Csci 4131 Internet Programming
Spring 2024
Lecture 6
February 5th

Instructor: Dr. Dan Challou

Logistics – Csci 4131 Lecture 6, February 5th

- Programming HW Assignment 2 due this coming Saturday **February 10th**
- ***Programming HW 3 will be coming out this coming weekend***

NOTE

- Our Programming Homework Solutions can be reviewed at any office hour or by appointment. ***We do not post them!!!***

Upcoming Zybooks Assignments

- Optional/Bonus:
  - Lecture 6 Additional Practice, due 11:59pm, Sunday 2/11
  - Lecture 7 Additional Practice, due 11:59pm, Monday 2/12
- Required:
  - Zybooks HW 4, due 11:59pm Sunday 2/11

Reading & Tutorials for Upcoming Lectures

Google Maps / JavaScript API:
https://developers.google.com/maps/documentation/javascript/tutorial

Google Maps Geocoding
https://developers.google.com/maps/documentation/javascript/geocoding,

Google Maps Places API
https://developers.google.com/maps/documentation/javascript/places

Google Directions Service
https://developers.google.com/maps/documentation/javascript/directions

Google Click on Points of Interest (used to fill location field on Form when points of interest are selected/clicked on the map next to it):
https://developers.google.com/maps/documentation/javascript/examples/event-poi

Optional:

Sebesta: Chapters 5 and 6

YouTube videos for Google Maps

- https://www.youtube.com/watch?v=ZscHG5xY_r4 (Basics)
- https://www.youtube.com/watch?v=kdk-DOYS4V8
(Geocoding)
- https://www.youtube.com/watch?v=BkGtNBrOhKU
(Directions and Places api)

And, plenty of others – search for them using your favorite browser, and reference which ones you used, if any, in your readme file.

Questions?

Agenda

- Last Time:
  - Lecture 4 Exercise Review
  - CSS Intro wrap-up
  - Intro to the DOM & JavaScript
- Today
  - Lecture 5 Exercise Review
  - More JavaScript
    - Events
    - Animation
    - Automation
    - Regular Expressions ?
    - JavaScript Closures?

Review Lecture 5, Exercise 1

- Update the CSS file that I just did so it uses relative styling that enables the previous example seamlessly scales to the window size

  Rel_Box_Example.html

- You can use the online book, your phone or computer **for reference**

- **You can download the files: Box_Example.html and mystyle8.css from the Week 3 module on the class Canvas site**

- ***Note, there is one styling command that you must change to make sure the relative styling works – most of your task is to find it and fix it!!!!*** (Hint see: https://www.w3schools.com/html/html_responsive.asp)

- **Submit Your updated CSS file via the lecture 5, exercise 1 link on Canvas**
- ***Thumbs-up, close computing device when done.***

Review Lecture 5, Exercise 2. Use parseInt to refactor the following JavaScript so adds the 2 numbers input instead of concatenating them

```
<script>
    var number1; // first string entered by user
    var number2; // second string entered by user
    var sum; // sum of number1 and number2
    var product; // product of number1 and number2

    number1 = window.prompt( "Enter first integer" ); // 6 entered by user
    number2 = window.prompt( "Enter second integer" ); //5 entered by user

    sum = number1 + number2; // add the numbers
    product = number1 * number2; //multiply the numbers

    document.writeln( "<h1>The sum is " + sum + "</h1>" );
    document.writeln("<h1>The product is " + product + "</h1>" );
</script>
```

