Introduction to HTML and CSS



SoftUni Team Technical Trainers







Software University

https://softuni.bg

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What is HTML?



- HTML is a markup language
- HTML is the basis for creating web pages and other information that can be displayed in a web browser
- Language for expressing semantic structure in textual documents



What is HTML?



- HTML is a language for describing web pages
- HTML documents contain HTML tags and plain text
- A markup language is a set of markup tags
- The tags describe document content

What is HTML?



- HTML is consumed by web browsers
- The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages.
- The browser does not display the HTML tags, it uses the tags to interpret the content of the page.



HTML Tags



Tags are keywords surrounded by angle brackets





HTML Tag Pairs



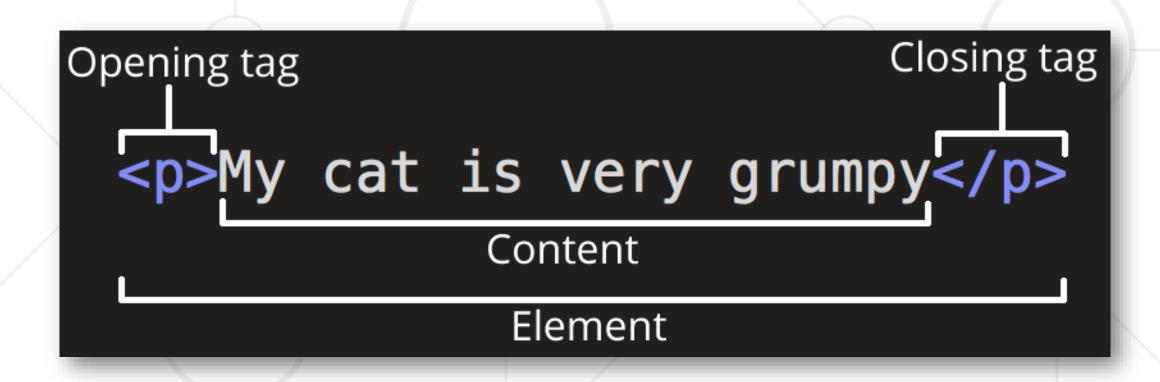
HTML tags normally come in pairs

```
'<' + 'p' + '>' and '</' + 'p' + '>'
```

- The first tag in a pair is the start tag, the second tag is the end tag
- The end tag is written like the start tag, with a forward slash before the tag name
- Start and end tags are also called opening tags and closing tags

HTML Tag Pairs - Example





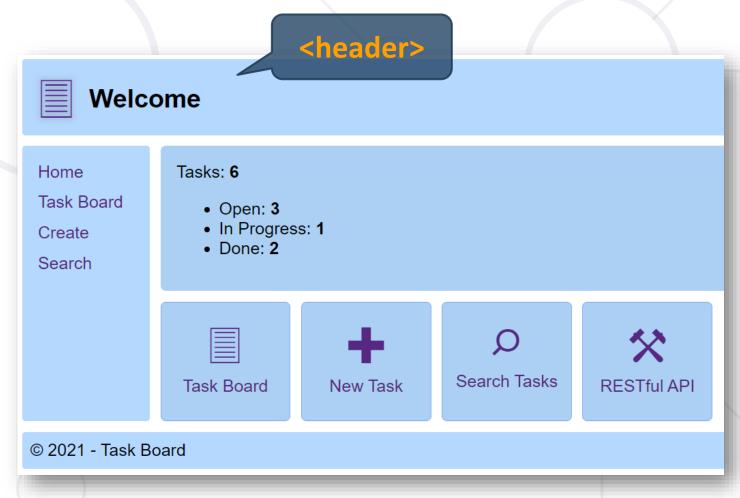
<header></header>



Represents introductory content

```
<h1>Welcome</h1>
</header>
```

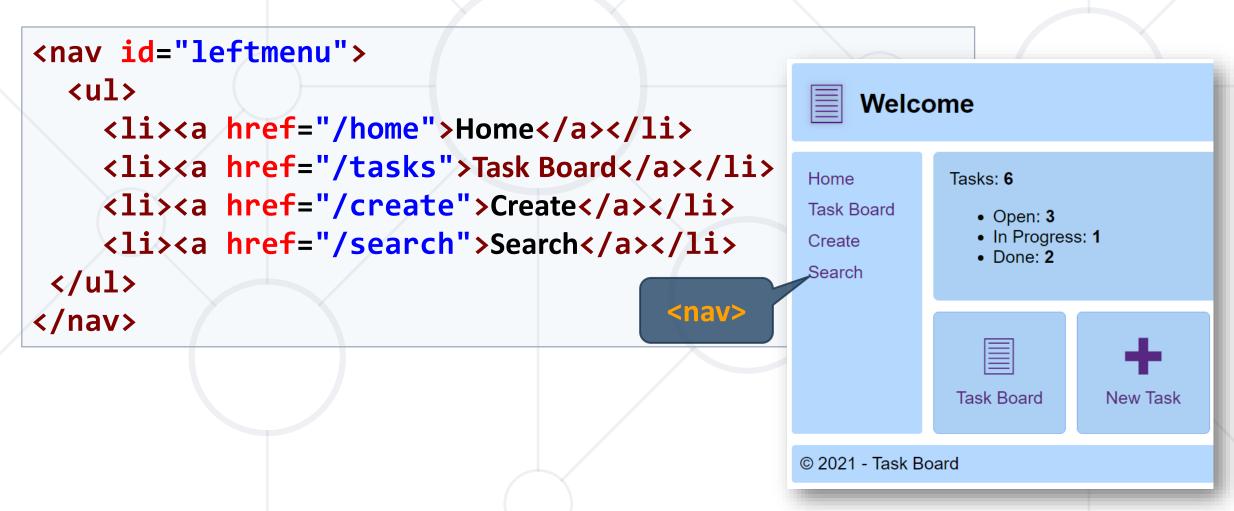
- It may contain:
 - headings
 - logo
 - search form



