

CSC435: Web Programming

Lecture 3: HTML, CSS

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Take-home reading & Tutorial

HTML Tutorial (finish):

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

CSS Tutorial (start):

https://developer.mozilla.org/en-US/docs/Learn/CSS/Introduction_to_CSS

Today's agenda

- Teaching Assistant: Jiachen Yao
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 - TA Office hour?
- Aboutme.html check
- A bit of review
- More on HTML
- CSS
- Stylize Aboutme.html exercise

Exercise: Aboutme

- Create a page `aboutme.html` that describes you, including the information such as:
- Your name
- A brief description of you in 1-2 sentences
- A list of classes you are taking now at AU
- Your 4 favorite movies, books, games and TV shows. Make at least one link to an interesting site about that favorite movie/book/game/show.
- Two images that represent when you're happy and sad.
- Something about one of your neighbors (student sitting next to you)
- Hint: use proper header tags, unordered lists, ordered lists.
- We will learn how to stylize this page next class.

Review: Internet

Things that are relevant

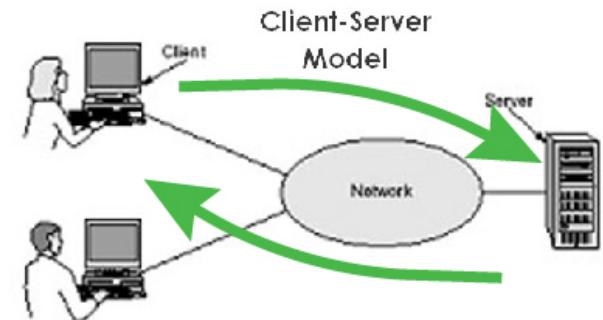
There are layers

IP= Internet Protocol, also addresses like
192.168.01

No centralized control but...

DNS maps the numbers to names like
Google.com

W3C Validates web pages.



Websites uses a client-server model over the Internet

More on HTML tags

- Some tags can contain additional information called **attributes**
- Syntax:
<element attribute="value" attribute="value"> content </element>
- Example:
Next page
- Some tags don't contain content and can be opened and closed in one tag
- Syntax:
<element attribute="value" attribute="value" />
- Example:
*
, <hr />,
, <hr>*
- Example:
**
- Note: whether you use the '/' in a self-closing tag is up to you, *as long as you're consistent*

Nesting Tags

```
<p>
    HTML is <em>really,
    <strong>REALLY</em> lots of</strong> fun!
</p>
```

HTML bad

```
<p>
    HTML is <em>really</em>,
    <strong>REALLY</strong> lots of</strong> fun!
</p>
```

HTML good

Tags must be correctly nested

- A closing tag must match the most recently opened tag

The browser may render it correctly anyway, but it is invalid HTML

- How would we get the above effect in a valid way?

Block Elements

Examples:

`<p>`, `<h1>`, `<blockquote>`, ``, ``, `<table>`

- Take up the full width of the page (**flows top to bottom**)
- Have a **height** and **width**
- Can have block or inline elements as children

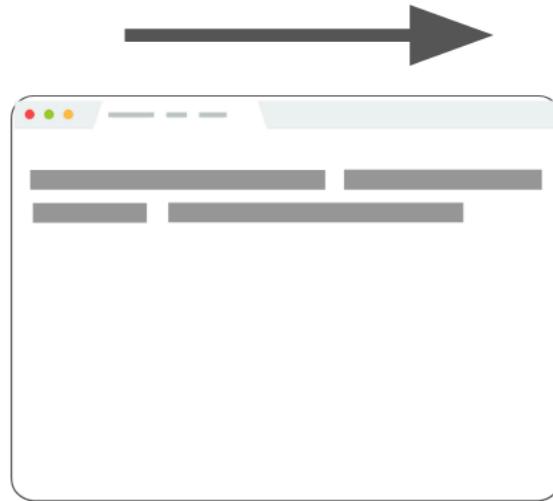


Inline Elements

Examples:

<a>, , ,

- Take up only as much width as needed (flows left to right)
- **Cannot** have height and width
- **Cannot** have a block element child
- **Cannot** be positioned (i.e. CSS properties like float and position do not apply to inline elements)
 - o Must position **its containing block element** instead



Example: inline

```
<strong>Web programming resources:</strong>
<a href="https://developer.mozilla.org/en-US/">MDN</a>
<a href="http://google.com">Google</a>
```

HTML

Web programming resources: [MDN](https://developer.mozilla.org/en-US/) [Google](http://google.com)

output

Examples

Inline element:

- <a>
-
-

Block element:

<p>

<div>

Block and Inline Elements

```
<p>As Lincoln said in his famous Gettysburg Address:</p>
<blockquote>
    <p>Fourscore and seven years ago, our fathers brought
forth
        on this continent a new nation, conceived in liberty, and
        dedicated to the proposition that all men are created
equal.</p>
</blockquote>
```

HTML

As Lincoln said in his famous Gettysburg Address:

Fourscore and seven years ago, our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

output

Phase elements: ,

em: emphasized text (usually rendered in italic)

strong: strongly emphasized text (usually rendered in bold)

```
<p>
    HTML is <em>really</em>,
    <strong>REALLY</strong> fun!
</p>
```

HTML is *really*, **REALLY** fun!

as usual, the tags must be properly nested for a valid page

Exercise: block element

Using block element <div> and <p> create the following page:

London

London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.

Exercise: in-line element

Using in-line element create the following page:

Panda Bei Bei debut

Use <q></q> to generate this:

Quoth the Raven, “Nevermore.”

Images:

- Inserts a graphical image into the page (inline)

```

```

HTML



output

The src attribute specifies the image URL

HTML5 also requires an alt attribute describing the image, which improves accessibility for users who can't otherwise see it

Favorite icon (“favicon”)

```
<link href="filename" type="MIME type" rel="shortcut  
icon" />          HTML
```

```
<link href="yahoo.gif" type="image/gif"  
rel="shortcut icon" />          HTML
```



output

<http://tools.dynamicdrive.com/favicon/>

HTML Forms: <input>

```
<form action="">  
First name:<br>  
<input type="text"  
name="firstname"  
value="John">  
<br>  
Last name:<br>  
<input type="text"  
name="lastname">  
</form>
```

HTML

First name:

John

Last name:

HTML Forms: <select>

```
<form action="action_page.php">
<select name="sweets">
<option
value="Choclates">Chocolates</option>
<option value="Cake">Cake</option>
<option value="Cookies">Cookies</option>
<option
value="Icecream">Icecream</option>
</select>
<br><br>
<input type="submit">
</form>
```

HTML

Chocolates ▾

Submit

Exercise: payment forms

Please create a .html that generate a page looks like this. You can download icon images from the folder on blackboard or search them online.

Buying is easy. Just fill out the following form.

Full Name:

Email address:



The bad way to produce styles

```
<p>
  <font face="Arial">Welcome to Greasy Joe's.</font>
  You will <b>never</b>, <i>ever</i>, <u>EVER</u> beat
  <font size="+4" color="red">OUR</font> prices!
</p>
```

Welcome to Greasy Joe's. You will **never**, *ever*, EVER beat **OUR** prices!

Tags such as b, i, u and font are discouraged in strict CSS. Why is this bad?

Website Organization

Content and Structure: HTML

Style: CSS

Behavior: JavaScript

Cascading Style Sheets (CSS): <link>

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

- CSS describes the appearance and layout of information on a web page (as opposed to HTML, which describes the content of the page)
- can be embedded in HTML or placed into separate .css file (preferred)

Cascading Style Sheets (CSS) syntax

Selector

Declaration

Declaration

h1

{ color:blue; font-size:12px; }

Property

Value

Property

Value

```
selector {  
    property: value;  
    property: value;  
    ...  
    property: value;  
}
```

```
p {  
    font-family: sans-serif;  
    color: red;  
}
```

Basic CSS Rule Syntax

```
Selector {  
    property: value;  
    property: value;  
  
    property: value;  
}
```

```
p {  
    color:red;  
    font-family:sans-serif;  
}
```

CSS example

A CSS file consists of one or more rules

A rule selector specifies HTML element(s) and applies style properties

CSS properties for colors

```
p {  
    color: red;  
    background-color: yellow;  
}
```

css

This paragraph uses the style above.

