CSS
Cascading Style Sheets

The main idea:

We can customize the behaviour of the HTML Tags (e.g. adding properties – a "style")

```
<h1>
<h1 style="color:blue;text-align:center;">
```

Inline CSS

We can also generalize:

We can customize the behaviour of all instances of a type of HTML Tag

```
<head>
<style>
h1 {
  color:blue;
  text-align:center;
}
</style>
</head>
```

Internal CSS

We can factor them out:

We can customize the behaviour of all instances of a type of HTML Tag for many files.

```
<head>
<head>
<style type="text/css">
 @import url("myStyle.css");
</style>
</head>
</head>
```

External CSS

myStyle.css

```
h1 {
  color:blue;
  text-align:center;
}
```

Another syntax:

```
<head>
<link rel="stylesheet" type="text/css"
href="myStyle.css">
</head>
```

External CSS

myStyle.css

```
h1 {
  color:blue;
  text-align:center;
}
```

Achieving separation between content and presentation

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0//EN">
<HTML>
  <HEAD>
    <TITLE>Hello World</TITLE>
  </HEAD>
  <BODY>
    <H1>Hello World!</H1>
    <p>Usiamo i CSS</p>
  </BODY>
</HTML>
```

hello.html

Hello World!

Usiamo i CSS

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0//EN">
<HTML>
  <HEAD>
    <TITLE>Hello World con CSS</TITLE>
    <LINK rel="stylesheet" href="hello.css" type="text/css">
  </HEAD>
  <BODY>
    <H1>Hello World!</H1>
    <p>Usiamo i CSS</p>
  </BODY>
</HTML>
```

hello.html

```
BODY { color: red }
H1 { color: blue }
```

hello.css

Hello World!

Usiamo i CSS

Da http://www-db.deis.unibo.it

The goal

SEE http://www.csszengarden.com

The goal: a simpler example

See https://www.w3schools.com/css/css_intro.asp

Style: local definition (inline)

```
<html><head>
</head><body>

<h1 style="color:blue;">primo capitolo</h1>
nel mezzo del cammin di nostra vita
<h1 style="color:blue;">secondo capitolo</h1>
mi ritrovai per una selva oscura
<h1 style="color:blue;">terzo capitolo</h1>
che la diritta via m'era smarrita
</body></html>
```

Style: definition of a page style (internal CSS)

```
<html><head>
<style>
h1 {color:blue;}
</style>
</head><body>
<h1>primo capitolo</h1>
nel mezzo del cammin di nostra vita
<h1>secondo capitolo</h1>
mi ritrovai per una selva oscura
<h1>terzo capitolo</h1>
che la diritta via m'era smarrita
</body></html>
```

Style: definition of a shared style (external CSS)

```
<html>
<head>
<link  rel="StyleSheet" type="text/CSS"  href="../common/lodeStyles.css" >
</head>
<body>
<h1>primo capitolo</h1>
nel mezzo del cammin di nostra vita
<h1>secondo capitolo</h1>
mi ritrovai per una selva oscura
<h1>terzo capitolo</h1>
che la diritta via m'era smarrita
</body></html>
```

CSS
Cascading Style Sheets

Some Formatting Elements

Length units

ABSOLUTE LENGTH

International System

cm *centimetrs*

mm *millimetrs*

anglosaxon units

in *inch*

pt *point:1/72 inch*

pc *pica:12 point=1/6 inch*

System dependent:

px *pixel*

RELATIVE LENGTH:

em *height of element font*

ex *extended height of element font*

Formatting elements

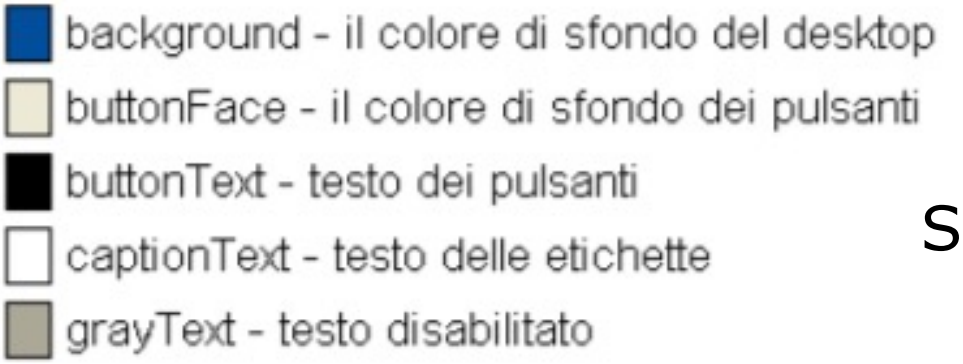
color:*color*
background-color:*color*
background-image:*uri*

font-family:name
font-size:xx-small|x-small|small|medium|large|x-large|xx-large|
larger|smaller|*absoluteSize*|*relativeSize*|*percentage*|*lenght*
font-style:normal|italic
font-weight:bold|bolder|lighter|normal|100|200|...|800|900

Colors

- Absolute colors

Also using hex
#RRGGBB
Or
rgb(rosso,verde,blu)



