

WEEK 10 | PROGRAMMING FORMS & AJAX

Shawn Park & Jeff Zhan



Review jQuery

.attr(), .find(), .addClass()

[jsfiddle.net/7bufY/1](http://jsfiddle.net/7bufY/)

Today's Outline

1. More jQuery
2. Forms
3. Final Note





Goal Today:
More jQuery Practice & Forms



More jQuery

More jQuery - Chaining

- **What is chaining?**
 - Combining multiple effects and actions together
 - *E.g.*
 - `$('#box').css('background', 'red').fadeOut(500).fadeIn(500);`
- Chaining is a special jQuery feature
- You can even write the above like so (more structured):
 - `$('#box').css('background', 'red').fadeOut(500).fadeIn(500);`
 - Just end the last function with a semicolon ;

More jQuery - .each()

- **What is .each()?**
 - .each() is essentially a for or while loop, for elements
 - *E.g.*
 - `$('#list li').each(function() {
});`
- In the above, everything inside .each() applies to each li element whose parent is #list
 - *E.g.* `<ul id="list">
 Red
 Green
 Blue
`

More jQuery - .each()

- Inside .each(), you refer to each element as **\$(this)**

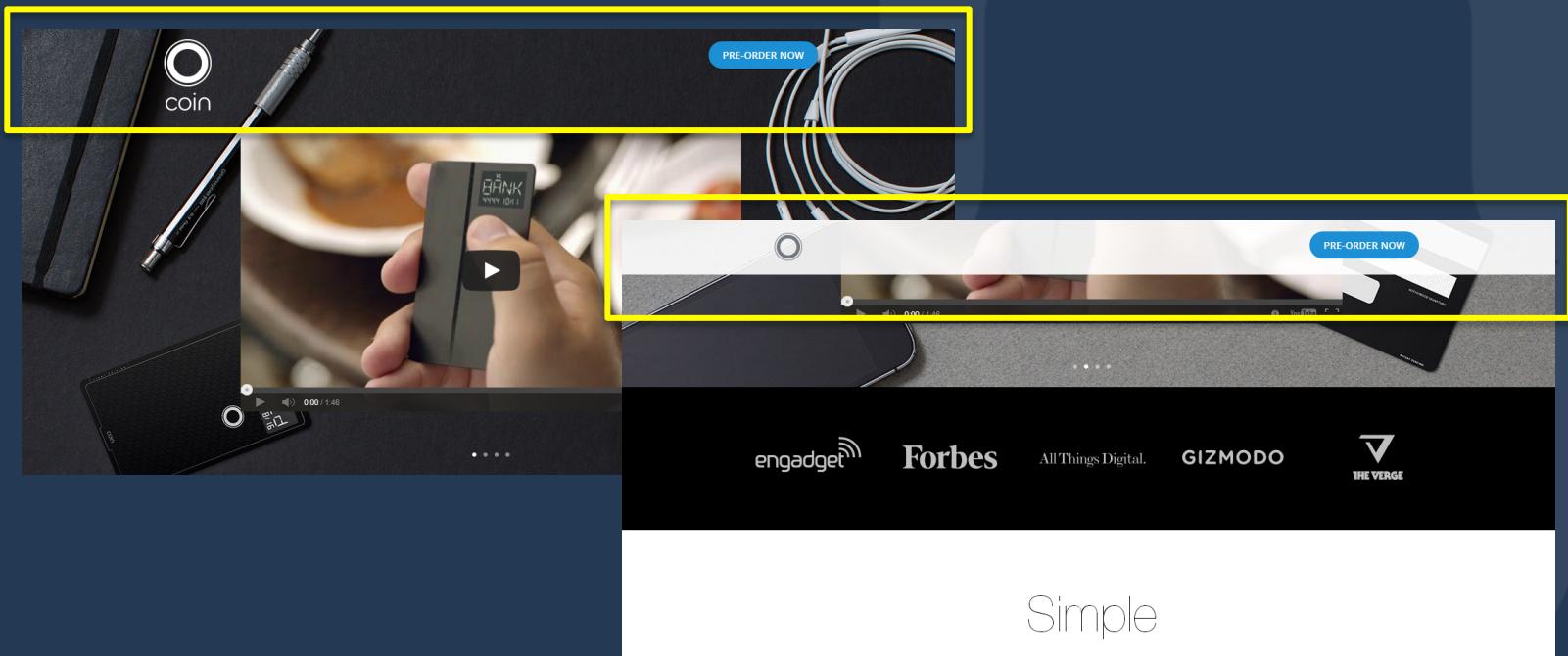
```
<ul id="list">
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ul>
```

```
$('#list li').each(function() {
  console.log($(this).text());
});
```

The above will log Red, Green, then Blue.

