Week 10
Javascript and JQuery

2017, Fall
Web Application Programming
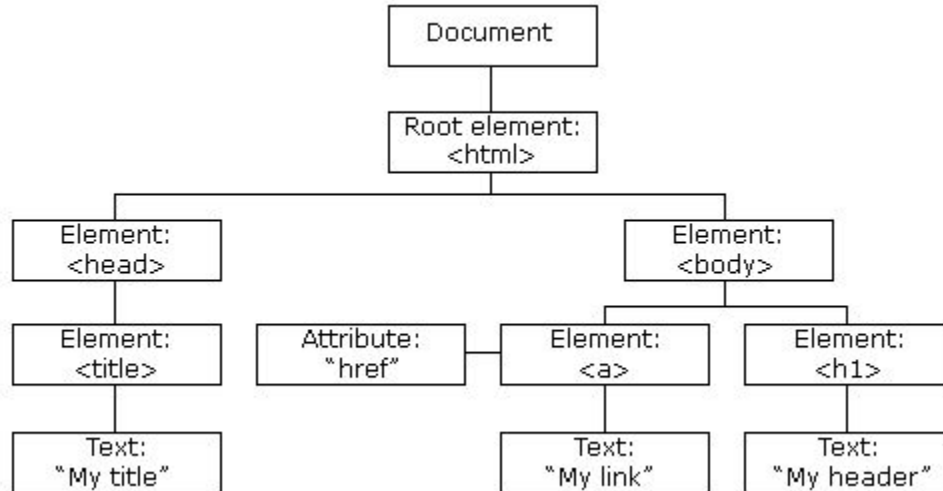Pusan National University
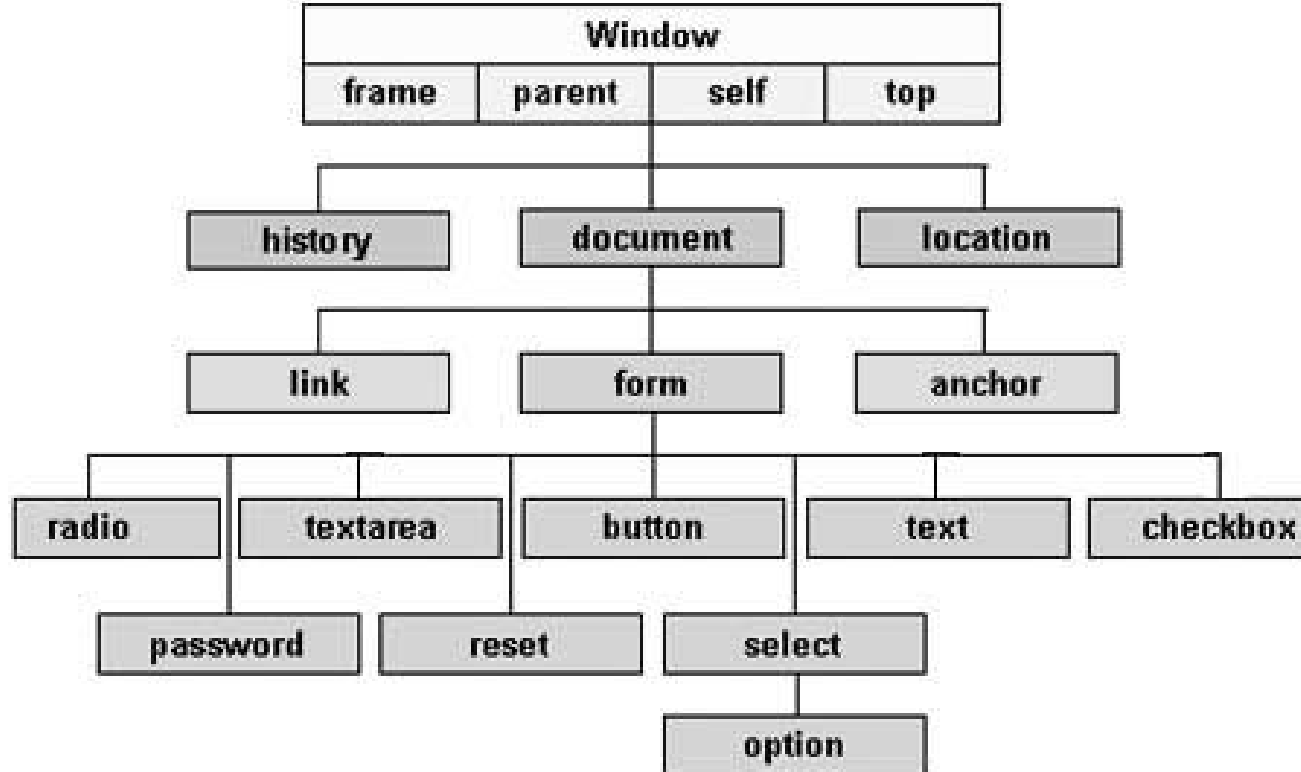Bolat Azamat, Hyung-Gyu Ryoo

