

# Angular Demos

ng new, ng serve,  
(ng-)bootstrap library

basic elements: button, menu, tab, ..

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This document:

[https://github.com/Arnaud-Nauwynck/presentations/web/  
angular-demos-1-ng-new-ngbootstrap.pdf](https://github.com/Arnaud-Nauwynck/presentations/web/angular-demos-1-ng-new-ngbootstrap.pdf)

2 pre-requisites:

- 1/ install node.js
- 2/ \$ npm install -g @angular/cli

Also recommended :

- 3/ have 1G disk free on your PC
- 4/ install IntelliJ or Visual Studio Code
- 5/ network bandwidth
- 6/ patience

\$ ng new

Create a new application

Upgrade existing @angular/cli .. If needed

\$ ng update @angular/cli

or

\$ npm uninstall @angular/cli  
\$ npm install -g @angular/cli

# Upgrade existing angular project ... if needed

\$ ng update

```
$ ng update
Using package manager: npm
Collecting installed dependencies...
Found 22 dependencies.
  We analyzed your package.json and everything seems to be in order. Good work!
```

# « ng new » alternatives

1/ **\$ git clone https://github.com/\${org}/\${repo}**

2/ **jhipster**

3/ read docs, edit package.json + angular.json  
... NOT recommended

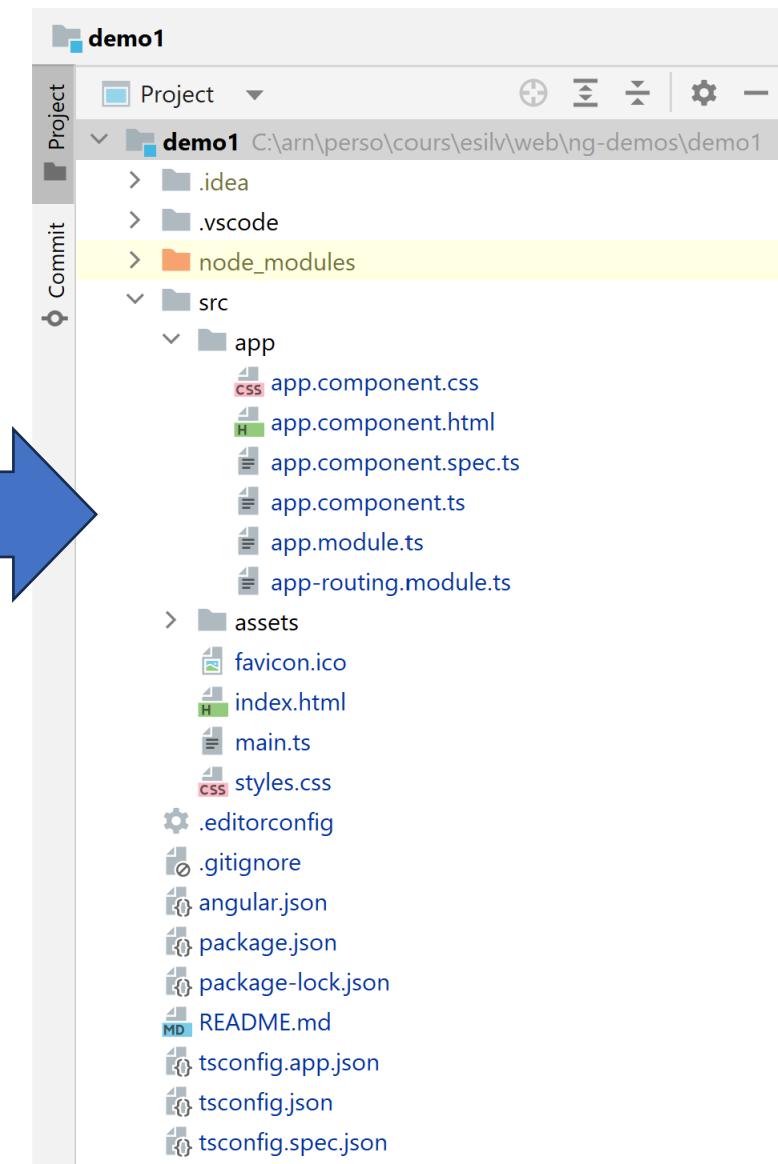
# Jhipster = Java springboot(backend) + angular(frontend) app generator



The screenshot shows the JHipster website at [jhipster.tech](https://jhipster.tech). The page has a dark blue header with the JHipster logo and navigation links: LEARN, SPONSORS, ABOUT, OPTIONS, MODULES & BLUEPRINTS, JDL STUDIO, GITHUB, YOUTUBE, and ENGLISH. A search bar is also present. The main content area features a large white circle containing a cartoon character of a person with brown hair and a bow tie, wearing a grey suit. Below the character, the text "Greetings, Java Hipster!" is displayed in a large, stylized, white, cursive font. At the bottom of the page, there is a horizontal line of text: "JHipster is a development platform to quickly generate, develop, & deploy modern web applications & microservice architectures." Another horizontal line follows, with the text: "JHipster is on [Open Collective](#), if you ❤ JHipster consider becoming a [sponsor](#) or a [backer](#)". The left sidebar contains a dark menu with various links: Home, JHipster Tech Board, Release notes, JHipster in a few minutes, Contributing, Setting up your environment, Core JHipster tasks, JDL, Microservices, Options, Development, Test & QA, Production, Blueprints, Tools, and JHipster Lite.

# ng new

```
$ ng new  
? What name would you like to use for the new workspace and initial project? demo1  
? Would you like to add Angular routing? Yes  
? Which stylesheet format would you like to use? CSS  
CREATE demo1/angular.json (2695 bytes)  
CREATE demo1/package.json (1036 bytes)  
CREATE demo1/README.md (1059 bytes)  
CREATE demo1/tsconfig.json (901 bytes)  
CREATE demo1/.editorconfig (274 bytes)  
CREATE demo1/.gitignore (548 bytes)  
CREATE demo1/tsconfig.app.json (263 bytes)  
CREATE demo1/tsconfig.spec.json (273 bytes)  
CREATE demo1/.vscode/extensions.json (130 bytes)  
CREATE demo1/.vscode/launch.json (474 bytes)  
CREATE demo1/.vscode/tasks.json (938 bytes)  
CREATE demo1/src/favicon.ico (948 bytes)  
CREATE demo1/src/index.html (291 bytes)  
CREATE demo1/src/main.ts (214 bytes)  
CREATE demo1/src/styles.css (80 bytes)
```



