10 constructor() {}  
11  
12 ngOnInit(): void {  
13 }  
14  
15 }  
16

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

[powershell] powershell + ^ ×

UPDATE src/app/app.module.ts (474 bytes)  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> [ ]

master\*+ 0 ▲ 0 Ln 5, Col 40 Spaces: 2 UTF-8 LF TypeScript Go Live 4.3.2 🔍 🔔

File Edit Selection View Go Run Terminal Help about.component.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
  - node\_modules
- src
  - app
    - about
      - # about.component.css
      - ↳ about.component.html
      - TS about.component.spec.ts
      - TS about.component.ts
    - header
      - ↳ header.component.html
      - TS header.component.spec.ts
      - TS header.component.ts
    - # app.component.css
    - ↳ app.component.html
    - TS app.component.spec.ts
    - TS app.component.ts
    - TS app.module.ts
  - assets
  - environments
- OUTLINE
- TIMELINE

projetoAngularLayoutAluno > src > app > about > TS about.component.ts > AboutComponent

```
1 import { Component, OnInit } from '@angular/core';
2
3 @Component({
4   selector: 'app-about', █
5   templateUrl: './about.component.html'
6 })
7 export class AboutComponent implements OnInit {
8
9   constructor() { }
10
11   ngOnInit(): void {
12   }
13
14 }
15
16 }
```

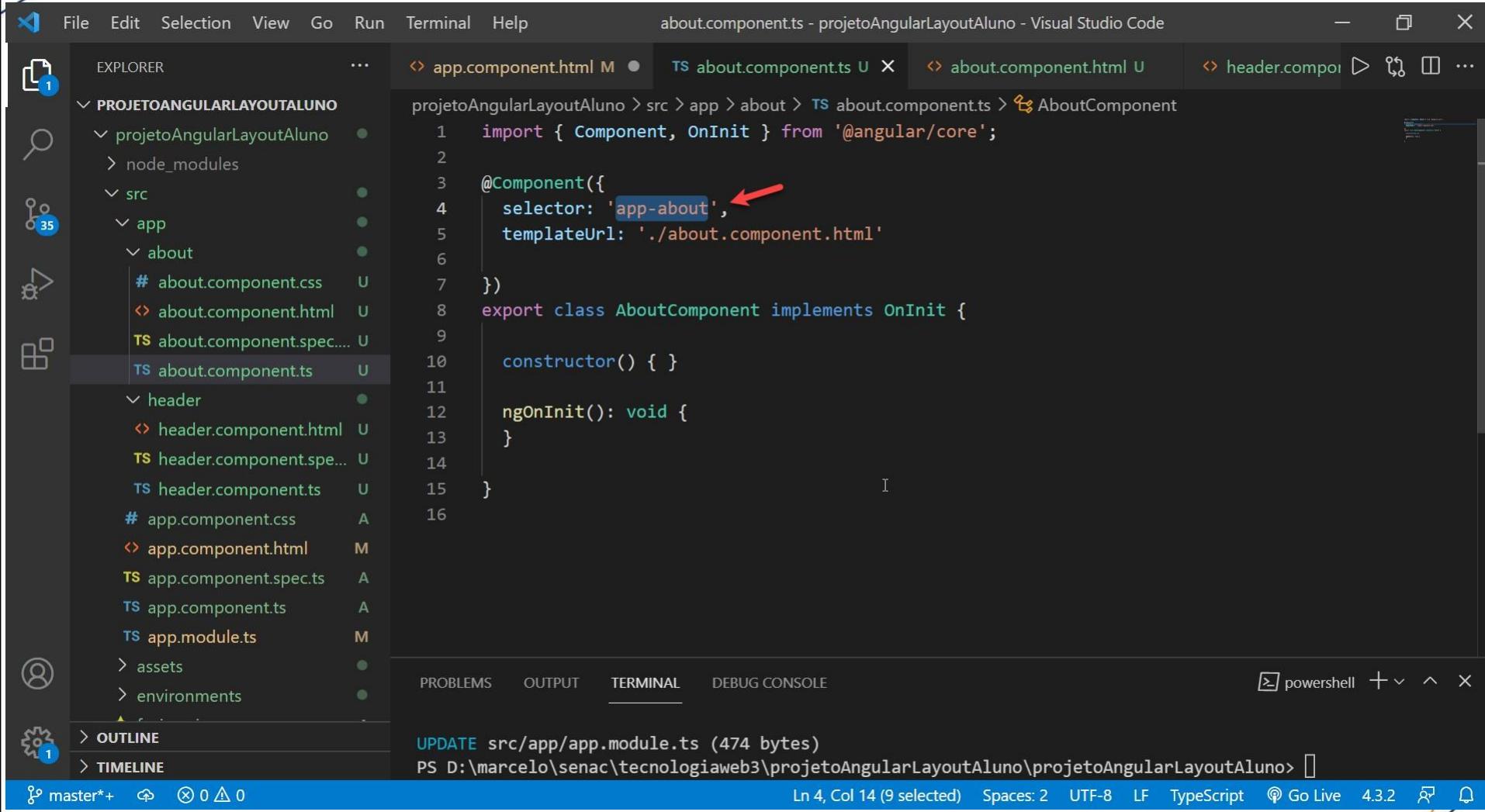
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ x

UPDATE src/app/app.module.ts (474 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 4, Col 14 (9 selected) Spaces: 2 UTF-8 LF TypeScript ⚡ Go Live 4.3.2 ⚡



File Edit Selection View Go Run Terminal Help • app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER 1  
PROJETOANGULARAYOUTALUNO  
projetoAngularLayoutAluno  
node\_modules  
src  
app  
about  
# about.component.css U  
about.component.html U  
TS about.component.spec.... U  
TS about.component.ts U  
header  
header.component.html U  
TS header.component.spec.... U  
TS header.component.ts U  
# app.component.css A  
TS app.component.html M  
TS app.component.spec.ts A  
TS app.component.ts A  
TS app.module.ts M  
assets  
environments

1  
35  
30

```
projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > app-about
27      </nav>
28      <app-header></app-header>
29      <!-- About section-->
30      <app-about></app-about> ←
31      <!-- Services section-->
32      <section class="bg-light" id="services">
33          <div class="container px-4">
34              <div class="row gx-4 justify-content-center">
35                  <div class="col-lg-8">
36                      <h2>Services we offer</h2>
37                      <p class="lead">Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</p>
38                  </div>
39          </div>
40      </section>
41      <!-- Contact section-->
42      <section id="contact">
43          <div class="container px-4">
44              <div class="row gx-4 justify-content-center">
45                  <div class="col-lg-8">
46                      <h2>Contact us</h2>
47                      <p>Address: 123 Main Street, Anytown, USA 12345</p>
48          </div>
49      </section>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

powershell + ^ X

UPDATE src/app/app.module.ts (474 bytes)  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> [ ]

Ln 30, Col 20 Spaces: 4 UTF-8 LF HTML ⚡ Go Live 🔍 🔔

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

## About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Clickable nav links that smooth scroll to page sections
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options



Faça a mesma coisa para service e contact

File Edit Selection View Go Run Terminal Help • app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ...

PROJETOANGULARAYOUTALUNO

- projetoAngularLayoutAluno
- node\_modules
- src
- app
  - about
    - # about.component.css U
    - ↳ about.component.html U
    - TS about.component.spec.ts U
    - TS about.component.ts U
  - header
    - ↳ header.component.html U
    - TS header.component.spec.ts U
    - TS header.component.ts U
  - > service ←
  - # app.component.css A
  - ↳ app.component.html M
  - TS app.component.spec.ts A
  - TS app.component.ts A
  - TS app.module.ts M
  - > assets
- > OUTLINE
- > TIMELINE

27 </nav>  
28 <app-header></app-header>  
29 <!-- About section-->  
30 <app-about></app-about>  
31 <!-- Services section-->  
32 <section class="bg-light" id="services">  
33 <div class="container px-4">  
34 <div class="row gx-4 justify-content-center">  
35 <div class="col-lg-8">  
36 <h2>Services we offer</h2>  
37 <p class="lead">Lorem ipsum dolor sit amet, consectetur adipisci  
38 </div>  
39 </div>  
40 </div>  
41 </section>  
42 <!-- Contact section-->  
43 <section id="contact">  
44 <div class="container px-4">

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c service

CREATE src/app/service/service.component.html (22 bytes)

CREATE src/app/service/service.component.spec.ts (633 bytes)

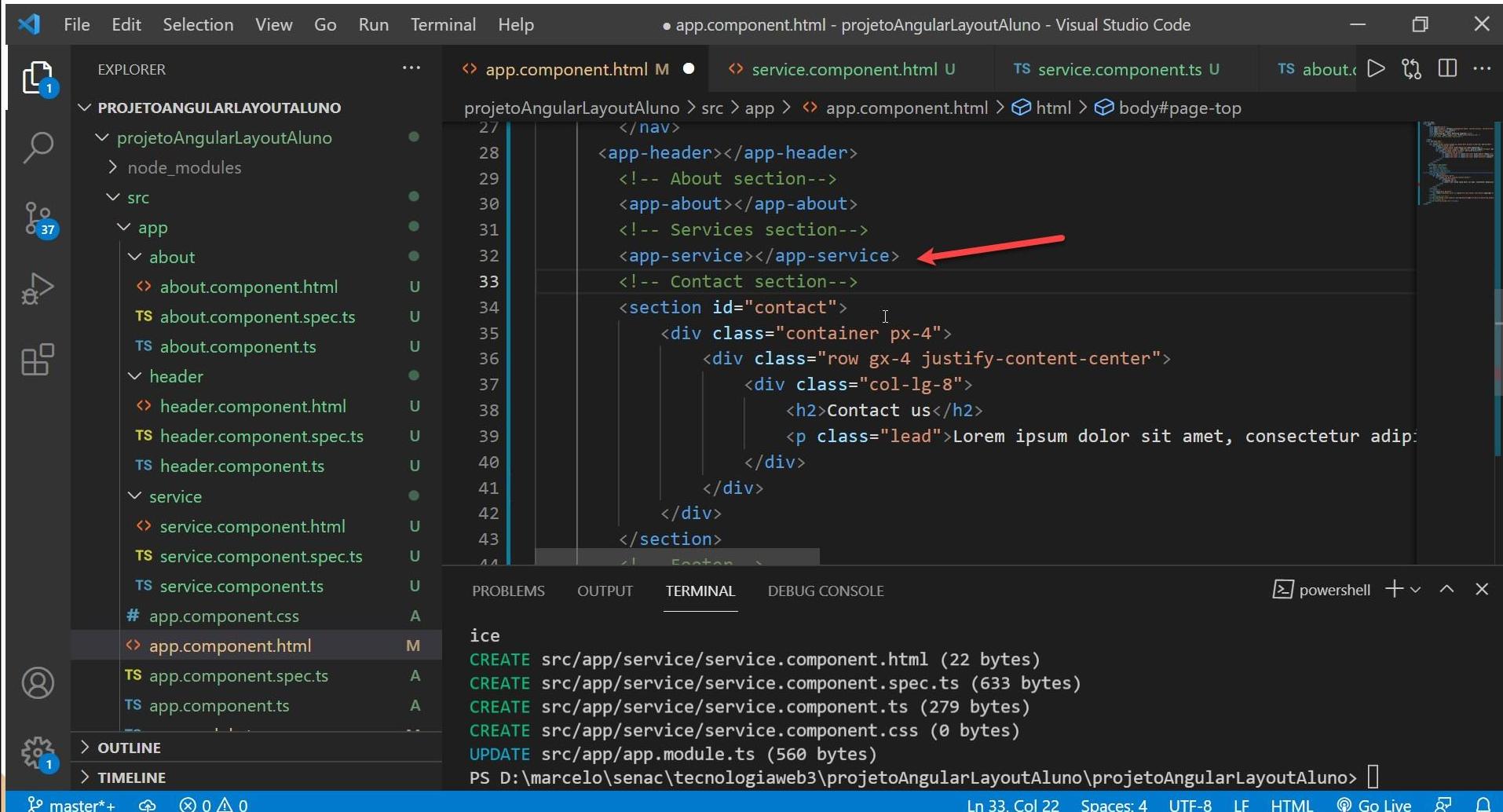
CREATE src/app/service/service.component.ts (279 bytes)

CREATE src/app/service/service.component.css (0 bytes)

UPDATE src/app/app.module.ts (560 bytes)

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>

Ln 48, Col 37 Spaces: 4 UTF-8 LF HTML ⚡ Go Live 🔍



The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.component.html - projetoAngularLayoutAluno - Visual Studio Code.
- Explorer:** Shows the project structure under 'PROJETOANGULARAYOUTALUNO'. The 'app.component.html' file is selected and highlighted with a red arrow.
- Editor:** Displays the content of 'app.component.html'. A red arrow points to the closing tag of the 'app-contact' component. The code includes Angular components like 'app-header', 'app-about', 'app-service', and 'app-contact'.
- Terminal:** Shows command-line activity with 'act' and file creation/updating logs.
- Bottom Status Bar:** master\*+, 0 ▲ 0, Ln 35, Col 23, Spaces: 4, UTF-8, LF, HTML, Go Live, etc.

