

Introdução às tecnologias Web - ITW

Aula 4 – Responsive web design / Twitter bootstrap

Sumário

RWD - Responsive Web Design

Análise comparativa de frameworks para front-end em CSS

Twitter Bootstrap

Grid system, Menus, Jumbotron, Carousel, Tables, Buttons, ...



Problema

Como desenhar websites que apresentem informação de forma organizada para um pequeno dispositivo (exemplo Motorola G4: 360px X 640px) ou para um ecran 4k?

Solução 1: desenvolver um site para cada tipo de resolução;

Solução 2: utilizar “alguma coisa” que, de forma inteligente, que permita adaptar o design às dimensões do dispositivo utilizado para apresentação.

Responsive web design (RWD)

Web design responsivo (RWD) é uma abordagem de desenvolvimento web que cria mudanças dinâmicas na aparência de um site, dependendo do tamanho do ecrã e da orientação do dispositivo utilizado na visualização.

O RWD é uma abordagem para o atual problema de design de websites onde coexistem simultaneamente uma grande variedade de dispositivos, que vão desde os pequenos telefones até aos monitores de mesa enormes.

Utiliza os chamados pontos de interrupção (**breakpoints**) para determinar qual o layout de um site que aparecerá em cada momento. Acima de um ponto de interrupção é aplicado um design; abaixo desse ponto, é utilizado outro design.

Os pontos de interrupção são, normalmente, baseados na **largura do navegador**.

Responsive web design (RWD) (2)

Deste modo, o mesmo código HTML é enviado para todos os dispositivos que, usando CSS, determina qual o layout da página da web em cada momento.

Assim, em vez de criar um site separado e uma base de código correspondente para cada tipo de monitor – que varia desde os ecrãs de grandes dimensões, passando pelos desktops, laptops, tablets e telefones de todos os tamanhos, é criada apenas uma única base de código que pode oferecer suporte a utilizadores com visores de tamanhos diferentes.

O que é uma framework responsive CSS?

Uma framework responsiva CSS é uma biblioteca de código que cria uma abstração para os *web designs* mais comuns e torna esses *designs* mais fáceis de implementar para um desenvolvedor.

Em termos simples, uma *framework* CSS é uma coleção de folhas de estilo CSS preparadas e prontas para uso.

Análise comparativa de frameworks RWD

Atualmente, há uma panóplia de *frameworks* responsivas CSS. Cada uma tem os seus próprios pontos fortes e fracos, e áreas específicas de aplicação, permitindo ao utilizador uma escolha com base nas necessidades de um projeto específico.

Por exemplo, se o projeto for simples, não há necessidade de usar uma *framework* complexa.

Muitas das opções são modulares e permitem que se usem apenas os componentes indispensáveis, minimizando deste modo a quantidade de código a utilizar.

Nota: As *frameworks* apresentadas foram escolhidas pelo artigo “The most popular CSS framework Comparison 2020”, <https://themeselection.com/the-most-popular-css-framework-comparison/>.



The Most Popular CSS Frameworks Comparison

2020

Parameters	Bootstrap	Bulma	Foundation	MaterializeCSS	UIkit
Release date	Aug 19, 2011	Jan 24, 2016	Sep 2011	Nov 4, 2014	Jul 19, 2013
License	MIT	MIT	MIT	MIT	MIT
Git star, forks, contributors	141k ⭐ 68.7k ⚡ 1115	39.6k ⭐ 3.4k ⚡ 302	28.6k ⭐ 5.8k ⚡ 982	37.5k ⭐ 4.8k ⚡ 250	15.7k ⭐ 2.2k ⚡ 28
Hacker News, Reddit, StackOverflow	3.3k ⚡ 9k ⚡ 98k	- ⚡ 1.2k ⚡ 581	- ⚡ 1.2k ⚡ 803	- ⚡ 374 ⚡ 3.2k	139 ⚡ 21 ⚡ 8.2k
Current version	4.4.1 4.5.3	0.8.2	6.6.3	1.0.0	3.4.3
Size	Minified CSS: ~61.7 kB Gzip: ~15.8 kB	Minified CSS: ~209.5 kB Gzip: ~25.9 kB	Minified CSS: ~139.2 kB Gzip: ~34 kB	Minified CSS: ~175.2 kB Gzip: ~41.5 kB	Minified CSS: ~131.2 kB Gzip: ~41.1 kB
No. of Sites	~20,737,671	~30,987	~441,292	~111,481	~311,897
Language & Pre-Processor	 <small>Sass</small>	 <small>Sass</small>	 <small>Sass</small>	 <small>Sass {less}</small>	 <small>Sass {less}</small>

Grid	Mobile-first Flexbox grid, 12 column system	Power of Flexbox grid with 12 Column in a simple interface	XY 12- Column Grid,Floated (flexbox in latest version)	Standard 12 column fluid responsive grid system	Fully responsive, fluid and nestable grid layout.
Description	Most popular HTML, CSS, and JS framework	CSS framework based on Flexbox and built with Sass	Most advanced responsive front-end framework	CSS framework based on Material Design	A lightweight and modular front-end framework
Core concept	RWD and mobile first	RWD,mobile first, Modern free	RWD,mobile first, semantic	RWD and based on Google Material Design	RWD and mobile first
Unique Features	Card component, Jumbotron, Responsive navbar	-	Iconbar, Flex video, Pricing table	Scroll fire, Toast, Parallax,	Article, Cover, HTML editor
Browser Support (L) - Latest	L L L L L 10+ v5.0+	L L L L L 10+	L L L L L 9+ v4.4+	L L L L L 11+	L 9+ 31+ L L 11+
Javascript skill require	+	-	-	+	+
Learning Curve	Mild	Mild	Steep	Mild	Moderate
Documentation	Excellent 😊	Good 😊	Good 😊	Good 😊	Good 😊
Companies using	Walmart	rubrik	EA Amazon	IWB AvhanaHealth	PouchNATION

Reference:

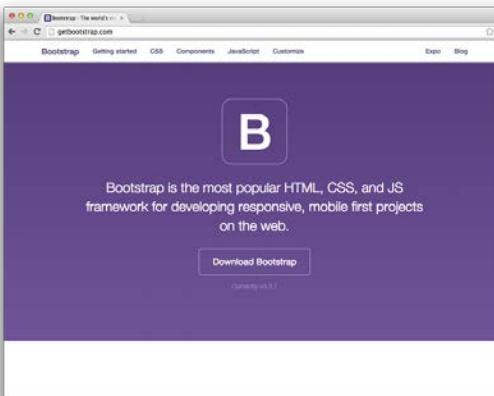
<https://getbootstrap.com/>
<https://bulma.io/>
<https://get.foundation/>
<https://materializecss.com/>
<https://getuikit.com/>
<https://github.com/>
<https://builtwith.com/>
<https://bundlephobia.com/>
<https://stackshare.io/stackups/bootstrap-vs-materialize-vs-uikit>

THEME
SELECTION

PREMIUM & FREE
BOOTSTRAP THEMES

www.themeselection.com

Bootstrap by Twitter

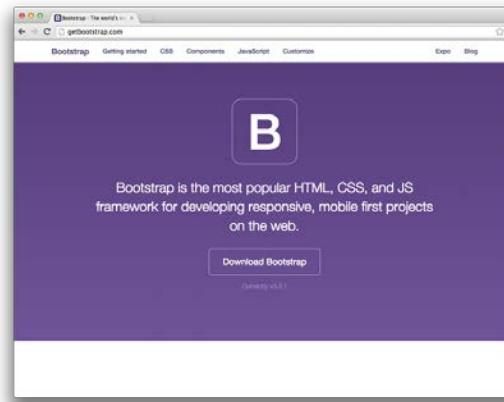


O Bootstrap é o líder incontestável. Dada a sua enorme popularidade podemos ter certeza de que o seu desenvolvimento não cessará em breve – e este é um fator importante para quem desenvolve software (manutenção e suporte futuro).

Tecnicamente, não é necessariamente melhor que os outros *frameworks* na lista, mas oferece mais informação pública (artigos e tutoriais, plug-ins e extensões de terceiros, temas, etc.) do que os outros todos juntos.

A screenshot of the GitHub tags page for the Bootstrap repository. The page lists several versions of the Bootstrap library, each with a timestamp, commit hash, and download links for zip and tar.gz formats. The tags are: 4.5.3, 4.5.2, 4.5.1, 4.5.0, 4.4.1, 4.3.1, and 3.4.1. The tag '4.5.3' is highlighted with a purple border, and the tag '3.4.1' is highlighted with a red border. Each tag entry also includes a 'Notes' link and a 'Verified' badge.

Bootstrap by Twitter



Pros:

- Responsiveness, Consistent & Flexible, HTML, CSS, and JS framework, Customizable, Large Community, Excellent Documentation

Cons:

- Javascript is tied to JQuery

Ideal for:

- A beginner who is new to CSS, as he or she can kick start Bootstrap without any hurdles.
- A developer with little knowledge of JavaScript who can still use Bootstrap components without writing a line in JS.
- A back-end developer who wants to make some UI changes even if he or she is new to both HTML and CSS.

Bulma: Free, Open Source CSS Framework

<https://bulma.io/>

Reasons to use Bulma:

- Bulma offers clean and simple presets which make it easy to choose as per the topics the developer wants to explore.
- Bulma provides a decent number of web components from which, one can just simply choose and use it to design as per requirements and modification.
- Bulma's GitHub page has more than, 400 commits and 300 contributors.

Pros:

- Lightweight, Easy to Use, Responsive Design, Based on Flexbox, Highly customizable and modularizable, Simple syntax

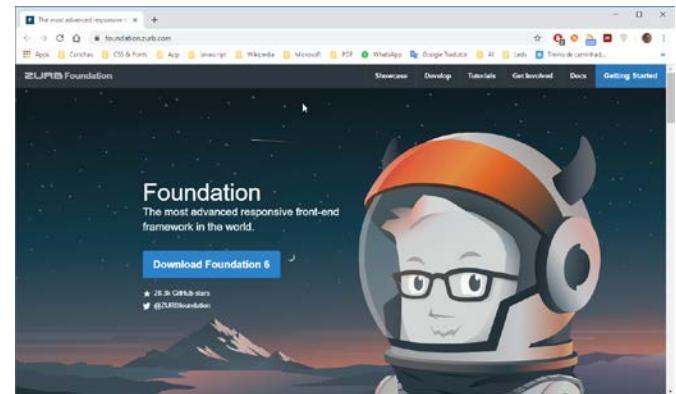
Cons:

- Community support is limited, Less documentation, Less flexibility, Limited browser support.

Ideal For:

- From beginner to pro, any developer can use it due to its simplicity.

Foundation by ZURB



Reasons to use Foundation:

- Foundation is the most advanced CSS framework which allows users to create large web applications and many more.
- Foundation's GitHub page shows nearly 1,000 contributors and 17,000 commits.
- It is modular and consists mainly of Sass style sheets.
- It is updated constantly to support the newest features such as grids with flexbox support.

Pros:

- Device agnostic, Responsive, Easy to use, Modern Look, Customizable, Good Documentation

Cons:

- Limited browser support, Heavy/large

Ideal For:

- Professional, highly skilled developers and designers whose aim is to create a unique website and wants to customize the framework.