\$ ng serve => http://localhost:4200

```
$ ng serve
✓ Browser application bundle generation complete.

Initial Chunk Files      | Names          | Raw Size
vendor.js                | vendor        | 2.04 MB
polyfills.js              | polyfills    | 314.82 kB
styles.css, styles.js    | styles       | 209.94 kB
main.js                   | main         | 48.08 kB
runtime.js                | runtime      | 6.51 kB

| Initial Total | 2.61 MB

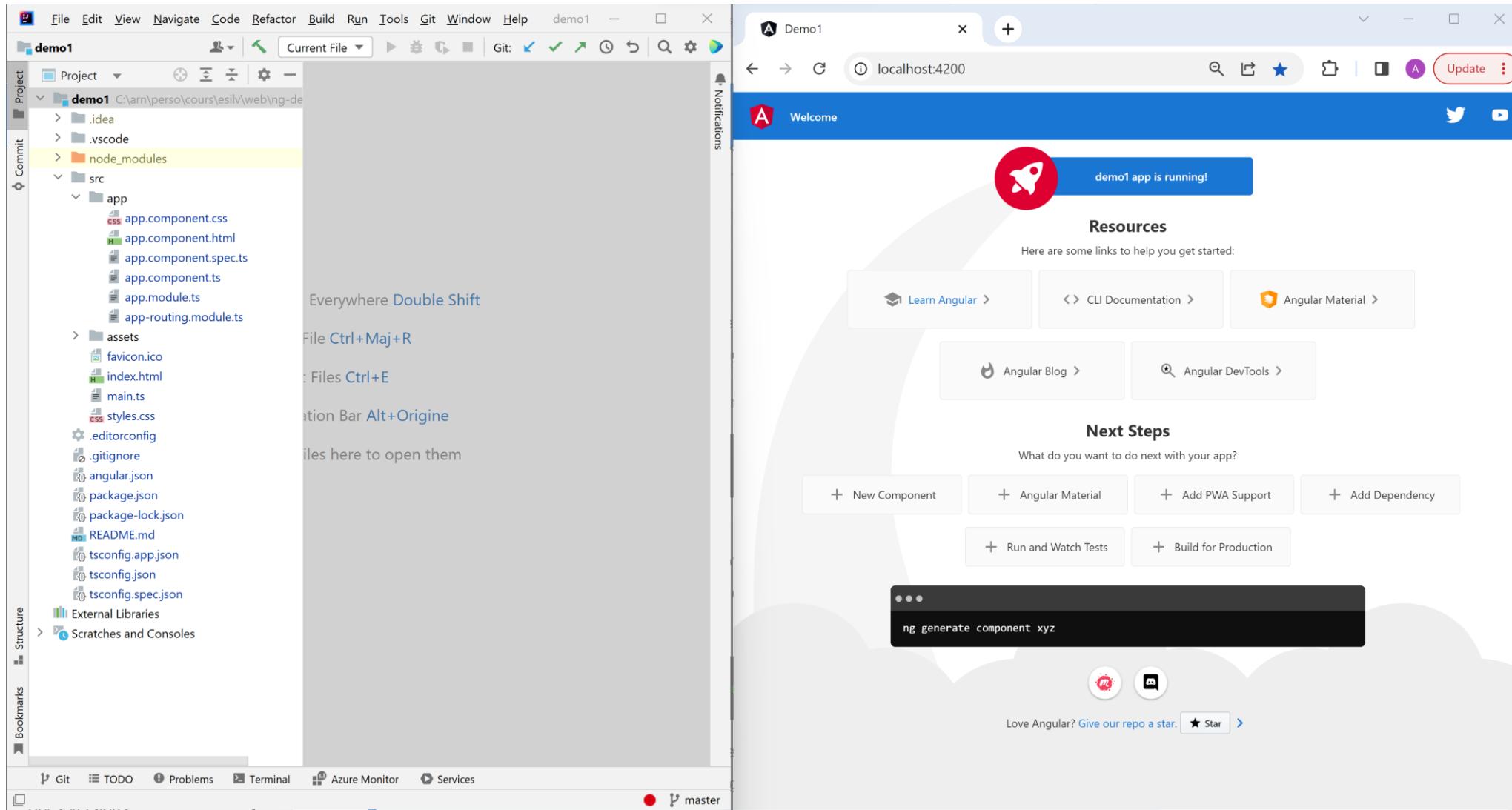
Build at: 2023-07-09T10:06:15.879Z - Hash: 70e19beef187b407 - Time: 22482ms

** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **

✓ Compiled successfully.
```

# Demo

## IntelliJ (left) + Chrome (right) + ng serve



# Demo ... Live reload

The screenshot shows a development environment with an IDE on the left and a browser window on the right.

**IDE (Left):**

- Project:** demo1 (highlighted in yellow)
- File Explorer:** Shows files like .idea, .vscode, node\_modules, src (with app, app.component.css, app.component.html, app.component.spec.ts, app.component.ts, app.module.ts, app-routing.module.ts), assets (with favicon.ico, index.html, main.ts, styles.css), .editorconfig, .gitignore, angular.json, package.json, package-lock.json, README.md, tsconfig.app.json, tsconfig.json, tsconfig.spec.json, External Libraries, and Scratches and Consoles.
- Editor:** The file app.component.html is open, displaying the following code:

```
live-reload Test !!  
<router-outlet></router-outlet>
```
- Bottom:** Git, TODO, Problems, Terminal, Azure Monitor, Services, and status bar showing 2:20, LF, UTF-8, 2 spaces\*, master.

**Browser (Right):**

- Title:** Demo1
- Address Bar:** localhost:4200
- Content:** live-reload Test !!
- Toolbar:** Includes back, forward, search, refresh, and other browser controls.

Live Reload ... --watch  
(expect 5 seconds delay)

