HTML & CSS

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Visualization
Fall 2019

BOSTON
COLLEGE

Topics

- Responses to 1-minute papers
- Lab Overview
- Lab Workflow

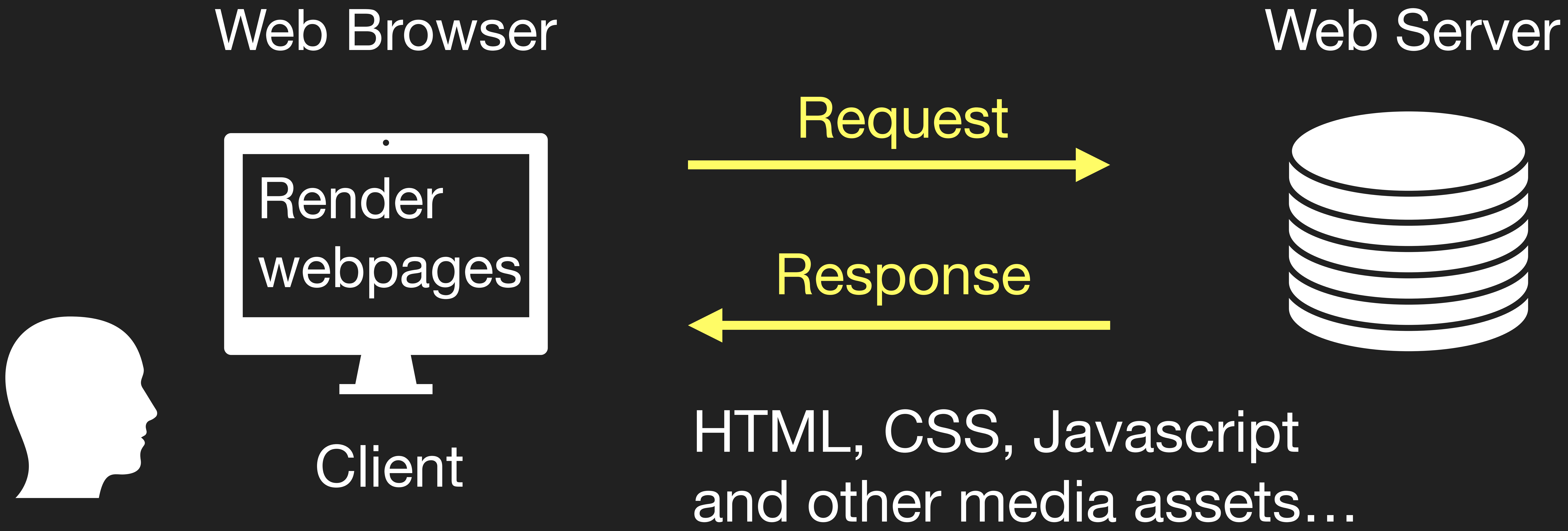
Responses to 1-minute papers

Responses to 1-minute papers

- Are homework and the project group or individual assignments?
- How easy is using HTML, Javascript? Can I learn to use it fast?
- How much time does it take to learn D3.js?
- How does D3.js compare to VegaLite?
- How much coding are we going to do this semester?
- How can we pull changing data and display those changes in real time?
- What kind of career would allow me to do data visualization ?
- Is data scraping/processing/modeling also part of this course?

Lab Overview

How does the web work?



Web Browser

Render webpages

Client

Request

Response

Web Server

HTML, CSS, Javascript
and other media assets…

Technology Stacks

- Front-end (Client-side)
  HTML, CSS, Javascript, (React, Vue) to create web pages
- Back-end (Server-side)
  Node.js, PHP, Python Flask etc to serve web pages
  SQLite, MongoDB, MariaDB to store and manage data
- Full-stack?

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What are HTML, CSS, Javascript?

- HTML structures a document
- CSS styles the document
- Javascript makes the document interactive