More jQuery – Window Scrolling

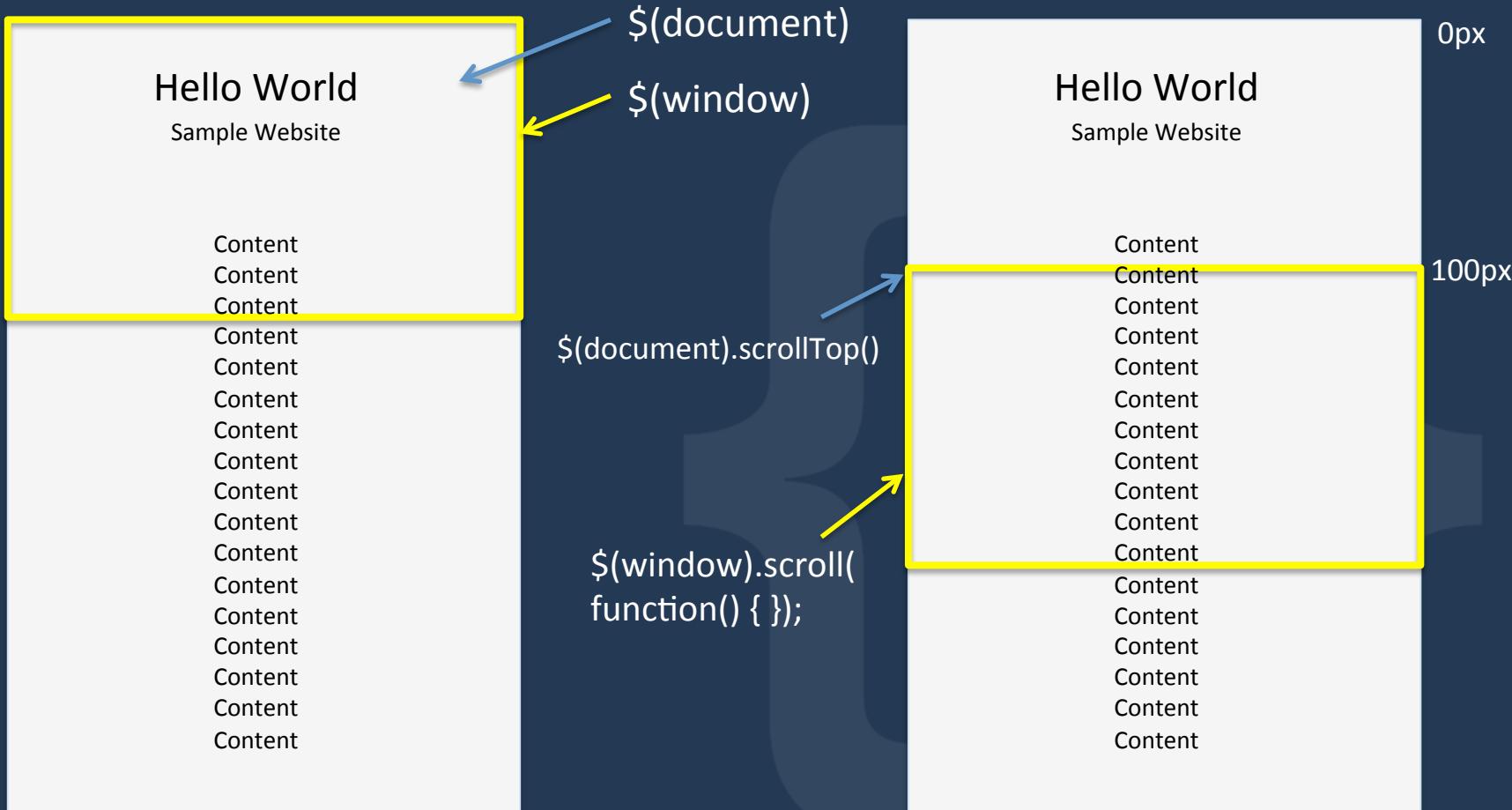
- Window Scrolling has gotten extremely popular these days
- When you scroll down a certain amount of pixels, **some action** occurs