watch File changes => compile => refresh page

```
Cmder
** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **

✓ Compiled successfully.
✓ Browser application bundle generation complete.

Initial Chunk Files | Names      | Raw Size
runtime.js          | runtime    | 6.51 kB |
main.js             | main       | 5.95 kB |

3 unchanged chunks

Build at: 2023-07-09T10:12:32.466Z - Hash: cad54614d11ba0ea - Time: 727ms

✓ Compiled successfully.
✓ Browser application bundle generation complete.

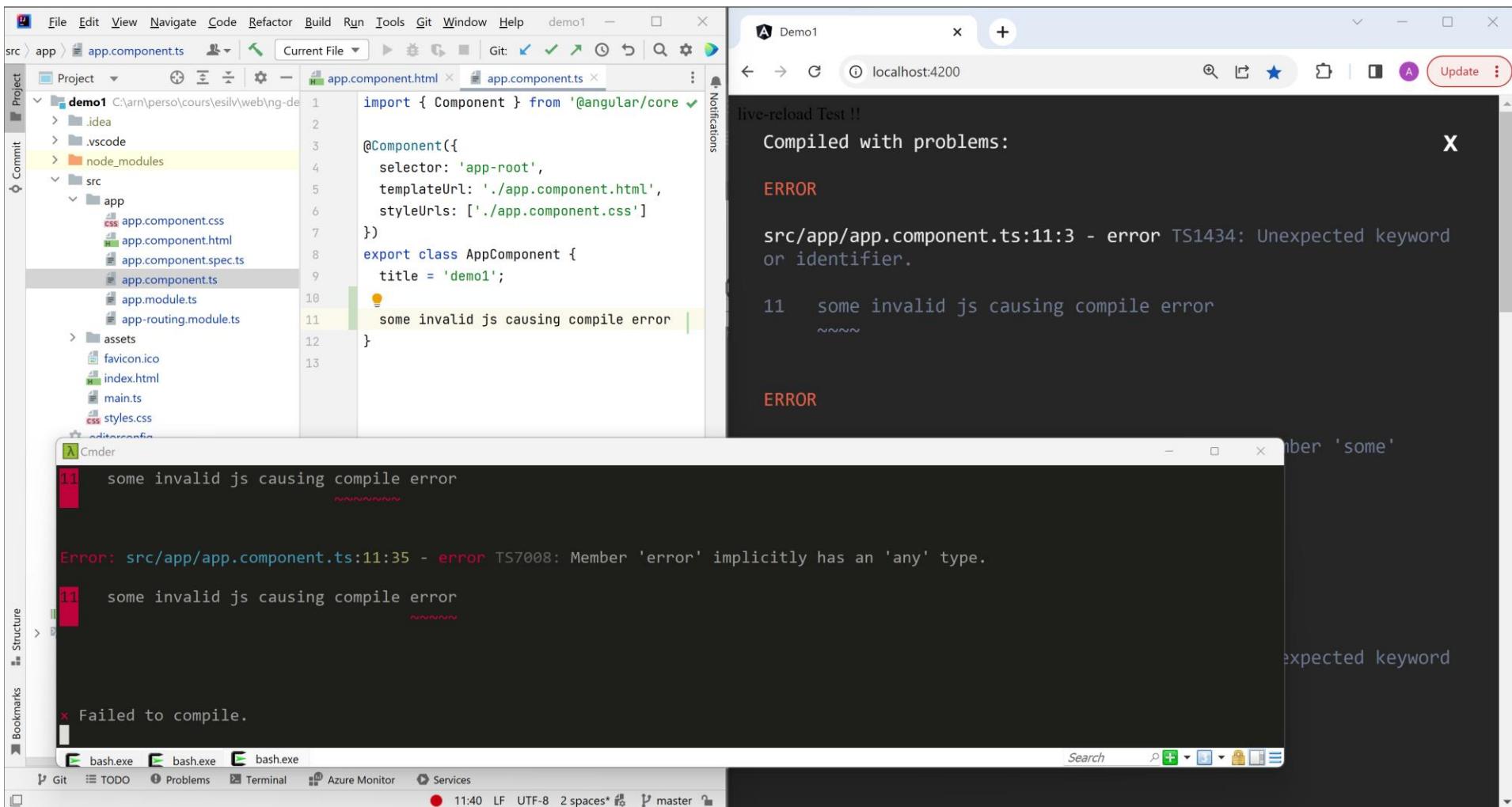
Initial Chunk Files | Names      | Raw Size
runtime.js          | runtime    | 6.51 kB |
main.js             | main       | 5.95 kB |

3 unchanged chunks

Build at: 2023-07-09T10:13:12.476Z - Hash: 00615d4add0fa892 - Time: 298ms

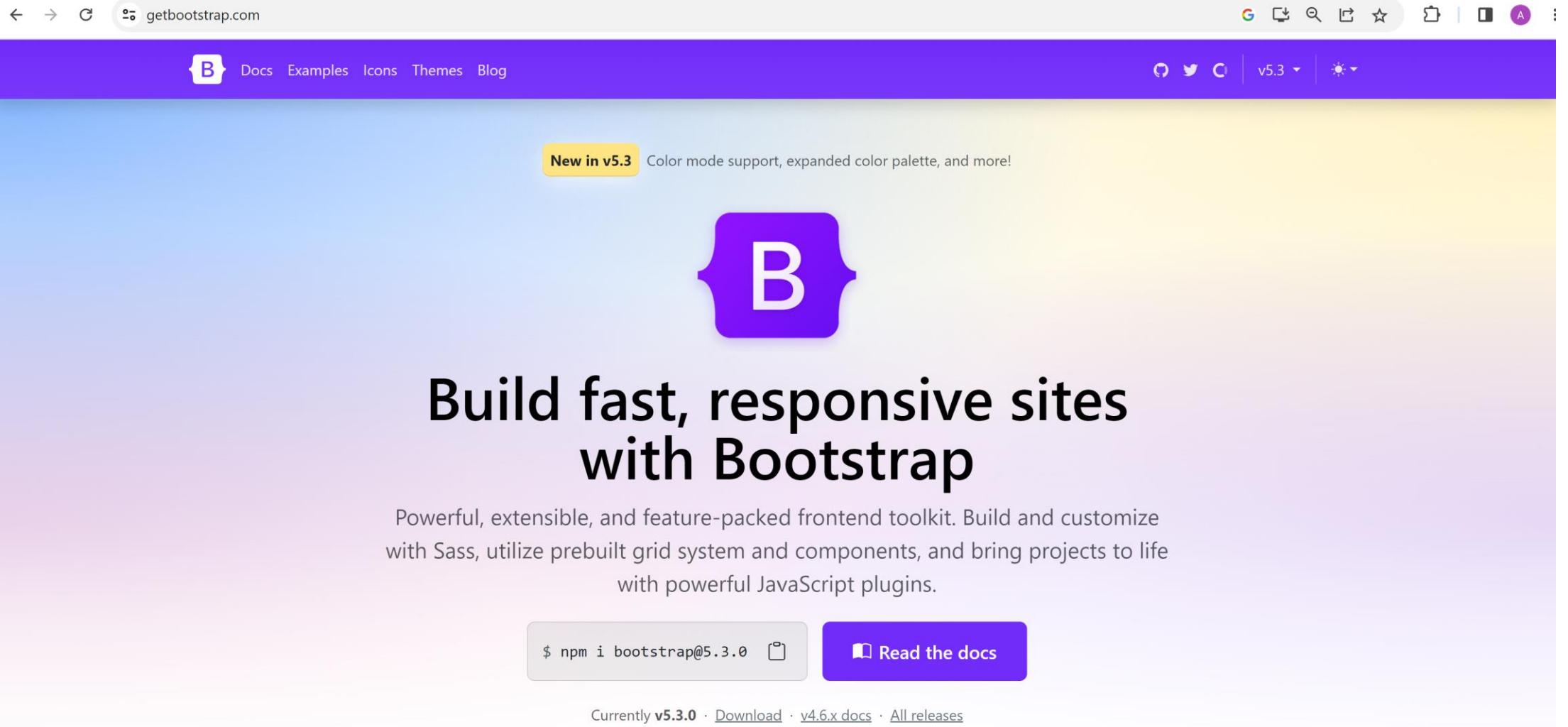
✓ Compiled successfully.
```

