

EXTENDING HTML WITH WEB COMPONENTS

```
<HEADER>  
<TITLE>The World Wide Web  
<NEXTID N="55">  
</HEADER>  
  
<BODY>  
<H1>World Wide Web</H1>  
The World Wide Web (W3) is a wide-area  
document, including the  
<P>Everything the  
<A NAME=29 HREF="Administration" HREF="Summary">  
HREF="policy.html">policy</A>, Mailing/Overview  
<A NAME=41 HREF="FAQ/List.html">Frequently  
<DL>  
<DT><A NAME=44 HREF=".. /DataSources/Top.h  
b, sub</A>  
Services</A>  
<DD> on the browser</A>  
<DT><A NAME=13 HREF="Status.html">Softw  
<DD> A list of W3 project components a  
HREF="LineMode/Browser.html">Line Mode</A>  
<A>, <A NAME=26 HREF="NeXT/WorldWideWeb.ht  
overview.html">Servers</A>, <A NAME=51 H  
HREF="MailRobot/Overview.html">Mail rob  
</A> )  
<A NAME=47 HREF="Technical.html">  
protocols, formats,  
Biography.
```

Internet Explorer 11

Internet Explorer 11 follows the [Component Lifecycle Policy](#).

📘 Important

The Internet Explorer (IE) 11 desktop application will end support for Windows 10 semi-annual channel starting **June 15, 2022**. Customers are encouraged to move to Microsoft Edge with IE mode. IE mode enables backward compatibility and will be supported through at least 2029. Additionally, Microsoft will provide notice one year prior to retiring IE mode. [Go here](#) for a list of supported operating systems for Internet Explorer, including versions impacted by this announcement.

Support dates are shown in the Pacific Time Zone (PT) - Redmond, WA, USA.



ROWDY RABOUW

Front-End Focused Senior DevOps Engineer
with special attention for accessibility

Formula One geek since 1994



Formula One Xplorer ▾



Current features ▾

OK

WELCOME !

Good afternoon Formula One fan and welcome to the Formula One Xplorer website presented by Autodromo Formula Uno.

We are proud to present you the first **free** Formula One Windows program with regular updates in the world !

Are we mad ? No way ! We would like to share our growing collection of F1 data with you to promote one of the most exciting and hightech sports in the world.

WHAT IS FORMULA ONE XPLOER ?

Formula One Xplorer (also known as FOX) is, as said above, a freeware Windows program. This means that it is totaly free to use and share it with your friends and family.

FOX offers you the latest statistical information about teams and drivers, test results, Grand Prix results, various other statistics and charts (a [full features list](#) is available).

Data updates are available on Tuesdays after a Grand Prix week-end. These updates can be downloaded from this website or can be send to you [by email](#).

Program updates are released on a irregular basis.

WHAT'S NEW ?

November 19, 2000 :

- FOX 2.0.0000.288 [bèta release](#) available

October 29, 2000 :

- FOX 1.2 [full version](#) released (including data version 2000.17)
- FOX 1.2 [complete download pack](#) released (including data version 2000.17 and Borland Database Engine 5.11)

