



Lesson #3

Links, Images

Introduction to Web Development

Prof. Nayeon Kim

Afghan Pathways Program | Viterbi School of Engineering

Links

Create hyperlinks.

Each URL consists of:

1. Destination (href attribute),
2. Name (text between <a> and).



```
<a href="https://www.usc.edu/">USC Website</a>
```

Result:



[USC Website](https://www.usc.edu/)

Links

Create hyperlinks.

Each URL consists of:

1. Destination (href attribute),
2. Name (text between `<a>` and ``).

Result:

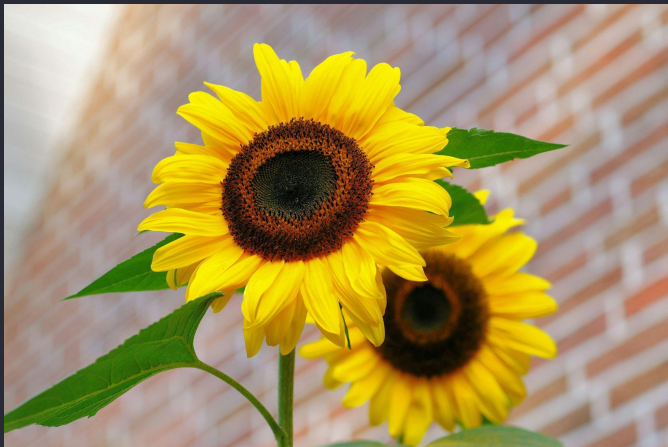
The [University of Southern California](https://www.usc.edu/) is a private research university located in Los Angeles, California.

```
<a href="https://www.usc.edu/">USC Website</a>
```

The ``University of Southern California`` is a private research university located in Los Angeles, California.

```
<h1>Hello World</h1>
```

```
<p>My name is <strong>Nayeon</strong>.</p>
```



```
<img>
```

attribute

attribute

```

```

Web Preview

https://web.us.edusercontent.com/f7n1sg8srugdremu6pu4vhgck8/index.html

Hello World

My name is Nayeon.

Web Safe Image Formats

1. Graphics Interchange Format (GIF)

- ✓ Supports animation.
- ? Low resolution & image quality.

2. Joint Photographic Experts Group (JPEG / JPG)

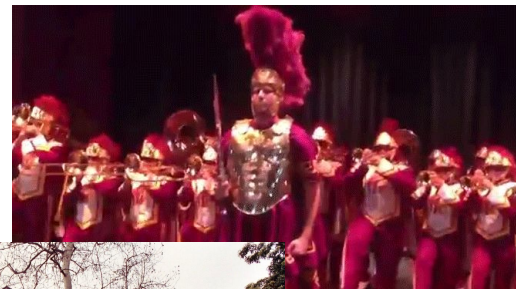
- ✓ Small file size.
- ? Lossy format, not suitable for text or crisp edges.

3. Portable Network Graphics (PNG)

- ✓ Supports transparency.
- ? Large file size when used for photographs.

4. Scalable Vector Graphics (SVG)

- ✓ Scalable for different screen sizes.
- ? No support for complex images / photographs.



USC

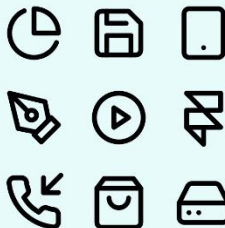


Image Tags

Define images in a document.

Each image consists of:

1. Source (`src` attribute),
2. Alternate text (`alt` attribute).

```

```

```

```

Image Tags

Define images in a document.

Each image consists of:

1. Source (`src` attribute),
2. Alternate text (`alt` attribute).

Absolute Path (hosted on a different server)

vs.