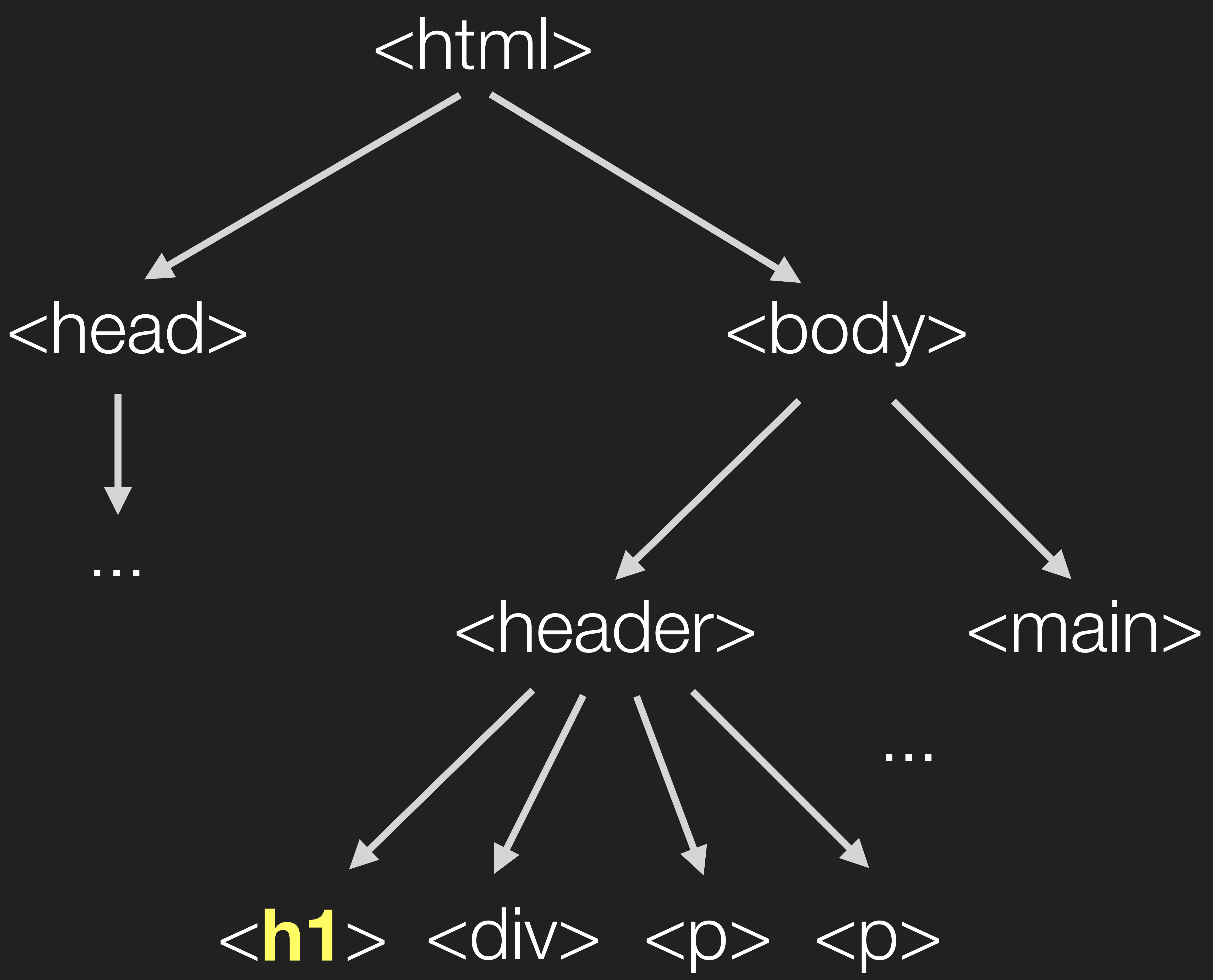
Common HTML Tags

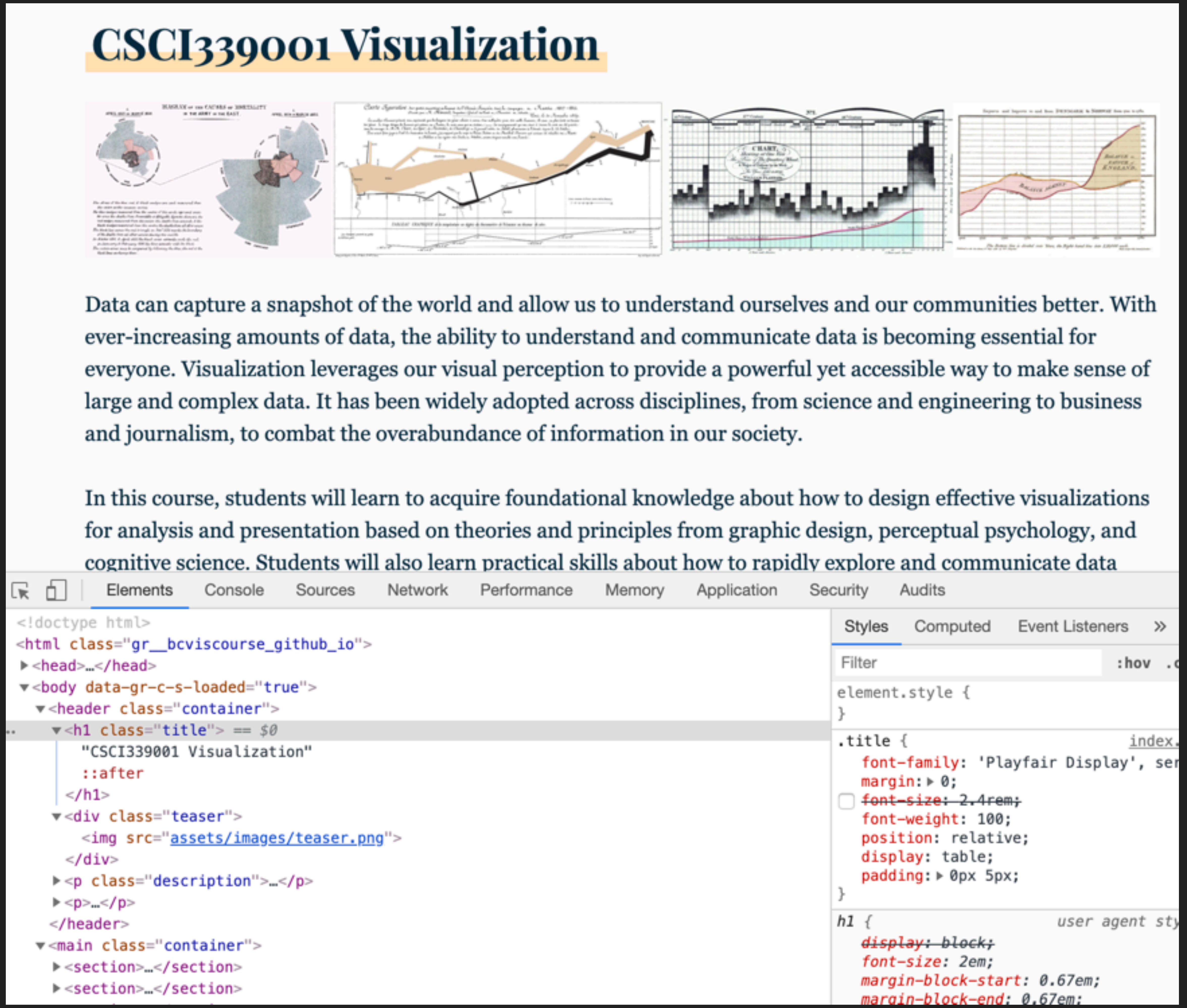
<**h1**> - <**h6**>	Heading
<**p**>	Paragraph
<**em**>	Emphasis
<**strong**>	Strong Emphasis
<**a**>	Anchor
<**ol**>, <**ul**>	List
<**blockquote**>	Blockquote
<**hr**>	Horizontal rule
<**img**>	Image
<**video**>	Video
<**br**>	Line break
<**span**>	In-line content
<**div**>	block of content

and <**select**> <**input**> tags
to accept user input

DOM (Document Object Model)

- Refers to a hierarchical representation of HTML document





CSCI339001 Visualization

Data can capture a snapshot of the world and allow us to understand ourselves and our communities better. With ever-increasing amounts of data, the ability to understand and communicate data is becoming essential for everyone. Visualization leverages our visual perception to provide a powerful yet accessible way to make sense of large and complex data. It has been widely adopted across disciplines, from science and engineering to business and journalism, to combat the overabundance of information in our society.

In this course, students will learn to acquire foundational knowledge about how to design effective visualizations for analysis and presentation based on theories and principles from graphic design, perceptual psychology, and cognitive science. Students will also learn practical skills about how to rapidly explore and communicate data

```
<!doctype html>
<html class="gr__bcviscourse_github_io">
▶<head>…</head>
▼<body data-gr-c-s-loaded="true">
  ▼<header class="container">
    ▼<h1 class="title"> == $0
       "CSCI339001 Visualization"
       ::after
     </h1>
    ▼<div class="teaser">
       <img src="assets/images/teaser.png">
     </div>
    ▶<p class="description">…</p>
    ▶<p>…</p>
   </header>
  ▼<main class="container">
    ▶<section>…</section>
    ▶<section>…</section>
```

```
element.style {
}
.title {                                        index.
   font-family: 'Playfair Display', ser
   margin:▶ 0;
□  ~~font-size: 2.4rem;~~
   font-weight: 100;
   position: relative;
   display: table;
   padding:▶ 0px 5px;
}
h1 {                              user agent sty
   ~~display: block;~~
   font-size: 2em;
   margin-block-start: 0.67em;
   margin-block-end: 0.67em;
```

