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HTML, CSS, BOOTSTRAP

HTML, CSS, AND BOOTSTRAP

- **HTML**: HyperText Markup Language
  - a set of instructions that tell a web browser how to interpret content
- **CSS**: Cascading Style Sheets
  - describe how the HTML code is presented
  - separates document content from how it looks
- **BOOTSTRAP**: not an acronym; CSS tool for creating compatible layouts across platforms

HOW DO WEBPAGES LOAD?

- User types a request into a browser.
- Browser connects to website server.

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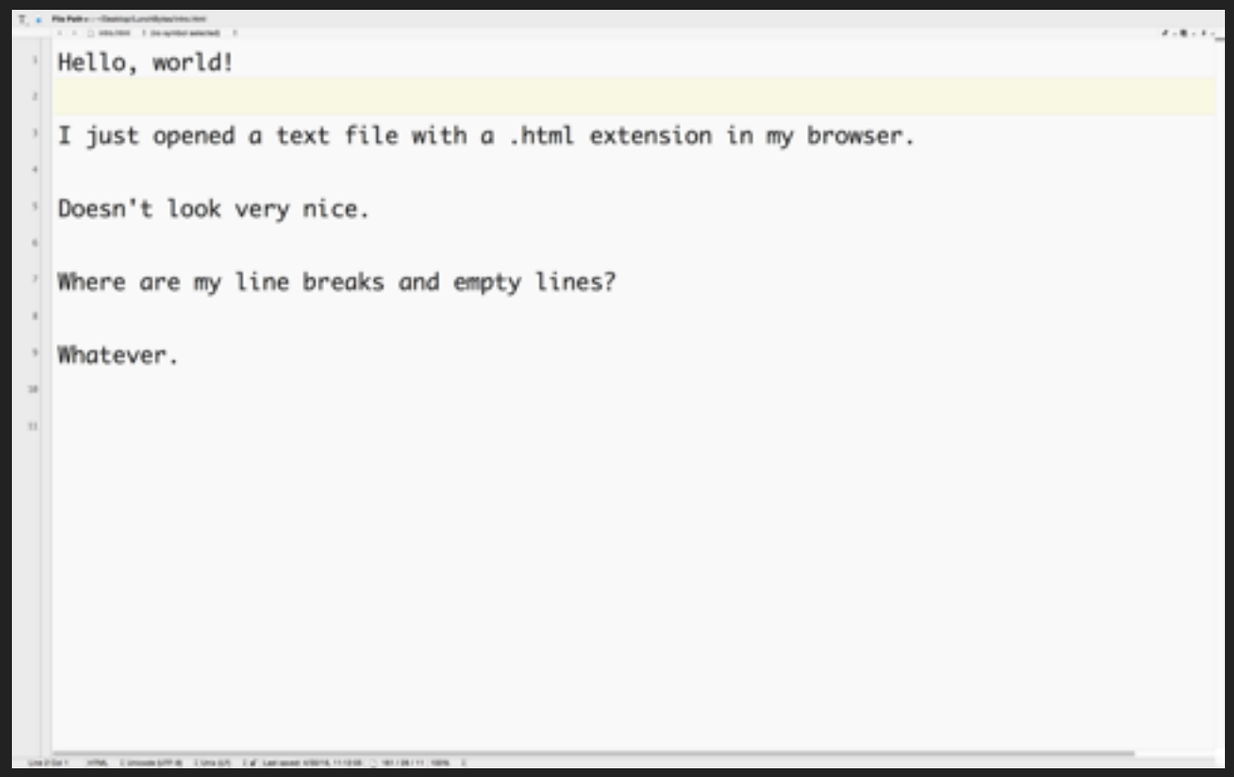
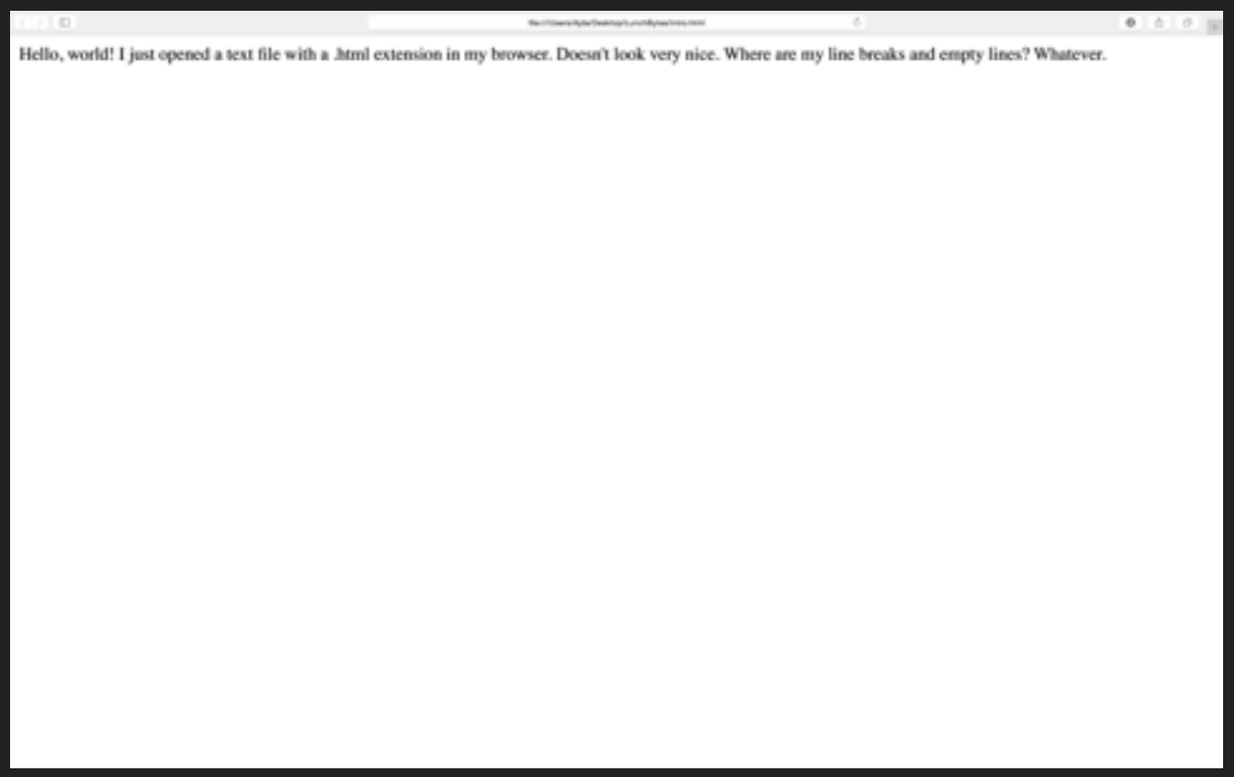
- User types a request into a browser.
- Browser connects to website server.
- Server sends back the desired webpage - in HTML.
- Browser starts parsing (reading) the HTML and displays results to the user.