```
</div>
</nav>
<app-header></app-header>
<!-- About section--&gt;
&lt;app-about&gt;&lt;/app-about&gt;
<!-- Services section--&gt;
&lt;app-service&gt;&lt;/app-service&gt;
<!-- Contact section--&gt;
&lt;app-contact&gt;&lt;/app-contact&gt; <span style="color:red">-----^
<!-- Footer--&gt;
&lt;footer class="py-5 bg-dark"&gt;
    &lt;div class="container px-4"&gt;&lt;p class="m-0 text-center text-white"&gt;Co
&lt;/footer&gt;
<!-- Bootstrap core JS--&gt;
&lt;script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootst
<!-- Core theme JS--&gt;
&lt;script src="js/scripts.js"&gt;&lt;/script&gt;</pre>
```

## About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Clickable nav links that smooth scroll to page sections
  - Responsive behavior when clicking nav links perfect for a one page website
  - Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
  - Minimal custom CSS so you are free to explore your own unique design options



## Services we offer

*Velit dignissimos.*



## Services we offer

  Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aut optio velit inventore, expedita quo laboriosam possimus ea consequatur vitae, doloribus consequuntur ex. Nemo assumenda laborum vel, labore ut velit dignissimos.



## Contact us

  Lorem ipsum dolor sit amet, consectetur adipisicing elit. Vero odio fugiat voluptatem dolor, provident officiis, id iusto! Obcaecati incidunt, qui nihil beatae magnam et repudiandae ipsa exercitationem, in, quo totam.

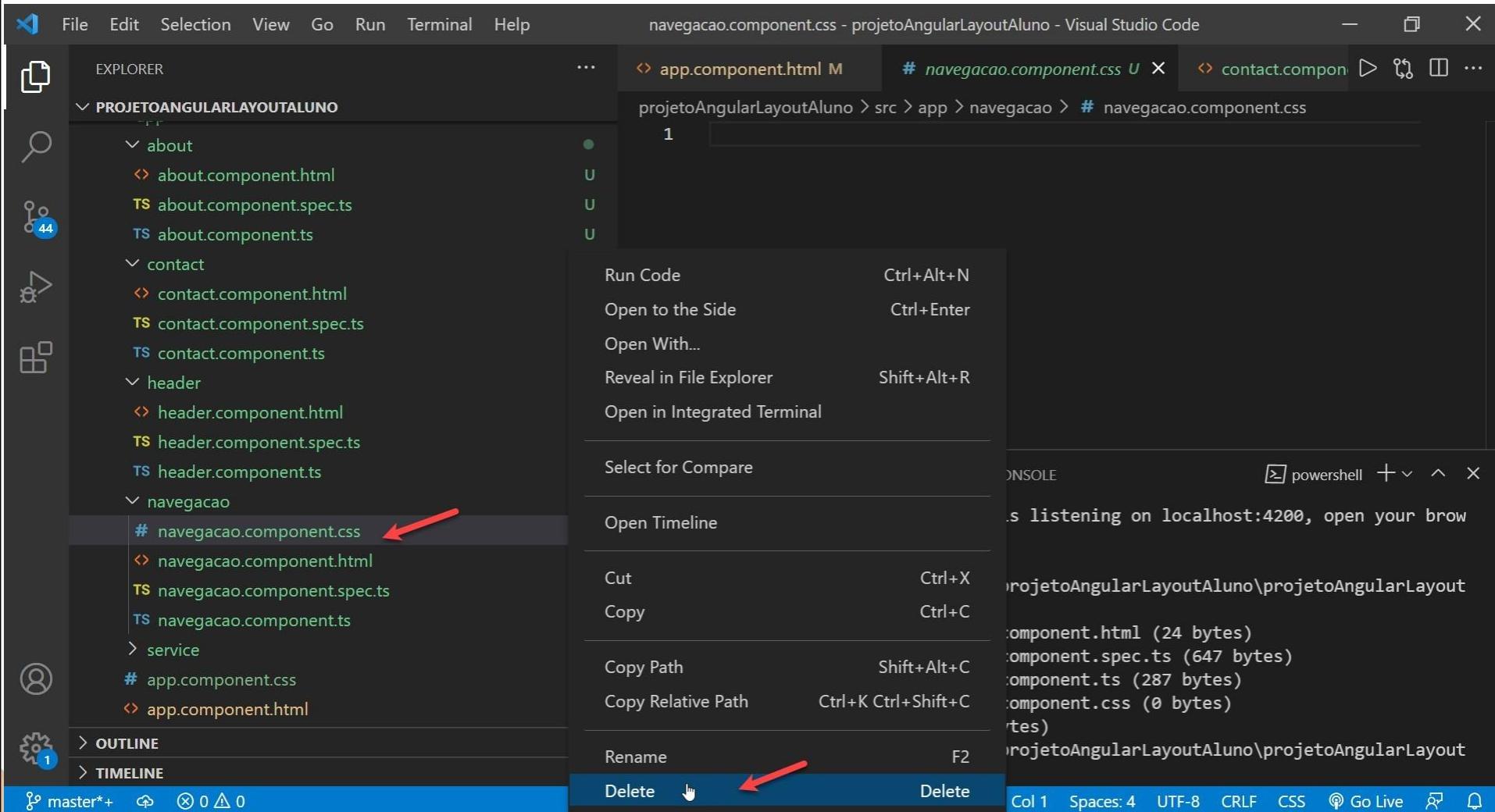
# Navegação

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Active File:** app.component.html - projetoAngularLayoutAluno - Visual Studio Code.
- Explorer:** Shows the project structure under PROJETOANGULARAYOUTALUNO, including files like about.component.html, contact.component.html, and header.component.html.
- Code Editor:** Displays the HTML code for app.component.html, specifically the navigation bar section.
- Terminal:** Shows the command ng g c navegacao being run in the terminal, which creates the component files.
- Status Bar:** Shows the current file is master\*, line 27, column 15, with 962 selected characters, and encoding is UTF-8.

A red arrow points to the terminal output where the command was run.

```
** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c navegacao  
CREATE src/app/navegacao/navegacao.component.html (24 bytes)  
CREATE src/app/navegacao/navegacao.component.spec.ts (647 bytes)  
CREATE src/app/navegacao/navegacao.component.ts (287 bytes)  
CREATE src/app/navegacao/navegacao.component.css (0 bytes)  
UPDATE src/app/app.module.ts (740 bytes)  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```



The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- EXPLORER:** Shows the project structure under "PROJETOANGULARAYOUTALUNO".
  - about: about.component.html, about.component.spec.ts
  - contact: contact.component.html, contact.component.spec.ts, contact.component.ts
  - header: header.component.html, header.component.spec.ts, header.component.ts
  - navegacao: navegacao.component.html, navegacao.component.spec.ts, navegacao.component.ts (highlighted)
  - service: app.component.css, app.component.html, app.component.spec.ts
- CODE EDITOR:** The file "navegacao.component.ts" is open.

```
• navegacao.component.ts - projetoAngularLayoutAluno - Visual Studio Code
● app.component.html M TS navegacao.component.ts U ● contact.component.html NavegacaoComponent
projetoAngularLayoutAluno > src > app > navegacao > TS navegacao.component.ts > NavegacaoComponent
1 import { Component, OnInit } from '@angular/core';
2
3 @Component({
4   selector: 'app-navegacao',
5   templateUrl: './navegacao.component.html'
6 })
7
8 export class NavegacaoComponent implements OnInit {
9
10   constructor() { }
11
12   ngOnInit(): void {
13 }
```

A red arrow points to the "navegacao.component.ts" file in the Explorer panel.
- TERMINAL:** Shows the command line output.

```
** Angular Live Development Server is listening on localhost:4200, open your browser at http://localhost:4200/ **
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
CREATE src/app/navegacao/navegacao.component.html (24 bytes)
CREATE src/app/navegacao/navegacao.component.spec.ts (647 bytes)
CREATE src/app/navegacao/navegacao.component.ts (287 bytes)
CREATE src/app/navegacao/navegacao.component.css (0 bytes)
UPDATE src/app/app.module.ts (740 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno>
```
- STATUS BAR:** master\*+, 0 △ 0, Ln 5, Col 44, Spaces: 2, UTF-8, LF, TypeScript, Go Live, 4.3.2.

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... app.component.html M X TS navegacao.component.ts U contact.component.html U TS contact.comp...

PROJETOANGULARAYOUTALUNO

- about
- about.component.ts U
- TS about.component.ts U
- TS about.component.ts U
- contact
- contact.component.ts U
- TS contact.component.ts U
- TS contact.component.ts U
- header
- header.component.ts U
- TS header.component.ts U
- TS header.component.ts U
- navegacao
- navegacao.component.ts U
- TS navegacao.component.ts U
- TS navegacao.component.ts U
- service
- # app.component.css A
- app.component.html M
- TS app.component.sp... A

projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > nav#mainNav.navbar.navbar-expand-lg

```
<body id="page-top">
  <!-- Navigation-->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
    <div class="container px-4">
      <a class="navbar-brand" href="#page-top">Start Bootstrap</a>
      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarResponsive" aria-controls="navbarResponsive" aria-expanded="false" aria-label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarResponsive">
        <ul class="navbar-nav ms-auto">
          <li class="nav-item"><a class="nav-link" href="#about">About</a></li>
          <li class="nav-item"><a class="nav-link" href="#services">Services</a></li>
          <li class="nav-item"><a class="nav-link" href="#contact">Contact</a></li>
        </ul>
      </div>
    </div>
  </nav>
  <app-header></app-header>
  <!-- About section-->
  <app-about></app-about>
  <!-- Services section-->
  <app-service></app-service>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c navegacao

Ln 27, Col 15 (962 selected) Spaces: 4 UTF-8 LF HTML Go Live

master\*+ 0 △ 0

File Edit Selection View Go Run Terminal Help

• navegacao.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- about
  - about.component.html
  - TS about.component.spec.ts
  - TS about.component.ts
- contact
  - contact.component.html
  - TS contact.component.spec.ts
  - TS contact.component.ts
- header
  - header.component.html
  - TS header.component.spec.ts
  - TS header.component.ts
- navegacao
  - navegacao.component.html
  - TS navegacao.component.spec.ts
  - TS navegacao.component.ts
- service
  - # app.component.css
  - app.component.html
  - TS app.component.spec.ts

TERMINAL

```
/localhost:4200/ **
```

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng

Ln 13, Col 7 Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⚡

```
1 <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
2   <div class="container px-4">
3     <a class="navbar-brand" href="#page-top">Start Bootstrap</a>
4     <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarResponsive">
5       <div class="collapse navbar-collapse" id="navbarResponsive">
6         <ul class="navbar-nav ms-auto">
7           <li class="nav-item"><a class="nav-link" href="#about">About</a>
8           <li class="nav-item"><a class="nav-link" href="#services">Services</a>
9           <li class="nav-item"><a class="nav-link" href="#contact">Contact</a>
10        </ul>
11      </div>
12    </div>
13  </nav>
```

File Edit Selection View Go Run Terminal Help

• app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- about
  - about.component.html
  - TS about.component.spec.ts
  - TS about.component.ts
- contact
  - contact.component.html
  - TS contact.component.spec.ts
  - TS contact.component.ts
- header
  - header.component.html
  - TS header.component.spec.ts
  - TS header.component.ts
- navegacao
  - navegacao.component.html
  - TS navegacao.component.spec.ts
  - TS navegacao.component.ts
- service
- # app.component.css
- app.component.html
- TS app.component.spec.ts

13 <body id="page-top">  
14 <!-- Navigation-->  
15 <app-navegacao></app-navegacao> ←  
16 <app-header></app-header>  
17 <!-- About section-->  
18 <app-about></app-about>  
19 <!-- Services section-->  
20 <app-service></app-service>  
21 <!-- Contact section-->  
22 <app-contact></app-contact>  
23 <!-- Footer-->  
24 <footer class="py-5 bg-dark">  
25 | <div class="container px-4"><p class="m-0 text-center text-white">  
26 | | </div>  
27 </footer>  
28 <!-- Bootstrap core JS-->  
29 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootstrap.bundle.min.js" integrity="sha384-  
30 <!-- Core theme JS-->  
31 <script src="js/scripts.js"></script>  
32 </body>  
33 </html>

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng

Ln 15, Col 7 Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⌂

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!



## About this page

This is a great place to talk about your webpage. This template is purposefully unstyled so you can use it as a boilerplate or starting point for your own landing page designs! This template features:

- Clickable nav links that smooth scroll to page sections
- Responsive behavior when clicking nav links perfect for a one page website
- Bootstrap's scrollspy feature which highlights which section of the page you're on in the navbar
- Minimal custom CSS so you are free to explore your own unique design options

Navegação

Área de conteúdo

Navegação (FIXO)

Área de conteúdo  
`<router-outlet></router-outlet>`

```
export const ROUTERS: Routes = [  
  {path: 'header', component: HeaderComponent},  
  {path: 'contact', component: ContactComponent}  
]
```

<a routerLink="/contact">Contact</a>  
ou  
<a [routerLink]="/contact">Contact</a>

A screenshot of the Visual Studio Code interface. The title bar shows "contact.component.ts - projetoAngularLayoutAluno - Visual Studio Code". The Explorer sidebar on the left lists the project structure under "PROJETOANGULARAYOUTALUNO". A red arrow points from the "src" folder to the "app" folder. Another red arrow points to the "New File" option in the context menu that has been opened over the "app" folder. The main editor area displays the code for "contact.component.ts". The bottom status bar shows the command "PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g" and other status information like "Ln 8, Col 30 (16 selected)" and "TypeScript 4.3.2".