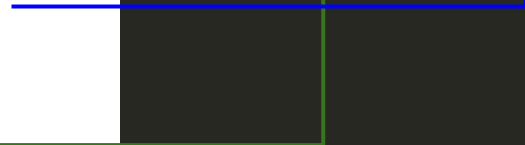
Local Path (hosted on the same server)

```

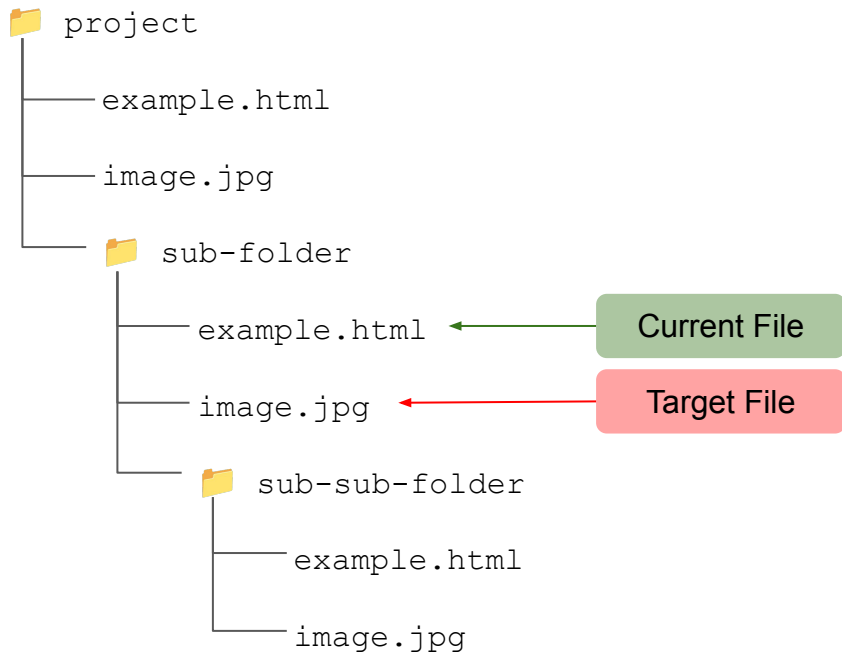
```

```