System properties colors

RGBA AND OPACITY

```
rgba: (200, 30 30, 0.2);
opacity: 0.5;
```

Taken from: DavideDiCillo.com

GRADIENTS

```
linear-gradient(direction, color-stop1, color-stop2, ...);
```

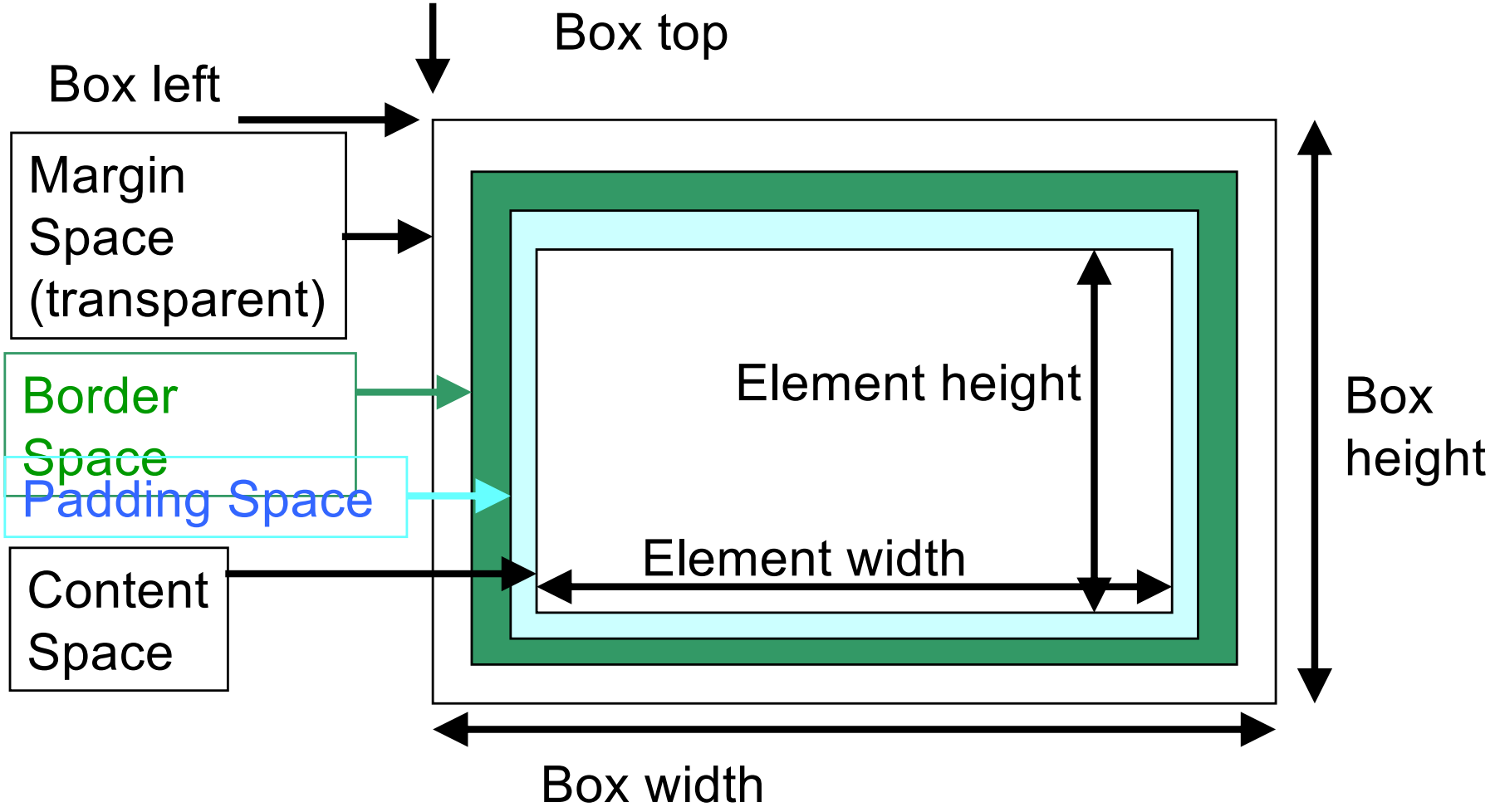
Modified from: DavideDiCillo.com

Formatting elements

line-height:normal|*length*|*percentage*

text-align:left|center|right|justify
text-decoration:blink|line=through|overline|underline
text-indent:*lenght*|*percentage*
text-transform:none|capitalize|uppercase|lowercase

Formatting elements: the Box Model



Formatting elements

border-bottom-width,border-top-width,
border-right-width,border-left-width:thin|medium|thick|n
border-color:*color*
border-style:double|groove|none|inset|outset|ridge|solid
border-width:thin|medium|thick|*length*

margin:*thickness*
margin-bottom,margin-left,margin-right,margin-top :*thickness*

padding :*thickness*
padding-bottom,padding-left,padding-right,padding-top :*thickness*

Formatting elements – lists (<li>)

```
ol {
line-style:decimal|lower-alpha|lower-roman|
                                    upper-alpha|upper-roman
}

ul {
 line-style:circle|disc|square
}

ul {
  list-style-image: url(‘triangle.gif');
}
```

Formatting elements lists (<li>)

- Coffee
- Tea
- Coca Cola

```
ol {
  background: #ff9999;
  padding: 20px;
}
li {
  background: #ffe5e5;
  padding: 5px;
  margin-left: 35px;
}
```

```
ul {
  background: #3399ff;
  padding: 20px;
}
 li {
  background: #cce5ff;
  margin: 5px;
}
```

1. Coffee
2. Tea
3. Coca Cola

CSS
Cascading Style Sheets

Selectors

Basic selectors

- Simple:

```
p { text-align: center; color: red; }
Usage: <p>
```

- Class:

```
.red {color: red; }
Usage: <p class="red"> <h1 class="red">
```

- Universal:

```
*{color: red; }
Usage: <p> <h1>
"
```

- #id:

```
#red {color: red; }
Usage: <p id="red”> <h1 id="red">
```

Combinator selectors

- Simple + class:

```
p.red { text-align: center; color: red; }
Usage: <p class="red"> NOT: <p>, <h1.red>
```

- Grouping:

```
div, p {color: red; }
Usage: <p>, <div>
```

- Descendant:

```
div  p {color: red; }
Usage: <div><p>, <div><i><p> NOT: <p>, <div>
```

- Child:

```
div > p {color: red; }
Usage: <div><p> NOT: <div><span><p> <p>, <div>
```

View also https://www.w3schools.com/css/css_combinators.asp

Example – again on lists (<li>)

```
ol {
  background: #ff9999;
  padding: 20px;
}
ol li {
  background: #ffe5e5;
  padding: 5px;
  margin-left: 35px;
}
```

```
ul {
  background: #3399ff;
  padding: 20px;
}
ul li {
  background: #cce5ff;
  margin: 5px;
```

- Coffee
- Tea
- Coca Cola

1. Coffee
2. Tea
3. Coca Cola

Combinator selectors

Sibling elements must have the same parent element, and "adjacent" means " Immediately following"

- Adjacent sibling:

```
div + p{ text-align: center; color: green; }
Usage: <div>some text</div> <p>more text</p> <p>not this</p>
```

all elements that are siblings of a specified element

- General sibling:

```
div ~ p {color: green; }
Usage: <div>some text</div> <p>more text</p> <p>also this</p>
```

View also https://www.w3schools.com/css/css_combinators.asp

Advanced selectors

- Pseudo-class:

A pseudo-class is used to define a special state of an element: mouse over, get focus, link is visited or not, is n-th child, current language is…

see: https://www.w3schools.com/css/css_pseudo_classes.asp

- Pseudo-element:

A CSS pseudo-element is used to style specified parts of an element: the first letter, the first line, before/after the content, selection…

see: https://www.w3schools.com/css/css_pseudo_elements.asp

Attribute selectors

```
input[type="button"] {
  width: 120px; margin-left: 35px; display: block;
}
```

Selector	Example	Example description
[*attribute*]	[target]	Selects all elements with a target attribute
[*attribute=value*]	[target=_blank]	Selects all elements with target="_blank"
[*attribute~=value*]	[title~=flower]	Selects all elements with a title attribute containing the word "flower"
[*attribute|=value*]	[lang|=en]	Selects all elements with a lang attribute value starting with "en"
[*attribute^=value*]	a[href^="https"]	Selects every <a> element whose href attribute value begins with "https"
[*attribute$=value*]	a[href$=".pdf"]	Selects every <a> element whose href attribute value ends with ".pdf"
[*attribute*=value*]	a[href*="w3schools"]	Selects every <a> element whose href attribute value contains the substring "w3schools"

The value has to be a whole word, either alone, like class="top", or followed by a hyphen(-), like class="top-text"!