<nav></nav>



Defines a set of navigation links



<main></main>



- <main> holds the main content of a document
 - Helps crawlers
 - There must not be more than one <main> element in a document
 - Wrap the most important information in the body



<aside></aside>



Defines a sidebar (left / right navigation)

```
<aside>
  <h2>Recent posts</h2>

    <a href="#">Our Response</a>
    <a href="#">Her Story</a>
    <a href="#">Greatest Challenges</a>

</rr>

</aside>
```

<aside>

What We Do

Creative Commons is a nonprofit organization that helps overcome legal obstacles to the sharing of knowledge and creativity to address the world's pressing challenges.

Recent Posts

- Our Response To
 Canada's Copyright
 Term Extension
 Consultation
- Her Story: Facing Our Greatest Challenges

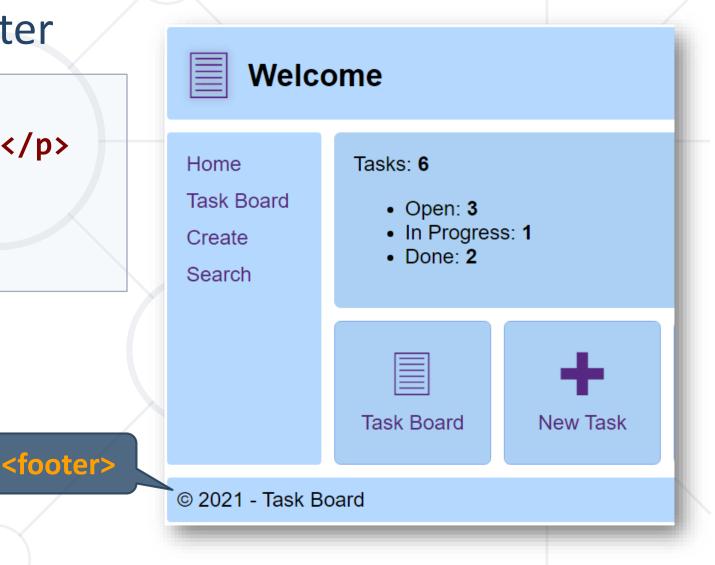
<footer></footer>



A document / section footer

```
<footer>
  Posted by: Hege Refsnes
     &copy;copyright
     2021 Task Board
</footer>
```

- A footer typically contains:
 - Navigation links
 - Copyright data



<section></section>

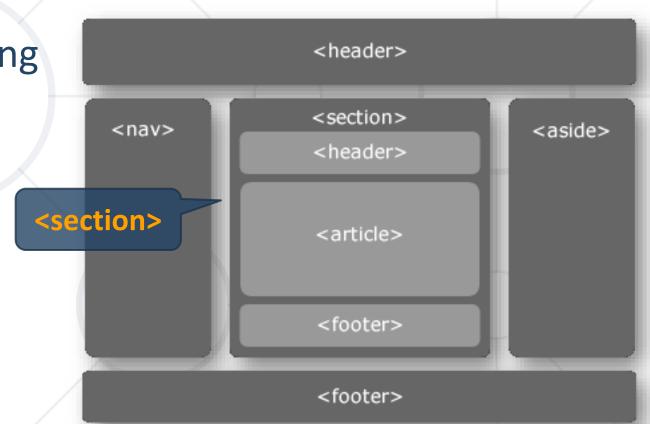


Represents a standalone section

Typically followed by a heading

```
<section>
  <h2>Heading</h2>
</section>
```

 Sections may have header, several articles, and footer



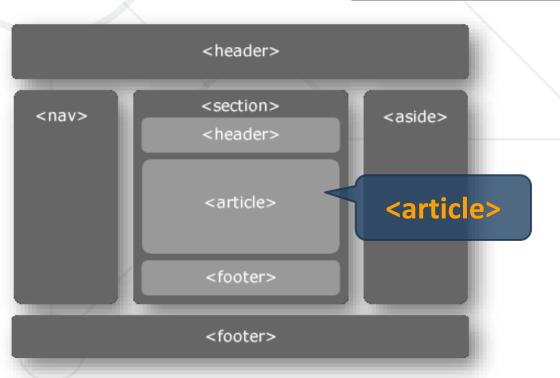
<article></article>



- Represents a self-contained composition in a document, page, application, or site
- Intended to be independently distributable or reusable