```



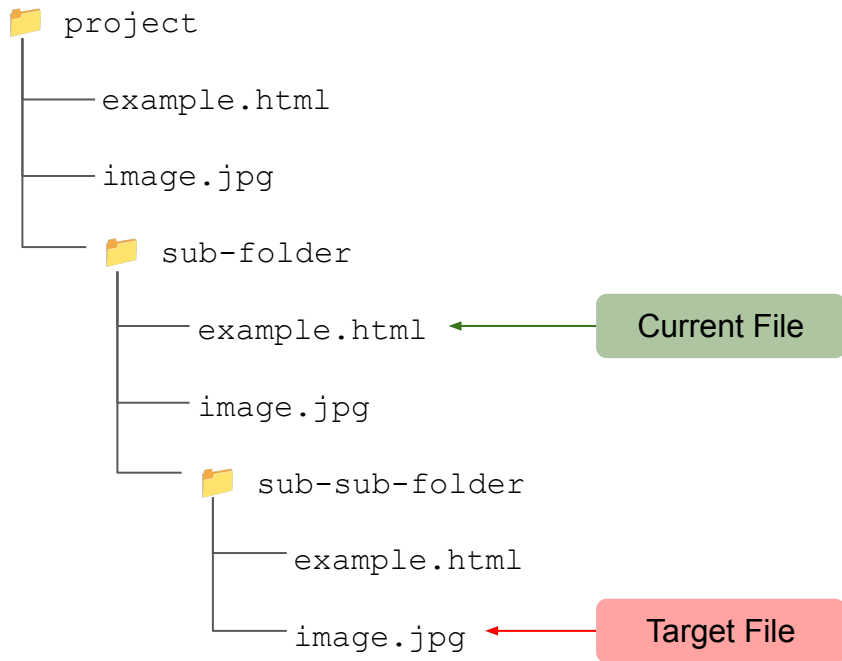
Relative File Paths



```

```


Relative File Paths



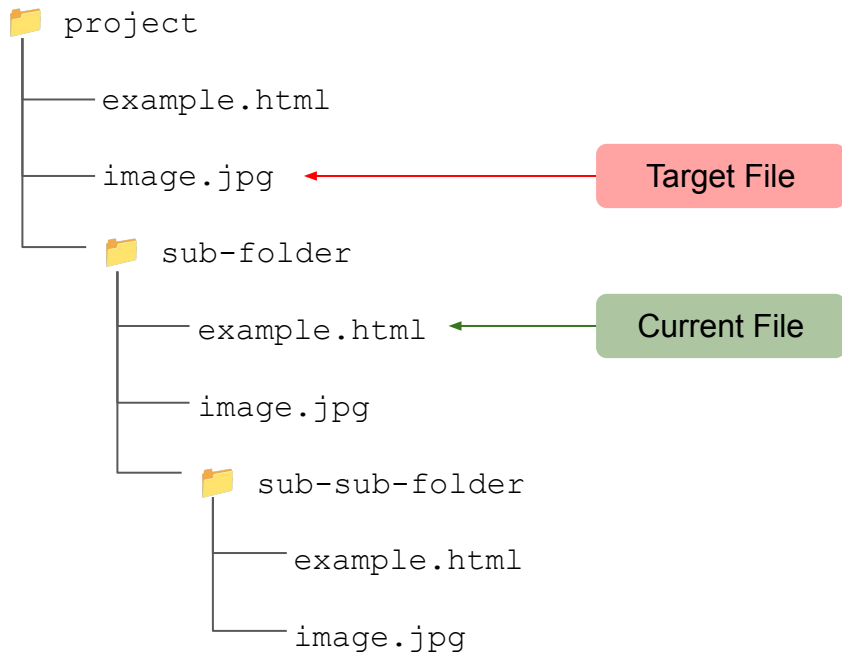
```

```

```

```

Relative File Paths



```

```

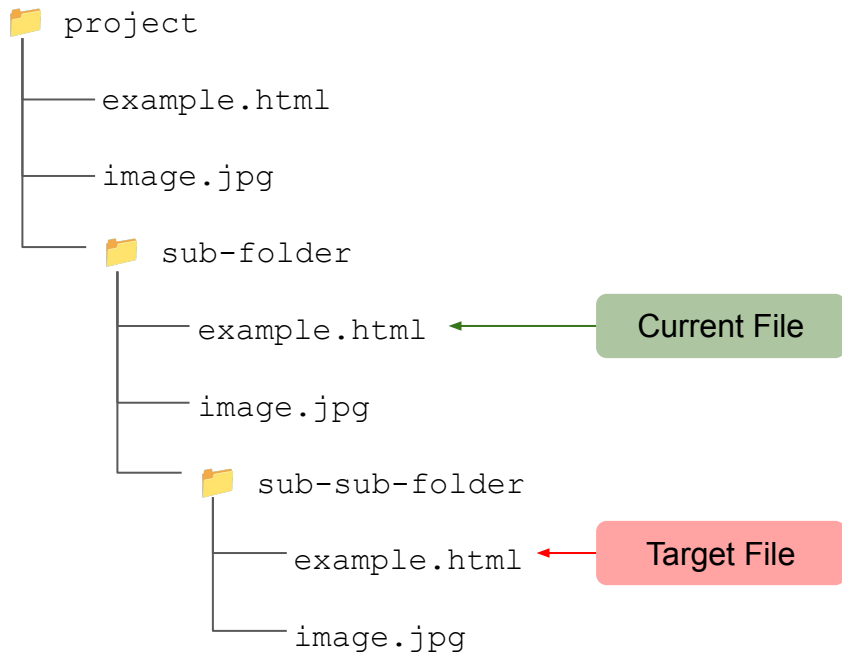
```

```

```

```

Relative File Paths



```

```

```

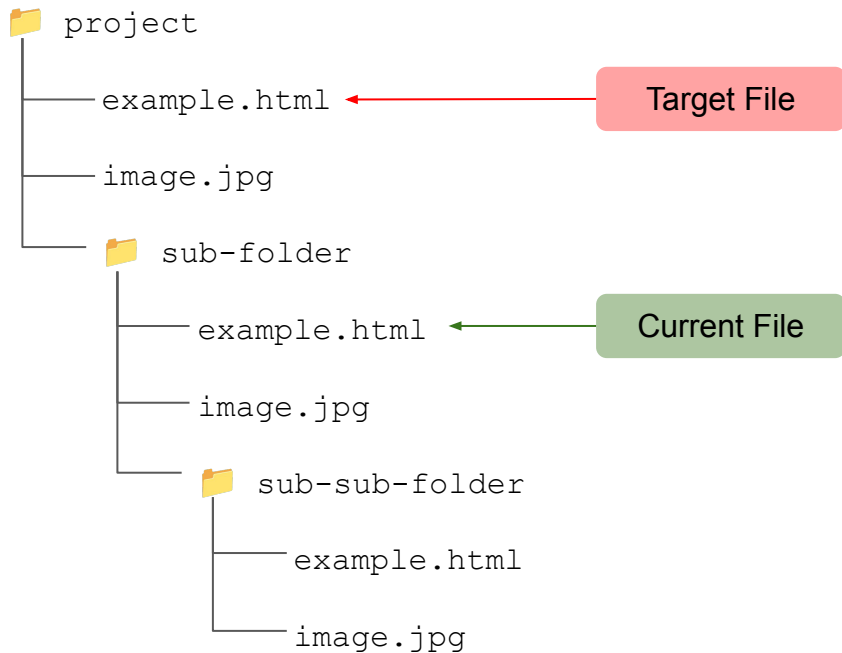
```

```

```

```
<a href="sub-sub-folder/example.html">Link to another page</a>
```

Relative File Paths



```

```

```

```

```

```

```
<a href="sub-sub-folder/example.html">Link to another page</a>
```

```
<a href="../example.html">Link to another page</a>
```

