COESIONE ITALIA 21-27 PIEMONTE

Cofinanziato dall'Unione europea

REGIONE PIEMONTE

Web Developer

HTML, CSS e Strumenti di Digital Marketing (SEO, SEM, SEA)

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Intervento realizzato da ITS TECNOLOGIE DELL'INFORMAZIONE E DELLA COMUNICAZIONE

CSS Selectors

Efficient targeting

Shadi Lahham - Web development

CSS Recap

```css
body {
 color: yellow;
 background-color: black;
}

#container {
 width: 70%;
 padding: 10px;
}

.byline {
 font-size: 12px;
 border-bottom: 1px solid #ccc;
}
```

body, #container, .byline are selectors

A few CSS selector types

```
selector {
   property: value;
}

selector relation {
   property: value;
}

selector[attribute] {
   property: value;
}

selector:pseudo-class::pseudo-element {
   property: value;
}
```

Basic selectors

Basic Selectors

```
<ul>
   <li id="winner" class="special">item 1</li>
   <li class="special">item 2</li>
   <li>item 3</li>
</ul>
```

ID selector - most specific

```
#winner
```

Class selector

```
.special
```

Element selector - least specific

```
li
```

What does each one select?

Basic Selectors

```
<section id="intro">
   <h1>...</h1>
   <h2 class="tagline">...</h2>
</section>
```

ID Selector: #intro
Selects an element by the ID attribute value
Is unique and may only be used once per page

Class Selector: .tagline
Selects an element by the class attribute value
May be reused multiple times per page

Element Selector: h1
Selects an element by its type, also known as Type Selector or Tag Selector

ID selector

```
#happy-cake {
  color: crimson;
}

<!-- WILL match -->
<div id="happy-cake"></div>

<!-- WILL match -->
<aside id="happy-cake"></aside>

<!-- Will NOT match -->
<div id="sad-cake">Wrong ID!</div>

<!-- Will NOT match -->
<div class="happy-cake">That's not an ID!</div>
```

Class Selector

```
.module {
  color: olive;
}

<!-- WILL match -->
<div class="module"></div>

<!-- WILL match -->
<aside class="country module iceland"></aside>

<!-- Will NOT match -->
<div class=".module">The dot is for CSS, not HTML</div>

<!-- Will NOT match -->
<div class="bigmodule">Wrong class</div>
```

Element Selector

```
h2 {
  color: DarkGoldenRod;
}

<main>
  <div>
    <!-- WILL match -->
    <h2>Anywhere</h2>
  </div>
</main>

<!-- Will NOT match -->
<div class="h2">Wrong tag, can't trick it</div>

<!-- Will NOT match -->
<h2class="yolo">Make sure that tag has a space after it!</h2>
```

* Selector

```
* {
  color: brown;
}

<!-- WILL match -->
<body>
  <!-- WILL match -->
  <div id="happy-cake"></div>
  <!-- WILL match -->
  <aside id="happy-cake">
    <!-- WILL match -->
    <p class="happy-cake">Cake</p>
  </aside>
</body>
```

*** will match any element! Use with care**

Relational selectors

Relational selectors (aka Combinators)

A CSS selector can contain more than one basic selector
Between the basic selectors, we use one of these relational selectors

1. **Descendant selector (space)**
   Selects an element that resides anywhere within an identified ancestor element

2. **Direct child selector (>)**
   Selects an element that resides immediately inside an identified parent element

3. **General sibling selector (~)**
   Selects an element that follows anywhere after the prior element
   Both elements share the same parent

4. **Adjacent sibling selector (+)**
   Selects an element that follows directly after the prior element
   Both elements share the same parent

Descendant Selector

```
article h2 {
  color: maroon;
}

<!-- Will NOT match -->
<h2>title</h2>
<article>
  <!-- WILL match -->
  <h2>subtitle</h2>
  <div>
    <!-- WILL match -->
    <h2>subtitle</h2>
  </div>
</article>
```

Direct Child Selector

```
article > p {
 color: greenyellow;
}

<!-- Will NOT match -->
<p>Lorem ipsum dolor sit amet</p>
<article>
  <!-- WILL match -->
  <p>This paragraph will be selected</p>
  <div>
    <!-- Will NOT match -->
    <p>Lorem ipsum dolor sit amet</p>
  </div>
</article>
```