Property	Description
<u>color</u>	color of an element's text
<u>background-color</u>	color that will appear behind the element

Specifying color

```
p { color: red; }  
h2 { color: rgb(128, 0, 196); }  
h4 { color: #FF8800; }
```

css

This paragraph uses the first style above.

This h2 uses the second style above.

This h4 uses the third style above.

output

- color names: aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white (white), yellow
- RGB codes: red, green, and blue values from 0 (none) to 255 (full)
- Hex codes: RGB values in base-16 from 00 (0, none) to FF (255, full)

Color picker

- http://www.w3schools.com/tags/ref_colorpicker.asp
- http://www.w3schools.com/tags/ref_colormixer.asp

CSS: Fonts

property	description
<u>font-family</u>	which font will be used
<u>font-size</u>	how large the letters will be drawn
<u>font-style</u>	used to enable/disable italic style
<u>font-weight</u>	used to enable/disable bold style
<u>Complete list of font properties</u>	

font-family

```
p {  
    font-family: Georgia;  
}  
h4 {  
    font-family: "Courier New";  
}
```

CSS

This paragraph uses the first style above!

This h4 uses the second style.

output

Enclose multi-word font names in quotes.

More about font-family

```
p {  
    font-family: Garamond, "Times new  
Roman", serif;  
}
```

CSS

This paragraph uses this style!

output

- Can specify multiple fonts from highest to lowest priority.
- Generic font names: serif, sans-serif, cursive, fantasy, monospace.
- If the first font is not found on the user's computer, the second is tried.
- Place a generic font name at the end of your list.

Using Google fonts

Specify in HTML the Google font link:

```
<head>
<link rel="stylesheet" href="mystyle.css"
      href="https://fonts.googleapis.com/css?family=Tan
gerine|Inconsolata|Droid+Sans|Open+Sans">

</head>
```

HTML

Request font in mystyle.css:

```
body {
    font: lighter 17px/20px Open+Sans, Droid+Sans,
    HelveticaNeue-Light, 'Helvetica Neue', Helvetica,
    Arial, sans-serif;
}
```

CSS

https://developers.google.com/fonts/docs/getting_started?hl=en

font-size

```
p {  
    font-size: 16pt  
}
```

CSS

This paragraph uses the first style above!

output

- **units:** pixels (px) vs. point (pt) vs. m-size (em)
16px, 16pt, 1.16em
- vague font sizes: `xx-small`, `x-small`, `small`, `medium`, `large`, `X-large`, `xx-large`, `smaller`, `larger`
- percentage font sizes, e.g.: `90%`, `120%`

More on size

- Pixels(px) are referred to as absolute unites because they will always be the same regardless of any other related settings. Other absolute units are:
 - mm, cm, in: Millimeters, centimeters or inches.
 - pt, pc: Points(1/72 of an inch) or picas (12 points)
- em: 1em is the same as font-size of the current element (more specifically, the width of a capital letter M). Default font-size by web browser before CSS styling is 16 pixels (1em) for an element.
- We will learn about this when we learn margins.
- Read more on [CSS values and units](#).

Body style

```
body{  
    font-family: "Courier New";  
}
```

CSS

About Bei Xiao

My name is Bei Xiao and I am **jolly, clumsy, and four-eyed.**

output

To apply a style to the entire body of the page, write a selector for the body (saves you from manually applying a style to each element).

CSS comments: /*...*/

```
/*
This is a comment.
It can span manylines in a CSS file.
*/
body{
    background-color:lightgreen;
    font-family: "Courier New";
}
```

CSS

CSS (like HTML) is usually not commented as much as code like Python

The // single-line comment is NOT supported in CS.

The ←...→ HTML comment is also NOT supported in CS.