<https://foundation.zurb.com/>

Bootstrap by Twitter

Bootstrap by Twitter

O Bootstrap é uma livraria de estilos que contém um conjunto de marcadores HTML e modelos de design baseados em CSS para tipografia, formulários, botões, navegação e outros componentes da interface

Possui ainda um conjunto de extensões opcionais que obrigam à utilização de programação – na linguagem JavaScript.



Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web.



One framework, every device.

Bootstrap easily and efficiently scales your websites and applications with a single code base, from phones to tablets to desktops with CSS media queries.

Browsers / Dispositivos suportados

Mobile devices

Generally speaking, Bootstrap supports the latest versions of each major platform's default browsers. Note that proxy browsers (such as Opera Mini, Opera Mobile's Turbo mode, UC Browser Mini, Amazon Silk) are not supported.

	Chrome	Firefox	Safari	Android Browser & WebView	Microsoft Edge
Android	Supported	Supported	N/A	Android v5.0+ supported	Supported
iOS	Supported	Supported	Supported	N/A	Supported
Windows 10 Mobile	N/A	N/A	N/A	N/A	Supported

Desktop browsers

Similarly, the latest versions of most desktop browsers are supported.

	Chrome	Firefox	Internet Explorer	Microsoft Edge	Opera	Safari
Mac	Supported	Supported	N/A	N/A	Supported	Supported
Windows	Supported	Supported	Supported, IE10+	Supported	Supported	Not supported

A biblioteca bootstrap v3.4.1



Versão 3

Versão estável: 3.4.1 (mai2019)

Dependências: pacote jQuery

<http://getbootstrap.com/getting-started/#download>

A biblioteca bootstrap v4.5.3



Versão 4

Versão estável: v4.5.3 (out2020)

Dependências: pacote jQuery, popper.js

Quando vamos a uma biblioteca
tradicional não começamos a ler no
primeiro livro e vamos até ao último...

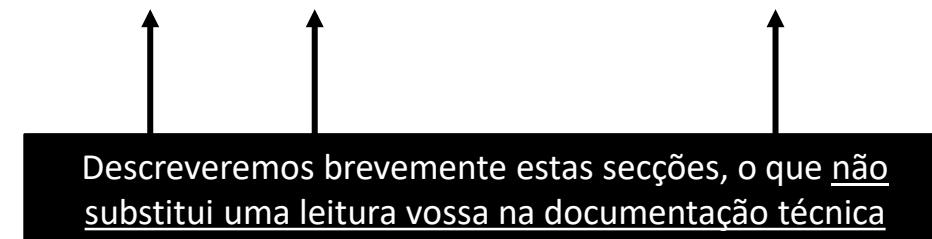
1. Procuramos nas prateleiras pelos assuntos que nos interessam e, depois, escolhemos o livro sobre o tema;
2. No livro escolhido, selecionamos o capítulo que nos interessa;
3. Finalmente, lemos...

Também numa biblioteca de software não faz sentido ler o código da primeira à última linha....

Ao invés, procuraremos pela documentação técnica dessa biblioteca e, dentro desta, pelas funcionalidades disponibilizadas/pretendidas.

Para a biblioteca bootstrap, a documentação está disponível em:
<https://getbootstrap.com/docs/4.0/getting-started/introduction/>

Secções disponíveis: Getting started, Layout, Content, Components, Utilities, Extend



Utilizando o Bootstrap

Getting started

1. O bootstrap trabalha em HTML5, logo, o bloco seguinte é fundamental!

```
<!doctype html>
<html lang="en">
  ...
</html>
```

2. O Bootstrap é desenvolvido primeiro para dispositivos móveis, em seguida, vão aumentando os componentes baseados nas consultas de mídia CSS.

Para garantir a renderização adequada e o zoom para todos os dispositivos, é necessário adicionar a meta tag `<meta name="viewport">` no `<head>`.

Utilizando o Bootstrap

Getting started

```
<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <!-- Bootstrap CSS -->
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- jQuery and Bootstrap Bundle (includes Popper) -->
    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
  </body>
</html>
```

Funcionalidades Bootstrap

Layout - Containers

Os containers são o elemento de layout mais básico no Bootstrap e são necessários ao usar o sistema de grelha padrão.

Podemos escolher entre um **container responsivo** de largura fixa (significando que sua largura máxima muda em cada ponto de interrupção) ou um **container de largura fluida** (significando que ocupará sempre 100% da largura do dispositivo).

Funcionalidades Bootstrap

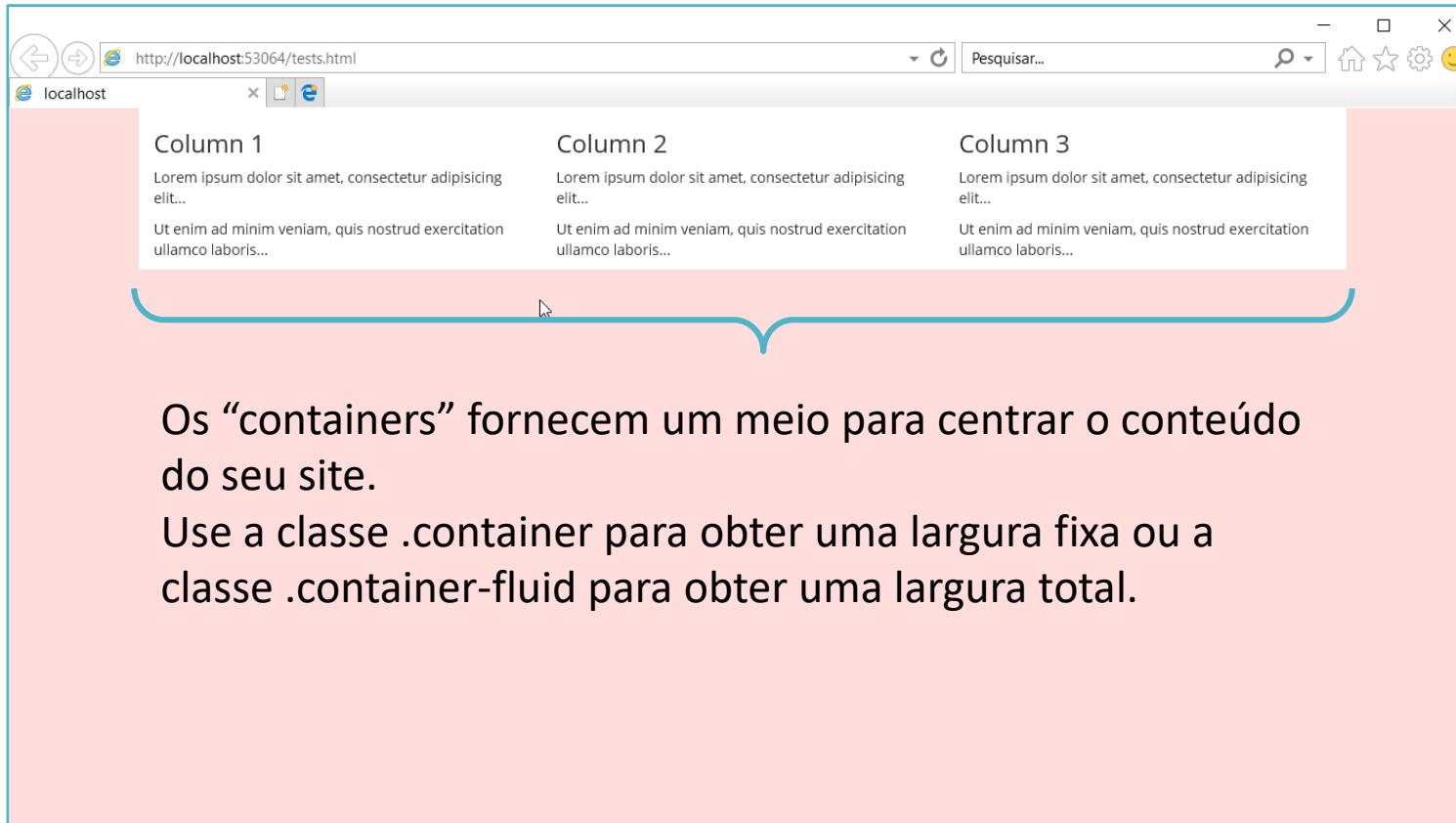
Layout - Grelhas para informação – exemplo de código único

O sistema de grelha é baseado num layout de 12 colunas e tem várias camadas sobrepostas, uma para cada intervalo de tamanho do dispositivo.

Vejamos um exemplo de código único:

```
<div class="container">
  <div class="row">
    <div class="col-12 col-md-6 col-lg-4">
      <h3>Column 1</h3>
      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
    </div>
    <div class="col-12 col-md-6 col-lg-4">
      <h3>Column 2</h3>
      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
    </div>
    <div class="col-12 col-md-6 col-lg-4">
      <h3>Column 3</h3>
      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
    </div>
  </div>
</div>
```

O efeito da instrução `<div class="container">` na representação da informação

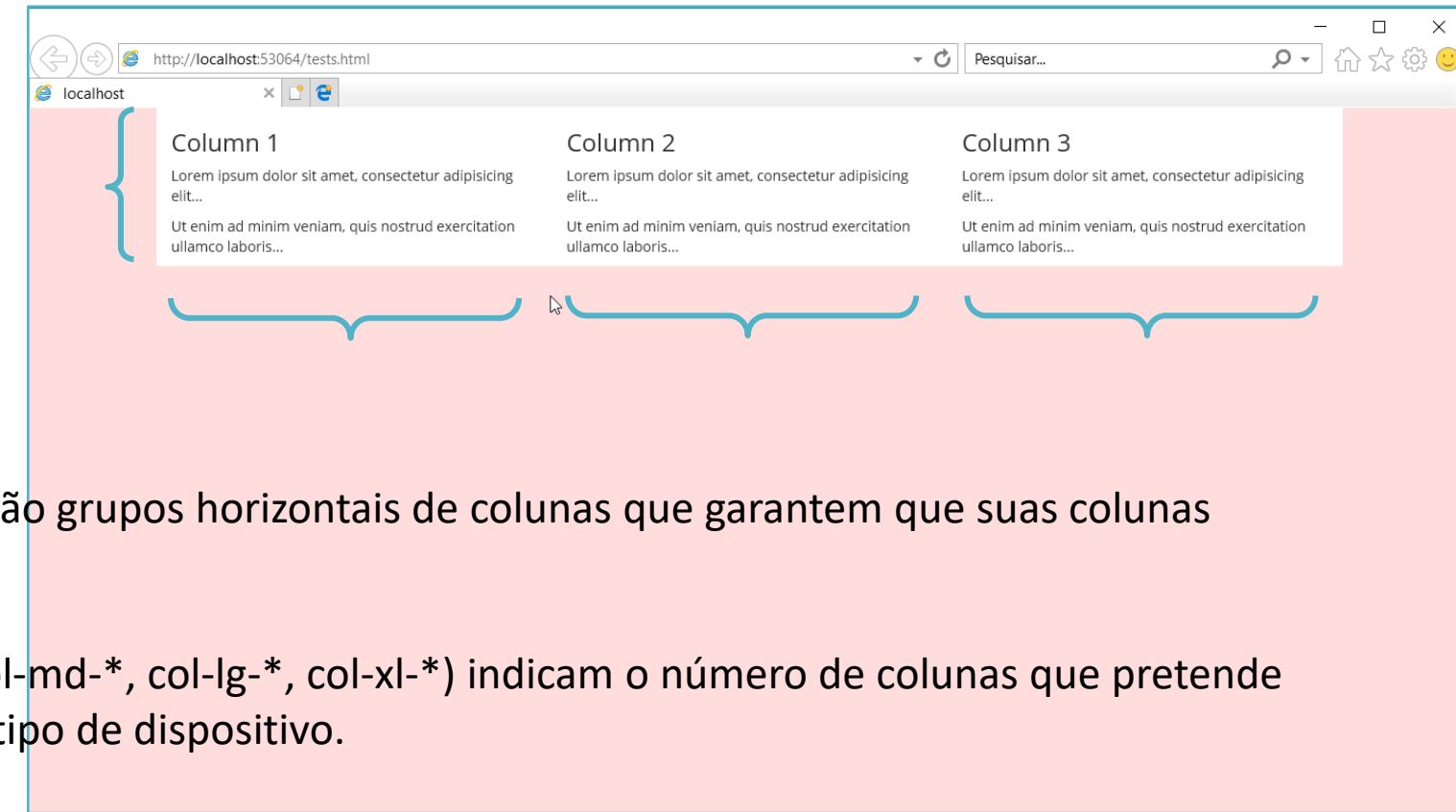


Nota: o cor de rosa é um aspetto decorativo usado apenas para que se perceba o efeito da classe “container”

```

<div class="row">
    <div class="col-12 col-md-6 col-lg-4">
    </div>
    <div class="col-12 col-md-6 col-lg-4">
    </div>
    <div class="col-12 col-md-6 col-lg-4">
    </div>
</div>

