Welcome!

Find your table

Jessica	Brenda
Nicole	Heidi
Steven	Jessie
Linus	Waitlisted/ Auditors

We're going clockwise!

Week 1

The Structure of Websites

Announcements

- Lectures are **mandatory**, we apologize for any confusion in last week's syllabus slides!

- Please remember to

  - create your account on **WDD Portal (wdd.io)**,

  - join our class on **Piazza** (link can be found in WDD portal),

  - and enroll in DES INV 198 on **CalCentral**

- Homework will be announced on Piazza, due **next Monday, 7:00 PM**

- Post your question on **wdd.io/queue** if you're shy to ask

- Please download **ONE** of the text editors in the next slide
(We recommend **Visual Studio Code**, **Atom** or **Sublime**!)

Creative tools

Web Browser	Code Editor	Prototyping
Chrome	Visual Studio Code	Figma
Safari	Atom	Adobe XD
Firefox	WebStorm	Keynote
Opera	Brackets	Powerpoint
Edge	Sublime	~~Illustrator~~

Quick Intro to Websites

<HTML>

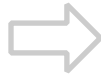# Quick Intro to Websites

<HTML>

What is a website?

A **website** is traditionally a set of web pages served on a single domain

A **web page** is a document, usually written in HTML

A **domain** is an address (wdd.io) that represents a server where the files are located
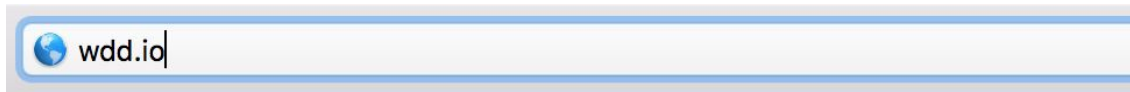
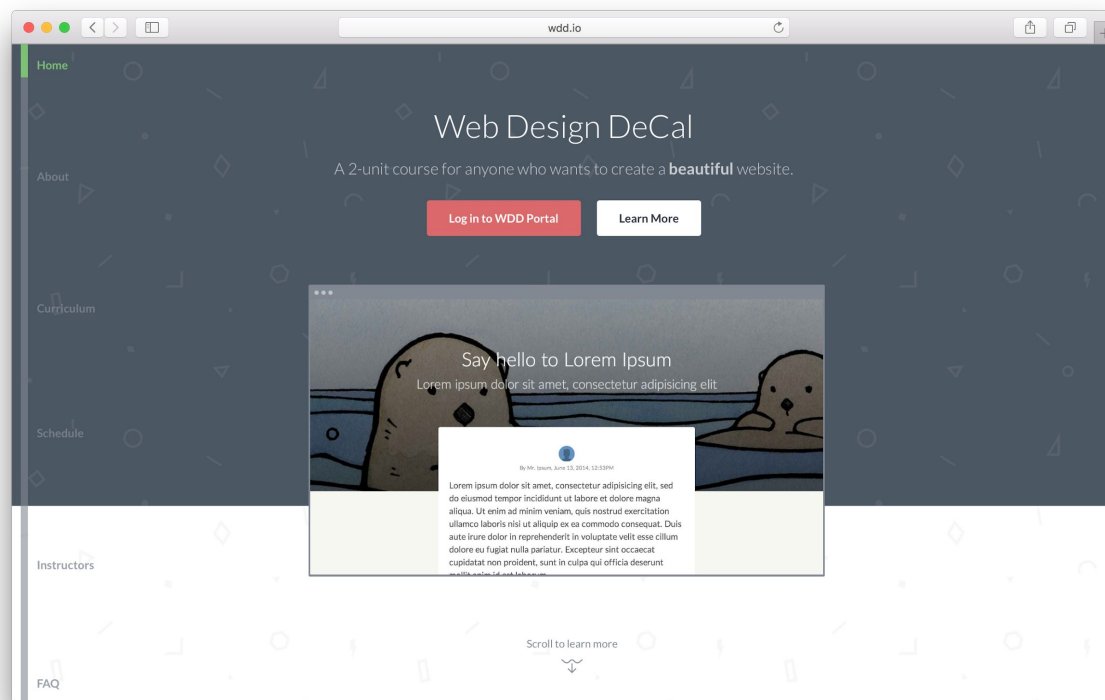**"Fire station"** ⟹