Grouping Styles

```
p,h1,h2{  
    color:green;  
}  
  
h2 {  
    background-color:yellow;  
}
```

CSS

This paragraph uses the above style

This h2 uses the above style

Output

A style can select multiple elements separated by commas

The individual elements can also have their own styles (like h2 style).

Styles that Conflict

```
p,h1,h2{  
    background-color:green;  
}  
  
h2{  
    background-color:yellow;  
}
```

CSS

Output

When two styles set conflicting values for the same property, the later style takes precedence.

W3C CSS Validator

```
<p>
  <a target="_blank"
 href="http://jigsaw.w3.org/css-validator/">
    
  </a>
```

CSS



Checks your CSS to make sure it meets the official CSS specifications

More picky than the web browsers

Text-align mystery

```
h2 {  
    /*      works */  
    text-align:center;  
}  
  
a {  
    /*      fails */  
    text-align:center;  
}
```

CSS

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[MDN](#)

Recall that we can't align <a> tag directly, we could center <h2>, why?

Please read [MDN description of text-align](#).

Text-align mystery

Summary

The **text-align** CSS property describes how inline content like text is aligned in its parent block element. **text-align** does not control the alignment of block elements, only their inline content.

Initial value

start, or a nameless value that acts as left if **direction** is ltr, right if **direction** is rtl if start is not supported by the browser.

Applies to

block containers

Please read [MDN description of text-align](#).

Text-align demystified.

```
<h2>CSC435:web programming is fun</h2>
    <p><a href="https://developer.mozilla.org/en-US/">MDN</a></p>
```

```
p{
/*      works*/
    text-align:center;
}
```

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[MDN](#)

Please read [MDN description of text-align](#).

CSS properties for text

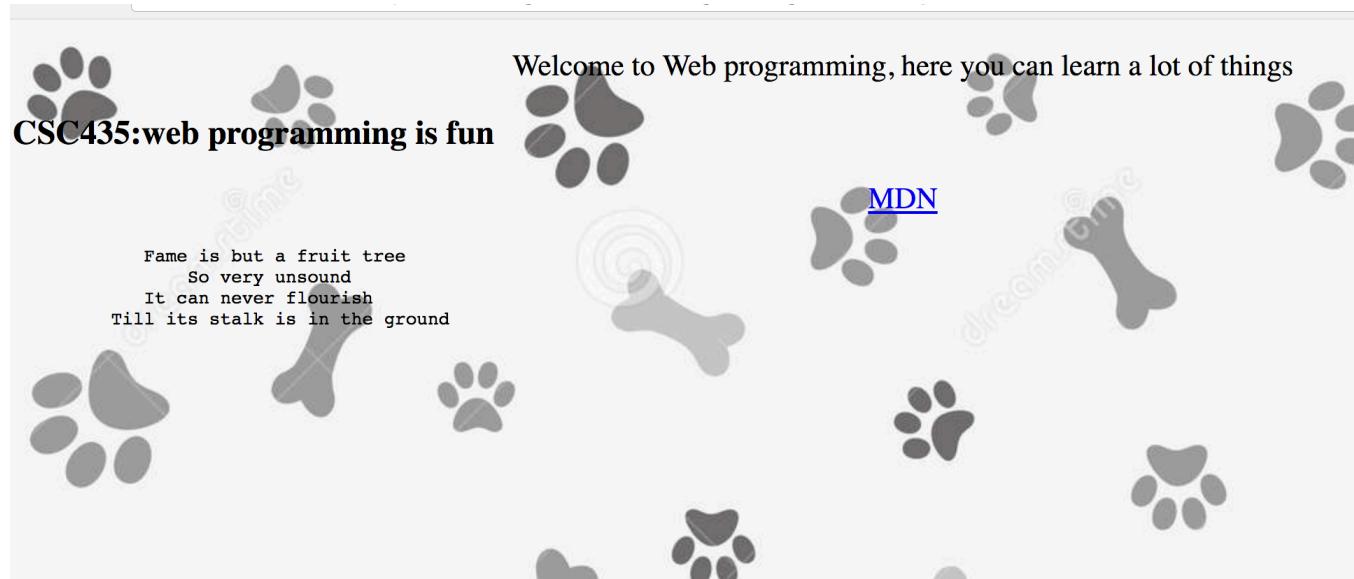
Property	Description
<u>text-align</u>	Alignment of text within its element
<u>text-decoration</u>	Decorations such as underlying
<u>text-indent</u>	Indents the first letter of each paragraph
<u>text-shadow</u>	A colored shadow near an existing piece of text (CSS3)
<u>line-height</u>, <u>word-spacing</u>, <u>letter-spacing</u>	Gaps between the various portions of the text.
<u>Complete list of text properties</u>	

