



Lesson 2 HTML + CSS Fundamentals

FRONT-END COURSE (V1.0.1)

**Where do you see yourself in
the web development spectrum?**

<https://roadmap.sh/>



What's the meaning of Semantics?

NAMING, SYNTAX

In JS, consider a **function** that takes a **string** parameter, and returns an **** element with that string as its `textContent`. Would you need to look at the code to understand what the function did if it was called **build('string')**, or **createLiWithContent('string')**?

PRESENTATION, SPECIFICITY

In CSS, consider **styling a list** with **li elements** representing different types of fruits.
Would you know what part of the **DOM** is being selected with **div > ul > li, or .fruits__item?**

ROLE, PURPOSE

In HTML, for example, the **<h1> element** is a semantic element, which treats the text it wraps around as "a top level heading on your page."



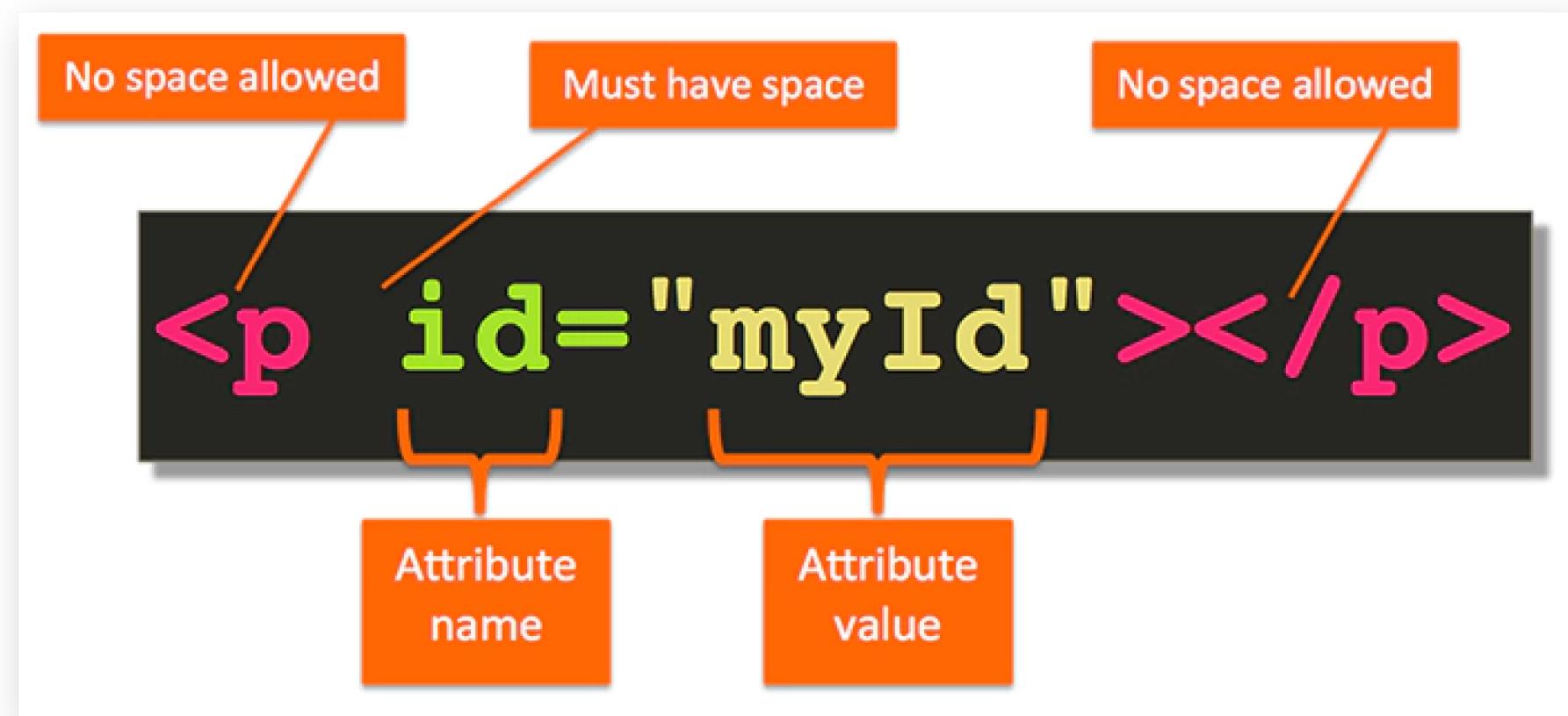
Semantics is **meaning**. Use tags the right way.