# Demo live-reload ... when compile error



# Adding Bootstrap library

<https://getbootstrap.com/>



A screenshot of the Bootstrap website homepage. The page has a purple header bar with the Bootstrap logo (a stylized 'B' inside a rounded rectangle) and navigation links for Docs, Examples, Icons, Themes, and Blog. On the right of the header are social media icons for GitHub, Twitter, and LinkedIn, along with version information (v5.3) and a dark mode switch. The main content area features a large purple gradient background with a central purple button containing a white 'B'. Below the button, the text "Build fast, responsive sites with Bootstrap" is displayed in a large, bold, black font. A yellow callout box at the top left of the content area says "New in v5.3" followed by the text "Color mode support, expanded color palette, and more!". At the bottom of the page are two buttons: one for running "npm i bootstrap@5.3.0" in the terminal and another for "Read the docs". The footer contains links for "Download", "v4.6.x docs", and "All releases".

Docs Examples Icons Themes Blog

New in v5.3 Color mode support, expanded color palette, and more!

B

# Build fast, responsive sites with Bootstrap

Powerful, extensible, and feature-packed frontend toolkit. Build and customize with Sass, utilize prebuilt grid system and components, and bring projects to life with powerful JavaScript plugins.

\$ npm i bootstrap@5.3.0

Read the docs

Currently v5.3.0 · [Download](#) · [v4.6.x docs](#) · [All releases](#)

# Bootstrap ... example: button dropdown

The screenshot shows a web browser displaying the Bootstrap documentation at [getbootstrap.com/docs/4.0/components/dropdowns/](https://getbootstrap.com/docs/4.0/components/dropdowns/). The page title is "Single button dropdowns". A large blue arrow points from the text "click" to the "Dropdown button" button, which has a dropdown menu open. The menu contains three items: "Action", "Another action", and "Something else here". On the left sidebar, under the "Components" section, the "Dropdowns" item is selected. The right sidebar lists various dropdown-related topics.

Wrap the dropdown's toggle (your button or link) and the dropdown menu within `.dropdown`, or another element that declares `position: relative;`. Dropdowns can be triggered from `<a>` or `<button>` elements to better fit your potential needs.

## Single button dropdowns

Any single `.btn` can be turned into a dropdown toggle with some markup changes. Here's how you can put them to work with either `<button>` elements:

**Dropdown button ▾**

```
<div class="dropdown">
  <button class="btn btn-secondary dropdown-toggle" type="button" id="dropdownMenuButton" data-toggle="dropdown" aria-haspopup="true"
    Dropdown button
  </button>
  <div class="dropdown-menu" aria-labelledby="dropdownMenuButton">
    <a class="dropdown-item" href="#">Action
    <a class="dropdown-item" href="#">Another action
    <a class="dropdown-item" href="#">Something else here
  </div>
</div>
```

And with `<a>` elements:

**Dropdown link ▾**

```
<div class="dropdown show">
```

Overview  
Accessibility  
Examples  
Single button dropdowns  
Split button dropdowns  
Sizing  
Dropup variation  
Dropright variation  
Dropleft variation  
Menu items  
Menu alignment  
Menu headers  
Menu dividers  
Menu forms  
Active menu items  
Disabled menu items  
Usage  
Via data attributes  
Via JavaScript  
Options  
Methods  
Events

**Dropdown button ▾**

Action  
Another action  
Something else here

# Adding via ng-bootstrap

## ... NPM module for Bootstrap in Angular



The screenshot shows the header of the ng-bootstrap GitHub page. It includes a back and forward button, a search icon, and a URL bar with 'ng-bootstrap.github.io/#/home'. The header has a blue background with white text. On the left is a logo with a hexagon containing a white 'B'. To its right are links for 'Home', 'Getting Started', 'Guides', and 'Components'. On the right side of the header, it says 'ng-bootstrap v15.1.0' with a dropdown arrow, '1,963,206' npm downloads, and social media icons for GitHub and Twitter.



## Bootstrap widgets

### The angular way

Angular widgets built from the ground up using Bootstrap 5 CSS with APIs designed for the Angular ecosystem.

The only dependencies are [Angular](#), [Bootstrap 5](#) CSS and [Popper](#)

```
// Installation for Angular CLI  
ng add @ng-bootstrap/ng-bootstrap
```

[Demo](#)[Get started now](#)

Currently at v15.1.0



# ng add @ng-bootstrap/ng-bootstrap

```
$ ng add @ng-bootstrap/ng-bootstrap
i  Using package manager: npm
✓  Found compatible package version: @ng-bootstrap/ng-bootstrap@14.2.0.
✓  Package information loaded.
```

```
The package @ng-bootstrap/ng-bootstrap@14.2.0 will be installed and executed.
Would you like to proceed? Yes
✓ Packages successfully installed.
UPDATE package.json (1176 bytes)
✓ Packages installed successfully.
Option "name" is deprecated: Use the "project" option instead.
UPDATE src/app/app.module.ts (464 bytes)
UPDATE angular.json (2762 bytes)
UPDATE src/main.ts (259 bytes)
UPDATE tsconfig.app.json (294 bytes)
UPDATE tsconfig.spec.json (300 bytes)
```