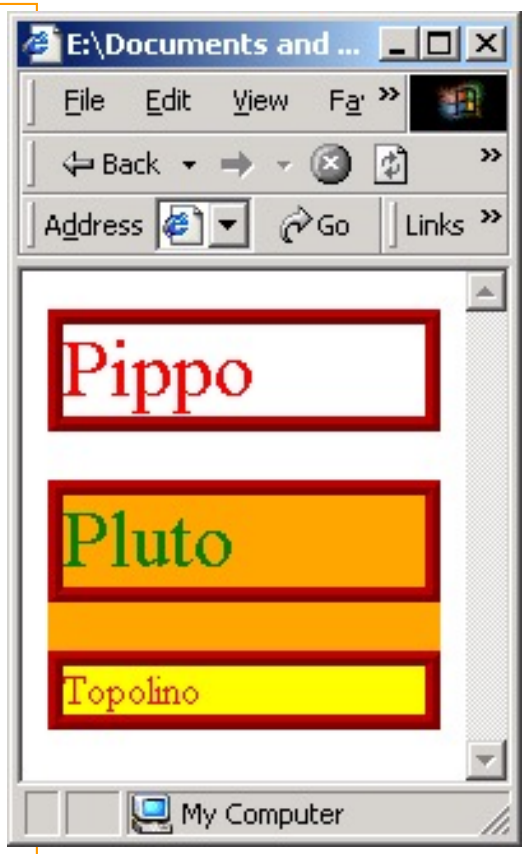
View https://www.w3schools.com/css/css_attribute_selectors.asp

CSS
Cascading Style Sheets

Cascading and positioning

Styles cascade

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>CSS-P demo</title>
    <style>
      a {color:red;}
      p {font-size:24pt;color:green;border-width:thick;
         border-style:ridge;border-color:red;}
      p.red {color:red}
    </style>
  </head>
  <body>
        <p class="red">Pippo</p>
        <div style="background:orange;
            <p> Pluto</p>
            <p class="red" style="font-size:12pt;
               background-color:yellow; ">Topolino</p>
        </div>
    </body>
</html>
```



The !important clause

- !important

- Wins over the other clauses

Positionable Elements – CSS/P

Type of position specification:

position:absolute|relative

Position specification:

top:*size*

left:*size*

dimension specification:

width:*size*

height:*size*

Visibility specification:

visibility:hidden|inherit|show

Positionable Elements – CSS/P

Clip:rect(*top right bottom left*)

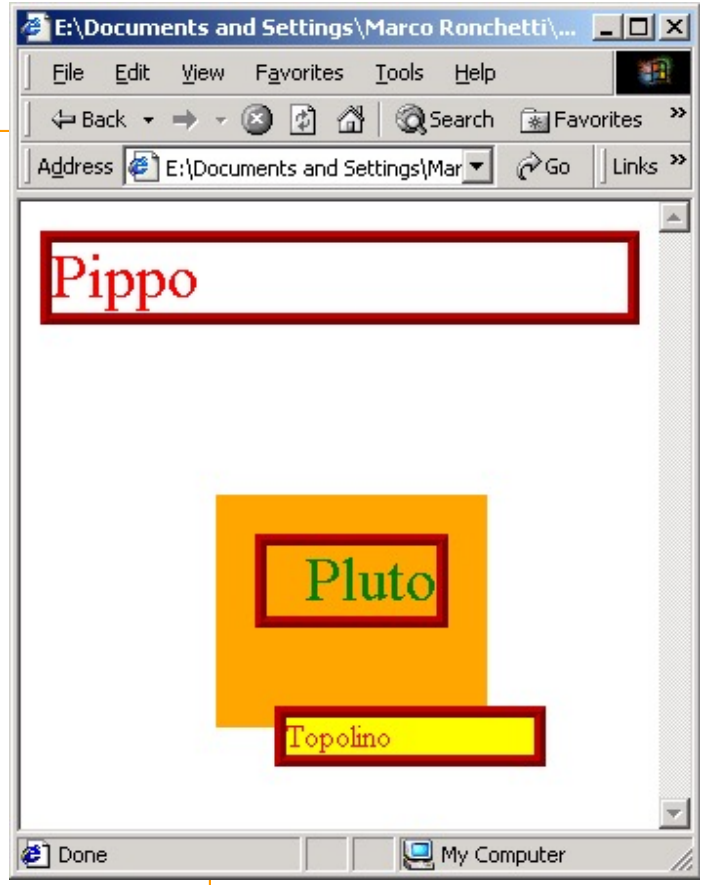
Clip an element (leaving it in place)

z-index:*n*

Decides the superposition ranking

Positioning examples: CSS-P

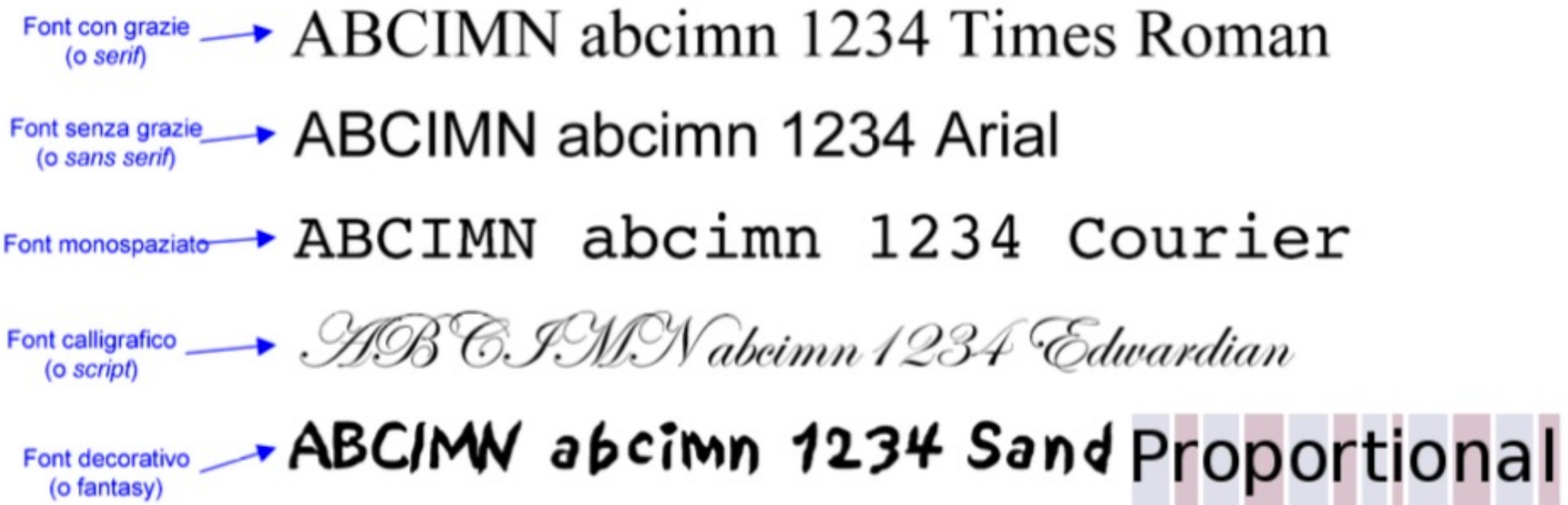
```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>CSS-P demo</title>
    <style>
      #aposition{position:relative;left:30px;top:20px}
      a {color:red;}
      p {font-size:24pt;color:green;border-width:thick;
         border-style:ridge;border-color:red;}
      p.red {color:red}
    </style>
  </head>
  <body>
        <p class="red">Pippo</p>
        <div style="background:orange;
            position:absolute;left:100px;top:150px;">
            <p style="padding-left:20px;margin:20px;">Pluto</p>
            <span id="aposition">
                <p class="red" style="font-size:12pt;
                background-color:yellow; ">Topolino</p>
            </span>
        </div>
    </body>
</html>
```



CSS
Cascading Style Sheets

Some more stuff

Font types



Example of multiple declaration:
p {font-family: Verdana, Helvetica, sans-serif;}

ANY FONT YOU LIKE

