

# Web Framework Bootstrap

Catarina Oliveira

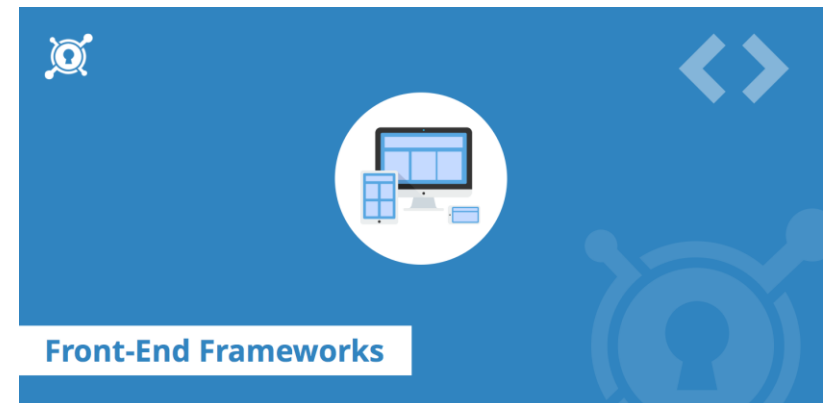
DCT DEPARTAMENTO CIÊNCIA  
E TECNOLOGIA

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## Front-end framework

- Conjunto de componentes HTML, CSS e JavaScript prontas a usar
- Permitem:
  - Responsividade
  - Consistência em diferentes browsers
  - Modularidade
  - Reutilização de componentes
- Frameworks CSS normalmente incluem:
  - Reset
  - Grid
  - Estilos para tipos de letra
  - Estilos para formulários
  - Suporte para mobile (nem todos)
  - Suporte para impressão (nem todos)
- Frameworks JavaScript: estruturar e manter o código organizado



# Bootstrap



- Front-end user interface framework
- Open-source (qualquer um pode contribuir para o projeto)
  - <https://github.com/twbs/bootstrap>
- Criada pelo Twitter
- Acelera o desenvolvimento de sites e aplicações web
- Tutorial: <https://www.w3schools.com/bootstrap/>

The most popular HTML, CSS, and JavaScript framework for developing responsive, mobile first projects on the web.  
<https://getbootstrap.com>

css bootstrap javascript html scss css-framework sass

19,261 commits 56 branches 0 packages 57 releases 1,104 contributors MIT

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dependabot-preview and XhmikosR	Bump eslint-plugin-import from 2.19.1 to 2.20.0 (#30001)	Latest commit 2 days ago
dependabot	Update dependabot config (#29500)	3 months ago
github	Update test.yml (#29863)	20 days ago
build	Fix the new lint errors.	6 days ago
dist	Dist (#29638)	2 months ago
js	Close modal with keyboard=true & backdrop=static (#29986)	3 days ago
ruet	Bump copyright year to 2020. (#29944)	11 days ago
scss	Inherit flex-wrap to decrease generated css (#29951)	6 days ago
site	Close modal with keyboard=true & backdrop=static (#29986)	3 days ago
.babelrc.js	Switch from QUnit to Jasmine.	6 months ago
.browserslistrc	[WIP] Bump supported browsers for v5 (#28317)	9 months ago
.editorconfig	Trim trailing whitespace from markdown files (#29460)	3 months ago
.eslintignore	Ignore sw.js.	6 months ago
.eslintc.json	Remove unneeded ESLint suppression and regenerate lock file (#29593)	3 months ago
.gitattributes	Revert "Simplify .gitattributes."	last year
.gitignore	Make use of Hugo's 0.56+ module feature.	5 months ago
.stylelintignore	Merge lint scripts (#29329)	5 months ago
.stylelintrc	Use double quotes in '.stylelintrc' (#29709)	2 months ago
CODE_OF_CONDUCT.md	Use https when possible.	2 years ago
LICENSE	Bump copyright year to 2020. (#29944)	11 days ago
README.md	README.md: restore Slack badge (#29964)	4 days ago
SECURITY.md	Create SECURITY.md (#28288)	11 months ago
bundleize.config.json	Function map-get-multiple now returns the correct variable (#29247)	5 months ago
composer.json	Remove "extra" section from composer.json (#29420)	3 months ago
config.yml	Update hugo-bin to v0.49.0 (Hugo v0.61.0)	28 days ago
package-lock.json	Bump eslint-plugin-import from 2.19.1 to 2.20.0 (#30001)	2 days ago
package.js	Remove JQuery from docs/repo.	11 months ago
package.json	Bump eslint-plugin-import from 2.19.1 to 2.20.0 (#30001)	2 days ago

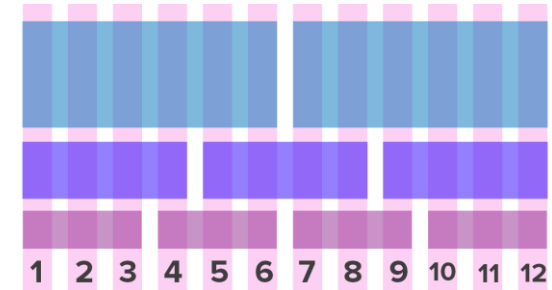
## Porque usar o Bootstrap?