1. When people say they want to "make something more semantic," they **simply want to make that thing more meaningful**.
2. **HTML** is a ***markup language*** that gives ***web content structure and meaning***.
 - And naturally, ***semantics is a part of it by design***.
3. It's about using **tags, class names, and ids** that reinforce the meaning of the content within the tags.
4. How something looks has nothing to do with what it means. It's why we separate HTML and CSS.
 - HTML - Structure and Meaning
 - CSS - Presenting structure and meaning



Anatomy of the HTML Element

- An element consists of the opening tag, closing tag, and content.



Overview of Elements

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element>



Overview of Attributes

<https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes>



Anatomy of the HTML Page



```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <title>Page Title</title>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" type="text/css" media="screen" href="main.css">
  <script src="main.js"></script>

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

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
```



Why Semantic HTML?

REASONS FOR USING SEMANTIC HTML

- Unambiguous, **shared meaning** within content, Development Experience
- Search and globalization, Search Engine Optimization(SEO)
- Accessibility, Accessible Rich Internet Applications (ARIA)

DIVITIS: WHAT IT IS.

- Common problem with webdesigners.
- Process of using too many nested/unnecessary divs to mark up a page.



Activity: HTML Email

- For this project, you're assigned to create a HTML template that will simulate a reply to a research fellow
- Get the letter here: @Slack
- Get the css here: @Slack
- Using my email address: **maurus@avionschool.com**, send it to me here: <https://putsmail.com/tests/new> with your name in the subject line



Activity: HTML Email

Block/structural semantics

- Use appropriate document structure including doctype, and `<html>`, `<head>` and `<body>` elements.
- In general, the letter should be marked up as an organization of headings and paragraphs, with the following exception. There is one top level heading (the "Re:" line) and three second level headings.
- Use an appropriate list type to mark up the semester start dates, study subjects, and exotic dances.
- Put the two addresses inside `<address>` elements. Each line of the address should sit on a new line, but not be in a new paragraph.

The head of the document

- The character set of the document should be set as utf-8 using the appropriate meta tag.
- The author of the letter should be specified in an appropriate meta tag.
- The provided CSS should be included inside an appropriate tag.

Inline semantics

- The names of the sender and receiver (and Tel and Email) should be marked up with strong importance.
- The four dates in the document should have appropriate elements containing machine-readable dates.
- The first address and first date in the letter should have a class attribute value of `sender-column`. The CSS you'll add later will cause these to be right aligned, as it should be in the case in a classic letter layout.
- Mark up the five acronyms/abbreviations in the main text of the letter to provide expansions of each acronym/abbreviation.
- The six sub/superscripts should be marked up appropriately — in the chemical formulae, and the numbers 103 and 104 (they should be 10 to the power of 3 and 4, respectively).
- Try to mark up at least two appropriate words in the text with strong importance/emphasis.
- There are two places where the letter should have a hyperlink. Add appropriate links with titles. For the location that the links point to, you may use <http://example.com> as the URL.
- Mark up the university motto quote and citation with appropriate elements.



Activity: HTML Email

Example

The following screenshot shows an example of what the letter might look like after being marked up.

*Dr. Eleanor Gaye
Awesome Science faculty
University of Awesome
Bobtown, CA 99999,
USA

Tel: 123-456-7890
Email: no_reply@example.com*

20 January 2016

*Miss Eileen Dover
4321 Cliff Top Edge
Dover, CT9 XXX
UK*

Re: Eileen Dover university application

Dear Eileen,

Thank you for your recent application to join us at the University of Awesome's science faculty to study as part of your PhD next year. I will answer your questions one by one, in the following sections.