WHAT DO HTML, CSS, AND BOOTSTRAP DO?

- Browser opening a **text file** with a .html extension:





WHAT DO HTML, CSS, AND BOOTSTRAP DO?

- Browser opening an **HTML** file:

```
<!DOCTYPE html>
<html>
<body>
<h2> Hello, world! </h2>

<h4> I just opened an HTML file in my browser. </h4>

<p> Looks better... Somewhat </p>

<p> Structure more similar <br> to what I typed in. </p>

<p> And I can <b> do </b> <i> cool stuff </i>. I mean, <b><i>really cool
  stuff</i></b>!!!</p>

<p> But still kind of boring. </p>
</body>
</html>
```

WHAT DO HTML, CSS, AND BOOTSTRAP DO?

- Browser opening an **HTML+CSS** file:

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="intro.css">
</head>
<body>
<h2> Hello, World! </h2>

<div class='box'>
<h4> I just opened an HTML file with CSS styling in my browser. </h4>
</div>

<div class='op'>
<p> Niiiiiiiice!!! </p>
</div>

</body>
</html>
```

WHAT DO HTML, CSS, AND BOOTSTRAP DO?

- Browser opening an **HTML+CSS+BOOTSTRAP** file:

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="intro.css">
  <link rel="stylesheet"
      href="http://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css">
</head>
<body>
<div class="jumbotron">
  <div class="container">
    <h2> Hello, World! </h2>
  </div>
</div>
<div class='box'>
  <h4> I just opened an HTML file with CSS and BOOTSTRAP styling in my browser. </h4>
</div>
<div class="container">
  <div class="row">
    <div class='col-md-3'> Nice boxes! </div>
    <div class='col-md-1'> </div>
    <div class='col-md-3'> Things evenly spaced! </div>
    <div class='col-md-1'>  </div>
    <div class='col-md-3'> These could be buttons - neat, huh? </div>
  </div>
</div>
</body>
</html>
```

WHAT DO HTML, CSS, AND BOOTSTRAP DO?

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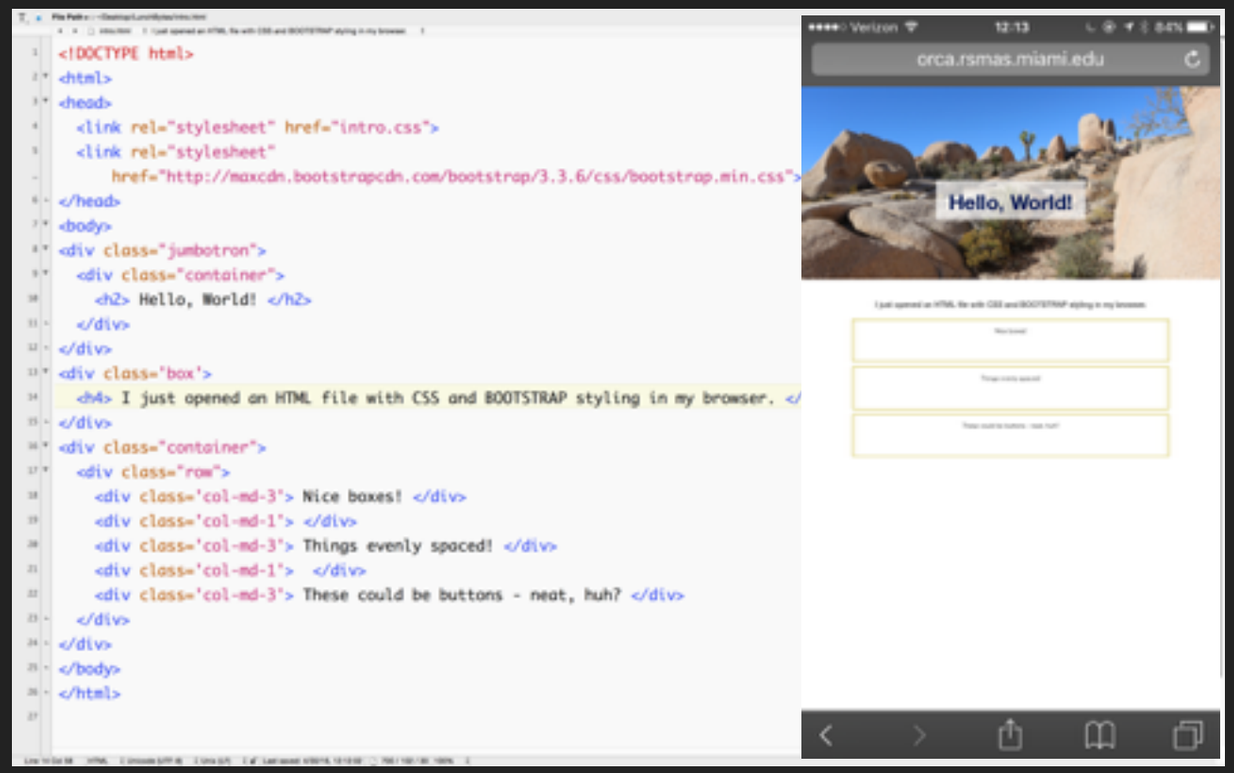


