

Front End Development

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AJAX

SESSION TYPE : LESSON and WORKSHOP
WBD4300

AJAX Techniques

An introduction to AJAX

How AJAX is used.

My experience of AJAX.

How Ajax works.

Http Requests (GET, POST method)

Self Directed: AJAX and PHP Live Search

Practical: Simple Javascript and AJAX

Practical: JQUERY and AJAX Live Search example.

JSON & XML & SOAP
An Overview.

Data in XML format

Data in JSON format

Data in SOAP format

Short Overview of PHP
and AJAX.

Quiz.

AJAX Techniques

AJAX is the art of exchanging data with a server, and updating parts of a web page
- without reloading the whole page.

AJAX = Asynchronous JavaScript and XML.

In short; AJAX is about loading data in the background and display it on the webpage.
(without reloading the whole page.)

AJAX Techniques

Examples of applications using AJAX:

- Gmail
- Google Maps
- Youtube
- Facebook tabs.



My Experience of AJAX

Examples of applications using AJAX:

Making Live Searches

Live Chats: Scorpion Gaming, AI, Texas Hold'em. Who Wants to be a Millionaire.

RSS Feeds

Weather Forecast and CSS effect.

AJAX Techniques

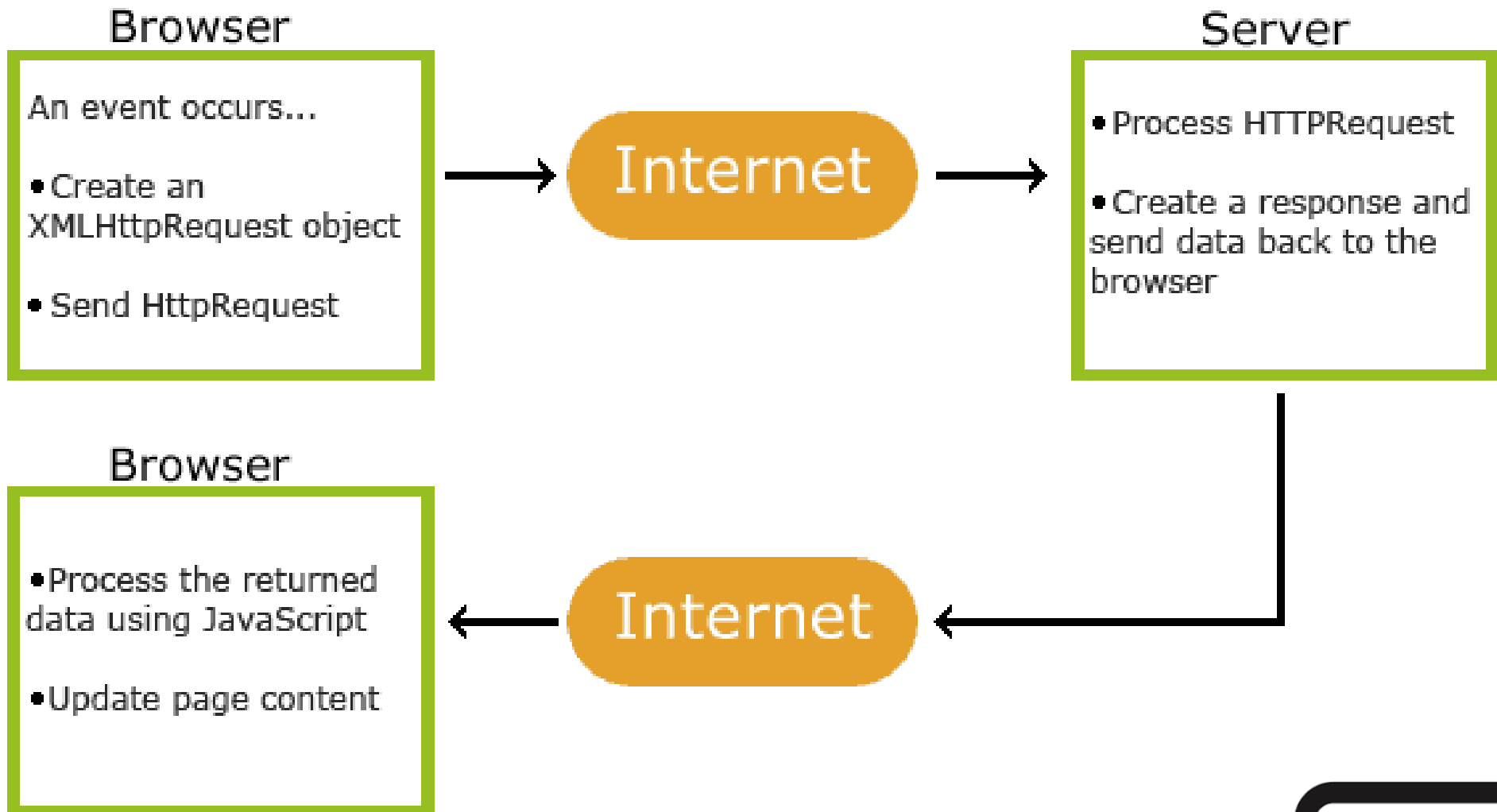
AJAX is not a programming language.