- Não é necessário reinventar a roda
- Estilos e componentes “out-of-the-box”
- Feito para ser responsivo: elementos HTML respondem automaticamente a alterações de tamanho do ecrã
- Mobile-first:
  - Certas capacidades tipicamente mobile incluídas
    - Ex: zoom-in



# Sistema Grid

- Baseado numa grelha com 12 colunas
- Usa classes CSS para determinar a largura de cada coluna de acordo com o ecrã
- Cada elemento pode ocupar entre 1 a 12 colunas
- Regras:
  - Linhas têm de ser colocadas dentro de um `.container` (largura fixa) ou `.container-fluid` (largura dinâmica) para terem alinhamento e espaçamento corretos
  - Utiliza-se `rows (.row)` para criar agrupamentos horizontais de colunas
  - O conteúdo tem de ser colocado dentro de colunas. Apenas as colunas podem ser filhos imediatos das linhas



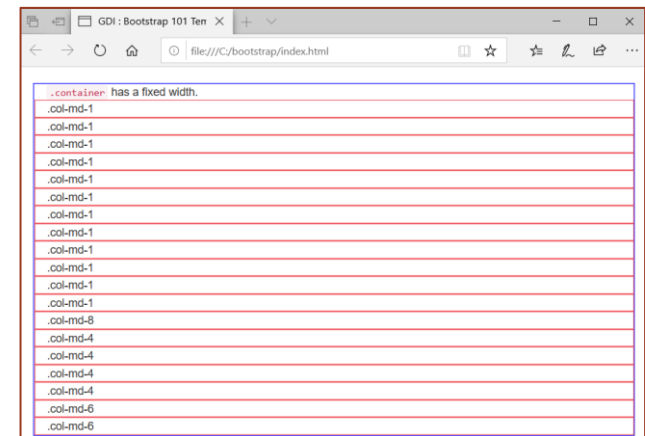
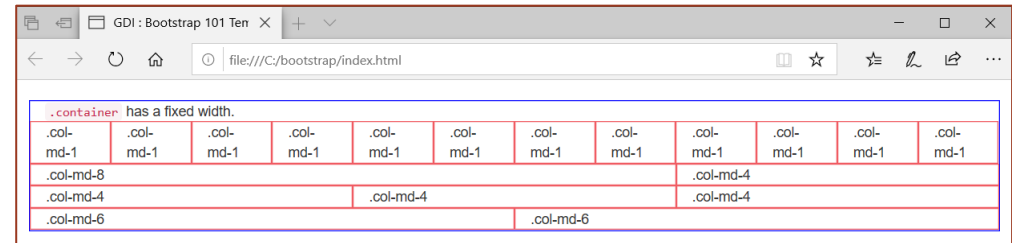
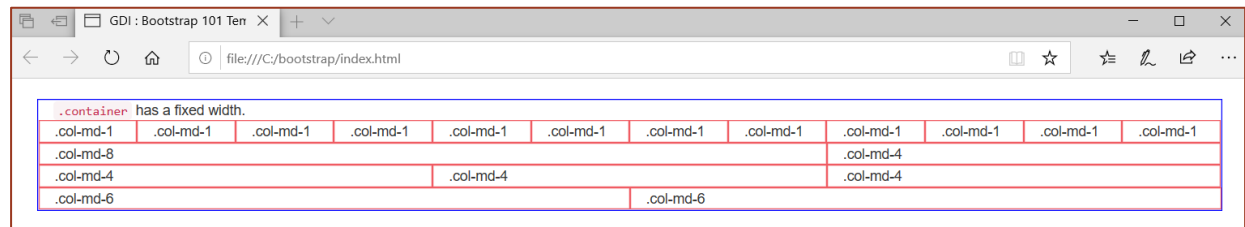
```
<div class="container">  
  <div class="row">  
    [CONTENT FOR ROW]  
  </div>  
</div>
```