General Sibling Selector

```
<section>
  <!-- Will NOT match -->
  <p>Lorem ipsum dolor sit amet</p>
  <h2>title</h2>
  <!-- WILL match -->
  <p>This paragraph will be selected</p>
  <div>
    <!-- Will NOT match -->
    <p>Lorem ipsum dolor sit amet</p>
  </div>
  <!-- WILL match -->
  <p>This paragraph will be selected</p>
</section>
<!-- Will NOT match -->
<p>Lorem ipsum dolor sit amet</p>
```

```
h2 ~ p {
 color: lightblue;
}
```

Adjacent Sibling Selector

```html
<section>
  <!-- Will NOT match -->
  <p>Lorem ipsum dolor sit amet</p>
  <h2>title</h2>
  <!-- WILL match -->
  <p>This paragraph will be selected</p>
  <div>
    <!-- Will NOT match -->
    <p>Lorem ipsum dolor sit amet</p>
  </div>
  <!-- Will NOT match -->
  <p>Lorem ipsum dolor sit amet</p>
</section>
<!-- Will NOT match -->
<p>Lorem ipsum dolor sit amet</p>
```

```css
h2 + p {
 color: olive;
}
```

Relational selectors

```html
<ol>
  <li>item 1</li>
  <li>item 2</li>
  <li>item 3
    <ul>
      <li>item a</li>
      <li>item b</li>
      <li>item c</li>
    </ul>
  </li>
  <li class="myclass">item 4 (myclass)</li>
  <li>item 5</li>
  <li>item 6</li>
  <li>item 7</li>
</ol>
```

```css
ol li {
 color: green;
}
ol > li {
 color: purple;
}
li {
 color: yellow;
}
li.myclass {
 color: red;
}
li.myclass ~ li {
 color: blue;
}
li.myclass + li {
 color: orange;
}
```

Attribute Selectors

Attribute Selectors

- Select elements based on:
  - whether an attribute is present
  - what its value may contain
- Attribute selectors are supported in all modern browsers
  - Some very old browsers don't support them, but they are no longer in use

Attribute Present Selector

```
a[target] {
 color: orangered;
}

<!-- WILL match -->
<a href="#" target="_blank">click here</a>

<!-- WILL NOT match -->
<a href="#">click here</a>
```

Attribute Equals Selector

```
a[href="http://google.com/"] {
 color: azure;
}

<!-- WILL match -->
<a href="http://google.com/">search on google</a>
```

Attribute Equals Selector

```
[data-modal="open"] {
 color: peru;
}
```

```
<div data-modal="open"></div>

<aside class='closed' data-modal='open'></aside>

<div data-modal="false"></div>

<div data-modal></div>

<div data-modal-open></div>
```

Attribute Equals Selector

```
[data-modal="open"] {
 color: peru;
}

<!-- WILL match -->
<div data-modal="open"></div>

<!-- WILL match -->
<aside class='closed' data-modal='open'></aside>

<!-- Will NOT match - Wrong value -->
<div data-modal="false"></div>

<!-- Will NOT match - No value -->
<div data-modal></div>

<!-- Will NOT match - Wrong attribute -->
<div data-modal-open></div>
```

Attribute Contains Selector

```
a[href*="login"] {
 color: salmon;
}

<!-- WILL match -->
<a href="/login.php">login page</a>
```

Attribute Begins With Selector

```
a[href^="https://"] {
 color: plum;
}

<!-- WILL match -->
<a href="https://www.bbc.com/">The BBC</a>
```

Attribute Ends With Selector

```
a[href$=".pdf"] {
 background-image: url("images/pdf.png");
}

<!-- WILL match -->
<a href="/docs/menu.pdf">download menu</a>
<!-- Will NOT match -->
<a href="/audio/song.mp3">download song</a>
```

Attribute Spaced Selector

```
img[alt~='child'] {
 border: 1px solid orange;
}

<!-- WILL match -->
<img src="child.jpg" alt='a small child'>

<!-- Will NOT match -->
<img src="child.jpg" alt='a-small-child'>

<!-- Will NOT match -->
<img src="child.jpg" alt='asmallchild'>

<!-- WILL match -->
<img src="child.jpg" alt='child'>
```