OUTLINE

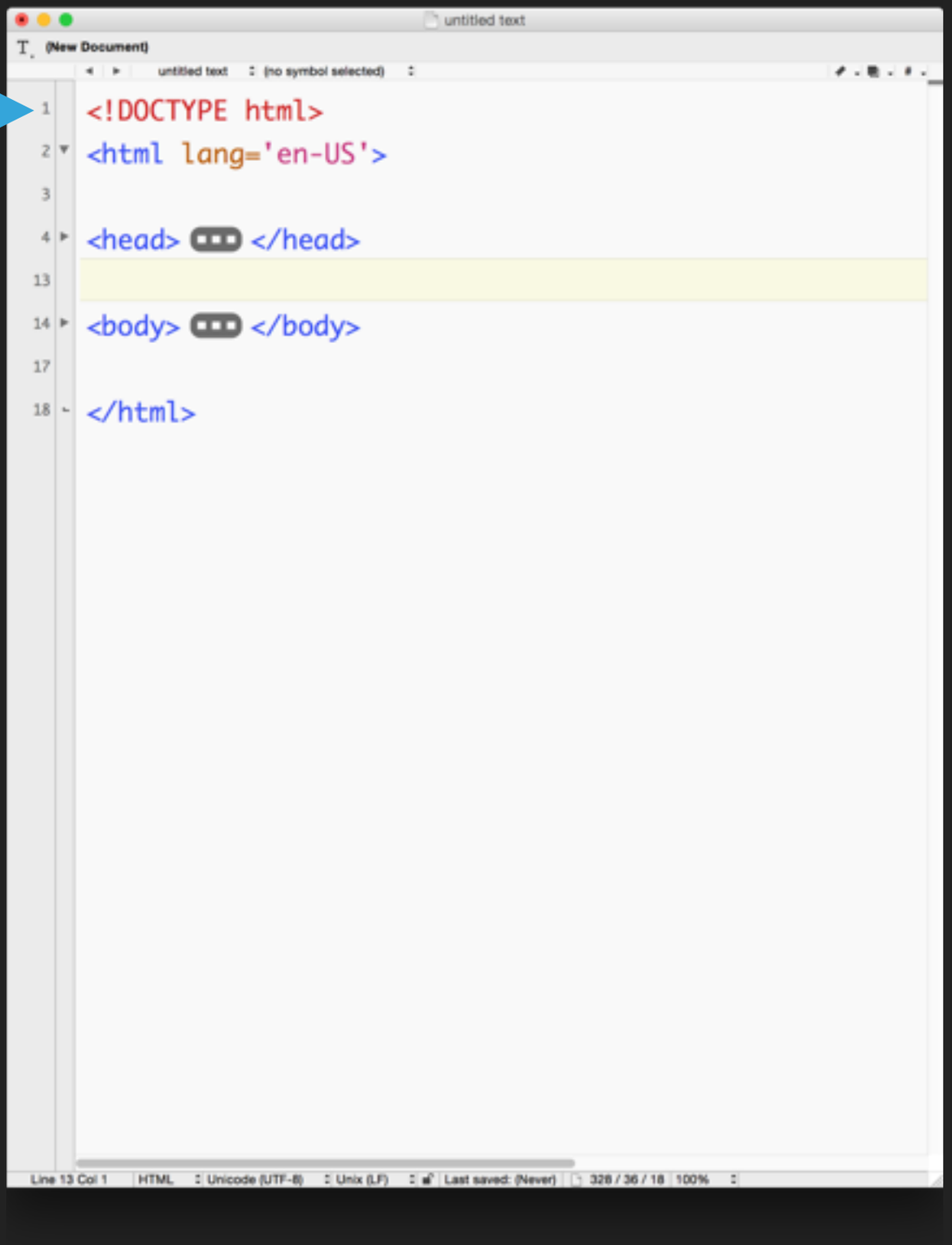
- Only thing you need to create a webpage is a **browser** and a **text editor** (no, you don't even need internet)
  - Mac: TextWrangler; Windows: Notepad++; Linux: Kate, Vim, …
- **The bare bones - basic HTML**
- Making individual elements look pretty - some CSS
- From your computer to your tablet/phone and more - Bootstrap