# Exemplo

```

1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="utf-8">
6   <meta http-equiv="X-UA-Compatible" content="IE=edge">
7   <meta name="viewport" content="width=device-width, initial-scale=1">
8   <title>GDI : Bootstrap 101 Template</title>
9
10  <style>
11    .container {
12      border: 1px solid blue;
13    }
14
15    .col-md-1, .col-md-4, .col-md-8, .col-md-6 {
16      border: 1px solid #f0f0f0;
17    }
18  </style>
19
20  <!-- Bootstrap -->
21  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" />
22  <!-- Custom styles for this template -->
23  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" />
24  <!-- jQuery -->
25  <script src="https://code.jquery.com/jquery-3.6.0.min.js" />
26  <!-- jQuery -->
27  <script src="https://code.jquery.com/jquery-3.6.0.min.js" />
28  <!-- jQuery -->
29  <script src="https://code.jquery.com/jquery-3.6.0.min.js" />
30  <!-- jQuery -->
31  <script src="https://code.jquery.com/jquery-3.6.0.min.js" />
32  </script>
33
34  <body>
35    <div class="container">
36      <div class="row">
37        <div class="col-md-1"></div>
38        <div class="col-md-1"></div>
39        <div class="col-md-1"></div>
40        <div class="col-md-1"></div>
41        <div class="col-md-1"></div>
42        <div class="col-md-1"></div>
43        <div class="col-md-1"></div>
44        <div class="col-md-1"></div>
45        <div class="col-md-1"></div>
46        <div class="col-md-1"></div>
47        <div class="col-md-1"></div>
48        <div class="col-md-1"></div>
49        <div class="col-md-1"></div>
50      </div>
51      <div class="row">
52        <div class="col-md-8"></div>
53        <div class="col-md-4"></div>
54      </div>
55      <div class="row">
56        <div class="col-md-4"></div>
57        <div class="col-md-4"></div>
58        <div class="col-md-4"></div>
59      </div>
60      <div class="row">
61        <div class="col-md-6"></div>
62        <div class="col-md-6"></div>
63      </div>
64    </div>
65
66    <!-- jQuery (necessary for Bootstrap's JavaScript plugins) -->
67    <script src="https://code.jquery.com/jquery-3.6.0.min.js" />
68    <!-- Include all compiled plugins (below), or include individual files as needed -->
69    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.min.js" />
70  </body>
71
72 </html>

```



## Exemplo 2

[illegible][illegible]

The screenshot shows a web browser window with the address bar displaying "file:///C:/bootstrap/index2.html". The page content shows a grid of 12 columns, each labeled ".col-md-1". The grid is organized into four rows: the first row has 12 columns, the second row has 3 columns, the third row has 4 columns, and the fourth row has 6 columns. The text ".container-fluid always takes up the full width of the viewport." is visible above the grid.

[illegible]



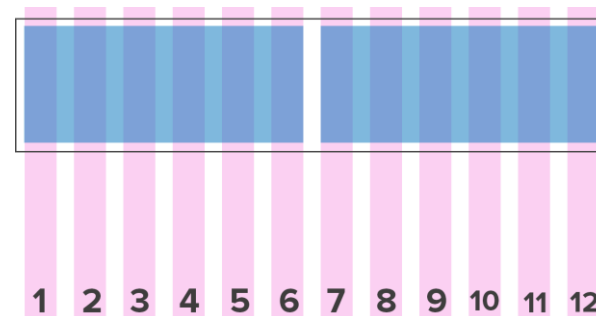
## Classes de colunas

	<b>Extra small</b> <544px	<b>Small</b> ≥544px	<b>Medium</b> ≥768px	<b>Large</b> ≥992px	<b>Extra large</b> ≥1200px
<b>Grid behavior</b>	Horizontal at all times	Collapsed to start, horizontal above breakpoints			
<b>Container width</b>	None (auto)	576px	720px	940px	1140px
<b>Class prefix</b>	<b>.col-xs-</b>	<b>.col-sm-</b>	<b>.col-md-</b>	<b>.col-lg-</b>	<b>.col-xl-</b>
<b># of columns</b>	12				
<b>Gutter width</b>	1.875rem / 30px (15px on each side of a column)				
<b>Nestable</b>	Yes				
<b>Offsets</b>	Yes				
<b>Column ordering</b>	Yes				