Starting dates

We are happy to accommodate you starting your study with us at any time, however it would suit us better if you could start at the beginning of a semester; the start dates for each one are as follows:

- First semester: 9 September 2016
- Second semester: 15 January 2017
- Third semester: 2 May 2017

Please let me know if this is ok, and if so which start date you would prefer.

You can find more information about [important university dates](#) on our website.

Subjects of study

At the Awesome Science Faculty, we have a pretty open-minded research facility — as long as the subjects fall somewhere in the realm of science and technology. You seem like an intelligent, dedicated researcher, and just the kind of person we'd like to have on our team. Saying that, of the ideas you submitted we were most intrigued by are as follows, in order of priority:

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1. Turning H₂O into wine, and the health benefits of Resveratrol (C₁₄H₁₂O₃.)
2. Measuring the effect on performance of funk bassplayers at temperatures exceeding 30°C (86°F), when the audience size exponentially increases (effect of 3 × 10³ increasing to 3 × 10⁴.)
3. HTML and CSS constructs for representing musical scores.

So please can you provide more information on each of these subjects, including how long you'd expect the research to take, required staff and other resources, and anything else you think we'd need to know? Thanks.

Exotic dance moves

Yes, you are right! As part of my post-doctorate work, I *did* study exotic tribal dances. To answer your question, my favourite dances are as follows, with definitions:

Polynesian chicken dance

A little known but *very* influential dance dating back as far as 300BC, a whole village would dance around in a circle like chickens, to encourage their livestock to be "fruitful".

Icelandic brownian shuffle

Before the Icelanders developed fire as a means of getting warm, they used to practice this dance, which involved huddling close together in a circle on the floor, and shuffling their bodies around in imperceptibly tiny, very rapid movements. One of my fellow students used to say that he thought this dance inspired modern styles such as Twerking.

Arctic robot dance

An interesting example of historic misinformation, English explorers in the 1960s believed to have discovered a new dance style characterised by "robotic", stilted movements, being practiced by inhabitants of Northern Alaska and Canada. Later on however it was discovered that they were just moving like this because they were really cold.

For more of my research, see my [exotic dance research page](#).

Yours sincerely,

Dr Eleanor Gaye

University of Awesome motto: "Be awesome to each other." -- *The memoirs of Bill S Preston, Esq*