AJAX just uses a combination of:

A browser built-in **XMLHttpRequest** objects (to request data from a web server)

JavaScript and HTML DOM (to display or use the data)

AJAX Techniques



AJAX Techniques

AJAX Techniques - Http Requests (GET, POST method)

The jQuery get() and post() methods are used to request data from the server with an HTTP GET or POST request.

GET - Requests data from a specified resource

POST - Submits data to be processed to a specified resource

GET is basically used for just getting data from the server. Note:
The GET method may return cached data.

POST can also be used to get some data from the server. However,
the POST method NEVER caches data, and is **most often used to send data** along with the request.

AJAX Techniques

jQuery \$.get() Method

The \$.get() method requests data from the server with an HTTP GET request.

\$.get(URL,callback);

The required URL parameter specifies the URL you wish to request.

The optional callback parameter is the name of a function to be executed if the request succeeds.

JSON & XML & SOAP

Data in XML format (Excel Schemas)

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.

Data in JSON format

JavaScript Object Notation or JSON is an open-standard file format that uses text to transmit data objects consisting of attribute–value pairs and array data types (or any other serializable value). ... The official Internet media type is **application/json** .

Data in SOAP format

SOAP provides a way to communicate between applications running on different operating systems, with different technologies and programming languages. SOAP stands for Simple Object Access Protocol

JSON & XML & SOAP

Data in XML format
(Excel Schemas)

Examples:

```
<?xml version="1.0" encoding="UTF-8"?>  
<note>  
  <to>Dave</to>  
  <from>Jane</from>  
  <heading>Memo</heading>  
  <body>Assignment due Friday!</body>  
</note>
```



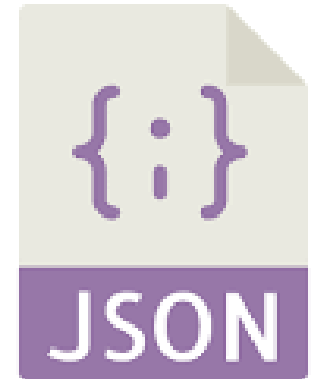
<https://www.w3schools.com/xml/default.asp>

JSON & XML & SOAP

Data in JSON format

Example:

```
var myObj = { "name":"John", "age":31, "city":"New York" };  
var myJSON = JSON.stringify(myObj);  
window.location = "demo_json.php?x=" + myJSON;
```



https://www.w3schools.com/js/js_json_intro.asp

JSON & XML & SOAP

Data in SOAP format

Example:

```
<?xml version="1.0"?>
```

```
<soap:Envelope  
xmlns:soap="http://www.w3.org/2003/05/soap-envelope/"  
soap:encodingStyle="http://www.w3.org/2003/05/soap-encoding">
```

...

Message information goes here

...

```
</soap:Envelope>
```

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

PHP and AJAX

PHP often provides the Server Side Connection to
A database and in practice, this is how AJAX is used on
A live website.

As a short intro we will use it a different way in order
To load an array

You will recognise most of the code, it's similar to JS.

See this as an overlapping intro to next trimester.

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

QUIZ

Explain How AJAX is Used and give an example?

What is XML and How might it work with AJAX?

What is SOAP?

What is JSON?

Self Directed

https://www.w3schools.com/php/php_ajax_intro.asp

https://www.w3schools.com/php/php_ajax_php.asp

Self Directed



```
<html>
```

```
<head>
```

```
</head>
```

```
<body>
```

```
<p><b>Start typing a name in the input field below:</b></p>
```

```
<form>
```

```
First name: <input type="text" onkeyup="showHint(this.value)">
```

```
</form>
```

```
<p>Suggestions: <span id="txtHint"></span></p>
```

```
</body>
```

```
</html>
```

Self Directed

```
function showHint(str) {
  if (str.length == 0) {
    document.getElementById("txtHint").innerHTML = "";
    return;
  } else {
    var xmlhttp = new XMLHttpRequest();
    xmlhttp.onreadystatechange = function() {
      if (this.readyState == 4 && this.status == 200) {
        document.getElementById("txtHint").innerHTML =
this.responseText;
      }
    };
    xmlhttp.open("GET", "gethint.php?q=" + str, true);
    xmlhttp.send();
  }
}
```

Self Directed

```
<?php
$a[] = "Anna";$a[] = "Brittany";$a[] = "Cinderella";
$q = $_REQUEST["q"];
$hint = "";
if ($q !== "") {
    $q = strtolower($q);
    $len=strlen($q);
    foreach($a as $name) {
        if (stristr($q, substr($name, 0, $len))) {
            if ($hint === "") {
                $hint = $name;
            } else {
                $hint .= ", $name";
            }
        }
    }
}
echo $hint === "" ? "no suggestion" : $hint;
?>
```



Self Directed

You may have to install XAMPP to get the PHP to work.
PHP won't work on a PC or MAC without XAMPP
Run XAMPP and access the htdocs folder
This will be created after the installation and
The PHP will run inside this.

