

# T AJAX

## Asynchronous Javascript and XML

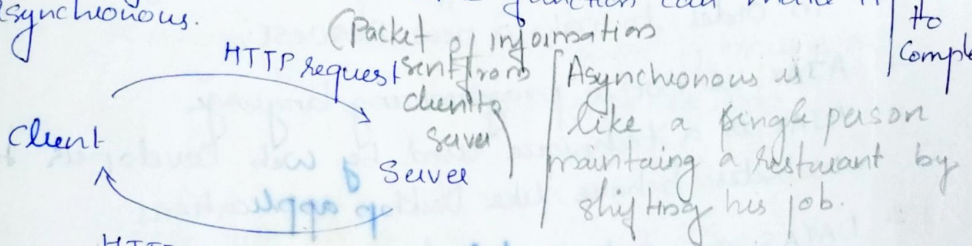
### Asynchronous v/s Synchronous

(Extended Markup Language)

JS is Synchronous - i.e. One thing can take into play i.e. each step wait until previous operation is completed. i.e. line by line execution

where as asynchronous JS - differs the operation i.e. it does not wait for other

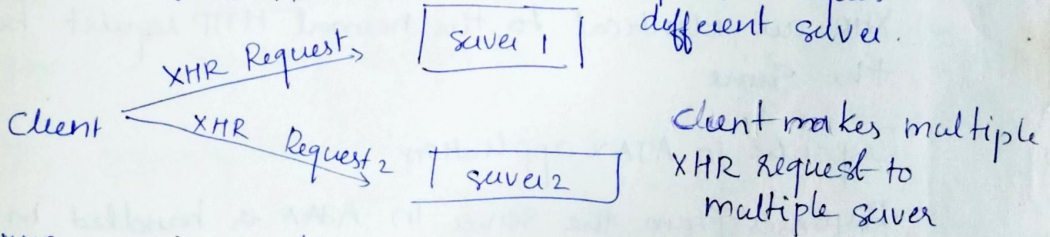
JS is synchronous but some function can make it asynchronous. Operations to Complete



HTTP request is the packet of information sent from the client to the server. i.e. something which client searched on browser. They are binary data.

Standard client server application - client has to wait for the response from the server to execute other task on the webpage. also it can do one activity at a time. There comes

AJAX i.e. in AJAX client sent multiple XHR request to <sup>AJAX</sup> different server.



XHR - is an API

What is an API

- API stands for Application Programming Interface
- An API is a Software Intermediary that allows two application to talk to each other



- An API is the messenger that delivers your request to the provider that you're requesting it from and then delivers the response back to you.
- It defines the kind of call or requests that can be made, how to make them, the data formats that should be used, the Convention to follow etc.

### AJAX Application

Multiple request are happening concurrently and client doesn't have to wait for a response from a server in order to make a new request.

- AJAX is not a programming language
- AJAX is a technique used by web developers to make websites behave like Desktop applications.
- DATA are exchanged to/from the server in the background without having to refresh the page.

### Real world Application

eg - Google map  
Google Suggestions  
Twitter

- Google map - Scrolling is considered as refreshing the page.

inspect - see network when refreshed - Value of status got Value 200

### Request in AJAX Application

AJAX uses JS XMLHttpRequest (XHR) Object

XHR are identical to the normal HTTP request but not the same

### Response in AJAX application

Responses from the server in AJAX is handled in the form of Call Backs

Call back is a special function which is used in AJAX so that SERVER can respond to the client when it is ready to send data to the client.

Don't get Confused by the term 'X' in XML in AJAX. It is there only for historical reasons. Other data exchange format such as JSON, HTML or plain text can be used instead by XML.

## AJAX Structure.

### AJAX Order of Execution

Step 1 - `Var xmlhttp = new XMLHttpRequest();`

Step 4 : `xmlhttp.onreadystatechange = function () {`

Step 5: `if (this.readyState == 4 && this.status == 200) {`

Step 6: `document.getElementById("demo").innerHTML = this.responseText;`

`}`  
`}`  
`};`

Step 2: `xmlhttp.open("GET", "ajax-info.txt", true);`

Step 3: `xmlhttp.send();`

GET - is used to retrieve data.

Step 1 - XMLHttpRequest Creation.

Step 4 - Defining event listener for readyState change event

Step 5 - Check if the request is complete and was successful

Step 6 Inserting the response from server into an XMLHttpRequest element.

Step 2 - Initializing the request Object

Step 3 - Sending request to the server. `this = xmlhttp`

The onreadystatechange property defines a function to be executed when the readyState changes.

The readyState property holds the status of XMLHttpRequest Requests.

XMLHttpRequest readyState.

The status property and Status Text property holds the status of the XMLHttpRequest Object



## Status Property

The status Property returns the numerical HTTP status Code of the XMLHttpRequest's response.

Some of the Common HTTP Status Codes are listed below

200 - OK. The Server Successfully processed the request.

404 - Not Found. The Server can't find the requested page.

503 - Server Unavailable.

The Server is temporarily unavailable.