```



- As linhas delimitadas pela classe “row” são grupos horizontais de colunas que garantem que suas colunas estejam alinhadas corretamente.
- As classes de colunas (col-*, col-sm-*, col-md-*, col-lg-*, col-xl-*) indicam o número de colunas que pretende usar das 12 possíveis por linha em cada tipo de dispositivo.
- As larguras das colunas são definidas em percentagens, portanto, são sempre fluidas e dimensionadas em relação ao elemento pai – podemos ter grelhas dentro de grelhas.
- Os níveis da grelha são baseados em larguras mínimas, o que significa que elas se aplicam a esse nível e a todos aqueles acima (por exemplo, se especificarmos apenas a classe .col-sm-4, esta aplica-se a dispositivos pequenos, médios e grandes).

A instrução `<div class="col-12 col-md-6 col-lg-4">` vista em dispositivos de tamanhos distintos

The image displays three separate browser windows side-by-side, each showing a different layout of three columns (Column 1, Column 2, and Column 3) based on the screen size. The browser interface includes a toolbar with back, forward, search, and other standard icons.

- Top Left Browser:** Shows a layout where all three columns (Column 1, Column 2, and Column 3) are displayed side-by-side. This represents a large screen or mobile device in landscape mode where the columns fit together. The code for this layout is `<div class="col-lg-4">`.
- Top Right Browser:** Shows a layout where the three columns are stacked vertically. This represents a smaller screen or mobile device where the columns cannot fit side-by-side. The code for this layout is `<div class="col-md-6">`.
- Bottom Browser:** Shows a layout where the three columns are stacked vertically. This represents a very small screen or mobile device where the columns cannot fit side-by-side. The code for this layout is `<div class="col-12">`.

`<div class="col-lg-4">`

`<div class="col-md-6">`

`<div class="col-12">`

Utilizando o Bootstrap

Layout - Pontos de interrupção responsivos

Como o Bootstrap foi desenvolvido primeiramente para dispositivos móveis, são usadas várias consultas de mídia para criar os pontos de interrupção sensíveis para os layouts e interfaces.

Esses pontos de interrupção são baseados nas larguras mínimas da janela de visualização e permitem dimensionar os elementos sempre que a janela de visualização muda.

O Bootstrap usa os seguintes intervalos de consulta de mídia:

```
// Extra small devices (portrait phones, less than 576px)
// No media query since this is the default in Bootstrap

// Small devices (landscape phones, 576px and up)
@media (min-width: 576px) { ... }

// Medium devices (tablets, 768px and up)
@media (min-width: 768px) { ... }

// Large devices (desktops, 992px and up)
@media (min-width: 992px) { ... }

// Extra large devices (large desktops, 1200px and up)
@media (min-width: 1200px) { ... }
```

Funcionalidades Bootstrap

Layout - Grelhas para informação

Grid options

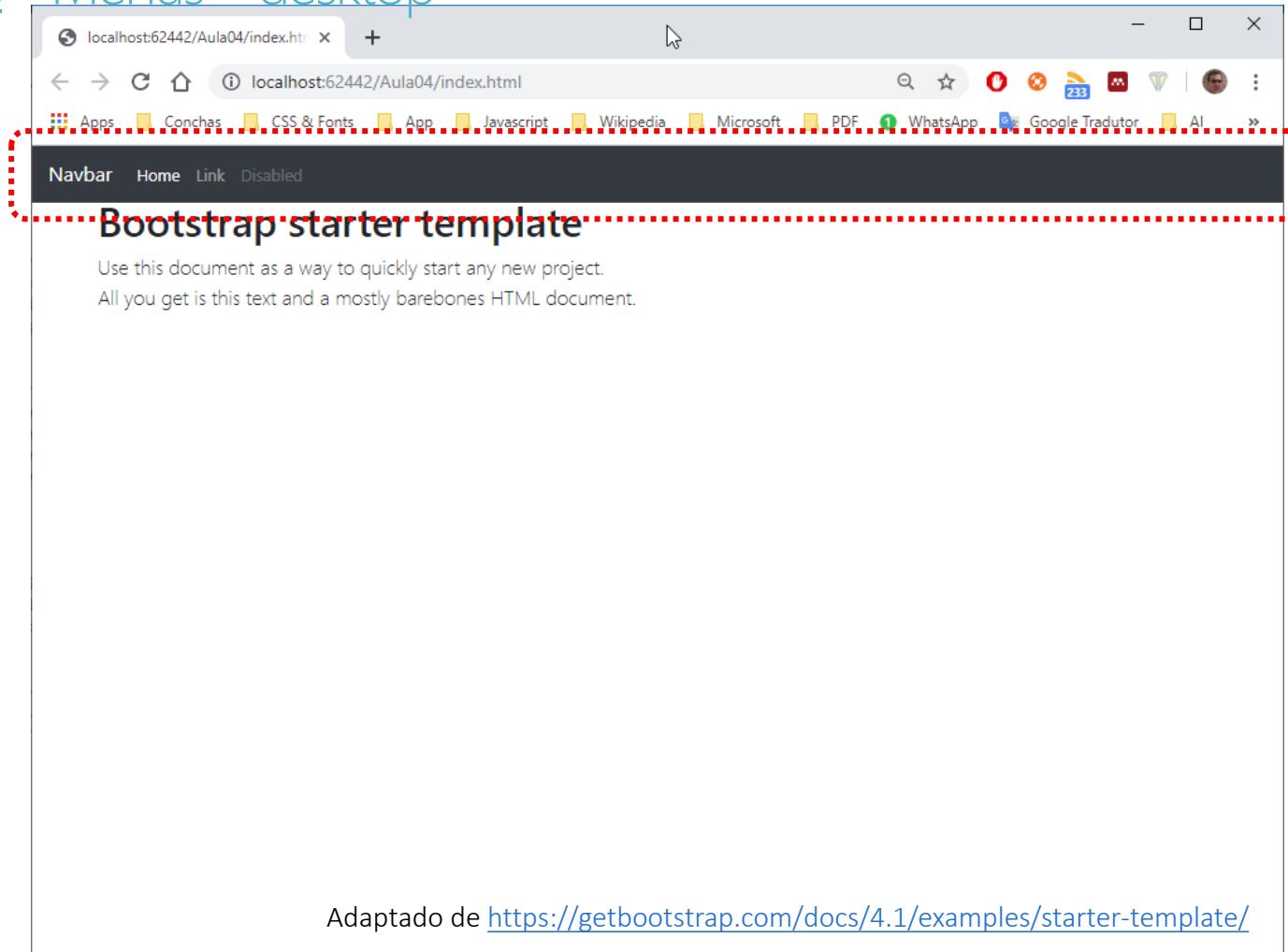
While Bootstrap uses `ems` or `rems` for defining most sizes, `pxs` are used for grid breakpoints and container widths. This is because the viewport width is in pixels and does not change with the `font size`.

See how aspects of the Bootstrap grid system work across multiple devices with a handy table.

	Extra small ≤576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
Max container width	None (auto)	540px	720px	960px	1140px
Class prefix	<code>.col-</code>	<code>.col-sm-</code>	<code>.col-md-</code>	<code>.col-lg-</code>	<code>.col-xl-</code>
# of columns	12				
Gutter width	30px (15px on each side of a column)				
Nestable	Yes				
Column ordering	Yes				

