Csci 4131 Internet Programming
Spring 2024
Lecture 7
February 7th

Instructor: Dr. Dan Challou

Csci 4131 Spring 2024 Logistics

- ***HW 3 due THIS coming Saturday night (Feb 10th) at 11:59pm***
- ***Homework 3 will be out over the weekend***
- ***Exam 1 will be in class (11:15am - 12:30pm) next Wednesday February 14th***

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

Upcoming Reading & Tutorials

Now:

Sebesta - Chapter 5,6; and JavaScript tutorials (see course schedule in the module at the top of the home page on the Class Canvas site)

Upcoming:

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

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.

Make sure to review Google's documentation and Examples on the following Services / APIs:

- Google Maps
- The Geocoding Library – for markers
- The Places Service – for searching for places
- The Directions Service
  - The Directions Display Object
  - The Directions Renderer Object

- Note, w3schools has tutorials to get you started as well
  - https://www.w3schools.com/graphics/google_maps_intro.asp

Questions?

Agenda

- Last Time
  - Lecture 5 Exercise Review (CSS revisited…)
  - JavaScript
    - Events
    - Affecting the DOM with CSS and JavaScript Events
- Today
  - More JavaScript
    - Events revisited
    - Automation
    - Regular Expressions
    - JavaScript Closures

Review Exercise 1, Lecture 6

- Download the file ***displayPixEx.html***, and the 2 image files (***gophers-mascot.png*** and ***08ShepherdLabs960***) from the week 3 module on Canvas - **displayPix.html**
- Refactor the code in the HTML file so that Shepherd Labs is shown when the **onmouseout** event occurs on the **table row! (instead of onclick)**
  - **displayPixExAns.html**
- **Submit the updated HTML file**

Questions?

Recall, Random Behavior in Response to Events – Random Picture Rotator

What about the Big 3 (Structure/Layout, Style, Behavior) – #1 (Layout) First:

```
<!DOCTYPE html>

<!-- Fig. 10.11: RandomPicture.html -->
<!-- HTML5 document that displays randomly selected images. -->
<html>
  <head>
    <meta charset = "utf-8">
    <title>Random Image Generator</title>
    <script src = "RandomPicture.js"></script>
  </head>
  <body>
    <img id = "image" src = "CPE.png" alt = "Common Programming Error">
  </body>
</html>
```

Other 2 (Style, Behavior) – Brief Review

Not worried about style yet

Behavior:

register the main event handler
register an event handler on the IMAGE
When the user clicks on the image
Randomly select another image and
RENDER IT!!

Random Pictures

Automating Behavior

- Next, we'll look at a Window Method that can enable to a web page to automate the random picture application we just reviewed

Syntax and Description

```
Id = setInterval(code,millisec,lang)
```

Parameter	Description
code	Required. The function that will be executed
millisec	Required. The intervals (in milliseconds) on how often to execute the code
lang	Optional. JScript | VBScript | JavaScript

```
clearInterval(id of setInterval)
```

Example (**code along/ review**)

- Let's Review the HTML and JavaScript for Simple Clock That Displays

  the time in the format

  HH:MM:SS AM/PM

With A Stop Button

Simple Clock

Questions

Exercise 1: **submit your answer (the updated file) to item Lecture 7, Exercise 1 in the week 4 module on Canvas**

- **Add a start and clear button to the clock we just built!**
- **DOWNLOAD the file: aclock.html from the week 4 module on Canvas**
- **Then:**
  - Update the HTML to add **Start** and **ClearClock** buttons
  - **ClearClock** should call a javascript function to clear the text field
  - **Start** should start the clock anew.

  testclock.html

Hints:

- Add a **Start** button that calls ***setInterval*** when clicked (onclick="iD = set….")
- The **Stop** button should still call the function ***clearInterval*** via the onclick event of the "Stop" Button (So, you don't have change anything!)
- The "**ClearClock**" button should set the "value" attribute of the text element to "" (the empty string) (name the function it calls **clearClock**)

Please raise thumb and close computer when done!!!!

Using automation capability provided by setInterval

Recall the random Picture rotator (An Advertizement Rotator):

- Random Pictures Original All Versions\RandomPicture.html

- Now we have the tools to automate the display of random pictures (recall):
  - Random Pictures Original All Versions\RandomPicture.html
- ***Why might we want such a capability for our webpages?***
- ***Example***
  - ***Random Pictures Original All Versions Final\RP3.html***

We will revisit this in Lecture 8 on Monday February 12th

Regular Expressions

- A **regular expression**, **regex** or regexp (sometimes called a rational **expression**) is, in theoretical computer science and formal language theory, a sequence of characters that **define** a search pattern.

- Usually this pattern is then used by string searching algorithms for "find" or "find and replace" operations on strings.

- https://www.regular-expressions.info/javascript.html

But, Regular Expressions have other uses!

- They can be used to check input values (in dialog boxes, text-input fields – on Forms, etc.)
- Can be used in conjunction with:
  - All of the above via
    - Pattern attribute associated with HTML 5 input elements (that is pattern="your regular expression")
    - JavaScript associated with the elements

Regular Expression methods

regex.test(str) – returns true if the str matches the pattern and false otherwise

regex.exec(str) – returns the first match for the regex in the string

Regular Expression Reference: https://www.w3schools.com/jsref/jsref_obj_regexp.asp

Examples

The JavaScript Expression:

/Dan[0-9]/.test(“The name Dan9 is like plan9”);

Returns **true**

***What boolean value does*:**

/^Dan**[0-9]/.test(“The name Dan9 is like plan9”)**

Return?

Interactive Exercise: ***(Think / Pair / Share)***

- Create a regular expression that checks a string to see if it contains a phone number of the form:

Xxx-xxx-xxxx

where the first **X** is a number from 1 to 9, and the rest of the x's are numbers from 0 to 9. There should be no spaces before the first X in the match or after the last number

You can use this site to check out your expression:
https://www.regular-expressions.info/javascriptexample.html

Please give a thumbs-up and close your computer when you are done!

Questions?

Next Time

Regular Expressions Revisited

Building a Slides show using setInterval and clear intervals

Closures Revisited?

Event Handing Wrapped up

Intro to HW3 / Google Maps?

Next Time

- Regular Expressions wrapped up
- JavaScript Closures - revisited
- JavaScript Event Handling Wrapped up
- Intro to Google maps