

JAVASCRIPT DEVELOPMENT

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HELLO!

1. Pull changes from the `svodnik/jsd5` repo to your computer
2. Navigate to the `starter-code` folder

JAVASCRIPT DEVELOPMENT

ASYNCHRONOUS JAVASCRIPT AND CALLBACKS

LEARNING OBJECTIVES

At the end of this class, you will be able to

- › Store and use anonymous functions in variables.
- › Pass functions as arguments to functions that expect them.
- › Write functions that take other functions as arguments.
- › Return functions from functions.

AGENDA

- Callbacks
- Immediately invoked function expressions (IIFEs)

Checkin and questions

- The **most significant thing I learned** about Ajax and APIs is _____.
- My **biggest outstanding question** about Ajax and APIs is _____.

Brainstorm: What are the different ways we can create and store functions?

Functions and callbacks

ASYNCHRONOUS PROGRAMMING

- Code that relies on input or behavior that might not be instantly available
- We use asynchronous programming to run code at different times

ANONYMOUS FUNCTIONS

```
var $yesButton = $('#yes-button');  
$yesButton.on('click', function(event) {  
    ...  
});
```

FUNCTIONS ARE FIRST-CLASS OBJECTS

- Functions can be used in any part of the code that strings, arrays, or data of any other type can be used
- We can store functions as variables
- We can pass them as arguments to other functions
- We can return them from other functions
- We can run them without otherwise assigning them

HIGHER-ORDER FUNCTION

- A function that takes another function as an argument, or that returns a function

EVENT LISTENERS

- A way of specifying a function that should run in response to an event
- Performs the same function as specifying a value for a property like `onClick`
- The difference:
 - An event property (like `onClick`) can take only a single value (you can do only one thing in response) for any given element
 - But you can set multiple values (functions) to run in response to a single event listener

EVENT LISTENER SYNTAX

```
element.createEventListener("event", function, false);
```

EVENT LISTENER EXAMPLE

```
var nextButton = document.getElementById("#next-button");  
nextButton.createEventListener("click", switchPage, false);
```

equivalent to:

```
var nextButton = document.getElementById("#next-button");  
nextButton.onclick = switchPage;
```

setTimeout()

- A JavaScript function that lets you specify a function to run after a delay (in milliseconds)

setTimeout()

syntax

```
setTimeout(function, delay);
```

example

```
setTimeout(switchPage, 1000);
```

BREAK (5 MINUTES)

Immediately-invoked function expressions

Immediately-invoked function expression (IIFE)

- A function expression that is executed as soon as it is declared
- Pronounced “iffy”
- Make a function expression into an IIFE by adding () to the end (before the semicolon)
- Make a function declaration into an IIFE by adding
(at the start and
) () ; to the end

IIFE based on a function expression

```
var countdown = function() {  
    var counter;  
    for(counter = 3; counter > 0; counter--) {  
        console.log(counter);  
    }  
}();
```

IIFE based on a function declaration

```
(function countdown() {  
  var counter;  
  for(counter = 3; counter > 0; counter--) {  
    console.log(counter);  
  }  
})();
```

BREAK (5 MINUTES)

Callbacks and IIFEs in practice

- Callbacks are a best practice for handling interface updates based on user interactions and/or data from web services
- Callbacks and IIFEs let us better organize our code
 - module pattern
 - we'll learn about this in a couple weeks

LEARNING OBJECTIVES – REVIEW

- Store and use anonymous functions in variables.
- Pass functions as arguments to functions that expect them.
- Write functions that take other functions as arguments.
- Return functions from functions.

NEXT CLASS PREVIEW

Advanced APIs

- Generate API specific events and request data from a web service.
- Implement a geolocation API to request a location.
- Process a third-party API response and share location data on your website.
- Make a request and ask another program or script to do something.
- Search documentation needed to make and customize third-party API requests.

Exit Tickets!

Q&A