## Exemplo de classes

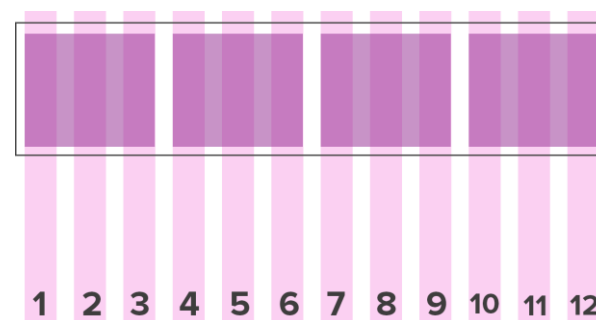
- Duas colunas com 50% cada uma num telemóvel: usar `.col-xs-6` dentro de uma `.row`

```
<div class="container">
  <div class="row">
    <div class="col-xs-6">
      [COLUMN 1 CONTENT]
    </div>
    <div class="col-xs-6">
      [COLUMN 2 CONTENT]
    </div>
  </div>
</div>
```



- Quatro colunas com 25% cada no desktop que se transformam para 100% num tablet: usar `.col-md-3` numa `.row`

```
<div class="container">
  <div class="row">
    <div class="col-md-3">
      [COLUMN 1 CONTENT]
    </div>
    <div class="col-md-3">
      [COLUMN 2 CONTENT]
    </div>
    <div class="col-md-3">
      [COLUMN 3 CONTENT]
    </div>
    <div class="col-md-3">
      [COLUMN 4 CONTENT]
    </div>
  </div>
</div>
```



## Múltiplas classes

```
<div class="container">
  <div class="row">
    <div class="col-xs-12 col-sm-6 col-md-8">
      [COLUMN 1 CONTENT]
    </div>
    <div class="col-xs-6 col-md-4">
      [COLUMN 2 CONTENT]
    </div>
  </div>
</div>
```

On an md screen

.col-xs-12 .col-sm-6 **.col-md-8**

takes up 67% width  
= 8/12 col units

.col-xs-6 **.col-md-4**

33% width  
= 4/12 units

On an xs screen

**.col-xs-12** .col-md-8

takes up 100% width  
= 12/12 col units

**.col-xs-6** .col-md-4

takes up 50% width  
= 6/12 col units

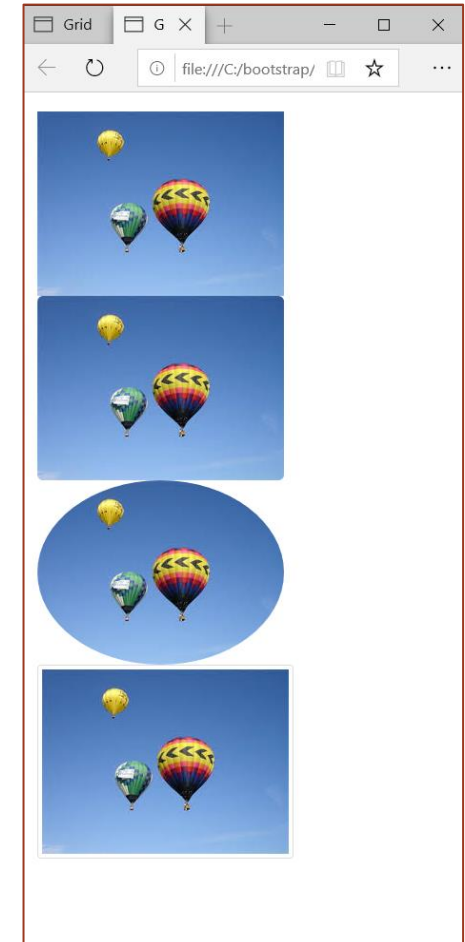
# Imagens

- Responsivas adicionando a classe .img-responsive

```

index3.html
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
13
14 <body>
15 <div class="container">
16 