```
@fontface {
font-family: 'Museo';
src: url('/fonts/museo.otf') format ('opentype');
```

Taken from: DavideDiCillo.com

BOX AND TEXT SHADOW

```
box-shadow: 10px 10px 25px #ccc;
text-shadow: 10px 10px 25px #ccc;
```

Taken from: DavideDiCillo.com

BORDER RADIUS

```
border-radius: 20px;
```

Modified from: DavideDiCillo.com

border-image:url(border.png) 30 stretch

border-image:url(border.png) 30 round

BORDER IMAGE

```
border-image: url(border.png) 30 round;5 repeat;
```

see
https://www.w3schools.com/cssref/tryit.asp?filename=trycss3_js_border-image

Much more!

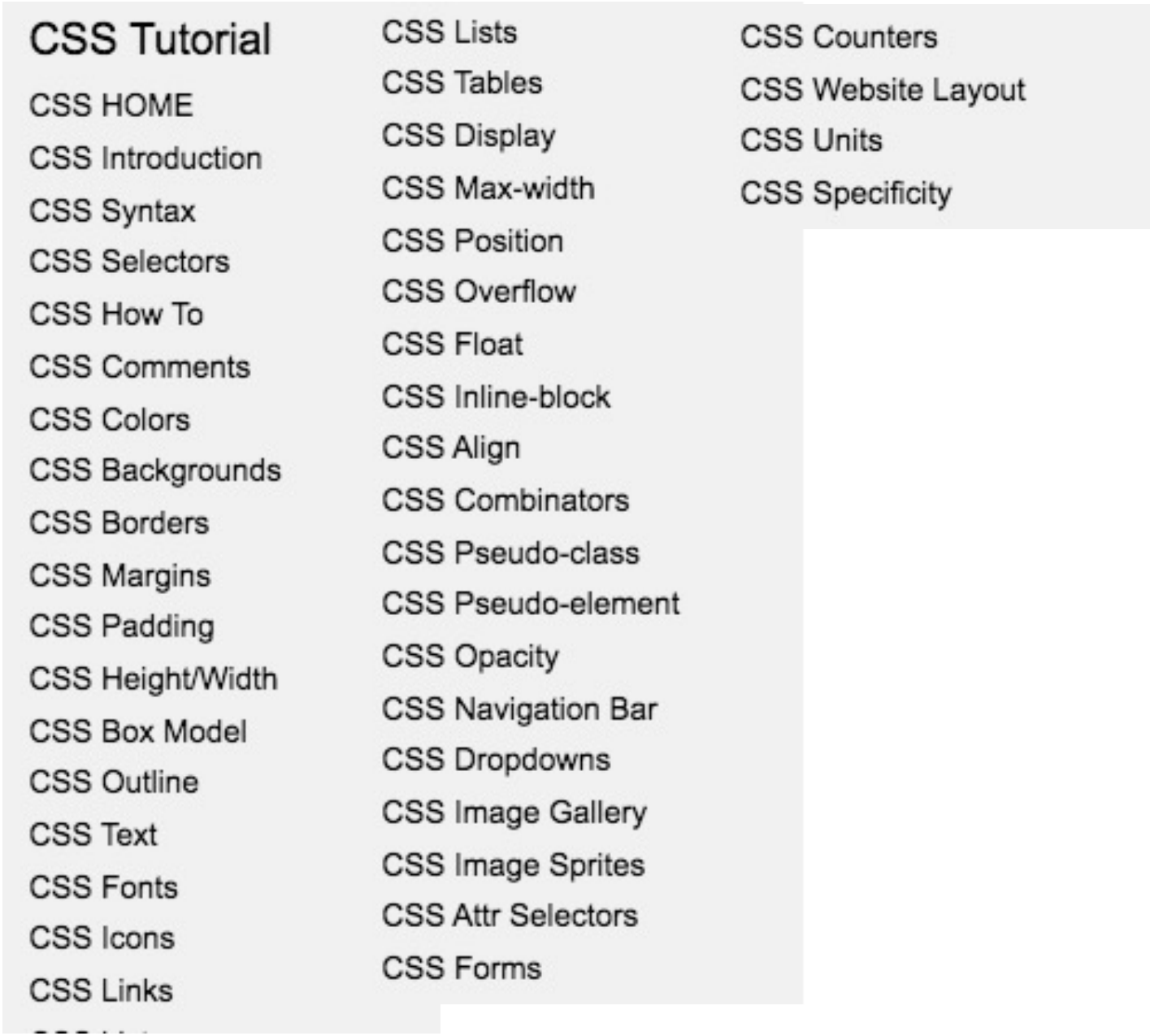
- Pagination
- Multiple column
- Tooltips
- (Graphic) Transformations (e.g. rotations, 2D – 3D)
- Animation

See section “CSS Advanced” in https://www.w3schools.com/css/

CSS
Cascading Style Sheets

Tutorial and gym

CSS Tutorial



https://www.w3schools.com/css/

Making life easier with CSS libraries

Popper

Places your tooltip or popover relative to the reference taking into account their sizes, and positions its arrow centered to the reference.