HTML STRUCTURE

- **opening and closing tags** are the building blocks of HTML
  - **<html> … </html>**, **<table> … </table>**, …

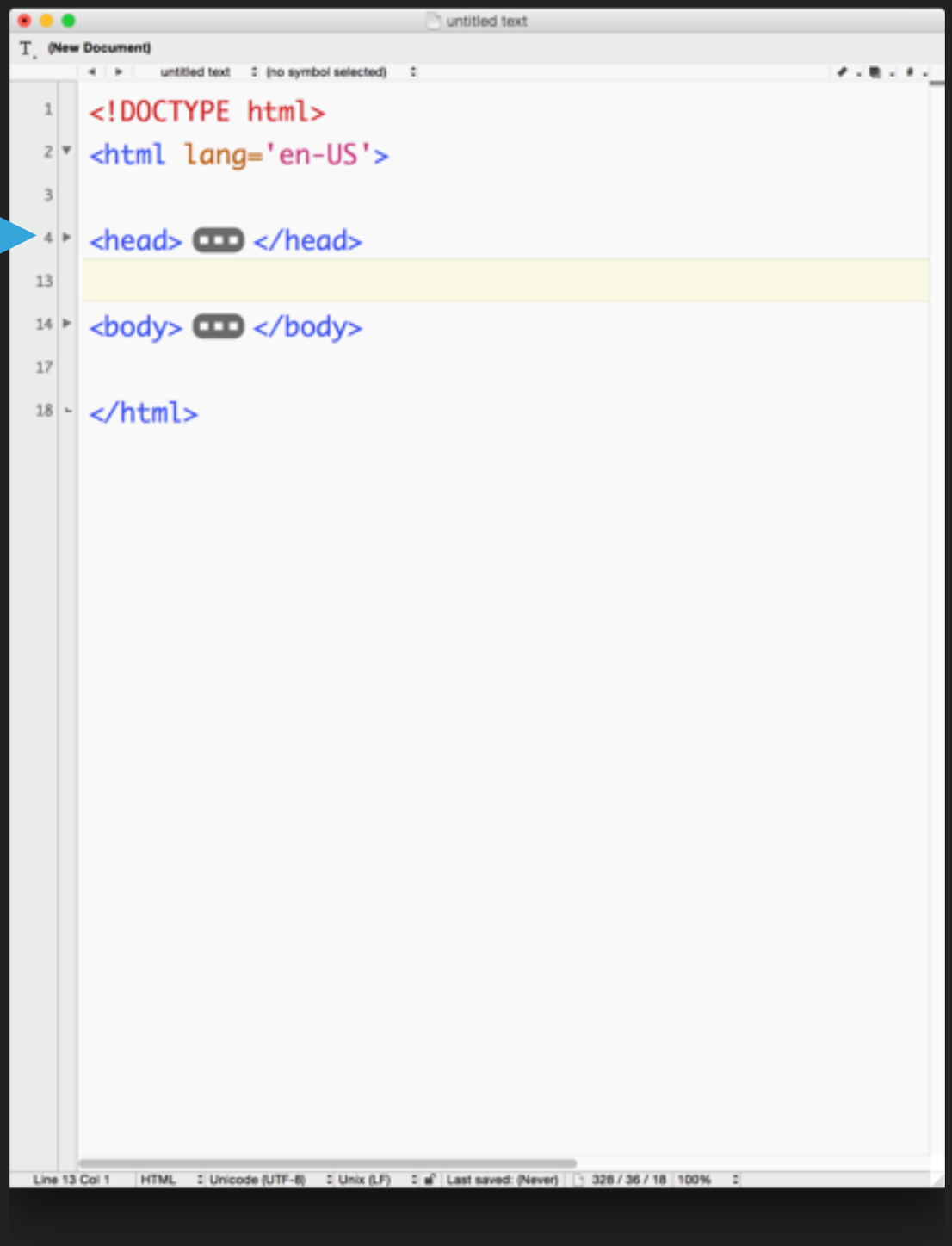
HTML STRUCTURE

- opening and closing tags
  - <html> ... </html>
- basic document structure
  - **doctype declaration** tells the browser what it's looking at