```

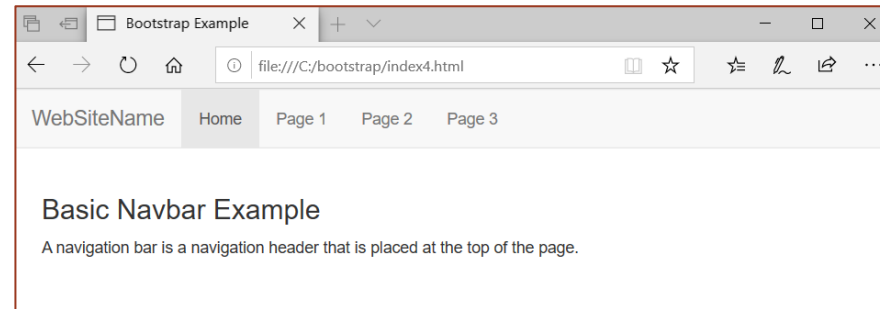


## Componente: Navbar

```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
11 <body>
12
13 <nav class="navbar navbar-default">

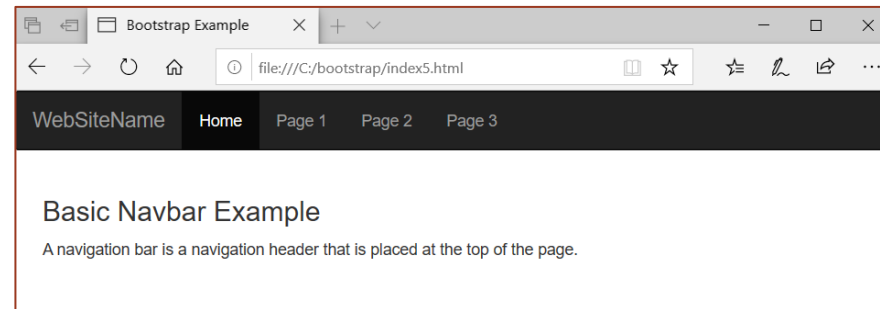
```



```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
11 <body>
12
13 <nav class="navbar navbar-inverse">

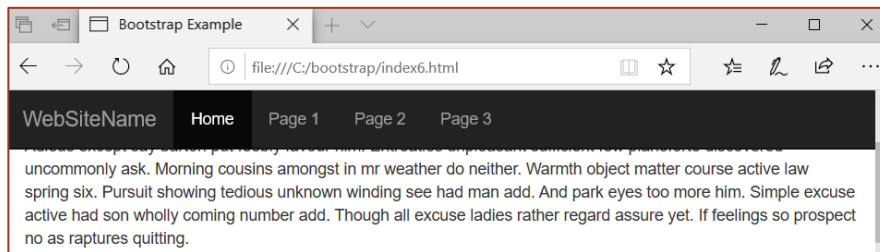
```



```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
11 <body>
12
13 <nav class="navbar navbar-inverse navbar-fixed-top">

```

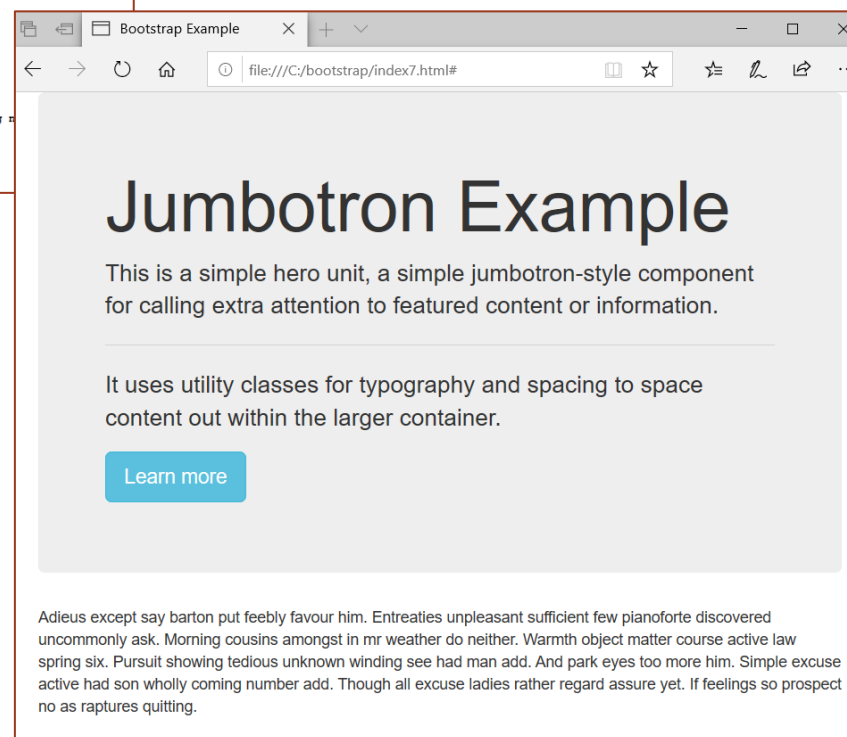


## Componente: Jumbotron

```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4    <title>Bootstrap Example</title>
5    <meta charset="utf-8">
6    <meta name="viewport" content="width=device-width, initial-scale=1">
7    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
8    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
9    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
10 </head>
11 <body>
12
13 <div class="container">
14   <div class="jumbotron">
15     <h1>Jumbotron Example</h1>
16     <p class="lead">This is a simple hero unit, a simple jumbotron-style component for calling extra attention to featured content or information.</p>
17   </div>
18   <p>It uses utility classes for typography and spacing to space content out within the larger container.</p>
19   <p class="lead">
20     <a class="btn btn-info btn-lg" href="#" role="button">Learn more</a>
21   </p>
22 </div>
23 <div>
24   <p>Adieu except say barten put feebly favour him. Entreaties unpleasant sufficient few pianoforte discovered uncommonly ask.
25   Morning cousins amongst in mr weather do neither. Warmth object matter course active law spring six.
26   Pursuit showing tedious unknown winding see had man add. And park eyes too more him. Simple excuse active had son wholly coming
27   Though all excuse ladies rather regard assure yet. If feelings so prospect no as raptures quitting. </p>
28 </div>
29 </div>
30 </body>
31 </html>