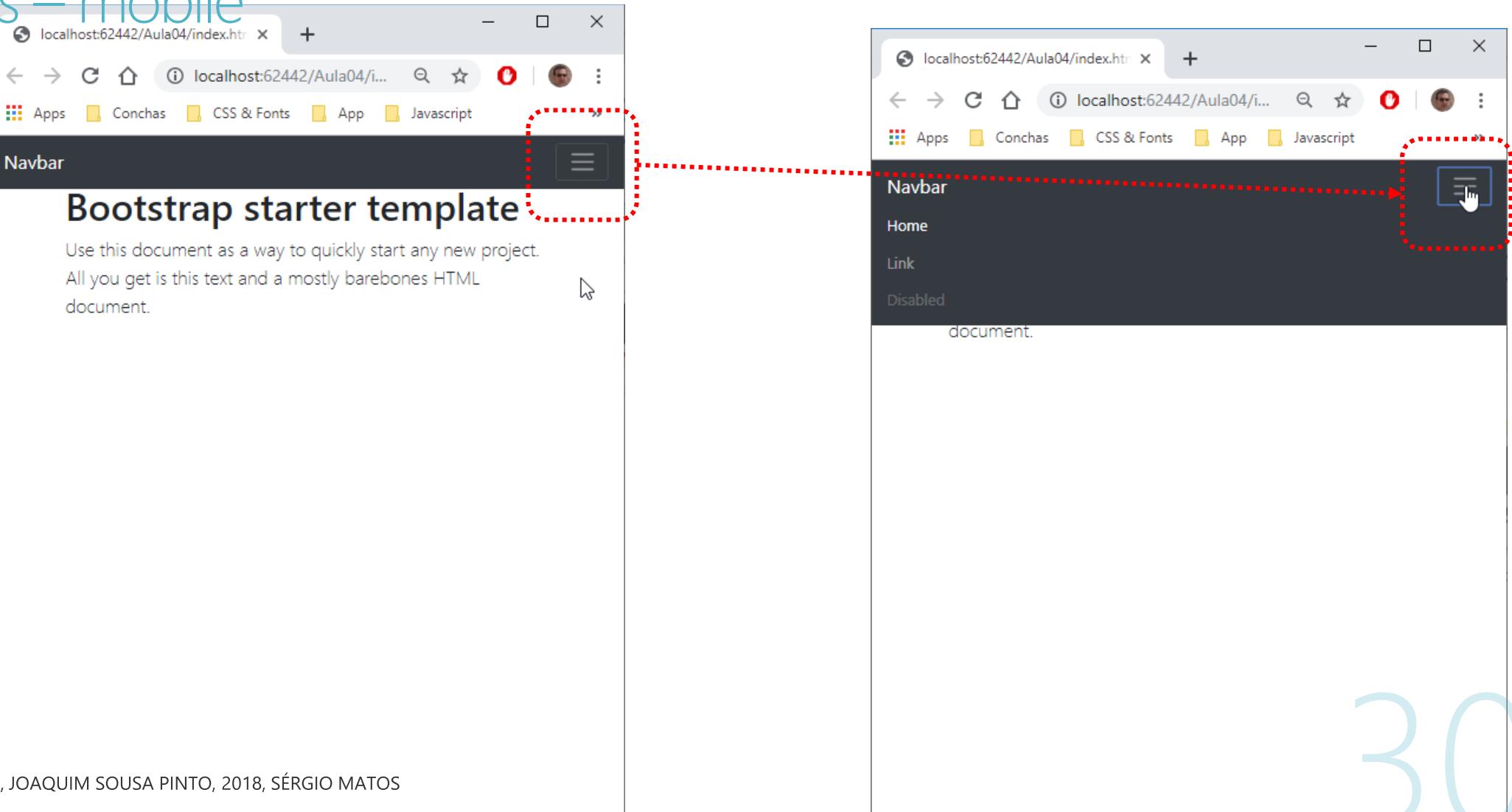
Funcionalidades Bootstrap

Components - Menus – desktop



Funcionalidades Bootstrap

Menus – mobile



```

<!DOCTYPE html>
<html>
<head>
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <title>Bootstrap Page with Menu</title>
    <link href="..../Content/bootstrap.css" rel="stylesheet" />
</head>
<body>
    <nav class="navbar navbar-expand-md navbar-dark bg-dark">
        <a class="navbar-brand" href="#">Navbar</a>
        <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarsExampleDefault"
            aria-controls="navbarsExampleDefault" aria-expanded="false" aria-label="Toggle navigation">
            <span class="navbar-toggler-icon"></span>
        </button>

        <div class="collapse navbar-collapse" id="navbarsExampleDefault">
            <ul class="navbar-nav mr-auto">
                <li class="nav-item active"><a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a></li>
                <li class="nav-item"><a class="nav-link" href="#">Link</a></li>
                <li class="nav-item"><a class="nav-link disabled" href="#">Disabled</a></li>
            </ul>
        </div>
    </nav>

    <main role="main" class="container">
        <h1>Bootstrap starter template</h1>
        <p class="lead">Use this document as a way to quickly start any new project.<br>
            All you get is this text and a mostly barebones HTML document.</p>
    </main>
    <!-- Fim da página, scripts de suporte ao Bootstrap -->
    <script src="..../Scripts/jquery-3.0.0.min.js"></script>
    <script src="..../Scripts/bootstrap.bundle.min.js"></script>
</body>
</html>

```

Funcionalidades Bootstrap

Menus – fixed bottom menu

The image displays two side-by-side browser windows, both showing a "Bootstrap starter template" page at localhost:62442/Aula04/index.html. The left window shows a standard footer navigation bar with links for "Home", "Link", and "Disabled". The right window shows a modified footer where the "Link" and "Disabled" items have been removed, leaving only the "Home" link. Both windows feature a red dashed box highlighting the bottom navigation bar. A blue dashed box highlights the "Universidade de Aveiro" logo in the center of the footer. The footer also contains copyright information: "©ITW2019 - Introdução às Tecnologias Web" on the left and "27/10/2020" on the right.

localhost:62442/Aula04/index.html

localhost:62442/Aula04/index.html

Navbar Home Link Disabled

Bootstrap starter template

Use this document as a way to quickly start any new project.
All you get is this text and a mostly barebones HTML document.

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localhost:62442/Aula04/index.html

localhost:62442/Aula04/index.html

Navbar

Bootstrap starter template

Use this document as a way to quickly start any new project.
All you get is this text and a mostly barebones HTML document.

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```

(...)

<style>
    main { margin-top: 56px; margin-bottom: 56px; }
</style>
</head>
<body>
    <nav class="navbar navbar-expand-md navbar-dark bg-dark fixed-top">
        <a class="navbar-brand" href="#">Navbar</a>
        <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarsExampleDefault"
            aria-controls="navbarsExampleDefault" aria-expanded="false" aria-label="Toggle navigation">
            <span class="navbar-toggler-icon"></span>
        </button>

        <div class="collapse navbar-collapse" id="navbarsExampleDefault">
            <ul class="navbar-nav mr-auto">
                <li class="nav-item active"><a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a></li>
                <li class="nav-item"><a class="nav-link" href="#">Link</a></li>
                <li class="nav-item"><a class="nav-link disabled" href="#">Disabled</a></li>
            </ul>
        </div>
    </nav>
    <main role="main" class="container">
        <h1>Bootstrap starter template</h1>
        <p class="lead">Use this document as a way to quickly start any new project.<br>
            All you get is this text and a mostly barebones HTML document.</p>
    </main>
    <div class="navbar navbar-dark fixed-bottom bg-dark" role="navigation">
        <div class="container">
            <div class="navbar-text small">&copy;ITW2019 - Introdução às Tecnologias Web</div>
            <div class="navbar-right navbar-text small d-none d-md-block">
                <a href="http://www.ua.pt" title="Universidade de Aveiro">Universidade de Aveiro</a>
            </div>
        </div>
    </div>
    <!-- Fim da página, scripts de suporte ao Bootstrap -->
    <script src="../Scripts/jquery-3.5.1.min.js"></script>
    <script src="../Scripts/bootstrap.bundle.min.js"></script>
</body>
</html>

```

33

d-none = este bloco, por princípio, não é apresentado
d-md-block = este bloco é apresentado em dispositivos md (ou maiores)

localhost:62442/Aula04/index.htm

Navbar Home Link Disabled

Bootstrap starter template

Use this document as a way to quickly start any new project.
All you get is this text and a mostly barebones HTML document.

```
<style>
    main { margin-top: 56px; margin-bottom: 56px; }
</style>
```

```
...
<div class="navbar navbar-dark fixed-bottom bg-dark" role="navigation">
    <div class="container">
        <div class="navbar-text small">&copy;ITW2019 - Introdução às Tecnologias Web</div>
        <div class="navbar-right navbar-text small d-none d-md-block">
            <a href="http://www.ua.pt" title="Universidade de Aveiro">Universidade de Aveiro</a>
        </div>
    </div>
</div>
...
```

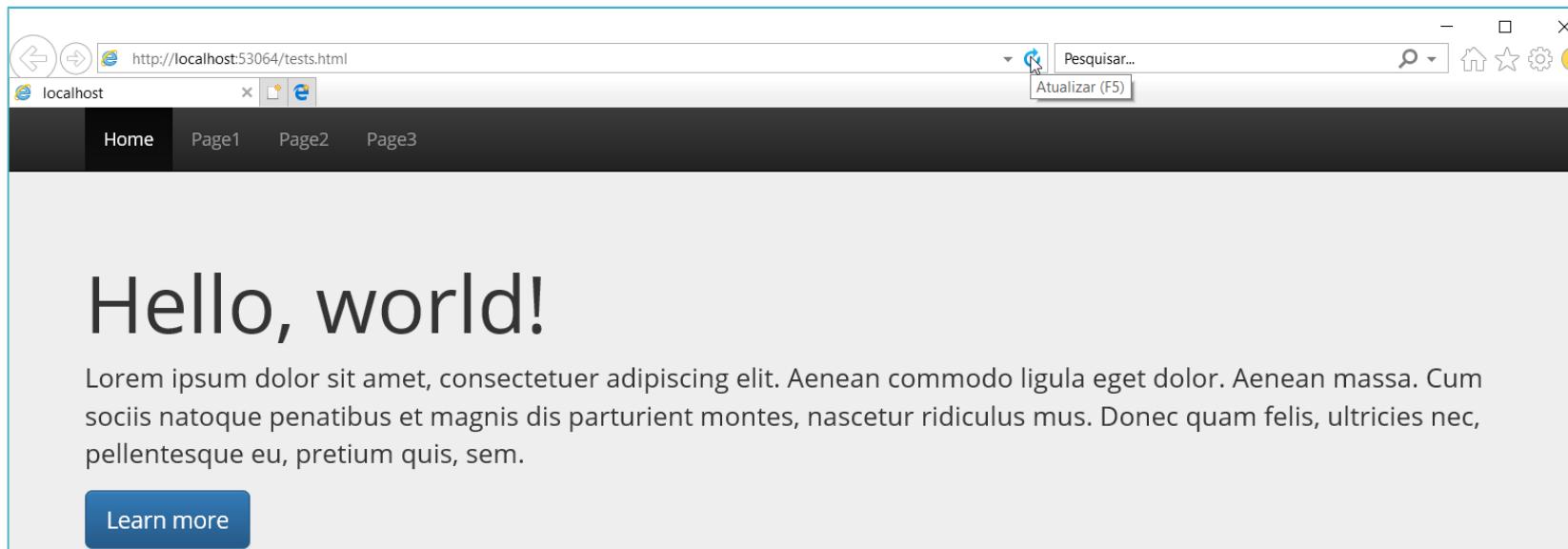
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Funcionalidades Bootstrap

Jumbotron – exemplos (desktop)

O jumbotron é um elemento que pode ocupar toda a largura do browser.



Hello, world!

Learn more