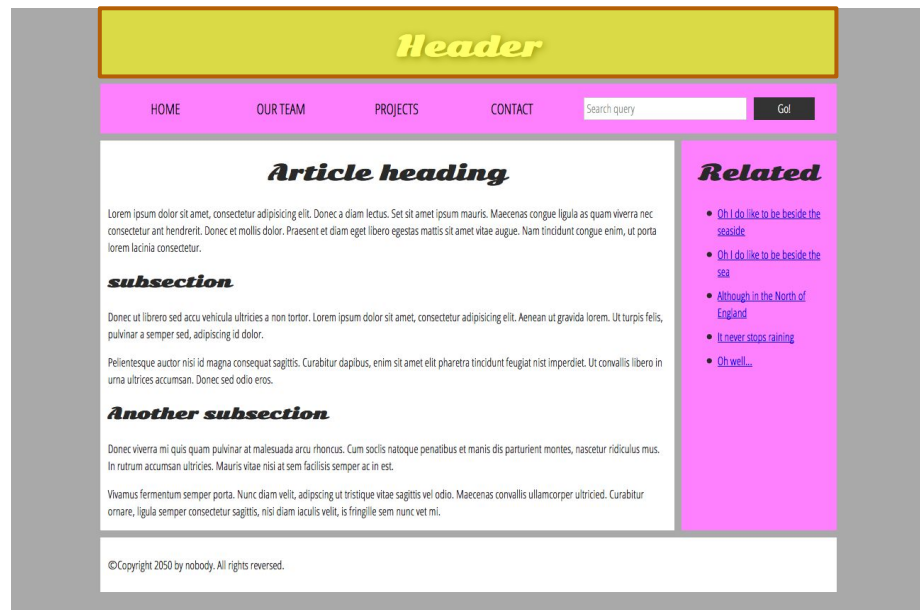
List of HTML tags

- There are many HTML tags that do different things. See below for a list of all HTML tags:
 - <https://developer.mozilla.org/en-US/docs/Web/HTML/Element>
 - <https://www.w3schools.com/tags/>