CSS: Thinking Inside the Box



HTML

Think of it like the structure and foundation of the house



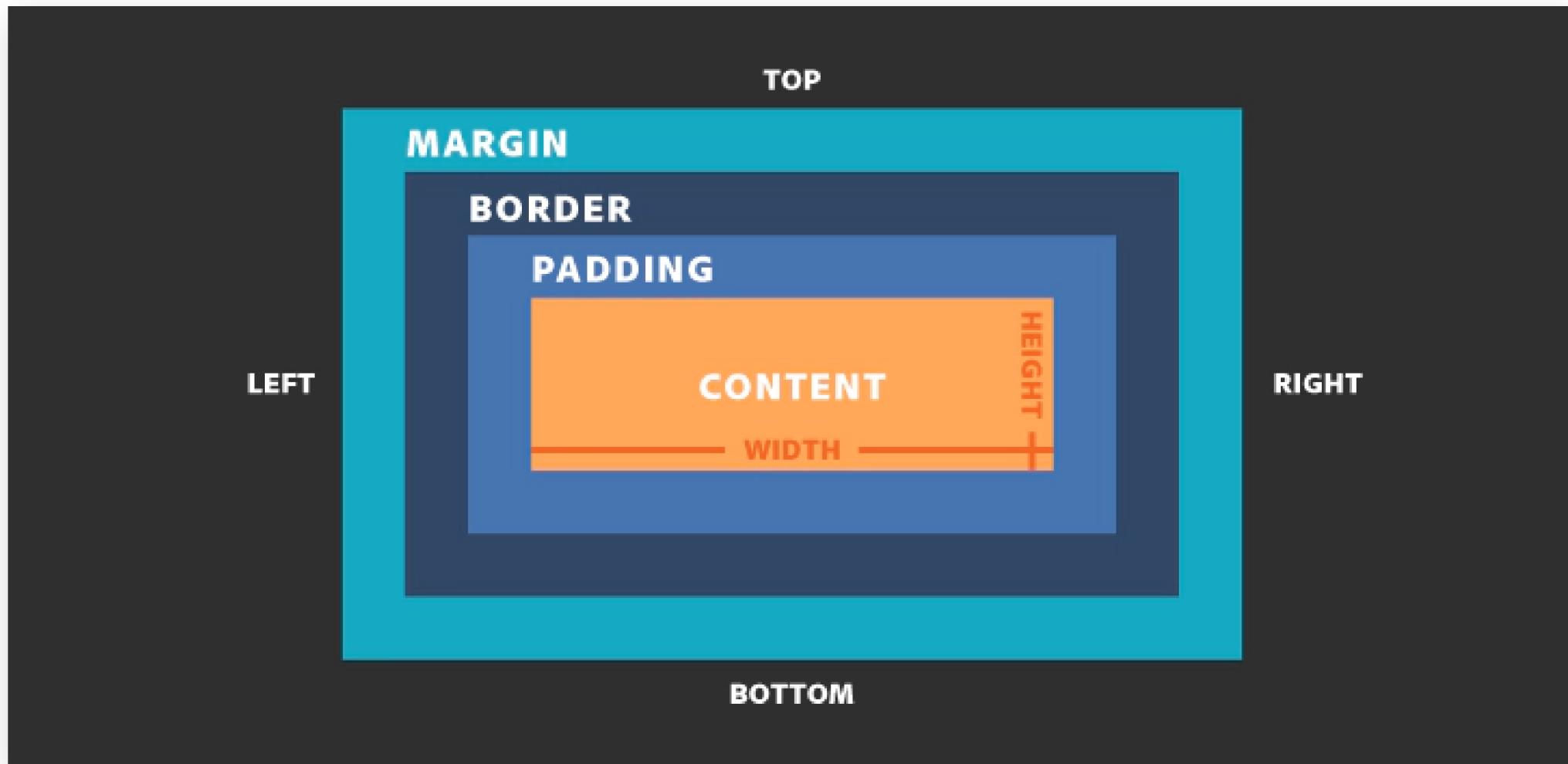
HTML WITH CSS

Now we're starting to add the paint, better furniture, new material



CSS: Cascading Style Sheets

- Every page element is a box.
- You can control the size and position of those boxes.
- The box has four parts: content, padding, border, margin



Box Model

The Cottage Garden

The *cottage garden* is a distinct style of garden that uses an informal design, dense plantings, and a mixture of ornamental and edible plants.

The Cottage Garden originated in [England](#) and its history can be traced back for centuries, although they were re-invented in 1870's England, when stylized versions were formed as a reaction to the more structured and rigorously maintained [English estate gardens](#).

The earliest cottage gardens were more practical than their modern descendants, with an emphasis on vegetables and herbs, along with some fruit trees.

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Block & Inline Elements

BLOCK LEVEL ELEMENTS (RED)

- Starting on a new line
- Examples:
 - <h1>-<h6>
 - <p>
 - <div>

INLINE ELEMENTS (GREEN)