```
1 import { Component, OnInit } from '@angular/core';
2
3 @Component({
4   selector: 'app-contact',
5   template: '<p>Hello Contact!</p>'
```

The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** app.routes.ts - projetoAngularLayoutAluno - Visual Studio Code.
- Explorer View:** Shows the project structure under PROJETOANGULARAYOUTALUNO:
  - projetoAngularLayoutAluno
  - node\_modules
  - src
    - app
      - about
      - contact
      - header
      - navegacao
      - service
      - # app.component.css
      - ▷ app.component.html
      - TS app.component.spec.ts
      - TS app.component.ts
      - TS app.module.ts
      - TS app.routes.ts** (highlighted with a red arrow)
    - assets
    - environments
    - favicon.ico
    - ▷ index.html
    - TS main.ts
  - OUTLINE
  - TIMELINE
- Terminal:** localhost:4200/ \*\*  
PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g
- Status Bar:** master\*+, 0 △ 0, Ln 1, Col 1, Spaces: 4, UTF-8, CRLF, TypeScript, Go Live, 4.3.2.

A screenshot of the Visual Studio Code interface, version 4.3.2, displaying an Angular application named "projetoAngularLayoutAluno".

The Explorer sidebar shows the project structure:

- PROJETOANGULARAYOUTALUNO
  - projetoAngularLayoutAluno
    - node\_modules
  - src
    - app
      - about
      - contact
      - header
      - navegacao
      - service
    - # app.component.css
    - ▷ app.component.html
    - TS app.component.spec.ts
    - TS app.component.ts
    - TS app.module.ts
  - TS app.routes.ts **U**
  - assets
  - environments
  - ★ favicon.ico
  - ▷ index.html
  - TS main.ts
- > OUTLINE
- > TIMELINE

The code editor displays the file `app.routes.ts`:

```
projetoAngularLayoutAluno > src > app > TS app.routes.ts > [?] ROUTERS
1 import { Routes } from "@angular/router";
2 import { ContactComponent } from "./contact/contact.component";
3 import { HeaderComponent } from "./header/header.component";
4
5 export const ROUTERS: Routes = [
6   {
7     path: 'header', component: HeaderComponent,
8     path: 'contact', component: ContactComponent
9   }
10 ]
```

The terminal shows the command:

```
/localhost:4200/ **
```

The status bar at the bottom indicates the file is saved (**U**), and provides details about the current file: Line 10, Column 6, Spaces: 4, UTF-8, CRLF, TypeScript.

File Edit Selection View Go Run Terminal Help app.module.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ...

PROJETOANGULARAYOUTALUNO... projetoAngularLayoutAluno > src > app > TS app.module.ts > AppModule

projetoAngularLayoutAluno node\_modules 44

src app about contact header navegacao service # app.component.... A app.component.... M TS app.component.... A TS app.component.ts A TS app.module.ts M TS app.routes.ts U assets environments favicon.ico index.html TS main.ts > OUTLINE > TIMELINE

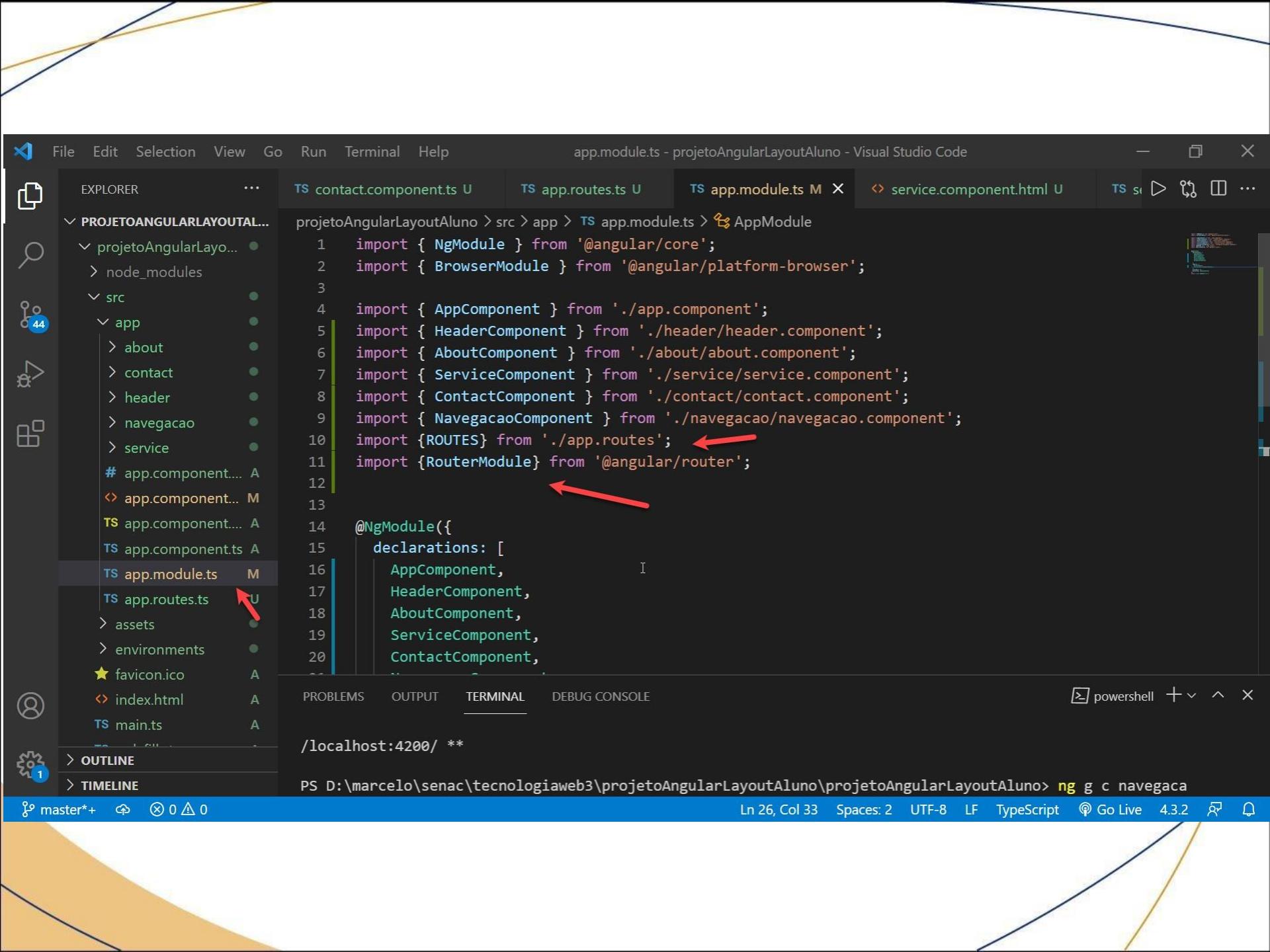
```
1 import { NgModule } from '@angular/core';
2 import { BrowserModule } from '@angular/platform-browser';
3
4 import { AppComponent } from './app.component';
5 import { HeaderComponent } from './header/header.component';
6 import { AboutComponent } from './about/about.component';
7 import { ServiceComponent } from './service/service.component';
8 import { ContactComponent } from './contact/contact.component';
9 import { NavegacaoComponent } from './navegacao/navegacao.component';
10 import { ROUTES } from './app.routes';
11 import { RouterModule } from '@angular/router';
12
13 @NgModule({
14   declarations: [
15     AppComponent,
16     HeaderComponent,
17     AboutComponent,
18     ServiceComponent,
19     ContactComponent,
20   ],
21   imports: [
22     BrowserModule,
23     RouterModule.forRoot(ROUTES),
24   ],
25   providers: []
26 })
27 export class AppModule {}
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c navegaca

Ln 26, Col 33 Spaces: 2 UTF-8 LF TypeScript Go Live 4.3.2



File Edit Selection View Go Run Terminal Help app.module.ts - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER PROJETOANGULARAYOUTALUNO... projetoAngularLayoutAluno > src > app > app.module.ts > AppModule

contact.component.ts U app.routes.ts U app.module.ts M X service.component.html U TS S D ⌂ ⌂ ...

```
14 @NgModule({
15   declarations: [
16     AppComponent,
17     HeaderComponent,
18     AboutComponent,
19     ServiceComponent,
20     ContactComponent,
21     NavegacaoComponent
22   ],
23   imports: [ ←
24     BrowserModule,
25     RouterModule.forRoot(ROUTES) ←
26   ],
27   providers: [],
28   bootstrap: [AppComponent]
29 })
30 export class AppModule { }
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c navegaca

Ln 26, Col 33 Spaces: 2 UTF-8 LF TypeScript Go Live 4.3.2

master\*+ ↻ ⊗ 0 △ 0

File Edit Selection View Go Run Terminal Help app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER ... PROJETOANG... D+ E! U ☰ projetoAngularLayoutAluno node\_modules src app about contact header navegacao service # app.component.css A # app.component.... M TS app.component.s... A TS app.component.ts A TS app.module.ts M TS app.routes.ts U > assets environments ★ favicon.ico > index.html A TS main.ts > OUTLINE > TIMELINE

projetoAngularLayoutAluno > src > app > app.component.html > html > body#page-top > app-service

```
<body id="page-top">
  <!-- Navigation-->
  <app-navegacao></app-navegacao>
  <app-header></app-header> ←
  <!-- About section-->
  <app-about></app-about> ←
  <!-- Services section-->
  <app-service></app-service> ←
  <!-- Contact section-->
  <app-contact></app-contact> ←
  <!-- Footer-->
  <footer class="py-5 bg-dark">
    <div class="container px-4"><p class="m-0 text-center text-white">Copyright &copy
  </footer>
  <!-- Bootstrap core JS-->
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootstrap.bundle.min.js">
  <!-- Core theme JS-->
  <script src="js/scripts.js"></script>
</body>
</html>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c nav

Ln 20, Col 36 Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⌂

File Edit Selection View Go Run Terminal Help • app.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER 1

PROJETOANGULARAYOUTALUNO

- src
  - about
  - app
    - contact
      - contact.component.html U
      - contact.component.spec.ts U
      - contact.component.ts U
    - header
    - navegacao
      - navegacao.component.html U
      - navegacao.component.spec.ts U
      - navegacao.component.ts U
    - service
  - assets
  - environments

OUTLINE 1

TIMELINE

10 <!-- Core theme CSS (includes Bootstrap)-->

11

12 </head>

13 <body id="page-top">

14 <!-- Navigation-->

15 <app-navegacao></app-navegacao>

16 <app-header></app-header> ←

17 <router-outlet></router-outlet>

18

19

20

21 <!-- Footer-->

22 <footer class="py-5 bg-dark">

23 | <div class="container px-4"><p class="m-0 text-center text-white">Copyright &

24 | </div>

25 <!-- Bootstrap core JS-->

26 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootstrap.bundle.min.js" integrity="sha384-ExoVcHcE4eJ3KSt0tUfU5zZjPZ7hBf+DZG4fDkWvXgk9x" crossorigin="anonymous"></script>

27 <!-- Core theme JS-->

28 <script src="js/scripts.js"></script>

29 </body>

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

node + ^ x

✓ Compiled successfully.

Ln 19, Col 1 Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⌂

File Edit Selection View Go Run Terminal Help navegacao.component.html - projetoAngularLayoutAluno - Visual Studio Code

EXPLORER

PROJETOANGULARAYOUTALUNO

- src
  - app
    - > about
    - > contact
      - contact.component.html U
      - TS contact.component.spec.ts U
      - TS contact.component.ts U
    - > header
    - > navegacao
      - navegacao.component.html U
      - TS navegacao.component.ts U
      - TS navegacao.component.ts U
  - > service
  - # app.component.css A
  - > app.component.html M
  - TS app.component.spec.ts A
  - TS app.component.ts A
  - TS app.module.ts M
  - TS app.routes.ts U
  - > assets
  - > environments

