**COMP 307**
Principles
of Web
Development

# COMP 307
# **Principles of Web Development**

## Unit 2 – Frontend Internet Languages

## Lecture 4:

## CSS

Contents

CSS Basics
Sections

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# Lecture Outline

- CSS Basics

- Sections

# Readings

## Web Resources

- https://www.w3schools.com/css/
- https://www.tutorialspoint.com/css/index.htm
- CSS Zero to Hero: https://www.youtube.com/watch?v=1Rs2ND1ryYc

## Internet and World Wide Web
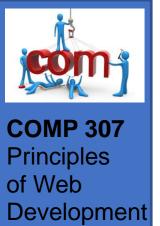
- Chapter 4
- Chapter 5

## Full Stack Developer

- Chapter 6

# CSS Basics

Introduction to CSS

Contents

# What is CSS?

CSS stands for **C**ascading **S**tyle **S**heets.

Styles define how to display HTML elements.

Added to HTML 4.0 to solve a problem

- Provides greater <mark>artistic</mark> control over HTML elements
- Styles can be saved in an external file (.css) ⟩ *Standardization*
- Style can be shared by several pages.

# What is CSS?

## HTML

- Markup language (styling & layout)

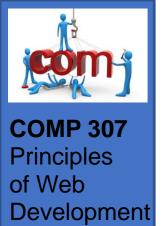- Hypertext (click and execute code)

  ↳ Skeleton

## CSS

- Only markup language (but a lot of it)

  ↳ pretty

Contents

# CSS Syntax

- A CSS rule is composed of three elements:

```
HTMLselector {property: value}
```

  – The selector is normally the HTML element/tag you wish to define.
  – The property is the attribute you wish to change

Examples:

- The following rule will make the body of your document black:
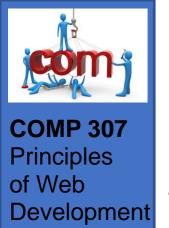
```
body {color: black}
```

- If a value has multiple words, the value should be quoted:
```
p {font-family: "sans serif"}
```

- Multiple properties can be defined in a particular rule with semi-colon:
```
p {text-align:center ; color:red}
```

# Grouping by selector

- You can group HTMLselectors :

```
h1,h2,h3,h4,h5,h6
{
        color: green
}
```

# Grouping by Class

• With the class you can define different styles for the same <mark>type</mark> of HTML element.

```
p.right {text-align: right}
p.centre {text-align: centre}
```

tag.name { ... }

• You have to use the class attribute in your HTML document:

```
<p class="right">
This paragraph will be right-aligned.
</p>


<p class="centre">
This paragraph will be centre-aligned.
</p>
```

# Non-specific Grouping

- You can omit the tag name in the selector to define a style that will be used by any HTML elements that invokes the class.

```
.centre {text-align: centre}
.title {color: black}
```

} *applicable to any tag*

- You need to use the class attribute in your HTML document:

```
<p class="centre title">
This is a paragraph.
</p>
```

`<h1 class="title"> Hi </h1>`

Note: more than one class can be assigned to an element.

# External Style Sheet

- An external style sheet is a filename.css text file
- It is ideal when applying a style to many pages
- Each page must link to the style sheet using the <link> tag (located in the header).

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

*Path or url*

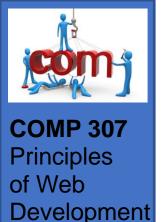- The browser will read the style definitions from the file filename.css and format the document accordingly

Contents of:
mystyle.css

```
h1 {color: sienna}
p {margin-left: 20px}
```

# Internal Style Sheets

- An internal style sheet exists within the HTML file

- Used when applying a style element to a single document.

- Define internal styles in the <head> section by using the <style> tag.

```
<head>
    <style type="text/css">
        h1 {color: sienna}
        p {margin-left: 20px}
    </style>
</head>
```

Note the absence of space between 20 and px. Some browsers will not display the style correctly if the value is "20 px", as opposed to "20px".

# Inline Styles

- An inline style mixes content with presentation.

- Takes precedence over other styles

- Use when a style is to be applied to a single occurrence of an element.

```
<p style="color: red; margin-left: 20px">
This is a paragraph
</p>
```

# Nesting Priority

Style are resolved in the following order:

1. Browser tag default

2. External style sheet (2 overwrites 1)

3. Internal style sheet (3 overwrites 2)

4. Inline style (4 overwrites 3) ← Highest precedence

## For example:

if an external style sheet defines texts as green, but an internal style sheet defines it as red, the text will be red.