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DOM (Document Object Model)?

- How Javascript can access the HTML elements or attributes?
- When a web page is loaded, the browser creates a **D**ocument **O**bject **M**odel of the page
- The HTML DOM model is constructed as a tree of Objects:

BOM (Browser Object Model)?

Practice 1: Let's recall your math

Input radius value and get the volume of a sphere.

Radius

Volume

0.0000

Calculate

$$V = \frac{4}{3}\pi r^3$$

Practice 1: HTML code

```html
<!doctype html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>Volume of a Sphere</title>
<style>
body{padding-top:30px;}
label,input{display:block;}
</style>
</head>
<body>
<p>Input radius value and get the volume of a sphere.</p>
<form action="" method="post" id="MyForm">
<label for="radius">Radius</label><input type="text" name="radius" id="radius" required>
<label for="volume">Volume</label><input type="text" name="volume" id="volume">
<input type="submit" value="Calculate" id="submit">    </form>
</body>
</html>
```

Practice 1: Javascript code

```javascript
//  HINTS: use Math.PI,  Math.pow()

function volume_sphere()
 {
  var volume;

  // get element 'radius' from DOM
  var radius =
  // calculate volume
  volume =

  // set DOM's element value to calculated volume
  // HINT: document.getElementById('volume')

  //return false to prevent form submitting
  return false;
 }

// call our function when form is submitted
window.onload = document.getElementById('MyForm').onsubmit = volume_sphere;
```
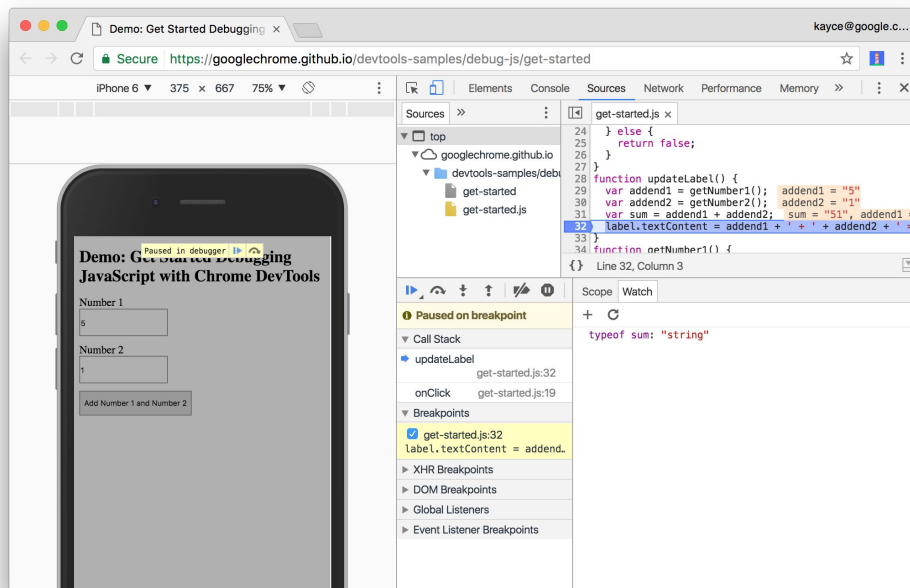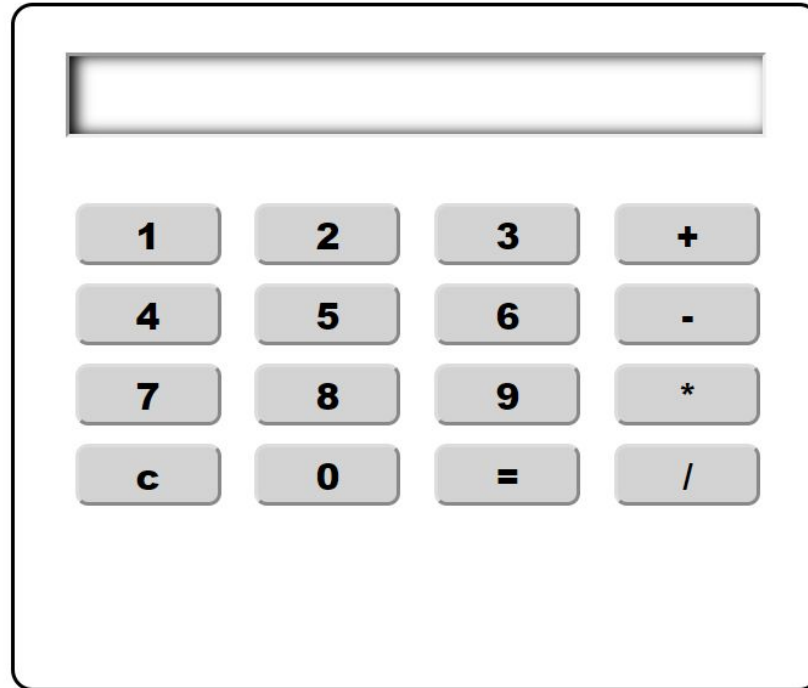
Debugging Javascript

