</> htmx 2.0 & Web Components

Un combo pour le développement web

Horacio Gonzalez

2024-09-12

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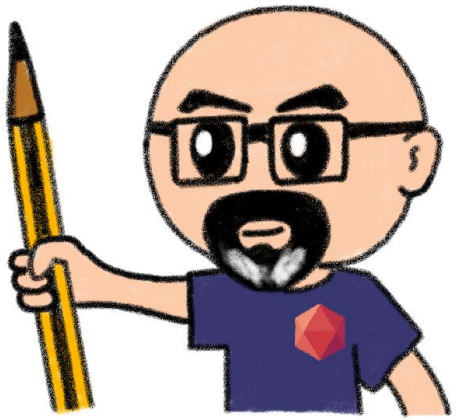

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Horacio Gonzalez

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Espagnol Perdu en Bretagne

Head of DevRel

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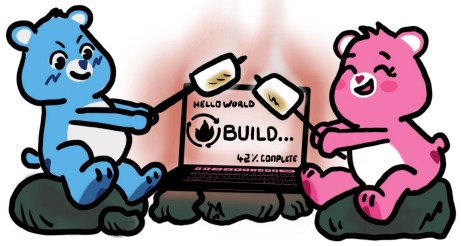

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GDG Finistère

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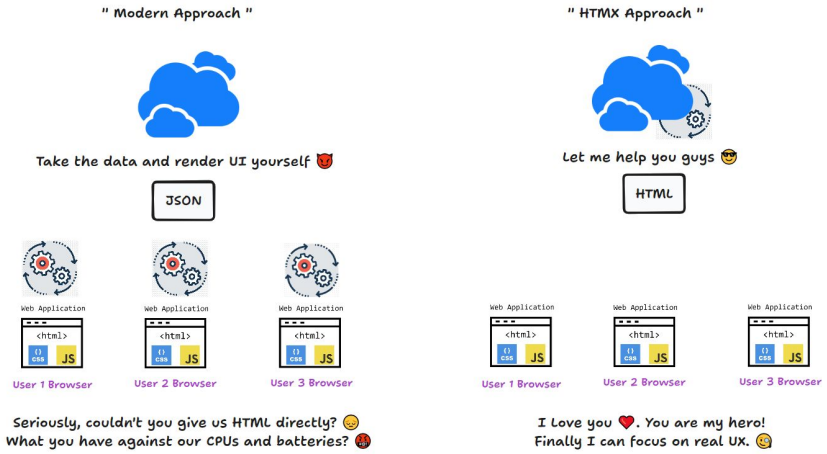
Créez des interfaces utilisateur modernes avec la simplicité et la puissance de l'hypertexte



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Les limites arbitraires du HTML

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- Pourquoi seules les balises `<a>` et `<form>` peuvent-elles effectuer des requêtes HTTP(S) ?
- Pourquoi seuls les événements de clic et d'envoi peuvent-ils les déclencher ?
- Pourquoi seules les méthodes GET et POST sont-elles disponibles ?
- Pourquoi les balises `<a>` et `<form>` forcent le remplacement de l'intégralité de l'écran ?
- Pourquoi autant des limites arbitraires à HTML ?

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Objectif: de l'interactivité dans l'hypertexte

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htmx étend les fonctionnalités de HTML

- effectuer des requêtes AJAX
- effectuer des transitions CSS
- gérer des WebSockets
- gérer les événements envoyés par le serveur

avec seulement des attributs HTML déclaratifs.

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Mais à quoi ça sert tout ça ?

Car c'est bien beau et sémantique, mais j'ai du mal à voir l'intérêt...

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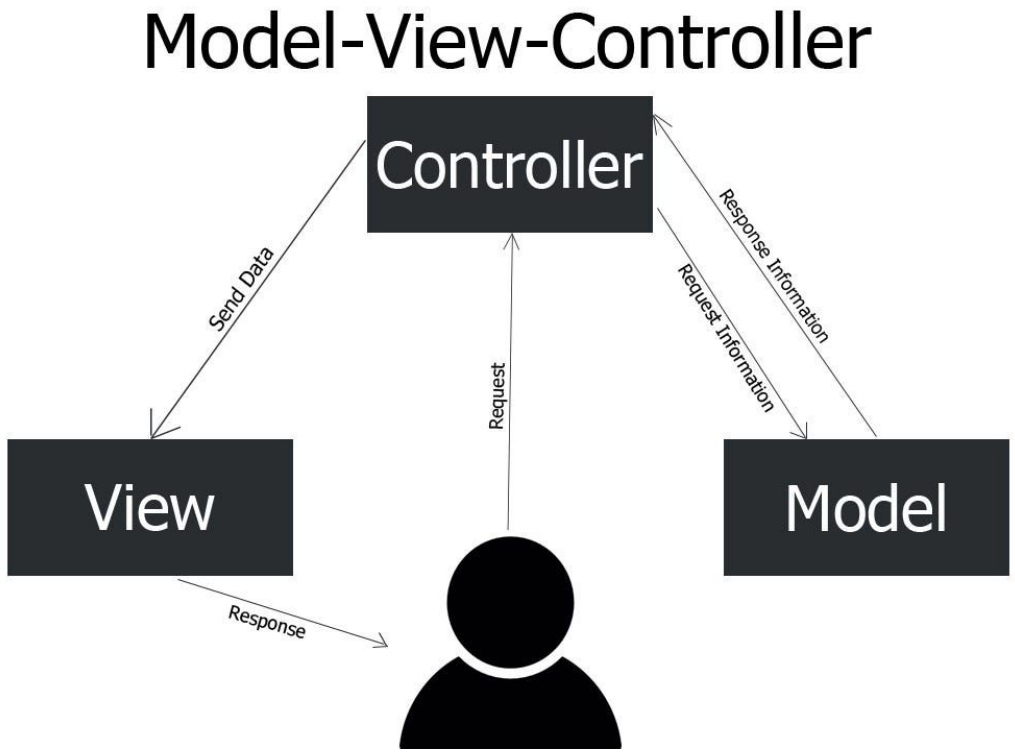
Et si on faisait un petit saut arrière dans le temps ?

