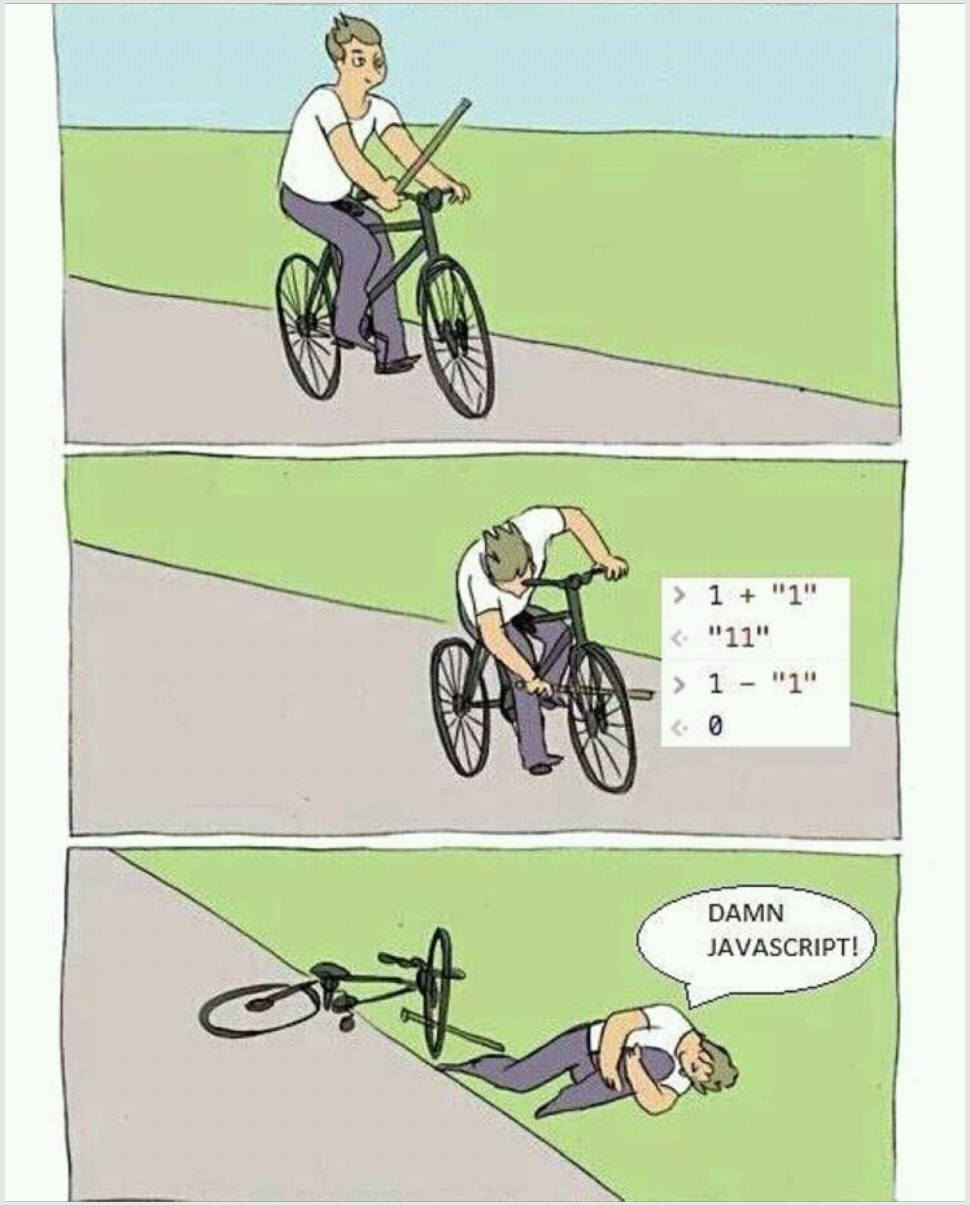
Introduction to JQuery

- JavaScript Review
- Introduction to JQuery
- Advanced Interactions: A JQuery Approach
- Useful Applications of JQuery


> 1 + "1"
<- "11"
> 1 - "1"
<- 0
DAMN JAVASCRIPT!

Variable Declarations

Types and declarations in Javascript.

```
var a;                          // variable
var b  =  "init";               // string
var c  =  "Hi" + " " + "Joe";   // = "Hi Joe"
var d  =  1 + 2 + "3";          // = "33"
var e  =  [2,3,5,8];            // array
var f  =  false;                // boolean
```

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Variable Declarations

Variables are not bounded to types upon declaration.

```
var a = “Look I’m a string!”;
a = 5;
a = “Nope, back to a string again”;
```

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Loops

For Loops:

```
var sum = 0;
for (var i = 0; i < 100; i++) {
        sum += i;
}
console.log(sum)
```

While Loops:

```
var sum = 0;
var i = 0;
while (i < 100) {
        sum += i;
        i++;
}
console.log(sum)
```

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Conditional Statements

If/Else Statements:

```
if (today == “Sunday”) {
        sleep(8.64e+7);
}
else if (today == “Monday”) {
        goto School;
}
else if (today == “Tuesday”) {
        goto School;
        forget_lunch();;
}
```

Switch Statements:

```
switch(today) {
        case(“Sunday”):
                sleep(8.64e+7);

        case(“Monday”):
                goto School;

        case(“Tuesday”):
                goto School;
                forget_lunch();
}
```

