

30. AJAX

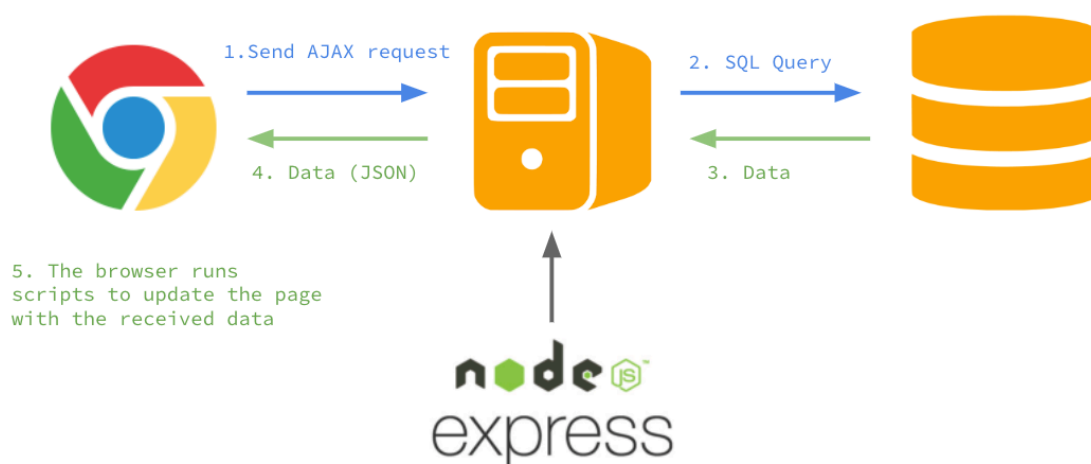
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Topics to cover

1. What is AJAX?
 2. The AJAX Workflow
 3. How to use AJAX?
- 3.1 XMLHttpRequest Object
 - 3.2 Fetch
 - 3.3 JQuery

1. What is AJAX

AJAX = *Asynchronous JavaScript and XML*. Thanks to AJAX, web applications can send and receive data asynchronously without requiring a browser refresh.



The widespread use of AJAX was one of the factors that led to Web 2.0. It originally retrieved data sent using XML, but modern applications use JSON instead.

2. Ajax Workflow

Every time we want to get data and modify something on our website, we can follow these steps:

1. Provide the initial HTML page
2. Determine and import the tool for AJAX
3. Determine when to fire an ajax request --> DOM event
4. Determine where and what to send in request
5. Determine the action upon receiving the response

3. How to use Ajax?

We have different options to send an AJAX request:

3.1 Legacy way of sending AJAX using XMLHttpRequest

The [XMLHttpRequest object](#) is available to use at any time when working with JavaScript in a browser:

```
var xhttp = new XMLHttpRequest();
xhttp.onreadystatechange = function() {
  if (this.readyState == 4 && this.status == 200) {
    console.log(xhttp.responseText);
  } else if (this.readyState == 4 && this.status >= 400) {
    console.log('http error')
  }
}

xhttp.onerror = function() {
  console.log('There is a network error')
}

xhttp.open("GET", "https://jsonplaceholder.typicode.com/todos/1", true)
xhttp.send()
```

3.2 Modern AJAX with Promise based library: fetch

AJAX is always implemented using the XMLHttpRequest (XHR) object. Modern libraries (such as jQuery or axios) provide us with easy-to-use wrappers for the XHR object, so we can achieve more with less lines of code.

We can use the [fetch api](#) to make AJAX requests:

```
fetch('https://jsonplaceholder.typicode.com/todos/1')  
  .then(response => response.json())  
  .then(data => console.log(data))  
  .catch(err => console.log(err))
```

3.3 Modern AJAX with Promise based library: jQuery

[jQuery](#) also gives us an API for making AJAX requests:

```
jquery.get('https://jsonplaceholder.typicode.com/todos/1')  
  .then(response => console.log(response))  
  .catch(err => console.log(err))
```

Documentation links

- [Dog CEO API](#)
- [News API](#)
- [jQuery Docs](#)
- [Usage of JS Fetch](#)
- [Status codes](#)