À une époque révolue, où les dinosaurs codaient avec struts

Souvenez-vous du modèle MVC



Avec la navigation page par page

L'époque dorée d'une génération de frameworks

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RAILS

Sinatra

play

STRUTS

GRAILS

django

Generant des vues HTML

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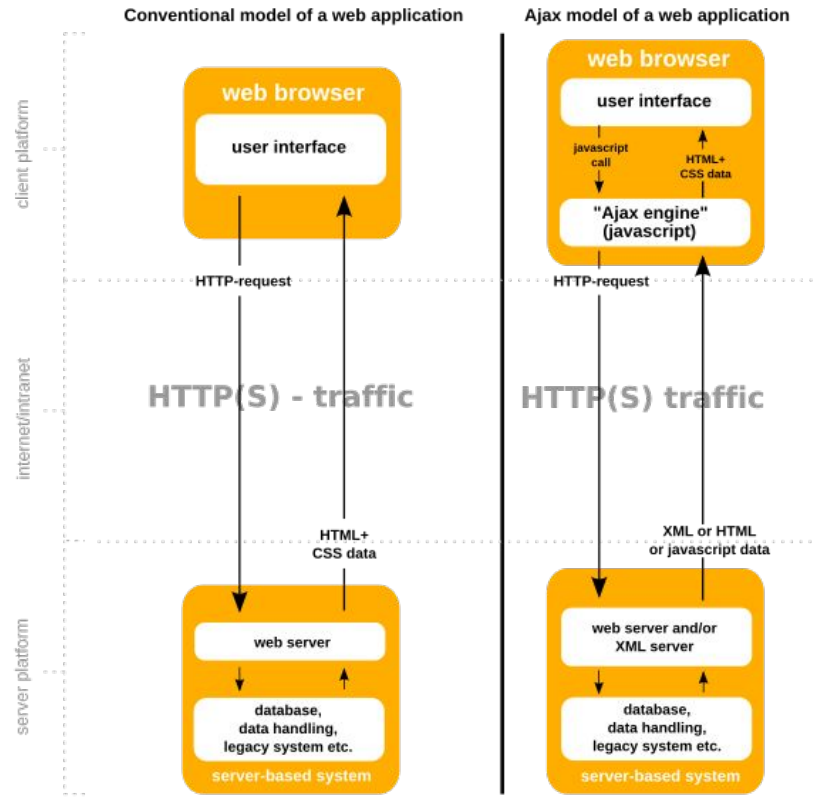
Vers 2005 on voit arriver AJAX



C'est la naissance du Web 2.0

Et les pages webs deviennent des apps dynamiques

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À coup de JavaScript, avec JQuery

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On bascule vers des Single Page Apps

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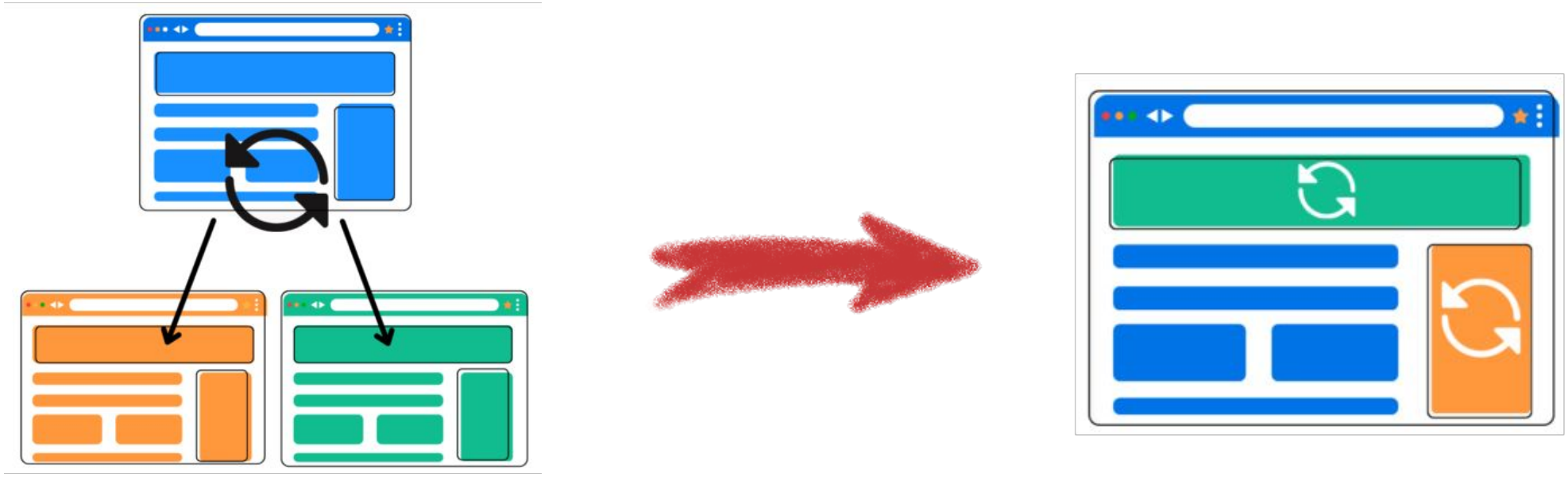

MPA

Multi-page app

SPA

Single-page app

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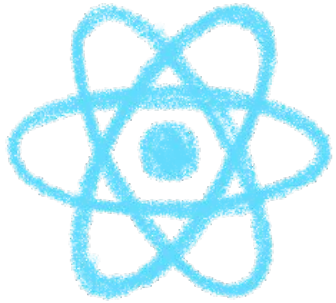
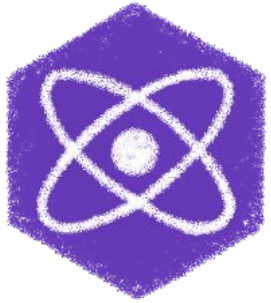
Des apps de plus en plus complexes