- Flow within text
- Does not start a new line
- Examples:
 -
 - <i>
 -
 -

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Anatomy of a CSS Selector

SELECTORS

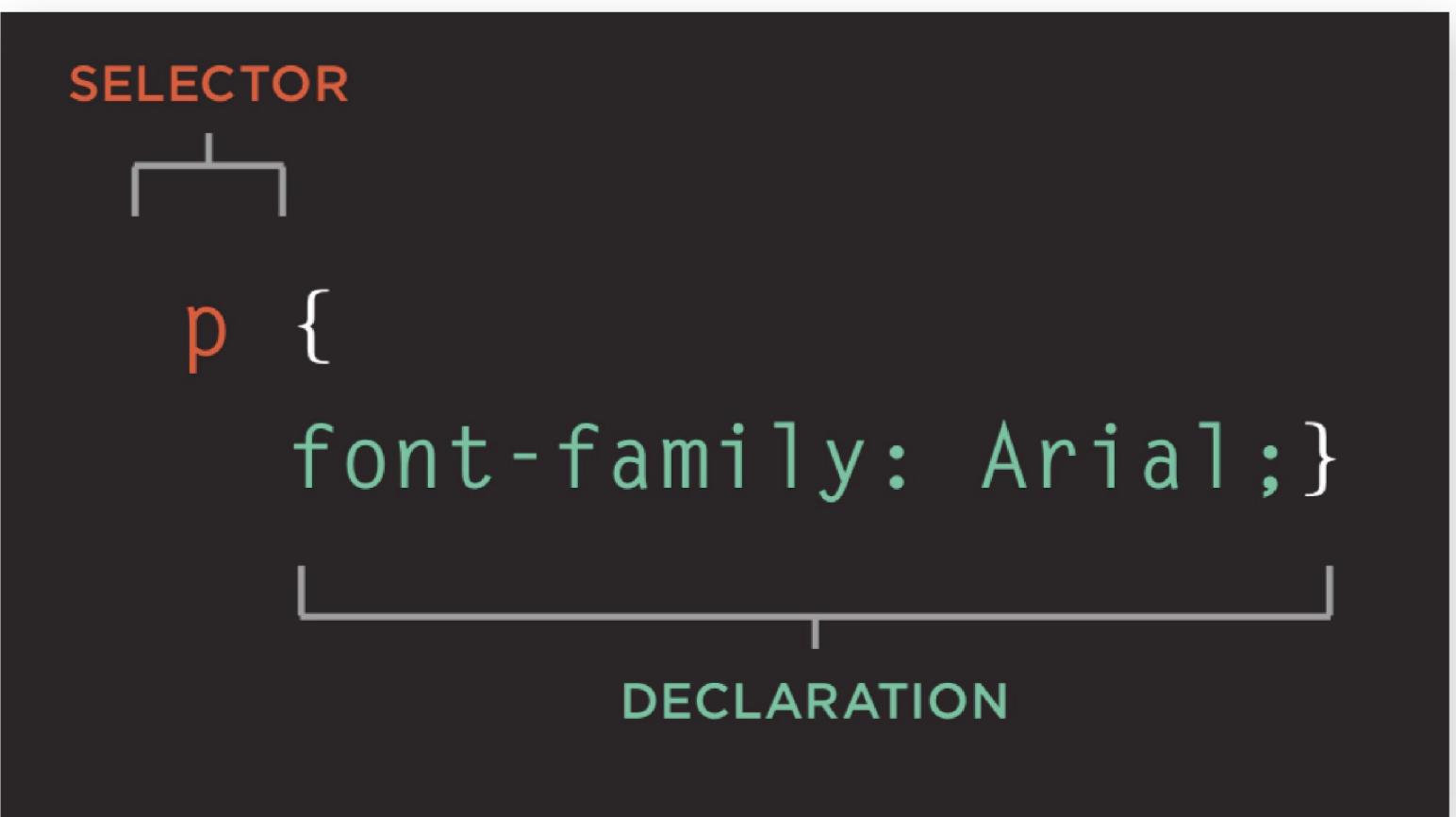
- Which element the rule applies to

Note:

- The same rule can apply to multiple elements if you comma separate element names

DECLARATIONS

- How the elements referred to in the selector should be styled
- Split into two:
 - Property
 - Value



Properties & Values

PROPERTIES

- The aspects of the element you want to change
- i.e, color, font, width, height

VALUES

- Specify the settings for your design
- i.e, specifying the color values

```
h1, h2, h3 {  
    font-family: Arial;  
    color: yellow;}
```



Using External CSS

- □ ×

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Using External CSS</title>
5     <link href="css/styles.css" type="text/css" rel="stylesheet" />
6   </head>
7   <body>
8     <h1>Potatoes</h1>
9     <p>
10       There are dozens of different potato varieties.
11       They are usually described as early, second early and maincrop.
12     </p>
13   </body>
14 </html>
```



Basic Selectors

- □ ×

