
CSE 331

Software Design & Implementation

Spring 2021

Section 8 – HW8: JavaScript

Administrivia

- HW7 due tonight!
- Thanksgiving break
 - No class (and OH) Wednesday, Thursday, and Friday
- HW8 due Thursday, 12/2
 - Will be introduced in class on Monday
- Any questions?

Agenda

- HTML + JS Practice
- HW7 Office Hours



Priyal goyash moody



Tomorrow · 🌸

What's difference between Java and JavaScript ?

👍😂 1.2k



Like



Share



Jay Prakash

It is like "car and carpet".

Like · Reply

210 😂👍



Faisal

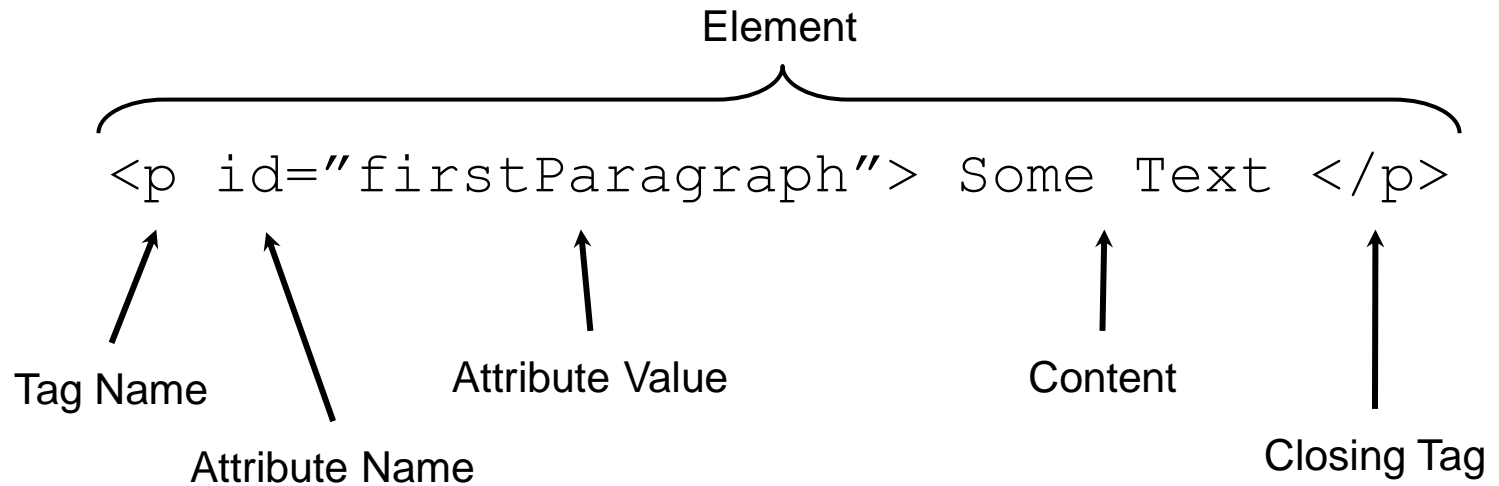
It's like "moon and honeymoon".

Haha · Reply

2.3k 😂👍

Reminder:

Anatomy of a Tag



Example 1:

Button Alerts

- `<script type="text/javascript">` tag: allows us to include Javascript inside an HTML file
- How do we write a function to alert the user?
- How do we call that function when a button is clicked?

Example 1 Code

```
<html>
  <head>
    <title>1. HTML5 Buttons</title>
  </head>
  <body>
    <script type="text/javascript">
      function drawSomething() {
        alert("Hello, World!");
      }
    </script>
    <button onclick="sayHello()">Click Me!</button>
  </body>
</html>
```

CANVAS

Example 2:

Drawing on a Canvas

- `<canvas>` tag: creates a blank drawing surface that you can “draw” on with JS
 - Create lines, shapes, draw images.
 - Has `width` and `height` attributes to determine the size of the drawing surface.
- We will be using `<canvas>` in HW8 and HW9 to draw lines/paths on top of images (like a map of campus!)
- Javascript is going to need some kind of Canvas object in order to call functions and draw pictures.
 - How do we get this object?

Modifying HTML with JS

- JS exists to allow webpages (meaning the HTML inside them) to change dynamically. So JS *has* to have a way to access/change the HTML tags.
- Implementation: Every HTML element has an associated JS object that the browser maintains.
 - Can get a reference in JS by using the “id” attribute.
 - Every tag can have an ID - value is a string that uniquely identifies an element.

HTML:

```
<p id="thePar">Hello, World!</p>
```

JS:

```
let parObj = document.getElementById("thePar");  
parObj.innerHTML = "Hello, 331!";
```

Example 2 Code

```
<html>
  <head>
    <title>2. HTML5 Canvas</title>
  </head>
  <body>
    <script type="text/javascript">
      function drawSomething() {
        let canvas = document.getElementById("theCanvas");
        let context = canvas.getContext("2d");
        context.fillStyle = "teal";
        context.fillRect(50, 50, 150, 100);
      }
    </script>
    <button onclick="drawSomething()">Draw Something Cool</button>
    <br />
    <canvas id="theCanvas" width="500" height="500"></canvas>
  </body>
</html>
```

Example 3:

Factoring Out Javascript

- If we want to do a lot, that's a lot of Javascript to have embedded in our HTML file!
 - Can we move it?
- Script tags can take a src attribute

Example 3 Code

```
<html>           3-html-draw-factored.html
  <head>
    <title>2. HTML5 Canvas</title>
  </head>
  <body>
    <script type="text/javascript" src="3-js-draw-factored.js"></script>
    <button onclick="drawSomething()">Draw Something Cool</button>
    <br />
    <canvas id="theCanvas" width="500" height="500"></canvas>
  </body>
</html>
```

3-js-draw-factored.js

```
function drawSomething() {
  let canvas = document.getElementById("theCanvas");
  let context = canvas.getContext("2d");
  context.fillStyle = "teal";
  context.fillRect(50, 50, 150, 100);
}
```

Office Hours

- Rest of class is reserved for office hours
 - Any questions?
 - Dijkstra's, generics, etc.