



Introduction to Ajax

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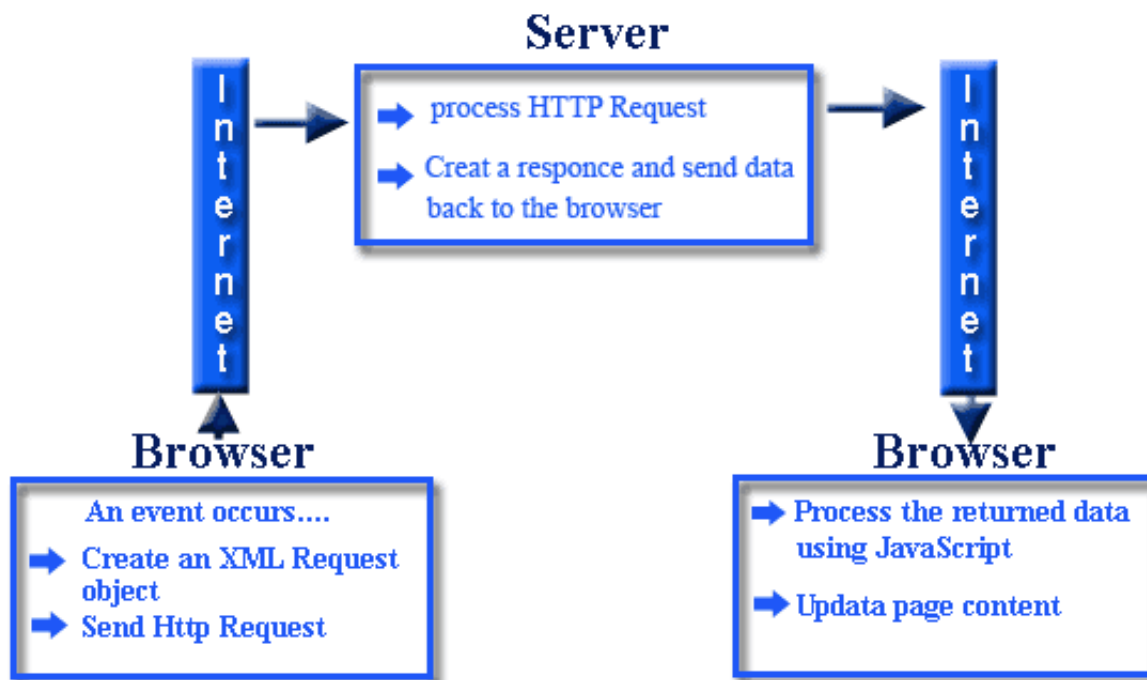
Preface

This is the first tutorial of the series of Ajax tutorials which covers the introduction to Ajax. The tutorial will help you to get started with Ajax.

What is Ajax

Ajax is a collection of several technologies aiming to provide a better user experience compared to traditional web applications. End to end implementation of Ajax includes HTML, CSS, DOM, JavaScript, a Server Side Language, and XMLHttpRequest which is also called as XHR.

In traditional web applications, the browser sends a request to server, server processes, send some data back to browser and then it is rendered by the browser. But meanwhile, when server is processing, user has to wait. This, needless to say, does not provide the user with a good experience. Ajax, helps to get rid of the issue. It makes the user's interaction to the application asynchronous. User interface and communicating to the server goes hand in hand and without waiting for the server to come with the processed data or without reloading the webpage, the user interface responds to user's action; greatly improving user experience.



Ajax stands for Asynchronous JavaScript and XML. Though, often JSON is also used while working with Ajax.

In a moment, we will see a live demo to get you a feel of how Ajax works.

A live demo

In this live demo we have a text input field, where you may enter any of the words of PHP, MySQL, SQL, PostgreSQL, HTML, CSS, HTML5, CSS3, JSON. Once you start typing the input field guides you. When finished typing, press enter and press a tab, you may see some text associated is displayed below. This text is stored in a PHP file. And all that happens without reloading the page.

HTML & JavaScript code of live demo

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```

01. <!DOCTYPE html>
02. <html>
03. <head>

```

```
04.     <meta charset="utf-8" />
05.     <title>Demo of introduction to Ajax by w3resource</title>
06.     <link href="../includes/bootstrap.css" rel="stylesheet" type="text/
07. </head>
08. <body>
09. <div class="well">
10. <input type="text" class="span3" id="search" data-
    provide="typeahead" data-
    items="4" tabindex="1" onblur="select_topic()" />
11. </div>
12. <p id="found" tabindex="2"></p>
13. <script src="/twitter-bootstrap/twitter-bootstrap-
    v2/docs/assets/js/jquery.js"></script>
14. <script src="/twitter-bootstrap/twitter-bootstrap-
    v2/docs/assets/js/bootstrap-typeahead.js"></script>
15. <script>
16.     var subjects = ['PHP', 'MySQL', 'SQL', 'PostgreSQL', 'HTML', 'CSS', 'H
17.     $('#search').typeahead({source: subjects})
18. </script>
19. <script>
20.     function select_topic(){
21.         var search_term = document.getElementById("search").value;
22.         var xhr;
23.         if (window.XMLHttpRequest) { // Mozilla, Safari, ...
24.             xhr = new XMLHttpRequest();
25.         } else if (window.ActiveXObject) { // IE 8 and older
26.             xhr = new ActiveXObject("Microsoft.XMLHTTP");
27.         }
28.         var data = "search_string=" + search_term;
29.         xhr.open("POST", "introductory-demo.php", true);
30.         xhr.setRequestHeader("Content-Type", "application/x-www-form-
    urlencoded");
31.         xhr.send(data);
32.         xhr.onreadystatechange = return_data;
33.         function return_data() {
34.             if (xhr.readyState === 4) {
35.                 if (xhr.status === 200) {
36.                     //alert(xhr.responseText);
37.                     document.getElementById("found").innerHTML = xhr.responseText;
38.                 } else {
39.                     alert('There was a problem with the request.');
```

PHP code of live demo

