



CSCI-UA-4-005

Intro to Web Design + Computer Principles

Javascript: Day 1

Professor Emily Zhao

M/W 12:30PM – 1:45PM

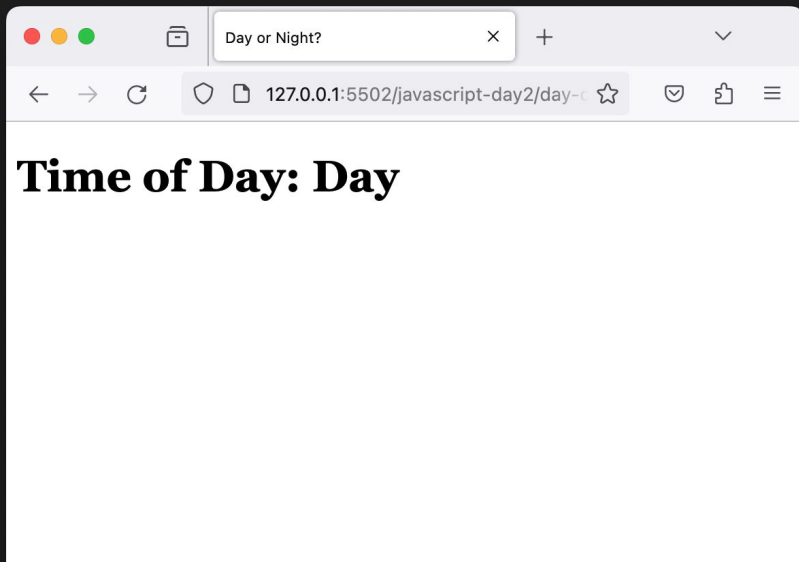


Agenda

- Warm-Up Problem: Changing Text Content
- Lecture: The DOM
- Changing CSS
- Changing HTML Content
- Incorporating Randomness
- Introduce Assignment #8

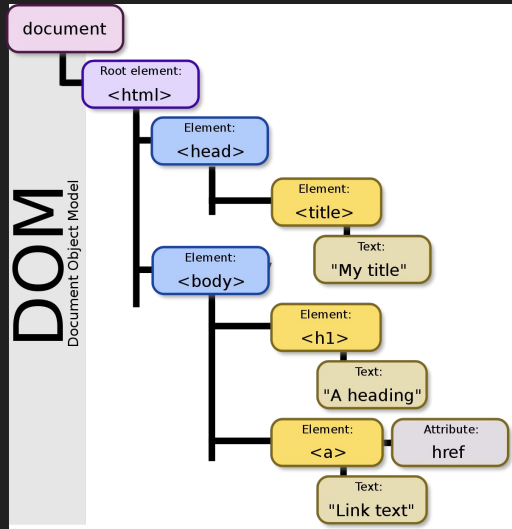
Warmup: Day/Night Website

Make a page that displays whether it is daytime or nighttime.



Document Object Model (DOM)

Document Object Model (DOM)



When a browser loads a web page, it creates a model of that page.

This is called a “DOM tree” and it is stored in the browser’s memory.

Every element, attribute, and piece of text in the HTML is represented by its own “DOM node.”

Types of DOM Nodes

There are four main types of nodes:

- The Document node, which represents the entire page
- Element nodes, which represent individual HTML tags
- Attribute nodes, which represent attributes of HTML tags, such as a class
- Text nodes, which represents the text within an element, such as the content of a `<p>` tag