Semantic Tags

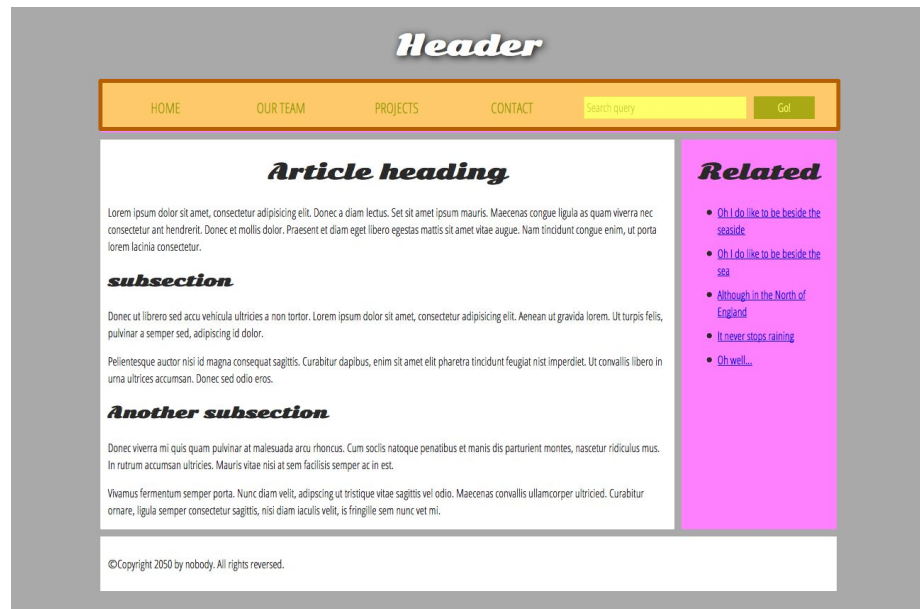
“Typical Website” Layout

1. Header - <header>



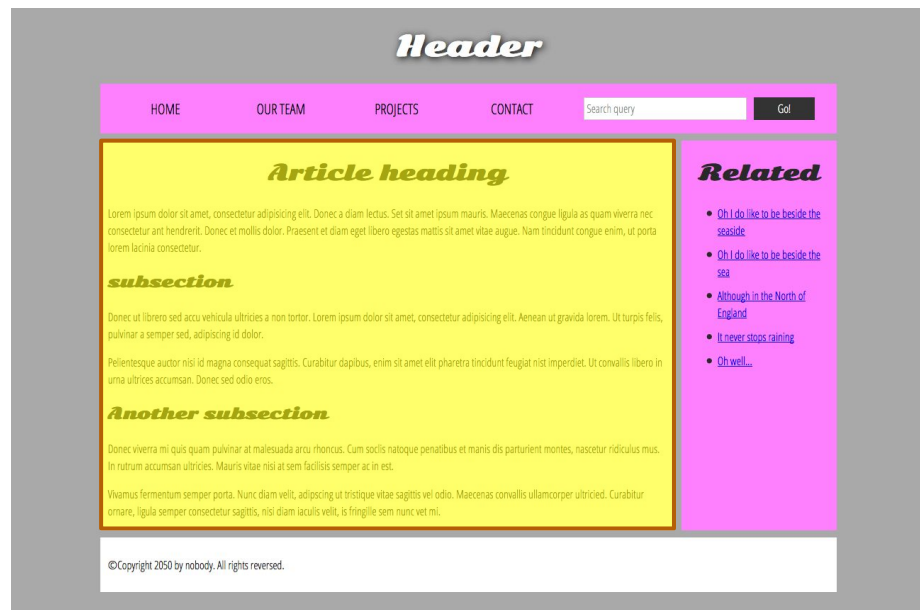
“Typical Website” Layout

1. Header - <header>
2. Navigation Bar - <nav>



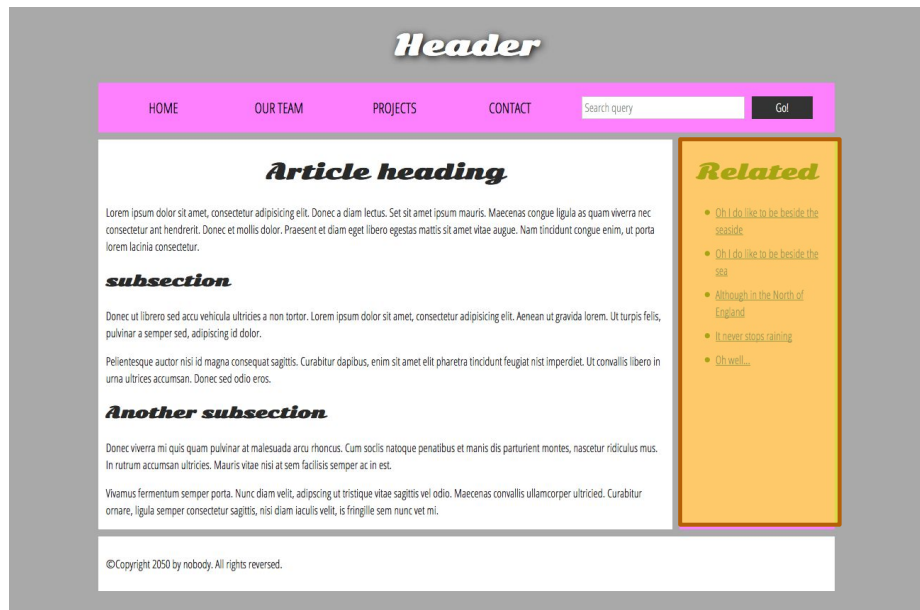
“Typical Website” Layout

1. Header - <header>
2. Navigation Bar - <nav>
3. Main Content - <main>



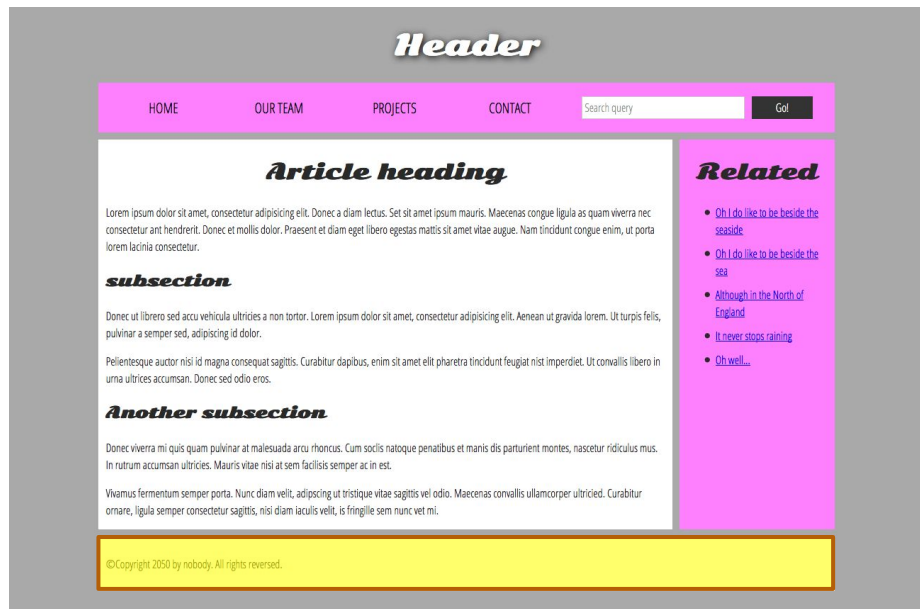
“Typical Website” Layout

1. Header - <header>
2. Navigation Bar - <nav>
3. Main Content - <main>
4. Sidebar - <aside> (usually inside <main>)



“Typical Website” Layout

1. Header - <header>
2. Navigation Bar - <nav>
3. Main Content - <main>
4. Sidebar - <aside>
5. Footer - <footer>



USC Homepage Layout

1. Header

studentsalumniparentsfacultyemployeesports

popular linksSearch USC

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aboutadministrationadmissionacademicsresearchpatient carecommunityartsglobal initiatives

AI helps researcher deliver HIV info to homeless youth
Associate Professor Eric Rice needed a better way to identify peer-to-peer educators, so he teamed up with engineering Professor Milind Tambe to develop artificial intelligence that picks out the peer leaders based on the extent of their social networks.