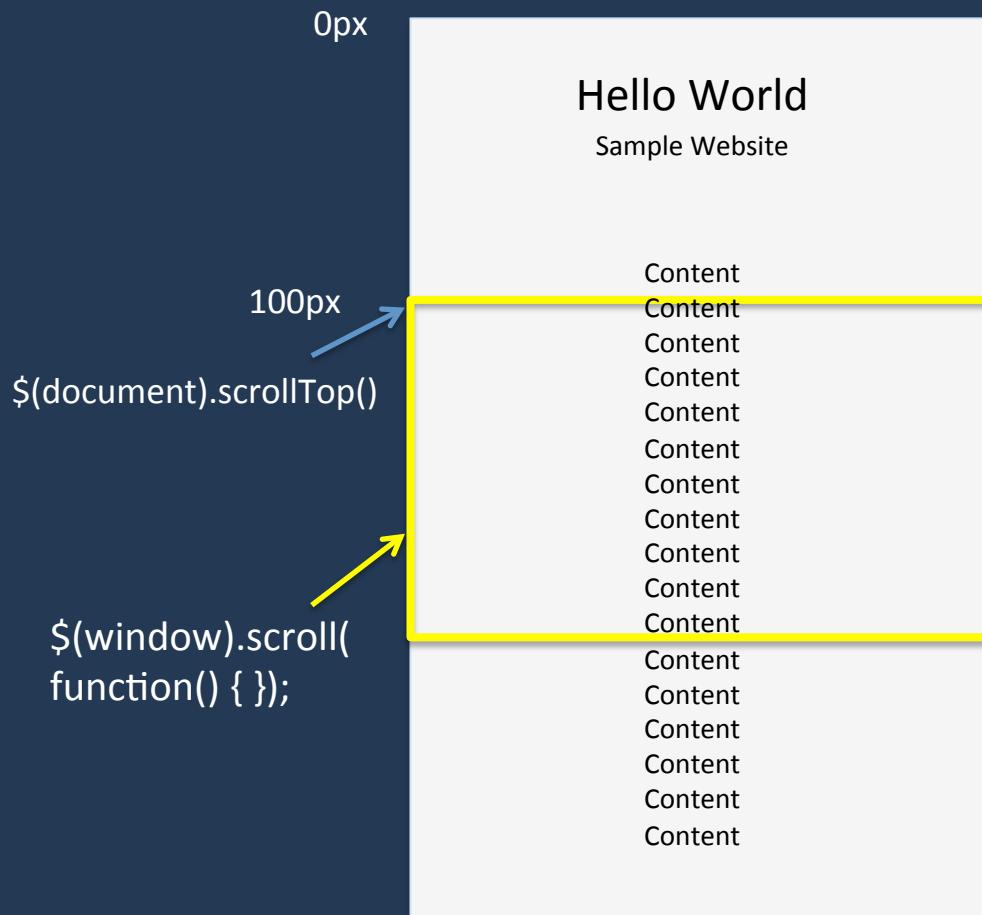
More jQuery – Window Scrolling

- We use **\$(window)** and bind a scrolling event to it
 - *E.g. \$(window).scroll(function() {
});*
- Next, we check where in the document we are. If greater than some pixel value, do something
- We use **\$(document)** instead of **\$(window)**. Why?
 - Document refers to our content on the page
 - It can contain elements outside the window's height, and in this case we scroll in the window to reveal more of the document
- Bind the **.scrollTop()** event to **\$(document)** to check the current top pixel value on the window