SIRKUIT BALI PASTI TERWUJUD

<http://www.otosport-online.com>
e-mail: otosport@goracing.net

NO. 15/1 • SABTU 22 JULI 2000 • Rp 3.000

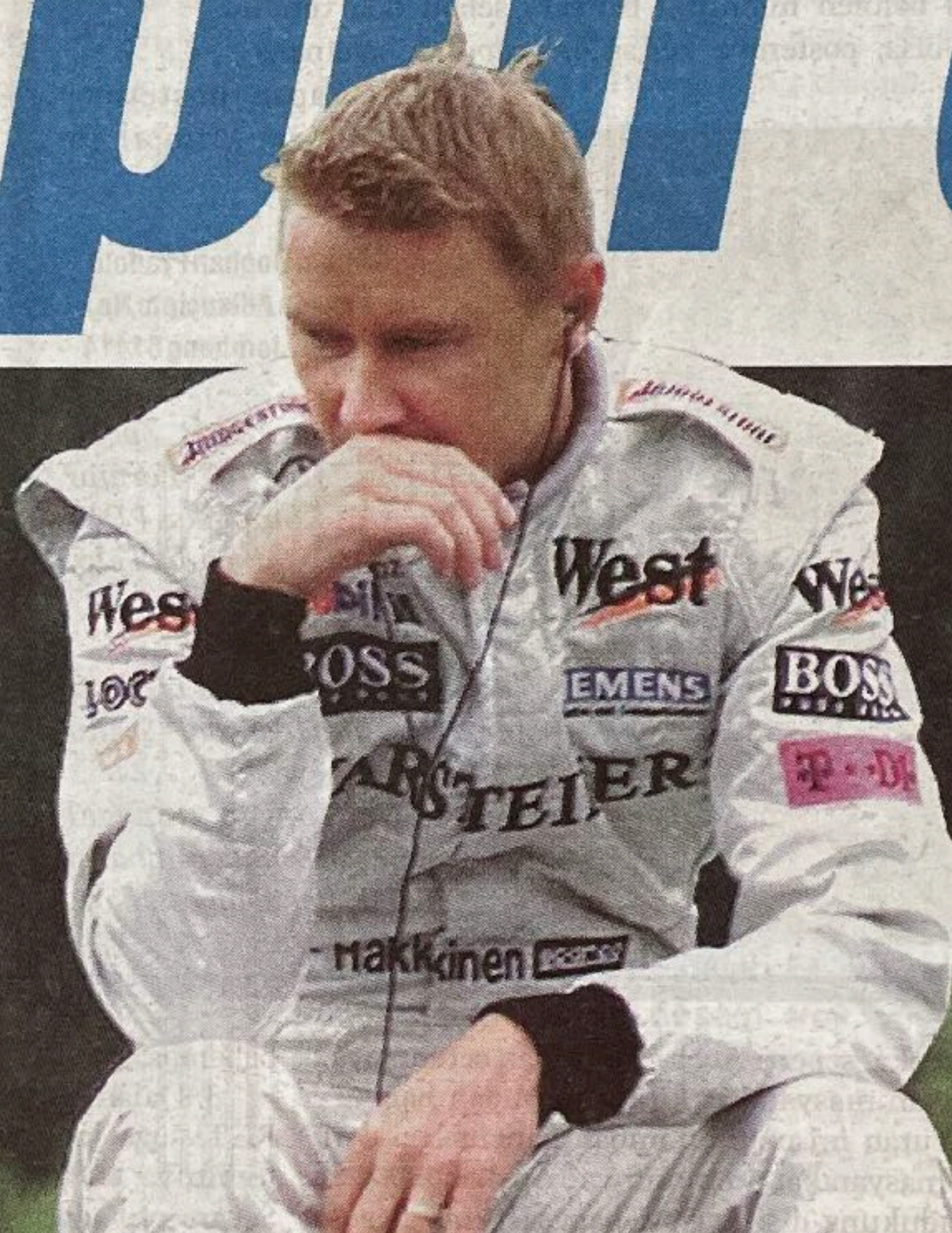
otosport

Prestone®

RADIATOR SUPER COOLANT

- Mencegah Panas Berlebihan (Overheating)
- Meningkatkan Titik Didih Air

MIKA
RUU



...pakat untuk berlaga di sirkuit Monza?

Jelaskan jawaban Anda ditinjau dari segi banyaknya bahan bakar yang diisi, pemakaian jenis ban, jenis front serta rear wing, dan karakteristik sirkuit Monza itu sendiri.

Essay dapat ditulis pada kertas yang terpisah.

...Pimp Morris Indonesia (PWI) dan amasinya tidak bertanggung jawab atas kehilangan, tulisan yang tidak terbaca, ketidaklengkapan, kesalahan alamat, kerusakan, denda perangko, ataupun keterlambatan penerimaan formulir. Fotokopi formulir diperkenankan.

- Seluruh formulir yang masuk beserta lampirannya menjadi milik PT Philip Morris Indonesia dan akan dihancurkan 3 bulan setelah program selesai serta tidak akan digunakan untuk kepentingan lain.
- Formulir lomba akan dinilai berdasarkan jumlah jawaban yang benar pada BAGIAN SATU, serta pemaparan terbaik pada BAGIAN DUA.

Tanda tangan:

Tanggal:



Karya Gila Nan Mutakhir



Butuh waktu 1 tahun demi mewujudkan kecintaannya akan dunia F1. Bukan untuk berburu tandatangan atau foto bareng driver jet darat. Rowdy Rabouw, seorang fans asal Belanda, merilis peranti lunak yang mutakhir guna memenuhi hasratnya F1-nya.



"Satu tahun penuh saya berlutut dengan komputer untuk melahirkan software ini," tutur Rowdy. Namanya Formula One Xplorer 2000, disingkat jadi FOX 2000.

Fungsi peranti itu, menyimpan dan meng-update data statistik di Formula 1. Dari mulai biodata pembalap, tim, hasil kualifikasi setiap GP sampai hasil lomba dan hasil serta jadwal sesi testing. Lengkap dengan waktu, selisih dan per-

lehan poin. Masih termasuk klasemen pembalap dan konstruktor, plus jumlah lap terdepan. Tak lupa, jadwal tetap gelaran heboh itu. Gila memang.