CSS properties for background

c	Description
<u>background-color</u>	Color to fill the background
<u>background-image</u>	Image to place in background
<u>background-position</u>	Placement of background image within element
<u>background-repeat</u>	How background image should be repeated
<u>background-attachment</u>	Whether background image scroll with the page
<u>More background properties</u>	

background-image

```
body{  
    background-image:url('images/paw2.jpg');  
}
```



background-image

```
body{  
    background-image:url('images/paw2.jpg');  
    background-repeat:repeat-y;  
}
```

CSS



Can be repeat (default), repeat-x, repeat-y, or no-repeat

Embedding style sheets

```
<head>
  <style type="text/css">
    p { font-family: sans-serif; color: red; }
    h2 { background-color: yellow; }
  </style>
</head>
```

HTML

CSS code can be embedded within the head of an HTML file

This is ***bad style***; DO NOT DO THIS (why?)

Can be repeat (default), repeat-x, repeat-y, or no-repeat

Inline styles: the style attribute

```
<p style="font-family: sans-serif; color: red">  
This is a paragraph</p>
```

HTML

This is a paragraph

Hither precedence than embedded or linked styles.

Used for one-time overrides and styling a particular element.

Can be repeat (default), repeat-x, repeat-y, or no-repeat

Content vs. Presentation

HTML is for content, what is ON the webpage.

CSS is for presentation, how to display the page, (margin)

Keep content separate from presentation is very important for web design

If HTML contains no style, its entire appearance can be changed by swapping .css file.

See [CSS Zen garden.](#)

Can be repeat (default), repeat-x, repeat-y, or no-repeat

Exercise: Stylize Aboutme.html

- Create a CSS style sheet named styleme.css to improve the appearance of your AboutMe page.
- For example, you can change the type face of the texts and size of the headings.
- Try use different background colors for different sections.
- You can find some CSS properties in the lecture or [online](#).

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

# Exercise:

- Download the resume.html from blackboard.
- Please fix the typos and inconsistency in the .html
- Can you create a style.css so that this page looks better?
- For the body text: use one of the Google font:  
<https://www.google.com/fonts/specimen/Open+Sans>
- For the headers, choose another font.
- Make a nice background color for the page
- Make the header have different font from the paragraph
- Experiment with font size and font spacing.

# Homework & Exercises

Today's reading (Introduction to CSS):

[https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting Started/What is CSS](https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting_Started/What_is_CSS)

[https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting Started/Why use CSS](https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting_Started/Why_use_CSS)

# Tables

- A table is defined with <table> tag.
- A table is divided into rows with the <tr> tag.
- Each row is divided into data cells with the <td> tag, td stands for table data.
- <td> holds the content of a data cell.
- <td> can contain text, images, links, other tables.
- <th> defines the header of the table. HTML will create a new column of the table.
- <table border =“1”>

# Tables with cell padding

Cell padding create space inside a table cell

# Exercise

Using <table> tag, create a page like this. Don't forget cell padding.

## My trip this summer

Paris



Berlin



Vienna



# Linking within a page

Link to another location in the same page

```
<p>
See also Chapter 4.
</p>
```

```
<h2>Chapter 1</h2>
<p>This chapter explains ba bla bla</p>
```

```
<h2>Chapter 2</h2>
<p>This chapter explains ba bla bla</p>
```

```
<h2>Chapter 3</h2>
<p>This chapter explains ba bla bla</p>
```

```
<h2>Chapter 4</h2>
<p>This chapter explains ba bla bla</p>
```