**AJAX**

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* **AJAX covered topic:**

1. **What is AJAX?**
2. **Use & importance of AJAX?**
3. **Working of AJAX?**
4. **What is XMLHttpRequest?**
5. **XMLHttpRequest object method.**
6. **XMLHttpRequest object properties?**
7. **AJAX with JavaScript?**
8. **AJAX with PHP & MySQL.**

# **: AJAX:**

1. **What is AJAX?**

**Ans: AJAX is a programming language. It is a combination of several technologies like JavaScript, HTML, XML, JSON, etc. it is used for exchange data with a web server asynchronously.**

* + **AJAX stands for Asynchronous JavaScript and XML.**
* **XML and JSON is a format of data representation.**
* **XML stands for Extensible markup language.**
* **With the help of XML, we can create custom tag.**

**Example of XML:**

**<book>**

**<name> BOOK NAME </name>**

**<author> XYZ </author>**

**<language> English </language>**

**</book>**

1. **Use and Importance of AJAX:**

**Ans:**

* **Basically, it is used for creating dynamic web applications.**
* **With the help of AJAX, we can send and receive data without reload the web page.**
* **AJAX support non-blocking calls means we can call multiple code at a time in background.**
* **With the help of AJAX, we can change the small parts of web applications.**
* **AJAX asynchronously communicate with the server using XMLHttpRequest object.**
* **With the help of AJAX, we can manipulation with a server via XMLHttpRequest object.**

1. **Working structure of AJAX?**

Event occur XMLHttpRequest

AJAX ENGINE

**SEVER**

Web application

**response**

**update webpage  Json/ xml**

* **Note: all is most important points.**
* **First, web application sends any event (throw any form).**
* **Second, that event trigger the AJAX Engine.**
* **Third, AJAX Engine sends a request to server with the help of XMLHttpRequest object.**
* **Fourth, server understands the Ajax engine request and given the response in the form of JSON / XML format.**
* **Fifth, then ajax read & understand, according to that response update the web application.**
* **Finally, AJAX works, event handler, sends request & data response then update the web page.**

1. **What is XMLHttpRequest object?**

**Ans: It is an API and the core of AJAX, which is used to exchange data with server and update the webpage without reload it.**

* **how to create XMLHttpRequest object.**

Syntax:

let variable\_name = new XMLHttpRequest();

**Example:**

**let ajax = new XMLHttpRequest();**

* **This API can be used by JavaScript, VBScript, and other web browser scripting language to exchange data from a web server.**
* **XMLHttpRequest (XHR) object provide methods for asynchronously data transmission (send & receive) and management.**
* **The data can be text data, xml data, json data.**

1. **XMLHttpRequest object methods:**
2. **open (): open () method is used to prepare send a request to a server.**

* **Method: GET, POST, PUT, DELET.**
* **URL: file location (means where fetch / send you data).**
* **GET Request means only fetch. We are giving only URL and tell me what is the inside in URL.**
* **POST request means we are sending some data and according to that data give me response.**
* **Async: true or false. If you sent asynchronously then use true otherwise false.**

**Syntax:**

**open(“method\_name”, “url”, async);**

**Ex:**

**let xhr = new XMLHttpRequest(); 🡺 first create an object.**

**xhr.open(“GET”, ”newfile.php”, true);**

1. **send(): send () method is used to send a request to a server.**

**Syntax:**

**send();**

**or**

**send(“string=”+value);**

**or for multiple key and value sends. Write & symbol.**

**send(“string=”+value+”&string=”+value);**

**Ex-1: how to send data with the help of GET method.**

let xhr = new XMLHttpRequest();

xhr.open(“GET”, ”newfile.php”, true);

send(); 🡺get method.

**Ex-2: how to send data with the help of POST method.**

let xhr = new XMLHttpRequest();

xhr.open(“POST”, ”newfile.php?=id24”, true);

xhr.setRequestHeader(“Content-Type”,”application/x-www-form-urlencoded”); **🡺if you use post then write this line necessary.**

xhr.send(“pass=24”);

1. **setRequestHeader (): setRequestHeader () method pass the meta information. when you submitted the form via POST method in AJAX, then setRequestHeader () method, tell us which types of data come in the server.**

* **label: “Content-Type” 🡺 what is the type of content (data).**
* **Values are below:**
* **application/x-www-form-urlencoded: this is default from form header, it means all characters are encoded / converted before sent. (Spaces converted “+” symbols & special character are converted into ASCII hex value).**
* **multipart/form-data: this value is necessary if the user will upload the file / images through the form.**
* **text/plain: it sends all data without encoding at all.**

**Syntax:**

**setRequestHeader(“label”, “value”);**

1. **abort(): abort () method is used to cancel the ajax request.**

**Syntax:**

**abort();**

**Ex:**

**xhr.abort();**

1. **onload(): onload method handle the server response. We use onload method insteadOf onreadystatechange.**

**Syntax:**

**xhr.onload = function (){**

**//**

**}**

1. **onprogress(): onprogress method used for show the status of progress of XMLHttpRequest Object.**

**Syntax:**

xhr.onprogress = function (){

                  console.log('On progress');

                }

1. **XMLHttpRequest object properties:**
2. **readyState: the readyState property checks the status for XMLHttpRequest object.**

