CSCI S-33a (Web50)
Section 0

Ref: Lecture 0 (HTML, CSS)

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Welcome!

About me:

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Sections: Wed 8:00-9:30 pm EDT **+** 1st week only on Thu 8:00-9:30 pm
Office Hours: Sat 2:00-3:30pm EDT

Agenda

- Zoom
- Intro/Suggestions
- Sections 10,000 foot overview
- HTML
- CSS
- Sass
- Bootstrap
- Responsive
- Chrome Developer Tools
- Project 0 overview
- Tips
- Q&A

Zoom

- Use zoom features like raise hand, chat and other
- Video presence is **strongly** encouraged
- Mute your line when not speaking (enable temporary unmute)
- Let’s review other features...

Zoom Policy

PARTICIPATION IN COURSES AND SECTIONS USING WEB CONFERENCING

Students are expected to treat web-conference class meetings as if attending class on campus, which includes behaving professionally, treating others with courtesy and respect, refraining from using profanity or socially offensive language, wearing appropriate clothing, and avoiding inappropriate surroundings.

Students are required to have and use a camera and microphone when attending web-conference class meetings unless otherwise specified by the instructor.

Students may not join a class while driving or riding in a car. Students are expected to join from a suitable, quiet location, with a device that permits full participation in the class activities. Many courses include activities that cannot adequately be performed on a mobile device.

https://www.extension.harvard.edu/resources-policies/student-conduct/expectations?_ga=2.263232908.1411291337.1537393563-2093574759.1491937594#attendance

Intro

- Refer to website for announcements: https://cs50.harvard.edu/summer/web/2020/
- Sections and office hours schedule on website, sections posted within 48hrs
- Get comfortable with command line
- Text editor is usually sufficient to write code, BUT!

- Six projects:
  - Start early
  - Post questions
  - Remember: bugs can take time to fix
  - Grade -> 3 × Correctness + 2 × Design + 1 × Style (Project 0 may be an exception)
  - Set a reminder to submit the Google Form for each project
  - Project 0 - Due Sunday, Jun 28 at 11:59pm EDT

Troubleshooting Tools

- Chrome Developer Tools
- Online Q&A Forums (Stack Overflow, GitHub, etc)
- Ed (ask, explore, contribute)
- Office Hours!
- Peers (adhere to Academic Policies please)

Class Preparation

Sections prep:

- Watch the lecture ahead of the section
- Review the project requirements early

Office hours prep:

- List your questions ahead of time to streamline the discussion
- Write your questions down the moment they come to mind to address later

Are sections a good use of my time?

- Section 0 and Project 0 may seem a bit introductory, but beware...
- Tons of tips and hints that ~~can~~ will save hours or even days
- Debugging approaches not covered in lectures
- Supplemental material which complement lectures well
- And more...

10,000 foot overview

- *Section 0 (HTML, CSS)* - Chrome Dev Tools (Inspector), Grading aspects, Overviews
- *Section 1 (Git + Python)* - Python Installation, IDEs, CDT (Network), Project 0
- *Section 2 (Django)* - Markdown, RegEx, IDEs extra, pycodestyle, Debugging, Project 1
- *Section 3 (SQL, Models, Migrations)* - cURL/Postman, Models, DB modeling, Project 2
- *Section 4 (JavaScript)* - AJAX, linting, jshint, CDT Debugging, Project 3
- *Section 5 (User Interfaces)* - Animations, DB modeling, Pagination, Project 4
- *Section 6 (Testing, CI/CD)* - Test Driven Development, DevOps, Final Project
- *Section 7 (Scalability and Security)* - Cryptography, CAs, Attacks, App Deployment

Most sections: material review, logistics, project criteria review, reminders, hints, etc.

Burning Questions?

Please ask questions, or topics to cover today!

Topics:

- *Question about the assignment (I Feel Lucky!)*
- *Form, two submit buttons*

Lecture Review

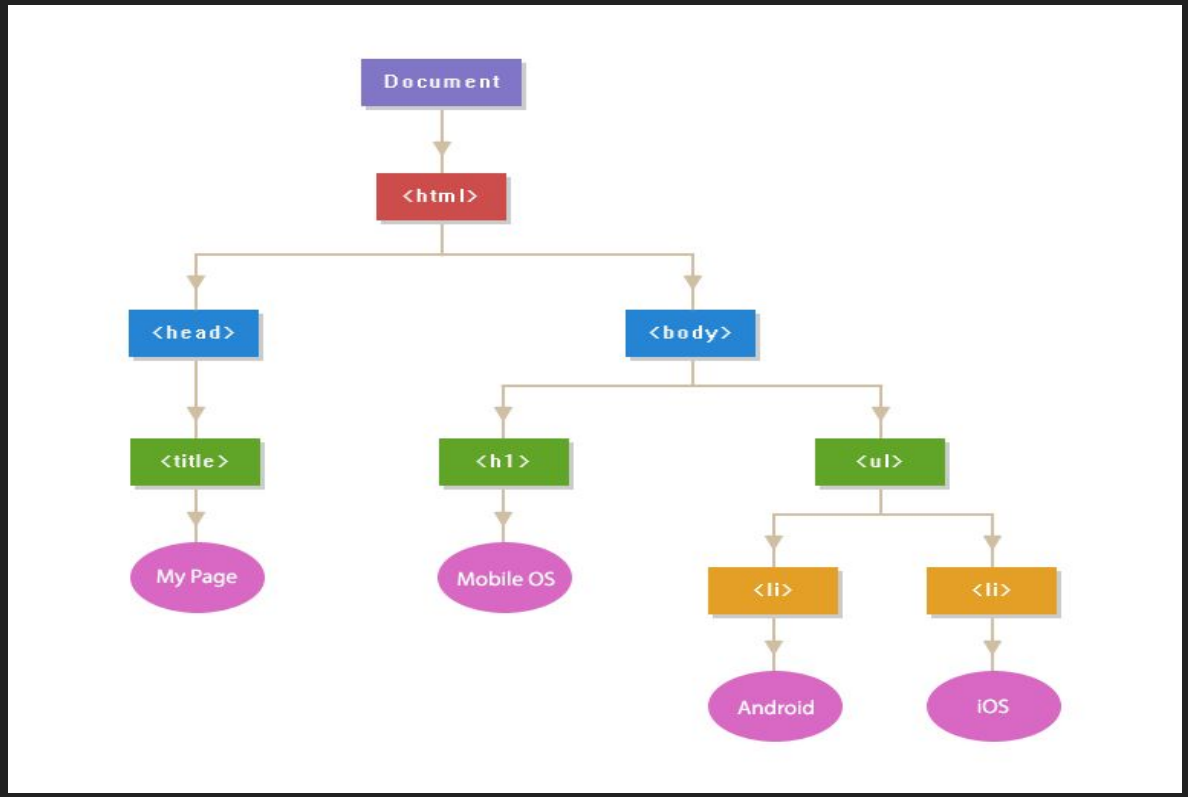
HTML

Hypertext Markup Language

HTML

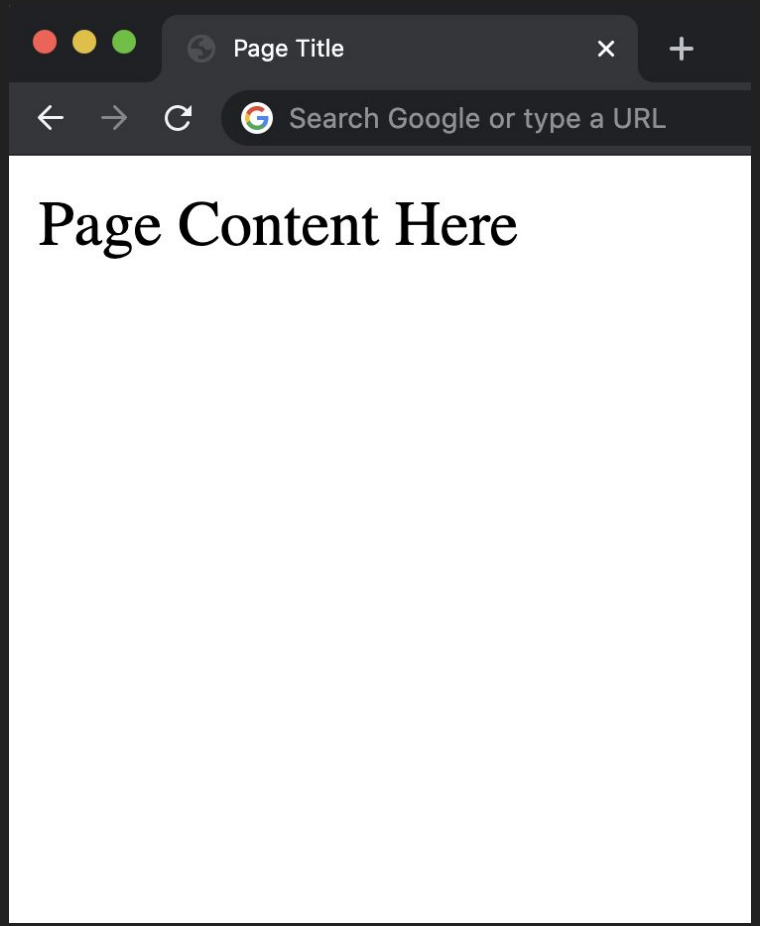
- Defines the **structure** of a page
- **Tags** are used to outline content
- **Attributes** are used to describe tags
- Tags are **nested** within other tags

