

AJAX

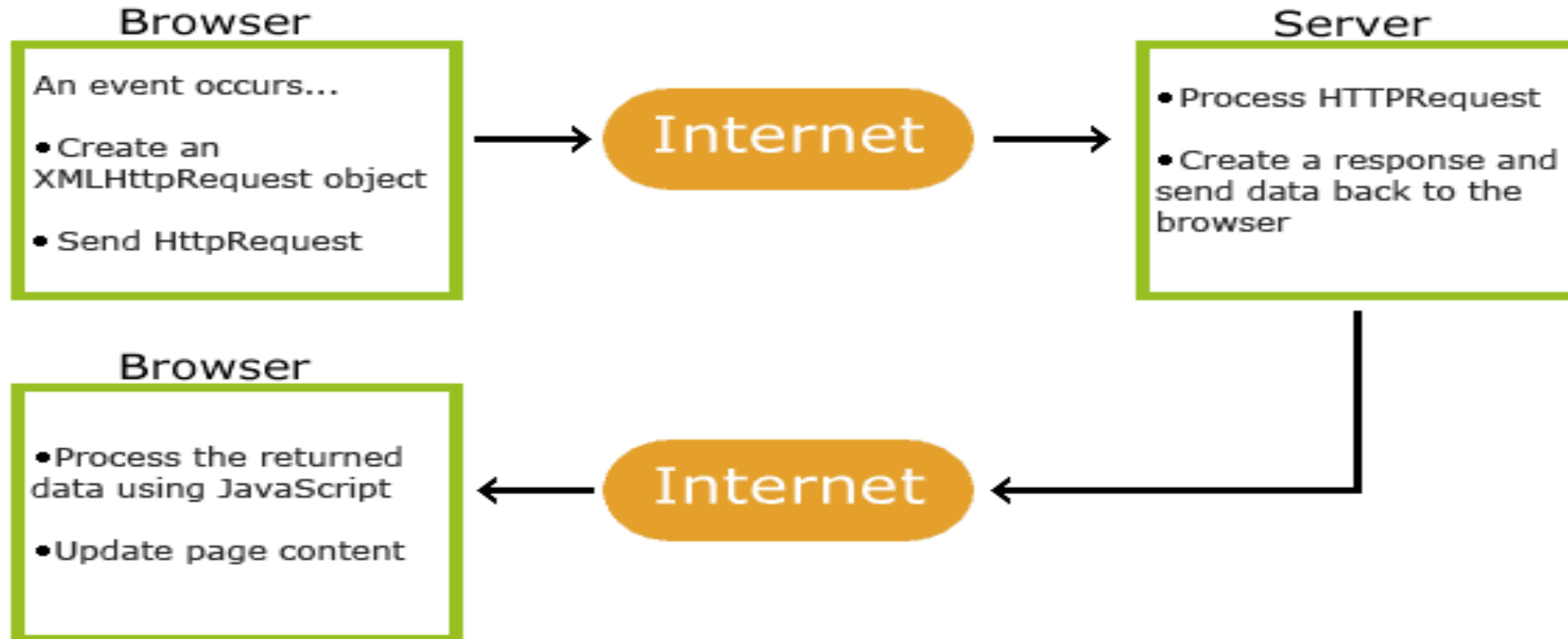
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AJAX ?

A synchronous JavaScript And Xml

- ▶ AJAX is a **developers dream**, because you can:
 - ▶ Update a web page without reloading the page
 - ▶ Request data from a server - after the page has loaded
 - ▶ Receive data from a server - after the page has loaded
 - ▶ Send data to a server - in the background
- ▶ **AJaX engine**
The code for an AJAX application. The use of the term "engine" is a misnomer, as it is not a standard module used by all developers. It is the JavaScript code written by the programmer.

How AJAX Works



Advantages and disadvantages

▶ **Advantages**

- ▶ *1- User interface*
- ▶ *2- Bandwidth usage*

▶ **Disadvantages**

- ▶ *Browser integration*
- ▶ The dynamically created page does not register itself with the browser history engine, so triggering the "Back" function of the users' browser might not bring the desired result.
- ▶ Another issue is that dynamic web page updates make it difficult for a user to bookmark a particular state of the application

Send a Request To 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.txt", true);  
xhttp.send();
```

Send a Request To a Server Cont'd

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

GET or POST?

- ▶ GET is simpler and faster than POST, and can be used in most cases.
- ▶ However, always use POST requests when:
- ▶ Sending a large amount of data to the server (POST has no size limitations).
- ▶ Sending user input (which can contain unknown characters), POST is more robust and secure than GET.

GET Requests

- ▶ A simple GET request:
- ▶ `xhttp.open("GET", "demo_get ", true);`
`xhttp.send();`
- ▶ In the example above, you may get a cached result. To avoid this, add a unique ID to the URL:
- ▶ `xhttp.open("GET", "demo_get?t=" + Math.random(), true);`
`xhttp.send();`
- ▶ If you want to send information with the GET method, add the information to the URL:

POST Requests

- ▶ A simple POST request:

```
xhttp.open("POST", "demo_post ", true);  
xhttp.send();
```
- ▶ To POST data like an HTML form, add an HTTP header with `setRequestHeader()`. Specify the data you want to send in the `send()` method:

```
xhttp.open("POST", "ajax_test ", true);  
xhttp.setRequestHeader("Content-type", "application/x-www-form-  
urlencoded");  
xhttp.send("fname=Henry&lname=Ford");
```

Server Response

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

Property	Description
<code>responseText</code>	get the response data as a string
<code>responseXML</code>	get the response data as XML data

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:

The onreadystatechange event cont'd

Property	Description
onreadystatechange	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

Using a Callback Function

- ▶ A callback function is a function passed as a parameter to another function.
- ▶ If you have more than one AJAX task on your website, you should create ONE standard function for creating the XMLHttpRequest object, and call this for each AJAX task.
- ▶ The function call should contain the URL and what to do on onreadystatechange (which is probably different for each call):

Example

- ▶ Let's see the code and try it.