OUTLINE

TIMELINE

File Explorer

Terminal

navegacao.component.html - projetoAngularLayoutAluno - Visual Studio Code

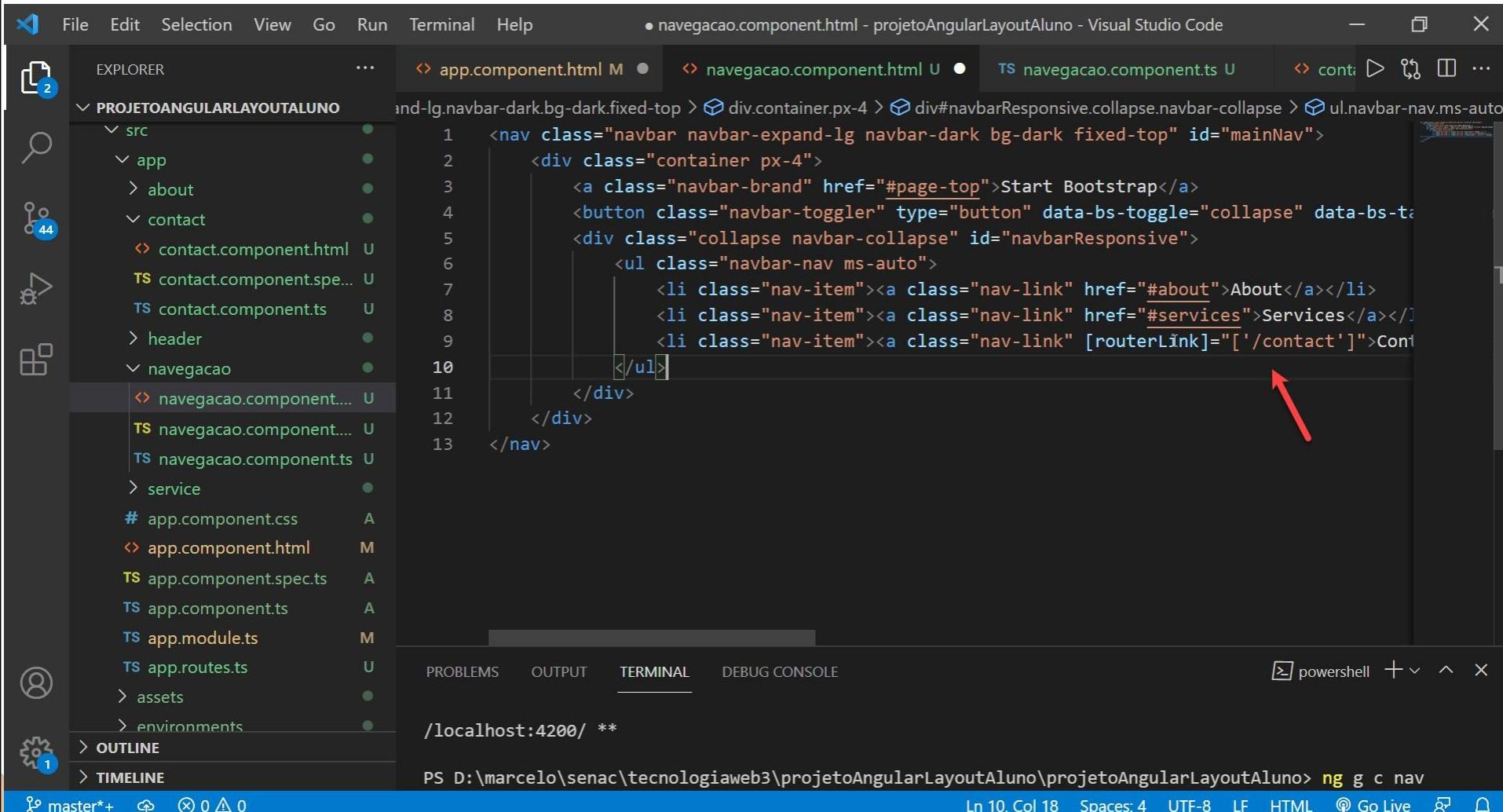
```
-top > div.container.px-4 > div#navbarResponsive.collapse.navbar-collapse > ul.navbar-nav.ms-auto > li.nav-item > a.nav-link
1   <nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top" id="mainNav">
2     <div class="container px-4">
3       <a class="navbar-brand" href="#page-top">Start Bootstrap</a>
4       <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarResponsive">
5         <div class="collapse navbar-collapse" id="navbarResponsive">
6           <ul class="navbar-nav ms-auto">
7             <li class="nav-item"><a class="nav-link" href="#about">About</a></li>
8             <li class="nav-item"><a class="nav-link" href="#services">Services</a></li>
9             <li class="nav-item"><a class="nav-link" href="#contact">Contact</a></li>
10            </ul>
11          </div>
12        </div>
13      </nav>
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

/localhost:4200/ \*\*

PS D:\marcelo\senac\tecnologiaweb3\projetoAngularLayoutAluno\projetoAngularLayoutAluno> ng g c nav

Ln 9, Col 73 (16 selected) Spaces: 4 UTF-8 LF HTML ⚡ Go Live ⌂



Start Bootstrap

About Services Contact

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!

Copyright © Your Website 2021

# Welcome to Scrolling Nav

A functional Bootstrap 5 boilerplate for one page scrolling websites

Start scrolling!



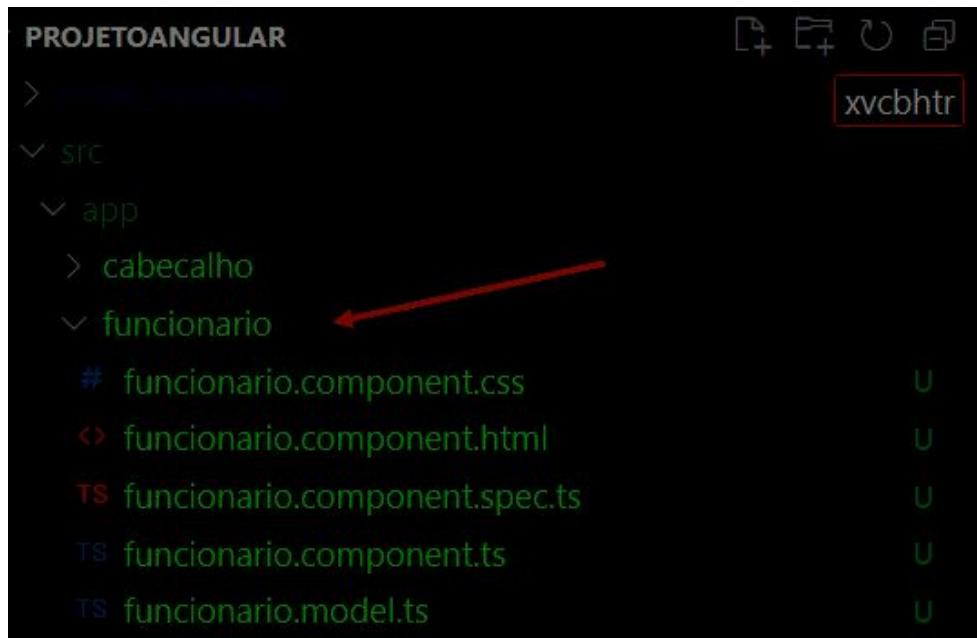
## Contact us

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Vero odio fugiat voluptatem dolor, provident officiis, id iusto! Obcaecati incident, qui nihil beatae magnam et repudiandae ipsa exercitationem, in, quo totam.

Faça a rota para o service e about

## Manipulação de Dados

## Criar o componente funcionario



PROJETOANGULAR

>

src

  app

    cabecalho

    funcionario

      # funcionario.component.css

      <> funcionario.component.html

      TS funcionario.component.spec.ts

      TS funcionario.component.ts

      TS funcionario.model.ts

xvcbhtr

## Criando duas

```
import { Component, OnInit, Input } from '@angular/core';

import { FuncionarioModel } from './funcionario.model'

@Component({
  selector: 'senac-funcionario',
  templateUrl: './funcionario.component.html',
  styleUrls: ['./funcionario.component.css']
})
export class FuncionarioComponent implements OnInit {

  @Input() nome: string = "Lucas Silva"; ←
  @Input() isMasculino: boolean = true

  constructor() {
    console.log(`Nome: ${this.nome}`);
    console.log(`Gênero: ${this.isMasculino}`);
  }

  @Input() funcionario: FuncionarioModel;
}
```

@Input é utilizado para passar valores para o componente.

Já vamos ver isso na frente

Montando o html do componente.. usando binding para apresentar  
O valor das variáveis

```
funcionario.model.ts U      ↳ app.component.html M      ↳ funcionario.component.html U X
16  import { Component } from '@angular/core';
17
18  @Component({
19    selector: 'app-funcionario',
20    template: `
21      <div>
22        Nome: {{nome}}
23        Valor: {{isMasculino}}
24      </div>
25    `
26  )
27  export class Funcionario {
28    nome: string;
29    isMasculino: boolean;
30  }
31
```

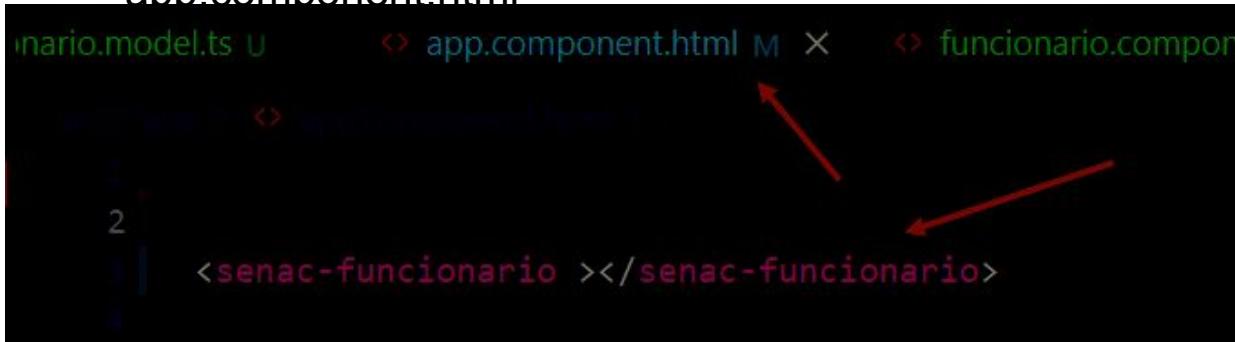
```
<div>
  Nome: {{nome}}
  Valor: {{isMasculino}}
</div>
```

```
<div>
  Nome: {{nome}}
  Valor: {{isMasculino}}
</div>
```

Se não quiser setar um valor para uma variável deve ser colocado o !  
Exemplo

```
ts funcionario.component.ts ✘  TS funcionario.model.ts ✘  ↗ app.component.ht
1 import { Component, OnInit, Input } from '@angular/core';
2
3 import { FuncionarioModel } from './funcionario.model'
4
5 @Component({
6   selector: 'senac-funcionario',
7   templateUrl: './funcionario.component.html',
8   styleUrls: ['./funcionario.component.css']
9 })
10 export class FuncionarioComponent implements OnInit {
11
12   @Input() nome!: string; ←
13   @Input() isMasculino: boolean = true ←
14
15   constructor() { }
16
17   ngOnInit(): void {
18     console.log(`Nome: ${this.nome} | ${this.isMasculino}`);
19   }
20 }
```

Chamando o componente no  
app.component.html

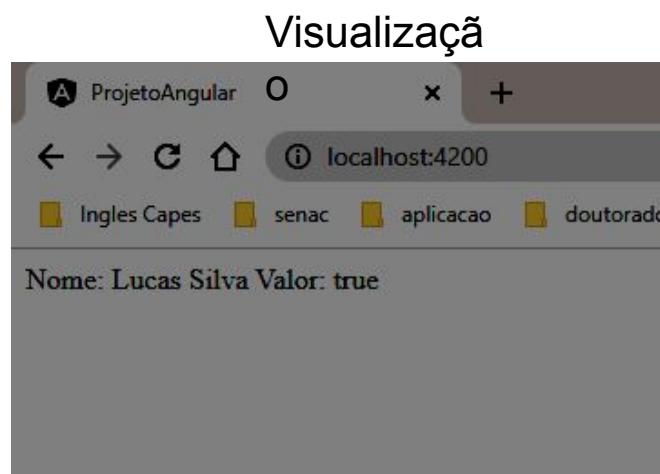


```
funcionario.model.ts U ↗ app.component.html M X ↗ funcionario.compon  
2 ↗  
<senac-funcionario></senac-funcionario>
```

A screenshot of a code editor showing the file `app.component.html`. The file contains the following code:

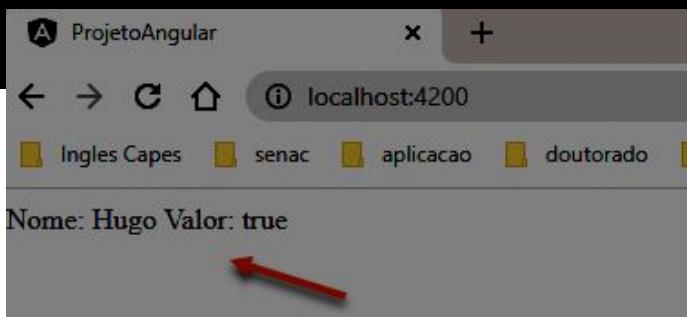
```
<senac-funcionario></senac-funcionario>
```

A red arrow points from the text "Chamando o componente no" above to the opening tag `<senac-funcionario>`.



## Passando valores para o componente

```
 1 <senac-funcionario nome="Hugo" [isMasculino]="true"></senac-funcionario>
 2
 3
 4
 5
 6
```



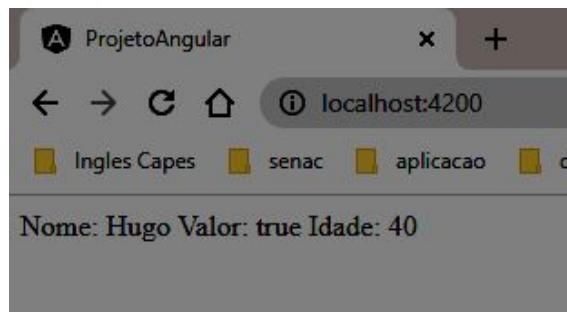
```
TS funcionario.component.ts U X  ↗ app.component.html M  ↗ funcionario.c
  selector: 'senac-funcionario',
  templateUrl: './funcionario.component.html',
  styleUrls: ['./funcionario.component.css']
})
export class FuncionarioComponent implements OnInit {
  nome: string = "Lucas Silva";
  isMasculino: boolean = true;
  @Input() idade!: number; ←
15
```

Vamos acrescentar a  
idade

```
component.ts U      <> app.component.html M      <> funcionario.component.html U X  D  
16  
17  
18  
19
```

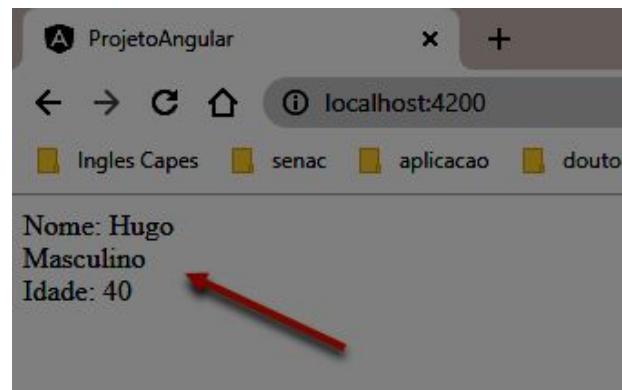
```
16  
17  
18  
19
```