More jQuery – Window Scrolling



More jQuery – Window Scrolling



```
$window.scroll(function() {  
    var top = $document.scrollTop();  
    if(top > 100) {  
        // Do something  
    } else {  
        // Do something else  
    }  
});
```



Scrolling Demo

Follow along:
jsfiddle.net/An5Qv/2/

Answer:
jsfiddle.net/An5Qv/1/

More jQuery - .animate()

- Similar to the multiple styles version of .css()
 - Except now with a **time** value
- Use only if necessary and cannot do with CSS3 transitions
- **Syntax:**
 - .animate({height: '40px'}, 200)
 - First value is wrapped in { } (JavaScript object)
 - Inside, you have style-value pairs with : in between
 - Each style-value pairs separated by comma ,
 - {height: '40px', width: '100px', opacity: 0.3}
 - Second value is time in milliseconds

More jQuery - .animate()

- **Note:**
 - Your styles have to be in Camel Case
 - Camel Case is removing hyphens – and making the next word capitalized
 - *E.g.*
 - font-weight → fontWeight
 - text-align → textAlign
 - background-color → backgroundColor
- So:
 - `.animate({textAlign: 'right', backgroundColor: 'red'}, 400)`

More jQuery - .animate()

- **Note 2:**
 - To animate color in jQuery (font color, background color, border color, etc.), you must also include the **jQuery UI** library
 - In your <head></head> tags after loading the jQuery script, add the following below

```
<link rel="stylesheet" href="//ajax.googleapis.com/ajax/libs/jqueryui/1.10.4/
themes/smoothness/jquery-ui.css" />
<script src="//ajax.googleapis.com/ajax/libs/jqueryui/1.10.4/jquery-
ui.min.js"></script>
```

More jQuery - .animate()

- **With scrolling**
 - Useful in combination with scrolling
 - *E.g. Scroll to top of page, scroll to certain part of page*
 - To scroll to top of page:
 - `$('html, body').animate({scrollTop: 0}, 200);`
 - Bind to 'html, body'. **Why?**
 - Some browsers attach scrollTop only to <html> not <body>



Scrolling Demo 2

Follow along:
jsfiddle.net/An5Qv/2/

Answer:
jsfiddle.net/An5Qv/1/



Forms



Forms

- Forms are used everywhere in the web
- Registration, Profile Info, Creating a Blog Post, Surveys, etc.

Pre-Order For 50% Off!
YOUR CARD WILL BE CHARGED IMMEDIATELY.

PRE-ORDER NOW

ORDER

QTY: 1

LIMITED QUANTITY!