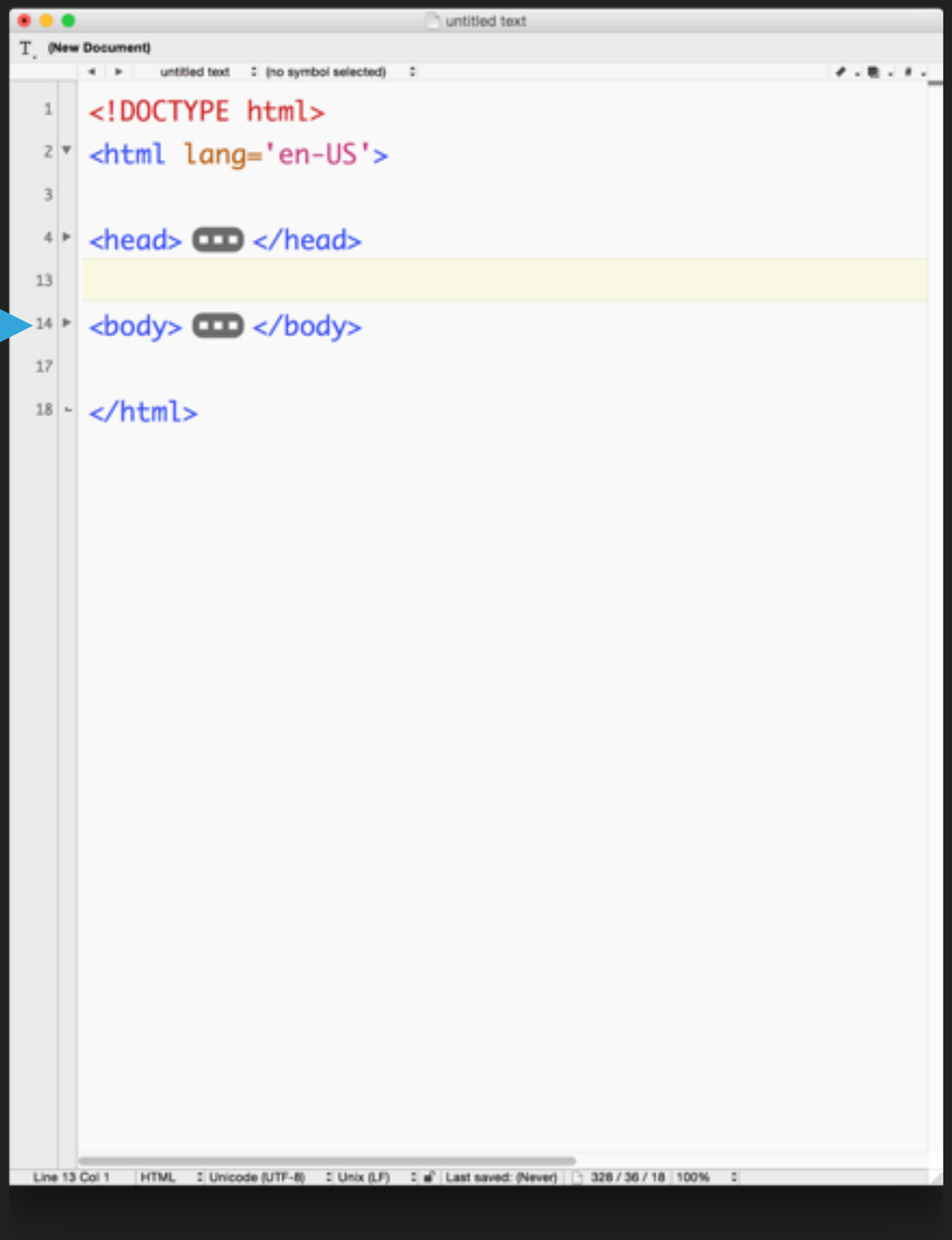
HTML STRUCTURE

- opening and closing tags
  - <html> ... </html>
- basic document structure
  - doctype declaration
  - **head**
    - interpreted by browser, but not displayed
    - contains metadata and information useful to browser



HTML STRUCTURE

- opening and closing tags
  - <html> ... </html>
- basic document structure
  - doctype declaration
  - head
  - **body**
    - entire contents of your webpage - text, images, animations, hyperlinks , ...