Takes into account the many different contexts it can live in relative to the reference (different offsetParents, different or nested scrolling containers).

Keeps your tooltip or popover in view as best as possible. It prevents it from being clipped or cut off (overflow prevention) and changes the placement if the original does not fit (flipping).

Short demo

See

https://popper.js.org/

CDN:

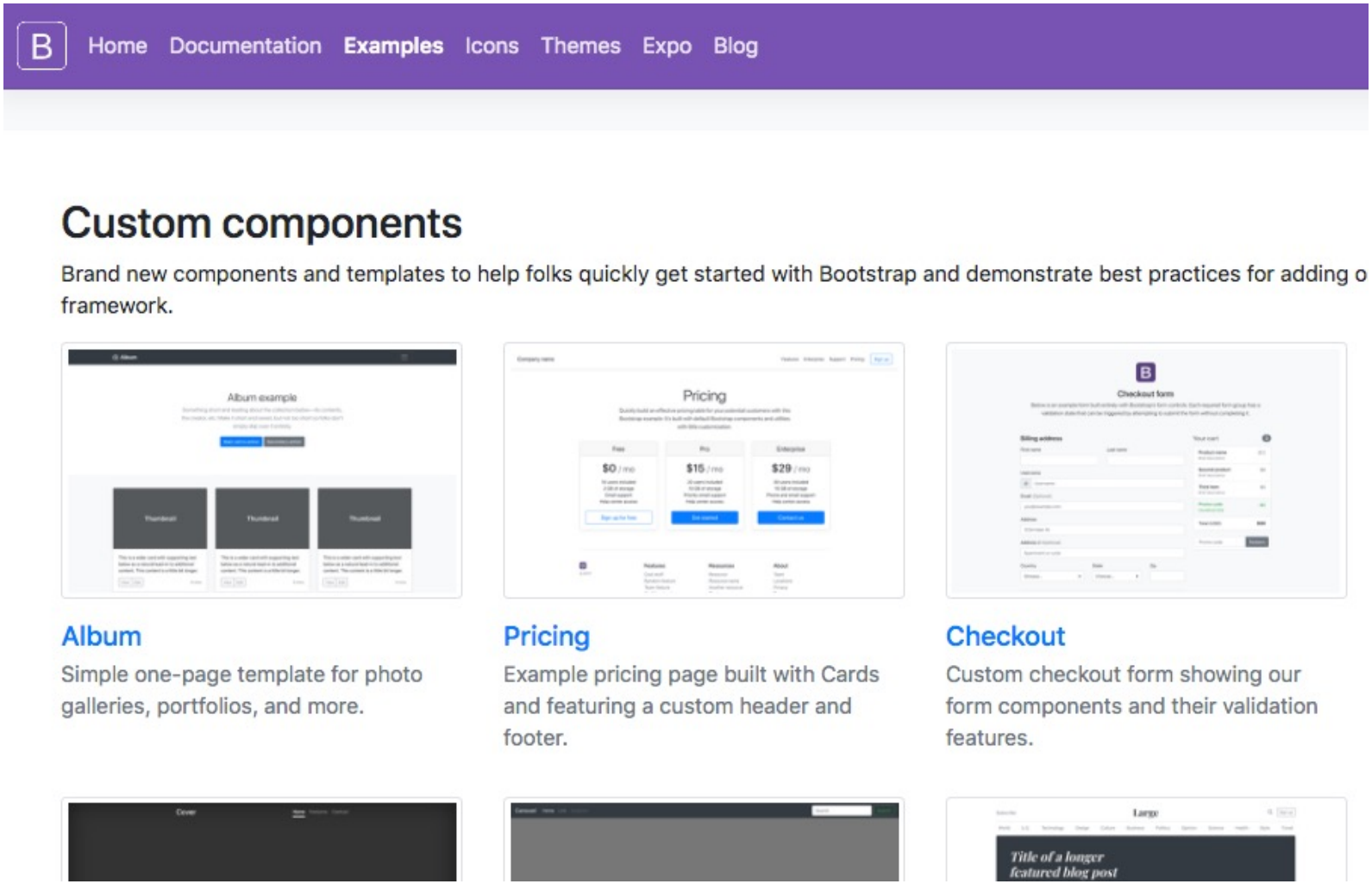
https://unpkg.com/@popperjs/core@2

Bootstrap

Quickly design and customize responsive mobile-first sites with Bootstrap, the world's most popular front-end open source toolkit, featuring responsive grid system, extensive prebuilt components, and powerful JavaScript plugins.

Bootstrap examples

https://getbootstrap.com/docs/4.5/examples/



Inclusion, CDN and starter template

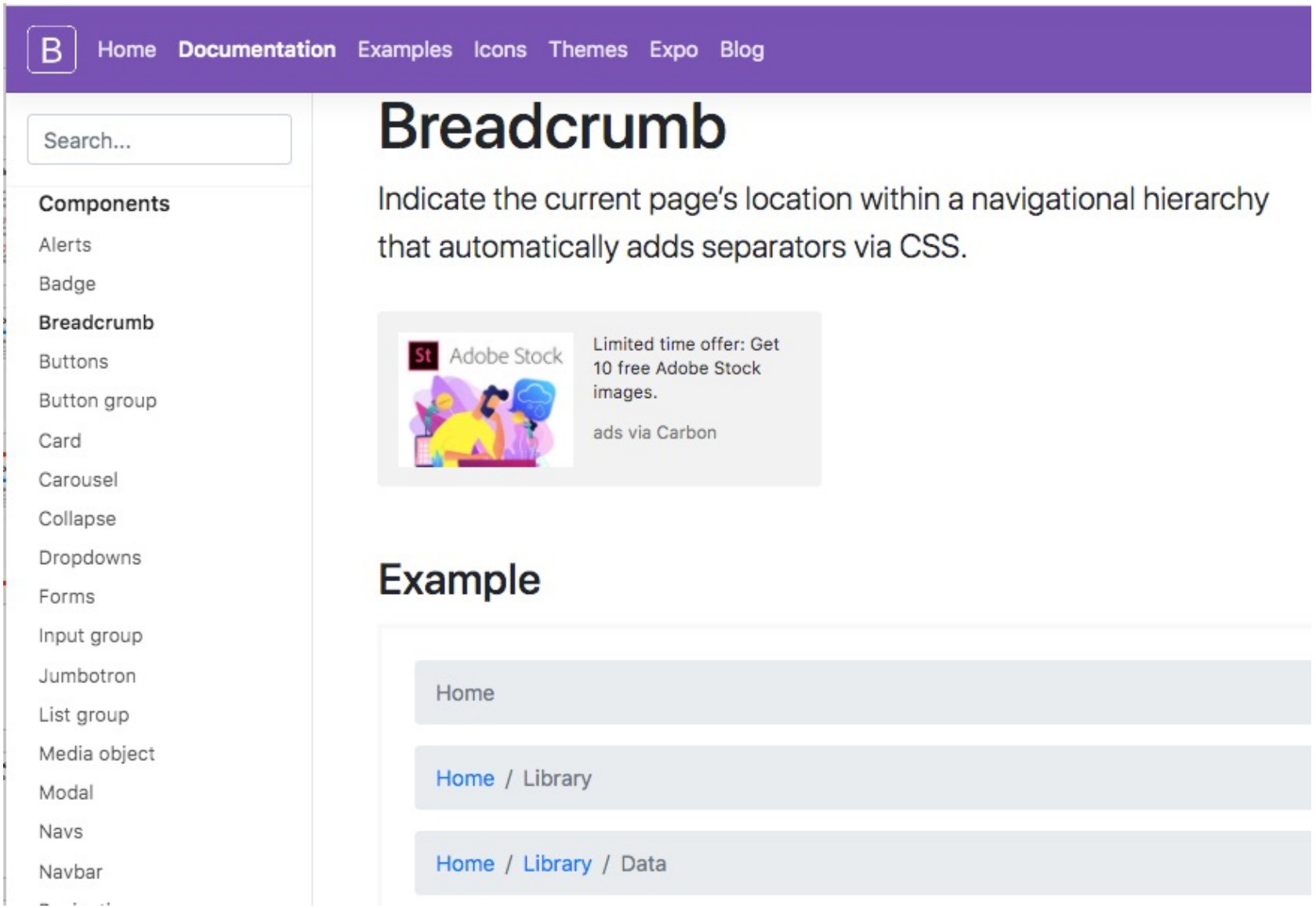
https://getbootstrap.com/docs/4.5/getting-started/introduction/

Copy