```
<div class="jumbotron">
  <div class="container">
    <h1>Hello, world!</h1>
    <p>Loren ipsum (...)</p>
    <p><a class="btn btn-primary btn-lg" href="#" role="button">Learn more</a></p>
  </div>
</div>
```

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eu, volutpat ut, ante. Donec eu libero sit amet quam egestas semper. Aenean elementum eu, vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vero, dapibus ac, felis. Aenean fermentum, elit eget tincidunt condimentum rutrum, orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas

Funcionalidades Bootstrap

Jumbotron – exemplos (tablet | mobile)

A screenshot of a Microsoft Edge browser window displaying a Jumbotron component. The browser interface includes a back/forward button, address bar (localhost:53064/tests.html), search bar, and various icons. The main content area features a large, bold 'Hello, world!' heading. Below it is a paragraph of placeholder text (Lorem ipsum) and a blue 'Learn more' button. At the bottom of the Jumbotron, there is a horizontal strip containing two additional paragraphs of placeholder text.

Hello, world!

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem.

[Learn more](#)

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo

A screenshot of a Microsoft Edge browser window displaying a Jumbotron component on a mobile device. The browser interface is similar to the tablet version. The main content area features a large, bold 'Hello, world!' heading. Below it is a paragraph of placeholder text (Lorem ipsum) and a blue 'Learn more' button. At the bottom of the Jumbotron, there is a horizontal strip containing two additional paragraphs of placeholder text. The mobile view shows a vertical menu icon on the right side of the header.

Hello, world!

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem.

[Learn more](#)

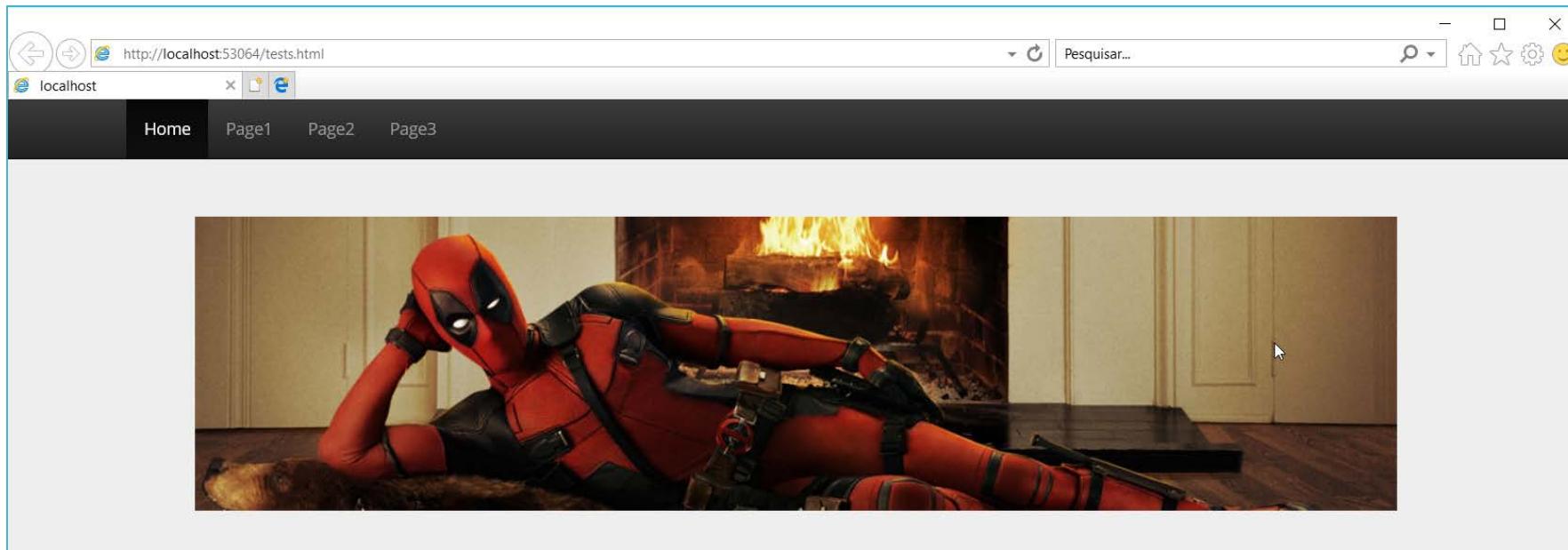
Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo

Funcionalidades Bootstrap

Jumbotron – exemplos (imagens)

No caso das imagens, o efeito do jumbotron é fortemente afetado pela diferença entre a relação largura X altura da imagem e a largura do dispositivo de visualização



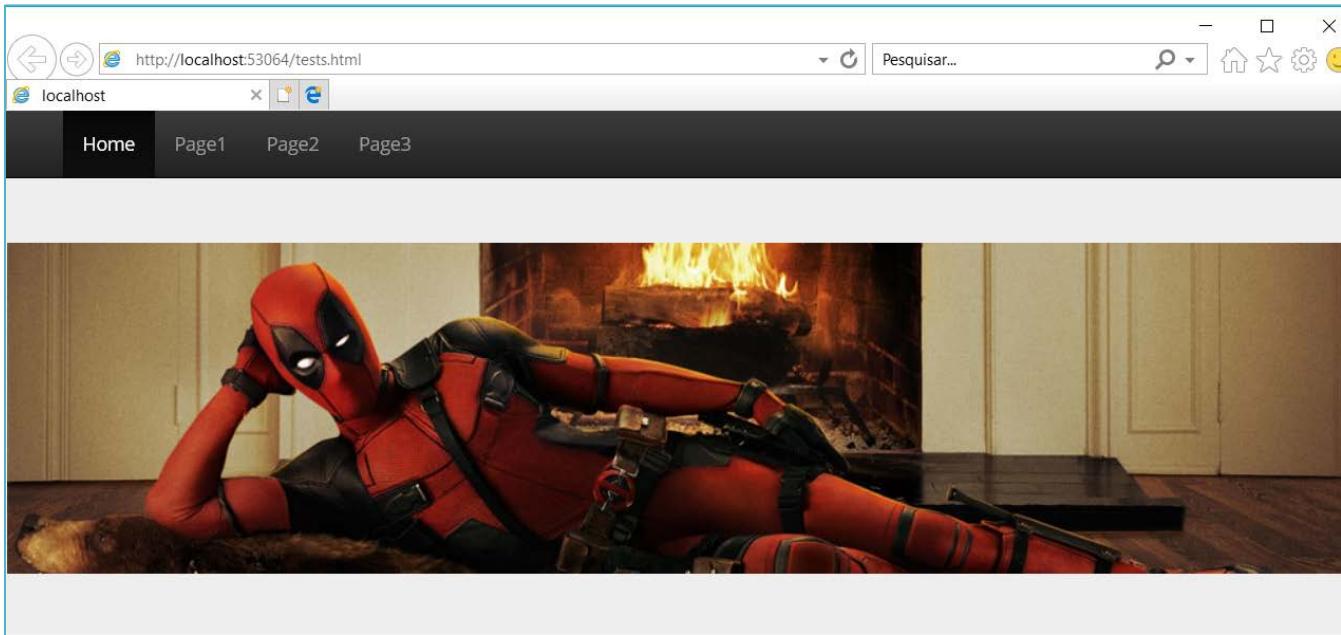
A screenshot of a Microsoft Edge browser window displaying a website at <http://localhost:53064/tests.html>. The browser interface includes standard controls like back, forward, and search, along with a tab bar labeled 'localhost' and tabs for 'Home', 'Page1', 'Page2', and 'Page3'. The main content area features a large image of the superhero Deadpool lying on a rug in front of a fireplace. The image is wider than the browser's content area, causing it to be cropped on both sides. Below the image, there is a block of placeholder text.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas

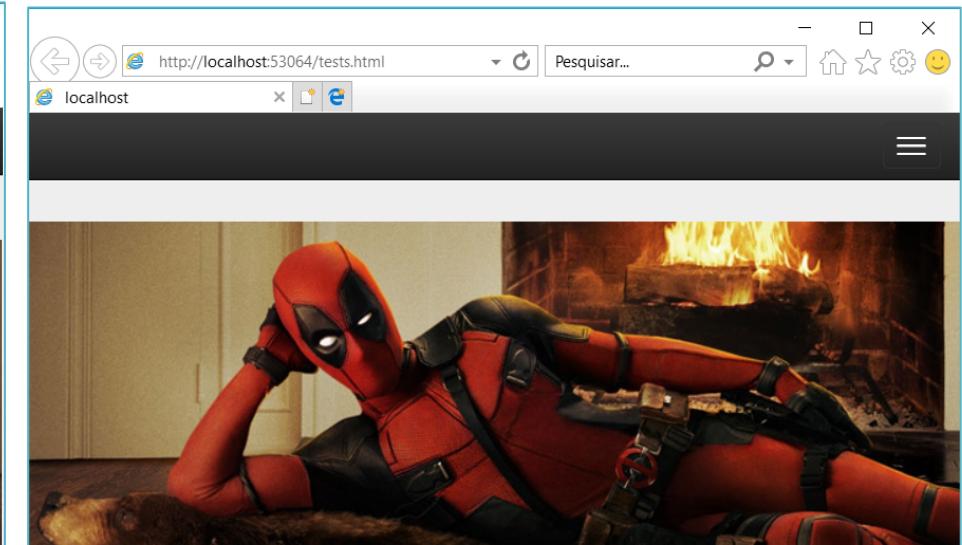
Funcionalidades Bootstrap

Jumbotron – exemplos (imagens)



Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus



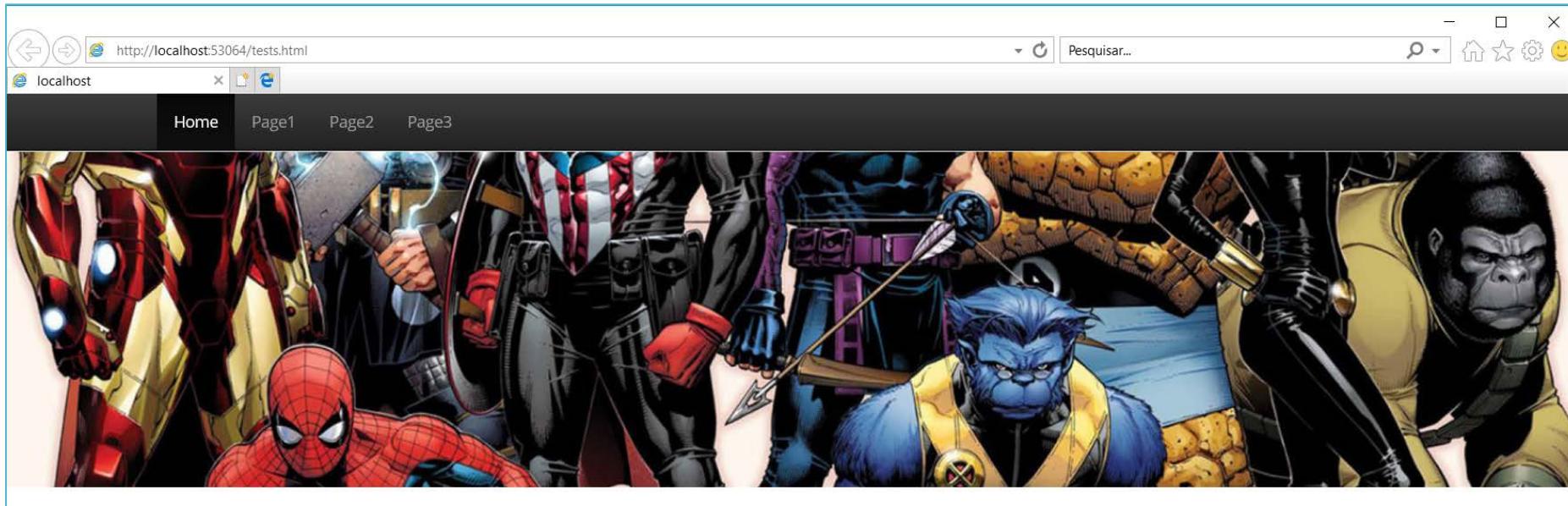
Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent

Funcionalidades Bootstrap

Jumbotron – exemplos (imagens)

A melhor solução passa por colocar a imagem como elemento de fundo



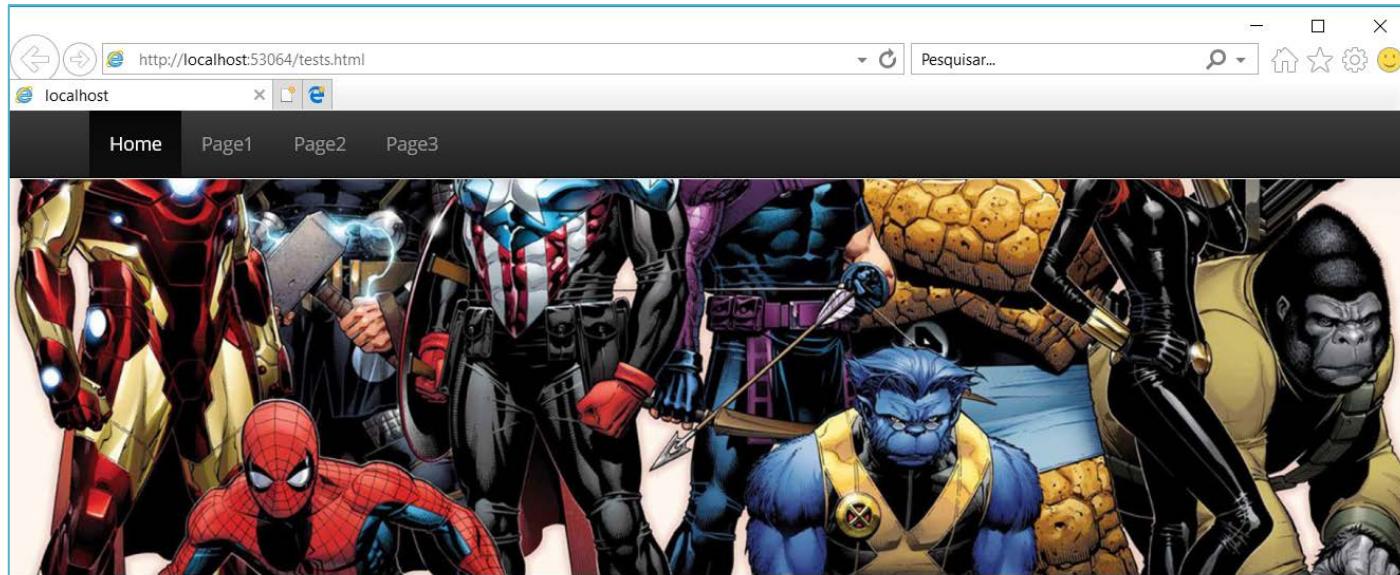
Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vi
amet, ante. Done
vitae est. Mauris
pharetra. Vestibu
amet, wisi. Aenea
rutrum orci, sagi
facilisis. Ut felis.
augue, eu vulput
tincidunt quis, ad