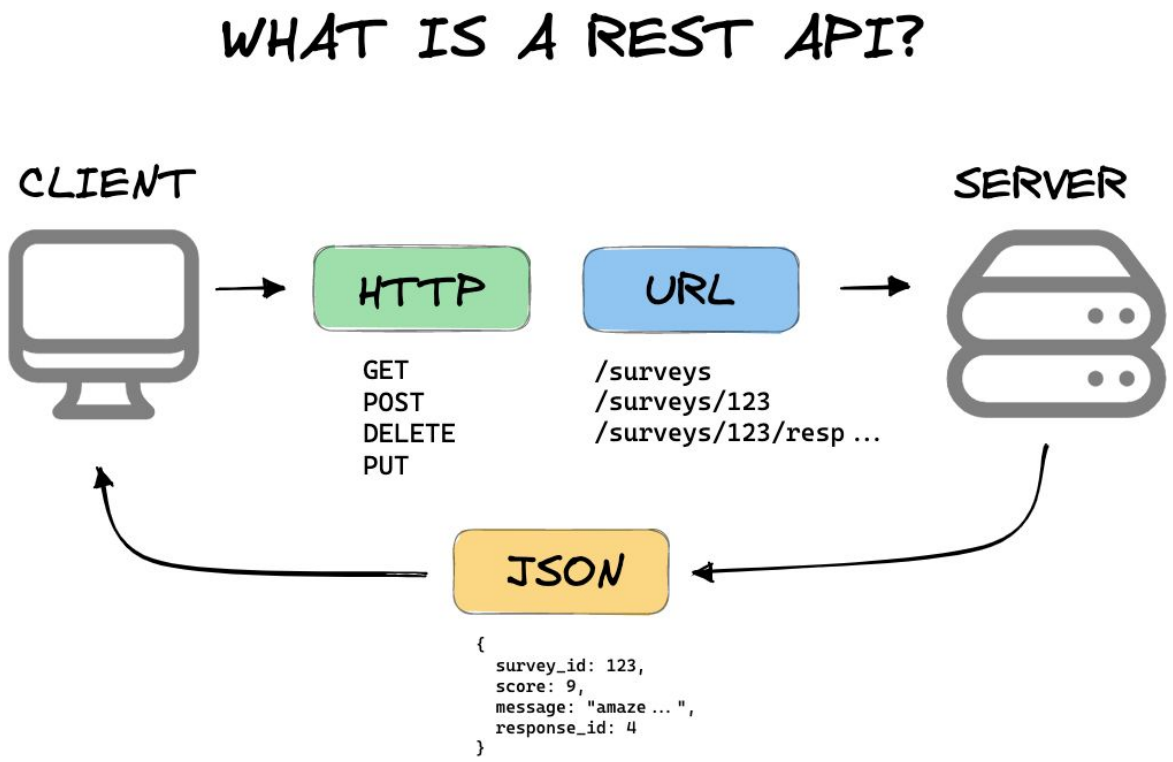






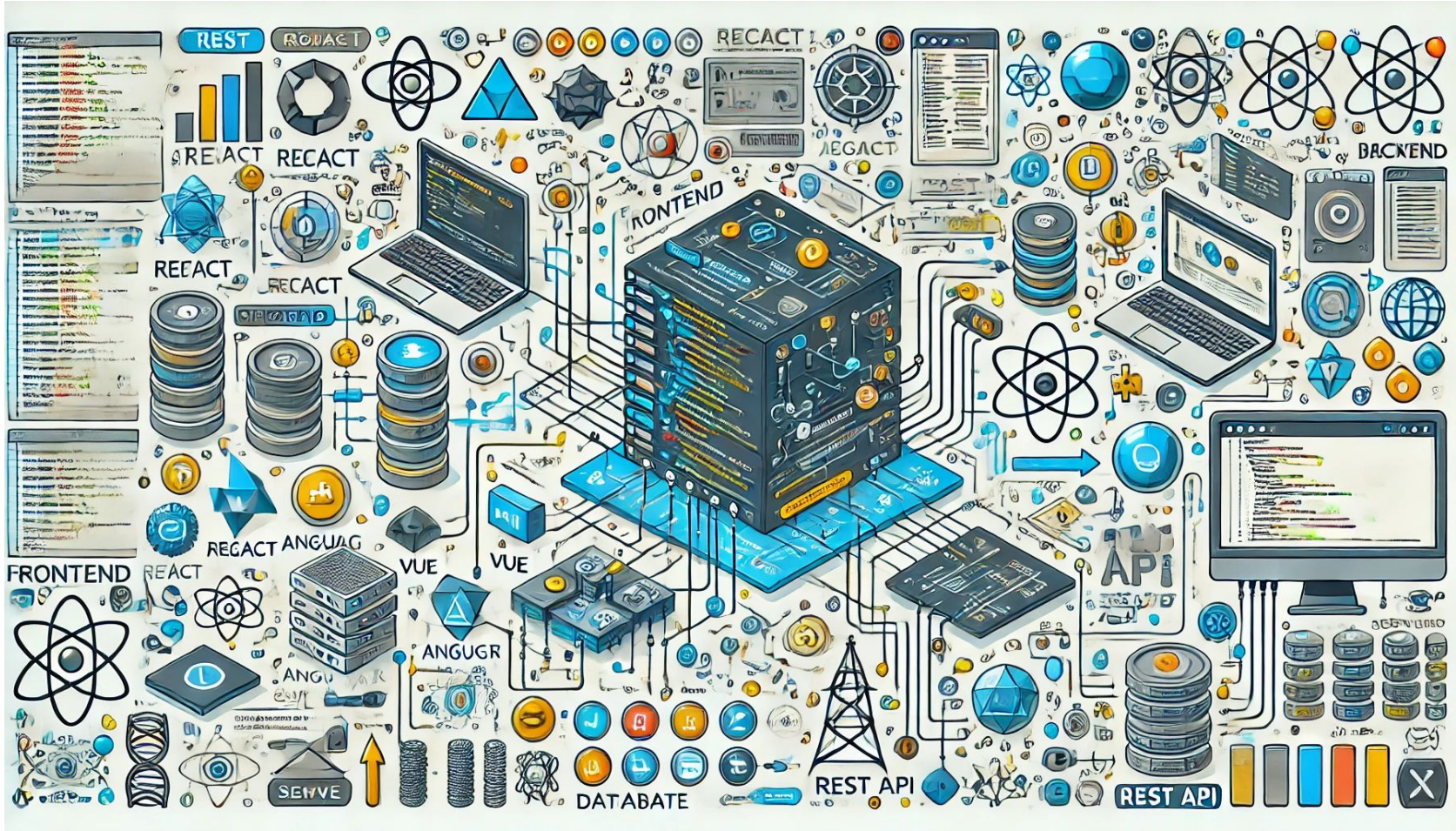

Avec l'apparition des frameworks JavaScript

Et les backends deviennent des API REST



Servant du JSON

On a gagné des fonctionnalités



Mais on a perdu de la simplicité et le côté sémantique

Pour beaucoup d'app c'est overkill

On ne veut qu'un site web avec un peu de dynamisme !