# What shows on the browser?

```html
<html>

    <head>                      for the entire document
        <style>
                table {
                        font-family: arial, sans-serif;
                        border-collapse: collapse;
                        width: 100%;
                }

                td, th {         header
                        border: 1px solid #dddddd;
                        text-align: left;
                        padding: 8px;
                }
                                              even row elements
                tr:nth-child(even) {
                        background-color: #dddddd;
                }
        </style>
    </head>
```

*I want to use this font, but if it's not supported, then this one*

Continue…

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```
<body>
  <table>
      <tr>
         <th>Company</th> <th>Contact</th> <th>Country</th>
      </tr>
      <tr>
         <td>Alfreds Futterkiste</td> <td>Maria Anders</td>
         <td>Germany</td>
      </tr>
      <tr>
         <td>Centro comercial Moctezuma</td> <td>Francisco Chang</td>
         <td>Mexico</td>
      </tr>
      <tr>
         <td>Ernst Handel</td> <td>Roland Mendel</td>  <td>Austria</td>
      </tr>
      <tr>
         <td>Island Trading</td> <td>Helen Bennett</td> <td>UK</td>
      </tr>
      <tr>
         <td>Laughing Bacchus Winecellars</td> <td>Yoshi Tannamuri</td>
         <td>Canada</td>
      </tr>
      <tr>
         <td>Magazzini Alimentari Riuniti</td>
         <td>Giovanni Rovelli</td> <td>Italy</td>
      </tr>
   </table>
</body>

</html>
```

# Text Properties

- Controls the appearance of text.
  - color
    - Sets the color of a text

  - text-align
    - aligns the text in an element
      `left, right, center, justify`

  - text-decoration
    - Adds decoration to text
      `none, underline, overline, line-through, blink`

  - text-transform
    - Controls the letters in an element
      `none, capitalize, uppercase, lowercase`

*none is default*

# Example

Notice ways to declare colors

```
<html>
  <head>

      <style type="text/css">

                      h1 {color: #00ff00}
                      h2 {color: #dda0dd;text-decoration:
                            underline}
                      p {color: rgb(0,0,255)}
      </style>

  </head>


  <body>

      <h1>This is header 1 in lime green</h1>
      <h2>This is header 2 in dda0dd</h2>
      <p>This is a paragraph in blue</p>
  </body>

</html>
```

# Fonts

- Change the font family, boldness, size, and the style of a text.
  - font-family
    - A **prioritized list** of font family names by order
      `preferredFont,nextFont,altFont,…`

  - font-size
    - Sets the size of a font by word or integer
      `xx-small, x-small, small, medium, large, x-large, xx-large, smaller, larger, length`

  - font-style
    - Sets the style of the font
      `normal, italic, oblique`
      ↑ default

# Example

```html
<html>
  <head>
    <style type="text/css">
      h3 {font-family: times, sans-serif}
      p {font-family: courier}
      p.sansserif {font-family: sans-serif}
    </style>
  </head>

  <body>
     <h3>This is size 3 header</h3>
     <p>This is a paragraph in default font</p>
     <p class="sansserif">This is a paragraph
        in sans-serif</p>
  </body>
</html>
```

*Style sheet* (handwritten annotation)

# Borders

- Specify the style and colour of an element's border
- You can create lots of effect with borders.
  - border-bottom-color      : Sets the color of the bottom border
  - border-bottom-style      : Sets the style of the bottom border
  - border-bottom-width      : Sets the width of the bottom border

- Same options for:
  - border-left-..., border-right-… and border-top-...

- Shorthand versions for:
  - border-left, border-right, border-top, border-bottom and border.

# Example

```
<html>

  <head>
    <style type="text/css">
       p.soliddouble {border-style: solid double}
       p.doublesolid {border-style: double solid}
       p.groovedouble {border-style: groove double}
       p.three {border-style: solid double groove}
    </style>
  </head>

  <body>
   <p class="soliddouble">Some text</p>

   <p class="doublesolid">Some text</p>

   <p class="groovedouble">Some text</p>

   <p class="three">Some text</p>
  </body>

</html>
```

# Margins

- Defines the space around elements.

- It is possible to use negative values to overlap content.

- Properties:
  - margin-bottom :Sets the bottom margin of an element :
    - auto, *length*, *%*
  - margin-left : Sets the left margin of an element : auto, *length*, *%*
  - margin-right : Sets the right margin of an element : auto, *length*, *%*
  - margin-top : Sets the top margin of an element : auto, *length*, *%*

The CSS padding property is similar, it defines the space between the element border and the element content.

# Example

```
<html>

  <head>

    <style type="text/css">

        p.topmargin {

                margin-top: 25%

        }

    </style>

  </head>

  <body>

      <p>This is a paragraph with no margin specified</p>

      <p class="topmargin">This is a paragraph with a
      specified top margin</p>

  </body>

</html>
```

Contents

# Example

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-image: url("img_tree.png");
  background-repeat: no-repeat;
  background-position: right top;
  margin-right: 200px;
}
</style>
</head>
<body>

<h1>Hello World!</h1>
<p>W3Schools background no-repeat, set position
example.</p>
<p>Now the background image is only shown once,
and positioned away from the text.</p>
<p>In this example we have also added a margin on
the right side, so the background image will never
disturb the text.</p>

</body>
</html>
```

**Hello World!**

W3Schools background no-repeat, set position example.

Now the background image is only shown once, and positioned away from the text.

In this example we have also added a margin on the right side, so the background image will never disturb the text.