```
<style>
.jumbotron {
    margin:0px; padding:0px; height:300px; margin-bottom:20px;
    background: transparent; background-position:center center;
    background-repeat:no-repeat; background-size:cover;
    background-image: url('https://tinyurl.com/y7zmdasd');
}</style>
```

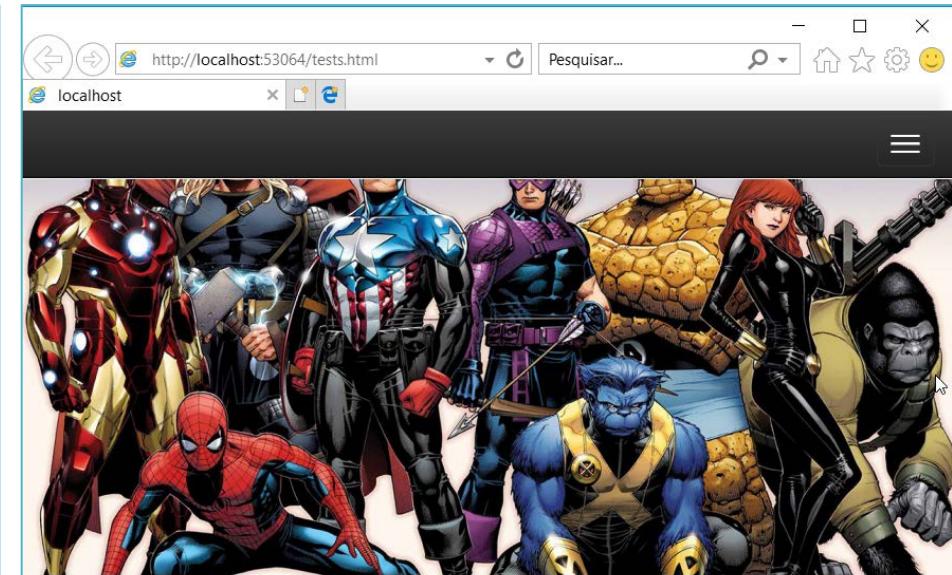
Funcionalidades Bootstrap

Jumbotron – exemplos (imagens)



Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus



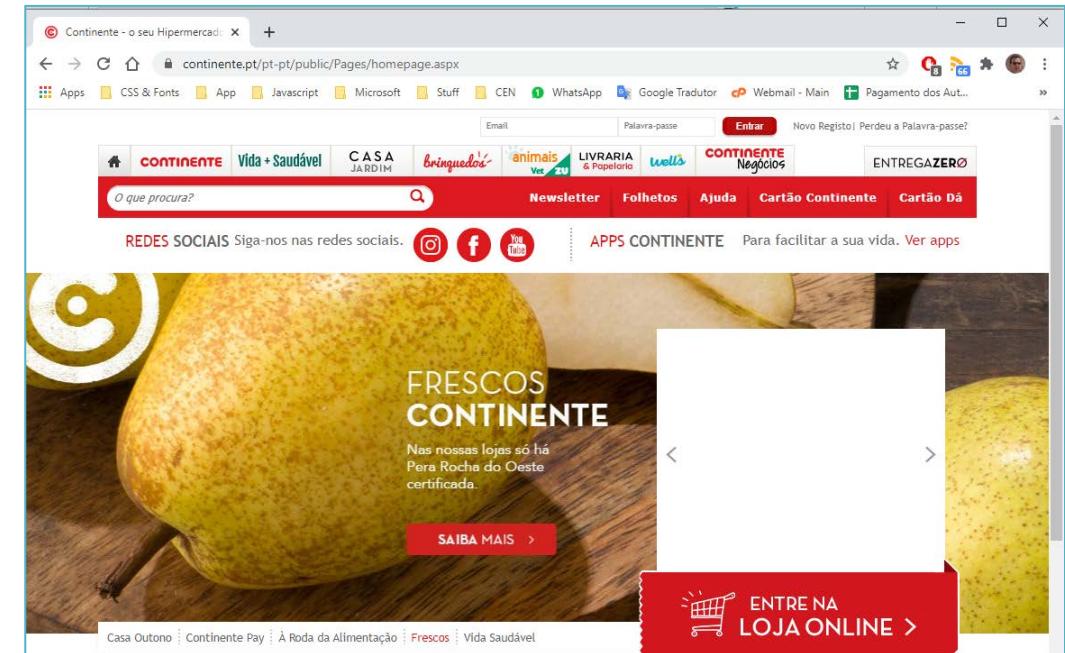
Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est. Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, commodo vitae, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. Donec non enim in turpis pulvinar facilisis. Ut felis. Praesent dapibus, neque id cursus faucibus, tortor neque egestas augue, eu vulputate magna eros eu erat. Aliquam erat volutpat. Nam dui mi, tincidunt quis, accumsan porttitor, facilisis luctus, metus

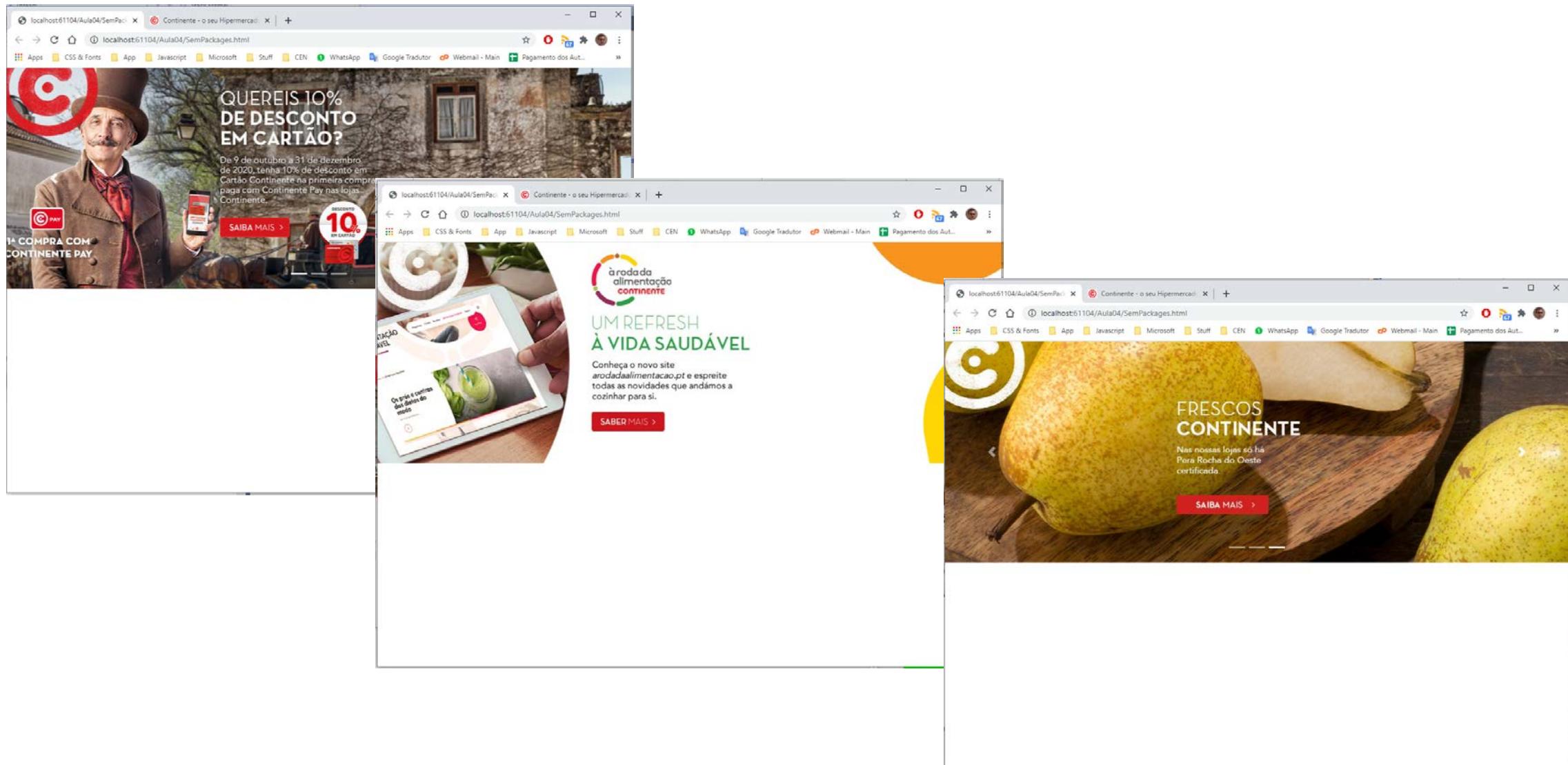
Funcionalidades Bootstrap

Carousel – exemplo

O carrossel (carousel) é um componente de apresentação de slides que comuta entre os diversos slides. Os carrosséis aninhados (carrosséis dentro de carrosséis) não são suportados.



<https://getbootstrap.com/docs/4.0/components/carousel/>