XMLHttpRequest.readyState

Value	State	Description
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0	Unsent	Client has been created. Open() not yet called.
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1	Opened	Open() has been called.
---	--------	-------------------------

2	headers-received	Send() has been called and headers and status are available.
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3	loading	Downloading, responseText holds partial data.
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4	Done	The operation is complete.
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# JQuery - Part 4 - JQuery AJAX

What is really AJAX

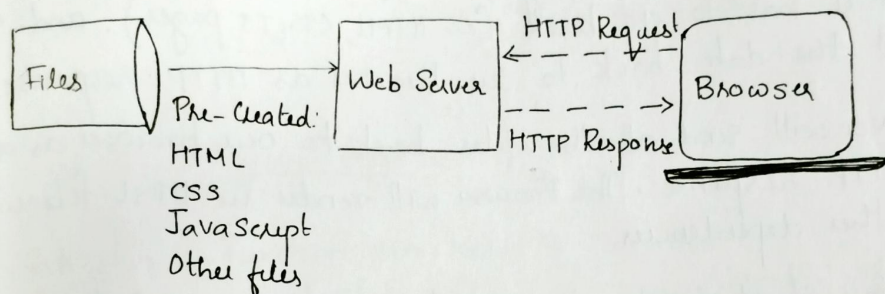
AJAX is all about updating part of a web page without having to reload the entire thing.

web communication

HTTP - Hypertext transfer Protocol - A Protocol means a rule in Communication. It is used to fetch messages in the web page

Server Side

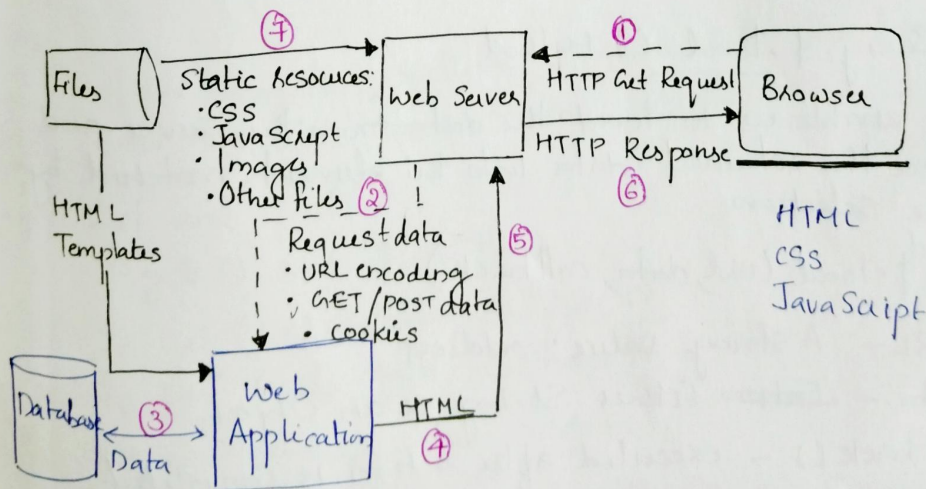
Client side



Every request is associated with a URL. If HTTP request where an HTML url will be the address written outside of envelope. Request can have data attached to them as well in the form a parameters etc.

ie HTTP request has an url and sometime have data attached to it. It can used to transfer all sort of data like HTML, CSS, JS etc.

Web Communication Basics





- 1st we search an URL. Browser is sending HTTP get request to the network. Our HTTP request reaches DNS Server (Domain Name System) which is an address translator. It will convert the URL into an IP address (specifically that will be the address of (google) server. Server is the computer that holds the logic for processing all the codes related to website - It is called an application server.

Now imagine HTTP request reached the server. It has an event listener waiting for request it check and decide what has to sent back (ie HTML, CSS & JS pages). and send all the data back to our Browser as HTTP response.

Server will send all the files back to our browser as an HTTP response. The Browser will render the HTML file with other dependencies

Style sheet, Glyphicon, Images etc are stored in database server and application server manages everything and is the control unit of web Application

## JQuery Ajax

A method to fetch data from somewhere else

Here AJAX ~~site~~ is going to ask for data. It can also send some data with it. Ajax manages it asynchronously and effectively

## JQuery \$.load () Method

It enable us to load the data from the server and place the returned data into the elements matched by the selection.

- 1) `load().load (url, data, callback)`

URL - A string value: address

Data - ~~Enter~~ Either String or an Object

Callback () - executed after action is completed

jQuery code should be written inside.

```
$(document).ready(function() {  
    // elements inside  
    // div gets replaced  
    // by the text in the  
    // secret.txt  
    $("div").load("./secret.txt");  
});
```

```
$( "div".load ("./secret.txt", "gokul"),  
    {name: "gokul"} - Object  
    )
```

405 error - Method not found

```
$( "div").load ("./secret.txt" function() {  
    console.log("Ajax operation successful")  
});
```

## Part-5 jQuery Ajax.

Call back Function can hold 3 parameters  
1) Response 2) Status Flag (3) XHR Object.

```
$( "div").load ("./secret.txt", function (res, status, xhr) {  
    if (status == "success") alert ("successfully loaded");  
    if (status == "error") console.log ("The error type is" +  
        xhr.status + "and error is" + xhr.statusText);  
    // (Kind of error that occurred) — exception handling using  
    // callback functions  
});
```

If we change the spelling of secret.txt it will not be loaded  
Occur 404 error error is not found.

Get and post.  
\$.get() and \$.post()  
\$.get (url, data, call back);  
\$.post (url, data, call back);

URL - A string value: address  
Data - Data to be sent  
call back() - executed after action is completed.



Postman - A Collaboration platform for API development  
download - Sign in - using google account.  
New - Create - Mock server.