AJAX

Module 4 Week 9

Notes Repo: https://github.com/C-Shi/lhl-flex-lecture

Learning Objectives

AJAX Concept

AJAX Example

Build Ajax with jQuery

*Discussion

1. Prerequisite: Request/Response, REST convention, jQuery, JavaScript Event, Promise

2. AJAX is one of the most important but challenging topic in JavaScript.

3. Today's lecture is not the end of AJAX. It is just a start.

4. You will have lots of opportunities to practice. AJAX is everywhere.

5. **Focus on the following:**
    a. In what situation you want to use AJAX
    b. What is the syntax pattern
    c. What to do when you stuck

What is AJAX

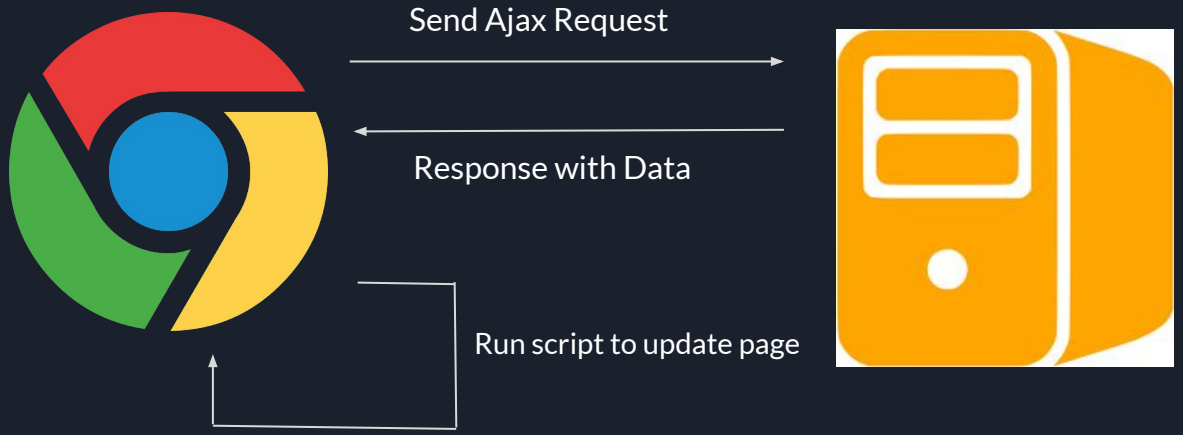
Asynchronous

JavaScript

And

XML

request



Ajax allow browser to exchange data and update the page without refreshing

Sending AJAX

Legacy

```
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()
```

Modern

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


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

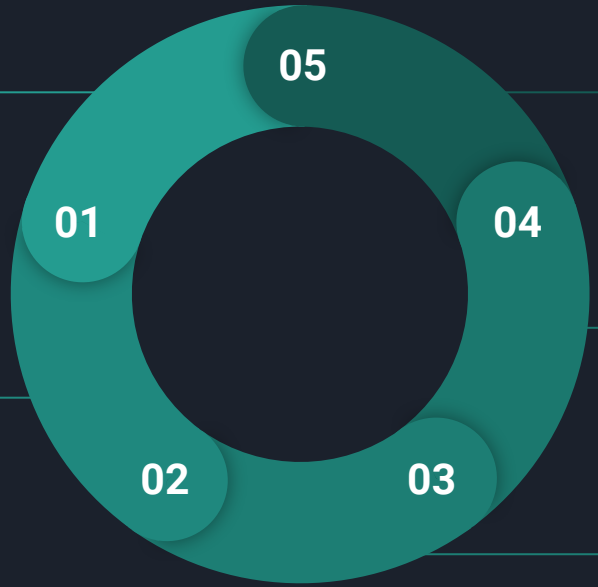
AJAX implementation

Setup

Load the initial HTML Page and JavaScript file

Find Tool

Determine what tool/library to use for ajax and import it if necessary



Think about trigger

Determine when to fire the request. Usually on an DOM event like when clicking a button

Send request

Find where to send, and what to send in your request

Actions to update

Run script on response data to update the page without refreshing

JSONPlaceholder

1. A Fake REST API for testing and prototyping
2. https://jsonplaceholder.typicode.com/

jQuery

1. A small, feature-rich JavaScript framework
2. Full of event handler and amination
3. Full support for AJAX
4. https://jquery.com/

Exercise # 1

As a user,

When I click the Get More Post button,

I should see a new post added to the post list,

with an incremented ID, a title and a post body

Ajax Syntax Pattern

```
// register an event
$('button').click(function() {
  // fire ajax
  $.get(`https://jsonplaceholder.typicode.com/posts/1`)
    .then(result => {
      // update DOM with result
      $(`
        <article>
          <header>Post # ${result.id}: ${result.title}</header>
          <p>${result.body}</p>
        </article>
      `).appendTo('section')
    })
 })
```

Exercise # 2

As a User,

When I fill the form and click post,

I should create a new post,

and the new post should be added to the page,

What to take away

1. What situation do I use Ajax
   a. If you want to interact with a server WITHOUT refreshing the page
2. What is the syntax pattern

```
// register an event
$('button').click(function() {
  // fire ajax
  $.get(`https://jsonplaceholder.typicode.com/posts/1`)
    .then(result => {
      // update DOM with result
      $(`
        <article>
          <header>Post # ${result.id}: ${result.title}</header>
          <p>${result.body}</p>
        </article>
      `).appendTo('section')
    })
 })
```

3. What if I stuck
   a. Google Keyword: jquery, ajax, event name (on click), method (POST/GET)
   b. Search keyword in on: api.jquery.com

Discussion

- When to Use AJAX
- When to avoid AJAX
- When to use AJAX with caution

Reasons to Use AJAX	**Reasons to Avoid AJAX**	**Things to Consider**
Client-side App/API	Browser History	CORS
Perceived performance	SEO Index	Reconstructed entire page/data
Better User Experience	target client use outdated Browser	Response Type: JSON vs HTML