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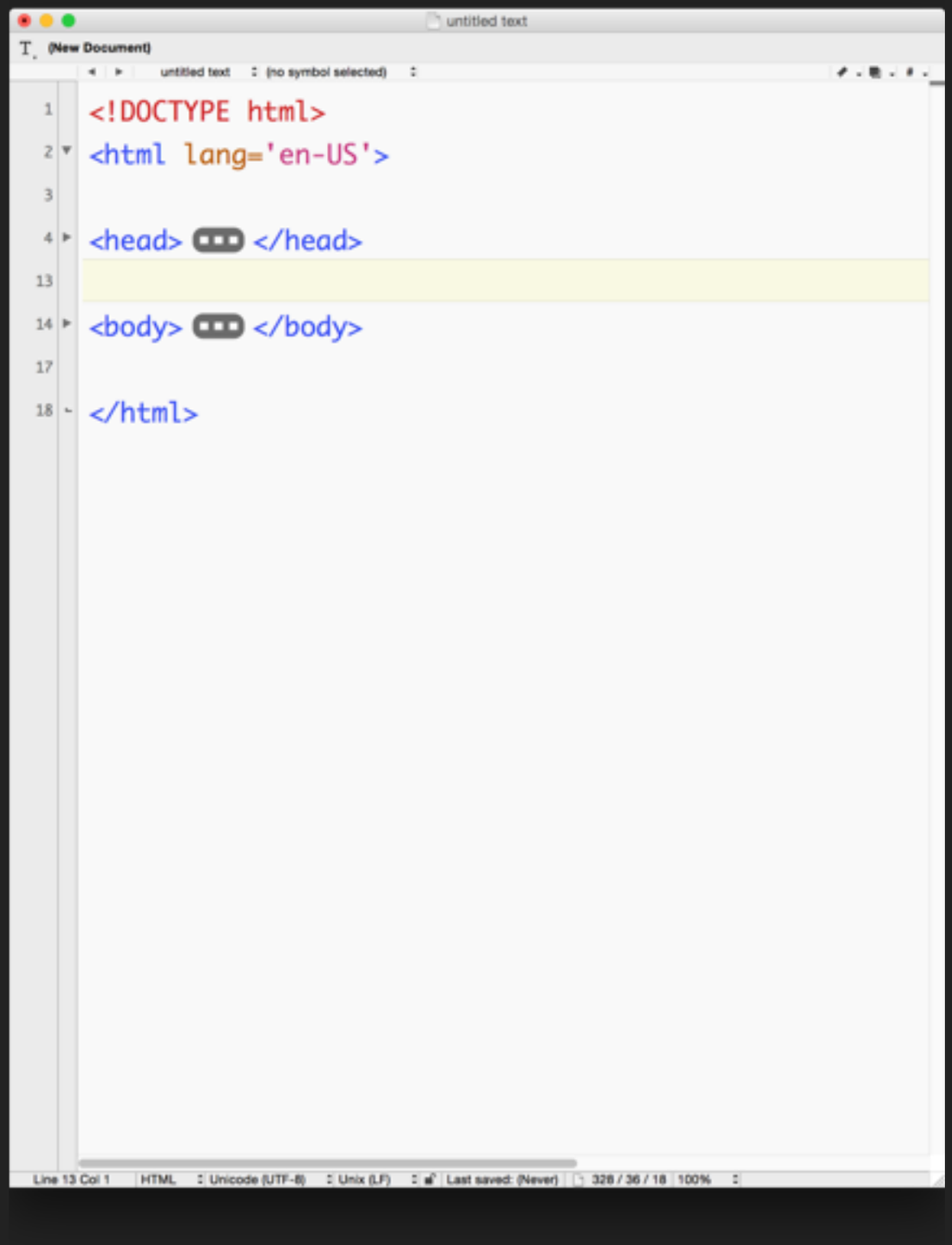
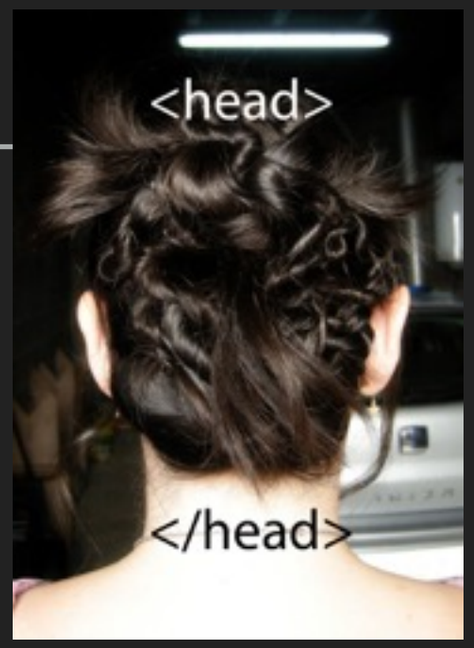


HTML – WHAT GOES IN THE HEAD?



- **<title>** title **</title>** !!!!!!!!!!! - shows in the browser toolbar
- **<style> … </style>** - how elements should look (but nicer and cleaner with CSS)
- **<link …>** - links to external resources (CSS style sheet)
- **<meta …>** - metadata for page
- **<script>** function **</script>** - functions for the page (Google Analytics, Javascript, …)
- **<base …>** - base URL element and target for all relative links

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, text, hyperlinks, images, tables, lists, …

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: **layout**, text, hyperlinks, images, tables, lists, …
- HTML removes all extra spaces and lines
- **
** - line break (what comes after goes in a new line)
- **<hr>** - horizontal dividing line
- ** ** paragraph ** ** - groups, top/bottom spacing
- **<pre>** pre-formatted text **</pre>** - fixed width font, preserves both spaces and line breaks.
- ** ** division ** ** - section of a document, useful for CSS

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, **text**, hyperlinks, images, tables, lists, …
- <h1> headings </h1> - (1-6, 1 is most important); include top and bottom spacing
- **text as is**
- bold (…), italicized (…), <small> … </small>, <mark> highlighted </mark>, <del> strike-through </del>, <ins> underlined </ins>, _{subscript}, ^{superscript}

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, text, **hyperlinks**, images, tables, lists, …
- **<a …>** hyperlink **** - when clicked, takes you somewhere else (different webpage, different location on same page)
- **** click here **** - becomes a link to the url
- **** click here **** - will take you to a part of same page that is called 'text'; but that needs to be defined (bookmarked): **** text **** or **id** in another tag
- **** click here **** - opens in new tab

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, text, hyperlinks, **images**, tables, lists, …
- **<img …>** - inserts an image
- **<img src=‘**image_source.png**’>** - from local source or web
- **<img … alt=‘**alternative**’>** - alternative text if no image
- **<img … width=100, height=30>** - size of image

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, text, hyperlinks, images, **tables**, lists, …
- **<table id='t01'>** table **</table>** - divided into rows, headers, data
- **<caption>** table caption **</caption>** - if present, must follow <table> tag
- **<tr>** table row **</tr>** - every table needs at least one row, that is then filled with either header or data cells
- **<th>** table header cell **</th>** - bold, centered
- **<td>** table data cell **</td>** - content of cell
- parameters: **<… border, align, padding, width, height, bgcolor, …>**

HTML – WHAT GOES IN THE BODY?

- The entire content of your webpage: layout, text, hyperlinks, images, tables, **lists**, …
- Ordered (numbered) lists ** … **
- Unordered (bulleted) lists ** … **
- New line (bullet / letter / number) is created using a **
** bullet point **
**
- Types of ordered bullets: **<ol type= …>** are **‘1’, ‘A’, ‘a’, ‘I’, ‘i’** - numbers, letters, roman numerals

SUMMARY: HTML

- Language interpreted by browsers, marked by tags <>
- HTML document should have: doctype declaration, head, and body sections
- Head is not displayed by browser, but is used to render information about the page by the browser, and store metadata
- Body is where all the content is, in form of text, tables, lists, images, hyperlinks, ...