</> htmx peut être la bonne solution

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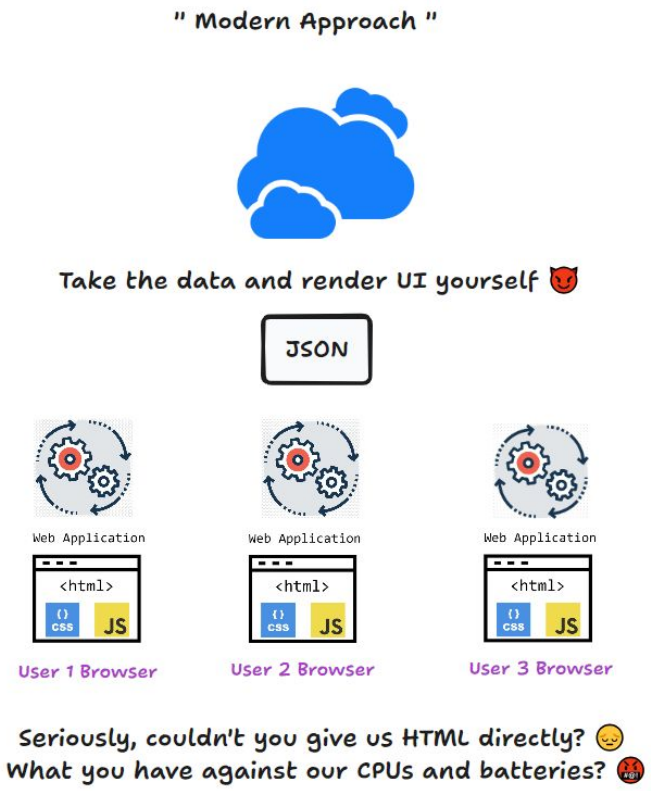
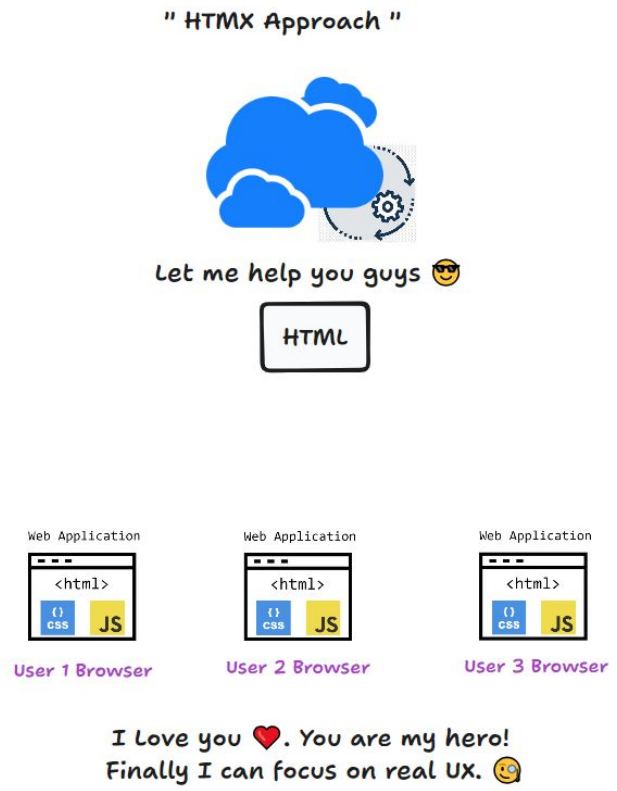
</> htmx

C'est du HTML étendu

- Simplicité
- Sémantique
- Dynamisme





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On veut du code !

Des exemples ! Des exemples !

example-01.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<!-- have a button that POST on a click via AJAX
    and replace the content of #status div
    with the response -->

<button hx-post="/clicked" hx-target="#status">
   Click Me
</button>

<div id="status">Not yet clicked</div>
```

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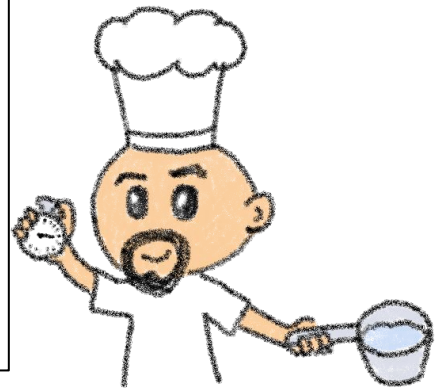

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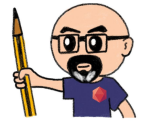

Trop de blabla, on veut un exemple !

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example-01.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<!-- have a button that POST on a click via AJAX
    and replace the content of #status div
    with the response -->

<button hx-post="/clicked" hx-target="#status">
   Click Me
</button>

<div id="status">Not yet clicked</div>
```

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GET, POST, PUT, DELETE...