2680 Shattuck Ave, Berkeley, CA 94704

Look up the address

wdd.io ➡ 207.38.86.245

Look up the address

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
    <title>Web Design DeCal</title>
    <meta name="description" content="A 2 unit course in UC Berkeley for anyone who wants to create a
beautiful website." />
    <meta property="og:title" content="Web Design DeCal" />
    <meta property="og:url" content="http://www.wdd.io/" />
    <meta property="og:image" content="http://www.wdd.io/static/thumbnails/logo.png" />
    <meta property="og:description" content="A 2 unit course in UC Berkeley for anyone who wants to
create a beautiful website." />
    <meta property="og:site_name" content="Web Design DeCal" />
    <meta name="twitter:title" content="Web Design DeCal">
    <meta name="twitter:description" content="A 2 unit course in UC Berkeley for anyone who wants to
create a beautiful website.">
    <meta name="twitter:image" content="http://www.wdd.io/static/thumbnails/logo.png">
    <link href='http://fonts.googleapis.com/css?family=Lato:300,400,700' rel='stylesheet'
type='text/css'>
    <link rel="stylesheet" type="text/css" href="/static/css/promotional.css" />
    <link rel="shortcut icon" href="/static/icons/favicon.ico" />
    <script type="text/javascript" src="/static/js/vendor/jquery-1.8.3.min.js" charset="utf-8"></script>
    <script type="text/javascript" src="/static/js/vendor/jquery-ui-1.9.2.min.js"
charset="utf-8"></script>
```

Fetch the file

Render code on canvas

Two ends of a website (*roughly speaking*)

Front end

What users can see &

what happens in your web browser

e.g. text, images, buttons

Back end

What users can't see &

beyond your web browser

e.g. business logic, data storage

What websites are made of

HTML

Structure

CSS

Design

JavaScript

Function

HTML provides the **structure** of the page

A well-written HTML document should be "understandable" without a stylesheet

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
    <title>Web Design DeCal</title>
    <meta name="description" content="A 2 unit course in UC Berkeley for anyone who wants to create a
beautiful website." />
    <meta property="og:title" content="Web Design DeCal" />
    <meta property="og:url" content="http://www.wdd.io/" />
    <meta property="og:image" content="http://www.wdd.io/static/thumbnails/logo.png" />
    <meta property="og:description" content="A 2 unit course in UC Berkeley for anyone who wants to
create a beautiful website." />
    <meta property="og:site_name" content="Web Design DeCal" />
    <meta name="twitter:title" content="Web Design DeCal">
    <meta name="twitter:description" content="A 2 unit course in UC Berkeley for anyone who wants to
create a beautiful website.">
    <meta name="twitter:image" content="http://www.wdd.io/static/thumbnails/logo.png">
    <link href='http://fonts.googleapis.com/css?family=Lato:300,400,700' rel='stylesheet'
type='text/css'>
    <link rel="stylesheet" type="text/css" href="/static/css/promotional.css" />
    <link rel="shortcut icon" href="/static/icons/favicon.ico" />
    <script type="text/javascript" src="/static/js/vendor/jquery-1.8.3.min.js" charset="utf-8"></script>
    <script type="text/javascript" src="/static/js/vendor/jquery-ui-1.9.2.min.js"
charset="utf-8"></script>
```

HTML example from wdd.io

CSS provides the **design** of the page

Just several lines of "code" is enough to create "design"
shapes, color, buttons, you name it

```css
body {
    margin: 0;
    font-family: 'Lato', sans-serif;
    background: #f7f5f2;
    -webkit-font-smoothing: antialiased;
}

a {
    color: inherit;
    text-decoration: none;
}

.img-scaled {
    width: 100%;
}

.img-scaled-wh {
    width: 100%;
    height: 100%;
    object-fit: cover;
}

.clear {
    clear: both;
```

JavaScript provides the **function** of the page

What will happen to websites with JavaScript disabled?

```javascript
function resize_dom(window_height) {
    $('.schedule-item')
        .css('padding-top', (($(window).height() - window_height) / 2) + 'px');
    $('.schedule-item:nth-child(12)')
        .css('padding-bottom', (($(window).height() - window_height) / 2) + 'px');
    $('#apply-header').css('height', $(window).height() - 180 + 'px');

    setTimeout(function(){
        scheduleOffsetDict = {};
        $('.schedule-item').each(function(i){
            scheduleOffsetDict[$(this).position().top - 120] = i;
        });
    }, 100);
}

function set_cover() {
    var offsetY = $(window).height() * 0.7 - 340;
    $('.window-container').css('top', offsetY);
}

$(document).ready(function(){

    set_cover();
```

JavaScript example from wdd.io

What websites are made of

HTML

Structure

CSS

Design

JavaScript

Function

🙋🙋‍♂️

Questions?