Software gratis itu bisa di *download* via *website* miliknya,

No	Driver	Team	Time	Gap	Speed
01	Michael Schumacher	Ferrari	1:16.474		200.115
02	Mika Hakkinen	McLaren-Mercedes	1:16.697	0.213	199.559
03	Nick Heidfeld	Prost-Peugeot	1:18.125	1.651	195.896
04	Ralf Schumacher	Williams-BMW	1:18.148	1.674	195.828
05	Eddie Irvine	Jaguar-Cosworth	1:18.235	1.761	195.611
06	Giancarlo Fisichella	Benetton-Playlife	1:18.540	2.066	194.951
07	Johnny Herbert	Jaguar-Cosworth	1:18.586	2.112	194.737
08	Jean Alesi	Prost-Peugeot	1:18.750	2.284	194.312
09	Pedro de la Rosa	Aurion-Supertec	1:18.862	2.388	194.055
10	Jenson Button	Williams-BMW	1:18.968	2.495	193.793
11	Mika Salo	Sauber-Petronas	1:18.045	2.571	193.695
12	Alexander Wurz	Benetton-Playlife	1:18.091	2.607	193.618
13	Jacques Villeneuve	BAR-Honda	1:18.130	2.656	193.398
14	Jos Verstappen	Aurion-Supertec	1:18.550	2.076	192.377
15	Ricardo Zonta	BAR-Honda	1:18.727	2.253	191.950
16	Pedro Diniz	Sauber-Petronas	1:18.748	2.274	191.899
17	Gaston Mazzacane	Milard-Fordmetal	1:20.619	4.145	189.826
18	Marc Gene	Milard-Fordmetal	1:21.198	4.725	189.470
107%			1:21.827	5.353	189.023
	David Coulthard	McLaren-Mercedes	no time		
	Rubens Barrichello	Ferrari	no time		
	Heinz-Harald Frentzen	Jordan-Mugen Honda	no time		
	Jarno Trulli	Jordan-Mugen Honda	no time		

[http:// fox.autodromo.com/](http://fox.autodromo.com/). Syaratnya, komputer sasaran harus punya Borland Database Engine (BDE) versi terakhir guna menyokong peranti asyik itu. Namun jangan khawatir. "Saya sudah memikirkan semuanya, termasuk menyediakan BDE gratis di situs yang sama," tutur pria asal Gouda, Belanda itu. "Install dulu BDE tadi, baru FOX-nya."

Namun kurang gila kalau ceritanya selesai sampai di situ. Selain membuat software tersebut, Rowdy juga menyediakan *data updating* gratis. Pasalnya, usai setiap GP, statistik pasti berubah. Hebatnya, data-data itu bisa diperoleh dari websitenya cuma dua hari pasca lomba. Jadi kalau GP Austria digelar pada 16 Juli, hari Selasa (18/7) sudah ada update-nya.

Lebih gila lagi, karena sang pembuat FOX itu masih belum puas jua. "Saya masih bekerja untuk membuat revisi terbarunya yang bisa dibaca dalam bahasa lain, mungkin juga bahasa Indonesia," sambungnya lagi. "Semua ini demi kecintaan saya pada Formula 1," katanya pada **otosport**.

Sudah lengkap, gratis pula. Padahal, ia punya pilihan untuk menjual software hebat macam itu. Nah, ini dia fans sejati! ■ **Arya A. Sadhana**