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example-02.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<div>
 <button hx-get="/test-methods" hx-target="#status">Send GET</button>
 <button hx-post="/test-methods" hx-target="#status">Send POST</button>
 <button hx-put="/test-methods" hx-target="#status">Send PUT</button>
 <button hx-delete="/test-methods" hx-target="#status">Send DELETE</button>
</div>

<div id="status">No request sent</div>
```

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Remplacer l'élément par la réponse

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example-03.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<div id="test-replace">
  <button hx-get="/test-replace/innerHTML">
    If you click, this message will be replaced
  </button>
  <button hx-get="/test-replace/outerHTML" hx-swap="outerHTML">
    If you click, this button will become a div
  </button>
  <button hx-get="/test-replace/delete" hx-swap="delete">
    If you click, this button will dissapear when the response is received
  </button>
  <button hx-get="/test-replace/none" hx-swap="none">
    If you click, nothing changes, the response is ignored
  </button>
</div>
```

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Choisir quand émettre la requête

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example-04.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<!-- By default, AJAX requests are triggered by the “natural” event of an element: -->
<div id="test-triggers">
  <button hx-get="/trigger/natural" hx-target="#status">
    In a button the natural event is a click
  </button>
  <button hx-trigger="mouseover" hx-get="/trigger/mouseover" hx-target="#status">
    This button triggers on mouseover
  </button>
  <button hx-trigger="mouseenter" hx-get="/trigger/mouseenter" hx-target="#status">
    This button triggers on mouseenter
  </button>
  <button hx-trigger="mouseleave" hx-get="/trigger/mouseleave" hx-target="#status">
    This button triggers on mouseleave
  </button>
</div>

<div id="status">No AJAX request sent yet</div>
```

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Choisir quand émettre la requête

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example-05.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<!-- By default, AJAX requests are triggered by the “natural” event of an element: -->
<div id="test-triggers">
 <button hx-trigger="every 5s" hx-get="/trigger/5seconds" hx-target="#status">
   Sends request every 5 seconds, no event needed
 </button>
 <button hx-trigger="click[ctrlKey]" hx-get="/trigger/ctrlclick" hx-target="#status">
   Sends request on click while pressing Ctrl
 </button>
 <button hx-trigger="click[ctrlKey] once" hx-get="/trigger/ctrlclickonce" hx-target="#status">
   Sends request on the first click while pressing Ctrl
 </button>
</div>

<div id="status">No AJAX request sent yet</div>
```

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Un spinner pour faire patienter

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example-06.html

```
<script src="https://unpkg.com/htmx.org@2.0.2"></script>

<!-- By default, AJAX requests are triggered by the “natural” event of an element: -->
<div id="test-triggers">
 <button hx-trigger="every 5s" hx-get="/trigger/5seconds" hx-target="#status">
   Sends request every 5 seconds, no event needed
 </button>
 <button hx-trigger="click[ctrlKey]" hx-get="/trigger/ctrlclick" hx-target="#status">
   Sends request on click while pressing Ctrl
 </button>
 <button hx-trigger="click[ctrlKey] once" hx-get="/trigger/ctrlclickonce" hx-target="#status">
   Sends request on the first click while pressing Ctrl
 </button>
</div>

<div id="status">No AJAX request sent yet</div>
```

</> htmx

Des extensions presque à l'infini

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</> htmx

extensions

This site is a searchable collection of extensions for htmx 2.0. They are not guaranteed to work with the htmx 1.x codebase.

Core extensions are actively maintained by the htmx team.

Community extensions are contributed by the community or rarely touched by the htmx team (although they still work!)

▶ **Contributing**

Core

search core extensions

Name	Description
sse	Provides support for Server Sent Events directly from HTML.
ws	Provides bi-directional communication with Web Sockets servers directly from HTML

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On veut du code !

Faisons un exemple

To-Do List

Donner le talk au FinistDevs 📝

Manger de la pizza 📝

addTask

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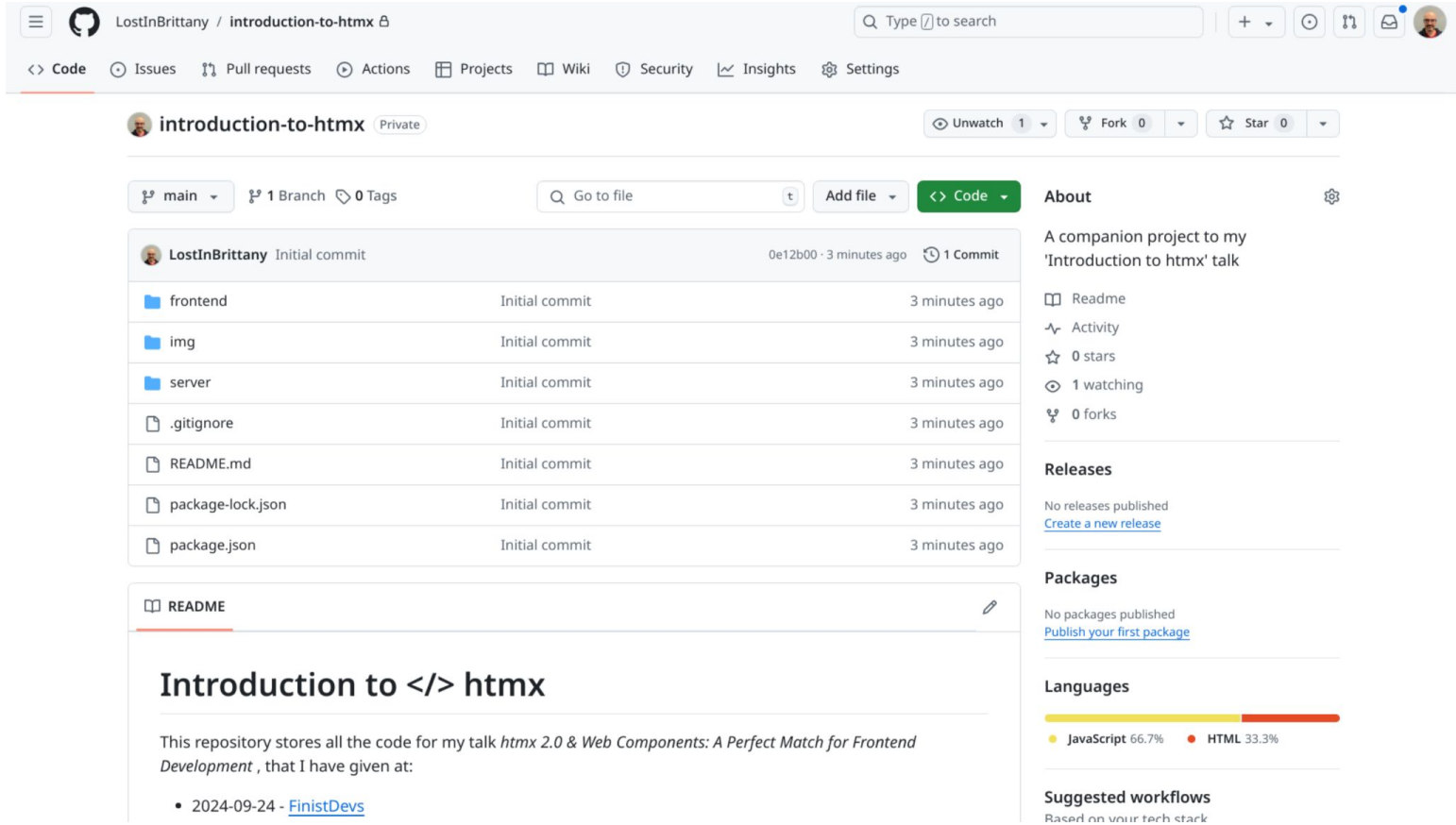
Tout le code est disponible