```
<div>  
    Nome: {{nome}}  
    Valor: {{isMasculino}}  
    Idade: {{idade}} ←—————  
    </div>
```



## Diretiva

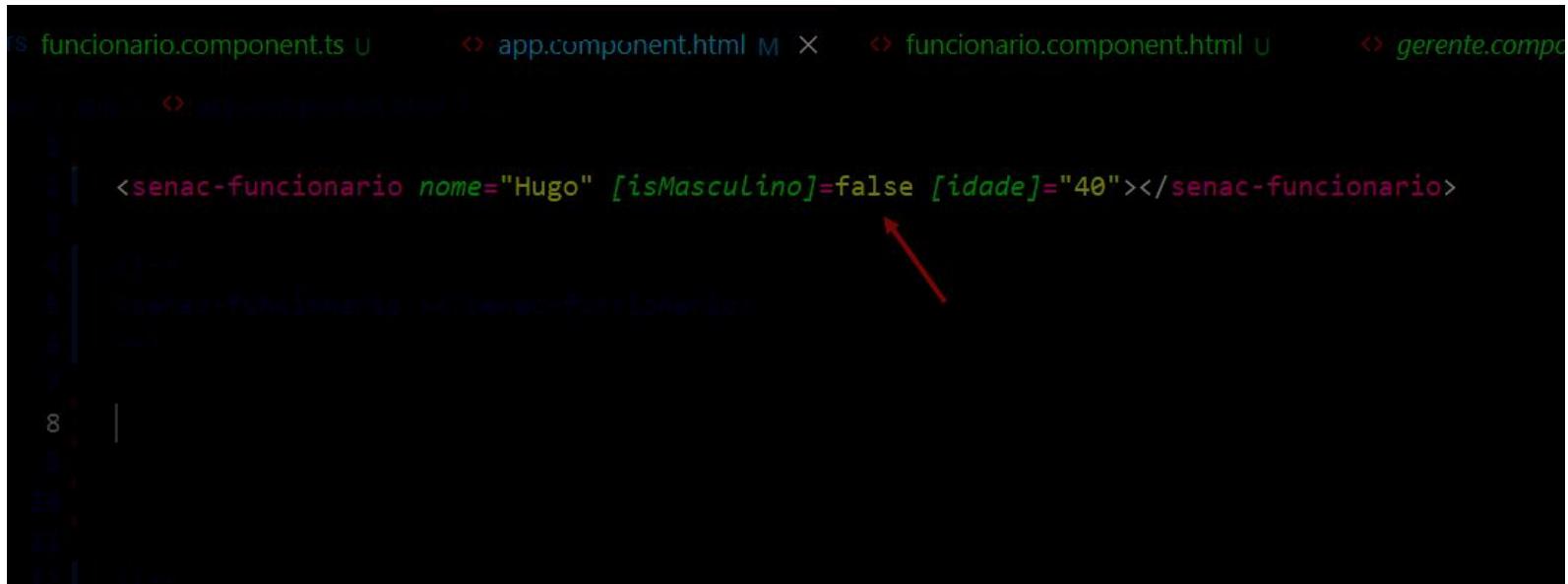
```
ts funcionario.component.ts U      <> app.component.html M      <> funcionario.component.html U X  
...  
14  
15  <div>  
16    Nome: {{nome}}  
17    <div *ngIf=[isMasculino]>  
18      Masculino  
19    </div>  
20  
21    Idade: {{idade}}  
22  </div>
```



## Usando template para fazer o else

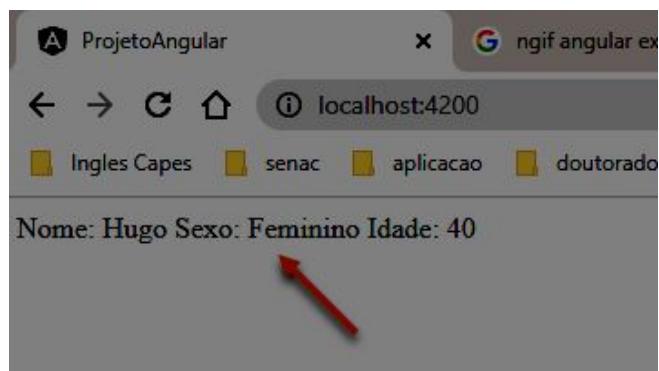
```
funcionario.component.ts ↗ app.component.html ↗ funcionario.component.html ↗
1  import { Component } from '@angular/core';
2
3  @Component({
4    selector: 'app-funcionario',
5    templateUrl: './funcionario.component.html',
6    styleUrls: ['./funcionario.component.css']
7  })
8
9  export class FuncionarioComponent {
10   nome = 'Ricardo';
11   idade = 30;
12   sexo = 'Masculino';
13 }
14
15 <div>
16   Nome: {{nome}}
17   Sexo:
18   <div *ngIf="isMasculino; else feminino">
19     Masculino
20   </div>
21   <ng-template #feminino> ←
22     Feminino
23   </ng-template> ←
24
25   Idade: {{idade}}
26 </div>
27 |
```

## Trocar para



A screenshot of a code editor showing a component template. The template contains an `<senac-funcionario nome="Hugo" [isMasculino]=false [idade]="40"></senac-funcionario>` element. A red arrow points from the text "Trocar para" in the slide above to the closing tag of the element.

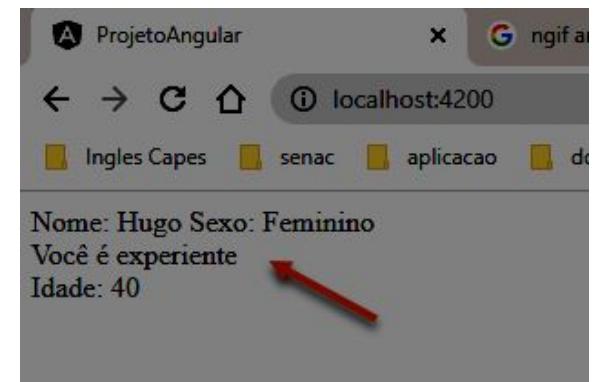
```
rs funcionario.component.ts U      <> app.component.html M X      <> funcionario.component.html U      <> gerente.compo
<> funcionario.component.html
<senac-funcionario nome="Hugo" [isMasculino]=false [idade]="40"></senac-funcionario>
  
```



Se for falso e a idade for igual a  
40      <!-- operador lógico AND -->

```
<div>
  Nome: {{nome}}
  Sexo:
    <div *ngIf="isMasculino; else feminino">
      Masculino
    </div>
    <ng-template #feminino>
      Feminino
    </ng-template>
    <div *ngIf="!isMasculino && idade == 40">
      Você é experiente
    </div>

  Idade: {{idade}}
</div>
```



## <!-- operador lógico OR -->

```
funcionario.component.ts U      <> app.component.html M      <> func
  ...
    <ng-template #feminino>
      Feminino
    </ng-template>
    <div *ngIf="!isMasculino ||  idade == 40">
      Você é experiente
    </div>
    Idade: {{idade}}
  </div>
```



Vamos explorar um pouco mais sobre template

```
funcionario.component.ts U X  ↗ app.component.html M  ↗ funcionario.comp
1 import { Component } from '@angular/core';
2
3 @Component({
4   selector: 'senac-funcionario',
5   templateUrl: './funcionario.component.html',
6   styleUrls: ['./funcionario.component.css']
7 })
8 export class FuncionarioComponent implements OnInit {
9
10   @Input() nome: string = "Lucas Silva";
11   @Input() isMasculino: boolean = true;
12   @Input() idade!: number;
13   isLogado: boolean = true; ←
14
15 }
```

16

```
funcionario.component.ts U app.component.html M funcionario.component.html U X

  Nome: Hugo Sexo: Feminino
  Você é experiente

```

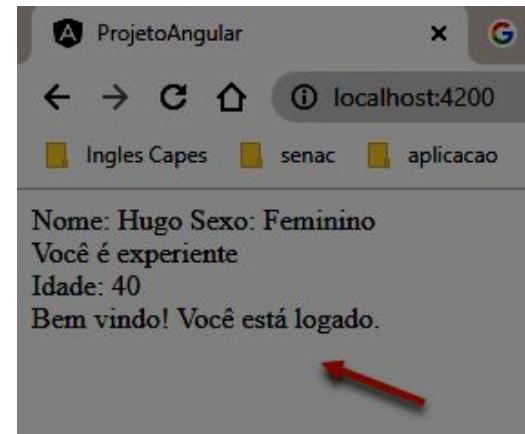
Você é experiente

```
</div>

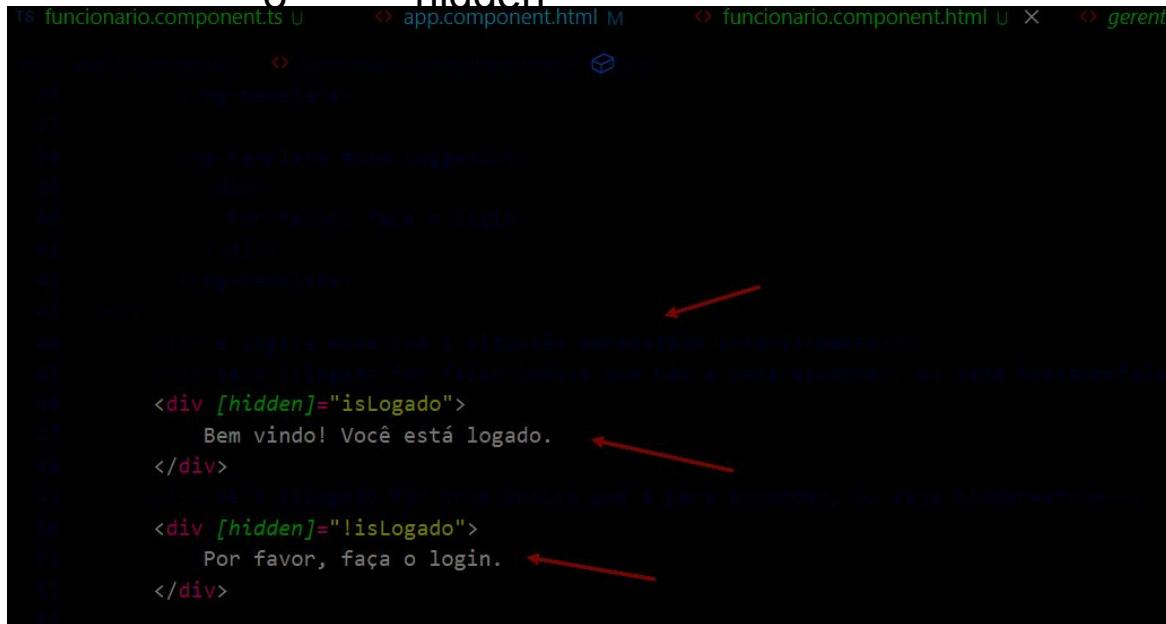
Idade: {{idade}}

<ng-template [ngIf]="isLogado" [ngIfElse]="userLoggedOut">
  <div>
    Bem vindo! Você está logado.
  </div>
</ng-template>

<ng-template #userLoggedOut>
  <div>
    Por favor, faça o login.
  </div>
</ng-template>
</div>
```



## Usando o hidden



```
ts funcionario.component.ts U      ↵ app.component.html M      ↵ funcionario.component.html U X ↵ gerente.html
```

```
1<div> Bem-vindo ao sistema interno!</div>
2
3  <ng-template ifLoggedin>
4    <div>
5      Por favor, faça o login.
6    </div>
7  </ng-template>
8
9  <div> Bem-vindo! Você está logado.</div>
10 <div> Por favor, faça o login.</div>
```

The screenshot shows a code editor with two tabs: 'funcionario.component.ts' and 'app.component.html'. The 'app.component.html' tab is active and displays the following HTML code:

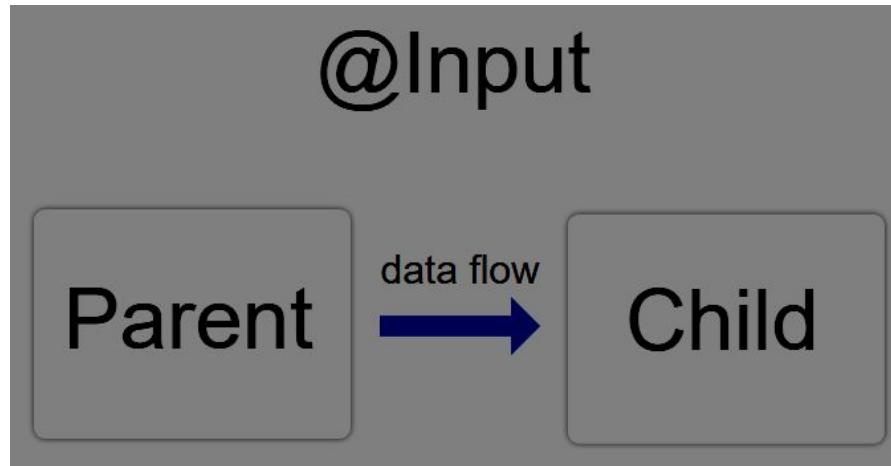
```
<div> Bem-vindo ao sistema interno!</div>
<ng-template ifLoggedin>
  <div>
    Por favor, faça o login.
  </div>
</ng-template>
<div> Bem-vindo! Você está logado.</div>
<div> Por favor, faça o login.</div>
```

Red arrows point from the explanatory text above to the two occurrences of the word 'login' in the code, highlighting the potential security vulnerability.

O [hidden] “oculta” o conteúdo, mas ele ainda está presente ao “inspecionar” a página.

Se esse conteúdo for restrito para alguns usuários, então utilizar o [hidden] é uma falha de segurança grave.

Passando dados entre o componente Pai para o filho



Referencia:

<https://angular.io/guide/inputs-outputs>

Definimos uma variável chamada nomeFuncionario no app.component