```



# Formulários

```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  </head>
5  <body>
6  </body>
7  </html>
8
9  <div class="container">
10   <form>
11     <fieldset class="form-group">
12       <label for="street">Morada</label>
13       <input type="text" class="form-control" id="street" placeholder="Introduzir a rua">
14     </fieldset>
15     <fieldset class="form-group">
16       <label for="city">Cidade</label>
17       <input type="text" class="form-control" id="city" placeholder="... e a cidade">
18     </fieldset>
19     <fieldset class="form-group">
20       <label for="state">Distrito</label>
21       <select class="form-control" id="state">
22         <option>Porto</option>
23         <option>Aveiro</option>
24         <option>Lisboa</option>
25         <option>Braga</option>
26         <option>Leiria</option>
27       </select>
28     </fieldset>
29     <fieldset class="form-group">
30       <label for="handling">Notas</label>
31       <textarea class="form-control" id="handling" rows="3"></textarea>
32     </fieldset>
33     <label>Extras</label>
34     <div class="checkbox">
35       <input type="checkbox" value="" /> Papel de embrulho</div>
36     <div class="checkbox">
37       <input type="checkbox" value="" /> Rebuçados</div>
38     <div class="radio">
39       <input type="radio" name="insurance" value="yes" checked="" /> Sim (5€)</div>
40     <div class="radio">
41       <input type="radio" name="insurance" value="no" /> Não</div>
42     <div>
43       <button type="button" class="btn btn-primary">Primário</button>
44       <button type="button" class="btn btn-primary btn-sm">Primário pequeno</button>
45       <button type="button" class="btn btn-secondary">Secundário</button>
46       <button type="button" class="btn btn-secondary btn-lg">Secundário grande</button>
47       <button type="button" class="btn btn-secondary btn-lg btn-block">Secundário bloco</button>
48       <button type="button" class="btn btn-success">Sucesso</button>
49       <button type="button" class="btn btn-info">Informação</button>
50       <button type="button" class="btn btn-warning">Aviso</button>
51       <button type="button" class="btn btn-danger">Perigo</button>
52     </div>
53   </form>
54 </div>
55 </body>
56 </html>

```

Bootstrap Example

file:///C:/bootstrap/index8.html

**Morada**

Introduzir a rua

**Cidade**

... e a cidade

**Distrito**

Porto

**Notas**

**Extras**

☐ Papel de embrulho

☐ Rebuçados

**Seguro:**

☒ Sim (5€)

☐ Não

Primário Primário pequeno Secundário Secundário grande

Secundário bloco

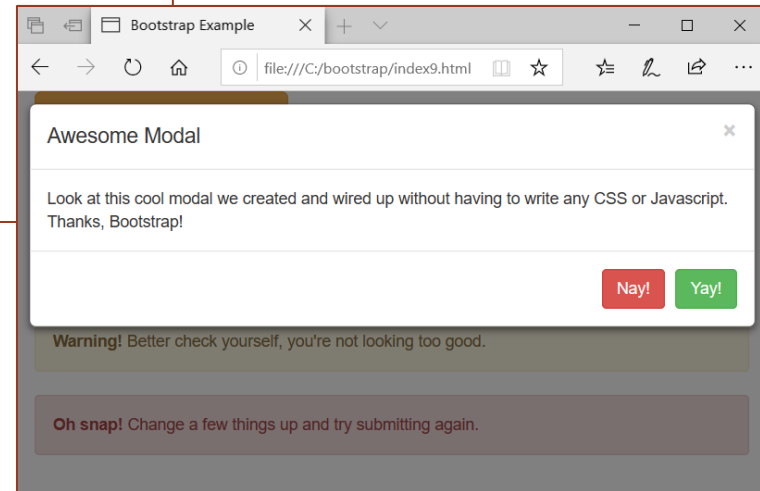
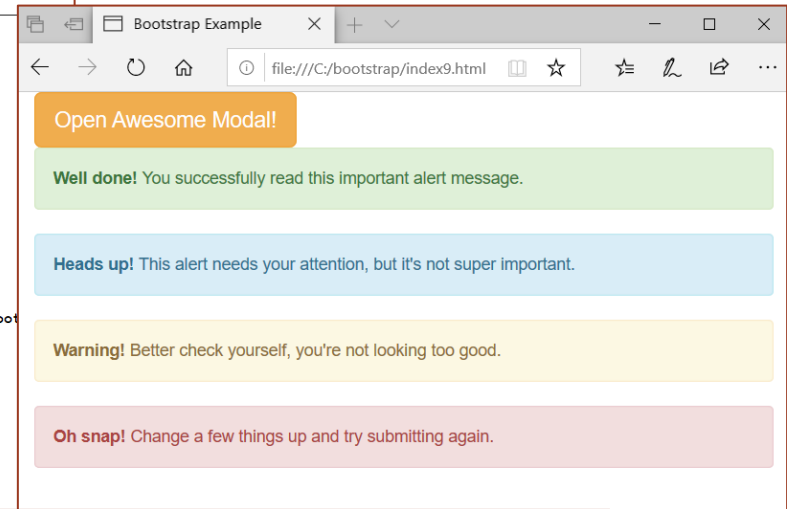
Sucesso Informação Aviso Perigo