# git status ; git diff

```
$ git st
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   angular.json
    modified:   package-lock.json
    modified:   package.json
    modified:   src/app/app.module.ts
    modified:   src/main.ts
    modified:   tsconfig.app.json
    modified:   tsconfig.spec.json
```

```
$ git diff
diff --git a/angular.json b/angular.json
index 02ba507..4085657 100755
--- a/angular.json
+++ b/angular.json
@@ -25,6 +25,7 @@
      "src/assets"
    ],
    "styles": [
+      "node_modules/bootstrap/dist/css/bootstrap.min.css",
        "src/styles.css"
      ],
      "scripts": []
diff --git a/package-lock.json b/package-lock.json
index 5e1cf92..f4f0d61 100755
--- a/package-lock.json
+++ b/package-lock.json
@@ -16,6 +16,9 @@
      "@angular/platform-browser": "^15.0.0",
      "@angular/platform-browser-dynamic": "^15.0.0",
      "@angular/router": "^15.0.0",
+     "@ng-bootstrap/ng-bootstrap": "^14.2.0",
+     "@popperjs/core": "^2.11.6",
+     "bootstrap": "^5.2.3",
      "rxjs": "~7.5.0",
      "tslib": "^2.3.0",
      "zone.js": "~0.12.0"
@@ -24,6 +27,7 @@
      "@angular-devkit/build-angular": "^15.0.0",
      "@angular/cli": "~15.0.0",
      "@angular/compiler-cli": "^15.0.0",
+     "@angular/localize": "^15.0.0",
      "@types/jasmine": "~4.3.0",
      "jasmine-core": "~4.5.0",
      "karma": "~6.4.0",
@@ -38,7 +42,6 @@
      "version": "2.2.0",
```

# REDO npm install + stop & restart ng server

```
$ npm install
removed 1 package, and audited 969 packages in 12s
109 packages are looking for funding
  run `npm fund` for details
22 moderate severity vulnerabilities

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.
```

# Bootstrap Demos

# Bootstrap demo 1: Container, 12 x columns system

```
<div class="container">  
  <div class="row">  
    <div class="col-md-1">col</div>  
    <div class="col-md-1">col</div>  
    <div class="col-md-1">col</div>  
    <div class="col-md-3">col md-3</div>  
    <div class="col-md-6">col md-6</div>  
  </div>  
</div>
```

```
</div>  
  
<div class="row">  
  <div class="col-md-2 app-border1">col md-2</div>  
  <div class="col-md-2 app-border1">col md-2</div>  
</div>  
  
<div class="row">  
  <div class="col-md-3 app-border1">col md-3</div>  
  <div class="col-md-3 app-border1">col md-3</div>  
  <div class="col-md-3 app-border1">col md-3</div>  
  <div class="col-md-3 app-border1">col md-3</div>  
</div>  
  
<div class="row">  
  <div class="col-md-4 app-border1">col md-4</div>  
  <div class="col-md-4 app-border1">col md-4</div>  
  <div class="col-md-4 app-border1">col md-4</div>  
</div>  
  
<div class="row">  
  <div class="col-md-6 app-border1">col md-6</div>  
  <div class="col-md-6 app-border1">col md-6</div>  
</div>  
</div>
```

# Bootstrap demo 1:

## Container, 12 x columns system

# Test Bootstrap - 12 columns system

**Test Bootstrap class=container, class=row, class=col-\***

col col col col md-3 col md-6  
... More Test Bootstrap class=container, class=row, class=col-\*

col md-1																
col md-2		col md-2		col md-2		col md-2		col md-2		col md-2						
col md-3			col md-3			col md-3			col md-3							
col md-4				col md-4				col md-4								
col md-6						col md-6										

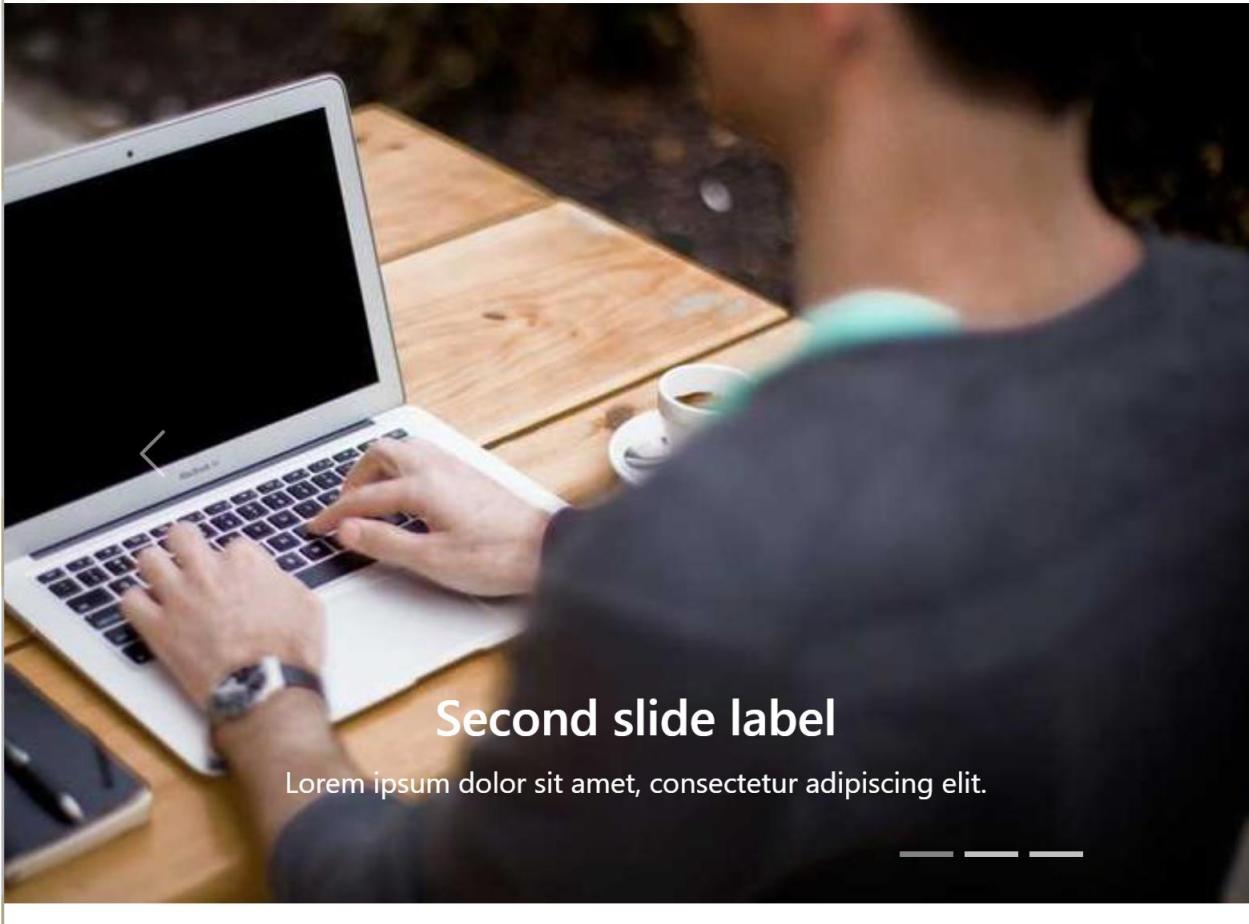
# Demo Bootstrap Carousel

```
<ngb-carousel>
  <ng-template ngbSlide>
    <div class="picsum-img-wrapper">
      
    </div>
    <div class="carousel-caption">
      <h3>First slide label</h3>
      <p>Nulla vitae elit libero, a pharetra augue mollis interdum.</p>
    </div>
  </ng-template>
  <ng-template ngbSlide>
    <div class="picsum-img-wrapper">
      
    </div>
    <div class="carousel-caption">
      <h3>Second slide label</h3>
      <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit.</p>
    </div>
  </ng-template>
  <ng-template ngbSlide>
```

# Bootstrap demo: Carousel

demo-bootstrap-carousel works!

