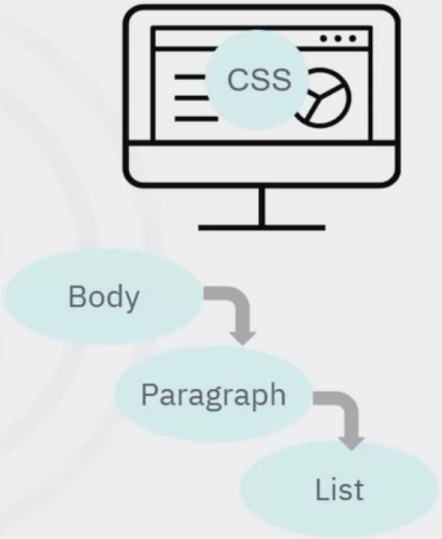
3. CSS
(Cascading Style Sheets)

What is CSS?

- Design that is layered over the top of an HTML Web page
- Describes how HTML elements are displayed
- Creates a uniform look throughout each element of each page of the website
- Child and descendant elements often inherit styles that are defined for parent elements



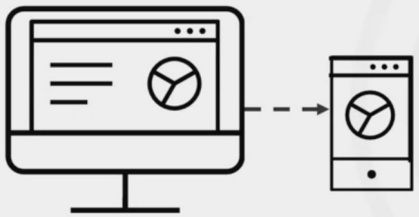
What Elements Can CSS Control?

- Fonts
- Text
- Colors
- Backgrounds
- Sizes
- Borders
- Spacing
- Positioning
- Visual effects
- Tables
- Lists

Guidelines

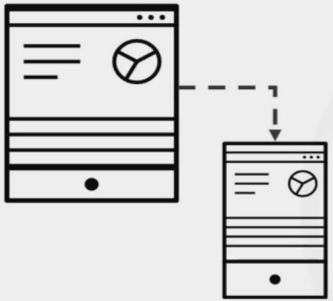
- Colors use Red-Green-Blue (RGB) hexadecimal light values
- Size use pixels, em, or a percentage
- Text can be aligned left, right, or center
- Floats can also be left or right
- Vertical alignments must be top, middle, or bottom
- Fonts can be any specific font or font family, such as serif, sans-serif, or monospace or even a downloadable font

Choosing A Layout



In a fluid layout:

- The height and width of elements are flexible
- The expansion or contraction is based on screen size
- The elements are specified using percentages and ems



In a fixed layout:

- You specify the height and width of elements
- Values remain the same regardless of screen size
- You specify elements using pixels

CSS Format

```
html-tag-name
{
   css-property-key-1: css-value-1;
   css-property-key-2: css-value-2;
}
```

HTML Elements	Description
Tags	• Any tags in the HTML code • For example: <a>, , , or <label>
ID reference	• Displayed with a preceding hash symbol (#) • For example: #id-of-html-tag
Class reference	• Displayed with a preceding dot/period symbol (.) • For example: .class-of-html-tag

Applying CSS to HTML

1. **Inline CSS**

- Used for single HTML element
- HTML documents get messy quickly
- Insert the `style` attribute inside any HTML element

```
<p style="color:red;">A red paragraph.</p>
```

2. Internal CSS

- Used for **a single page**
  - However It “dirties” the page with a non-HTML code If you copy and paste this style on each page
  - It will **increase** the load time of each page
- To use this method, the <style> tag must be used, with your CSS code inside.

```
<style>
  body {background-color: yellow;}
</style>
```

3. External CSS

- Used to style an entire website
- Can be linked to from other pages
- Add a <link> tag to the <head> tag

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

- Can use a combination of all three methods
- The type with the highest priority is applied

Highest Priority	Inline > Internal > External	Lowest Priority

Types of Frameworks

- Using **no** framework at all and just using plain CSS (also called **Vanilla CSS**) requires you to write all the styling on your own.
    - This gives you the **freedom** to style everything exactly as you want it, but also requires a lot of **time** and effort, as you must style every component.
- An alternative to this is to use a
    1. **Utility** based frameworks
        - Gives ‘utility’ classes that scope to a single CSS property
        - This makes it easier to apply CSS properties directly in your HTML code, which can save a lot of time while still giving you the freedom to style components as you wish
    2. **Component** based frameworks
        - Provides pre-styled components and templates which are easy to add to any website
        - This requires little knowledge of CSS and makes it easy to keep consistent styles, but also limits you to only the components made available by the framework

1. Utility Based Frameworks

- These typically come in the form of **classes** which scope to single-purpose CSS classes
- Instead of having to write out the entire CSS property, it allows you to use a property by referencing its corresponding class within the “class” attribute of your desired HTML element
- For example:
  - Instead of using the CSS property -- ***“text-align: center;”*** use a utility-first framework such as ***“text-center”***, which does the same thing when added to the “class” attribute of an HTML element
- Since it involves adding many classes to your HTML markup, this often causes the download size to **increase**, and potentially slows down your web pages

```
text-align: center; //CSS property
text-center //Utility class
```

Example: TailWind CSS

Vanilla CSS

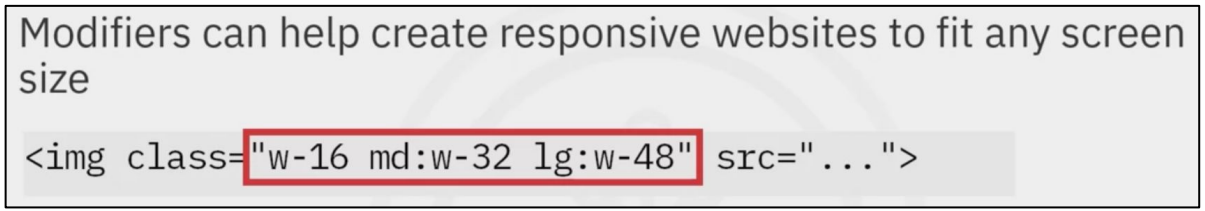
```
a {
  color: red;
  text-decoration: underline;
}
a:hover {
  color: rgb(185, 28, 28);
}
```

Tailwind CSS

```
<a href="..." class="underline
text-red-500 hover:text-red-
700">Dangerous Link</a>
```

Hover class is applied when users hover over an element

- Example:
  - Adding “**md:**” before a class will only apply the class when a **user’s screen size > 768px**
  - This code will display an image with a width of 16 (64px) by default, a width of 32 (128px) on medium screens, and a width of 48 (192px) on large screens



2. Component Based Frameworks

- Provides **pre-styled components** which can be easily added to your code
- Can develop well-styled websites **rapidly**, as significantly less time needs to be spent styling each element
- Can keep all related elements styled **uniformly**, as you can simply choose the same styles each time
- However it **limits** you only to what the framework provides, and doesn't give you the freedom of customizing everything exactly as you want it.
- A lot of overhead code that you wouldn't otherwise get, as component frameworks will often provide you with more components than what you'll use

Example: Bootstrap

Vanilla CSS

```
a {
  color: red;
  text-decoration: underline;
}
a:hover {
  color: rgb(185, 28, 28);
}
```

Tailwind CSS

```
<a href="..." class="underline
text-red-500 hover:text-red-
700">Dangerous Link</a>
```

Bootstrap

```
<a href="..." class="link-
danger">Dangerous Link</a>
```