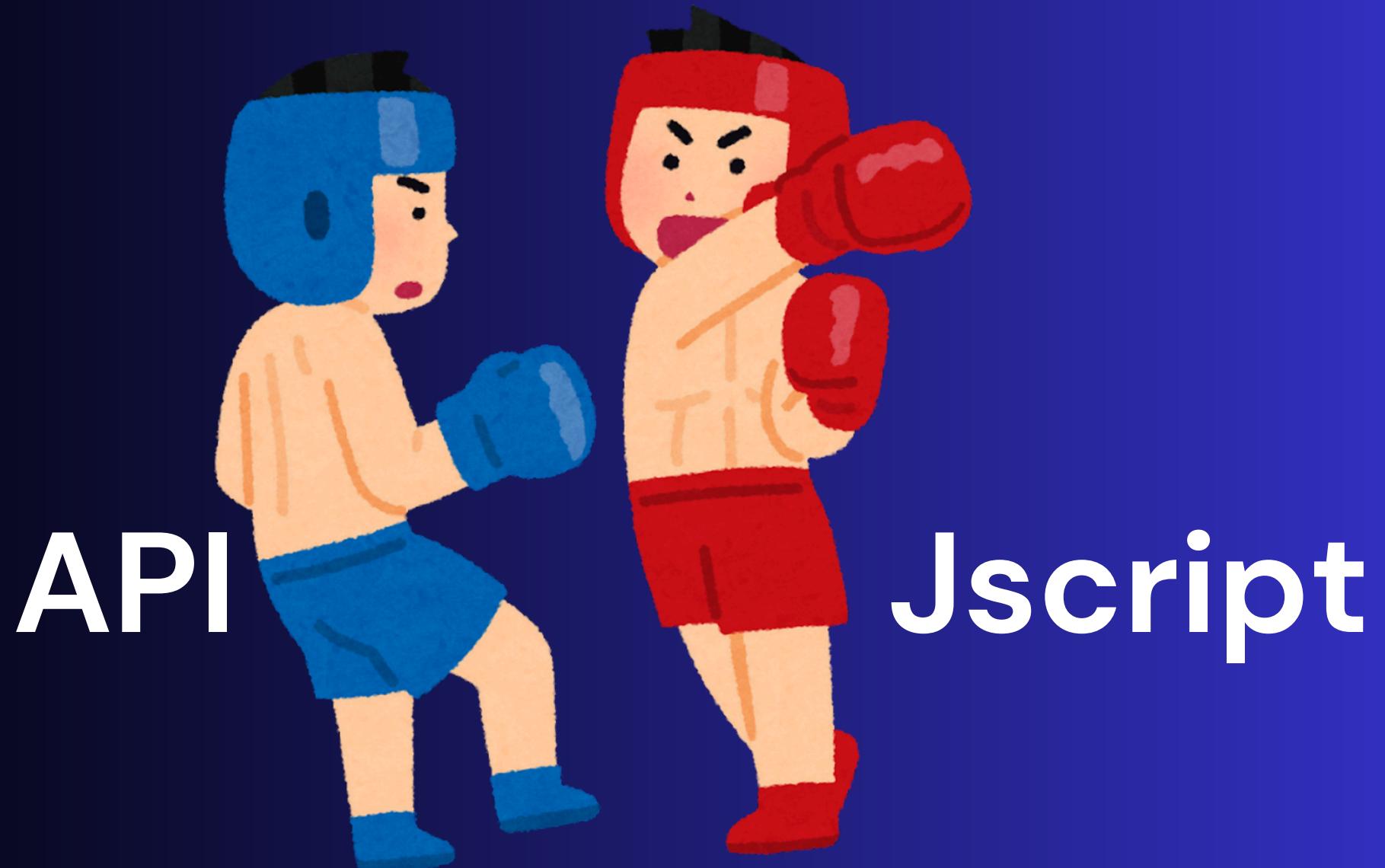


Four Methods to Make API Calls in JavaScript





XMLHttpRequest



Fetch() method



Axios



jQuery AJAX





To gain more clarity on this, let's take a basic example of using JSONPlaceholder to retrieve user data. JSONPlaceholder provides the following endpoint:



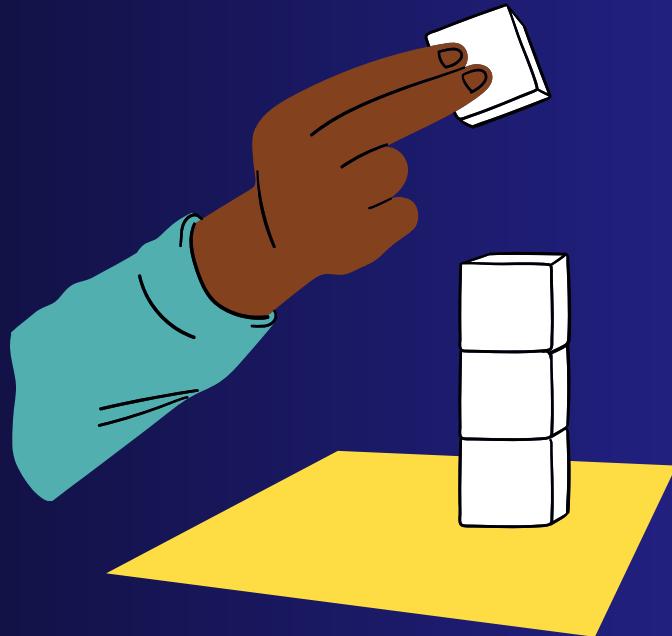
<https://jsonplaceholder.typicode.com/users>



XMLHttpRequest



XMLHttpRequest



- 1. All modern browsers support the XMLHttpRequest object to request data from a server.**
- 2. It works on the oldest browsers as well as on new ones.**
- 3. It was deprecated in ES6 but is still widely used**



Sample Code : XMLHttpRequest



```
var request = new XMLHttpRequest();
request.open('GET', 'https://jsonplaceholder.typicode.com/users');
request.send();
request.onload = ()=>{
    console.log(JSON.parse(request.response));
}
```

Advantages:

- 1. Browser Support:** Compatible with almost all browsers, even older versions.
- 2. Control:** Provides fine-grained control over requests (like tracking state with readyState).

Limitations:

- 1. Verbose Syntax:** Requires more lines of code and additional handling for modern use cases.
- 2. Callback Hell:** Results in nested callbacks, making it hard to manage complex asynchronous code.



Fetch() Method





Fetch() method

1. The Fetch API provides an interface for fetching resources (including across the network) in an asynchronous manner.
2. It returns a Promise
3. It is an object which contains a single value either a Response or an Error that occurred.
- 4..then() tells the program what to do once Promise is completed.



```
fetch('https://jsonplaceholder.typicode.com/users')
  .then(response =>{
    return response.json();
  }).then(data =>{
    console.log(data);
  })
```



Advantages

1. **Simplicity:** Shorter, more readable syntax than XMLHttpRequest.
2. **Promise-based:** Returns a Promise, which is easier to work with and enables async/await usage.
3. **Streaming:** Can handle streaming responses for better performance.

Limitations

1. **Browser Support:** Not supported in older browsers, particularly Internet Explorer.
2. **Error Handling:** Requires explicit error handling for network failures or unsuccessful HTTP responses (4xx, 5xx).



Axios Method





Axios

Axios is a popular JavaScript library that simplifies HTTP requests and provides many additional features compared to the native fetch API.

1. It is an open-source library for making HTTP requests.
2. It works on both Browsers and Node js
3. It can be included in an HTML file by using an external CDN
4. It also returns promises like fetch API





```
<script src="https://cdn.jsdelivr.net/npm/axios/dist/axios.min.js"></script>
```



```
axios.get('https://jsonplaceholder.typicode.com/users')
  .then(response =>{
    console.log(response.data)
  })
```

Advantages

1. **Automatic JSON Transformation:** Automatically transforms JSON data, making it easy to work with API responses.
2. **Built-in Timeout:** Has a built-in timeout configuration to handle requests that may hang indefinitely.
3. **Request Interceptors:** Allows intercepting requests and responses to add headers or handle errors globally.

Limitations

1. **Extra Dependency:** Requires adding an external library, increasing the bundle size.
2. **Limited Control:** Less control over low-level settings compared to XMLHttpRequest.



jQuery AJAX





jQuery AJAX

jQuery.ajax() is a method in the jQuery library that offers a simplified way to make API calls.

1. It performs asynchronous HTTP requests.
2. Uses \$.ajax() method to make the requests.



```
$(document).ready(function(){
    $.ajax({
        url: "https://jsonplaceholder.typicode.com/users",
        type: "GET",
        success: function(result){
            console.log(result);
        }
    })
})
```



jQuery AJAX

Advantages

1. **Simplicity:** Provides an easy, high-level syntax for making requests, particularly helpful for quick setups.
2. **Cross-Browser Compatibility:** jQuery handles compatibility issues across different browsers.

Limitations

1. **Heavy Dependency:** Requires adding the entire jQuery library, which can increase load times.
2. **Outdated:** jQuery is less commonly used in modern applications due to lighter, native solutions like fetch.



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