<https://ng-bootstrap.github.io/#/components/carousel/examples>



# Bootstrap Button

```
<button type="button" class="btn btn-primary">Primary</button> &nbsp;  
<button type="button" class="btn btn-secondary">Secondary</button> &nbsp;  
<button type="button" class="btn btn-success">Success</button> &nbsp;  
<button type="button" class="btn btn-warning">Warning</button> &nbsp;  
<button type="button" class="btn btn-danger">Danger</button> &nbsp;
```

```
<button type="button" class="btn btn-outline-primary">Primary</button> &nbsp;  
<button type="button" class="btn btn-outline-secondary">Secondary</button> &nbsp;  
<button type="button" class="btn btn-outline-success">Success</button> &nbsp;
```

```
<button type="button" class="btn btn-primary btn-sm">Small button</button> &nbsp;  
<button type="button" class="btn btn-primary">Std size</button> &nbsp;  
<button type="button" class="btn btn-primary btn-lg">Large button</button> &nbsp;
```

# Bootstrap demo: Button styles

see <https://getbootstrap.com/docs/4.0/components/buttons/>

**button colour: btn-primary, btn-secondary, btn-warning, ..**



**button btn-outlined-\***



**button size: btn-sm, bt-lg**



# Bootstrap demo: Button dropdown

```
<A href="https://getbootstrap.com/docs/5.0/components/dropdowns/">https://getbootstrap.com/docs/5.0/components/dropdowns/
```

Dropdown button... native class / javascript does not work?!

```
<div class="dropdown">
  <button class="btn btn-secondary dropdown-toggle" type="button"
    id="dropdownMenuButton1" data-bs-toggle="dropdown" aria-expanded="false">
    Dropdown button
  </button>
  <ul class="dropdown-menu" aria-labelledby="dropdownMenuButton1">
    <li><a class="dropdown-item" href="#">Action</a></li>
    <li><a class="dropdown-item" href="#">Another action</a></li>
    <li><a class="dropdown-item" href="#">Something else here</a></li>
  </ul>
</div>
```

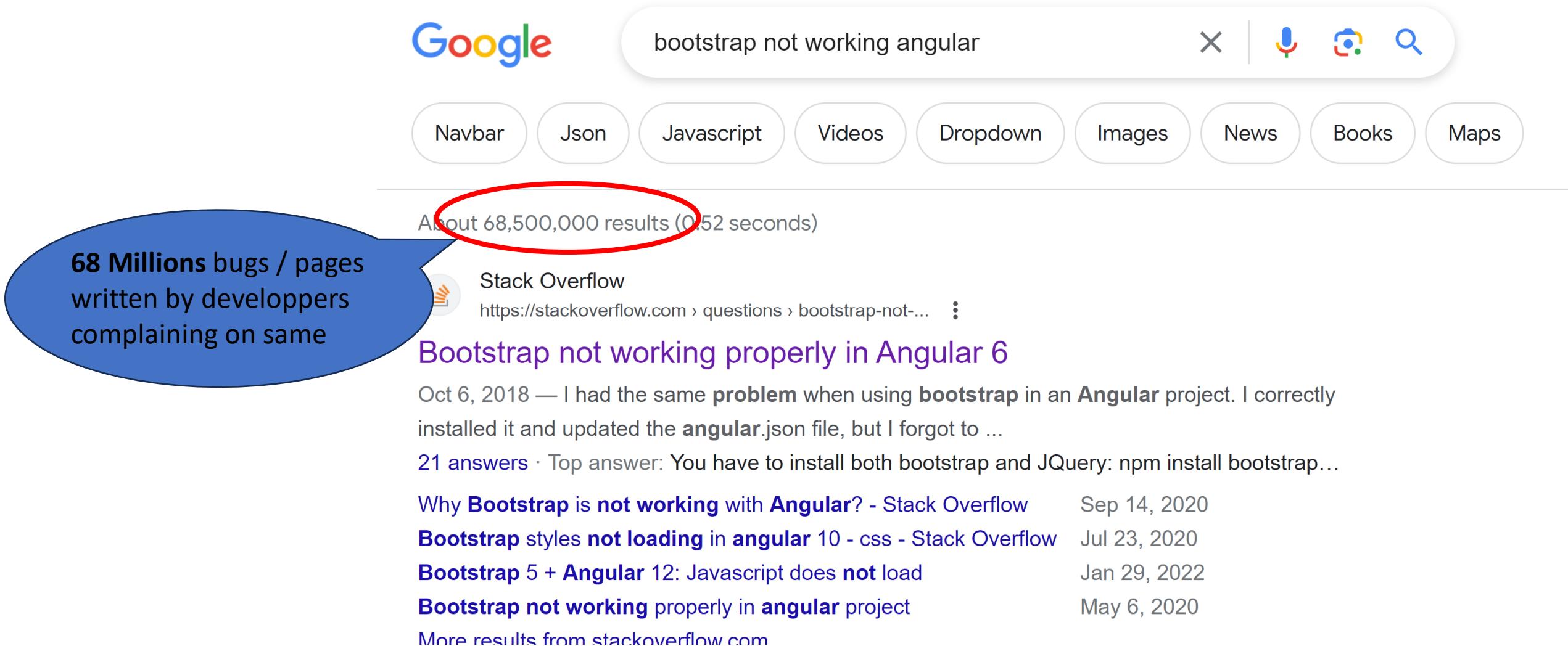
# Bootstrap demo: Button dropdown

<https://getbootstrap.com/docs/5.0/components/dropdowns/> Dropdown button... native class / javascript does not work?!

Dropdown button ▾

dropdown  
does not work?!

# !!! Demo may not work ?? You are not alone



A screenshot of a Google search results page. The search query "bootstrap not working angular" is entered in the search bar. Below the search bar is a horizontal navigation bar with categories: Navbar, Json, Javascript, Videos, Dropdown, Images, News, Books, and Maps. A red oval highlights the text "About 68,500,000 results (0.52 seconds)". To the left of the results, a blue oval contains the text "68 Millions bugs / pages written by developpers complaining on same". The first result is a Stack Overflow post titled "Bootstrap not working properly in Angular 6" from Oct 6, 2018, with 21 answers. Below it are four more Stack Overflow posts related to Bootstrap and Angular.