```
<!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://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstr

    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js" integrity="sha384-DfXdz2htPH
    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js" integrit
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.min.js" integr
  </body>
</html>
```

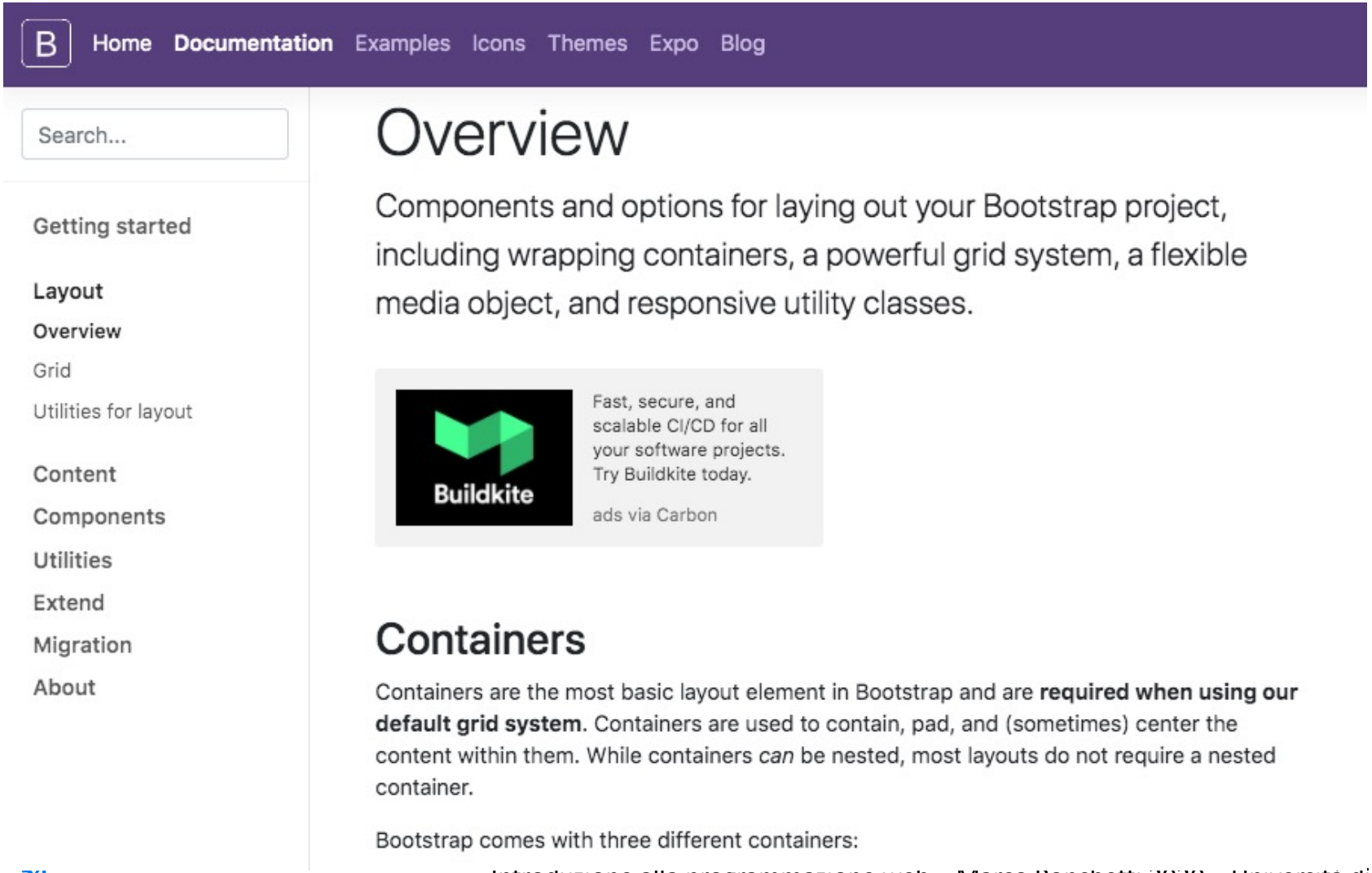
Bootstrap components