PAYMENT VISA, MASTERCARD, AMEX, DISCOVER

CREDIT CARD NUMBER

JAN 2014 CVC

BILLING ZIP CODE

CONTACT

EMAIL ADDRESS

\$100 \$50 x 1 + \$5 = \$55

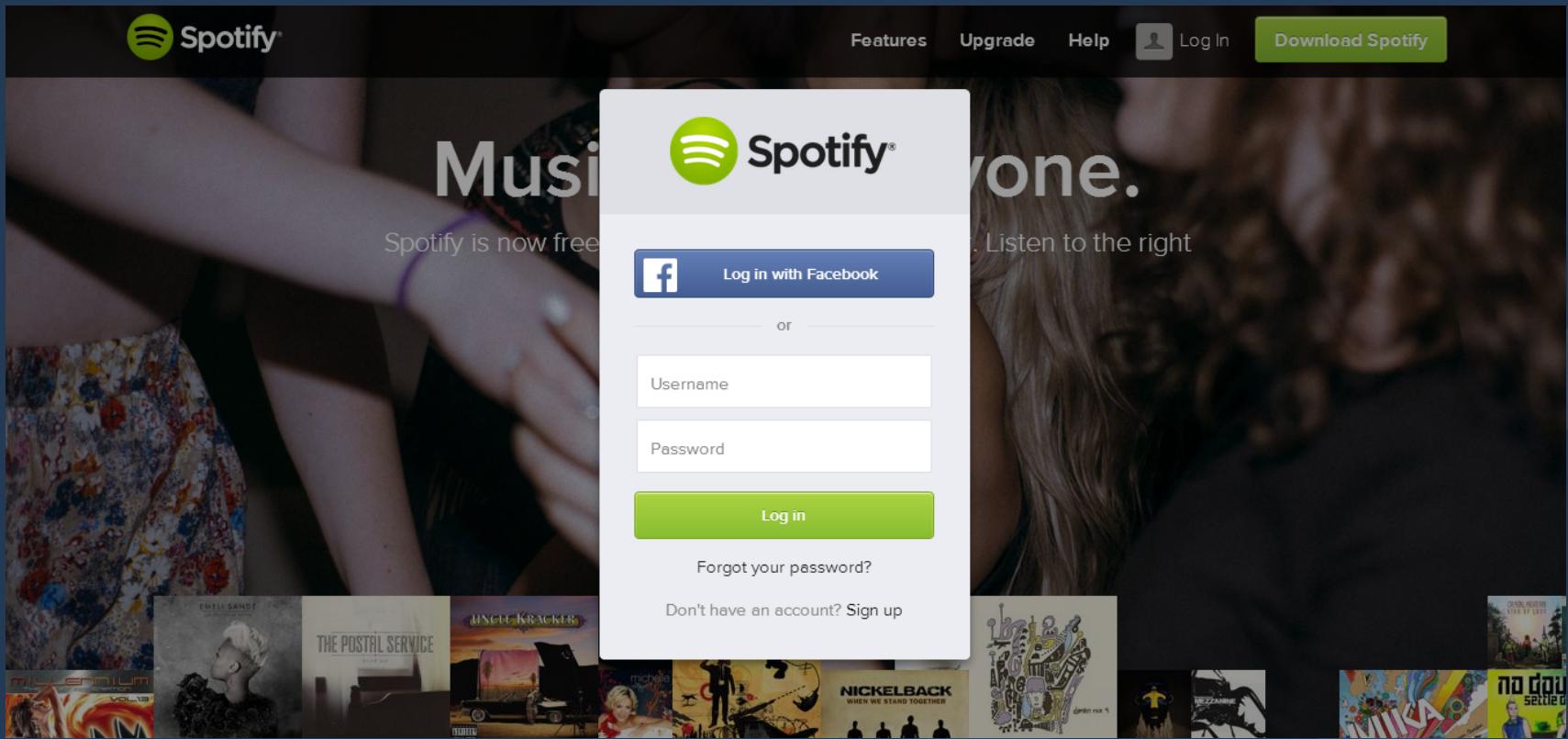
each cards shipping

PRE-ORDER NOW

SECURED WITH 128-BIT ENCRYPTION

Forms

Spotify - Login



Forms

Piazza - Posts

The screenshot shows the Piazza course interface for CS 98/198-32. The top navigation bar includes links for Q & A, Course Page, Manage Class, and user profile. The sidebar on the left lists various posts and discussions, such as 'grades', 'Soda access?', and 'Assignment 1: Line break in between i...'. The main area displays a post titled 'logistics' by 'Shawn Park' from 'WEEK 2/23 - 3/1'. Below it is a 'followup discussions' section with a 'Start a new followup discussion' button and a rich text editor toolbar. At the bottom, there are statistics for average response time (1.1 hr) and recent activity (Philip Su answered Carousel animate syntax in 15 min. 4 hours ago).

PIAZZA

CS 98/198-32 4

Q & A Course Page Manage Class

Jeff Zhan

hw1 hw2 hw3 hw4 hw5 hw6 1 hw7 project 1 logistics other

Unread Updated Following

New Post Search or add a post...

logistics

edit good note 0 2 months ago by Shawn Park

WEEK 2/23 - 3/1

WEEK 2/16 - 2/22

WEEK 2/9 - 2/15

grades

Instr If you cannot link your CSS

An instructor thinks this is a good note

Instr Common Mistakes on HW 1

An instructor thinks this is a good note

Soda access?

Assignment 1: Line break in between i...

Looking for another group member!

how do u save a zip file on mac?

Private Lecture Slides

Homework Assignment

Insert image question

About setting up a workspace

Inserting an image/setting up a worksp...