Google bootstrap not working angular X |

Navbar Json Javascript Videos Dropdown Images News Books Maps

About 68,500,000 results (0.52 seconds)

68 Millions bugs / pages written by developpers complaining on same

Stack Overflow  
<https://stackoverflow.com/questions/bootstrap-not-working-angular> ::

**Bootstrap not working properly in Angular 6**

Oct 6, 2018 — I had the same **problem** when using **bootstrap** in an **Angular** project. I correctly installed it and updated the **angular.json** file, but I forgot to ...

21 answers · Top answer: You have to install both bootstrap and JQuery: `npm install bootstrap...`

Why **Bootstrap** is **not working** with **Angular**? - Stack Overflow Sep 14, 2020

**Bootstrap** styles **not loading** in **angular** 10 - css - Stack Overflow Jul 23, 2020

**Bootstrap** 5 + **Angular** 12: Javascript does **not** load Jan 29, 2022

**Bootstrap** not working properly in **angular** project May 6, 2020

[More results from stackoverflow.com](#)

# Root cause of all problems: CSS depends on JS

The screenshot shows the Bootstrap v5.0 documentation homepage. At the top, there's a purple header bar with the Bootstrap logo, navigation links for Home, Docs, Examples, Icons, Themes, and Blog, and social media links for GitHub, Twitter, and LinkedIn. A download button is also present. Below the header is a search bar and a keyboard shortcut link. To the right, it says "Bootstrap v5.0".

The main content area features a large title "Migrating to v5" with a "View on GitHub" button. Below the title, a text block says: "Track and review changes to the Bootstrap source files, documentation, and components to help you migrate from v4 to v5."

On the left, a sidebar lists navigation items: Getting started, Customize, Layout, Content, Forms, Components, UI, and About. A blue speech bubble with the text "Finally !!" is overlaid on the sidebar near the UI item.

The main content continues with a section titled "Dependencies" which includes a bulleted list:

- Dropped jQuery.
- Upgraded from Popper v1.x to Popper v2.x. (This item is circled in red.)
- Replaced Libsass with Dart Sass as our Sass compiler given Libsass was deprecated.
- Migrated from Jekyll to Hugo for building our documentation

A blue speech bubble with the text "But still require Popper JS" is overlaid on the bottom right of the dependencies list.

On the right side, there's a "On this page" sidebar with links to various documentation sections: Dependencies, Browser support, Documentation changes, Sass, Color system, Grid updates, Content, Reboot, etc., RTL, Forms, Components, Accordion, Alerts, and Badges.

# Bootstrap major versions

A screenshot of a web browser displaying the Bootstrap documentation at [getbootstrap.com/docs/versions/](https://getbootstrap.com/docs/versions/). The page has a purple header with a navigation menu containing 'Docs', 'Examples', 'Icons', 'Themes', and 'Blog'. On the right side of the header are social media icons for GitHub, Twitter, and Carbon, along with a dropdown menu for version selection ('v5.3') and a brightness slider.

## Versions

An appendix of hosted documentation for nearly every release of Bootstrap, from v1 through v5.



### v5.x

Current major release. Last update was v5.3.0.

5.3	Latest
5.2	
5.1	
5.0	

### v4.x

Our previous major release with its minor releases. Last update was v4.6.0.

4.6
4.5
4.4
4.3

### v3.x

Every minor and patch release from v3 is listed below. Last update was v3.4.1.

3.4
3.3

### v2.x

Every minor and patch release from v2 is listed below.

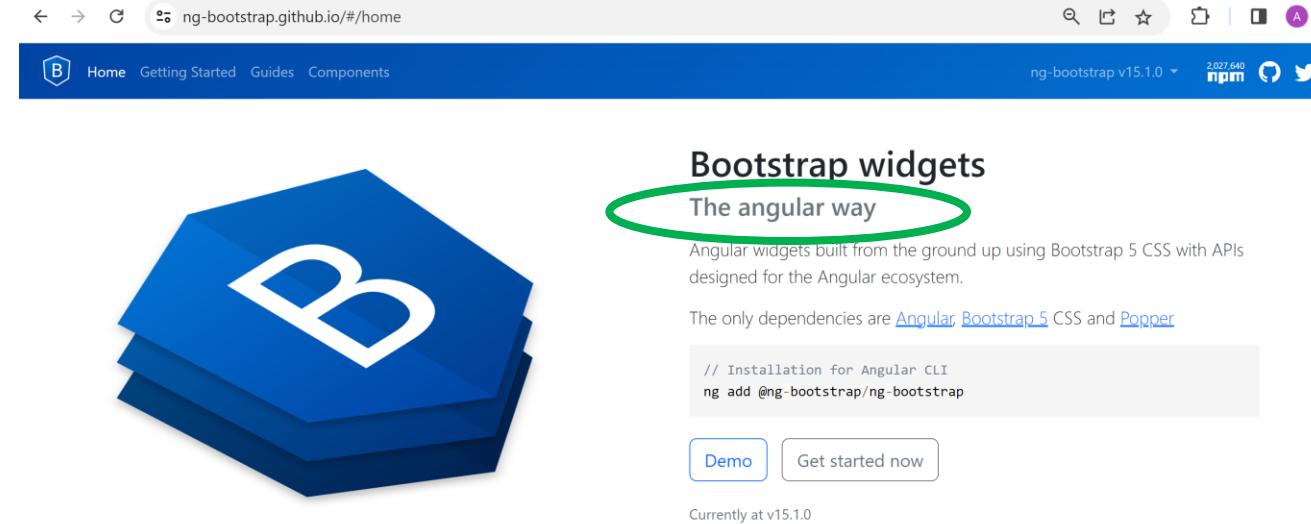
2.3.2
2.3.1
2.3.0
2.2.2

### v1.x

Every minor and patch release from v1 is listed below.

1.4.0
1.3.0
1.2.0
1.1.1

# Testing basic bootstrap with dynamic javascript features => using via « ng-bootstrap »



Some « Vanilla » Bootstrap  
Classes + « data-toggle »=.. attributes

Replace by ..



simpler ng-bootstrap equivalent

ngbDropDown  
ngbToggle  
ngb..