- console.log() Method
- Google Chrome Browsers' Debugging Tools
  - https://developers.google.com/web/tools/chrome-devtools/javascript/

Practice 2 : Calculator

See js_calculator.html

jQuery?

- jQuery is a JavaScript Library.
- jQuery greatly simplifies JavaScript programming.
- jQuery is easy to learn.

- Basic syntax is : $(selector).action()
  - A $ sign to define/access jQuery
  - A (selector) to "query (or find)" HTML elements
  - A jQuery action() to be performed on the element(s)

```
$(document).ready(function(){

    // jQuery methods go here...

});
```

jQuery Get Started

- There are several ways to start using jQuery on your web site. You can:
  - Download the jQuery library from jQuery.com
  - Include jQuery from a CDN, like Google

- Downloading jQuery
  - you can download jQuery from jQuery.com.
- jQuery CDN
  - If you don't want to download and host jQuery yourself, you can include it from a CDN (Content Delivery Network).

```
<head>
<script src="jquery-3.2.1.min.js"></script>
</head>
```

```
<head>
<script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js">
</script>
</head>
```

jQuery Events

Mouse Events	Keyboard Events	Form Events	Document/Window Events
click	keypress	submit	load
dblclick	keydown	change	resize
mouseenter	keyup	focus	scroll
mouseleave		blur	unload

```
$("p").click(function(){
    // action goes here!!
});
```

Practice 3 - Target HTML Element using jQuery

- Let's make all of your button elements bounce. Just add this code inside your document ready function:
- Add "animated" and "bounce" class
- Hint : $("button").addClass(?);

Practice 3 - Target Elements by Class using jQuery

- Let's target your div elements with the class well by using the $(".well") selector
- Use jQuery's .addClass() function to add the classes animated and shake

Practice 3 - Target Elements by ID using jQuery

- Target your button element with the id target6 by using the $("#target3") selector.
- Use jQuery's .addClass() function to add the classes animated and shake

Practice 4 - Re-implement Calculator at the practice 2

NEXT?

- Main keyword : Data
  - XML, JSON
  - Visualization, Data handling