Read the full story at [USC News](#)

Incoming scholar's path to USC includes an escape from Syria
Born in Boston but raised largely in Damascus, Lana Bridi has big ideas and a special calling inspired by what she's experienced firsthand. She'll arrive on the University Park Campus next month with a future in biological research in mind.

Read the full story at [USC News](#)

Drinking coffee — regular or decaf — could lead to longer life
Here's another reason to start the day with a cup of joe: A new study finds people who drink coffee appear to live longer. "If you like to drink coffee, drink up! If you're not a coffee drinker, then you need to consider if you should start," says V. Wendy Setiawan of the Keck School of Medicine of USC, senior author of the study.

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Summer classes are in session. If you're taking a summer class, check its [session code](#), since start and end dates vary.

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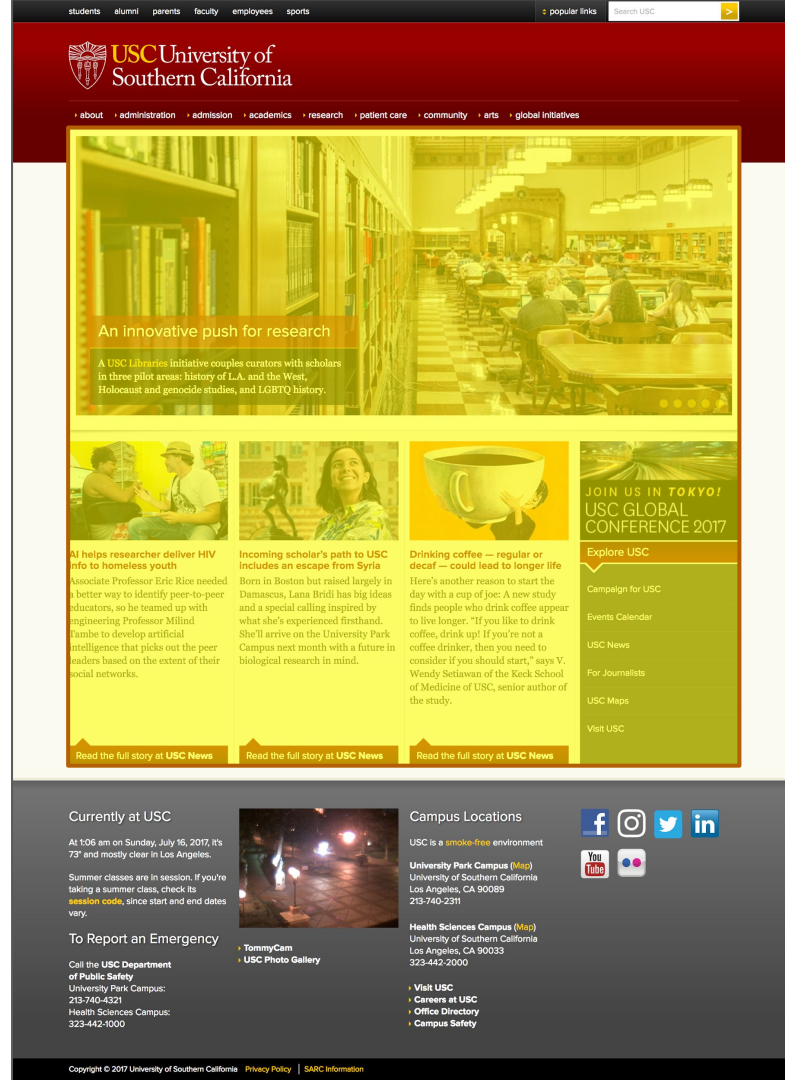
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USC Homepage Layout