https://getbootstrap.com/docs/4.5/components



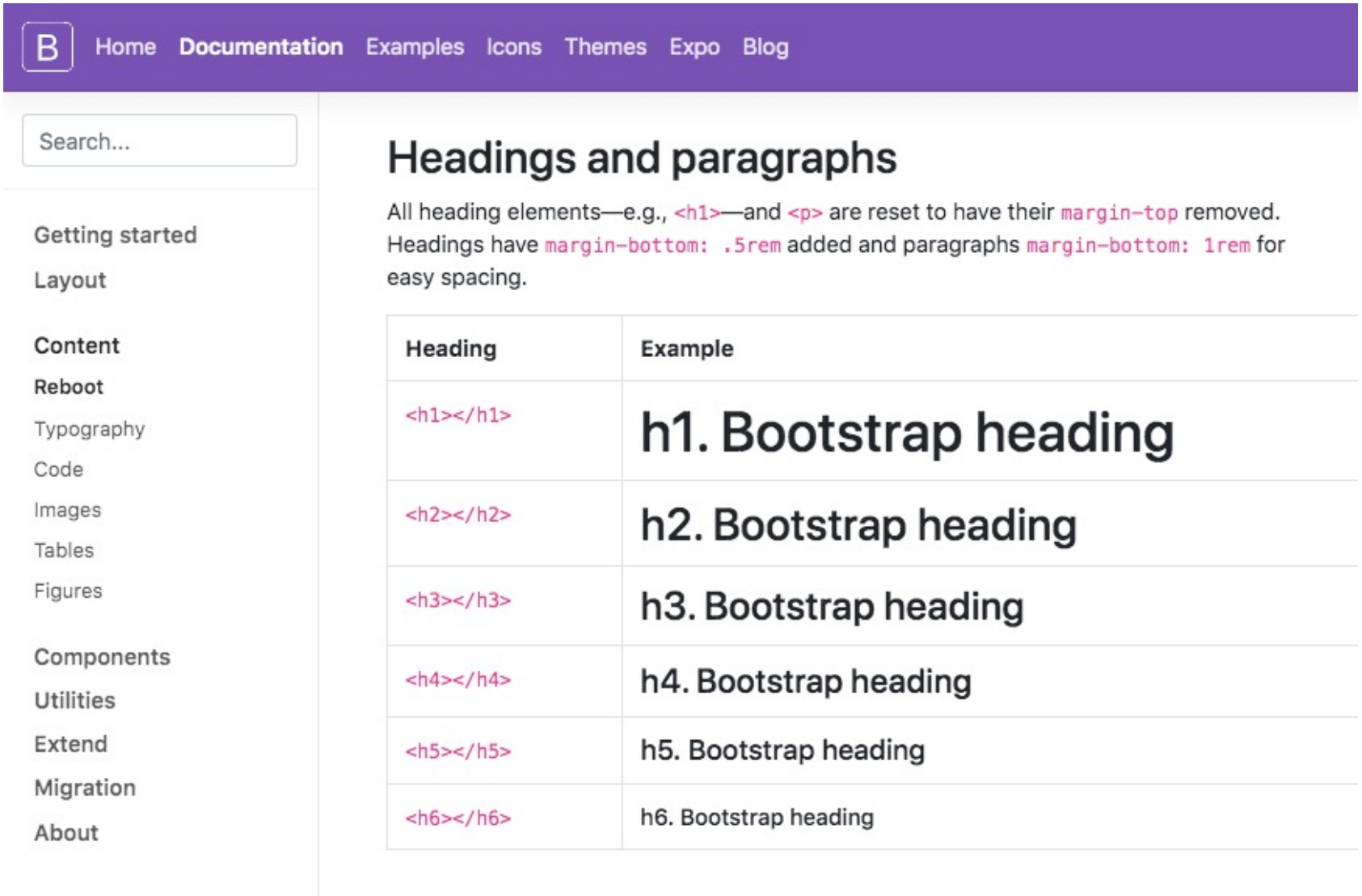
Bootstrap layout

https://getbootstrap.com/docs/4.4/layout



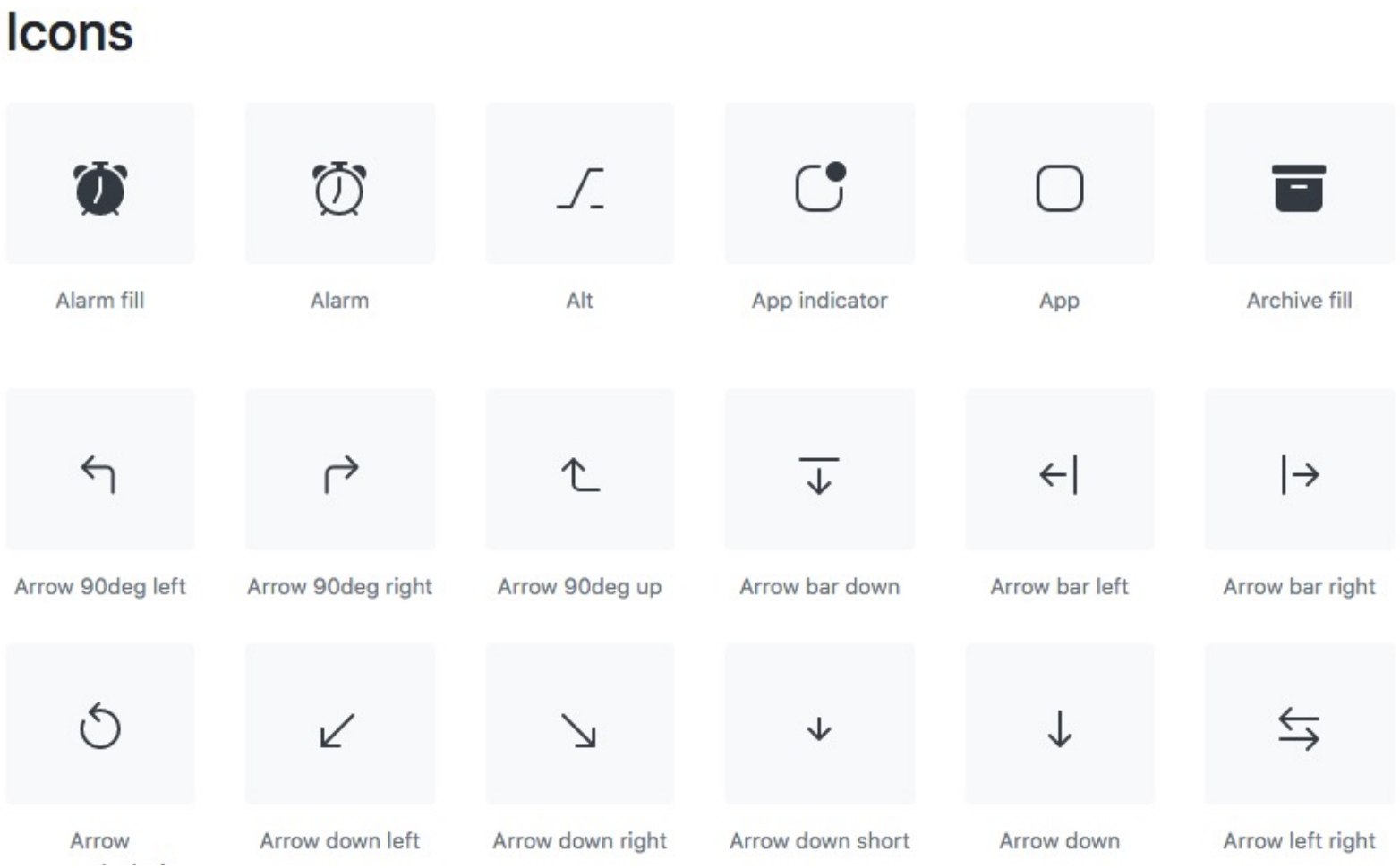
Bootstrap content

https://getbootstrap.com/docs/4.5/content



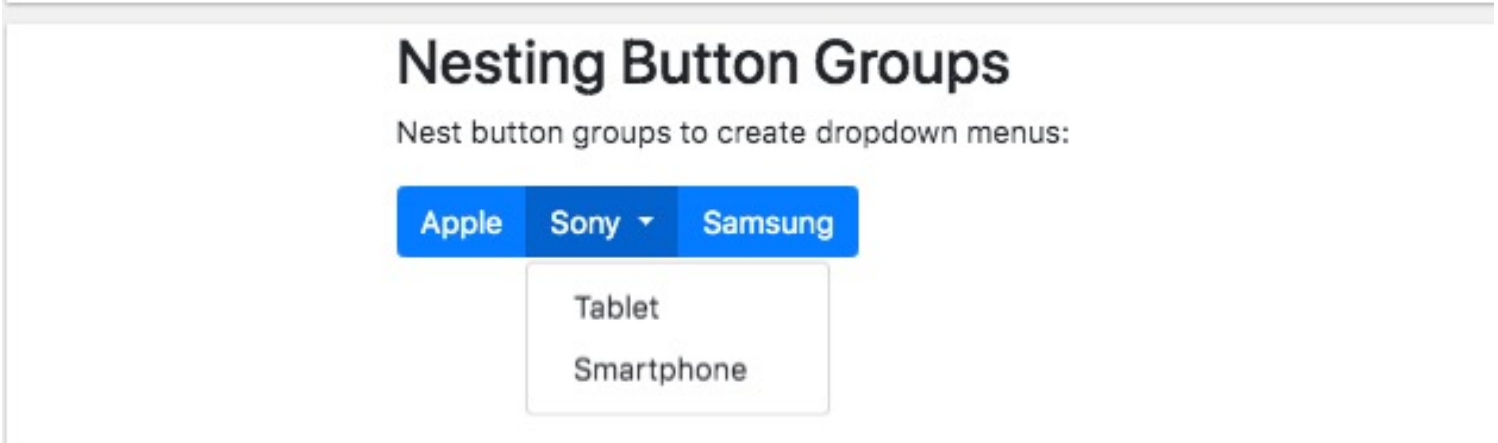
Bootstrap icons

https://icons.getbootstrap.com/



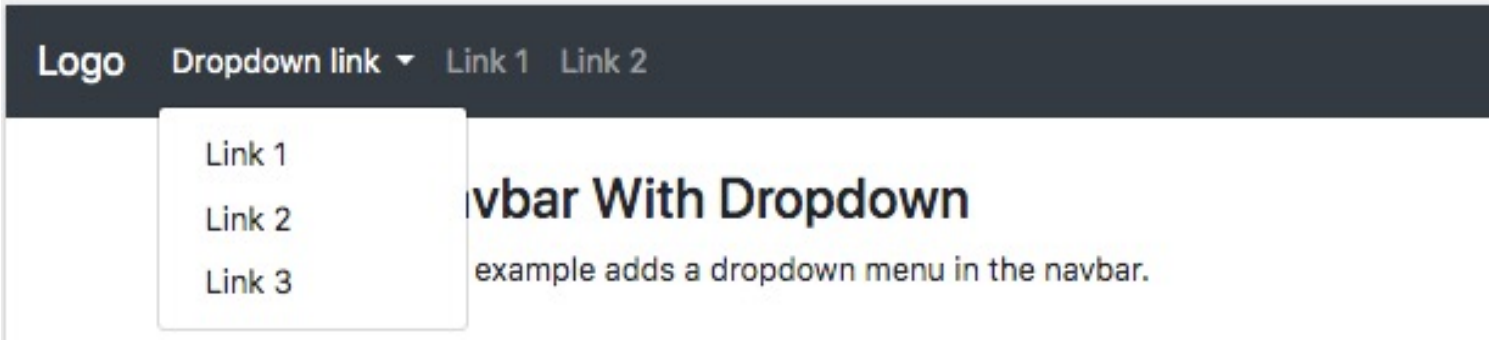
Example 1: Button groups & dropdowns