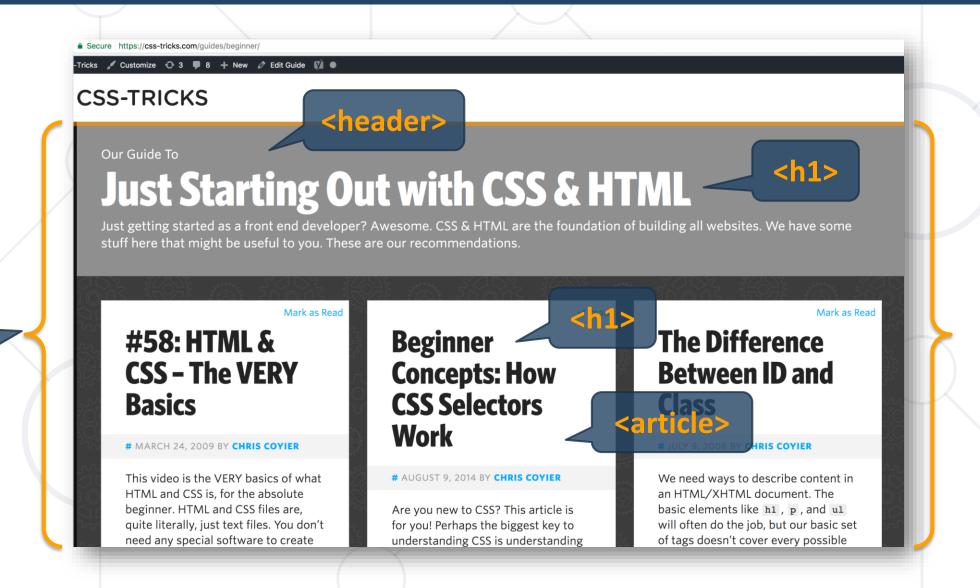
<article>
 <h2>Tips</h2>
 Tip #1 ...
</article>

- Examples:
 - Forum post
 - Magazine
 - Newspaper article
 - Blog entry



Sections and Articles – Example





<section>

<figure></figure>



- Represents self-contained content
- Frequently with a caption "figcaption"
- Typically referenced as a single unit

<figure>

```
<figure>
  <img src="pic_trulli.jpg"</pre>
    alt="Trulli">
  <figcaption>
    Fig.1 Trulli, Puglia, Italy.
  </figcaption>
</figure>
```

Places to Visit

Puglia's most famous sight is the unique conical houses (Trulli) found in the area around Alberobello, a declared UNESCO World Heritage Site.



Fig.1 - Trulli, Puglia, Italy.

<details> + <summary>



<details>

- details> additional details that the user can view or hide
- <summary> defines a visible
 heading for the <details>

<details>



<details>
 <summary>Some details</summary>
 More info about the details.
</details>

<time> + <address>

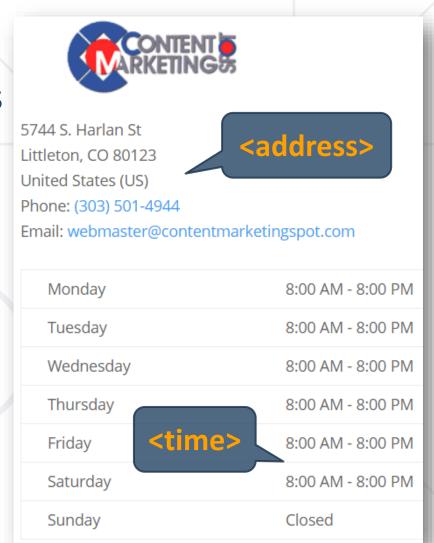


- <time> a human-readable time
 - Search engines can produce smarter results

```
We open at <time>10:00</time><br/>every morning.
```

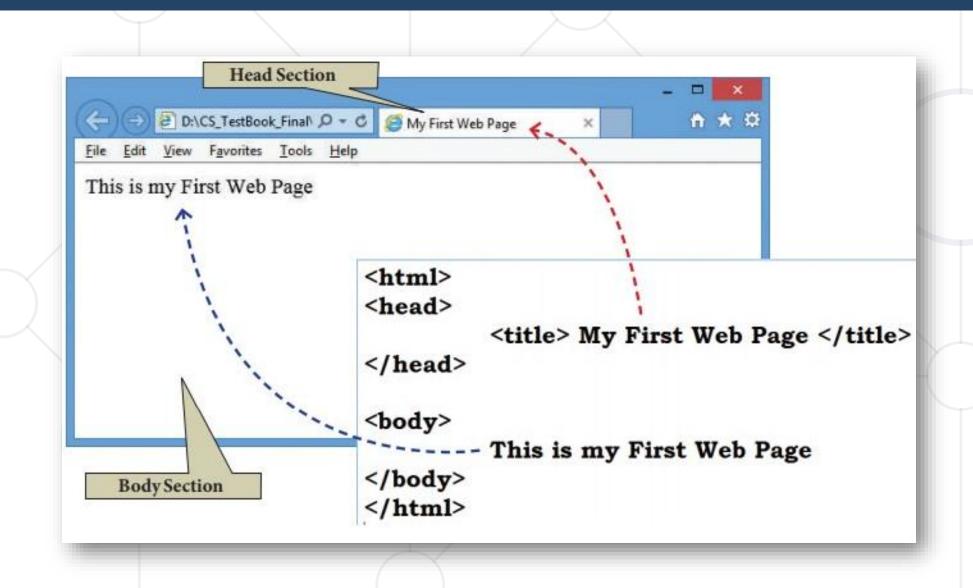
<address> – contact information for site author / owner

```
<address>
    <a href="mailto:tony@gmail.com">
        tony@gmail.com</a>
</address>
```



Your First HTML Document





HTML Versions



- Time passes, people think of new ways to entertain themselves
 - So new versions of HTML have been created
- How do we differentiate between the different versions?