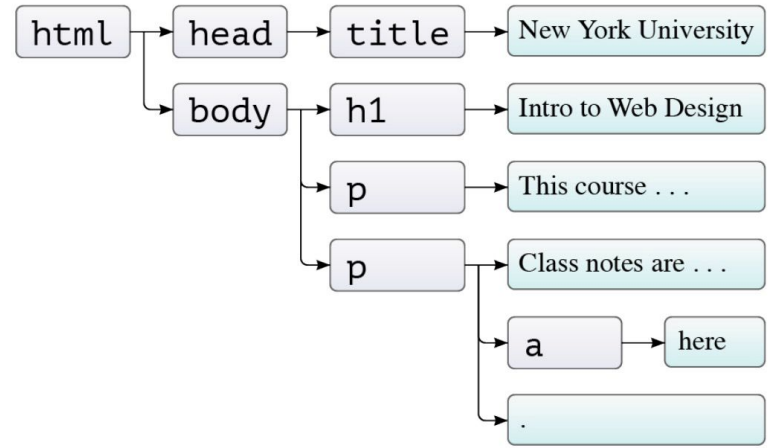
We talk about the relationship between element nodes as “parents,” “children,” and “siblings.”

```
<html>
  <head>
    <title>New York University</title>
  </head>

  <body>
    <h1>Intro to Web Design</h1>

    <p>In this course you will learn how to build websites.</p>

    <p>Class notes are available
    <a href="notes.html">here</a>.<p>
  </body>
</html>
```



DOM Queries

- JavaScript methods that find elements in the DOM tree are called “DOM queries.”
- DOM queries may return one element, or they may return a “node list.”
- Which DOM query you use depends on what you want to do and the scope of browser support required.

DOM Queries

Methods that return a single element node:

```
.getElementById()
```

```
.querySelector()
```

Methods that return one or more elements
as a node list

```
.getElementsByClassName()
```

```
.getElementsByTagName()
```

```
.querySelectorAll()
```

What can we change?

.textContent

sets or returns the text content of the specified node

```
let element = document.getElementById("changeMe")
element.textContent = "I have changed!";
```

.innerHTML

sets or returns the HTML content (inner HTML) of an element

```
let element = document.getElementById("changeMe")
element.innerHTML = "<a href='#'>I have changed!</a>";
```

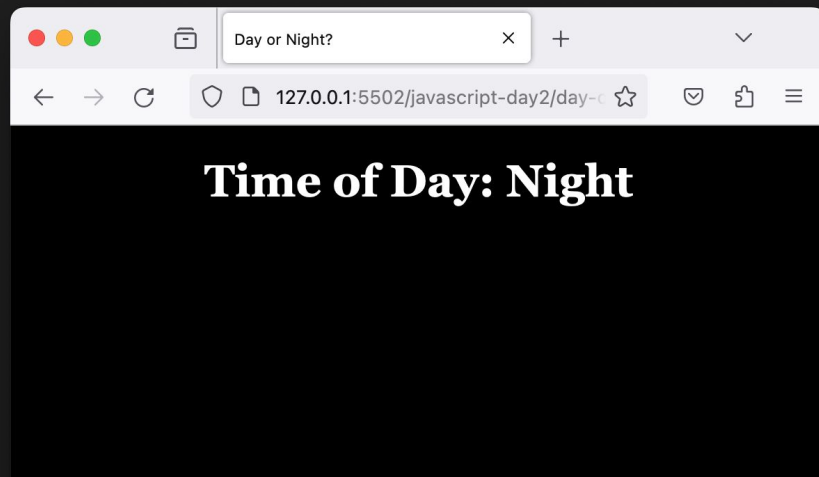
.style.CSSPropertyName

sets or returns the value of a given CSS property

```
let element = document.getElementById("changeMe")
element.style.color = "red";
```

Day/Night Website (cont'd)

Now, we're going to change some of the styles of our page using DOM Queries:



- Center the heading
- Change the background color of body
- Change the color of the text

[Demo] Changing Text + Inner HTML Content

[Demo] Random Numbers

Math.random()

Math.random()

returns a random decimal number between 0 (inclusive), and 1 (exclusive):

```
num = Math.random()  
console.log(num) // 0.5566941489945507
```

Math.floor()

Used to round down to the nearest integer

```
num = Math.floor(5.95)  
console.log(num) // 5
```

Combined, **Math.floor()** and **Math.random()** can return random integers

```
num = Math.floor(Math.random() * 10);  
console.log(num) // Returns a random integer from 0 to 9:
```