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Objects

Object Declarations:

```
CMU_Student = {
        first_name = “jon ”
        last_name = ‘doe ”
        age = 20
        height = 6
        favorite_restaurant = “gallo”
        hobbies = function() {
                return this.first_name + this.last_name + “likes ” + this.favorite_restaurant;
        }
}
```

What is printed as a result?

```
var student = new CMU_Student()
console.log( student.hobbies() )
```

jon doe likes gallo

Objects

Object Declarations:

```
CMU_Student = {
        first_name = “jon ”
        last_name = ‘doe ”
        set_name = function(first, last) {
                this.first_name = first;
                this.last_name = last;
        }
        age = 20
        height = 6
        favorite_restaurant = “gallo”
        hobbies = function() {
                return this.set_name + this.last_name + “likes ” + this.favorite_restaurant;
        }
}
```

Objects

What is printed as a result?

```
var student = new CMU_Student()
console.log( student.hobbies() )
```

What is printed as a result?

```
student.set_name(“bob”, “ross”)
console.log( student.hobbies() )
```

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/ j • que • ry / (noun)

A fast and lightweight JavaScript Library that allows for quick and easy HTML element selection, event handling, document traversal, css manipulation and animations. An essential part of every web-developer's toolkit.

Installing JQuery (Locally)

Download JQuery library

https://jquery.com/

Include path to JQuery file in all HTML file headers

```
<html>
<head>
        …
        <script src="/directory/of/jquery/file/jquery.min.js"></script>
        …
</head>
```

Installing JQuery (Online)

Include path to JQuery Online Library in all HTML file headers

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

Installing JQuery

Locally

+ Does not require an internet connection to work.

- Takes up additional space and may require additional loading times
  If uploaded to a slow server when deployed.

Online

+ Faster loading, less space required

- Cannot be used without an internet connection. If this version goes offline, then so do interactions on your site.

Installing JQuery

Recommendations

- Use the Online version by default, but always have a local copy installed in case of internet failure.
- When deploying site, switch to local version.

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

        <script>
                window.Jquery ||
                        document.write(<script src="/directory/of/jquery/file/jquery.min.js"></script>)
        </script>
        …
</head>
```

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JQuery Syntax

Add everything within a document-ready function so the HTML can load before the JavaScript.

```
$(document).ready(function() {
        $("class/ID").event( function_to_handle_event() {} );
});
```

JQuery links HTML elements with JavaScript listeners, so these HTML elements must have been created before listeners can be added.

JQuery Syntax

Hover event:

```
$(“.class”).hover( function() { } );
```

Click event:

```
$(“.class”).click( function() { } );
```

JQuery Syntax

Counts the number of times the element is clicked

```
<script>
        var click  = 0;
        $(“.cool-class”).click( function() { click++ } );
</script>

<div class=cool-class ></div>
```

JQuery Syntax

Are these the same operation?

```
<script>
        $(".cool-class").hover( function() {
         $(this).css("background", "green"); } );
</script>

<div class=cool-class ></div>
```

```
<style>
        .cool-class:hover {
                background: green; }
</style>

<div class=cool-class ></div>
```

Answer: Yes

JQuery Syntax

Are these the same operation?

```
<script>
        $(".cool-class").click( function() {
         $(this).css("background", "green"); } );
</script>

<div class=cool-class ></div>
```

```
<style>
        .cool-class:actve {
                background: green; }
</style>

<div class=cool-class ></div>
```

Answer: No.
Click is enabled once the user clicks.
Active is enabled when the user clicks and holds, but reverts back to original properties when released.

JQuery Syntax

Can also use JavaScript to redirect the flow of interactions.

```
var clicks = 0;

$(".cool-class").click( function() {
        clicks++;
        if( clicks % 2 == 0 )
                $(this).css("background", "red");
        else
                $(this).css("background", "green"); } );
```

What does this do?

JQuery Syntax

```
var clicks = 0;

$(".cool-class").click( function() {
        clicks++;
        if(clicks % 2 == 0) {
                $(this).css("background", "red");
                $(this).css("color", "green");
                 $(this).css("font-size", "35px"); }
        else{
                $(this).css("background", "blue");
                $(this).css("color", "white");
                 $(this).css("font-size", "15px"); } );
```

This seems like a lot. Can we organize it better?

JQuery Syntax

Toggles between two classes when event *click()* is satisfied.

```
.cool-class {
        background: blue;
        color: white;
        font-family: 15px;
}

.cooler {
        background: red;
        color: green;
        font-family: 35px;
}
```

```
$(“.cool-class”).click( function() {
        if(  $(this).hasClass("cooler")  )
                $(this).removeClass("cooler");
        else
                $(this).addClass("cooler");
);
```

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JQuery Applications

- Can search for HTML elements
- Adds listeners to classes/IDs to listen for changes
- Add event handlers (different from CSS handlers)
- Custom animation algorithms
- Text/JSON parsing

Will cover most of these in future lectures.

Links

Overwrites current tab:

```
$(“.button”).click( function() {
        windowlocation.href = ‘www.google.com’; } );
```

Opens a link in a new tab:

```
$(“.button”).click( function() {
        window.open(‘www.google.com', '_blank’); } );
```

Replacing Variables

Say we define a variable in CSS:

```
:root {
        --grey: #7b7b7b;  }
```

We can replace preset variables in CSS using JQuery:

```
$(“:root”).css( “--grey”, “#7a7a7a”);
```

Homework Ideas

- Create a separate JQuery file and link it into your HTML files.
- Convert HTML links to JQuery links that open in a new page.
- Change CSS properties using JQuery.

Live Demo