```
<div id="carouselExampleIndicators" class="carousel slide" data-ride="carousel">
  <ol class="carousel-indicators">
    <li data-target="#carouselExampleIndicators" data-slide-to="0" class="active"></li>
    <li data-target="#carouselExampleIndicators" data-slide-to="1"></li>
    <li data-target="#carouselExampleIndicators" data-slide-to="2"></li>
  </ol>
  <div class="carousel-inner">
    <div class="carousel-item active">
      <div class="d-block w-100" style="background:
url('https://static.continente.pt/images/Continente/Images/Banner/splash_top/20/S41/BannerSplash_2560x400.jpg') center center; height: 400px;
background-size: cover;" alt="First slide"></div>
    </div>
    <div class="carousel-item">
      <div class="d-block w-100" style="background:
url('https://static.continente.pt/images/Continente/Images/Banner/splash_top/20/S41/BannerSplash.jpg') center center; height: 400px; background-size:
cover;" alt="Second slide"></div>
    </div>
    <div class="carousel-item">
      <div class="d-block w-100" style="background:
url('https://static.continente.pt/images/Continente/Images/Banner/splash_top/20/S42/frescosContinente_Pera_splash_2560x400.jpg') center center;
height: 400px; background-size: cover;" alt="Third slide"></div>
    </div>
  </div>
  <a class="carousel-control-prev" href="#carouselExampleIndicators" role="button" data-slide="prev">
    <span class="carousel-control-prev-icon" aria-hidden="true"></span>
    <span class="sr-only">Previous</span>
  </a>
  <a class="carousel-control-next" href="#carouselExampleIndicators" role="button" data-slide="next">
    <span class="carousel-control-next-icon" aria-hidden="true"></span>
    <span class="sr-only">Next</span>
  </a>
</div>
```

Funcionalidades Bootstrap

Tables

EXAMPLE

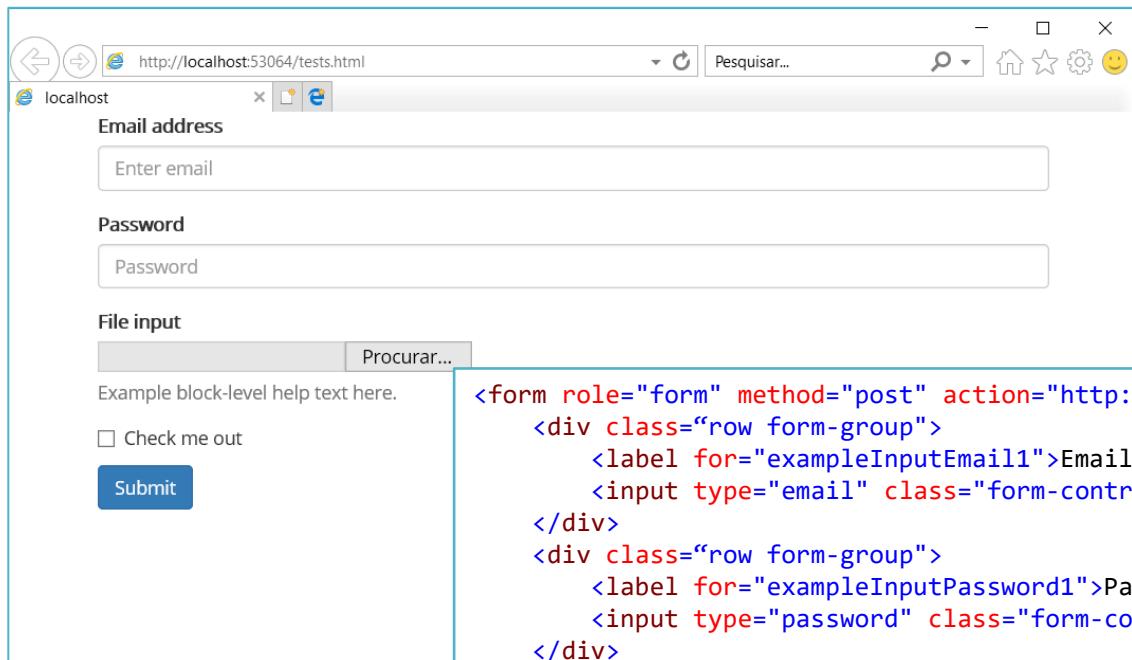
#	First Name	Last Name	Username
1	Mark	Otto	@mdo
2	Jacob	Thornton	@fat
3	Larry	the Bird	@twitter

```
<table class="table table-striped">
  ...
</table>
```

```
<table class="table table-striped">
  <thead>
    <tr>
      <th>#</th><th>First Name</th><th>Last Name</th><th>Username</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <th scope="row">1</th><td>Mark</td><td>Otto</td><td>@mdo</td>
    </tr>
    <tr>
      <th scope="row">2</th><td>Jacob</td><td>Thornton</td><td>@fat</td>
    </tr>
    <tr>
      <th scope="row">3</th><td>Larry</td><td>the Bird</td><td>@twitter</td>
    </tr>
  </tbody>
</table>
```

Funcionalidades Bootstrap

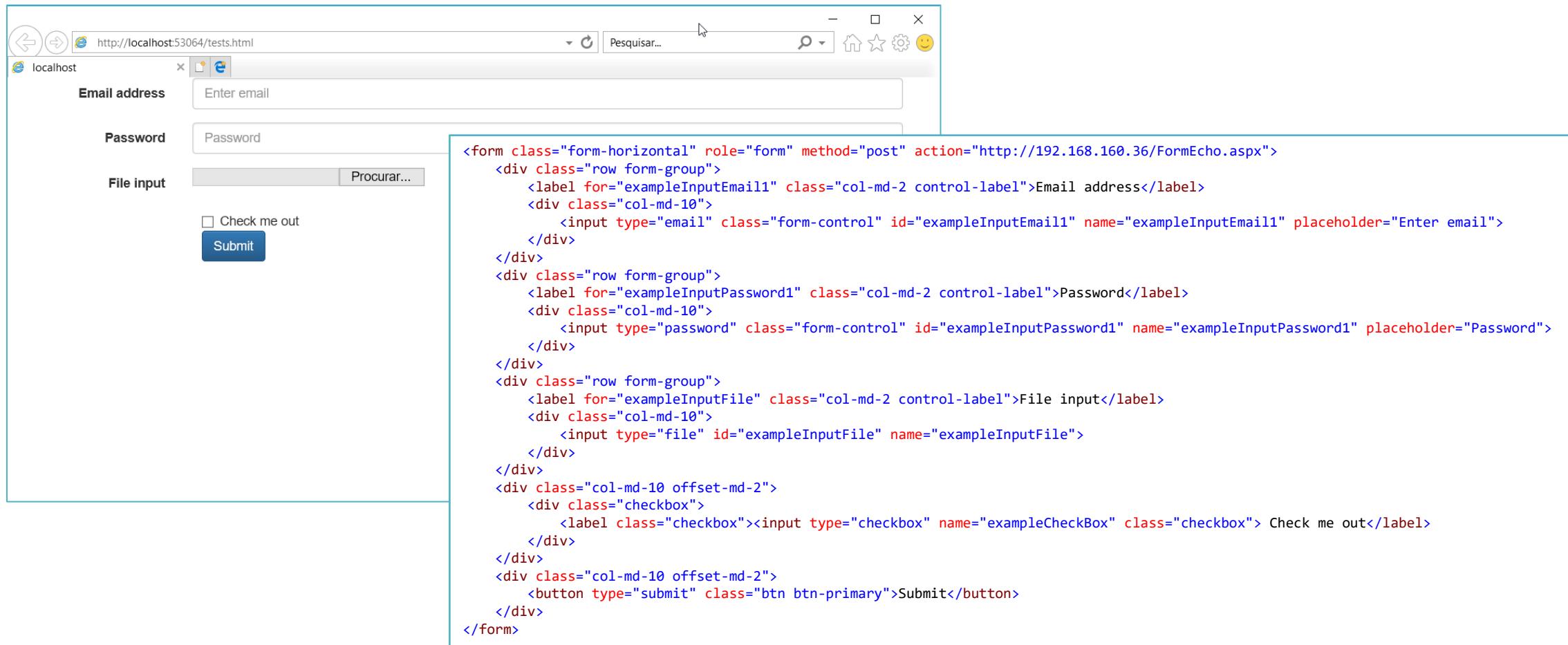
Formulários



```
<form role="form" method="post" action="http://192.168.160.36/FormEcho.aspx">
    <div class="row form-group">
        <label for="exampleInputEmail1">Email address</label>
        <input type="email" class="form-control" id="exampleInputEmail1" name="exampleInputEmail1" placeholder="Enter email">
    </div>
    <div class="row form-group">
        <label for="exampleInputPassword1">Password</label>
        <input type="password" class="form-control" id="exampleInputPassword1" name="exampleInputPassword1" placeholder="Password">
    </div>
    <div class="row form-group">
        <label for="exampleInputFile">File input</label>
        <input type="file" id="exampleInputFile" name="exampleInputFile">
    </div>
    <div class="row checkbox">
        <label><input type="checkbox" name="exampleCheckBox">Check me out</label>
    </div>
    <button type="submit" class="btn btn-primary">Submit</button>
</form>
```

27/10/2020
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Funcionalidades Bootstrap Formulários



The screenshot shows a web browser window with the URL <http://localhost:53064/tests.html>. The page displays a Bootstrap-formatted form with the following fields:

- Email address: An input field with placeholder "Enter email".
- Password: An input field with placeholder "Password".
- File input: A file upload input field with placeholder "Procurar...".
- A checkbox labeled "Check me out".
- A blue "Submit" button.

A large blue box highlights the HTML code of the form, which is as follows:

```
<form class="form-horizontal" role="form" method="post" action="http://192.168.160.36/FormEcho.aspx">
    <div class="row form-group">
        <label for="exampleInputEmail1" class="col-md-2 control-label">Email address</label>
        <div class="col-md-10">
            <input type="email" class="form-control" id="exampleInputEmail1" name="exampleInputEmail1" placeholder="Enter email">
        </div>
    </div>
    <div class="row form-group">
        <label for="exampleInputPassword1" class="col-md-2 control-label">Password</label>
        <div class="col-md-10">
            <input type="password" class="form-control" id="exampleInputPassword1" name="exampleInputPassword1" placeholder="Password">
        </div>
    </div>
    <div class="row form-group">
        <label for="exampleInputFile" class="col-md-2 control-label">File input</label>
        <div class="col-md-10">
            <input type="file" id="exampleInputFile" name="exampleInputFile">
        </div>
    </div>
    <div class="col-md-10 offset-md-2">
        <div class="checkbox">
            <label class="checkbox"><input type="checkbox" name="exampleCheckBox" class="checkbox"> Check me out</label>
        </div>
    </div>
    <div class="col-md-10 offset-md-2">
        <button type="submit" class="btn btn-primary">Submit</button>
    </div>
</form>
```

Funcionalidades Bootstrap

Botões – códigos de cor

Primary Secondary Success Danger Warning Info Light Dark Link

```
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-secondary">Secondary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-light">Light</button>
<button type="button" class="btn btn-dark">Dark</button>

<button type="button" class="btn btn-link">Link</button>
```

Primary Secondary Success Danger Warning Info Light Dark