1. Header
2. Main content



USC Homepage Layout

1. Header
2. Main content
3. Footer

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An innovative push for research

A [USC Libraries](#) initiative couples curators with scholars in three pilot areas: history of L.A. and the West, Holocaust and genocide studies, and LGBTQ history.



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USC Homepage Layout

1. Header
2. Main content
3. Footer
4. Banner

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1. Header
2. Main content
3. Footer
4. Banner
5. Content Columns

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HTML Layout tags in detail:

- [`<main>`](#) is for content *unique to this page*. Use `<main>` only *once* per page, and put it directly inside [`<body>`](#). Ideally this shouldn't be nested within other elements.
- [`<article>`](#) encloses a block of related content that makes sense on its own without the rest of the page (e.g., a single blog post).
- [`<section>`](#) is similar to `<article>`, but it is more for grouping together a single part of the page that constitutes one single piece of functionality (e.g., a mini map, or a set of article headlines and summaries), or a theme. It's considered best practice to begin each section with a [`<h2>`](#); also note that you can break `<article>`s up into different `<section>`s, or `<section>`s up into different `<article>`s, depending on the context.
- [`<aside>`](#) contains content that is not directly related to the main content but can provide additional information indirectly related to it (glossary entries, author biography, related links, etc.).
- [`<header>`](#) represents a group of introductory content. If it is a child of [`<body>`](#) it defines the global header of a webpage, but if it's a child of an [`<article>`](#) or [`<section>`](#) it defines a specific header for that section (try not to confuse this with [`<h2>`](#)).
- [`<nav>`](#) contains the main navigation functionality for the page. Secondary links, etc., would not go in the navigation.
- [`<footer>`](#) represents a group of end content for a page.

Ref: https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction_to_HTML/Document_and_website_structure

CSS

Inside a HTML file

- **HTML** (Hyper Text Markup Language) - used to **structure** the content of the page
- **CSS** (Cascading Stylesheet) - used to control the **look and feel** of the page
- Web **browsers** like Chrome, Safari, etc open the HTML file and render it as it is coded



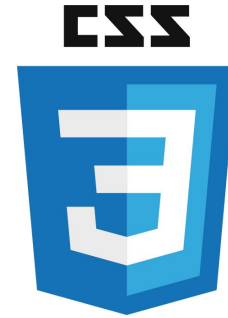
Web Technologies



HyperText Markup Language (HTML)

Creates elements on the page.

Tells browsers *what* to display.