HTML Version History

```
• 1992 The first version of HTML
```

• 1995 HTML 2.0

• 1996 HTML 3.0 & 3.2

•1997 HTML 4.0

• 1999 HTML 4.01

•2008 HTML5

THE <!DOCTYPE> DECLARATION



 There are many different documents on the web, and a browser can only display an HTML page 100% correctly if it knows the HTML type and version used





Common HTML Tags

Headings and Paragraphs



Headings: <h1> to <h6>

```
<h1>This is Heading 1 (Biggest)</h1>
<h2>This is Heading 2 (Smaller)</h2>
<h3>This is Heading 3 (More Smaller)</h3>
<h4>This is Heading 4 (Smallest)</h4>
```

Paragraphs:

```
First paragraph
Second paragraph
<br/><br/> <!-- empty Line -->
Third paragraph
```

This is Heading 1 (Biggest)

This is Heading 2 (Smaller)

This is Heading 3 (More Smaller)

This is Heading 4 (Smallest)

First paragraph

Second paragraph

Third paragraph

Hyperlinks



External hyperlink

Specify the URL

SoftUni

```
<a href="https://softuni.bg">SoftUni</a>
```

Local hyperlink

Exercises

```
<h1 id="exercises">Exercises</h1>
```

See the <u>exercises</u>

See the exercises

Relative hyperlink

presentation

presentation

Images



C Q example.html

Images are external files, inserted through the tag

```
src="images/SoftUni-logo.png"
width="400"
height="313" />

Embedded image (data URI)
```


Example: https://codepen.io/snakov/pen/poNxXry

Ordered Lists: Tag



- Create an Ordered List
- Use >
 - Each holding

```
  >One
  Two
  Three
```

- 1. One
- 2. Two
- 3. Three

Attribute values for type are 1, A, a, I, or i

- 1. One
- 2. Two
- 3. Three

- A. One
- B. Two
- C. Three

- a. One
- b. Two
- c. Three

- I. One
- II. Two
- III. Three

- i. One
- ii. Two
- iii. Three

Unordered Lists: Tag



Create an Unordered List using <!ul><!-- The color of the color

```
  First item
  Second item
  Third item
```

- First item
- Second item
- Third item

Attribute values for type are: disc, circle, square and none

- First item
- Second item
- Third item

- First item
- Second item
- Third item

- First item
- Second item
- Third item

First item
Second item
Third item

Definition Lists: <dl> Tag



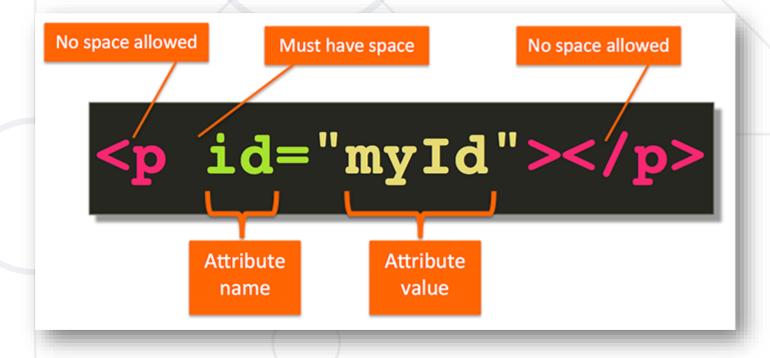
- Create definition lists using <dl>
 - Holds terms (<dt>) with their definitions (<dd>)

```
<d1>
                                              C Q definition-lists.html
  <dt>HTML</dt>
                                            HTML
  <dd>A markup language ...</dd>
                                                A markup language ...
  <dt>CSS</dt>
                                            CSS
                                                Language used to ...
  <dd>Language used to ...</dd>
</dl>
```



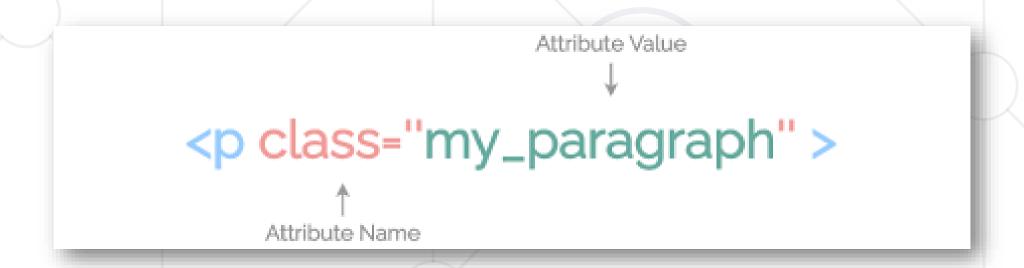


- Attributes provide additional information about HTML elements
- Tags elements can have attributes