```
1 /* 1. Universal Selector - Applies to all elements in document*/
2 *
3
4 }
5
6 /* 2. Type Selector - Matches element name*/
7 h1 {
8
9 }
10
11 /* 3. Class Selector - Matches class attribute*/
12 .class {
13
14 }
15
16 /* 4. ID Selector - Matches id attribute*/
17 #id {
18
19 }
```



Attribute Selectors

```
/* <a> elements with a title attribute */
a[title] {
  color: purple;
}

/* <a> elements with an href matching "https://example.org" */
a[href="https://example.org"] {
  color: green;
}

/* <a> elements with an href containing "example" */
a[href*=example] {
  font-size: 2em;
}

/* <a> elements with an href ending ".org" */
a[href$=".org"] {
  font-style: italic;
}

/* <a> elements whose class attribute contains the word "logo" */
a[href~="logo"] {
  padding: 2px;
}
```



Pseudo-class and Pseudo-elements



```
/* Any button over which the user's pointer is hovering */
button:hover {
  color: blue;
}
```



```
/* The first line of every <p> element */
p::first-line {
  color: blue;
  text-transform: uppercase;
}
```



CSS Specificity

WHAT IS CSS SPECIFICITY?

- Determines which **CSS rule** is applied by the browsers.
- Usually the reason why your CSS-rules don't apply to some elements, although you think they should.

EVERY SELECTOR HAS ITS PLACE IN THE SPECIFICITY HIERARCHY.

- If two selectors apply to the same element, the one with higher specificity wins.
- There are **four categories** which define the specificity level of a given selector: **inline styles, IDs, classes, attributes, and elements.**
- Rules with more specific selectors have a greater specificity.
- When selectors have an equal specificity value, **the last rule** is the one that counts.
- **The last rule** defined overrides any previous, conflicting rules.
- The embedded style sheet has a greater specificity than other rules.



Calculating CSS Specificity

- The universal selector and inherited selectors have a specificity of 0, 0, 0, 0.
- You can calculate CSS specificity with [CSS Specificity Calculator](#).

!important > style(inline) > #id > .class > element > *



CSS Specificity

1	* { }	0
2	li { }	1 (one element)
3	li:first-line { }	2 (one element, one pseudo-element)
4	ul li { }	2 (two elements)
5	ul ol+li { }	3 (three elements)
6	h1 + *[rel=up] { }	11 (one attribute, one element)
7	ul ol li.red { }	13 (one class, three elements)
8	li.red.level { }	21 (two classes, one element)
9	style=""	1000 (one inline styling)
10	p { }	1 (one HTML selector)
11	div p { }	2 (two HTML selectors)
12	.sith	10 (one class selector)
13	div p.sith { }	12 (two HTML selectors and a class selector)
14	#sith	100 (one id selector)
15	body #darkside .sith p { }	112 (HTML selector, id selector, class selector, HTML selector; 1+100+10+1)



CSS Specificity

- CSS Specificity Wars
- CSS Specificity for Poker Players
- CSS: The Card Game

Stuff & Nonsense

Selector	Description	Sith power
a	1 x element selector	0,0,1
p a	2 x element selectors	0,0,2
.foo	1 x class selector *	0,1,0
a.foo	1 x element selector 1 x class selector	0,1,1
p a.foo	2 x element selectors 1 x class selector	0,1,2
.foo .bar	2 x class selectors	0,2,0
p.foo a.bar	2 x element selectors 2 x class selectors	0,2,2
#foo	1 x id selector	1,0,0
a#foo	1 x element selector 1 x id selector	1,0,1
.foo a#bar	1 x element selector 1 x class selector 1 x id selector	1,1,1
.foo .foo #foo	2 x class selectors 1 x id selector	1,2,0
style	1 x style attribute	1,0,0,0

* Same specificity
class selector = attribute attribute = pseudo-classes

!important



The State of CSS

<https://2020.stateofcss.com/en-US/>