* **Its values are:**

|  |  |
| --- | --- |
| **value** | **Description** |
| 0 | It means XMLHttpRequest object has been created but request not initialized. |
| 1 | If open function called then, server connection established. |
| 2 | If send function called, header and status are received. |
| 3 | It means processing request. |
| 4 | Request finished & server response. |

**Syntax:**

**this.readyState 🡺 ‘s’ capital.**

1. **onreadystatechange: onreadystatechange is an event handler that calls a function when readyState value change.**

**Syntax:**

**xhr.onreadystatechange = function(){**

**//**

**}**

**Ex:**

**let xhr = new XMLHttpRequest();**

**xhr.open(“GET”, “newfile.php?id=24”, true);**

**xhr.onreadystatechange = function() {**

**consol.log(this.readyState);**

**}**

**xhr.send();**

1. **status: status returns the HTTP response status-code.**

|  |  |
| --- | --- |
| **value** | **Meaning** |
| 0 | Your request is not completed or XMLHttpRequest shows error, the status code is 0 |
| 200 | Ok, successfully get result. |
| 403 | Forbidden means server is not sending data because you are not authorized that data. |
| 404 | Page not found. |

**Syntax:**

**this.status**

**Example:**

**let xhr = new XMLHttpRequest();**

**xhr.open(“GET”, ”newfile.php?id=25”,true);**

**xhr.onreadystatechange = function(){**

**if(this.readyState==4){**

**console.log(this.status);**

**}**

**}**

**Xhr.send();**

1. **responseText: responseText property returns the response data as a string.**
2. **responseXML: responseXML property returns the response data as XML.**

**EX:**

**let xhr = new XMLHttpRequest();**

**xhr.open(“GET”, “newfile.php?id=12”,true);**

**xhr.onreadystatechange = function(){**

**if(readyState==4 && this.status==200){**

**console.log(xhr.responseText);**

**}**

**}**

**Xhr.send();**

* **AJAX FormData () method: FormData () method is a set up the key and values of the given form. It is sends values using the Ajax method.**
* **It is an interface.**
* **It is a function to create a new object and we can send multiple files using this object.**
* **It is a method to setup “multipart/form-data” and upload on server using on server XMLHttpRequest.**
* **This method provides form values like, text, numbers, images and files**
* **How To create FormData () Object-**

**Syntax:**

**let variable\_name = new FormData();**

* **The object helps to work from Data method such as append (store / add), delete, get etc.**
* **How append the data using this object-Syntax:**

**let variable\_name = new FormData();**

**variable\_name.append(name, value);**

**or**

**variable\_name.append(name, value, file\_nem);**

* **append (): append function is used to store the data on the server (key & value pairs).**

**Syntax:**

**variable\_name.append(name, value);**

* **How To deal AJAX with JavaScript.**
* **How to fetch text.txt file data in learn.html file via AJAX with JavaScript without reload the web page with GET method?**

<body>

    <button id="btn">Get Data</button>

    <script>

        let btn = document.getElementById("btn");

        btn.addEventListener('click',getData);

        function getData(){

         let xhr = new XMLHttpRequest();

         xhr.open("GET","text.txt",true);

         xhr.onreadystatechange = function(){

             if(this.readyState==4 && this.status==200){

                 console.log(this.responseText);

             }

         }

         xhr.send();

        }

     </script>

</body>

Output: GetData 🡺 click karne pr.

Hello I'M Learning Ajax.

Hello I'M Dravinanshu Mishra.

* **How deal 404 error in AJAX?**

<body>

    <button id="btn">Get Data</button>

     <script>

        let btn = document.getElementById("btn");

        btn.addEventListener('click',getData);

        function getData(){

            let xhr = new XMLHttpRequest();

               xhr.open("GET","text1.txt",true);

               xhr.onreadystatechange = function(){

                if(this.readyState==4){

                   if(this.status==200){

                       console.log(this.responseText);

                   }else if(this.status==404){

                       console.log('page Not Found');

                   }

               }

            }

          xhr.send();

        }

     </script>

</body>

Output: **page Not Found.**

**Here, first check, readyState is ==4 means ok. Then execute ahead programs.**

* **How to deal AJAX with JSON:**

<button id="btn" class="btn btn-sm btn-success">Get Data</button>

<p id="content" class="fw-bold fs-1"></p>

<script>

let content = document.getElementById("content");

         let btn = document.getElementById("btn");

          btn.addEventListener('click',getData);

         function getData(){

            let xhr = new XMLHttpRequest();

                xhr.open("GET","myfile.json",true);

                xhr.onreadystatechange = function(){

if(this.readyState==4 && this.status==200){

let data=JSON.parse(this.responseText);

let el = `

<p>${data.user} &nbsp; ${data.age} &nbsp; ${data.subject} </p>

                        `;

                        content.innerHTML=el;

//console.log(this.responseText);

                    }

                }

            xhr.send();

         }

      </script>

Output: button pr 🡺 click karne pr.

**Dravinanshu   25   PHP**

* **AJAX with PHP & Mysql?**
* **We can access AJAX JSON string data in PHP throw:**
* **file\_get\_contents(): The file\_get\_contents() function reads entire file into a string.**
* **php://input: this is a read-only stream that allows us to read the data from request body.**
* $request\_body = stream\_get\_contents('php://input');

**Syntax:**

**$variable = file\_get\_contents(“php://input”);**