https://github.com/LostInBrittany/introduction-to-htmx

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Des démos de htmx

Finist Devs

To-Do List

Donner le talk au FinistDevs 📝

Manger de la pizza 📝

addTask

Du `Hello World` à la `To-do List`

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What the heck are web component?

The 3 minutes context

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Web Components

Web standard W3C

Web Components

Available in all modern browsers:

Firefox, Safari, Chrome

Web Components

Create your own HTML tags

Encapsulating look and behavior

Web Components

Fully interoperable

With other web components, with any framework

Web Components

Finist Devs

</>

CUSTOM ELEMENTS

SHADOW DOM

TEMPLATES

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Custom Element

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</> To define your own HTML tag

```
<body>
  ...
  <script>
    window.customElements.define('my-element',
      class extends HTMLElement {...});
  </script>
  <my-element></my-element>
</body>
```

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Shadow DOM

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To encapsulate subtree and style in an element


```
<button>Hello, world!</button>
<script>
var host = document.querySelector('button');
const shadowRoot = host.attachShadow({mode:'open'});
shadowRoot.textContent = 'こんにちは、影の世界!';
</script>
```

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Template

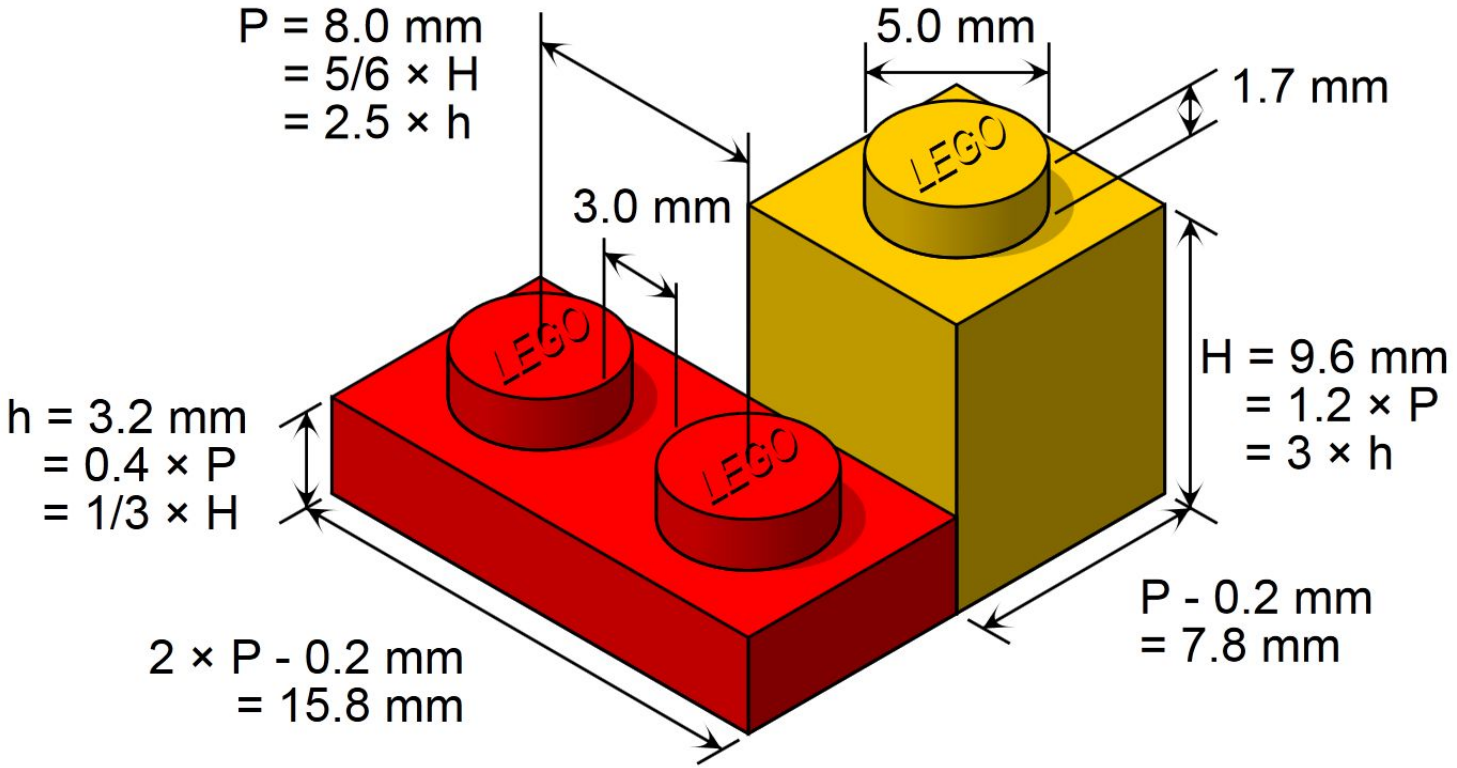
To have clonable document template

```
<template id="mytemplate">
  <img src="" alt="great image">
  <div class="comment"></div>
</template>

var t = document.querySelector('#mytemplate');
// Populate the src at runtime.
t.content.querySelector('img').src = 'logo.png';
var clone = document.importNode(t.content, true);
document.body.appendChild(clone);
```

But in fact, it's just an element...