Prancis Terancam Punah

Grand Prix F1 2000

Kolom Gérard 'Jabby' Crombac

PC active

PC-ACTIVE

7/8

GRATIS SOFTWARE

JULI/AUG 2001

**Gratis
volledige
software**

**Xara 3D, LapLink Professional,
BeOS Personal Edition,
Linux KDE, Linux Gnome**

inhoud

juli/augustus 2001

pc-active

Cursus Java deel 12

Animaties

Stem en win

Digitale videocamera's

Cursus ASP deel 1

Active Server Pages

Essentiële software

DirectX 8.0a en meer

Alles voor BeOS

12 toepassingen

AMD versus Intel

Vergelijk zelf

software

LapLink Professional

Beheer uw pc op afstand

Xara 3D 2.1

Maak uw eigen animated GIF

BeOS Personal Edition 5.0

Alternatief voor Windows

Formule One Xplorer

Alle info over de races

Linux software

KDE 2.1.1 en Gnome 1.4

DjVu en PDF Creator

Beheer uw documenten

Mr SID

Inzoomen op satelietfoto's

Final Fantasy trailer

Straks in de bioscoop

Persian Wars

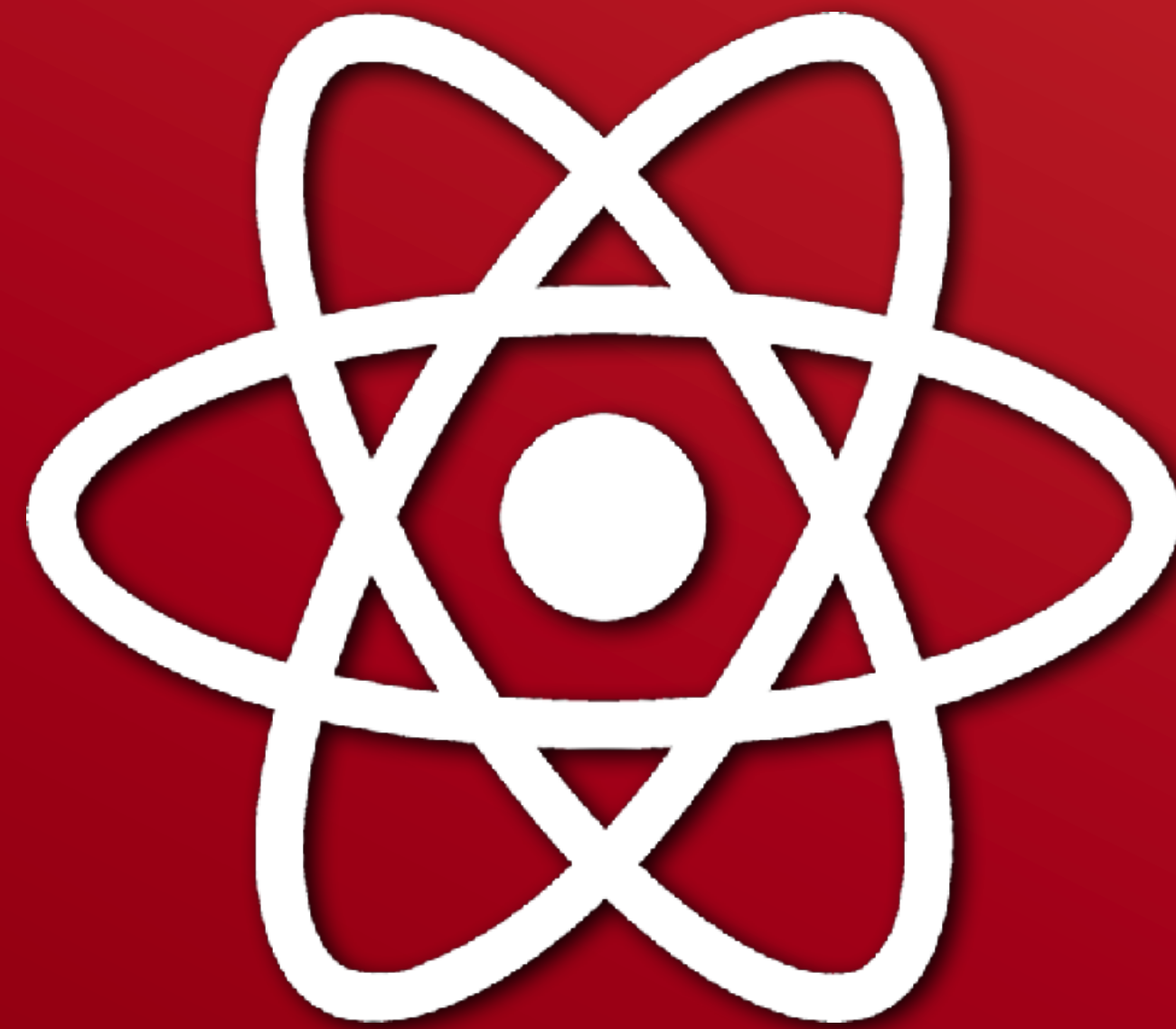
Strategie in de woestijn

Z:Steel Soldiers

Bescherm de vlag

De beste shareware

Handige en leuke programma's



COMPONENT

reusable isolated part of UI with a single responsibility

WEB COMPONENTS



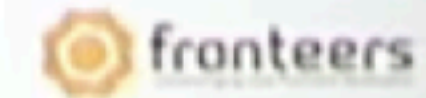
Alex Russell

Google

Fronteers Conference 2011

Web Components

```
function Comment(text) {  
  HTMLElement.call(this); // Makes this an Element  
  this.textContent = text || '...';  
  this.buildUI();  
}  
  
Comment.prototype = Object.create(HTMLElement.prototype);  
Comment.prototype.constructor = Comment;  
Comment.prototype.buildUI = function() { ... };  
  
HTMLElement.register('x-comment', Comment);
```



AGENDA

- Custom Elements
- Templates
- Shadow DOM
- Properties & Attributes
- Lifecycle Events
- Default & Named Slots
- Dispatching Events
- Web Components & JS Frameworks

CUSTOM ELEMENT

define your own HTML element and attach behaviour

or

alter a native HTML element and attach behaviour

AUTONOMOUS CUSTOM ELEMENT

define your own HTML element

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 quotes</h1>
11    <p>Leave me alone, I know what I'm doing! &mdash; Kimi Raikkonen</p>
12    <script src="f1-quote.js"></script>
13  </body>
14 </html>
15
```



```
class F1Quote extends HTMLElement {
  constructor() {
    super();
    this.innerHTML = `<p>"Woah! There's a giant lizard on the track!"
    &mdash; Max Verstappen</p>`;
  }
}

customElements.define("f1-quote", F1Quote);
```

- ES6 class definition → modern browsers
- Extend HTMLElement → call its constructor with super()
- Set the innerHTML of our component
- Register the component to the Document Object Model (DOM)