Document Object Model (DOM)



Structure Overview

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Page Title</title>
    </head>
    <body>
        Page Content Here
    </body>
</html>
```



Commonly Used Tags

- Headings (h1 -> h6)
- Links (a)
- Paragraphs (p)
- Images (img)
- Ordered/Unordered Lists and List items (ol, ul, li)
- Tables (<table>)
- Forms (<form>)
- User Input (<input>)
- Find out about more tags:
  - Search “How to include _____ in an HTML page”
  - Check out sites like W3 Schools or Mozilla

Exercise

- Make a web page with at least 4 different tags within the body.
- For our in-class example (**section.html**), we'll include:
  - A heading
  - An unordered list
  - A paragraph
  - A table

Live Demo

- Let’s look at some examples

CSS

Cascading Style Sheets

CSS

- Used to add style to our web pages
- Can be added by:
  - ☹️Adding style attributes to HTML tags
  - 😐Writing within a style tag in page head
  - 🙂Writing in a separate **.css** file and linking to that file in the page head

CSS Selectors and Specificity

Selector	How to Reference	Priority Given
In-line CSS	Within tag (eg: <p style=”...”>)	First
id	Hashtag (eg: #some_id {...})	Second
class	Period (eg: .some_class {...})	Third
Element Type	Element Name (eg: h1 {...})	Last

`a, b`	Multiple Element Selector
`a b`	Descendant Selector
`a > b`	Child Selector
`a + b`	Adjacent Sibling Selector
`[a=b]`	Attribute Selector
`a:b`	Pseudoclass Selector
`a::b`	Pseudoelement Selector

Common Attributes

- text-align (center, left, right)
- color
- font-size
- background-color
- margin/border/padding
- height, width
- Many More!

Exercise

- Adding Style to our HTML page:
  - Change the color of the heading
  - Center the heading
  - Challenge: highlight rows on mouse hover (We can use the CSS pseudo class :hover)

Live Demo

- Let’s look at some examples

Bootstrap

- Open-Source Software useful for styling websites
- Get Started here
- Check out components here
- Exercise: Let’s work on making our page look even nicer with Bootstrap!

Live Demo

- Let’s look at some examples

Responsive Design

Media Queries

- Rules for styling only applied when certain conditions are met.
- Common Query for applying styling only on a small mobile screen:

```
@media only screen and (max-width: 600px)
```

- Exercise: Here we'll use the **display** tag to show hidden content only on small screens.

Other Responsive Methods

- Flex Boxes
- Grids
- Bootstrap Columns
- Demonstration: Let’s take a look at how we can implement these!

Sass

Syntactically Awesome Style Sheets

Sass

- Allows for:
  - Declaration of Variables
  - Nesting of CSS Selectors
  - Creating Styling Classes that can be Extended
- Must be compiled into a CSS file
  - First, make sure to download Sass
  - Compile with command **sass file.scss:file.css**
  - or track changes with **sass --watch file.scss:file.css**
- Demonstration
  - Create a Sass file to replace our current CSS file
  - Use variables to describe colors or width/heights
  - Use inheritance to make each set of **div**s a different color

Live Demo

- Let’s look at some examples

Chrome Developer Tools (Inspect)

In Chrome:

1. Right click
2. Inspect
3. → Demo

Extremely powerful! Let’s try...

Project 0

- Start early!!!
- Make a checklist of requirement and check all before submission
- Don’t forget to include the .css / .scss file(s)
- Make sure there’s no bugs
- Google Form
- ***In-depth next section...***

Grading criteria generic suggestions (not limited to)

- Correctness:
  - All requirements
- Design (not limited to):
  - Responsive
  - Simplest solution
  - Avoiding repetition (refactoring)
  - Structure (e.g separate files vs inline styling)
- Style (not limited to):
  - File structure
  - Line breaks
  - Spacing
  - Naming
  - Comments

Both Design and Style consider readability but from different perspective.

Fruit of the day

<<< If you are watching this recorded >>

Please email the word: **APRICOT**

To: volodymyr.popil@gmail.com

Thank you.

Tips

- https://education.github.com/pack
- HTML beautifiers
- submit50

Q&A

Please ask any questions. Ideas:

- Anything discussed today
- Anything from lecture material
- About the project
- Logistics
- *Random*

Resources

- https://github.com/vpopil/e33a-sections-summer-2020