Attribute Hyphenated Selector

```
p[lang|="en"] {
 color: chocolate;
}

<!-- WILL match -->
<p lang="en">English</p>

<!-- WILL match -->
<p lang="en-US">American english</p>

<!-- Will NOT match -->
<p lang="fr">Français</p>

<!-- WILL match -->
<p lang="en-">Bad lang</p>

<!-- Will NOT match -->
<p lang="something-en-something">Also bad lang</p>
```

Pseudo-classes

Pseudo-classes

- recognized by the single colon prefix (:)
- work like regular HTML classes but aren't written in the source code
- change based on what users do or how the document is structured
- style elements based on their current state, position within the document or their content

```
selector:pseudo-class {
 property: value;
}
```

Example

```
a:hover {
 color: pink;
 text-decoration: none;
}
```

Complete list here:

[Pseudo-classes - CSS: Cascading Style Sheets]

Pseudo-classes

```css
/* unvisited link */
a:link {
 color: #ff0000;
}

/* visited link */
a:visited {
 color: green;
}

/* moused over */
a:hover {
 color: purple;
}
```

To be effective, a:hover **must** come after a:link and a:visited

```css
/* selected with keyboard*/
a:focus {
 color: purple;
}

/* activated link */
a:active {
 color: blue;
}
```

To be effective, a:active **must** come after a:hover

State pseudo-classes

:link
Selects only <a> tags that have an href attribute
Is the same as a[href]

:visited
Selects links that have already been visited by the current browser

```
a:link {...}
a:visited {...}
```

note: The element's state can change based on user action or dynamically in code

State pseudo-classes

:hover
When the mouse cursor rolls over a link, that link is in it's hover state and this will select it

:active
Selects the link while it is being activated - being clicked on or otherwise activated

:focus
Selected when a user has made an element the focus of the page, e.g. using 'tab' on the keyboard
Often used on links, inputs and textareas

```
a:hover {...}
a:active {...}
a:focus {...}

textarea:focus {
 background: pink;
}
```

State pseudo-classes

:enabled
selects an input that is in the default state of enabled and available for use

:disabled
selects an input that has the disabled attribute tied to it

:checked
selects checkboxes or radio buttons that are checked

:indeterminate
Selects a checkbox or radio button that has neither been selected nor unselected

```
input:enabled {...}
input:disabled {...}
input:checked {...}
input:indeterminate {...}
```

Structural & position pseudo-classes

:first-child
select an element if it’s the first child within its parent

:last-child
select an element if it’s the last element within its parent

:only-child
will select an element if it is the only element within a parent

```
li:first-child {...}
li:last-child {...}
div:only-child {...}
```

Structural & position pseudo-classes

```
<ul>
  <li>This list item will be selected</li>
  <li>
    <div>This div will be selected</div>
  </li>
  <li>
    <div>...</div>
    <div>...</div>
  </li>
  <li>This list item will be selected</li>
</ul>
```

```
li:first-child {...}
li:last-child {...}
div:only-child {...}
```

Structural & position pseudo-classes

:first-of-type
select the first element of its type within a parent

:last-of-type
select the last element of its type within a parent

:only-of-type
select an element if it is the only of its type within a parent

```
p:first-of-type {...}
p:last-of-type {...}
img:only-of-type {...}
```

Structural & position pseudo-classes

```
<article>
  <h1>...</h1>
  <p>This paragraph will be selected</p>
  <p>...</p>
  <img src="#"><!-- image will be selected -->
  <p>This paragraph will be selected</p>
  <h6>...</h6>
</article>
```

```
p:first-of-type {...}
p:last-of-type {...}
img:only-of-type {...}
```

Structural & position pseudo-classes

:nth-child()
selects elements based on a simple provided algebraic expression (e.g. "2n" or "4n-1")
Can select even/odd elements, "every third", "the first five", etc

:nth-of-type()
works like :nth-child in places where the elements at the same level are of different types

:nth-last-of-type()
like :nth-of-type but counts up from the bottom instead of the top

:nth-last-child()
like :nth-child but counts up from the bottom instead of the top

