



Ajax teaser

A minimal introduction



Ajax

Aynchronous **J**avaScript and **X**ML

Ajax is a technology for application to exchange data with a server asynchronously. This makes it possible to have a web page dynamically change its contents without any need for reloading the whole web page.

Often XML is used as the data format.

(XML is not always needed)

Example idea

Have a web form, for entering a name, which shows suggestions from a list of names as the user types in characters.



(Idea stolen from the Ajax tutorial:

<http://www.w3schools.com/ajax/default.asp>)

Client-side code (from the HTML page)

```
...(header and script)
```

```
<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>
```

Stolen from: http://www.w3schools.com/ajax/ajax_php.asp

Client-side code (from the HTML page) - script

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

Client-side code Server-call

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

Client-side code Server - callback function

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

Server-side - the servlet

The ajax script sends to the servlet listening on /gethint the GET parameter q with the value of the text currently in the text field (it sends every time the key is released: `<input type="text" onkeyup="showHint(this.value)">`).

The servlet reads the parameter q and checks its internal array of names for a partial match.

Server-side - the servlet - the array of names

```
private String[] names = {  
    "Anna",  
    "Beata",  
    "Bengt",  
    "Cecilia",  
    "Christian",  
    "Delilah",  
    "David",  
    "Elsa",  
    "Edwin",  
    "Fia",  
    "Fred",  
    "Gina",  
    "George",  
    "Hedvig",  
    "Henrik",  
    "Isabella",  
    "Ingvar",  
    "Joanna",  
    "Johan",  
    "Klara",  
    "Keith"  
};
```

Server-side - the servlet - doGet()

```
public void doGet(HttpServletRequest request,
                  HttpServletResponse response) throws ServletException, IOException{
    response.setContentType("text/plain");
    PrintWriter out = response.getWriter();
    StringBuilder page = new StringBuilder(253);
    String q = request.getParameter("q");
    if(q==null){
        out.close();
        return;
    }
    String hint=getHint(q.toLowerCase());
    page.append(hint);
    out.println(page);
    response.setContentLength(page.length()+1);
}
```

Server-side - the servlet - getHint()

```
private String getHint(String q){
    if(q==null || q.equals("")){
        return "";
    }
    String hint="";
    //int length = q.length();
    for(String name : names){
        if(name.toLowerCase().startsWith(q)){
            hint=hint.equals("")?name:hint+", "+name;
        }
    }
    return hint.equals("")?"No suggestion":hint;
}
```

Read and play!

<http://www.w3schools.com/ajax/default.asp>

(I don't have much experience with Ajax, so please read up and experiment!)