Drop all files into this
Folder.

Go to Application or visit the index file in this folder using
A web browser.

MAC users. Go to Applications/XAMPP (CMD+CLICK, Volumes, Mount)
/htdocs/

XAMPP is a simple light weight and trustworthy application.

Practical

JQUERY LIVE SEARCH

<https://codepen.io/html5andblog/pen/RPewBx>

Jquery AJAX Live Search – JSFiddle

```
<nav>
  <ul>
    <li><a href="#">Jim James</a></li>
    <li><a href="#">Hello Bye</a></li>
    <li><a href="#">Wassup Food</a></li>
    <li><a href="#">Contact Us</a></li>
    <li><a href="#">Bleep bloop</a></li>
    <li><a href="#">jQuery HTML</a></li>
    <li><a href="#">CSS HTML AJAX</a></li>
    <li><a href="#">HTML5 Net Set</a></li>
    <li><a href="#">Node Easy</a></li>
    <li><a href="#">Listing Bloop</a></li>
    <li><a href="#">Contact HTML5</a></li>
    <li><a href="#">CSS3 Ajax</a></li>
    <li><a href="#">ET</a></li>
  </ul>
</nav>
```

```
<form id="live-search"
action="" class="styled"
method="post">
  <fieldset>
    <input type="text"
class="text-input"
id="filter" value="" />
    <span id="filter-
count"></span>
  </fieldset>
</form>
```

jsfiddle.net/umaar/t82gZ/

Jquery AJAX Live Search – JSFiddle

```
$(document).ready(function(){
    $("#filter").keyup(function(){
        // Retrieve the input field text and reset the count to zero
        var filter = $(this).val(), count = 0;
        // Loop through the comment list
        $("nav ul li").each(function(){
            // If the list item does not contain the text phrase fade it out
            if ($(this).text().search(new RegExp(filter, "i")) < 0) {
                $(this).fadeOut();
            }
            // Show the list item if the phrase matches and increase the count by 1
            } else {
                $(this).show();
                count++;
            }
        });
        // Update the count
        var numberItems = count;
        $("#filter-count").text("Number of Comments = "+count);
    });
});
```

References

LIVE Search UMAAR: jsfiddle.net/umaar/t82gZ/

W3Schools.com

Jquery Live Search- CodePen.com

Wikipedia.com

Quiz (Mid Trimester)

1.

```
function() {  
    document.getElementById("demo").innerHTML =  
    "Paragraph changed."  
}
```

What is missing from this code example?

2.

```
var x = "";  
x = x + 5;
```

What is the value of x

Using a Pen and Paper,
give an answer to each,
pass your work to each
other and we will mark each.

Quiz (Mid Trimester)

3.

Why do we declare a variable outside of a function which they may be used in.

e.g.

```
var myVar = "";  
function myFunction {  
    //some function'  
}
```

4.

```
var x = 5;  
var y = 2;  
var z = x * y;
```

What is the value of z?

Quiz (Mid Trimester)

5.

```
var length = 16;
```

```
var lastName = "Johnson";
```

```
var x = {firstName:"John", lastName:"Doe"};
```

which is the string, The Number and The Object?

6.

```
var car = {type:"Fiat", model:"500", color:"white"};
```

What is the value of car?

7.

Which is not an event?

onload

onmouseover

ondrag

onkeydown

Quiz (Mid Trimester)

5.

```
var length = 16;
```

```
var lastName = "Johnson";
```

```
var x = {firstName:"John", lastName:"Doe"};
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which is the string, The Number and The Object?

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```

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ondrag

onkeydown

Quiz (Mid Trimester)

8.

```
var str = "Please locate where 'locate' occurs!";
```

```
var pos = str.indexOf("locate",15);
```

How is indexOf used?

9.

The above shows a string, what is the indexOf locate, and what is the pos of locate?

10.

```
Math.floor(Math.random() * 36);
```

```
Math.floor(Math.random() * 36) + 1;
```

Why might the below be preferable to the above?

11.

Which would be preferable for a roulette game?

Quiz (Mid Trimester)

12.

```
var cars = ["Saab", "Volvo", "BMW"];  
var cars = [  
    "Saab",  
    "Volvo",  
    "BMW"  
];
```

Which is the array?

13.

!=

What does this mean?

Quiz (Mid Trimester)

14.

=

==

===

What's the difference?

15.

```
var hour = 1;
```

```
if (hour < 18) {
```

```
    greeting = "Good day";
```

```
} else {
```

```
    greeting = "Good evening";
```

```
}
```

What is the result of this if condition?

16.

What is the difference between For and While?

Quiz (Mid Trimester)

ANSWERS

1. Name of the Function
2. 5
3. Make it Global
4. 10
5. In order: Number, String, Object.
6. Fiat, 500, White
7. ondrag or none.
8. To find the numerical position of a character.
9. 8, 21.
10. Eliminates the use of 0.
11. The above, as Roulette has a number 0.
12. Both
13. Not equal to.
14. Equal to, Equal to & Equal Value, Equal to and Equal value and type.
15. Good day
16. While will loop and change a condition of the loop each time.