```
01. <?php
02. $search_value = $_POST['search_string'];
03. $languages = array(
04.     "PHP" => "PHP, an acronym for Hypertext Preprocessor, is a widely-
        used open source general-purpose scripting language.",
05.     "MySQL" => "MySQL is a open source Relational Database Management S
06.     "SQL" => "SQL stands for Structured Query Language. It is used for i
07.     "PostgreSQL" => "PostgreSQL is claimed to be the most advanced open
        relational database management system (ORDBMS).",
08.     "HTML" => "HTML, stands for Hyper Text Markup Language is used to c
09.     "HTML5" => "HTML5 is the fifth revision of HTML, a markup language
10.     "CSS" => "CSS, stands for Cascading Style Sheet is a computer langu
11.     "CSS3" => "Third version of CSS. Introduced many new concepts and c
12.     "JSON" => "JSON is a lightweight text-based open standard data-
        interchange format.",
13. );
14. if (array_key_exists($search_value, $languages)) {
15.     $found = $languages[$search_value];
16.     echo $found;
17. }
18. ?>
```

How Ajax works

Hoopefully, the following slideshow will help you to understand the working of Ajax better.

```
xhr.onreadystatechange = return_data;
```

onreadystatechange method of the **XMLHttpRequest** object is assigned to the name of the function to be created for receiving data from server.

```
function return_data() {  
    if (xhr.readyState === 4) {  
        if (xhr.status === 200) {  
            //alert(xhr.responseText);  
            document.getElementById("found").innerHTML = xhr.responseText;  
        } else {  
            alert('There was a problem with the request.');        }  
    }  
}
```

readyState === 4 checks the whether the full server response has been received and it's ok to continue.

status === 200 checks whether the Ajax call is successful by response code 200.

responseText or **responseXML** returns the data to the browser.

Tird step of how Ajax Works

Data is received from server.

A bit of history

In 1996, Microsoft introduced iframe tag in Internet Explorer to load content asynchronously.

In 1998, Microsoft Outlook Web Access team applied XMLHTTP by client script.

In 1999, the default page of Internet Explorer, i.e. <http://home.microsoft.com> was started to be updated to load news stories and stock quoted asynchronously by Microsoft.

Again in 1999, Microsoft created XMLHTTP ActiveX control in Internet Explorer 5. Other browsers like Mozilla, Safari and Opera adopted the technology to create XMLHttpRequest JavaScript object.

Again in 1999, Microsoft created XMLHTTP ActiveX control in Internet Explorer 5. Other browsers like Mozilla, Safari and Opera adopted the technology to create XMLHttpRequest JavaScript object.

When Internet Explorer is updated to version 7, Microsoft adopted the native version of XMLHttpRequest, retaining the legacy support for ActiveX version of it.

Based on technologies used by Google Pages, Jesse James Garrett wrote an article called "Ajax: A New Approach to Web Applications" on 18 February 2005. This where the term 'Ajax' is first used.

World Wide Web Consortium (W3C) released the first draft of XMLHttpRequest on 5 April 2006.

On 17 January 2012, W3C created the Working Draft of XMLHttpRequest Level 2 which promises to overcome many of the limitations of the first draft.

What you will learn in this series of tutorial

An introduction to Ajax with a live demo.

How to use Ajax along with PHP.

How to use Ajax along with PHP fetching data from MySQL.

How to use Ajax with JQuery.

How to work with Ajax and XML.

How to work with Ajax and JSON.

Detail of XMLHttpRequest specification.

Detail of XMLHttpRequest level 2 specification.

How to use XMLHttpRequest level 2 to overcome caveats of level 1.

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**Gideon** • a year ago

hello

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**bob209** • 2 years ago

Great tutorial, Thanks!

The demo displays only when clicking outside of the search box. How can you see the results when selecting from the actual 'drop down' list?

^ | ▾ • Reply • Share ▸

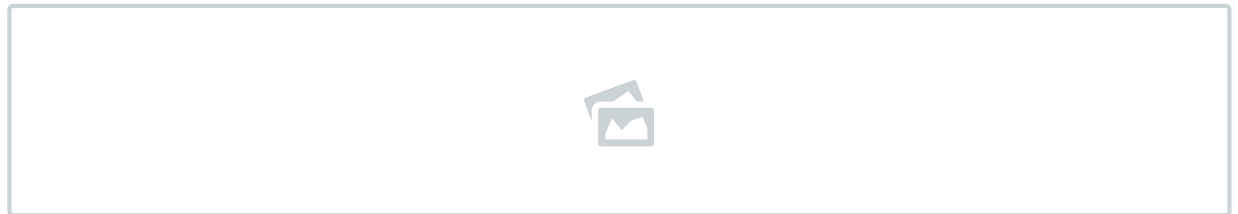
**w3resource** Mod → bob209 • 2 years ago

Well, you may assign the function to the keyup event. Thanks that you find the content useful.

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**rehan** • 2 years ago

good tuto. I appreciate that



^ | ▾ • Reply • Share ▸

**Kossi Fiadjigbe** • 3 years ago

good tuto. I appreciate that

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