- Attributes provide additional information about an element
- Attributes are always specified in the start tag
- Attributes come in name/value pairs like name="value"





href – gives the tag the location information for the link

```
Opening tag tag tag <a href="#register" target="_self">Registration</a> attributes
```

src – tells the tag where to look for the image file



- Some tips
 - Always Quote Attribute Values. Attribute values should always be enclosed in quotes
 - Double style quotes are the most common, but single style quotes are also allowed
 - Be careful when combining single and double quotes, make sure you use only one type
 - Reference Documentation

HTML Metadata Section



- The following tags can be added to the head section:
 - <title>, <style>, <meta>, <link>, <script>, <noscript>
- Reference Documentation

```
meta element

<meta name="robots" content="noindex,follow"/>
actual attribute value for attribute value for tag "name" "content" "content"
```

Metadata Section



Title

```
<head>
<title>HTML Document title</title>
</head>
```

- Link
 - The link> tag defines the relationship between a document and an external resource

Metadata Section



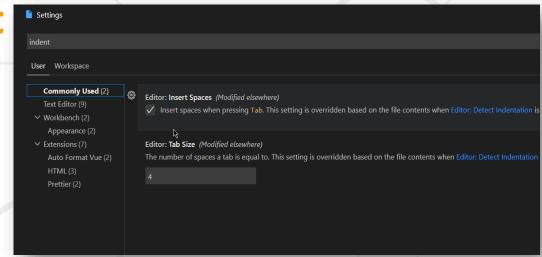
Meta

```
<head>
     <!-- Define keywords for search engines: -->
     <meta name="keywords" content="HTML, CSS, XML, XHTML,</pre>
JavaScript">
     <!--Define a description of your web page:-->
     <meta name="description" content="Courses on HTML and CSS">
     <!--Define the author of a page:-->
     <meta name="author" content="Koko">
</head>
```

Indentation & Code formatting



- We will be using tabs that are 4 spaces long
- Indentation is extremely important
 - It helps with navigating the code
 - It helps to find mistakes faster
 - It makes debugging issues faster
- Bad indentation is shameful when sharing





What is CSS?

Cascading Style Sheets

What is CSS?



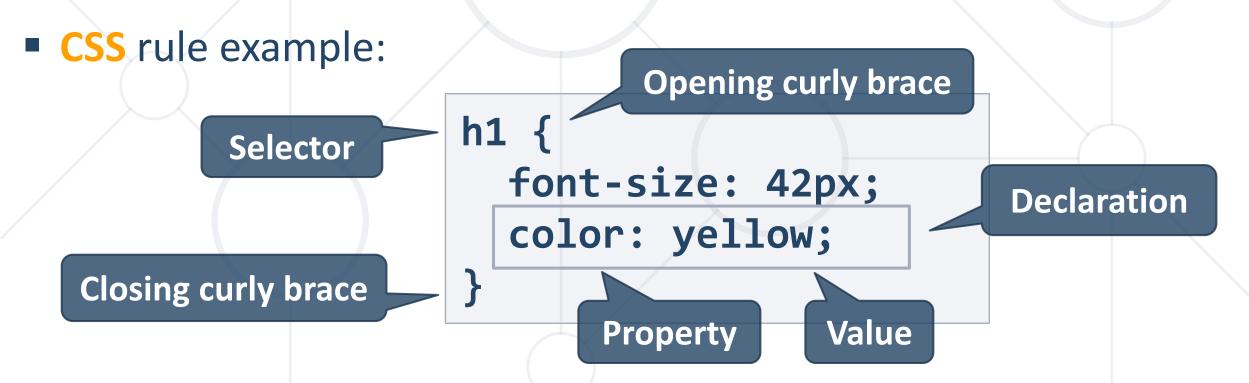
- CSS stands for Cascading Style Sheets
- Styles define the visual presentation of HTML elements
- CSS solved a problem
- HTML was never intended to contain tags for formatting a document.
- With CSS the separation between semantic content and visual presentation can be achieved again.



What is CSS?