```
<h1>Formula 1 quotes</h1>
```

```
<p>Leave me alone, I know what I'm doing! &mdash; Kimi  
Raikkonen</p>
```

```
<f1-quote></f1-quote>
```

```
<script src="index.js"></script>
```

- Insert the tag (dash required)
- Include the Custom Component JavaScript

CUSTOMISED NATIVE ELEMENT

alter a native HTML element

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>External F1 links</h1>
11    <ul>
12      <li><a href="https://f1.com">Formula One</a></li>
13      <li><a href="https://www.redbullracing.com/int-en">Oracle Red Bull Racing</a></li>
14      <li><a href="https://www.ferrari.com/en-EN/formula1">Scuderia Ferrari Formula 1</a></li>
15      <li><a href="https://www.mercedesamgf1.com/en/">Mercedes-AMG Petronas Formula One Team</a></li>
16      <li><a href="https://www.mclaren.com/racing/">McLaren Formula 1</a></li>
17      <li><a href="https://www.sauber-group.com/motorsport/formula-1/">Alfa Romeo F1 Team ORLEN</a></li>
18      <li><a href="https://www.alpinecars.com/en/formula-1/">BWT Alpine F1 Team</a></li>
19      <li><a href="https://scuderia.alphatauri.com/en/">Scuderia AlphaTauri</a></li>
20      <li><a href="https://www.haasf1team.com/">Haas F1 Team</a></li>
21      <li><a href="https://www.astonmartinf1.com/en-GB/">Aston Martin Cognizant Formula 1 Team</a></li>
22      <li><a href="https://www.williamsf1.com/">Williams Racing</a></li>
23    </ul>
24    <script src="external-link.js"></script>
25  </body>
26 </html>
27
```

```
class ExternalLink extends HTMLElement {  
  constructor() {  
    ...  
  }  
}  
  
customElements.define("external-link", ExternalLink, { extends: "a" });
```

- Extend a specific HTMLElement
- Register the extend to the Document Object Model (DOM)

```
<h1>External F1 links</h1>
<ul>
  <li><a is="external-link" href="https://
www.redbullracing.com/int-en">Oracle Red Bull Racing</a></li>
```

- Add is-attribute with the tag name of your custom element



Not supported in WebKit; use polyfill:
<https://github.com/ungap/custom-elements>

TEMPLATE

```
const template = document.createElement("template");
template.innerHTML = `<p>"Woah! There's a giant lizard on the track!"
    &mdash; Max Verstappen</p>`;

class F1Quote extends HTMLElement {
  constructor() {
    super();
    this.appendChild(template.content.cloneNode(true));
  }
}

customElements.define("f1-quote", F1Quote);
```


STYLING

index.html M JS f1-quote.js U

03-global-css > index.html > ...

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 quotes</h1>
11    <p>Leave me alone, I know what I'm doing! &mdash; Kimi Raikkonen</p>
12    <f1-quote></f1-quote>
13    <script src="f1-quote.js"></script>
14  </body>
15 </html>
16
```

Web Components x

http://127.0.0.1:3000/03-global-css/index.ht

Formula 1 quotes

Leave me alone, I know what I'm doing! – Kimi Raikkonen

Woah! There's a giant lizard on the track! – Max Verstappen

SHADOW DOM

CSS Encapsulation

index.html M × JS f1-quote.js M



Web Components ×

04-shadow-dom > index.html > ...

http://127.0.0.1:3000/04-shadow-dom/index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8     <style>
9       p {
10        color: green !important;
11      }
12    </style>
13  </head>
14  <body>
15    <h1>Formula 1 quotes</h1>
16    <p>Leave me alone, I know what I'm doing! — Kimi Raikkonen</p>
17    <f1-quote></f1-quote>
18    <script src="f1-quote.js"></script>
19  </body>
20 </html>
21
```

Formula 1 quotes

Leave me alone, I know what I'm doing! — Kimi Raikkonen

Woah! There's a giant lizard on the track! — Max Verstappen

```
Inspector Console Debugger >>
Zoeken in HTML +
<!DOCTYPE html>
<html lang="en"> event
  <head> ... </head>
  <body>
    <h1>Formula 1 quotes</h1>
    <p> ... </p>
    <f1-quote> custom...
      <style>p { color: blue; }</style>
      <p>
        Woah! There's a giant lizard on the track! – Max Verstappen
      </p>
    </f1-quote>
    <script src="f1-quote.js"></script>
  </body>
</html>
```

html > body

Stijlen filter Indeling Berekend Wijzigingen Compat
:hov .cls + Flexbox

```
Inspector Console Debugger >>
Zoeken in HTML +
<!DOCTYPE html>
<html lang="en"> event
  <head> ... </head>
  <body>
    <h1>Formula 1 quotes</h1>
    <p> ... </p>
    <f1-quote> custom...
      #shadow-root (open)
        <style>p { color: blue; }</style>
        <p>
          Woah! There's a giant lizard on the track! – Max Verstappen
        </p>
      </f1-quote>
    <script src="f1-quote.js"></script>
  </body>
</html>
```

html > body

Stijlen filter Indeling Berekend Wijzigingen Compat
:hov .cls + Flexbox

CSS VARIABLES

index.html × JS f1-quote.js

🔄 📄 🏠 ...