Quick Intro to Websites

<HTML>

What is HTML?

What does it look like?

How do we use it?

What is HTML?

What does it look like?

How do we use it?

What is HTML?

Hypertext Markup Language

A collection of **tags** related to each other
in **parent-child relationships**

What is HTML?

Hypertext Markup Language

A collection of **tags** related to each other
in **parent-child relationships**

Matryoshka Dolls

A collection of **dolls** related to each other
in **nested relationships**

What is HTML?

What does it look like?

How do we use it?

Anatomy of an HTML Document

```html
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content
            goes inside the body tag -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

(size may vary on your screen, but that's ok!)

Welcome to WDD!

Tags are the building blocks of HTML
And they *"usually"* come in pairs

Opening tag

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Closing tag

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Pair of paragraph tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

One exception: self-closing tag

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Tags can contain other tags, text, or a combination of 'em

Words inside paragraph tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Nesting tags

```html
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Nesting more tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Tags begun with `<!` usually have special purposes `<3`

To begin an HTML5 document

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Annotations/comments

```html
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Some special tags to structure an HTML page

Pair of html tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

Don't forget about the `<!doctype html>` before `<html>`

What is an html tag?

- Contains everything of a webpage
- There should only be one of this in the entire file

`<html>  </html>`

Don't forget about the `<!doctype html>` before `<html>`

Pair of head tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png"/>
    </body>
</html>
```

What is a head tag?

- User does **not** see what is here
- Sets up the page
- Title (on tab) of page
- Links to important resources
  - CSS and JS files
  - Fonts
- Author(s) of webpage
- Other metadata
- Sits inside `<html></html>`

`<head>` `</head>`

Pair of body tags

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```

What is a body tag?

- User **does** see what is here
- All the webpage content
  - Words and text
  - Images
- Also sits inside `<html></html>`

`<body>   </body>`

An analogy

head & body ≈ brain & body

A lot of the tags seem very specific
What about a *"generic"* tag to structure the content?

What tags can we spot here?

```html
<!doctype html>
<html>
    <head></head>
    <body>
        <h1>Department store</h1>
        <div>
            <h2>Fruit</h2>
            <p>We have apples, oranges, pears, etc.</p>
        </div>
        <div>
            <h2>Coffee</h2>
            <p>There is cold brew, decaf, ????</p>
        </div>
    </body>
</html>
```

Department store

Fruit

We have apples, oranges, pears, etc.

Coffee

There is cold brew, decaf, ????

What is a div tag?

- An empty, meaningless box!
- "Divides" up page content for better structure — grouping things

```html
<!doctype html>
<html>
    <head></head>
    <body>
        <h1>Department store</h1>
        <div>
            <h2>Fruit</h2>
            <p>We have apples, oranges, pears, etc.</p>
        </div>
        <div>
            <h2>Coffee</h2>
            <p>There is cold brew, decaf, ????</p>
        </div>
    </body>
</html>
```

Semantic HTML example: div vs. section

```
<!doctype html>
<html>
    <head></head>
    <body>
        <h1>Department store</h1>
        <div>
            <h2>Fruit</h2>
            <p>We have apples, oranges, pears, etc.</p>
        </div>
        <div>
            <h2>Coffee</h2>
            <p>There is cold brew, decaf, ????</p>
        </div>
    </body>
</html>
```

```
<!doctype html>
<html>
    <head></head>
    <body>
        <h1>Department store</h1>
        <section>
            <h2>Fruit</h2>
            <p>We have apples, oranges, pears, etc.</p>
        </section>
        <section>
            <h2>Coffee</h2>
            <p>There is cold brew, decaf, ????</p>
        </section>
    </body>
</html>
```

Very exciting.