Homework Assignments

Welcome to Piazza for Web ...

logistics

followup discussions for lingering questions and comments

Start a new followup discussion

Edit Insert View Format Table

B I Text styles Image Table Code Text Help

post preview use plain text editor cancel

Average Response Time: Special Mentions:

1.1 hr Philip Su answered Carousel animate syntax in 15 min. 4 hours ago

Online Now | This Week: 1 | 74

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WEEK 11/10 - 11/16

Forms

Amazon - Payment

Credit or Debit Cards
Amazon accepts all major credit and debit cards:

▼ Add a Card

Enter your card information:

Name on card Card number Expiration date
 01 ▾ 2014 ▾

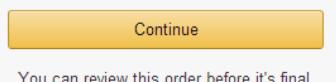
Gift Cards & Promotional Codes
▶ Enter a gift card or promotional code

amazon.com a

Amazon.com Store Card
Access to exclusive financing offers. No annual fee. Zero fraud liability.
[Learn more and apply now](#)

Checking Account
Use your US based checking account. [Learn more](#)

▶ Add a checking account

You can review this order before it's final.

Do you need help? Explore our [Help pages](#) or [contact us](#)
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javascript:void(false)

Forms

- Forms require knowledge of a backend (PHP, Django, Rails, etc.)
- We will teach you the front-end part
- **Structure**
 - Start all forms with `<form>` tag, end with `</form>`
 - Inside a `<form>` tag, many different elements
 - `<input>` tags
 - `<textarea></textarea>` tags
 - `<select></select>` tags
 - Notice that an `<input>` tag has no closing tag

Forms - <input>

- <input> tags make use of their attribute **type**
- Many different types
- **Text/Email**
 - Simple text field. E.g. Input for name, email, address, etc.
 - <input type="text"> or <input type="email">

John Smith

- **Password**
 - Used for hidden text (passwords/confirm passwords)
 - <input type="password">



Forms - <input>

- **Checkbox**

- Select none, one, or multiple items
- <input type="checkbox" value="orange"> Orange
<input type="checkbox" value="apple"> Apple

Orange
 Apple

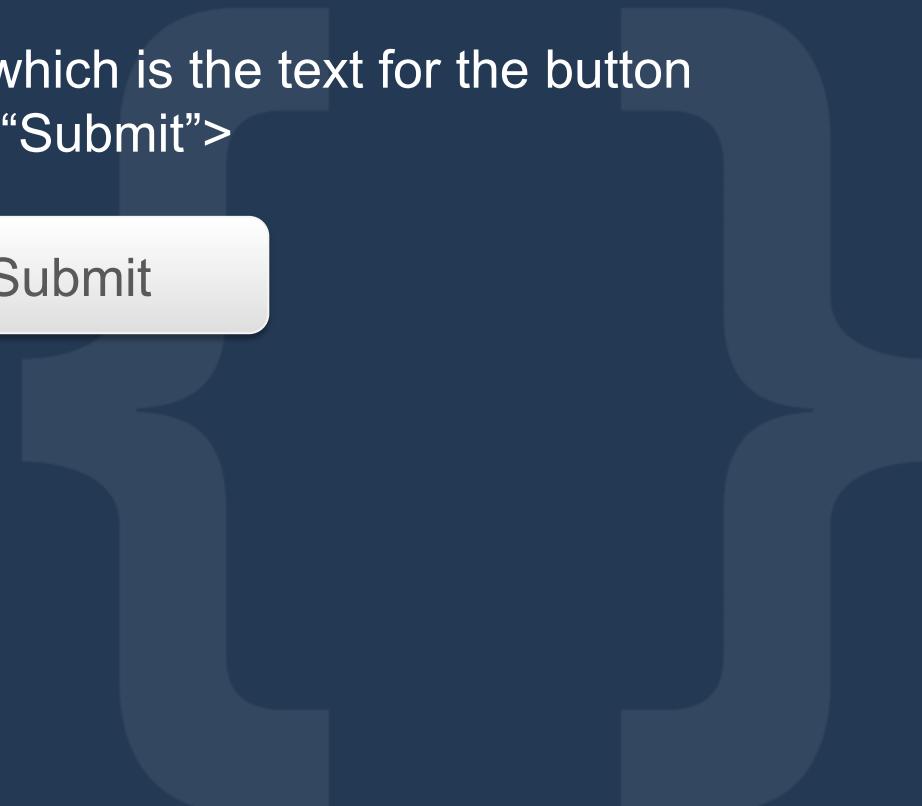
- **Radio**

- Select only one in the group of items
- This group is noted by the attribute **name**
- <input type="radio" name="sex" value="male"> Male
<input type="radio" name="sex" value="female"> Female