Web Components ×

05-css-custom-properties > index.html > ...

← → 🔄 http://127.0.0.1:3000/05-css-custom-properties/index.htn

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8     <style>
9       p {
10        color: green !important;
11      }
12    </style>
13  </head>
14  <body>
15    <h1>Formula 1 quotes</h1>
16    <p>Leave me alone, I know what I'm doing! &mdash; Kimi Raikkonen</p>
17    <f1-quote></f1-quote>
18    <script src="f1-quote.js"></script>
19  </body>
20 </html>
21
```

Formula 1 quotes

Leave me alone, I know what I'm doing! – Kimi Raikkonen

Woah! There's a giant lizard on the track! – Max Verstappen

CSS THEMING

index.html × JS index.js JS f1-quote.js JS indycar-quote.js

Web Components ×

06-theme > index.html > ...

http://127.0.0.1:3000/06-theme/index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 & IndyCar quotes</h1>
11    <f1-quote></f1-quote>
12    <indycar-quote></indycar-quote>
13    <script type="module" src="index.js"></script>
14  </body>
15 </html>
16
```

Formula 1 & IndyCar quotes

Woah! There's a giant
lizard on the track! –
Max Verstappen

I've never seen myself
as a 'girl driver'. I'm just a
driver. – Danica Patrick

BETTER CSS THEMING

::part CSS pseudo-element

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 & IndyCar quotes</h1>
11    <f1-quote></f1-quote>
12    <script type="module" src="index.js"></script>
13  </body>
14 </html>
15
```

Formula 1 & IndyCar quotes

Woah! There's a giant lizard on
the track! – Max Verstappen

PROPERTIES

```
const template = document.createElement("template");
template.innerHTML = `<p></p>`;

class DriverQuote extends HTMLElement {

  set quote(value) {
    this._quote = value;
    this.quoteElement.innerHTML = this._quote;
  }

  get quote() {
    return this._quote;
  }

  constructor() {
    super();
    this.attachShadow({ mode: "open" });
    this.shadowRoot.appendChild(template.content.cloneNode(true));
    this.quoteElement = this.shadowRoot.querySelector("p");
  }
}

customElements.define("driver-quote", DriverQuote);
```

```
const template = document.createElement("template");
template.innerHTML = `<p></p>`;

class DriverQuote extends HTMLElement {

  set quote(value) {
    this._quote = value;
    this.quoteElement.innerHTML = this._quote;
  }

  get quote() {
    return this._quote;
  }

  constructor() {
    super();
    this.attachShadow({ mode: "open" });
    this.shadowRoot.appendChild(template.content.cloneNode(true));
    this.quoteElement = this.shadowRoot.querySelector("p");
  }
}

customElements.define("driver-quote", DriverQuote);
```

JS index.js

08-properties > JS index.js

```
1 import "./driver-quote.js";
```

```
2
```

```
3
```

Web Components

<http://127.0.0.1:3000/08-properties/index.html>

Formula 1 quotes

ATTRIBUTES


```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Web Components</title>
    <link rel="stylesheet" href="/assets/css/style.css" />
  </head>
  <body>
    <h1>Formula 1 quotes</h1>
    <driver-quote quote="Woah! There's a giant lizard on the track! &mdash;
                    Max Verstappen"></driver-quote>
    <script type="module" src="index.js"></script>
  </body>
</html>
```

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Web Components</title>
    <link rel="stylesheet" href="/assets/css/style.css" />
  </head>
  <body>
    <h1>Formula 1 quotes</h1>
    <driver-quote quote="Woah! There's a giant lizard on the track! &mdash;
                    Max Verstappen"></driver-quote>
    <script type="module" src="index.js"></script>
  </body>
</html>
```

```
class DriverQuote extends HTMLElement {
  static get observedAttributes() {
    return ["quote"];
  }

  set quote(value) {
    this._quote = value;
    this.quoteElement.innerHTML = this._quote;
  }

  get quote() {
    return this._quote;
  }

  constructor() {
    super();
    this.attachShadow({ mode: "open" });
    this.shadowRoot.appendChild(template.content.cloneNode(true));
    this.quoteElement = this.shadowRoot.querySelector("p");
  }

  attributeChangedCallback(attrName, oldValue, newValue) {
    if (attrName === "quote") {
      this.quote = newValue;
    }
  }
}
```

```
class DriverQuote extends HTMLElement {
  static get observedAttributes() {
    return ["quote"];
  }

  set quote(value) {
    this._quote = value;
    this.quoteElement.innerHTML = this._quote;
  }

  get quote() {
    return this._quote;
  }

  constructor() {
    super();
    this.attachShadow({ mode: "open" });
    this.shadowRoot.appendChild(template.content.cloneNode(true));
    this.quoteElement = this.shadowRoot.querySelector("p");
  }

  attributeChangedCallback(attrName, oldValue, newValue) {
    if (attrName === "quote") {
      this.quote = newValue;
    }
  }
}
```