```
<button type="button" class="btn btn-outline-primary">Primary</button>
<button type="button" class="btn btn-outline-secondary">Secondary</button>
<button type="button" class="btn btn-outline-success">Success</button>
<button type="button" class="btn btn-outline-danger">Danger</button>
<button type="button" class="btn btn-outline-warning">Warning</button>
<button type="button" class="btn btn-outline-info">Info</button>
<button type="button" class="btn btn-outline-light">Light</button>
<button type="button" class="btn btn-outline-dark">Dark</button>
```

<http://getbootstrap.com/css/#buttons>

Funcionalidades Bootstrap

Botões - tamanho

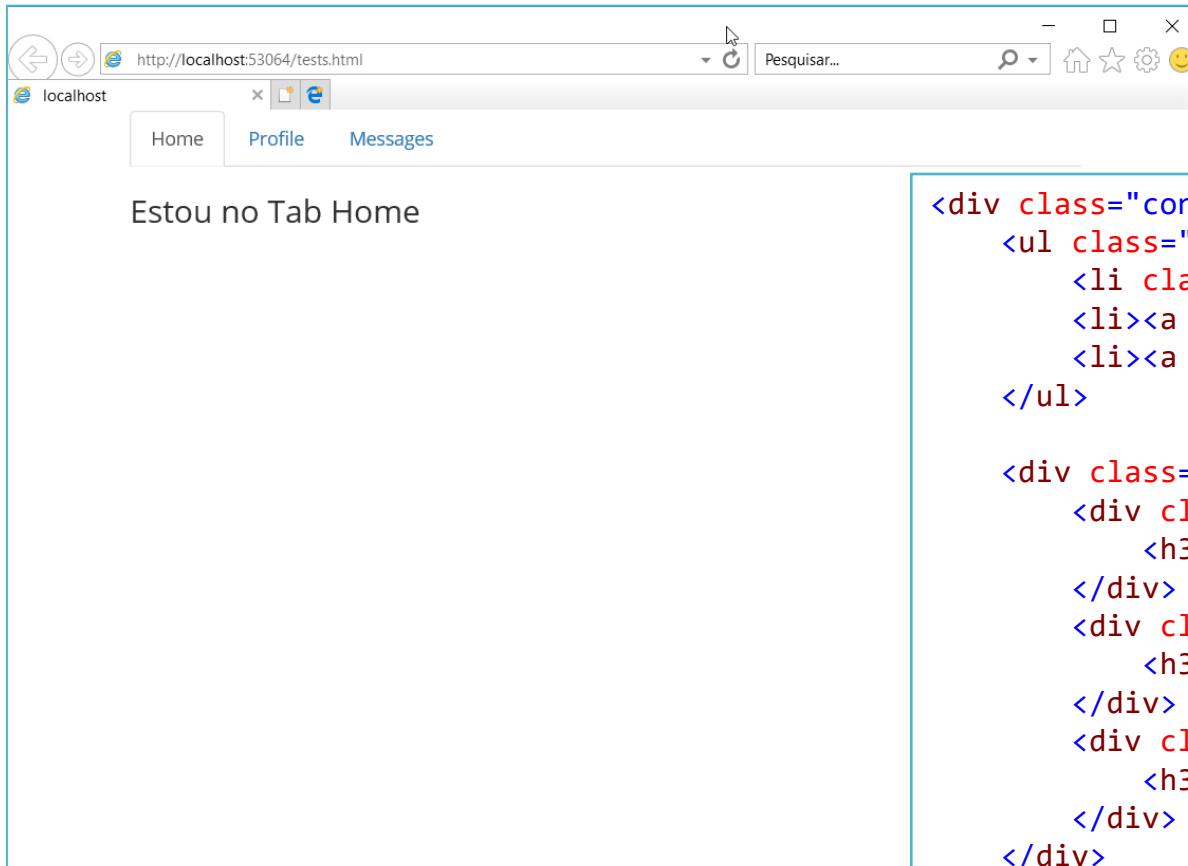
EXAMPLE



```
<p>
  <button type="button" class="btn btn-primary btn-lg">Large button</button>
  <button type="button" class="btn btn-default btn-lg">Large button</button>
</p>
<p>
  <button type="button" class="btn btn-primary">Default button</button>
  <button type="button" class="btn btn-default">Default button</button>
</p>
<p>
  <button type="button" class="btn btn-primary btn-sm">Small button</button>
  <button type="button" class="btn btn-default btn-sm">Small button</button>
</p>
<p>
  <button type="button" class="btn btn-primary btn-xs">Extra small button</button>
  <button type="button" class="btn btn-default btn-xs">Extra small button</button>
</p>
```

Funcionalidades Bootstrap

nav tabs



The screenshot shows a web browser window with the URL <http://localhost:53064/tests.html>. The browser interface includes standard controls like back, forward, search, and a toolbar. Below the toolbar, there are three tabs: "Home", "Profile", and "Messages". The "Home" tab is currently active, indicated by a blue border. The main content area displays the text "Estou no Tab Home".

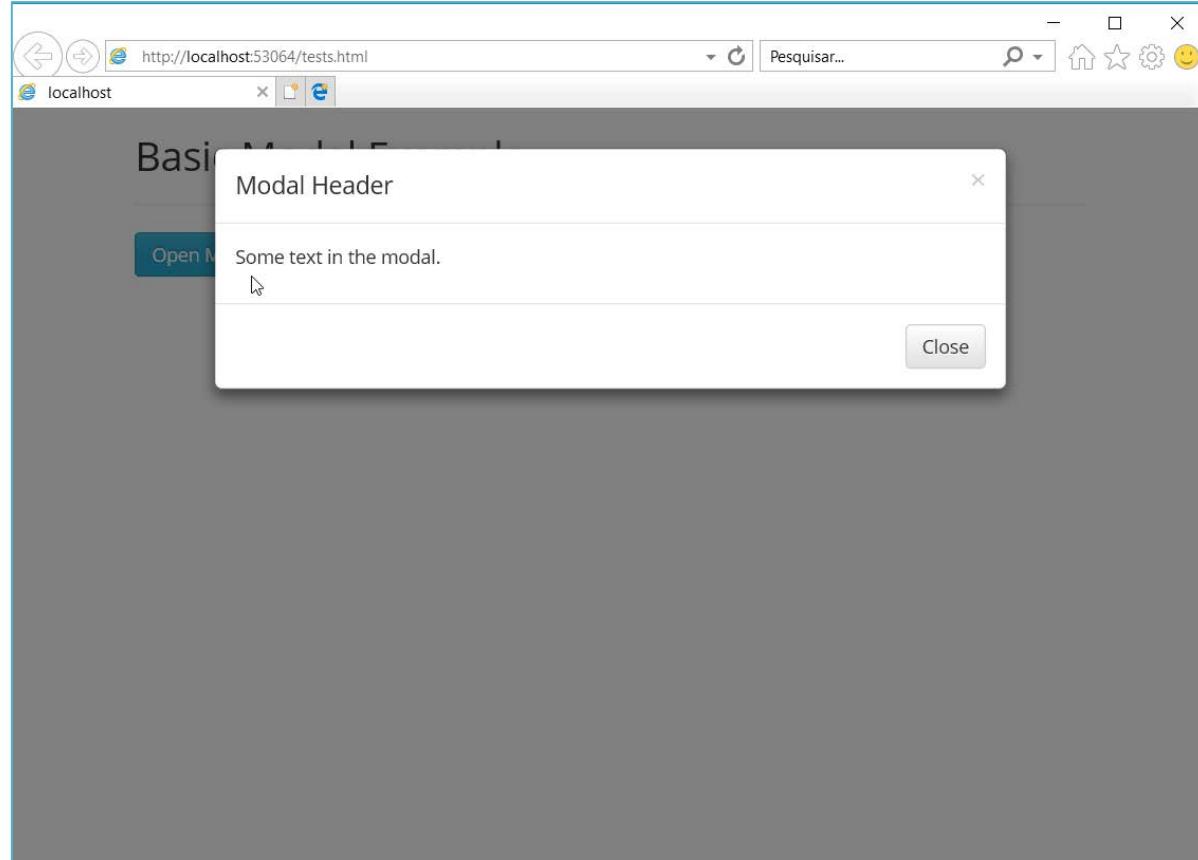
```
<div class="container">
  <ul class="nav nav-tabs">
    <li class="active"><a data-toggle="tab" href="#home">Home</a></li>
    <li><a data-toggle="tab" href="#menu1">Profile</a></li>
    <li><a data-toggle="tab" href="#menu2">Messages</a></li>
  </ul>

  <div class="tab-content" style="min-height: 400px;">
    <div class="tab-pane fade in active" id="home">
      <h3>Estou no Tab Home</h3>
    </div>
    <div class="tab-pane fade" id="menu1">
      <h3>Estou no Tab Profile</h3>
    </div>
    <div class="tab-pane fade" id="menu2">
      <h3>Estou no Tab Messages</h3>
    </div>
  </div>
</div>
```

<https://getbootstrap.com/docs/4.0/components/navs/>

Funcionalidades Bootstrap

Modal windows



```
<!-- Button trigger modal -->
<button type="button" class="btn btn-primary" data-toggle="modal"
        data-target="#exampleModal">Launch demo modal</button>

<!-- Modal -->
<div class="modal fade" id="exampleModal" tabindex="-1"
     aria-labelledby="exampleModalLabel" aria-hidden="true">
    <div class="modal-dialog">
        <div class="modal-content">
            <div class="modal-header">
                <h5 class="modal-title" id="exampleModalLabel">Modal title</h5>
                <button type="button" class="close" data-dismiss="modal"
                        aria-label="Close">
                    <span aria-hidden="true">&times;</span>
                </button>
            </div>
            <div class="modal-body">
                Some text in the Modal.
            </div>
            <div class="modal-footer">
                <button type="button" class="btn btn-secondary"
                        data-dismiss="modal">Close</button>
                <button type="button" class="btn btn-primary">Save changes</button>
            </div>
        </div>
    </div>
</div>
```

<https://getbootstrap.com/docs/4.0/components/modal/>

Funcionalidades Bootstrap

Paginação

« 1 2 3 »

```
<nav aria-label="Page navigation example">
  <ul class="pagination">
    <li class="page-item">
      <a class="page-link" href="#" aria-label="Previous">
        <span aria-hidden="true">&laquo;</span>
      </a>
    </li>
    <li class="page-item"><a class="page-link" href="#">1</a></li>
    <li class="page-item active" aria-current="page"><a class="page-link" href="#">2</a></li>
    <li class="page-item"><a class="page-link" href="#">3</a></li>
    <li class="page-item">
      <a class="page-link" href="#" aria-label="Next">
        <span aria-hidden="true">&raquo;</span>
      </a>
    </li>
  </ul>
</nav>
```

<https://getbootstrap.com/docs/4.0/components/pagination/>

Funcionalidades Bootstrap

Badges

EXAMPLE

Inbox 42

Messages 4

```
<a href="#">Inbox <span class="badge">42</span></a>  
  
<button class="btn btn-primary" type="button">  
  Messages <span class="badge">4</span>  
</button>
```

Copy

<https://getbootstrap.com/docs/4.0/components/badge/>

Funcionalidades Bootstrap

Alert boxes

This is a success alert—check it out!

This is a danger alert—check it out!

This is a warning alert—check it out!

This is a info alert—check it out!

This is a light alert—check it out!

This is a dark alert—check it out!

<https://getbootstrap.com/docs/4.0/components/alerts/>

```
<div class="alert alert-primary" role="alert">
    This is a primary alert—check it out!
</div>
<div class="alert alert-secondary" role="alert">
    This is a secondary alert—check it out!
</div>
<div class="alert alert-success" role="alert">
    This is a success alert—check it out!
</div>
<div class="alert alert-danger" role="alert">
    This is a danger alert—check it out!
</div>
<div class="alert alert-warning" role="alert">
    This is a warning alert—check it out!
</div>
<div class="alert alert-info" role="alert">
    This is a info alert—check it out!
</div>
<div class="alert alert-light" role="alert">
    This is a light alert—check it out!
</div>
<div class="alert alert-dark" role="alert">
    This is a dark alert—check it out!
</div>
```

Funcionalidades Bootstrap

Cards

Quote

 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

 — Someone famous in *Source Title*

```
<div class="card">
  <div class="card-header">
    Quote
  </div>
  <div class="card-body">
    <blockquote class="blockquote mb-0">
      <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.</p>
      <footer class="blockquote-footer">Someone famous in <cite title="Source Title">Source Title</cite></footer>
    </blockquote>
  </div>
</div>
```

<https://getbootstrap.com/docs/4.0/components/card/>