



AJAX Introduction



AJAX

- AJAX stands for
 - Asynchronous
 - -JavaScript
 - and
 - •XML



What is Ajax?

•JavaScript with AJAX you can able to make background server calls for fetching addition data, Updating some portion in web page without refreshing the whole page.



AJAX is based on JavaScript and HTTP requests.

 AJAX is not a new programming language, but a new way to use existing standards with DOM manipulating.

 JavaScript is help to a AJAX to make background AJAX calls for fetching certain amount of data. Without AJAX, traditional web page takes a longer time to finishing round trip process for getting a data form the server. So it's timeconsuming process even if small changes are in web page, entire web page reload.

•In a traditional web page you can't update small portion without reloading page. So here Ajax is help us to background server calls for fetching data and update new contain without reloading page.



• AJAX is a type of programming made popular in 2005 by Google (with Google Suggest).



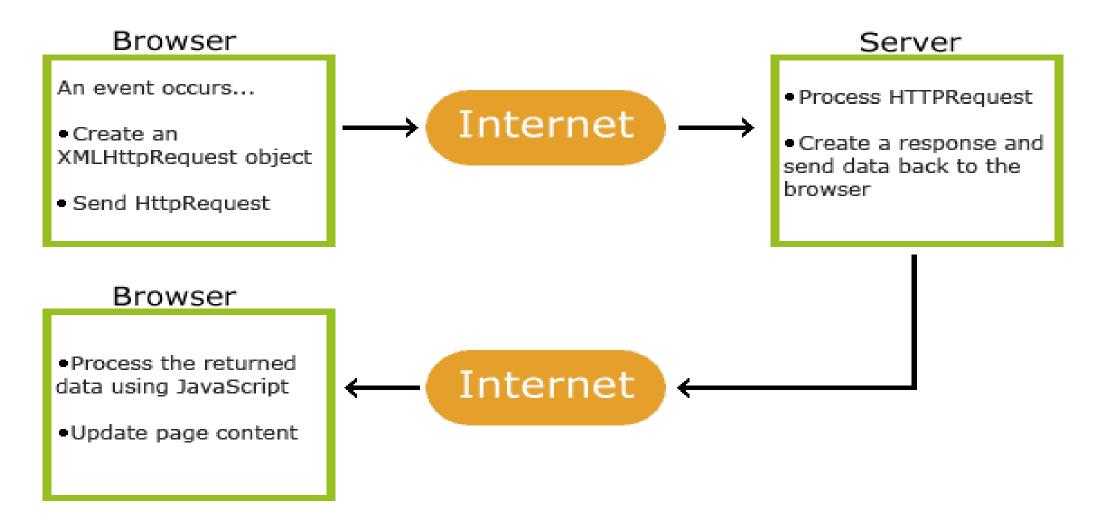
Without/With using Ajax:

 Let's take one example we have a website for user management system.

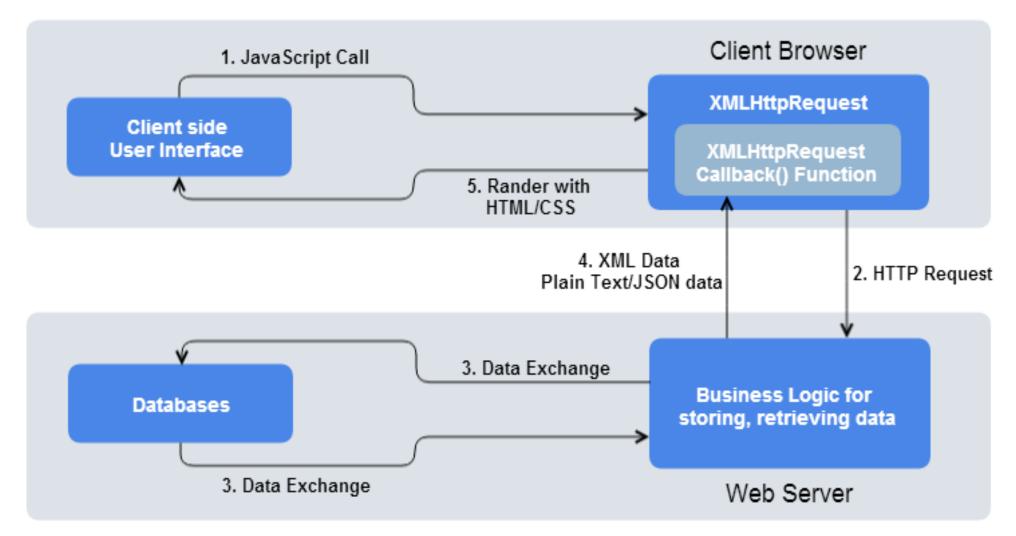
•Without Ajax, Whenever we want to access account, we press login link. New login page open and enter username, password, and login successfully. It's time consuming process, inefficient for only small amount data(Login page) exchange required.

