

Csci 4131

XML

AJAX revisited

Intro to PhP

Lecture 24, November 26th

Fall 2018

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Logistics

- HW 6 Due tomorrow at 2pm
- Homework 7 will come out tonight – Adding Administrative Capabilities to Your Website for HW 6
 - Add Users
 - Delete Users
 - Edit User information
 - And, configure your database by getting the information to connect to the database from an XML file

Reading

XML – Sebesta, Chapter 7

Ajax Revisited – Sebesta Chapter 10

Tutorials:

<https://www.w3schools.com/xml/default.asp>

https://www.w3schools.com/xml/ajax_intro.asp

PHP Reading

- Reading: Chapter 9, Sebesta Introduction to PHP
- <https://www.w3schools.com/php/default.asp> gives a nice intro and overview of PhP.
- Do the cseit tutorial to make sure your account is configured to properly run PhP scripts:
- <https://cseit.umn.edu/knowledge-help/php-tutorial>

Last Time

- Node.js + SQL + MySQL Wrap-up
- Intro to XML
 - XML document structure
 - XML namespaces
 - Start XSLT (eXstensible Stylesheet Language Transformations)

Questions?

Exercise From Last Class

- Define an XML Document that describes your favorite car. It should include the following prolog:

`<?xmlversion="1.0" encoding="UTF-8" ?>`

The root element should be named car, and the car should contain the name of the model and the year.

Translation XSLT

- Extensible StyleSheet Language (XSL) and XSL Transformations
 - Specifies How Programs (in this case, our browser) will render XML document data
 - [XSLT\mysports.xml](#)

Lets Have a Look

- XML File
- StyleSheet
- CSS file

XML DOM

- Similar Structure to HTML
- Want to learn how to parse – since XML is used to store and transfer data

XML NodeTypes – Named Constants

1	ELEMENT_NODE
2	ATTRIBUTE_NODE
3	TEXT_NODE
4	CDATA_SECTION_NODE
5	ENTITY_REFERENCE_NODE
6	ENTITY_NODE
7	PROCESSING_INSTRUCTION_NODE
8	COMMENT_NODE
9	DOCUMENT_NODE
10	DOCUMENT_TYPE_NODE
11	DOCUMENT_FRAGMENT_NODE
12	NOTATION_NODE

HTML DOM nodeType Property

1	ELEMENT_NODE
2	ATTRIBUTE_NODE
3	TEXT_NODE
4	CDATA_SECTION_NODE
5	ENTITY_REFERENCE_NODE
6	ENTITY_NODE
7	PROCESSING_INSTRUCTION_NODE
8	COMMENT_NODE
9	DOCUMENT_NODE
10	DOCUMENT_TYPE_NODE
11	DOCUMENT_FRAGMENT_NODE
12	NOTATION_NODE

Can Use the Same methods you use on the
HTML DOM to retrieve values from the XML
DOM