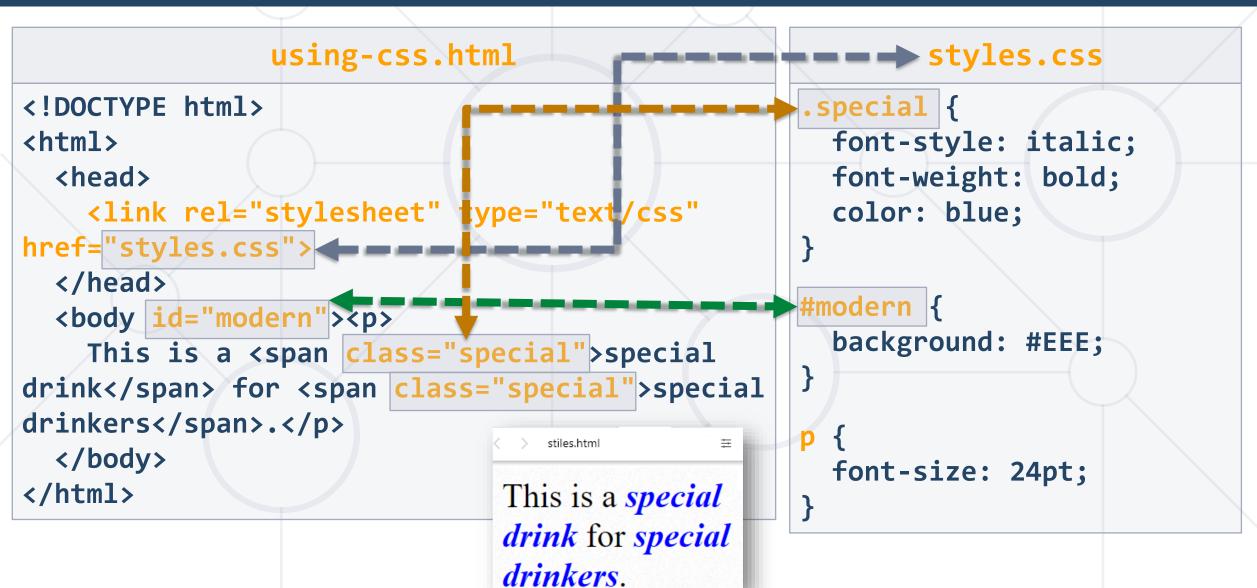


- CSS defines styling of the HTML elements
 - Specifies fonts, colors, margins, sizes, positioning, floating, ...
 - CSS rules format: selector { prop1:val1; prop2:val2; ... }



Combining HTML and CSS Files (External Style)







CSS Syntax – Selectors and Rules



- In CSS, selectors are used to target the HTML elements on our web pages that we want to style
- There are a wide variety of CSS selectors available, allowing for fine-grained precision when selecting elements to style.
 A CSS selector is the first part of a CSS Rule
- Reference Documentation



Select elements by name

```
<h1>Page Title</h1>
```



Select by class name

```
Text
```



Select by element id

```
<span id="login">Go</span>
```



#login { width: 150px; }

Select element with certain class

```
<a class="login">Login</a>
```



a.login { width: 80px; }



Type selectors

- The CSS type selector matches elements by node name. In other words, it selects all elements of the given type within a document
- Reference Documentation

```
[tag-name] {
    [declaration]
    [declaration]
}
```

```
h1 {
    color: red;
    font-weight: bold;
}
```



Class selectors

- The CSS class selector matches elements based on the contents of their class attribute
- Reference Documentation

```
.[tag-name] {
    [declaration]
    [declaration]
}
```

```
.[class-name] {
    color: red;
    font-weight: bold;
}
```



ID selectors

- The CSS ID selector matches an element based on the value of the element's id attribute. For the element to be selected, its id attribute must match exactly the value given in the selector.
- Reference Documentation

```
#[tag-name] {
    [declaration]
    [declaration]
}
```

```
#[id-name] {
    color: red;
    font-weight: bold;
}
```



Attribute selectors

- The CSS attribute selector matches elements based on the element having a given attribute explicitly set, with options for defining an attribute value or substring value match
- Reference Documentation

```
[attribute="value"] {
    [declaration]
    [declaration]
}
```

```
[href="https://softuni.bg"] {
    color: red;
    font-weight: bold;
}
```



Universal selector

- The CSS universal selector (*) matches elements of any type.
- Reference Documentation

```
* {
    [declaration]
    [declaration]
}
```

```
* {
    color: red;
    font-weight: bold;
}
```

Combined CSS Selectors



```
<section id="news">
  <h1>Hot News</h1>
  <article>
    <h1>New Release!</h1>
    Today we released
      <b class="red">ver. 7</b>
      of our unique software ...
    </article>
  Published: <span</p>
class="date">1/1/2021</span>
</section>
```

```
#news > h1
#news article > h1
#news article p
#news p > b.red
#news span.date
```

CSS Combinators



Descendant combinator

- The descendant combinator typically represented by a single space (" ") character combines two selectors such that elements matched by the second selector are selected if they have an ancestor (parent, parent's parent, parent's parent, etc.) element matching the first selector
- Reference Documentation

```
header p {
    color: red;
    font-weight: bold;
}
```

CSS Combinators



Selector list

- The CSS selector list (,) selects all the matching nodes. A selector list is a comma-separated list of selectors
- Reference Documentation

```
header, p, div {
    color: red;
    font-weight: bold;
}
```

CSS Combinators



Child combinator

- The child combinator (>) is placed between two CSS selectors. It
 matches only those elements matched by the second selector
 that are the direct children of elements matched by the first
- Reference Documentation

```
header > p {
    color: red;
    font-weight: bold;
}
```

Combining Styles



- Why combine styles?
 - To keep CSS DRY (Don't Repeat Yourself)
 - When multiple sections share similar styling, reuse the same class for consistency
 - Easier to maintain and update one class instead of editing multiple rules
 - Improves readability and reduces code duplication

```
.text-red {
  color: red;
}

cp class="text-red">first paragraph.
Another paragraph with same style.
```