OUTLINE

- Only thing you need to create a webpage is a **browser** and a **text editor** (no, you don't even need internet)
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- The bare bones - basic HTML
- **Making individual elements look pretty - some CSS**
- From your computer to your tablet/phone and more - Bootstrap

WHY USE CSS?

- HTML was designed for content, not formatting!
- CSS was made to remove (most of) the style formatting from the HTML page, and save it in an external file
- Saves a lot of work - entire webpage can be changed by only editing a few lines
- It’s cleaner
- You can use the same style sheet for multiple html pages, creating a uniform look

HOW TO USE CSS?

- Create an empty text file with a .css format
- Link the CSS file to the HTML document you'd like to format
  - this is done in the <head> of the HTML document:
    - <link rel='stylesheet' href='css_file.css'>
- Start filling in the CSS file - the changes will be applied to the HTML file
- You need to use CSS syntax, which is not the same as HTML (but similar to Javascript)

CSS SYNTAX

- There's no required structure for the page layout (like there is in HTML)
- Syntax includes a selector and a declaration block:
- **h1 { property1: property value;**
- **property2: property value; }**
- **h1** is the selector - the element of the HTML we are operating on
- **property1: property value;** is a declaration - what to do with selector
- all declarations for the same element are enclosed in braces **{}**
- every declaration ends in a semicolon **;** (even the last one!)

CSS SELECTORS

- HTML elements such as <table>, <p>, <hr>, <h1>, <img>, … with **element {}**
- HTML IDs (if you specified name with id tag), with **#id {}**
- HTML classes (specified as class='cls') as **.cls {}**
- Selectors can be nested - only style paragraphs in class cals: **.cls p {}**
- Selectors can be grouped - style all headings the same way: **h1, h2, h3, h4, h5, h6 {}**

CSS PROPERTIES

- Each selector has its own properties that can be adjusted, and many are shared among selectors.
- E.g. working with text: color: green; text-align: center; vertical-align: middle; text-decoration: none; text-transform: uppercase; text-indent: 10px; letter-spacing: 3px; word-spacing; 3px; line-height: 1; direction: rtl; …
- E.g. working with hyperlinks (a bit more complicated); need a sequence of a:link {}, a:visited {}, a:active {}, a:hover {}

CSS PROPERTIES – WHAT ELSE CAN YOU DO?

- margins
- borders
- background colors
- padding
- fonts
- size of elements

SUMMARY: CSS

- Needs to be linked to an HTML document to work
- Can style any element, ID, and class inside the HTML
- Syntax includes a **selector** (element, ID, class), and **declaration statements** separated by semi-colons **;**
- Declaration statements enclosed in braces **{}**
- Each declaration statement consists of a property and its value, separated by a colon **:**

OUTLINE

- Only thing you need to create a webpage is a **browser** and a **text editor** (no, you don't even need internet)
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- **From your computer to your tablet/phone and more - Bootstrap**

WHAT IS BOOTSTRAP

- front-end framework for faster and easier web development
- includes HTML and CSS based design templates for typography, forms, buttons, tables, ...
- easily create responsive designs - websites that automatically adjust themselves to look good across devices and platforms

HOW TO USE BOOTSTRAP?