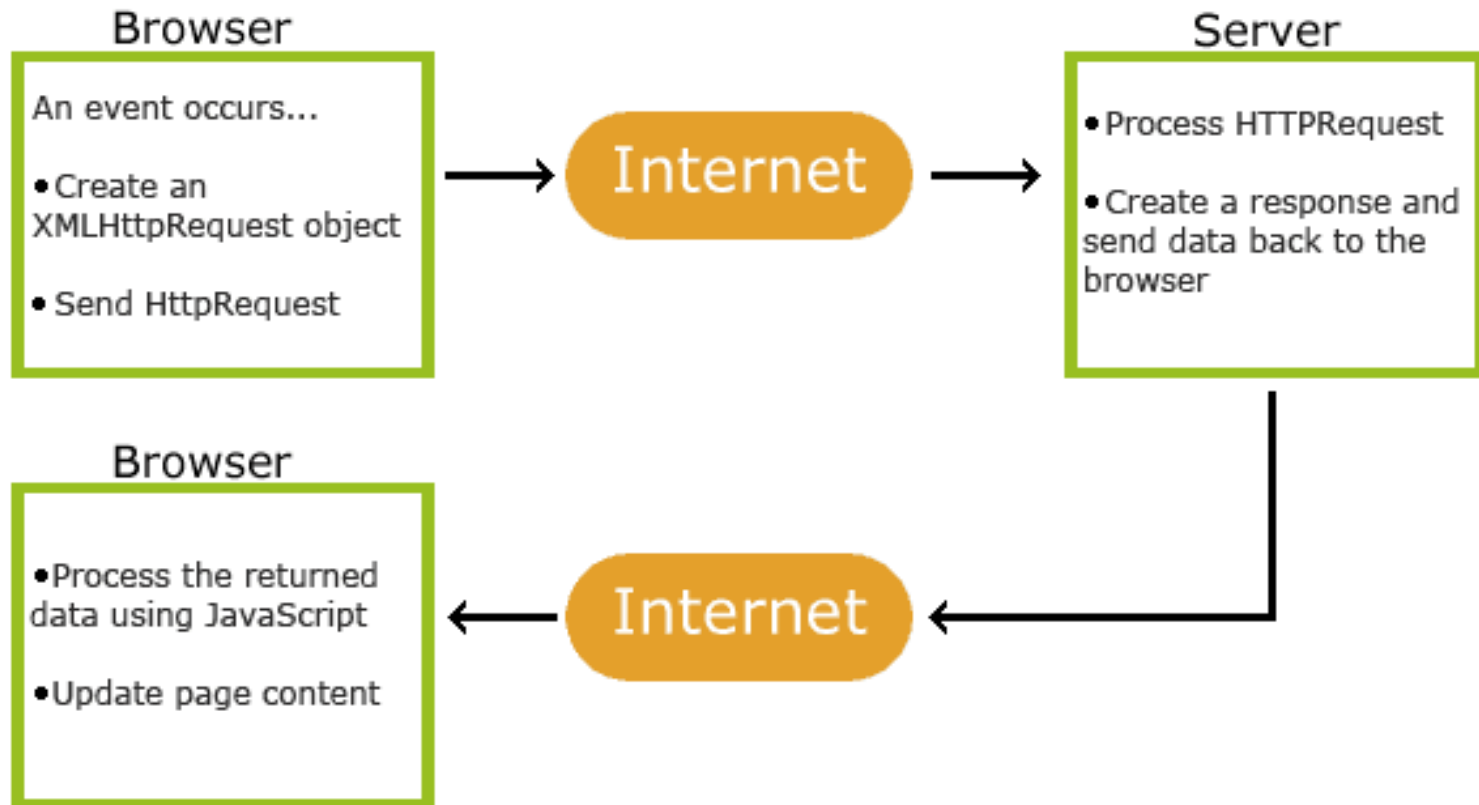
getElementById
getElementsByTagName
getElementsByClassName
getElementsByName
...

Our Next Example will Illustrate the use of
one of the methods on an XML document

Recall our discussions on AJAX from Previous Lectures

- We used Asynchronous JavaScript to get text files.
- Some of the text files contained a ***text*** string that could be translated into JSON
- So, how do we AJ to obtain (and use) XML??

Recall How AJAX Works:



Source: http://www.w3schools.com/php/php_ajax_intro.asp

Demo

- <http://www-users.cs.umn.edu/~challou/AJAXex/xmlAJAXex.html>

Here is how the example works:

1. Get Request from Browser
2. Server Sends back HTML
3. HTML page is loaded and rendered in your browser
4. Onclick event of Change Content Button set to call the JavaScript function "loadXMLdoc"
5. Create an XMLHttpRequest object (stored in xmlhttp variable)
6. Call the open method on xmlhttp variable with the request type (GET, the url of the file you are getting, and whether the request is asynchronous or not (true is asynchronous, false is synchronous)
 - This time, the file is an XML file, not a text file as before
7. Send the GET request (note, this is an HTTP request to the Server)
8. Assign a callback function that does the work with whatever is returned to the xmlhttp.onreadystatechange attribute – in this case we call the responseXML method on the xmlhttp object to get the XML document
9. Then get an array of objects in the XML DOM associated with the TAG artist using the getElementsByTagName method on the XML document object
10. Then we traverse the array, build an HTML string of artist names
11. The work for this example is to update the innerHTML of the div element with that string

