

AJAX

XSS in Google...

<https://www.youtube.com/watch?v=IG7U3fuNw3A>

Learning Objectives

Take a first glance at using AJAX to handle events asynchronously

- Triggering requests
- Handling requests
- Using the DOM to modify content with AJAX
- Parsing XML
- Reading JSON files
- Using AJAX with jQuery

AJAX

Is made up of multiple web technologies
short for Asynchronous JavaScript and XML
used to create asynchronous web applications

Makes it possible to make requests without having to reload the whole page

JavaScript does all the heavy lifting for you:

- triggering requests
- making requests for data
- updating documents

XMLHttpRequest

To make a request we create an instance of an XMLHttpRequest object

Gives us access to the API for handling requests

Facilitates transferring data between web client and web server

Data to be retrieved/requested can be in multiple formats:

- XML
- text
- JSON (JavaScript object)

Creating an XMLHttpRequest Object

Instantiate it:

- `var request = new XMLHttpRequest();`
- for older versions of IE:
 - `var request = new ActiveXObject("Microsoft.XMLHTTP");`

Specify what kind of request we need:

- Syntax: `request.open(method, url, isAsync)`
- `request.open("GET", "mydata.txt", false);`

Send the request:

- `request.send();`

Dealing with the Response

When the request is processed, its state is changed

- `onreadystatechange` property is called each time

`readyState`:

- status of the `XMLHttpRequest` is ready when it is set to 4

`status`:

- when the status is set to 200, everything is OK

typically can be checked as:

- `if(request.status == 200 && request.readyState == 4)`

Parsing XML with AJAX

AJAX was built for parsing XML

Can access nodes of the XML file using `getElementsByTagName`

- every element is considered a node in the tree
- every text element is also a node

Reading JSON Files with AJAX

JSON:

- JavaScript Object Notation
- a way to structure data
- allows it to be easily converted to JavaScript Objects

Use the parse function to get the data

- Most modern browsers support it
- jQuery lets you parse JSON files independent of browser limitations

Event-driven AJAX

Of course we can also trigger events and make AJAX requests

All of the same JavaScript events apply

jQuery and AJAX

<http://api.jquery.com/category/ajax/>

jQuery provides us with a bunch of easy ways to use AJAX
many many settings you can set

How it works:

- call the ajax function
- pass in an object defined by:
 - url to data
 - method (get or post)
 - type of data
 - some callbacks

Convenience functions

jQuery provides a bunch of convenience functions to do common tasks more easily

<http://api.jquery.com/category/ajax/shorthand-methods/>

- `get()`, `post()`
- `getJSON()`
- `load()`

we'll try the `get` function first

- takes as parameters:
 - file we want to access
 - what we want to do on success

and the `load` function

- takes a url and does all the work for you
- lets you use selectors

XML and JSON with jQuery

And, of course we can access XML and JSON data too

for xml:

- we use the get function
- use getElementByTagName to get the elements we want
- use jquery to append the data to our content

for JSON:

- we use thegetJSON function
- use data from flickr
 - pass in some flickr-specific information in an object
 - pass in a success function

Summary

We've seen basics of making asynchronous requests