CSS Cascade



- The cascade determines which style is applied when multiple CSS rules target the same element
- Order of application:
 - Browser (user agent) styles
 - User styles
 - Author styles (ours)
 - If rules conflict, the last one in order wins if specificity is the same
 - Reference Documentation

```
h1 {
  color: blue; /* applied
first */
}
h1 {
  color: red; /* overrides
because it comes Later */
}
```

CSS Specificity



- Selector priority
 - Inline styles: highest
 - ID selectors: high weight
 - Classes, attributes, pseudo-classes: medium weight
 - Elements, pseudo-elements: lowest weight

Reference Documentation

```
#header h1.title {} > .title {} > h1 {}
```

CSS!important



!important

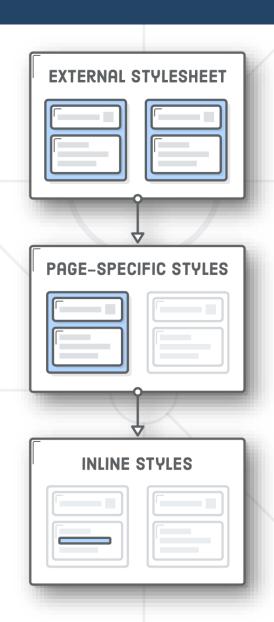
- Forces the property to override other rules
- Used only as a last resort (e.g., overriding a third-party library)
- Harder to maintain, breaks the natural cascade flow
- Reference Documentation

```
.btn {
  color: white !important; /* overrides all other color rules */
}
```





- There are three ways of inserting a style sheet:
 - External style sheet
 - Internal style sheet
 - Inline style





External Style Sheet

- An external style sheet is ideal when the style is applied to many pages. With an external style sheet, you can change the look of an entire Web site by changing one file. Each page must link to the style sheet using the tag
- The tag goes inside the head section:



Internal Style Sheet

 An internal style sheet should be used when a single document has a unique style. You define internal styles in the head section of an HTML page, by using the style tag

```
<head>
<style>
body {
...
}
</style>
</head>
```



Inline Styles

- An inline style loses many of the advantages of style sheets by mixing content with presentation
- Do not use this method unless you have no other choice!
- To use inline styles, you use the style attribute in the relevant tag. The style attribute can contain any CSS property

```
<div style="color: red;">
...
</div>
```

Inline CSS Style



The style attribute defines inline CSS

Attribute "style"

<h1 style="color:blue">This is a blue ...

</h1>
Property

Value

This is a blue Heading

→ C Q inline-style.html

→ C Q inline-style.htm

This is a red Heading



Font Size

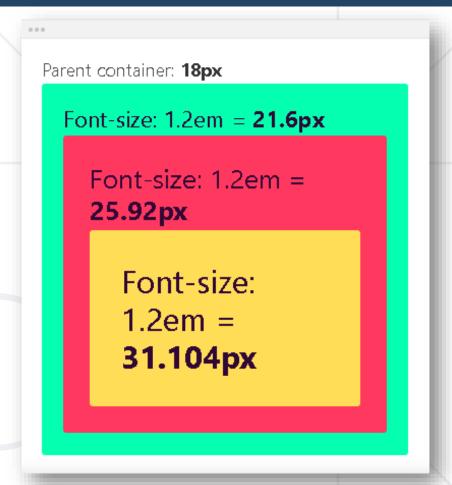


- font-size defines the text size
 - px / pt values (e. g. 18px / 24pt)
 - 1px == 0.75pt == 1/96 inch
 - em values relative to the original size, multiplied by a scale factor

```
font-size: 1.2em;
```

rem values – relative to the HTML root size (the <html> element)

```
font-size: 1.5rem;
```



font-size: 16px

font-size: 1.5rem == 24px

Font Weight: Thin / Normal / Bold



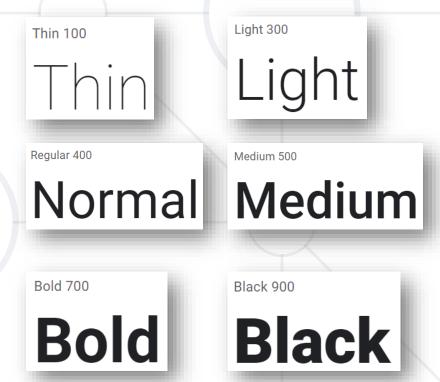
font-weight defines how weight is the font

Normal **Bold**

Thin, normal, bold, or value [100 ... 900]

Value	Name
100	thin
300	light
400	normal
700	bold

<pre>font-weight:</pre>	thin;
font-weight:	300;
<pre>font-weight:</pre>	400;
<pre>font-weight:</pre>	bold;



Font Style: Normal / Italic



- font-style defines how much the text is slanted
 - normal the text is not slanted

```
font-style: normal;
```

Normal font style

italic – the letters are slightly slanted

```
font-style: italic;
```

Italic font style

oblique – the letters are more slanted than italic

```
font-style: oblique;
```

Oblique font style

Text Align: Left / Right / Center / Justify



- text-align
 - Defines the horizontal alignment

text-align: left;

Lorem ipsum

Lorem ipsum is meaningless text used to demonstrate the graphic elements of a document.

text-align: center;

Lorem ipsum

Lorem ipsum is meaningless text used to demonstrate the graphic elements of a document.

text-align: right;

Lorem ipsum

Lorem ipsum is meaningless text used to demonstrate the graphic elements of a document.

text-align: justify;

Lorem ipsum

Lorem ipsum is meaningless text used to demonstrate the graphic elements of a document.