Male
 Female

Forms - <input>

- **Submit**
 - Takes in an attribute **value** which is the text for the button
 - `<input type="submit" value="Submit">`
- **Summary of Input Types**
 - text/email
 - password
 - checkbox
 - radio
 - submit



Submit

Forms - <textarea>

- **Textarea**
 - Useful for text that may have multiple lines (comments/posts)
 - **Has** a closing tag </textarea> unlike input

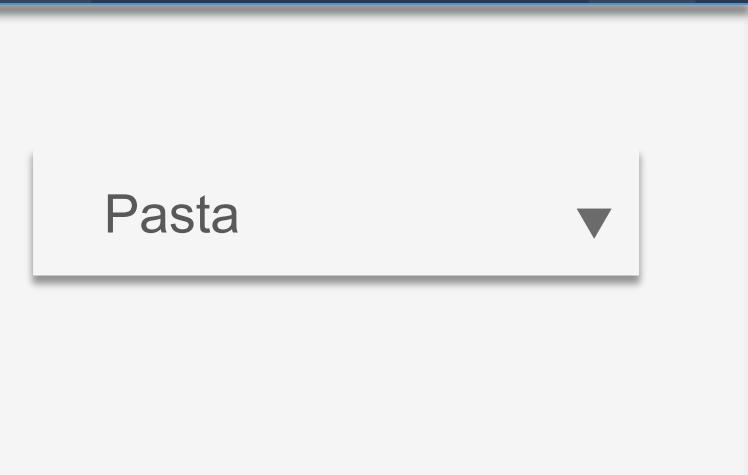
Some textarea area tag that spans multiple rows, such as this example.

- **CSS Styles**
 - Remember, these tags can be styled in CSS
 - *E.g. input { width: 100px; } textarea { height: 300px; }*

Forms - <select>

- **Select**
 - Drop-downs. Works kind of like and
 - Select tags contain <option></option> tags inside

```
<select>
  <option>Pasta</option>
  <option>Burritos</option>
  <option>Pizza</option>
  <option>Spaghetti</option>
</select>
```



Pasta

Forms - Example

```
<form>
    User Registration: <br>
    First Name: <input type="text"><br>
    Last Name: <input type="text"><br>
    Password: <input type="password"><br>
    Confirm Password: <input type="password"><br>
    Sex:
        <input type="radio" name="sex" value="male">Male
        <input type="radio" name="sex" value="female">Female<br>
        <input type="submit" value="Submit">
</form>
```

This is a super simplified version, but you get the gist. You may also may to attach IDs to those input fields.



Form Example

Follow along:
jsfiddle.net/RF6t2/

Form Validation

- **What is Form Validation?**
 - Checking the form for errors before it is actually submitted
 - What kinds of errors?
 - No empty fields
 - Password longer than some length
 - Password contains special characters
 - Username does not exist already (for registration)
 - Confirm password matches password
 - Select option is chosen
 - Email is in proper format
 - Etc.
- **Lots** can go wrong with a form!

Form Validation

- Enhanced Form Structure

```
<form>
  <div id="email-error" class="error"></div>
  <div id="email">
    Email: <input type="text">
  </div>
  <div id="password-error" class="error"></div>
  <div id="password">
    Password: <input type="password">
  </div>
  <input type="submit" value="Submit">
</form>
```

If we click **submit** and email/password fields don't meet our criteria, we can **use jQuery** to insert errors in the **error elements**.

