CS 2340 Objects and Design
JavaScript in Web Applications

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Outline

- Quick revisit on HTML
- Embedding JavaScript onto HTML
- JavaScript Libraries

HTML, CSS, and JavaScript

- Remember that website coding homework from CS1301?
- Most websites nowadays use HTML, CSS, and JavaScript.

My First Website

```html
<html>
    <head>
        <title>My First Website!</title>
        <meta name="author" content="Susanna Dong et al" />
    </head>

    <body>
        <h1>Hello there!</h1>
        <p>My website is more awesome than yours.</p>
        <img src="bears.png" />
        <p><a link="kittens.png">Click here</a> to see kittens. :D</p>
    </body>
</html>
```

- HTML is made with "tags" - a beginning tag and an ending tag.
- An HTML document has a "head" and a "body".
    - `<head>` - The behind-the-scenes magic of the webpage.
    - `<body>` - The physical contents of the webpage.

HTML Elements in `<head>`

```html
<head>
    <title>Yellow Jacket Fencing @ Georgia Tech</title>
    <meta http-equiv="Content-Type" content="text/html;
    charset=iso-8859-1" />
    <meta name="author" content="Susanna Dong et al" />
    <meta name="description" content="Educational piece for CS2340" />

    <link rel="stylesheet" type="text/css" link="yjf.css" />
    <script type="text/javascript" src="jquery.min.js"></script>
</head>
```

What does `<head>` do?

- Name your webpage
- Provide metadata
- Contains inline scripts
- Specify the location of stylesheets and scripts

The physical elements of a webpage.

```
<h1>Hello there!</h1>                <!-- A header element. -->
<p>My website is awesome.</p>        <!-- A paragraph element. -->
<a link="cat.png">Click here</a>     <!-- A link element. -->

<img src="bears.png" width="200" alt="Rawr" />
<!-- An image element. -->
```

All elements (that I'm aware of) can have additional attributes.

The `<div>` Tag

"The `<div>` tag defines a division or a section in an HTML document. The `<div>` tag is used to group block-elements to format them with CSS. ... Tip: The `<div>` element is very often used together with CSS, to layout a web page." - W3Schools Div Tags

```
<div>This is text inside of a div.</div>

<div style="position:relative; color:#FFFFFF;
background-color:#E0AA0F; border-color:#000000; width:60%;
height:10%; text-align:center; font-family:Calibri;">
    White and gold never gets old.
</div>
```

I want to customize my `<div>` elements, but look at all this code!

HTML Element IDs and Classes

You can name your HTML elements!

```
<div id="header"></div>
<div id="container">
    <div class="blob"> ... </div>
    <div class="blob"> ... </div>
    .....
</div>
```

- id is useful if *only one* element exists in a given webpage.
- class is useful if *multiple* elements exist in a given webpage.
- Why is this useful?
    - General practice of naming your elements.
    - In CSS, you can specify how certain elements *look*.
    - In JavaScript, you can specify how certain elements *behave*.
- Div-Example.html

Embedding JavaScript onto HTML

```
<body>
    <script>
        function rage() {
            var raging = document.getElementById("rageText");
            raging.style.color = "#FF0000";
        }
    </script>

    <p id="rageText">Click me for me to rage!</p>
    <button type="button" onclick="rage()">Rage Button</button>
</body>
```

JavaScript can be embedded within `<head>` or `<body>`.

Referring to JavaScript in HTML

```html
<body>
    <script src="js/puntastic.js" type="text/javascript">
        randomPun();
    </script>
    <!-- Where randomPun() prints a random pun on the webpage. -->
</body>
```

JS code can also be referred from external files.

An analogy

You want to develop your awesome website!

- Coding element behaviors can be difficult and tedious.
- Analogous to `javax.swing` or JavaFX.

JavaScript Libraries

```
<head>
    .....
    <script type="text/javascript" src="jquery.min.js"></script>
    <!--
    src="//ajax.googleapis.com/ajax/libs/jquery/1.11.1/jquery.min.js"
    -->
</head>
```

- There are JavaScript libraries that does the hard work for you!
- Import them into your HTML document.
- Use an API - don't be concerned about the behind-the-scenes.
- `min` = minified = reduced file size = faster loading
- JavaScript-Game.html with jQuery.
- Bootstrap-Stuff.html

Summary

- Defining element names are useful for customizing the look and behavior of elements.
- Separation of concerns, reusability of code, etc. *cough*