# Mensagens

```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
11 <body>
12 <div class="container">
13 <button type="button" class="btn btn-warning btn-lg" data-toggle="modal" data-target="#myModal">
14   Open Awesome Modal!
15 </button>
16
17 <!-- Modal -->
18 <div class="modal fade" id="myModal" tabindex="-1" role="dialog" aria-labelledby="myModalLabel" aria-hidden="true">
19 <div class="modal-dialog" role="document">
20 <div class="modal-content">
21 <div class="modal-header">
22 <button type="button" class="close" data-dismiss="modal" aria-label="Close">
23 <span aria-hidden="true">&times;</span>
24 </button>
25 <h4 class="modal-title" id="myModalLabel">Awesome Modal</h4>
26 </div>
27 <div class="modal-body">
28   Look at this cool modal we created and wired up without having to write any CSS or Javascript. Thanks, Boot
29 </div>
30 <div class="modal-footer">
31 <button type="button" class="btn btn-danger">Nay!</button>
32 <button type="button" class="btn btn-success" data-dismiss="modal">Yay!</button>
33 </div>
34 </div>
35 </div>
36 </div>
37 <div class="alert alert-success" role="alert">
38 <strong>Well done!</strong> You successfully read this important alert message.
39 </div>
40 <div class="alert alert-info" role="alert">
41 <strong>Heads up!</strong> This alert needs your attention, but it's not super important.
42 </div>
43 <div class="alert alert-warning" role="alert">
44 <strong>Warning!</strong> Better check yourself, you're not looking too good.
45 </div>
46 <div class="alert alert-danger" role="alert">
47 <strong>Oh snap!</strong> Change a few things up and try submitting again.
48 </div>
49 </div>
50 </body>
51 </html>