```
app.component.html M app.component.ts M funcionario

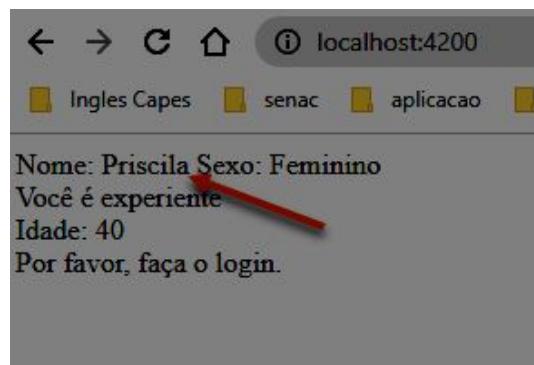
<!-- app.component.html -->
<div>Hello Senac!</div>
<div>Nome Funcionário:</div>
<input type="text" value="Priscila" />

<!-- app.component.ts -->
import { Component } from '@angular/core';

@Component({
  selector: 'senac-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'projetoAngular';
  nomeFuncionario: string = "Priscila";
}
```

No html do app.component estamos passando para o componente funcionario

A variavel nomeFuncionario para dentro da varial nome de funcionario.  
Perceba que agora o nome precisa estar entre [ ]

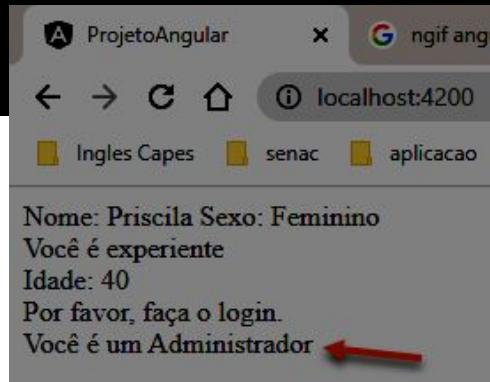


Diretiva  
ngSwitch

```
TS funcionario.component.ts U X  ↗ app.component.html M TS app.component.ts (
```

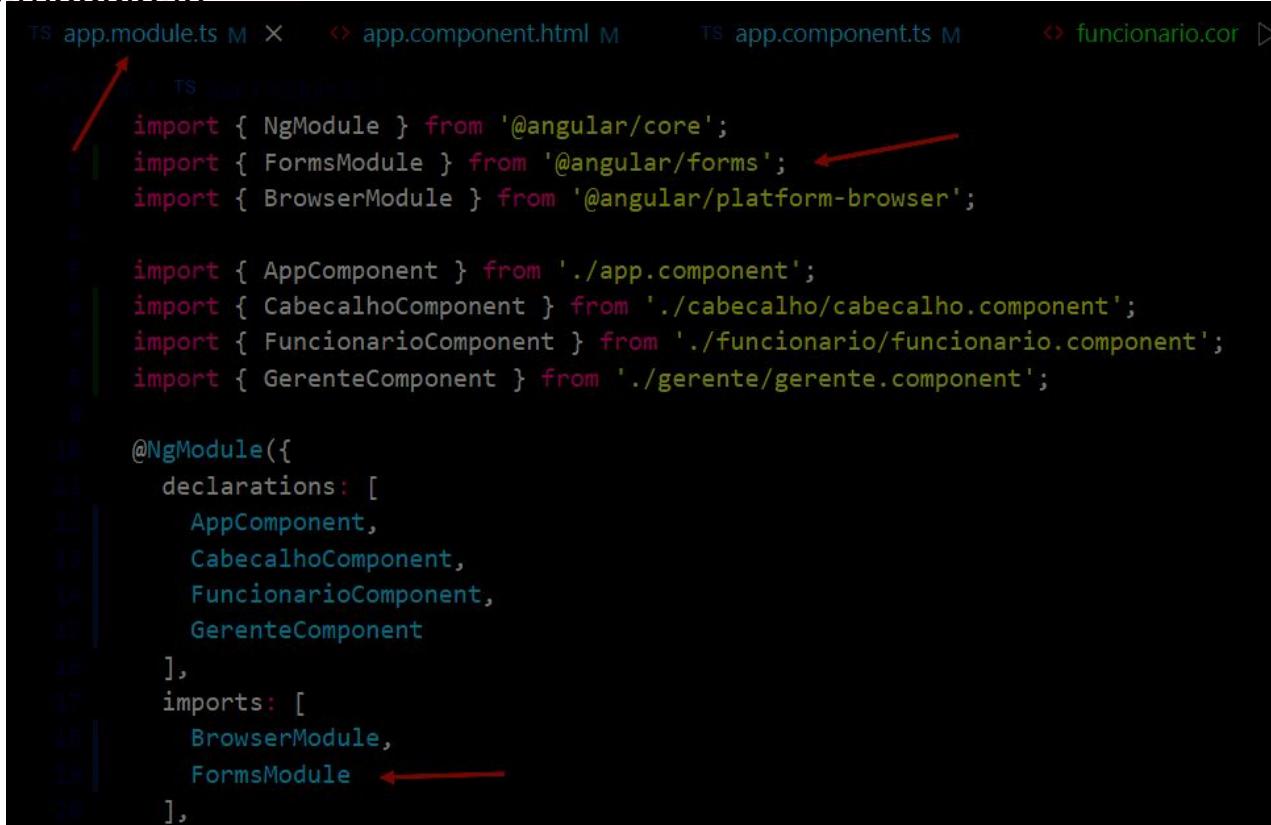
```
  1  import { Component } from '@angular/core';
  2  import { FuncionarioService } from '../funcionario.service';
  3
  4  @Component({
  5    selector: 'app-funcionario',
  6    templateUrl: './funcionario.component.html',
  7    styleUrls: ['./funcionario.component.css']
  8  })
  9  export class FuncionarioComponent implements OnInit {
10
11
12    @Input() nome: string = "Lucas Silva";
13    @Input() isMasculino: boolean = true;
14    @Input() idade!: number;
15    isLogado: boolean = true;
16
17    @Input() tipoFuncionario: string = "Administrador"
```





Diretiva  
ngModel

Para usar o ngModel precisando importar o FormsModule no arquivo app.module.ts



```
TS app.module.ts M <> app.component.html M TS app.component.ts M <> funcionario.cor ▷  
1  import { NgModule } from '@angular/core';  
2  import { FormsModule } from '@angular/forms'; ←  
3  import { BrowserModule } from '@angular/platform-browser';  
4  
5  import { AppComponent } from './app.component';  
6  import { CabecalhoComponent } from './cabecalho/cabecalho.component';  
7  import { FuncionarioComponent } from './funcionario/funcionario.component';  
8  import { GerenteComponent } from './gerente/gerente.component';  
9  
10 @NgModule({  
11   declarations: [  
12     AppComponent,  
13     CabecalhoComponent,  
14     FuncionarioComponent,  
15     GerenteComponent  
16   ],  
17   imports: [  
18     BrowserModule,  
19     FormsModule ←  
20   ],  
21 } )
```

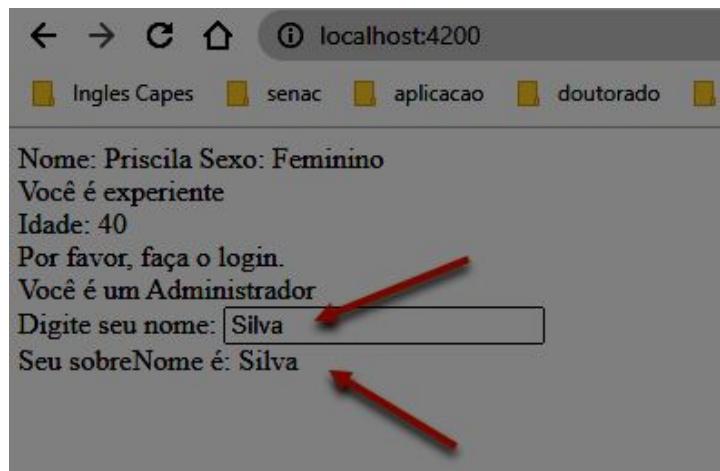
## Criando uma variavel

sobreNome

```
TS funcionario.component.ts U X TS app.module.ts M ↗ app.component.h  
TS FuncionarioComponent.ts  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
})  
export class FuncionarioComponent implements OnInit {  
  
    @Input() nome: string = "Lucas Silva";  
    @Input() isMasculino: boolean = true;  
    @Input() idade!: number;  
    isLogado: boolean = true;  
  
    @Input() tipoFuncionario: string = "Administrador"  
  
    @Input() sobreNome!: string; ← -----
```

## Usando ngModel para linkar a variavel sobreNome

```
  app.component.html M    TS app.component.ts M    funcionario.component.html U × ▶
  67
  68      <div [ngSwitch]="tipoFuncionario">
  69          <div *ngSwitchCase="'Administrador'">Você é um Administrador</div>
  70          <div *ngSwitchCase="'Gerente'">Você é um Gerente</div>
  71          <div *ngSwitchCase="'Vendedor'">Você é um Vendedor</div>
  72          <div *ngSwitchDefault>Você é um usuário</div>
  73      </div>
  74
  75      <div>
  76          Digite seu nome: <input type="text" [(ngModel)]="sobreNome"/>
  77      </div>
  78
  79      <div>
  80          Seu sobreNome é: {{sobreNome}}
  81      </div>
  82
  83  </div>
```



Diretiva  
ngFor

## Criando um array

EXPLORER

... TS funcionario.component.ts U X app.component.html M TS app.component

PROJETOANGULAR

src

app

> cabecalho

funcionario

# funcionario.component.css

<> funcionario.component.html

TS funcionario.component.spec.ts

TS funcionario.component.ts

TS funcionario.model.ts

> gerente

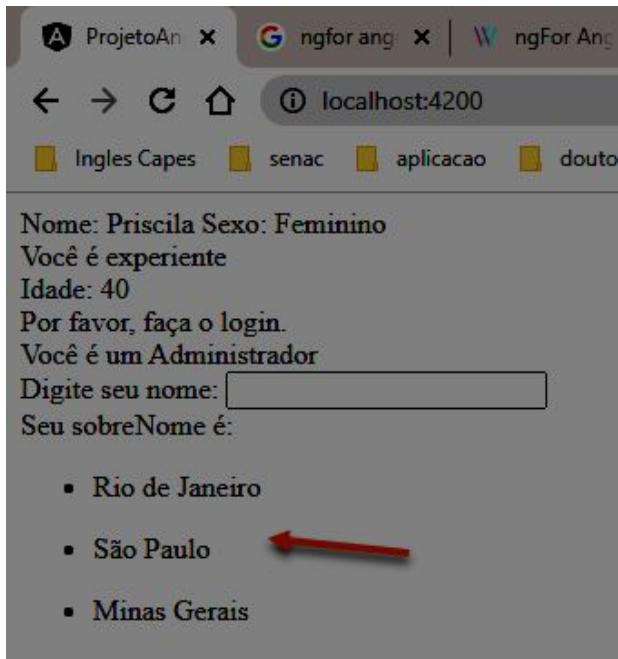
xvcbhtr

```
11 @Input() nome: string = "Lucas Silva";
12 @Input() isMasculino: boolean = true;
13 @Input() idade!: number;
14 isLogado: boolean = true;
15
16
17 @Input() tipoFuncionario: string = "Administrador"
18
19 @Input() sobreNome!: string;
20
21 estados = ['Rio de Janeiro', 'São Paulo', 'Minas Gerais']
```

```
funcionario.component.ts
```

```
funcionario.component.html
```

```
1 <div *ngSwitchDefault>Você é um usuário</div>
2 </div>
3
4
5 <div>
6     Digite seu nome: <input type="text" [(ngModel)]="sobreNome">
7 </div>
8
9 <div>
10    Seu sobreNome é: {{sobreNome}}
11 </div>
12
13 <ul *ngFor="let estado of estados">
14     <li>{{estado}}</li>
15 </ul>
16
17 </div>
```



Fazendo um array com  
objetos

```
TS funcionario.component.ts U X  ↗ funcionario.component.html U
src/app/funcionario/funcionario.component.ts
  17  @Input() tipoFuncionario: string = "Administrador"
  18
  19  @Input() sobreNome!: string;
  20
  21  @Input()
  22  estados = ['Rio de Janeiro', 'São Paulo', 'Minas Gerais']
  23
  24  @Input()
  25  tiposPessoa = [ ←
  26    {id: 1, descricao: 'Carioca'},
  27    {id: 2, descricao: 'Paulista'},
  28    {id: 3, descricao: 'Mineiro'},
  29
  30  ]
  31
```

```
funcionario.component.ts U      ↵ funcionario.component.html U X

  ...
  </div>

  <div>
    Seu sobreNome é: {{sobreNome}}
  </div>

  <ul *ngFor="let estado of estados">
    <li >{{estado}}</li>
  </ul>

  <ul *ngFor="let tipo of tiposPessoa">
    <li >{{tipo.descricao}}</li>
  </ul>
</div>
```

Nome: Priscila Sexo: Feminino  
Você é experiente  
Idade: 40  
Por favor, faça o login.  
Você é um Administrador  
Digite seu nome:   
Seu sobreNome é:

- Rio de Janeiro
- São Paulo
- Minas Gerais
- Carioca
- Paulista
- Mineiro

Trabalhando com  
comboBox