- Attributes
- Properties
- Methods
- Events



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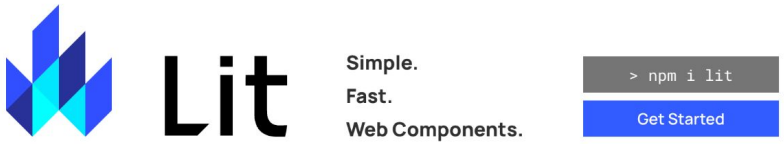
Lit

Simple. Fast. Web Components



Simple

Skip the boilerplate

Building on top of the Web Components standards, Lit adds just what you need to be happy and productive: reactivity, declarative templates and a handful of thoughtful features to reduce boilerplate and make your

Fast

Tiny footprint, instant updates

Weighing in at around 5 KB (minified and compressed), Lit helps keep your bundle size small and your loading time short. And rendering is blazing fast, because Lit touches only the dynamic parts of your UI when updating

Web Components

Interoperable & future-ready

Every Lit component is a native web component, with the superpower of interoperability. Web components work anywhere you use HTML, with any framework or none at all. This makes Lit ideal for building shareable

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Modern lightweight web components

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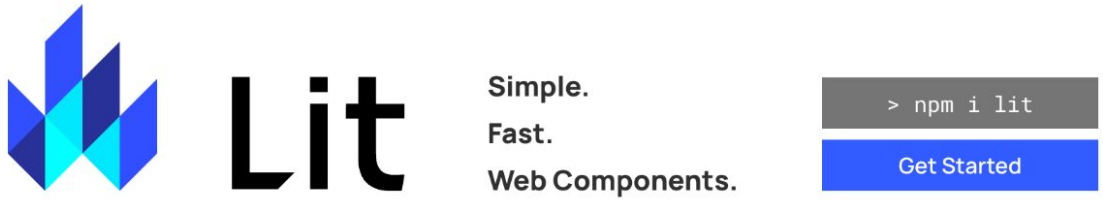

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Web Components

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For the new web paradigm

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LitElement

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```
import { LitElement, html } from 'lit-element';

// Create your custom component
class CustomGreeting extends LitElement {
 // Declare properties
 static get properties() {
   return {
     name: { type: String }
   };
 }
 // Initialize properties
 constructor() {
   super();
   this.name = 'World';
 }
 // Define a template
 render() {
   return html`<p>Hello, ${this.name}!</p>`;
 }
}
// Register the element with the browser
customElements.define('custom-greeting', CustomGreeting);
```

Lightweight web-components using lit-html

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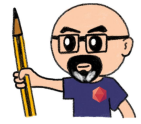
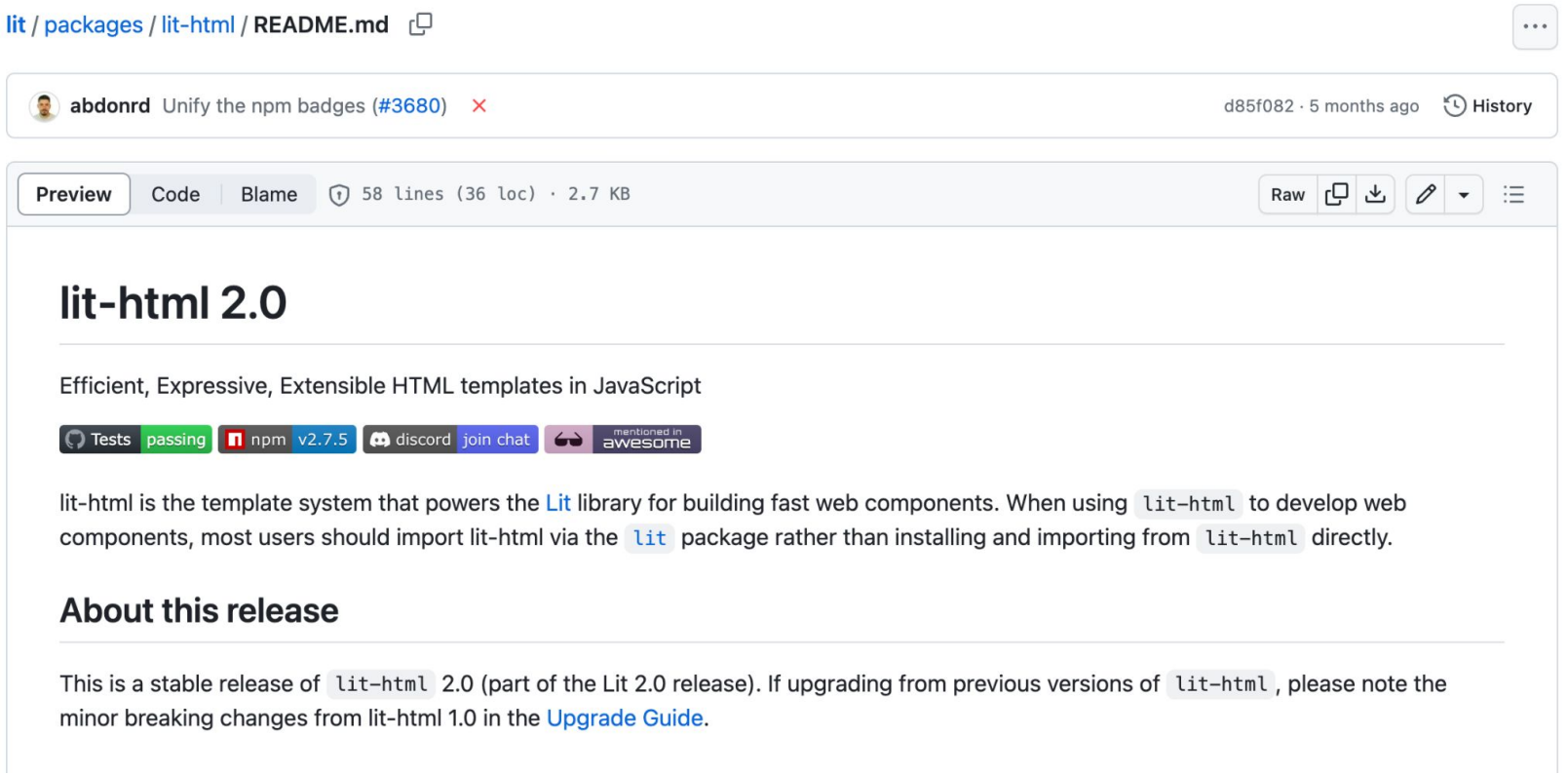


Based on lit-html



An efficient, expressive, extensible HTML templating library for JavaScript

Do you know tagged templates?

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```
function uppercaseExpression(strings, ...expressionValues) {
  var finalString = ''
  for ( let i = 0; i < strings.length; i++ ) {
    if (i > 0) {
      finalString += expressionValues[i - 1].toUpperCase()
    }
    finalString += strings[i]
  }
  return finalString
}
const expressions = [ 'Sophia Antipolis', 'RivieraDev', 'Thank you'];
console.log(uppercase`Je suis à ${expression[0]} pour ${expression[1]. $expression[2]!`
```