Useful :nth-child Recipes

Best way to learn is to experiment. Try the :nth Tester

Structural & position pseudo-classes

```
<ul>
 <li>nope</li>
 <!-- WILL match -->
 <li>yep, I'm #2</li>
 <li>nope</li>
</ul>
```

```
:nth-child(2) {
 color: purple;
}
```

Empty Pseudo-class

```
<div>Hello</div><!-- darkorange -->
<div><!-- comment --></div><!-- limegreen -->
<div></div><!-- limegreen -->
<div> </div><!-- darkorange -->
<div><b></b></div><!-- darkorange -->
<div>
</div><!-- darkorange -->
```

```
div:empty {
 border: 1px solid limegreen;
 padding: 10px;
}

div:not(:empty) {
 border: 1px solid darkorange;
 padding: 10px;
}
```

Negation Pseudo-class

```
<div>content</div><!-- selected -->
<div class="awesome">content</div>
<section>content</section><!-- selected -->
<p class="awesome">hello</p><!-- selected -->
```

```
div:not(.awesome) {
 color: plum;
}

:not(div):not(body):not(html) {
 color: tan;
}
```

Pseudo-classes

There are many other useful pseudo-classes

The complete list is here:
Pseudo-classes - CSS: Cascading Style Sheets

Pseudo-elements

Pseudo-elements

- Dynamic elements that don’t exist in the document tree
- When used within selectors allow unique parts of the page to be stylized
- Only one pseudo-element may be used within a selector at a given time
- Recognized by the double colon prefix (::)
    - **Note** single colon (:) is also accepted by modern browsers for retro compatibility because very old browsers didn't support double colon (::)

Textual pseudo-elements

::first-letter
select the first letter of text within a block element

::first-line
select identify the first line of text within a block element

```
.alpha::first-letter {...}
.bravo::first-line  {...}
```

::first-letter
::first-line

Textual pseudo-elements

```
.alpha::first-letter,
.bravo::first-line {
 color: #ff7b29;
 font-size: 18px;
}
```

```
<p class="alpha">Lorem ipsum dolor...</p>
<p class="bravo">Integer eget enim...</p>
```

Content Pseudo-elements

::before
creates a pseudo-element before, or in front of, the selected element

::after
creates a pseudo-element after, or behind, the selected element

These pseudo-elements appear nested within the selected element, not outside of it

Example:

```
a::after {
  color: orange;
  content: ' I appear after the element';
  font-size: 12px;
}
```

Content pseudo-elements

```
.sale::after {
 background-color: orange;
 color: white;
 content: "Sale!";
 font-size: 12px;
 margin-left: 5px;
 padding: 1px 6px;
}

<ul>
  <li class="sale">item1</li>
  <li>item2</li>
  <li class="sale">item3</li>
  <li>item4</li>
</ul>
```

Content pseudo-elements

```
a::after {
 color: #9799a7;
 content: " (" attr(href) ")";
 font-size: 11px;
}
```

```
<a href="http://google.com/">Search the Web</a>
<a href="https://www.bbc.com/">The BBC</a>
```

::after
::before

Fragment pseudo-element

::selection
identifies part of the document that has been selected, or highlighted, by a user's actions

::-moz-selection
Mozilla prefixed fragment pseudo-element has been added to ensure the best support for all browser

```
::-moz-selection {
 background: #ff7b29;
}
::selection {
 background: #ff7b29;
}
```

Combining selectors

Combining selectors

Selectors can be combined together

```
.module.news {
 /* Selects elements with BOTH of those classes */
 color: peachpuff;
}
#site-footer::after {
 /* Adds content after an element with that ID */
 color: aliceblue;
}
section[data-open] {
 /* Selects only section elements if they have this attribute */
 color: bisque;
}
```

Specificity

Specificity: How it works

A weight is applied to a CSS declaration, determined by the number of each selector type

1-0-0:
ID selector

0-1-0:
Class selector, Attribute selector, Pseudo-class

0-0-1:
Element Selector, Pseudo-element

0-0-0:
Universal selector (*), combinators (+, >, ~, ' ', ||) and negation pseudo-class :not()
*Note:*The selectors declared inside :not() *contribute* to the weight

Specificity is usually the reason why CSS-rules don't apply to some elements when think they should
Quick reference: https://specifishity.com/