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# Example

```html
<!DOCTYPE html>
<html>
<head><style>
ol {
   background: #ff9999;
   padding: 20px;}
ul {
   background: #3399ff;
   padding: 20px;}
ol li {
   background: #ffe5e5;
   padding: 5px;
   margin-left: 35px;}
ul li {
   background: #cce5ff;
   margin: 5px;}
</style></head>
<body>
<h1>Styling Lists With Colors:</h1>
<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Coca Cola</li>
</ol>
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Coca Cola</li>
</ul>
</body></html>
```

## Styling Lists With Colors:

1. Coffee
2. Tea
3. Coca Cola

- Coffee
- Tea
- Coca Cola

# Sections with CSS

Introduction to CSS

Contents

# HTML4 <div>

- Purpose

  - To bracket an area of a web page to format in a specific way

  - Permits direct manipulation of the area using

    - CSS, and

    - Java Script

# Example

```
<!DOCTYPE html>
<html>
<head>
<style>
.myDiv {
  border: 5px outset red;
  background-color: lightblue;
  text-align: center;
}
</style>
</head>
<body>

<h1>The div element</h1>

<div class="myDiv">
  <h2>This is a heading in a div element</h2>
  <p>This is some text in a div element.</p>
</div>

<p>This is some text outside the div element.</p>

</body>
</html>
```
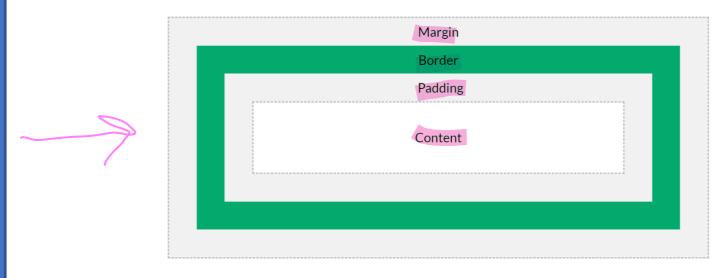
**The div element**

**This is a heading in a div element**

This is some text in a div element.

This is some text outside the div element.

## Contents

# The Box Model of CSS

https://www.w3schools.com/css/tryit.asp?filename=trycss_boxmodel_width

https://www.w3schools.com/css/tryit.asp?filename=trycss_boxmodel

Margin

Border

Padding

Content

# Floating

https://www.w3schools.com/css/tryit.asp?filename=trycss_float_boxes

divs are vertical by default

eg float left puts things next to eachother

.'class':: after { }

resets ← properties after 'class' is used

## Let's break this down...

# Hover Drop-Down Menu

https://www.w3schools.com/howto/tryit.asp?filename=tryhow_css_js_dropdown_hover

*tracks your mouse*
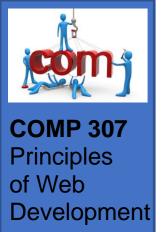
*.class :hover {}*

## Contents

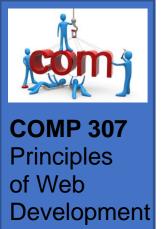# Let's break this down...

# HTML5 divisions vs <div>

Popular outcry from web developers that <div> is difficult to read/use.

Web standards commission invented HTML5 divisions.

Result, many still use <div>…

Contents

# HTML5 Sections Example

https://www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_float

*if screen is this then use this css*

@media (max-width : xx) { }

↑
responsive

nav = div

↑
HTML5

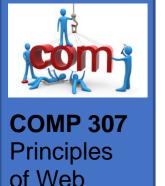## Let's break this down...

# Cool things to do with CSS

Introduction to CSS

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# Example Resources

- Introduction

  - https://www.w3schools.com/css/css3_transitions.asp

- Intermediate

  - https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_transitions/Using_CSS_transitions

- Advanced

  - https://blog.hubspot.com/website/css-animation-examples

From YouTube:

- https://www.youtube.com/watch?v=qm0IfG1GyZU&list=PL1TVlp7KgKmVJnlho8lzI2mbD0Mm1nCIe&index=6&t=140s

- https://www.youtube.com/watch?v=jWur1VrxNUg&list=PL1TVlp7KgKmVJnlho8lzI2mbD0Mm1nCIe&index=7

# Example Code

- ## Look at all these additional examples!

  - **CSS Modifications:**
    - https://www.w3schools.com/css/css_text.asp (color & shadow)
    - https://www.w3schools.com/css/css_font.asp (style & size)
    - https://www.w3schools.com/css/css_boxmodel.asp (box model)
    - https://www.w3schools.com/css/css_table.asp (borders)
    - https://www.w3schools.com/css/tryit.asp?filename=trycss_image_gallery (image)
    - https://www.w3schools.com/css/css_link.asp (links)
    - https://www.w3schools.com/css/css_list.asp (lists)

Contents

# Prepare for class time

- ## Mini 2

  - ### HTML Coding (no CSS, no JS)

  - ### How much can we do with only HTML?

- ## No tutorial this week

- ## On your own

  - ### Try out the examples on your own copypaste.html file.