```
<div class="container">
  <h2>Nesting Button Groups</h2>
  <p>Nest button groups to create dropdown menus:</p>
  <div class="btn-group">
    <button type="button" class="btn btn-primary">Apple</button>
    <div class="btn-group">
      <button type="button" class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
      Sony
      </button>
      <div class="dropdown-menu">
        <a class="dropdown-item" href="#">Tablet</a>
        <a class="dropdown-item" href="#">Smartphone</a>
      </div>
    </div>
    <button type="button" class="btn btn-primary">Samsung</button>
  </div>
</div>

</body>
</html>
```



Example 2: Navigation bar & dropdown

```
    <li class="nav-item dropdown">
      <a class="nav-link dropdown-toggle" href="#" id="navbardrop" data-toggle="dropdown">
        Dropdown link
      </a>
      <div class="dropdown-menu">
        <a class="dropdown-item" href="#">Link 1</a>
        <a class="dropdown-item" href="#">Link 2</a>
        <a class="dropdown-item" href="#">Link 3</a>
      </div>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#">Link 1</a>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#">Link 2</a>
    </li>
  </ul>
</nav>
<br>

<div class="container">
  <h3>Navbar With Dropdown</h3>
  <p>This example adds a dropdown menu in the navbar.</p>
</div>
```

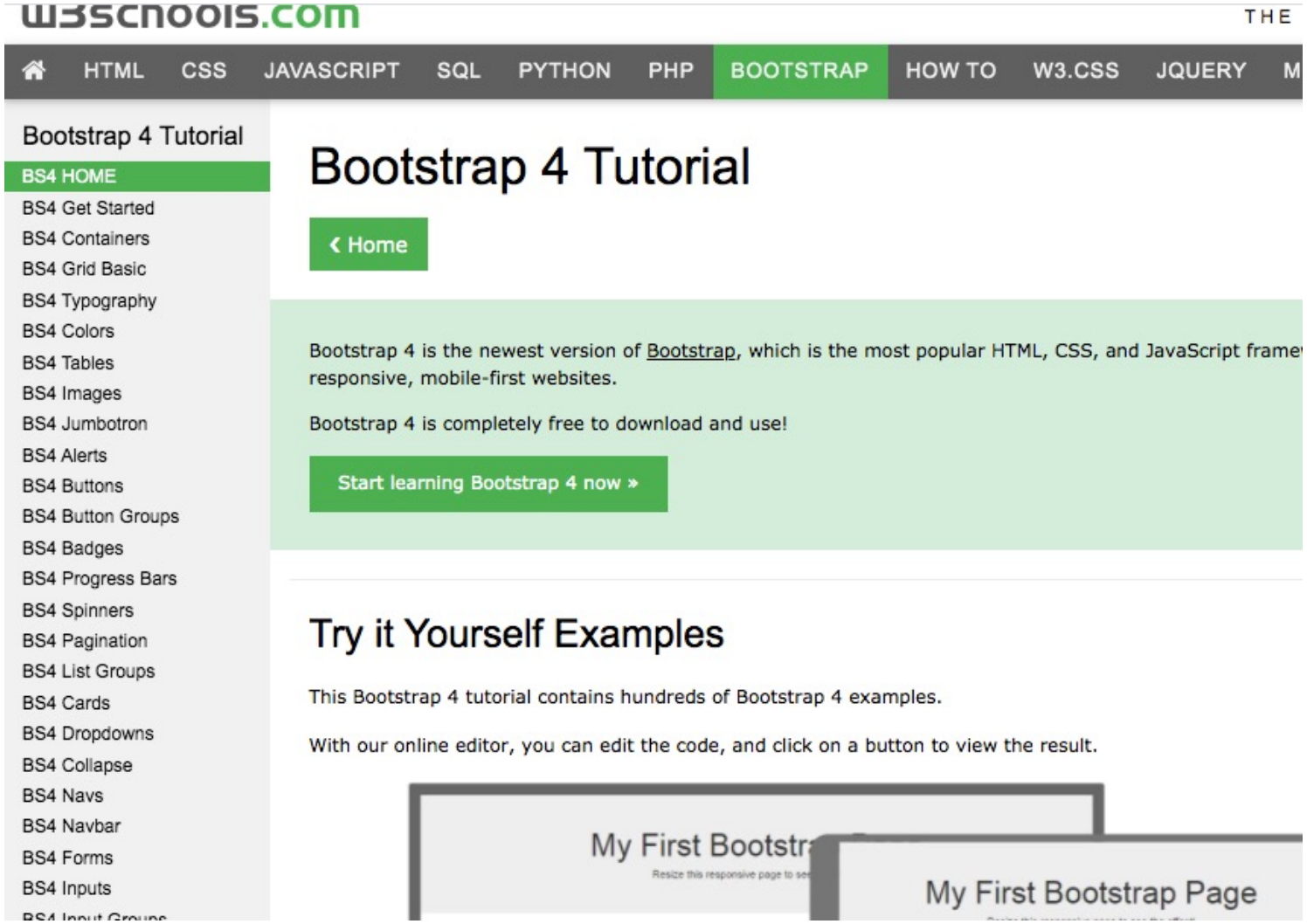


Example 3: Carousel

```
<body>

<div id="demo" class="carousel slide" data-ride="carousel">

  <!-- Indicators -->
  <ul class="carousel-indicators">
    <li data-target="#demo" data-slide-to="0" class="active"></li>
    <li data-target="#demo" data-slide-to="1"></li>
    <li data-target="#demo" data-slide-to="2"></li>
  </ul>

  <!-- The slideshow -->
  <div class="carousel-inner">
    <div class="carousel-item active">
      <img src="la.jpg" alt="Los Angeles" width="1100" height="500">
    </div>
    <div class="carousel-item">
      <img src="chicago.jpg" alt="Chicago" width="1100" height="500">
    </div>
    <div class="carousel-item">
      <img src="ny.jpg" alt="New York" width="1100" height="500">
    </div>
  </div>

  <!-- Left and right controls -->
  <a class="carousel-control-prev" href="#demo" data-slide="prev">
    <span class="carousel-control-prev-icon"></span>
  </a>
  <a class="carousel-control-next" href="#demo" data-slide="next">
    <span class="carousel-control-next-icon"></span>
  </a>
</div>

</body>
```

Example 4: Containers, rows, images

```
<body>

<div class="container-fluid">
  <div class="row">
    <div class="col-sm-3" style="background-color:lavender;"><div class="container">
  <h2>Rounded Corners</h2>
  <img src="cinqueterre.jpg" class="rounded" alt="Cinque Terre" width="304" height="236">
</div></div>
    <div class="col-sm-3" style="background-color:lavenderblush;"><div class="container">
  <h2>Circle</h2>
  <img src="cinqueterre.jpg" class="rounded-circle" alt="Cinque Terre" width="304" height="236">
</div></div>
  </div>
</div>

</body>
</html>
```

If you want to practice…

- https://www.w3schools.com/bootstrap4/default.asp