```
TS funcionario.component.ts U      <> funcionario.component.html U X
```

```
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
```

```
</ul>

<ul *ngFor="let tipo of tiposPessoa">
  <li >{{tipo.descricao}}</li>

</ul>

<select>
  <option *ngFor="let estado of estados">
    {{estado}}
  </option>
</select>

</div>
```

Trabalhando com select , nfSwitch e  
ngFor

Definindo uma variável que vai ser por onde

Vamos passar o valor selecionado

```
ts funcionario.component.ts ✘  ↗ funcionario.component.html ✘
```

```
1  import { Component } from '@angular/core';
2  import { IFuncionario } from './ifuncionario';
3
4  @Component({
5    selector: 'app-funcionario',
6    templateUrl: './funcionario.component.html',
7    styleUrls: ['./funcionario.component.css']
8  })
9
10  export class FuncionarioComponent implements IFuncionario {
11
12    nome: string;
13    sobrenome: string;
14    idade: number;
15    genero: string;
16    estado: string;
17
18    estados = ['Rio de Janeiro', 'São Paulo', 'Minas Gerais'];
19
20    tiposPessoa = [
21      {id: 1, descricao: 'Carioca'},
22      {id: 2, descricao: 'Paulista'},
23      {id: 3, descricao: 'Mineiro'},
24    ];
25
26    combobox!: string;
```



```
TS funcionario.component.ts U      ⚡ funcionario.component.html U X
```

```
76      
```

```
77      </ul>
```

```
78
```

```
79      <select [(ngModel)] = "combobox">
```

```
80          <option *ngFor="let estado of estados" [value]= "estado">
```

```
81              {{estado}}
```

```
82          </option>
```

```
83      </select>
```

```
84
```

```
85      <div [ngSwitch] = "combobox">
```

```
86          <div *ngSwitchCase = "'Rio de Janeiro'"> Carioca </div>
```

```
87          <div *ngSwitchCase = "'São Paulo'"> Paulista </div>
```

```
88          <div *ngSwitchCase = "'Minas Gerais'"> Mineiro </div>
```

```
89      </div>
```

ProjetoAn x ngfor ang x ngFor Ang x

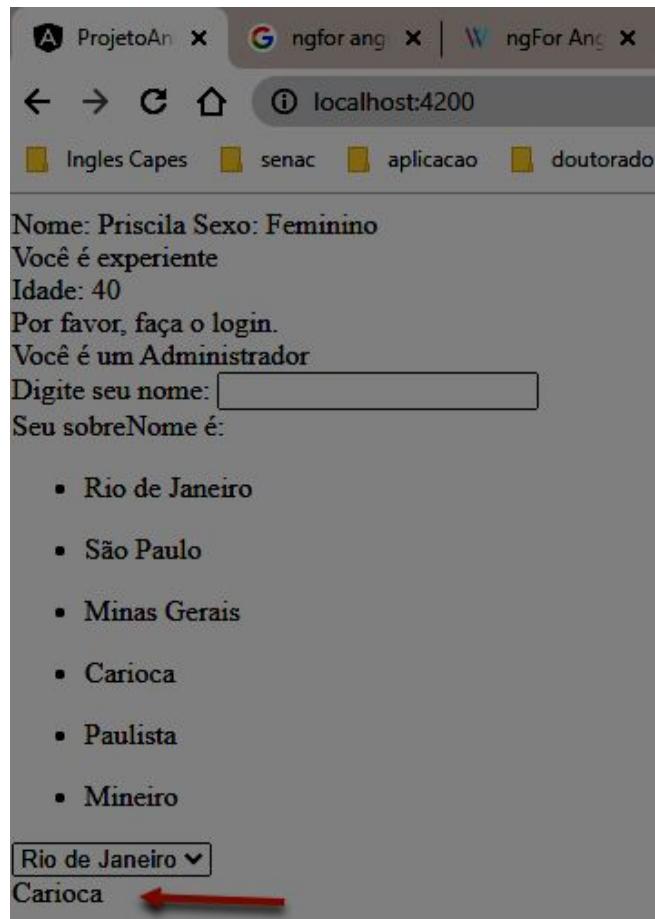
localhost:4200

Ingles Capes senac aplicacao doutorado

Nome: Priscila Sexo: Feminino  
Você é experiente  
Idade: 40  
Por favor, faça o login.  
Você é um Administrador  
Digite seu nome:   
Seu sobreNome é:  

- Rio de Janeiro
- São Paulo
- Minas Gerais
- Carioca
- Paulista
- Mineiro

Rio de Janeiro ▾  
Carioca ←



## Trabalhando com Objetos

Criando um projeto novo

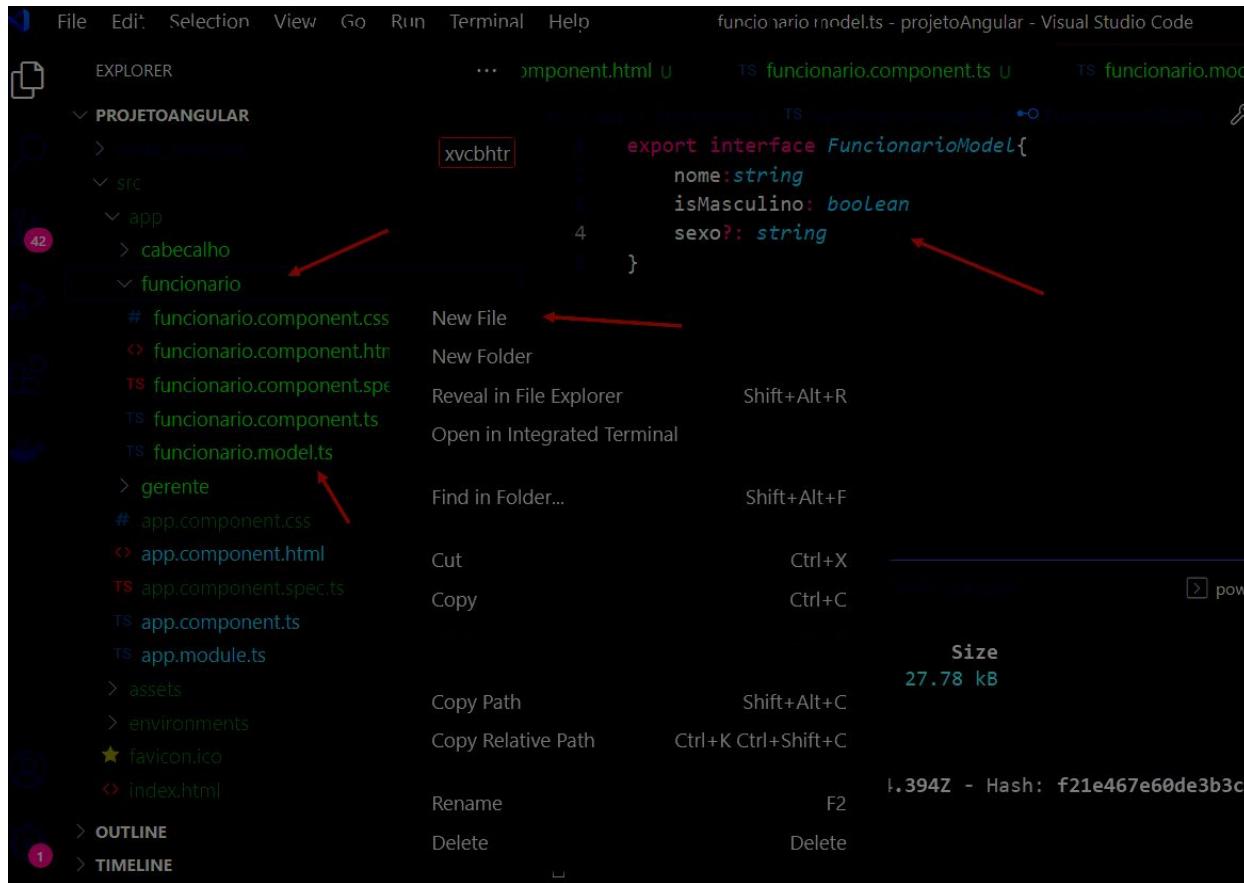
```
C:\Users\marce>ng new projetoAngular --prefix=senac
```



Criando um componente funcionario

```
D:\marcelo\senac\tecnologiaweb3\projetoAngular>ng g c funcionario
```

Clicar no botão direito em cima do funcionario  
Colocar new file e colocar o nome  
funcionario.model.ts



```
ponent.html U      TS funcionario.component.ts U •    TS funcionario.model.ts
TS
import { Component, OnInit, Input } from '@angular/core';

import {FuncionarioModel} from './funcionario.model'

@Component({
  selector: 'senac-funcionario',
  templateUrl: './funcionario.component.html',
  styleUrls: ['./funcionario.component.css']
})
export class FuncionarioComponent implements OnInit {

  @Input() nome: string = "Lucas Silva";
  @Input() isMasculino: boolean = true;
  @Input() idade!: number;

```

```
36   funcionarios: FuncionarioModel[] = [
37     {nome: 'Joao', isMasculino: true, sexo:'Masculino'},
38     {nome: 'Flavia', isMasculino: false, sexo:'Feminino'}
39   ]

```

```
<> funcionario.component.html u X TS app.component.ts M TS funcionario.com  
1 <div> Carioca</div>  
2 <div> Paulista</div>  
3 <div> Mineiro</div>  
4 </div>  
5 <div *ngFor="let funcionario of funcionarios">  
6   nome: {{funcionario.nome}}  
7   sexo: {{funcionario.sexo}}  
8 </div>
```

Nome: Priscila Sexo: Feminino

Você é experiente

Idade: 40

Por favor, faça o login.

Você é um Administrador

Digite seu nome:

Seu sobreNome é:

- Rio de Janeiro
- São Paulo
- Minas Gerais
- Carioca
- Paulista
- Mineiro

▼  
nome: Joao sexo: Masculino

nome: Flavia sexo: Feminino



Vamos melhorar usando uma  
tabela

```
> funcionario.component.html U ● TS app.component.ts M      TS funcionario.co
funcionario | Funcionarios | <> Funcionário | Funcionários | 🔍
```

```
91      <div *ngFor="let funcionario of funcionarios">
92          nome: {{funcionario.nome}}
93          sexo: {{funcionario.sexo}}
94      </div>
95
96      <table> ←
97          <thead>
98              <tr>
99                  <th>Nome</th>
100                 <th>Sexo</th>
101             </tr>
102         </thead>
103         <tbody> →
104             <tr *ngFor="let funcionario of funcionarios">
105                 <td>{{funcionario.nome}}</td>
106                 <td>{{funcionario.sexo}}</td>
107             </tr>
108         </tbody>
109     </table>
```

Passando Objeto entre os  
componentes

Criando a variável que será usada para trafegar as informações entre os componentes

```
pp.component.ts M      ↗ app.component.html M      TS funcionario.component.ts U X

1  import { Component } from 'angular';
2  import { FuncionarioModel } from './funcionario.model';
3
4  @Component({
5    selector: 'app-pp',
6    template: `
7      <div>
8        <h2>Pessoas P&amp;P</h2>
9        <table>
10          <thead>
11            <tr>
12              <th>Nome</th>
13              <th>Sexo</th>
14              <th>Descrição</th>
15            </tr>
16          </thead>
17          <tbody>
18            <tr>
19              <td>Joao</td>
20              <td>Masculino</td>
21              <td>Paulista</td>
22            </tr>
23            <tr>
24              <td>Flavia</td>
25              <td>Feminino</td>
26              <td>Mineiro</td>
27            </tr>
28          </tbody>
29        </table>
30
31        <div>
32          <h3>Selecione um Funcionário:</h3>
33          <select>
34            <option value="">Selecione...</option>
35            <option *ngFor="let funcionario of funcionarios" value="funcionario">{{funcionario.nome}} - {{funcionario.sexo}} - {{funcionario.descricao}}</option>
36          </select>
37        </div>
38
39      </div>
40    `
41  })
42  export class PpComponent {
43    funcionarios: FuncionarioModel[] = [
44      {nome: 'Joao', isMasculino: true, sexo:'Masculino'},
45      {nome: 'Flavia', isMasculino: false, sexo:'Feminino'}
46    ]
47
48    @Input() funcionario!: FuncionarioModel;
49  }

funcionario.component.ts M      ↗ app.component.html M      TS funcionario.component.ts U X

1  import { Component } from 'angular';
2  import { FuncionarioModel } from './funcionario.model';
3
4  @Component({
5    selector: 'app-funcionario',
6    template: `
7      <div>
8        <h2>Funcionário</h2>
9        <table>
10          <thead>
11            <tr>
12              <th>Nome</th>
13              <th>Sexo</th>
14              <th>Descrição</th>
15            </tr>
16          </thead>
17          <tbody>
18            <tr>
19              <td>{{funcionario.nome}}</td>
20              <td>{{funcionario.sexo}}</td>
21              <td>{{funcionario.descricao}}</td>
22            </tr>
23          </tbody>
24        </table>
25      </div>
26    `
27  })
28  export class FuncionarioComponent {
29    funcionario: FuncionarioModel;
30  }

```

Variável que esta sendo utilizada para passar as informações para o componente do funcionário

```
TS app.component.ts M X  ↗ app.component.html M      TS funcionario.component.ts U
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'projetoAngular';
  nomeFuncionario: string = "Priscila";

  funcionario1 = {nome: 'Jôao', isMasculino: true, sexo:'Masculino'}
```

No app.component.html iremos passar os valores que estão na variável funcionario1

Para o componente funcionado pela variavel funcionario