Little known functionality of template literals

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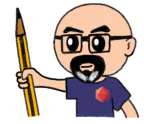

lit-html Templates

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```
let myTemplate = (data) => html`
  <h1>${data.title}</h1>
  <p>${data.body}</p>
`;
```

Lazily rendered

Generates a TemplateResult

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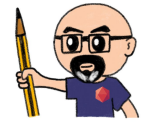
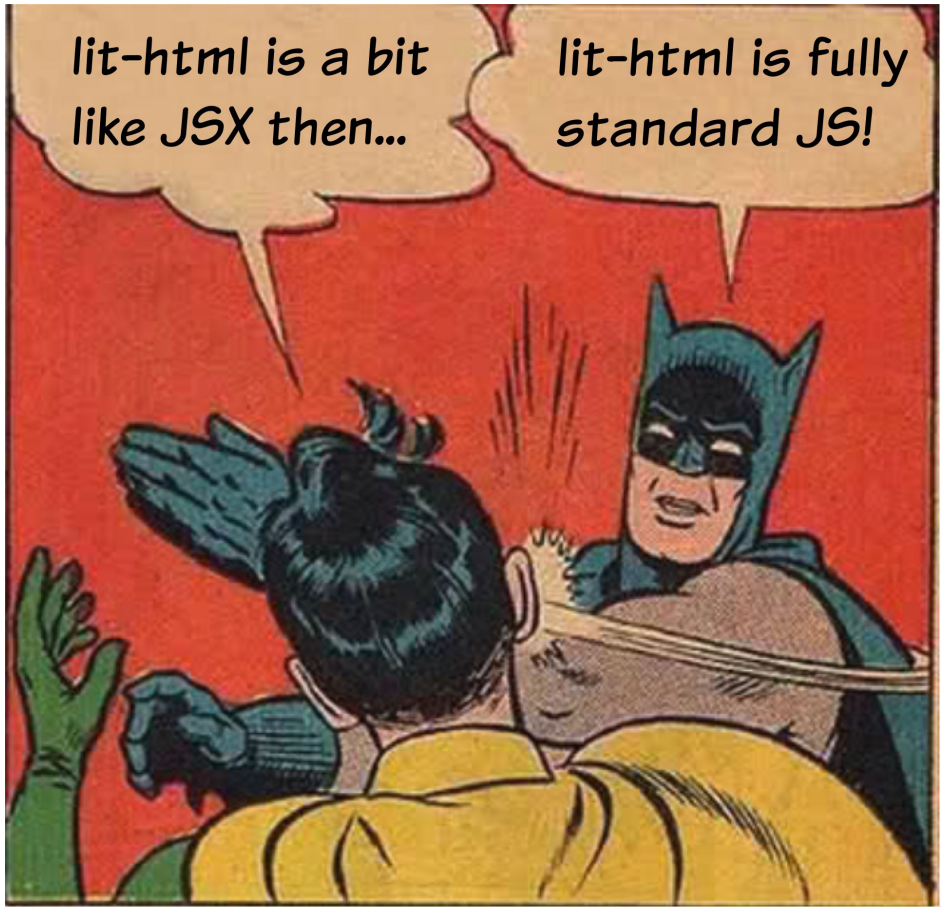


It's a bit like JSX, isn't it?



The good sides of JSX... but in the standard!

LitElement

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```
import { LitElement, html } from 'lit-element';

// Create your custom component
class CustomGreeting extends LitElement {
 // Declare properties
 static get properties() {
   return {
     name: { type: String }
   };
 }
 // Initialize properties
 constructor() {
   super();
   this.name = 'World';
 }
 // Define a template
 render() {
   return html`<p>Hello, ${this.name}!</p>`;
 }
}
// Register the element with the browser
customElements.define('custom-greeting', CustomGreeting);
```

Lightweight web-components using lit-html

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Une petit démo de Lit

Faisons un compteur : `my-lit-counter`

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Lit & </> htmx

Amour au premier <tag>

Lit

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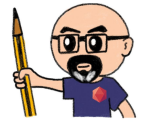

htmx pour structure, lit pour encapsuler l'intelligence

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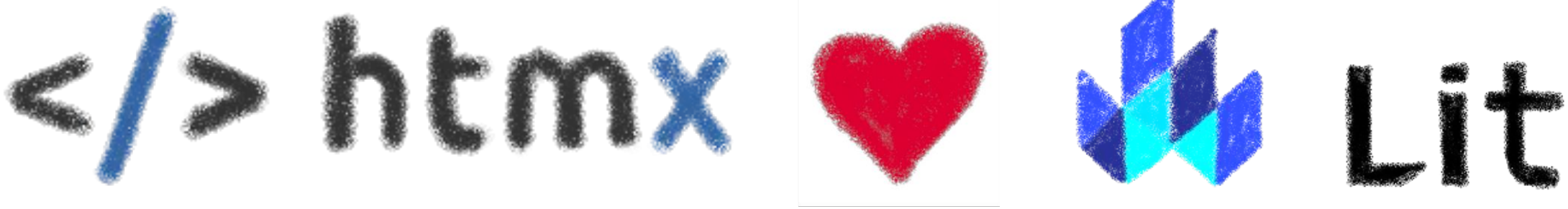

Pour htmx les élément lits sont comme n'importe quel tag

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Une petit démo de htmx + Lit

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Faisons un compteur : `my-lit-counter`

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That's all, folks!

Thank you all!

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