For HW 7

- You'll need an XML parser on the server side
- **xml2js** is one of the options
- See:
 - <https://www.npmjs.com/package/xml2js-parser>
 - <http://programmerblog.net/parse-xml-using-nodejs/>
- Add it to your node package manager

```
%npm install -save ...
```

On To PHP

- Readings are from the required Chapter 9, Sebesta
- <https://www.w3schools.com/php/default.asp> gives a nice intro and overview of PHP.
- Do the cseit tutorial to make sure your account is configured to properly run PHP scripts:
- <https://cseit.umn.edu/knowledge-help/php-tutorial>

PHP: PHP Hypertext Preprocessor

- PHP originally stood for Personal Home Pages
- PHP is a widely used, open source free, server-side scripting language
- PHP scripts are executed on the server

What can PHP do?

- Generate dynamic page content
- Open, read, write, delete, and close files on the server
- Collect form data
- Send and receive cookies
- Add, delete, modify data in your database
- Restrict user access to some pages on your website
- Encrypt (and Decrypt) data

Some PHP Users...

- Yahoo (Vastly uses Open source, lots of apps are done using PHP)
- Rediff (Vastly uses Open source, lots of apps are done using PHP)
- Facebook (Lot's o PHP, developed their own variant (HACK) now moving some to C++)
- Intel (Few apps)
- Zynga
- Flickr
- Wikipedia
- Digg

- 3 of the top 5 Websites and 33% of the top 15 use PHP in some form (used to be 75% 2 years ago)
- https://en.wikipedia.org/wiki/Programming_languages_used_in_most_popular_websites

Moreover:

- With PHP you are not limited to HTML output
You can output:
 - images,
 - PDF files, and
 - even Flash movies.
- And you can also output any text, such as XHTML and XML.

What is in a .php file?

- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code is executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension ".php"

Why use PHP?

- PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases – and for this class MySQL (also free), so that is a good thing
- PHP is free. Download it from the official PHP resource: www.php.net
- PHP is fairly straightforward to learn and runs efficiently on the **server side (needs a web server running).**

Example 1: Form on Client / PHP on Server

- Client – HTML form that gets data necessary to compute the simple interest on an Investment given the interest rate and the amount of time the money is invested
- Server – PHP code to get the data from the form
- Assume the data is correct
- Compute :
$$\text{Interest} = \text{Investment} * \text{Interest_Rate} * \text{Time}$$
- Construct the HTML that will be sent back to the browser after PHP computations are complete

Simple Interest Example

- Simple Interest Example
- $\text{Interest} = \text{Investment (Principal)} * \text{rate} * \text{time}$

Simple Interest Example – got to this and started going through PHP file – finish and go on...

- [Simple Interest Example](#)
- $\text{Interest} = \text{Investment (Principal)} * \text{rate} * \text{time}$

Next Time: Assignment 7, More on PHP

- Reading:
 - Chapter 9, Sebesta Introduction to PHP
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What would we have to alter to in the HTML file containing the form to put it on (and serve it up from) the server side, along with the PHP page on server?

(and how would you get the html page from the server)

- <http://www-users.cs.umn.edu/~chal0006/simpleint.php>

TO

- `action="simpleint.php"`

Backup

AJAX Backup

The name AJAX is a bit of a misnomer

- Asynchronous JavaScript can be used to retrieve data stored in various formats including:
 - Text
 - Images
 - JSON
 - XML
 - ???

HOW DOES AJAX WORK

- Example

<http://www-users.cs.umn.edu/~challou/simpleAJAXex.html>

Example of Reading a JSON file using JavaScript and XMLHttpRequest()

- <http://www-users.cs.umn.edu/~chal0006/JSON/JSONHttpRequest.html>

Actually, this is an example of AJAJ

- AJAJ is Asynchronous JavaScript and JSON