JS index.js

index.html

09-attributes > index.html > html > body > driver-quote

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 quotes</h1>
11    <driver-quote></driver-quote>
12    <script type="module" src="index.js"></script>
13  </body>
14 </html>
15
```

Web Components

http://127.0.0.1:3000/09-attributes/index.html

Formula 1 quotes

Warning!

attributes can only accept string values

properties accept any kind of values, like Objects or Arrays

3.2.6.6 Embedding custom non-visible data with the **data-*** attributes §

A **custom data attribute** is an attribute in no namespace whose name starts with the string "**data-**", has at least one character after the hyphen, is [XML-compatible](#), and contains no [ASCII upper alphas](#).

Note

All attribute names on [HTML elements](#) in [HTML documents](#) get ASCII-lowercased automatically, so the restriction on ASCII uppercase letters doesn't affect such documents.

[Custom data attributes](#) are intended to store custom data, state, annotations, and similar, private to the page or application, for which there are no more appropriate attributes or elements.

LIFECYCLE EVENTS

attributeChangedCallback(attrName, oldVal, newVal)

invoked each time one of the attributes is added, removed, or changed

static get observedAttributes() { return ["attribute"]; }

array of attributes to observe

connectedCallback()

invoked each time the custom element is added to the DOM

disconnectedCallback()

invoked each time the custom element is removed from the DOM

`adoptedCallback()`

invoked each time the custom element is moved to a new document

Web Components

127.0.0.1:3000/10-lifecycle/index.html

Lifecycle

Add/remove component

Example Component

Example
Component in
iFrame

Adopt component

Inspector Console Debugger

Uitvoer filteren

Fouten Waarschuwingen Logboeken Info Debuggen CSS XHR Aanvragen

Bovenzijde

SLOTS

```
<driver-quote quote="Woah! There's a giant lizard on the track!  
    &mdash; Max Verstappen"></driver-quote>
```

```
<driver-quote>Woah! There's a giant lizard on the track!  
    &mdash; Max Verstappen</driver-quote>
```

```
template.innerHTML = `<p><slot></slot></p>` ;
```

index.html ×

🔍 📄 ...

Web Components ×

...

11-slots > index.html > ...

← → ↻ http://127.0.0.1:3000/11-slots/index.html

☰

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 quotes</h1>
11    <driver-quote></driver-quote>
12    <script type="module" src="index.js"></script>
13  </body>
14 </html>
15
```

Formula 1 quotes

NAMED SLOTS


```
<driver-quote image="lizard.png">
  <span slot="driver">Max Verstappen</span>
  Woah!<br />There's a giant lizard on the track!
</driver-quote>
```

```
template.innerHTML = `
  <div class="card">
    <img alt="">
    <h2><slot name="driver"></slot></h2>
    <p><slot></slot></p>
  </div>
`;
```

```
static get observedAttributes() {
  return ["image"];
}

set image(value) {
  this._image = value;
  this.imgElement.src = this._image;
}

get image() {
  return this._quote;
}

attributeChangedCallback(attrName, oldValue, newValue) {
  if (attrName === "image") {
    this.image = newValue;
  }
}
```

index.html

12-named-slots > index.html > ...

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=:
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 quotes</h1>
11    <driver-quote image="lizard.png">
12      <span slot="driver">Max Verstappen</span>
13      Woah!<br />There's a giant lizard on the track!
14    </driver-quote>
15    <script type="module" src="index.js"></script>
16  </body>
17 </html>
18
```

http://127.0.0.1:3000/12-named-slots/index.html

Formula 1 quotes



Max Verstappen

Woah!
There's a giant lizard on the track!

EVENTS