```
  <!-- app.component.html -->
  <div>
    <senac-funcionario [some]="logueFuncionario" [isAvailable]="false" [isdead]="">
      ...
    </senac-funcionario>
  </div>
```

```
  <!-- app.component.ts -->
  <!-- app.component.html -->
  <!-- funcionario.component.ts -->
```

Usando os valores do funcionario passado no html do funcionario.component

```
funcionario.component.html TS app.component.ts app.com

105
106      <td>{{funcionario.nome}}</td>
107      <td>{{funcionario.sexo}}</td>
108    </tr>
109  </tbody>
110</table>
111
112  <br/>    ↗
113  <br/>    ↗
114  Nome: {{funcionario.nome}}
115  <div *ngIf="funcionario.isMasculino">
116      Sexo: Masculino
117  </div>
118
119</div>
120
```

Iteração de um  
componente

Fazer uma copia do funcionario.component.html  
Porque não vamos precisar de todo o código  
Só vamos deixar o código ao lado no

EXPLORER

PROJETOANGULAR

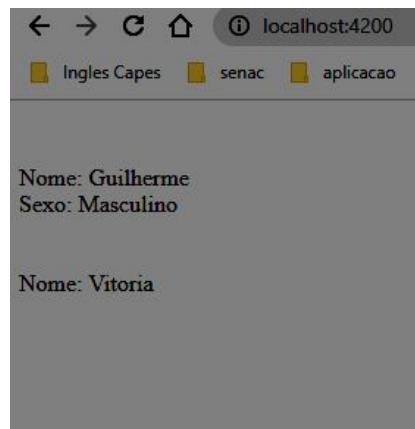
- > node\_modules
- <> SRC
- <> app
  - > cabecalho
  - <> funcionario
    - <> funcionario.component copy.html
    - # funcionario.component.css
    - <> funcionario.component.html
    - TS funcionario.component.spec.ts
    - TS funcionario.component.ts
    - TS funcionario.model.ts
  - > gerente
  - # app.component.css
  - <> app.component.html
  - TS app.component.spec.ts
  - TS app.component.ts

funcionario.component.html

```
<div>
  <br/>
  <br/>
  Nome: {{funcionario.nome}}
  <div *ngIf="funcionario.isMasculino">
    Sexo: Masculino
  </div>
</div>
```

```
funcionario.component.html U      TS app.component.ts M X  ↗ app.component.html M      T
TS app.component.ts
14
15
16
17  funcionario1 = {nome: 'Jão', isMasculino: true, sexo:'Masculino'}
18
19
20  funcionarios: FuncionarioModel[] = [
21    {nome: 'Guilherme', isMasculino: true, sexo:'Masculino'},
22    {nome: 'Vitoria', isMasculino: false, sexo:'Feminino'}
23  ]
24
25
26 }
```

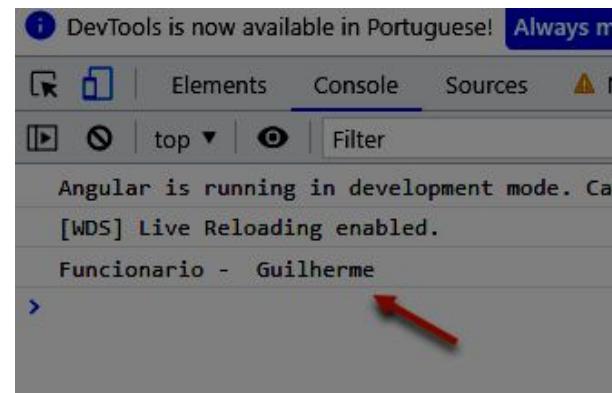
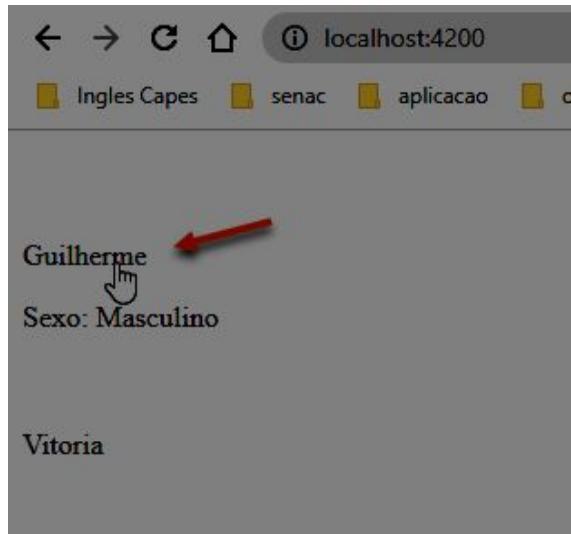
```
<> funcionario.component.html U      TS app.component.ts M      <> app.component.html M X    TS funcionario.component.ts U
  ...
<senac-funcionario [nome]="nomeFuncionario" [sexo]="sexo" [idade]="#id" ></senac-funcionario>
  ...
<senac-funcionario [funcionario]="funcionarios" ></senac-funcionario>
  ...
<senac-funcionario *ngFor="let func of funcionarios" [funcionario]="func"></senac-funcionario>
```



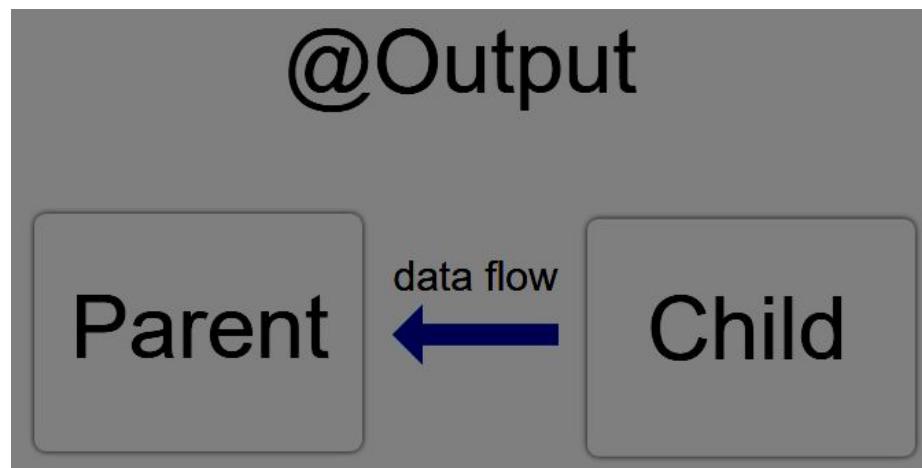
## Trabalhando com Eventos



```
> funcionario.component.html U X TS app.component.ts M <> app.component.html M TS funcionario.co
10 <app> <funcionario> <> funcionario.component.html <...
11   <div>
12     <br/>
13     <br/>
14
15   <div>
16     <br/>
17     <br/>
18     <p><a style="cursor: pointer" (click)="clicado()">{{funcionario.nome}}</a></p>
19     <div *ngIf="funcionario.isMasculino">
20       Sexo: Masculino
21     </div>
22
23   </div>
```



Passando dados do componente filho para  
o Pai



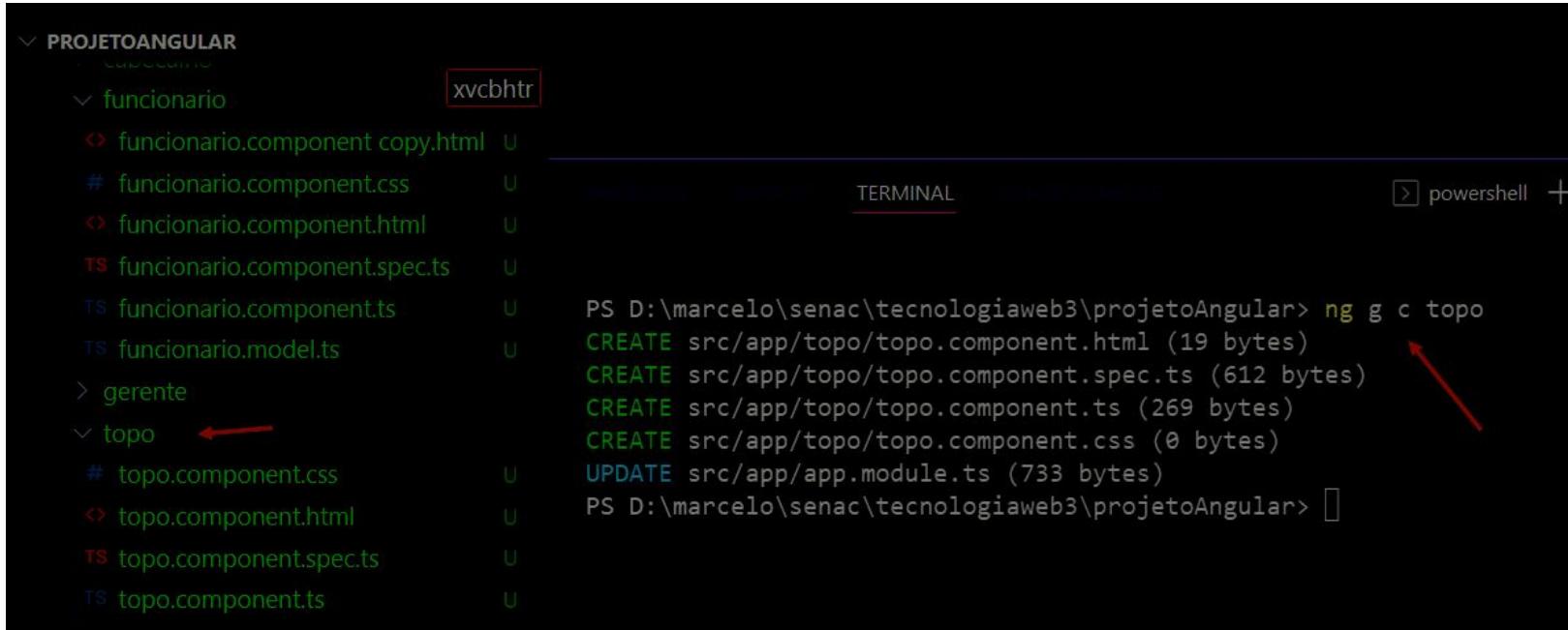
PROJETOANGULAR

xvcbhtr

- funcionario
  - funcionario.component copy.html
  - funcionario.component.css
  - funcionario.component.html
  - funcionario.component.spec.ts
  - funcionario.component.ts
  - funcionario.model.ts
- gerente
- topo
  - topo.component.css
  - topo.component.html
  - topo.component.spec.ts
  - topo.component.ts

TERMINAL

```
PS D:\marcelo\senac\tecnologiaweb3\projetoAngular> ng g c topo
CREATE src/app/topo/topo.component.html (19 bytes)
CREATE src/app/topo/topo.component.spec.ts (612 bytes)
CREATE src/app/topo/topo.component.ts (269 bytes)
CREATE src/app/topo/topo.component.css (0 bytes)
UPDATE src/app/app.module.ts (733 bytes)
PS D:\marcelo\senac\tecnologiaweb3\projetoAngular>
```



```
ts topo.component.ts × ▶
1  import { Component, OnInit, Output } from '@angular/core';
2
3  @Component({
4    selector: 'senac-topo',
5    templateUrl: './topo.component.html',
6    styleUrls: ['./topo.component.css']
7  })
8  export class TopoComponent implements OnInit {
9
10    constructor() { }
11
12    ngOnInit(): void {
13    }
14
15    @Output() usuarioEvt = new EventEmitter();
16
17    definindoUsuario(nome: string){
18      this.usuarioEvt.emit(nome);
19    }
20
21  }
```

```
ts topo.component.ts U      <> topo.component.html U X
```

```
  <label for="lbusuario">Nome Usuário:</label>
  <input type="text" id="lbusuario" #novoUsuario>
3  <button type="button" (click)="definindoUsuario(novoUsuario.value)">
    Informe o usuário
  </button>
```

Quando a função definindoUsuario for acionada, será chamado o usuarioEvt

mpONENT.ts U

topo.component.html U

TS app.component.ts M X

```
  1  import { Component } from '@angular/core';
  2
  3  @Component({
  4    selector: 'app-topo',
  5    templateUrl: './topo.component.html',
  6    styleUrls: ['./topo.component.css']
  7  })
  8
  9  export class TopoComponent {
10
11    funcionarios: FuncionarioModel[] = [
12      {nome: 'Guilherme', isMasculino: true, sexo:'Masculino'},
13      {nome: 'Vitoria', isMasculino: false, sexo:'Feminino'}
14    ]
15
16    usu!: string; ←
17
18    informandoUsuario(usuario: string){
19      this.usu = usuario;
20    }
21  }
```

```
s U <> topo.component.html U TS app.component.ts M <> app.component.html M X
<!--
  opens=Funcionario [func]="funcionario" [isFuncionario]=false [isUser]=true
-->
<div>
  <senac-funcionario [Funcionario]="funcionario" [isFuncionario]=true>
    <div>
      <senac-topo (usuarioEvt)="informandoUsuario($event)"></senac-topo>
      <p>Usuário passado pelo componente filho(topo) {{usu}} </p>
    </div>
  </senac-funcionario>
</div>
```

Quando o usuário for acionado vai chamar a função informando usuário passando

O valor que foi passado no `usuarioEvt`. Nesse caso o nome.

Dentro da função informandoUsuario estamos setando o valor passado no usuarioEvt

Para a variavel usu. Assim, conseguimos utilizar no componente pai