add_n_mult.html

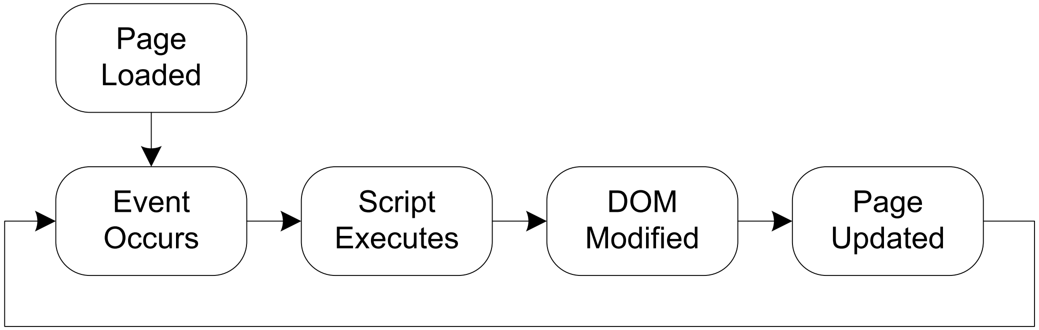
add_n_mult_ans.html

Questions?

JavaScript Revisited

- And then using JavaScript to respond to events (and beyond)

Recall, DOM Event Cycle



- DOM Scripting – uses JavaScript to manipulate the DOM
- DOM Scripting is event-driven. An event is typically such a clicking a mouse, moving your mouse over a DOM element or typing on the keyboard
- When the event occurs JavaScript code (an event handler) is executed to handle the event
- The event handler has full access to the DOM – it can change the properties of those elements
- When the DOM is modified, the browser detects those changes and updates the page
- When the event handler is finished, the web browser waits for another event to occur (and repeats the cycle when it does)
- DOM scripting should be done only to enhance a web page – this is known as progressive enhancement.

Simple Event Handling Example (***Download the file eventDemo.html from the week 4 module on Canvas and* code along**)

- eventDemo1.html

```
<!DOCTYPE>
<html>
  <head>
    <meta charset = "utf-8">
    <title>Event Handler Demo</title>
    <script>
        // Dr Dan add JavaScript here
    </script>
 </head>
  <body>
            <!-- add HTML button element that calls JavaScript -->
  </body>
</html>
```

Are there other events available to trigger JavaScript???

- **Yah sure You Betcha!!**
- HTML Elements (Buttons, Text Boxes, Paragraph Elements – have all sorts of attributes that can be set to respond to events like mouse events, keyboard events, etc.) See:

https://www.w3schools.com/tags/ref_eventattributes.asp

Example, using events on a DOM node. The events mouseover and mouseout are set to respond to those events on a DOM img element

- https://www.w3schools.com/js/tryit.asp?filename=tryjs_events_onmouseover
- What is the difference between the two approaches?
- **Different way of doing the same thing, can use JavaScript to add/remove behavior on attributes**

Other Methods JavaScript Can Use to Access/Change DOM Elements

- Add Listeners that use the methods the Document (of the DOM) provides to access / change elements

- https://www.w3schools.com/js/js_htmldom_document.asp
- https://www.w3schools.com/js/js_htmldom_elements.asp

Example????

- Another version of the event handler demo..
  - event_handler_demo.html

Examples that use different mechanisms to display and hide items on a Webpage

- pop_up.html
- displayPix.html
- https://www.w3schools.com/howto/howto_js_toggle_hide_show.asp
- https://www.w3schools.com/css/css_display_visibility.asp
- https://www.w3schools.com/cssref/pr_class_visibility.asp

Exercise 1 – **submit your answer (updated file displayPix.html) the Lecture 6, Exercise 1 item in the week 4 module on Canvas Think/Pair/Share**

- Download the file ***displayPix.html***, and the 2 image files (***gophers-mascot.png*** and ***08ShepherdLabs960***) below the week 4, Exercise 1 item in the week 4 module on Canvas

- Refactor the code in the HTML file so that Shepherd Labs is shown when the **onmouseover** event occurs on the **table row!** displayPixEx.html

Please close your computer / raise your hand when you are done!

Questions?

Image SlideShow in JavaScript

- Next we'll use random numbers to produce an HTML/CSS/JavaScript combo that randomly displays images from a given set of images when we click on the currently displayed image

Next Time

- Exercise Review / Recap
- Automation using JavaScript
- Regular Expressions
- JavaScript Closures
- Google Maps