```



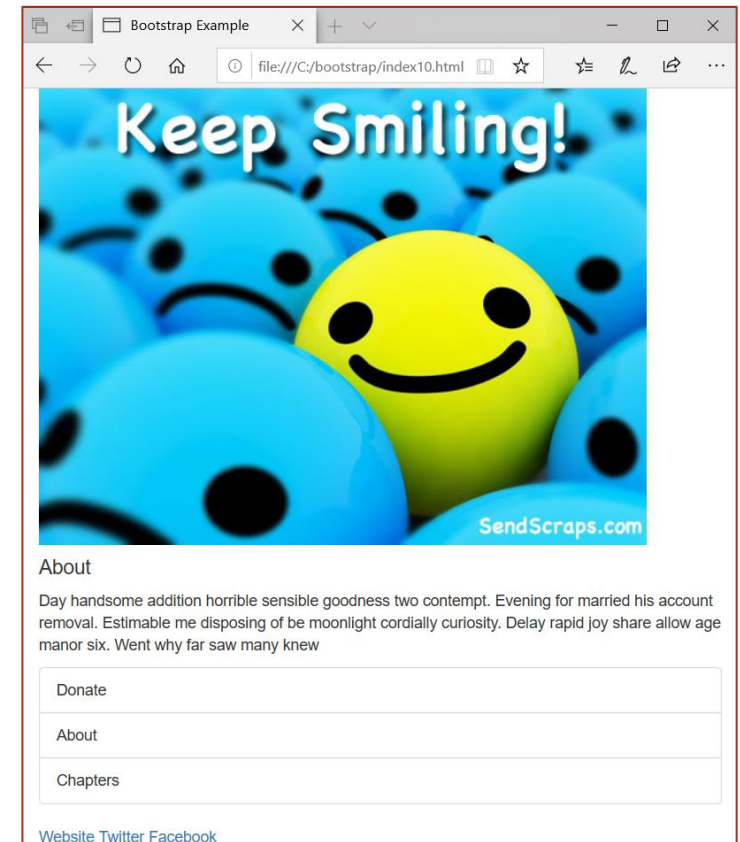


# Cards

```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>Bootstrap Example</title>
5   <meta charset="utf-8">
6   <meta name="viewport" content="width=device-width, initial-scale=1">
7   <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
8   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
9   <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
10 </head>
11 <body>
12   <div class="container">
13     <div class="row">
14       <div class="card col-md-4">
15         
16         <div class="card-block">
17           <h4 class="card-title">About</h4>
18           <p class="card-text">Day handsome addition horrible sensible goodness two contempt.
19             Evening for married his account removal.
20             Estimable me disposing of be moonlight cordially curiosity. Delay rapid joy share allow age manor six.
21             Went why far saw many knew</p>
22         </div>
23         <ul class="list-group list-group-flush">
24           <li class="list-group-item">Donate</li>
25           <li class="list-group-item">About</li>
26           <li class="list-group-item">Chapters</li>
27         </ul>
28         <div class="card-block">
29           <a href="index.html" class="card-link">Website</a>
30           <a href="index2.html" class="card-link">Twitter</a>
31           <a href="index3.html" class="card-link">Facebook</a>
32         </div>
33       </div>
34     </div>
35   </div>
36 </body>
37 </html>

```

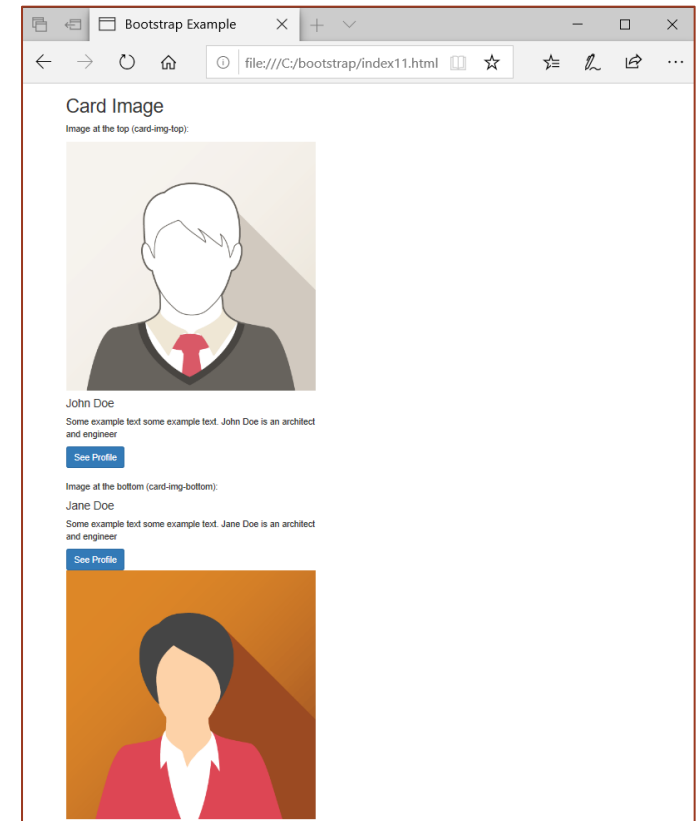


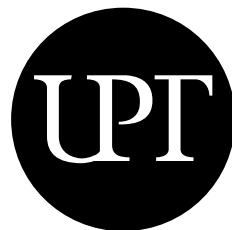
# Cards

```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>Bootstrap Example</title>
5   <meta charset="utf-8">
6   <meta name="viewport" content="width=device-width, initial-scale=1">
7   <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
8   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
9   <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
10 </head>
11 <body>
12 <div class="container">
13   <h2>Card Image</h2>
14   <p>Image at the top (card-img-top):</p>
15   <div class="card" style="width:400px">
16     
17     <div class="card-body">
18       <h4 class="card-title">John Doe</h4>
19       <p class="card-text">Some example text some example text. John Doe is an architect and engineer</p>
20       <a href="#" class="btn btn-primary">See Profile</a>
21     </div>
22   </div>
23   <br>
24   <p>Image at the bottom (card-img-bottom):</p>
25   <div class="card" style="width:400px">
26     <div class="card-body">
27       <h4 class="card-title">Jane Doe</h4>
28       <p class="card-text">Some example text some example text. Jane Doe is an architect and engineer</p>
29       <a href="#" class="btn btn-primary">See Profile</a>
30     </div>
31     
32   </div>
33 </div>
34 </body>
35 </html>

```





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