Ngb = initials for  
angular Bootstrap

# Bootstrap demo: Button dropdown

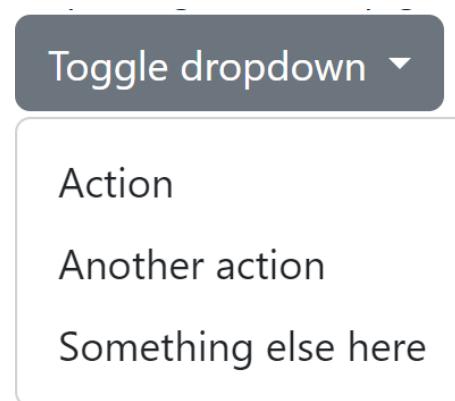
```
<div class="dropdown">
  <button class="btn btn-secondary dropdown-toggle" type="button"
    id="dropdownMenuButton1" data-bs-toggle="dropdown" aria-expa
    Dropdown button
  </button>
  <ul class="dropdown-menu" aria-labelledby="dropdownMenuButton1">
    <li><a class="dropdown-item" href="#">Action</a></li>
    <li><a class="dropdown-item" href="#">Another action</a></li>
    <li><a class="dropdown-item" href="#">Something else here</a></li>
  </ul>
</div>
```



```
<div ngbDropdown class="d-inline-block">
  <button type="button" class="btn btn-secondary"
    id="dropdownMenuButton2" ngbDropdownToggle>
    Toggle dropdown
  </button>
  <ul ngbDropdownMenu aria-labelledby="dropdownMenuButton2">
    <li><a ngbDropdownItem href="#">Action</a></li>
    <li><a ngbDropdownItem href="#">Another action</a></li>
    <li><a ngbDropdownItem href="#">Something else here</a></li>
  </ul>
</div>
```

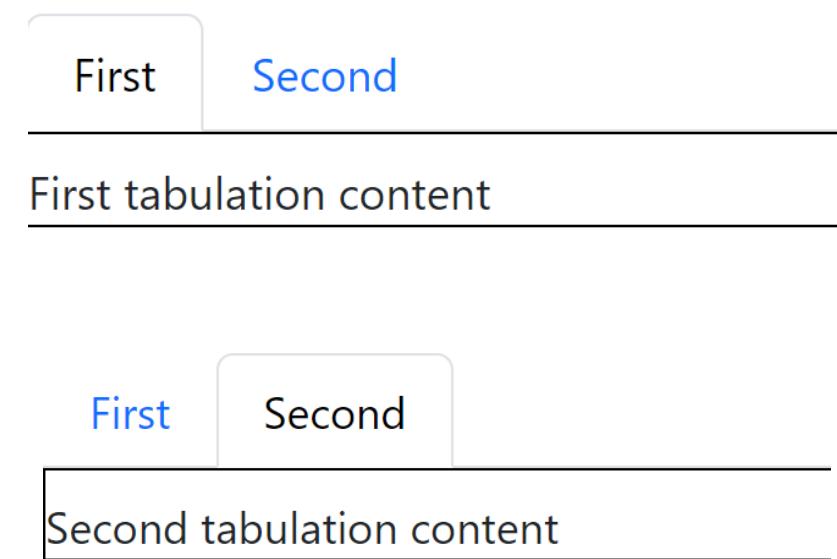
# Bootstrap demo: Button ngbDropdown

data-bs-toggle="dropdown"	-->	ngbDropdown
class="dropdown-toggle"	-->	ngbDropdownToggle
class="dropdown-menu"	-->	ngbDropdownMenu
class="dropdown-item"	-->	ngbDropdownItem



# Bootstrap demo: Nav Tabulations

```
<ul ngbNav #nav="ngbNav" class="nav-tabs">
  <li ngbNavItem>
    <button ngbNavLink>First</button>
    <ng-template ngbNavContent>First tabulation content</ng-template>
  </li>
  <li ngbNavItem>
    <button ngbNavLink>Second</button>
    <ng-template ngbNavContent>Second tabulation content</ng-template>
  </li>
</ul>
<div class="app-border1">
  <div [ngbNavOutlet]="nav" class="mt-2"></div>
</div>
```



# Bootstrap demo: Navbar Menu

The screenshot shows a code editor displaying an HTML file for a Bootstrap navbar. The code includes a main navigation bar with a brand link and a dropdown menu. The dropdown menu is styled with Bootstrap's dropdown classes and contains several items, each with a router link to different demo pages. A preview window on the right shows the rendered dropdown menu with its items.

```
<nav class="navbar navbar-expand-lg navbar-light bg-light">
  <a class="navbar-brand" href="#">Navbar</a>
  <ul class="navbar-nav mr-auto">
    <li class="nav-item active">
      <a class="nav-link" href="#">Home</a>
    </li>
    <li ngbDropdown class="nav-item">
      <a ngbDropdownToggle id="navbarMenuDemo1" class="nav-link" role="button">
        Demo 1
      </a>
      <div ngbDropdownMenu aria-labelledby="navbarMenuDemo1" class="dropdown-menu" >
        <a class="dropdown-item" routerLink="/demo1/demo-bootstrap-column">Bootstrap 12 columns</a>
        <a class="dropdown-item" routerLink="/demo1/demo-bootstrap-carousel">Bootstrap Carousel</a>
        <a class="dropdown-item" routerLink="/demo1/demo-bootstrap-button">Bootstrap Button</a>
        <a class="dropdown-item" routerLink="/demo1/demo-bootstrap-button-dropdown">Bootstrap Button Dropdown</a>
        <a class="dropdown-item" routerLink="/demo1/demo-bootstrap-navtab">Bootstrap Nav Tabulation</a>
      </div>
    </li>
    <li ngbDropdown class="nav-item">
```

# Summary

Install node.js (npm)

\$ npm install -g @angular/cli

\$ ng new

=> file: package.json, angular.json

app.component.{html | ts}

\$ ng serve

\$ ng add @ng-bootstrap/ng-bootstrap

\$ npm install

<div class=<< container >>

<div class=<< row >>

<div class=<< col-md-2 >>

<button type=<< button >> class=<< btn btn-primary >>

<nav>

# Take Away

\$ ng new + ng serve + ng generate + ...  
=> GET easily a complete Angular environment  
... pre-packaging angular + npm + typescript + ...

Add (ng-)bootstrap  
=> GET basic CSS + elements  
... 12-columns layout system  
+ button, menu nav bar, tab, etc.

# Questions

# Next Step

- \*ngFor
- \*ngIf
- {{interpolation}}
- @Component
- [] .. @Input (=One way binding)
- () .. @Output
- [()] .. 2-Ways binding
- Router

Document:

<https://github.com/Arnaud-Nauwynck/presentations/web/angular-demos-2-ngFor-ngIf-component.pdf>