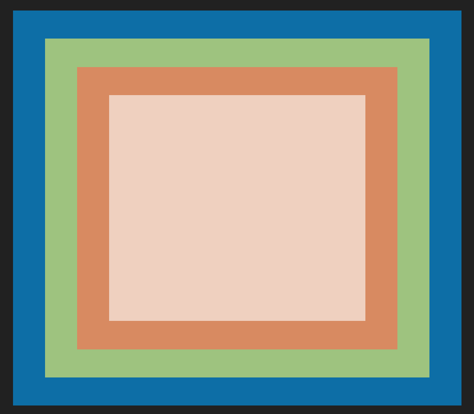
Frequently Used CSS Properties

Font

- font-family
- font-weight
- font-size
- color
- text-align

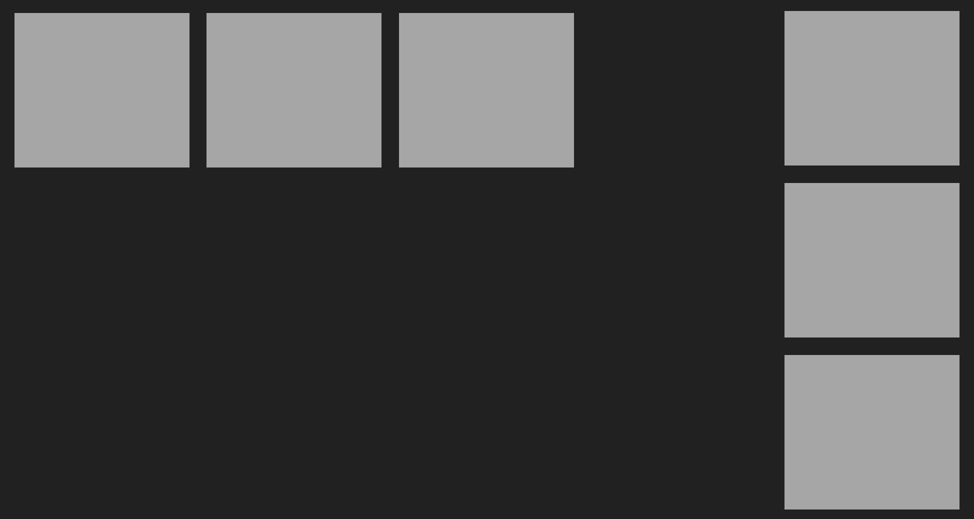
Box model

- margin
- padding
- border
- width
- height



Layout

- display:flex
- flex-direction
- flex-wrap
- justify-content
- align-items



Etc

- position
- top
- left
- transform
- transition

and many more…

https://www.w3schools.com/css/default.asp

Selectors

Tag

body { … }

Class

.intro{ … }

ID

#firstname { … }

Attribute

[href=“cs179.org"] { … }

Multiple

#header.callout{ … }

Children

#header .callout{ … }

n-th child

body:nth-child(n) { … }

Pseudo-class (special state)