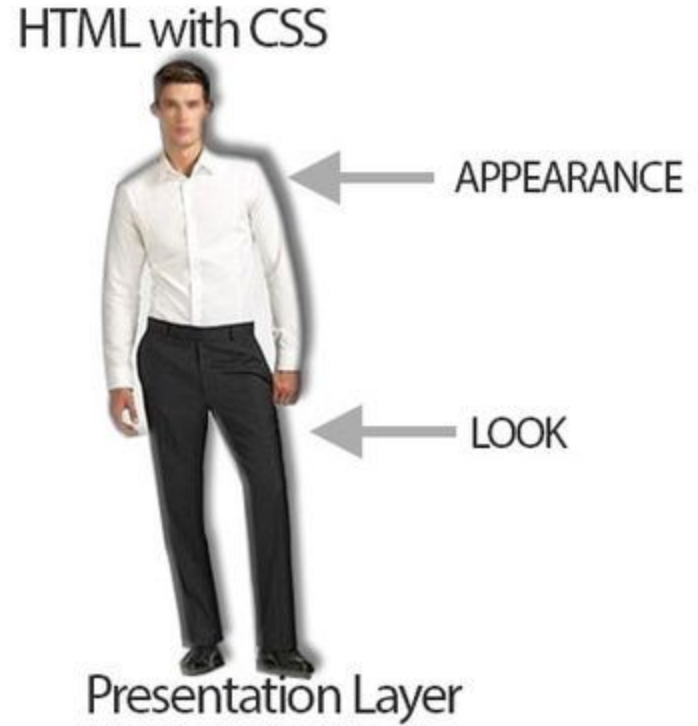
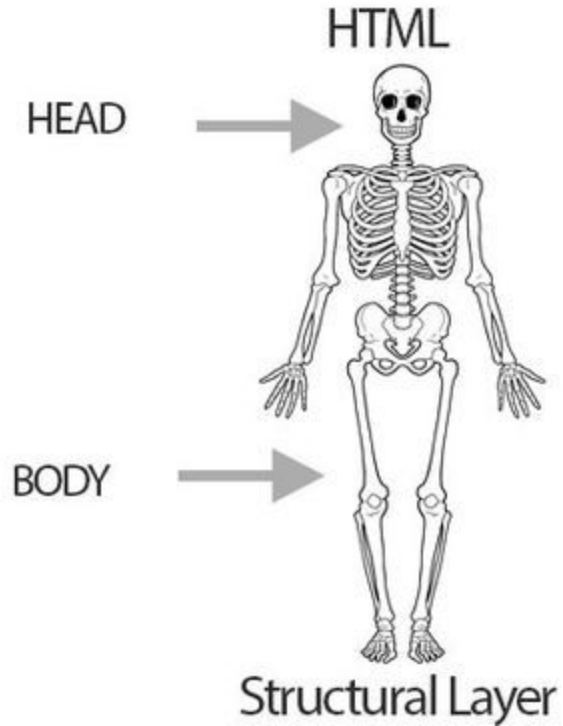


Cascading Style Sheets (CSS)

Defines element properties.

Tells browsers *how* to display elements.

Web Technologies



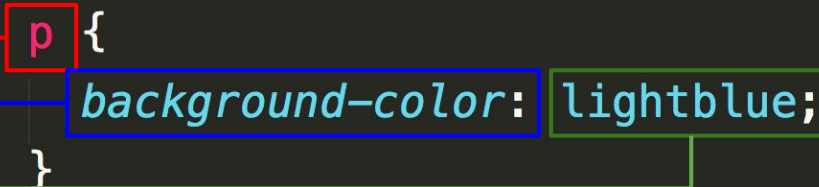
CSS Anatomy

Components:

1. CSS Selector

2. CSS Property

3. CSS Value



```
p {  
  background-color: lightblue;  
}
```

The diagram illustrates the components of a CSS rule. A red box highlights the selector 'p', a blue box highlights the property 'background-color:', and a green box highlights the value 'lightblue;'. Three leader lines connect the numbered list items to these components: a red line from '1. CSS Selector' to the 'p' box, a blue line from '2. CSS Property' to the 'background-color:' box, and a green line from '3. CSS Value' to the 'lightblue;' box.

CSS is a **rule based** language. We will be creating lots of rules for HTML tags to follow

How CSS works

Result

I am not throwin' away my **shot**

Hey yo, I'm just like my country

I'm young scrappy and hungry

I am not throwin' away my **shot**

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>A HTML Page</title>
5      <style>
6          p {
7              color: red;
8          }
9          p strong {
10             background-color: yellow;
11         }
12     </style>
13 </head>
14 <body>
15     <p>I am not throwin' away my <strong>shot</strong></p>
16     <p>Hey yo, I'm just like my country</p>
17     <p>I'm young scrappy and hungry</p>
18     <p>I am not throwin' away my <strong>shot</strong></p>
19 </body>
20 </html>
```

HTML Validators

- Sometimes the browser will show the right things but your HTML code could be incorrect.
- Use a validator like [https://validator.w3.org/#validate by input](https://validator.w3.org/#validate_by_input) to copy paste your code and check for correctness.