

Cheatsheet: JavaScript Async

JavaScript Promises, Callback, Fetch and Axios Terminologies	Description	Code Example
JSON	It is a text-based format used for structuring data in a way that is both human-readable and machine-readable.	<pre>{ "name": "John Doe", "age": 30, "city": "New York", "email": "johndoe@email.com", "hobbies": ["Reading", "Hiking", "Cooking"] }</pre>
Callback	A callback in JavaScript is a function passed as an argument to another function, which is then executed at a later time or under certain conditions.	<pre>function greet(name, callback) { console.log(`Hello, \${name}!`); callback(); // Executes the callback function } function sayGoodbye() { console.log('How are you!'); } greet('John Doe', sayGoodbye); // Passing sayGoodbye function as a callback</pre>
XMLHttpRequest Object	It is used to create an instance of the XMLHttpRequest object to initiate an HTTP request.	<pre>var xhr = new XMLHttpRequest();</pre>
XMLHttpRequest Open Methods	The open() method sets up the request, specifying the HTTP method (GET, POST, and so on) and the URL.	<pre>xhr.open('GET', 'https://api.example.com/data', true);</pre>
send() Method	The send() method is invoked to send the request to the specified URL.	<pre>xhr.send();</pre>
Load Data Using XMLHttpRequest	This code describes that data can be loaded using Ajax methods.	<pre><!DOCTYPE html> <html> <head> <title>AJAX Example</title> </head> <body> <button id="loadUsersBtn">Load Users</button> <div id="userList"></div> <script> // JavaScript for AJAX functionality document.getElementById('loadUsersBtn').addEventListener('click', function() { // Creating an XMLHttpRequest object var xhr = new XMLHttpRequest(); // Define the request xhr.open('GET', 'https://jsonplaceholder.typicode.com/users', true);</pre>

		<pre> // Handle the response xhr.onload = function() { if (xhr.status >= 200 && xhr.status < 400) { var users = JSON.parse(xhr.responseText); displayUsers(users); } else { console.error('Error fetching data'); } }; // Handle network errors xhr.onerror = function() { console.error('Network error'); }; // Send the request xhr.send(); }); // Function to display users on the page function displayUsers(users) { var userListDiv = document.getElementById('userList'); userListDiv.innerHTML = '<h2>User List</h2>'; var ul = document.createElement('ul'); users.forEach(function(user) { var li = document.createElement('li'); li.textContent = user.name; ul.appendChild(li); }); userListDiv.appendChild(ul); } </script> </body> </html> </pre>
Promise Syntax	<p>Promises are used for tasks like fetching data from a server, reading files, or performing other operations that may take some time to complete.</p>	<pre> const myPromise = new Promise((resolve, reject) => { // Asynchronous operation goes here // If successful, call resolve with the result // If an error occurs, call reject with an error }); </pre>
Promise with .then and .catch	<p>Promises are used for tasks like fetching data from a server, reading files, or performing using `.then()` method and caught error using `.catch()` method.</p>	<pre> const myPromise = new Promise((resolve, reject) => { // Simulated asynchronous operation (e.g., making an API request) setTimeout(() => { const success = true; // Simulating a successful operation if (success) { resolve('Data successfully fetched'); } else { reject('Error: Failed to fetch data'); } }, 1000); }); myPromise.then((result) => { // Handle the successful result (e.g., update UI with the data) console.log(result); }, (error) => { // Handle the error (e.g., log the error or show an error message) console.error(error); }); </pre>
Fetch API Syntax	<p>It is used for fetching resources from the web, such as data from a server or an API.</p>	<pre> fetch(url, options) .then(response => { // Handle the response }) .catch(error => { // Handle any errors that occurred during the fetch }); </pre>

Fetch API Get Methods	The GET method is used to retrieve data from the specified resource.	<pre> fetch('https://jsonplaceholder.typicode.com/posts') .then(handleResponse) .then(data => { console.log('GET Request Result:', data); }) .catch(error => { console.error('Error:', error); }); </pre>
Fetch API POST Method	The POST method is used to submit data to be processed to a specified resource.	<pre> const newPost = { title: 'New Post', body: 'This is a new post.', userId: 1 }; fetch('https://jsonplaceholder.typicode.com/posts', { method: 'POST', headers: { 'Content-Type': 'application/json' }, body: JSON.stringify(newPost) }) .then(handleResponse) .then(data => { console.log('POST Request Result:', data); }) .catch(error => { console.error('Error:', error); }); </pre>
Fetch API PUT Method	The PUT method is used to update or replace data at the specified resource. It is typically used to update existing records on the server.	<pre> const updatedPost = { id: 1, title: 'Updated Post', body: 'This post has been updated.', userId: 1 }; fetch('https://jsonplaceholder.typicode.com/posts/1', { method: 'PUT', headers: { 'Content-Type': 'application/json' }, body: JSON.stringify(updatedPost) }) .then(handleResponse) .then(data => { console.log('PUT Request Result:', data); }) .catch(error => { console.error('Error:', error); }); </pre>
Fetch API PATCH Method	The PATCH method is used to apply partial modifications to a resource. It is typically used to update parts of a resource while leaving the rest of the resource unchanged.	<pre> const updatedData = { title: 'Updated Title' }; fetch('https://jsonplaceholder.typicode.com/posts/1', { method: 'PATCH', headers: { 'Content-Type': 'application/json' }, body: JSON.stringify(updatedData) }) </pre>

		<pre> .then(handleResponse) .then(data => { console.log('PATCH Request Result:', data); }) .catch(error => { console.error('Error:', error); }); </pre>
Fetch API DELETE Method	<p>The DELETE method is used to request the removal of a resource from the server. It is used to delete records or resources.</p>	<pre> fetch('https://jsonplaceholder.typicode.com/posts/1', { method: 'DELETE' }) .then(response => { if (response.ok) { console.log('DELETE Request Successful'); } else { throw new Error('DELETE request failed'); } }) .catch(error => { console.error('Error:', error); }); </pre>
Axios Library Syntax	<p>It provides a consistent way for making asynchronous HTTP requests to interact with RESTful APIs or other web services.</p>	<pre> axios({ method: 'HTTP_METHOD', url: 'URL', headers: { // Headers (optional) }, data: { // Request data (optional) } }) .then(response => { // Handle the successful response }) .catch(error => { // Handle errors }); </pre>
install axios	<p>You can install axios using npm in the terminal after installing node.</p>	<pre> npm install axios </pre>
Axios Methods	<p>Axios have HTTP method for the request such as 'GET', 'POST', 'PUT', 'DELETE'.</p>	<pre> axios({ method: 'HTTP_METHOD', url: 'URL', headers: { // Headers (optional) }, data: { // Request data (optional) } }) .then(response => { // Handle the successful response }) .catch(error => { // Handle errors }); </pre>



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