Your turn

Note for exercises

- For the first 3 exercises you will need code from a zip file
  - The file is named the same as this unit's name with the **.zip** extension
  - Please download and unzip it

- Each exercise should include
  - An index.html file
  - A style.css file in a folder named /style
  - Comments and documentation

1.CSS diner

- Open the folder **01-css-diner** from the unit's zip file
- Open the file **index.html**
- Complete all levels of the game
- For each level there can be **many** solutions, try to find as many as you can
- Submit a **css-diner.txt** or a **css-diner.md** file in which for each level
    - Write all the solutions that you have found
    - For each solution, write the name/type of the all selectors
    - For each solution, explain how the selector works and which HTML tags it targets
- **Note** some of the HTML in this game is not "real"
    - For example the <plate></plate> tags are not valid HTML. This is just a game

2.Selectors Practice

- Open the folder **02-selectors-practice** from the unit's zip file
- Complete the exercise following the instructions in the CSS styles.css file
- Do **not** modify the HTML file

3.Super hot

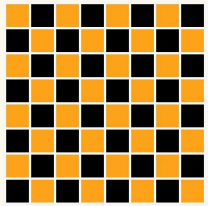
- Open the folder **03-super-hot** from the unit's zip file
- Complete the exercise following the instructions in the CSS styles.css file
- Do **not** modify the HTML file. Your solution should look like this image

Scoville heat units	Examples	
16,000,000,000	Resiniferatoxin	Tried it!
5,300,000,000	Tinyatoxin	Tried it!
16,000,000	Capsaicin	Tried it!
15,000,000	Dihydrocapsaicin	Tried it!
9,200,000	Nonivamide	Tried it!
9,100,000	Nordihydrocapsaicin	Tried it!
8,600,000	Homocapsaicin	Tried it!
160,000	Shogaol	Tried it!
100,000	Piperine	Tried it!
60,000	Gingerol	Tried it!

4.Chessboard

- Create a <table> with 8 rows and 8 columns
- Your <td> elements should be empty (or contain one letter when needed)
- Use CSS selectors to create a chessboard pattern like in the image below
- Use the following rule to fill the table cells:

```
td {
  width: 20px;
  height: 20px;
}
```



5.Most specific

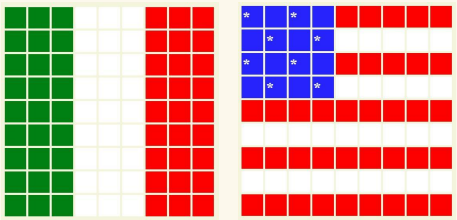
For each selector, calculate the specificity explain it in a markdown file: **most-specific.md**
Note: Your explanation should be very detailed!

```
ul li {}
ul > li {}
body > #main.mobile a:hover {}
div p > span {}
.users .name {}
[href$='.pdf'] {}
:hover {}
div .name {}
a[href$='.pdf'] {}
.pictures img:hover {}
.news.breaking.featured {}
.user #name {}
#name span {}
nav#nav > li:hover {}
li:nth-child(2n+1):hover {}
```

Bonus

6.Flag maker

- Same rules as the previous exercise
- Create a <table> with 9 rows and 9 columns for each flag
- Use CSS selectors to create the Italian and US flags like in the images below
- In the same HTML file create as many other flags as you can think of
- Use CSS selectors in creative ways
- **Bonus:** make a flag that changes from one nation to another when the mouse hovers over it



7.We mean business

- Create a table with details of business contacts
  - Columns can include: name, email address, country, etc (max 6 columns)
  - Fill the table with contents
- Add a styles.css file. The HTML file should not contain any inline styles!
- The table header should have a background color
- The table rows should have an alternating white/grey background
  - Row 1 grey, row 2 white, row 3 grey, etc
- When the user hovers over a row with the mouse the color should change

Bonus: modify your CSS so that the table row colors alternate every 2 rows

References

CSS Selectors Reference

CSS selectors - CSS: Cascading Style Sheets

Pseudo-classes - CSS: Cascading Style Sheets

References

Specificity

Specificity - CSS: Cascading Style Sheets

Specifics on CSS Specificity

Specifishity :: Specificity with Fish