A

<a>
<abbr>
<acronym>
<address>
<applet>
<area>
<article>
<aside>
<audio>

B

<b>
<base>
<basefont>
<bdi>
<bdo>
<bgsound>
<big>
<blink>

C

<canvas>
<caption>
<center>
<cite>
<code>
<col>
<colgroup>
<content> ⚙

D

<data>
<datalist>
<dd>
<decorator> ⚙

<blockquote>
<body>

<button>

<del>
<details>
<dfn>
<dialog>
<dir>
<div>
<dl>
<dt>

E

<element> ⚙
<em>
<embed>

F

<fieldset>
<figcaption>
<figure>
<font>
<footer>

<form>
<frame>
<frameset>

G H

<h1>
<h2>
<h3>
<h4>
<h5>
<h6>
<head>
<header>
<hgroup>
<hr>
<html>

I

<i>
<iframe>

<img>
<input>
<ins>
<isindex>

J K

<kbd>
<keygen>

L

<label>
<legend>

<link>
<listing>

M

<main>
<map>
<mark>
<marquee>

<menu>
<menuitem>
<meta>
<meter>

N

<nav>
<nobr>
<noframes>
<noscript>

O

<object>

<optgroup>
<option>

P

<p>

<param>
<picture>
<plaintext>
<pre>
<progress>

Q

<q>

R

<rp>
<rt>
<ruby>

S

<s>
<samp>
<script>
<section>
<select>
<shadow> ⚙

<small>
<source>
<spacer>
<span>
<strike>
<strong>
<style>
<sub>
<summary>
<sup>

T

<table>
<tbody>
<td>
<template> ⚙
<textarea>
<tfoot>
<th>
<thead>

<time>
<title>
<tr>
<track>
<tt>

U

<u>

V

<var>
<video>

W

<wbr>

X Y Z

<xmp>

🙋‍♀️🙋‍♂️

Questions?

A Shallow Dive into Image Embedding

Image tag

```
<!doctype html>
<html>
    <head></head>
    <body>
        <!-- this itself is a comment -->
        <!-- your webpage content goes inside the body -->
        <p>Welcome to WDD!</p>
        <img src="wdd.png" />
    </body>
</html>
```
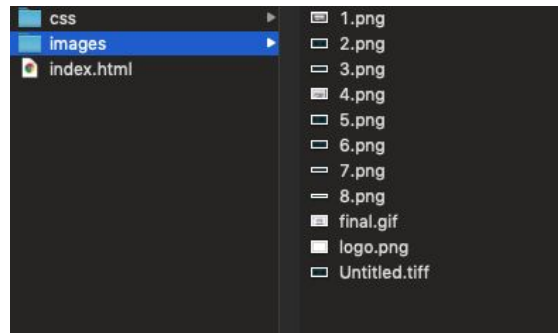
What is an image tag?

- Embeds an image on the web page

- You can put a link to the image in the `src` property (make sure to include the file extension — .jpg, .png, .gif

- The link is CaSe-SeNsItIvE
  Double check if it's `WDD.JPG` or `wdd.jpg`

`<img src="wdd.png" />`

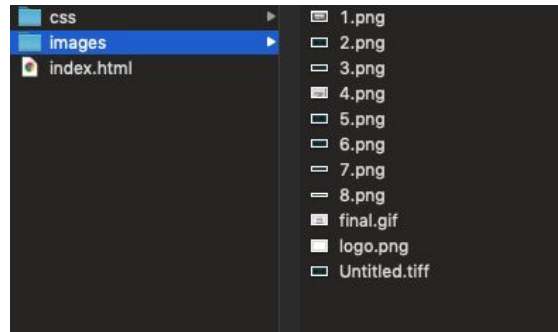# For your homework — One way to link images

- Navigate -> to the folder that contains your **index.html** file
- Create or find an **images** folder as shown.
- Insert images and name them whatever you like, but make sure to include the file extension (.jpg, .png, etc)
- Insert the following in your **index.html** file
- `<img src= "./images/[YOUR FILE NAME HERE]" />`
- **Example:** `<img src= "./images/wdd.png" />`
- We'll cover what this means in a later lecture!

example of a file directory

For your homework

- Homework 1 is released tonight and is due **next Monday** 7pm.

- It covers basic syntax of HTML and will guide you through making your first website.

- Find it on WDD Portal!

- Feel free to ask questions on Piazza!

example of a file directory

What is HTML?

What does it look like?

How do we use it?

HTML Practice

tinyurl.com/wed-html-demo

That's all folks!

Helpful links

HTML Tag references:

- MDN Web Docs: HTML elements reference

- W3Schools: HTML reference

🏷 **Bookmark these for later! ^^**

Deep think

- How does this parent-child hierarchy constrain our design?

- Self closing tags are much less common than paired tags, why?

- Theoretically, we could just use the div tag (except maybe head and body and html). Why do we then have other tags?

- (Deeper) We can observe the parent-child relationship in HTML is similar to that in a tree data structure. What's the root of this tree? What are the advantages (and disadvantages) of such a data structure that led people to design HTML this way?

- (Deeper) Based on what we've learned, design your "HTML" (as a language) so that we can better facilitate the design process. Which data structure would you base your design on?