.intro:hover { … }

more on: https://www.w3schools.com/cssref/css_selectors.asp

Git

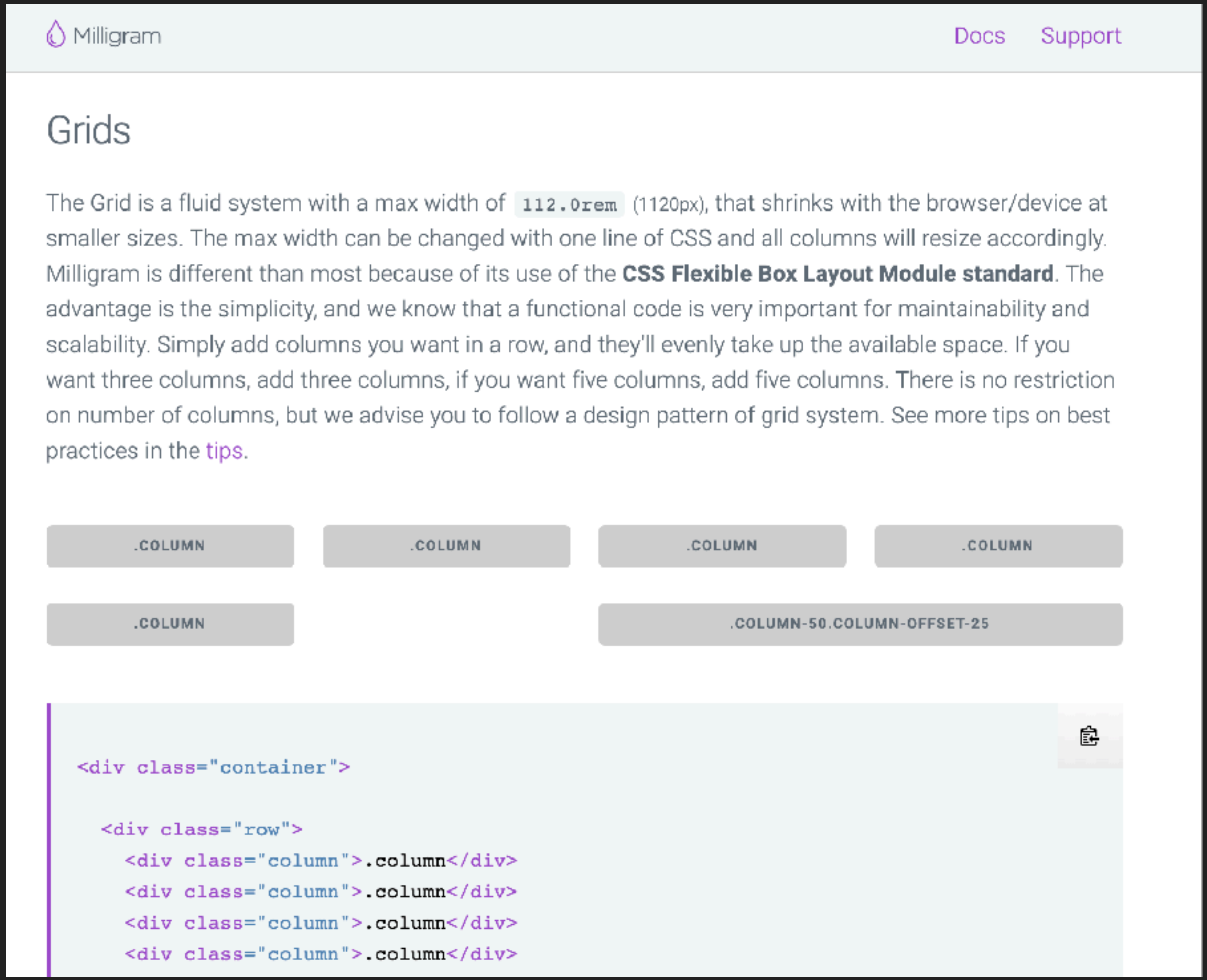
1. Clone a remote repository
2. Add new files
3. Commit new changes
4. Pull new updates from the remote
5. (Merge) conflicts
6. Push to the remove

Github is a service while Git is a source control system

CSS Frameworks

Allows for easier and faster styling without the hassle of CSS

- Bootstrap
- Materialize
- Bulma
- Milligram
- …



Grids

The Grid is a fluid system with a max width of `112.0rem` (1120px), that shrinks with the browser/device at smaller sizes. The max width can be changed with one line of CSS and all columns will resize accordingly. Milligram is different than most because of its use of the **CSS Flexible Box Layout Module standard**. The advantage is the simplicity, and we know that a functional code is very important for maintainability and scalability. Simply add columns you want in a row, and they'll evenly take up the available space. If you want three columns, add three columns, if you want five columns, add five columns. There is no restriction on number of columns, but we advise you to follow a design pattern of grid system. See more tips on best practices in the tips.

.COLUMN	.COLUMN	.COLUMN	.COLUMN
.COLUMN		.COLUMN-50.COLUMN-OFFSET-25	

```
<div class="container">

  <div class="row">
    <div class="column">.column</div>
    <div class="column">.column</div>
    <div class="column">.column</div>
    <div class="column">.column</div>
```

Javascript Frameworks

Allows for reusable components and app state management

- React (+ Redux)
- Vue
- Svelte
- Angular
- …

Out of scope for this course

Lab Workflow

Workflow

1. Go to Canvas : → Modules → Lab 1 Assignment
2. Go to the Lab 1 Invitation link from Github Classroom
3. Accept it to create a repository with our template code
4. Clone the repo
5. Work on the lab
6. Push to the remote repository
7. Submit the one-minute paper
8. Complete the lab by next Monday (11:59 pm)
9. Submit a your lab website URL to Canvas

Let’s Dive in!

Ask for help as necessary and
more importantly help each other