•Now With Ajax, We want to access account, we press login link. Background Javascript call to a server for fetching login portion and update/add to current web page. Now we can enter username, password and login successfully. It's take small bit of time for this process.











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 Client side user perform action to generate event that event call to a JavaScript function.

JavaScript function create XMLHttpRequest object,
 XMLHttpRequest object specify the JavaScript callback function.

 JavaScript XMLHttpRequest object call as a asynchronous HTTP request to the Server.



Web Server process the request and return XML contain data.

 XMLHttpRequest object calls to a callback function along with response from the web server.

 Client browser updates the HTML DOM representing the web page along with new data.



Advantages

Speed

Reduce the server traffic in both side request. Also reducing the time consuming on both side response.

Interaction

AJAX is much responsive, whole page(small amount of) data transfer at a time.

Asynchronous calls

AJAX make asynchronous calls to a web server. This means client browsers are avoid waiting for all data arrive before start the rendering.

Bandwidth Usage

No require to completely reload page again. AJAX is improve the speed and performance. Fetching data from database and storing data into database perform background without reloading page.



Disadvantages

- AJAX application would be a mistake because search engines (Google) would not be able to index an AJAX application.
- ActiveX requests are enabled only in Internet Explorer and newer latest browser.
- More complex than building classic web application
- JavaScript disabled browsers cannot use the application.



Live Demo



Create an XMLHttpRequest Object

•The XMLHttpRequest object is used to exchange data with a server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.



- All modern browsers
 - •variable = new XMLHttpRequest();
- Old versions of Internet Explorer
 - •variable = new ActiveXObject("Microsoft.XMLHTTP");



• Example:

```
var xhttp;
if (window.XMLHttpRequest) {
    xhttp = new XMLHttpRequest();
    } else {
        // code for IE6, IE5
        xhttp = new ActiveXObject("Microsoft.XMLHTTP");
}
```



Send a Request To a Server

- The XMLHttpRequest object is used to exchange data with a server.
- To send a request to a server, we use the open() and send() methods of the XMLHttpRequest object:
- *xhttp.open("GET", "ajax_info.php", true);
 xhttp.send();



Method	Description
open(method, url, async)	Specifies the type of request method: the type of request: GET or POST url: the server (file) location async: true (asynchronous) or false (synchronous)
send()	Sends the request to the server (used for GET)
send(string)	Sends the request to the server (used for POST)



Server Response

 To get the response from a server, use the responseText or responseXML property of the XMLHttpRequest object.

Property	Description
responseText	get the response data as a string
responseXML	get the response data as XML data

The responseText Property

•document.getElementById("demo").innerHTML =
 xhttp.responseText;



The onreadystatechange Event

- When a request to a server is sent, we want to perform some actions based on the response.
- The onreadystatechange event is triggered every time the readyState changes.
- The readyState property holds the status of the XMLHttpRequest.
- Three important properties of the XMLHttpRequest object:



- In the onreadystatechange event, we specify what will happen when the server response is ready to be processed.
- •When readyState is 4 and status is 200, the response is ready:



Property	Description
onreadystatec hange	Stores a function (or the name of a function) to be called automatically each time the readyState property changes
readyState	Holds the status of the XMLHttpRequest. Changes from 0 to 4: 0: request not initialized 1: server connection established 2: request received 3: processing request 4: request finished and response is ready
status	200: "OK" 404: Page not found



Example:

```
• function loadDoc() {
   var xhttp = new XMLHttpRequest();
   xhttp.onreadystatechange = function() {
     if (xhttp.readyState == 4 && xhttp.status == 200) {
       document.getElementById("demo").innerHTML = xhttp.responseText;
   xhttp.open("GET", "ajax info.txt", true);
   xhttp.send();
```



```
<html>
<head>
<script>
    function AjaxCall(){
       //Create an Object
       var xhttp = new XMLHttpRequest();
       xhttp.onreadystatechange = function(){
            if(xhttp.readyState == 4 && xhttp.status == 200){
                document.getElementById("mydata").innerHTML = xhttp.responseText;
        };
       xhttp.open("GET","file1.txt",true);
       xhttp.send();
</script>
</head>
<body>
    <div id="mydata"></div>
    <input type="button" onclick="AjaxCall()" value="Ajax Load" >
</body>
</html>
```





Task

- Button Click Load TextFile Data
- Take 2 Button and Load Different TextFile Data
- OnDropdown Change Evenet Load Second Dropdown (Simple)

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