Form Validation

- Enhanced Form Structure

```
<div id="password-error" class="error"></div>
```

```
$(‘form’).submit(function(event) {  
    if($('#password').length < 8) {  
        $('#password-error').text(‘You need at least 8 characters!’);  
        event.preventDefault();  
    }  
});
```

.submit() is an event listener for the form

If password does not meet our standards, give an error and prevent the default action of the form (submitting to our backend PHP, Django, etc.)



In-Class Activity

Form Validation

jsfiddle.net/5RP63/3/

Final Note

- This concludes our final lecture on JavaScript/jQuery
- Lots of resources online if you want to dive deeper
- **Libraries/Frameworks**
 - jQuery is one but many JavaScript libraries that make our web developing lives easier
 - Others to check out:
 - AngularJS
 - Backbone.js
 - Node.js
 - MooTools
 - Coffee Script
 - D3 (super sick visualizations)
 - Three.js (JavaScript 3D graphics/modeling)

Final Note

- You now have in your arsenal of skills jQuery & JavaScript! In addition to HTML and CSS 😊
- JavaScript is always growing!

Apr 2014	Apr 2013	Change	Programming Language	Ratings	Change
1	1		C	17.631%	-0.23%
2	2		Java	17.348%	-0.33%
3	4	▲	Objective-C	12.875%	+3.28%
4	3	▼	C++	6.137%	-3.58%
5	5		C#	4.820%	-1.33%
6	7	▲	(Visual) Basic	3.441%	-1.26%
7	6	▼	PHP	2.773%	-2.65%
8	8		Python	1.993%	-2.45%
9	11	▲	JavaScript	1.750%	+0.24%
10	12	▲	Visual Basic .NET	1.748%	+0.65%
11	10	▼	Ruby	1.745%	-0.23%
12	17	▲	Transact-SQL	1.170%	+0.45%

Final Notes

- **Job Potential**
 - All of you are now **Front-End Developers**
 - Skill of HTML, CSS, and JavaScript (of course you have to dive in more of all 3)
 - Mobile web design is trending, HTML5 programming is trending
 - Try freelance developing, for student orgs, or intern as a developer!

Final Notes



- **Back-End**
 - Learn back-end frameworks like PHP, Django, or Ruby on Rails
 - PHP is the easiest to pick up, Rails may be harder for non-CS
 - Django uses Python
 - Takes longer than front-end to learn
 - Consider CS169 (some semesters use Ruby on Rails)
- **Databases**
 - Back-end languages communicate with the database
 - Store user data, website data, etc.
 - MySQL, Postgres, SQLite3, MongoDB (NoSQL)

Final Notes

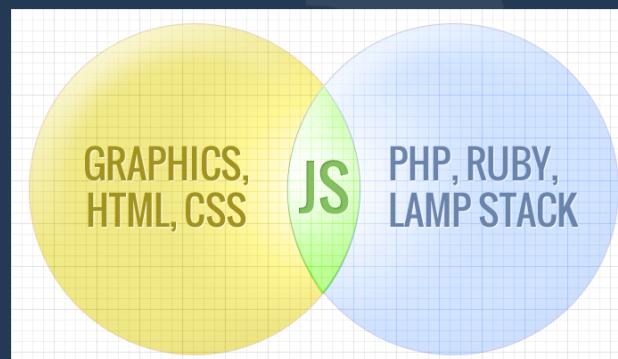


- **Companies & Web Languages**

- All use JavaScript
- Facebook – PHP & Python
- Google – Python (Django)
- Yahoo – PHP
- LinkedIn – Node.js (JavaScript)
- Github – Ruby on Rails
- Twitch.tv – Ruby on Rails

Final Notes

- **The Bridge between Front-End and Back-End**
 - JavaScript is often the bridge between these two ends
 - Learn AJAX (communicates between front and back end)
 - Google Maps pioneered this
- **Full-Stack Engineer**
 - Know Front and Back-End
 - Try your own projects that involve a back-end & database!



Summary

- More jQuery
 - Chaining
 - .each()
 - .animate()
 - .scroll()
- Forms
 - Input tags, Textarea, Select
 - Form Validation checks for errors before submitting form

All lecture material, handouts, and homework can be found at:
<http://www.thewebdesignworkshop.co>