Line Height



- line-height defines the height of a single line of text
 - Measures: unitless / pt / px / em / rem

```
<article>
  <h1>Lorem ipsum</h1>
    Lorem ipsum is
meaningless text used to
demonstrate the graphic
elements of a document.
</article>
```

```
p { line-height: 2.1; }
```

Lorem ipsum

Lorem ipsum is meaningless text

used to demonstrate the graphic

elements of a document

Letter Spacing



- letter-spacing defines the spacing between the characters of a block of text
 - normal the spacing between the characters is normal

letter-spacing: normal;

A paragraph with normal spacing

Using pixels

letter-spacing: 2px;

A paragraph with 2px spacing

Text Decoration



- text-decoration defines how the text content of the element is decorated: overline, underline, line-through
 - none removes any text decoration

```
text-decoration: none;
```

line-through - draws a line across the text

```
text-decoration: line-through;
```

text

Text Indent



text-indent - defines the indentation of the element's first

line of text

The text is not indented

text-indent: 0;

The text is indented

text-indent: 40px;

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam semper diam at erat pulvinar, at pulvinar felis blandit. Vestibulum volutpat tellus diam, consequat gravida libero rhoncus ut. Maecenas imperdiet felis nisi, fringilla luctus felis hendrerit sit amet.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam semper diam at erat pulvinar, at pulvinar felis blandit. Vestibulum volutpat tellus diam, consequat gravida libero rhoncus ut. Maecenas imperdiet felis nisi, fringilla luctus felis hendrerit sit amet.

Text Overflow



- text-overflow defines how the hidden text content behaves if it's overflowing
 - ellipsis the overflowing content is replaced by . . .



Text Transform



- text-transform specifies how to capitalize text
 - capitalize turns the first letter of each word into a capital letter

text-transform: capitalize;

It Is A Long Established Fact That A Reader Will Be Distracted.

uppercase - turns all characters to uppercase

text-transform: uppercase;

IT IS A LONG ESTABLISHED FACT THAT A READER WILL BE DISTRACTED.

lowercase - turns all characters to lowercase

text-transform: lowercase;

it is a long established fact that a reader will be distracted.

Word Break



- word-break defines how words should break when reaching the end of line
 - normal words with no space will NOT break

```
word-break: normal; Thequickbrownfoxjumpsoverthelazydog
```

break-all - words with no space will break as soon as they reach the end of a line

```
word-break: break-all;
```

Thequickbrownfoxjumpsoverthe lazydog

Text Shadow



- Text-shadow defines the shadow of the text content
 - None the text content has no shadow

```
p {
    text-shadow: none;
}
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam semper diam at erat pulvinar, at pulvinar felis blandit. Vestibulum volutpat tellus diam, consequat gravida libero rhoncus ut. Maecenas imperdiet felis nisi, fringilla luctus felis hendrerit sit amet.

Text-shadow: <horizontal> <vertical> <blur> <color>

```
p {
    text-shadow: 2px 4px 10px red;
}
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam semper diam at erat pulvinar, at pulvinar felis blandit. Vestibulum volutpat tellus diam, consequat gravida libero rhoncus ut. Maecenas imperdiet felis nisi, fringilla luctus felis hendrerit sit amet.

Text Color



■ 140+ predefined color names (e. g. green, red, blue, coral, ...)

```
color: red;
```

Lorem ipsum

Hexadecimal color code in format #RGB or #RRGGBB:

```
color: #05ffb0;
```

Lorem ipsum

Decimal rgb() color codes (red, green, blue values):

```
color: rgb(125, 125, 255);
```

Lorem ipsum

Decimal rgba() color codes (red, green, blue, alpha opacity):

```
color: rgba(255, 0, 0, 0.5);
```

Lorem ipsum

Background Color



- background-color defines the color of the background
 - transparent

```
background-color: transparent;
```

- Specify the background color with:
 - HEX
 - RGB/RGBA
 - Named color

```
background-color: navy;
```

Mouse Cursor



Sets the mouse cursor when hovering the element:

some text cursor: pointer; cursor: move; move cursor: none; no cursor В cursor: col-resize;

Outline



- Outline-width defines the width of the element's outlines
- Outline-style defines the style of the element's outlines
- Outline-color defines the color of the element's outlines

```
p {
   outline: 4px dotted red;
}
```

Resources



- https://en.wikipedia.org/wiki/Markup_language
- https://developer.mozilla.org/en US/docs/Learn/Getting_started_with_the_web/How_the_Web_works
- https://developer.mozilla.org/en-US/docs/Web/HTML
- https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics
- https://developer.mozilla.org/en-US/docs/Web/CSS
- https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/CSS_basics

Summary



What is HTML?

CSS styles may be: external, inline, embedded

```
.my-list p { text-align: center; }
```

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