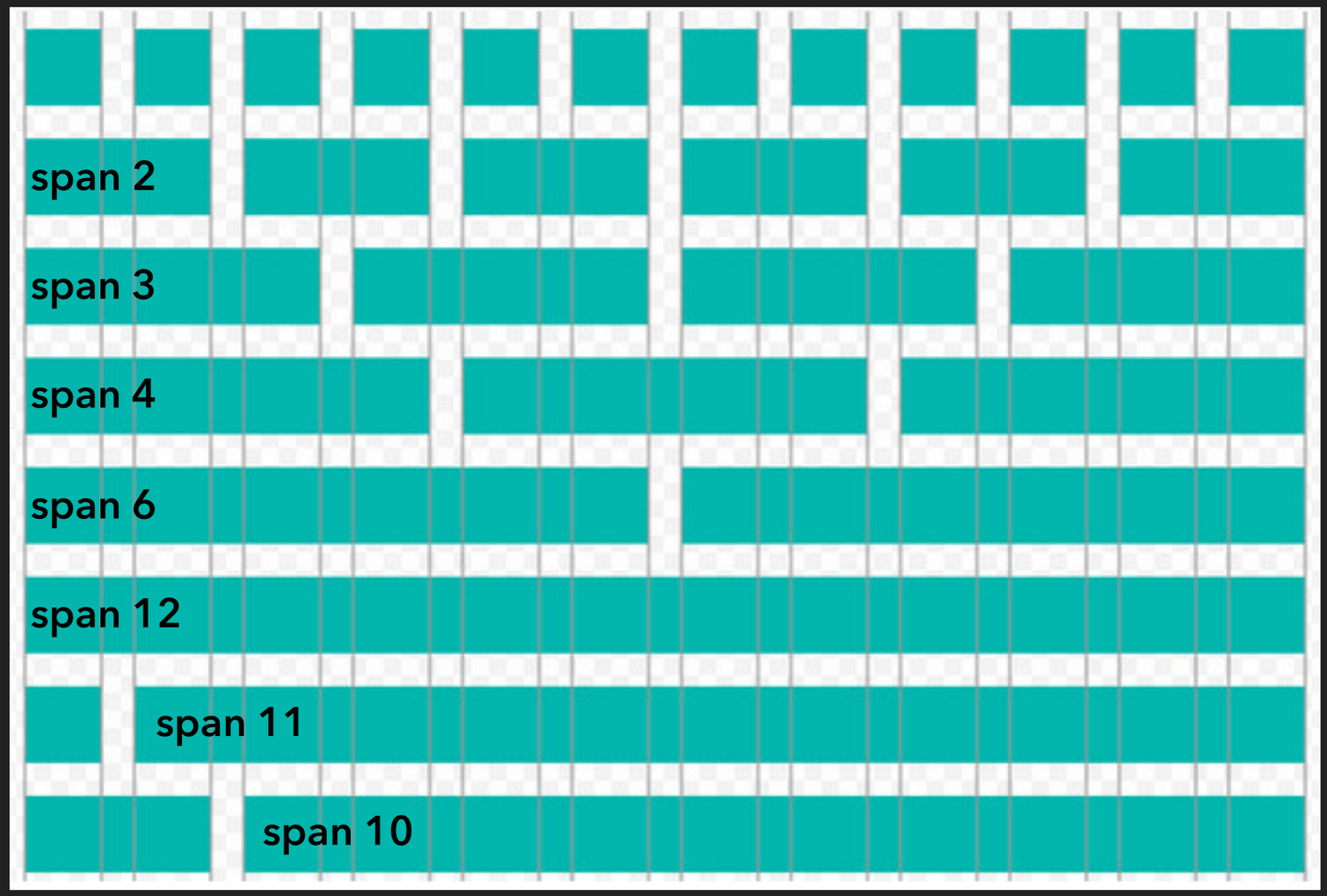
- you can download it and host it: getbootstrap.com
- you can include it from a CDN (content delivery network)
  - this is done in the <head> of the HTML document:
    - <link rel='stylesheet' href='http://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css'> - CSS Bootstrap
    - <script src='https://ajax.googleapis.com/ajax/libs/jquery/1.12.2/jquery.min.js'></script> - jQuery (JavaScript library)
    - <script src='http://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/js/bootstrap.min.js'></script>

GETTING STARTED

- Approach to writing a responsive website is slightly different than a regular HTML script.
- To ensure responsiveness across screen sizes:
  - `<meta name='viewport' content='width=device-width, initial-scale=1'>`
- Site contents need to be wrapped into a container:
  - `<div class='container'>` - fixed-width container
  - `<div class='container-fluid'>` - full-width container, spans entire width

BOOTSTRAP GRID

- Aligns / creates items on a grid that spans 12 columns placed in rows.
- HTML elements can span multiple columns, in any combination
- If row contains elements that span more than 12 columns, it will wrap the last element to the next row



BOOTSTRAP GRID CLASSES AND STRUCTURE

- Grid classes correspond to screen sizes
  - **xs** (phones), **sm** (tablets), **md** (desktops), **lg** (larger desktops)
- Basic structure:

```
<div class='row'> - start a new row
  <div class='col-*-*'> </div>
  <div class='col-*-*'> </div>
  <div class='col-*-*'> </div>
</div> - end the row
```

BOOTSTRAP GRID CLASSES AND STRUCTURE

- Grid classes correspond to screen sizes
  - **xs** (phones), **sm** (tablets), **md** (desktops), **lg** (larger desktops)
- Basic structure:

** ** - start a new row

** **

** **

** **

** ** - end the row

- Example of column class:

**<div class=‘col-md-4'> ** will create a box (frame, placeholder) that spans 4 columns on a desktop

**<div class=‘col-xs-6'> ** will create a box (frame, placeholder) that spans 6 columns on a phone

BOOTSTRAP ADDITIONS

- Bootstrap text defaults are slightly different than that of HTML - headings, and text modifiers <b>, <small>, … mean slightly different things
- Introduces new in-text stylers such as abbreviations, quotes, code examples, contextual text colors, highlighted tables, …
- Cool new feature - creating a Jumbotron - a big box calling for extra attention - it's usually the first thing you will notice
  - ** ** inside or outside the container
- Click-buttons (since it's linked to JavaScript), drop-down menus, …

POSSIBILITIES ARE ENDLESS

- AirBnB: https://www.airbnb.com
- XO Festival: http://xofestival.nl/en/home
- Found My Animal: http://www.foundmyanimal.com
- HubLot: http://www.hublot.com/en/
- Antico Setificio Fiorentino: http://anticosetificiofiorentino.com
- Windows on Tuscany: http://www.windowsontuscany.com
- Meeting Result: https://www.meetingresult.com

SUMMARY: BOOTSTRAP

- Makes your page scale nicely across electronics
- Needs to be linked to an HTML document to work
- Site contents wrapped in a container
- Works on a grid with 12 columns, row by row
- Simple addition of buttons, animations, drop-down menus
- Overall: awesome!

SUMMARY

- **HTML** is used to create site **content**.
- **CSS** is used for **styling** that content - keeps things simple, clean, and better organized.
- **Bootstrap** is used for website **layout**, **compatibility** across devices, and adding things like **drop-down menus**, **buttons**, … which would take some knowledge of JavaScript or other languages