```
this.dispatchEvent(new CustomEvent("event-name", { detail: data }));
```

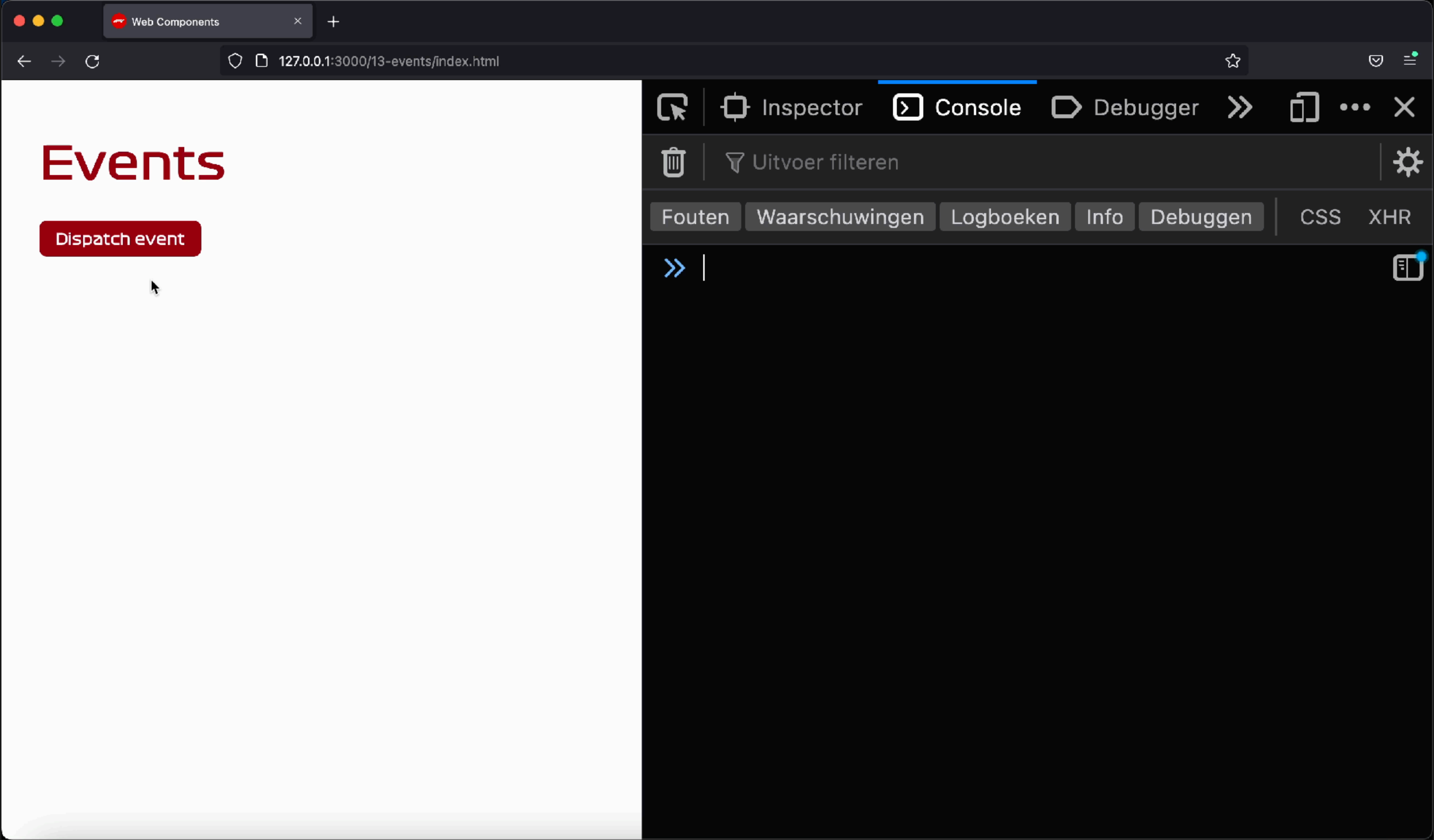
you can also use `new Event` if you don't need to send details

```
component.addEventListener("event-name", (e) => {  
  console.log(e.detail);  
});
```

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8     <link rel="stylesheet" href="https://unpkg.com/leaflet@1.8.0/dist/leaflet.css" integrity="sha512-hoalWLoI8r4UszCkZ5f" />
9     <script src="https://unpkg.com/leaflet@1.8.0/dist/leaflet.js" integrity="sha512-BB3hKbKW0c9Ez/TAwyWxNXeoV9c1v6FIeYif" />
10  </head>
11  <body>
12    <h1>Events</h1>
13
14    <example-component></example-component>
15
16    <div id="result"></div>
17    <div id="map"></div>
18
19    <script type="module" src="index.js"></script>
20  </body>
21 </html>
```

```
16 class ExampleComponent extends HTMLElement {
17   static _circuits;
18
19   constructor() {
20     super();
21     fetch("http://ergast.com/api/f1/drivers/max_verstappen/circuits.json?limit=100")
22       .then((res) => res.json())
23       .then((data) => {
24         this._circuits = data.MRData.CircuitTable.Circuits;
25       });
26
27     this.attachShadow({ mode: "open" });
28     this.shadowRoot.appendChild(template.content.cloneNode(true));
29     this.shadowRoot.querySelector("button").addEventListener("click", () => this._dispatchClick());
30   }
31
32   _dispatchClick() {
33     const randomCircuit = this._circuits[Math.floor(Math.random() * this._circuits.length)];
34     this.dispatchEvent(new CustomEvent("webComponentClick", { detail: randomCircuit }));
35   }
36 }
37
38 customElements.define("example-component", ExampleComponent);
39
40
41
42
43
44
```

```
1 import "./example-component.js";
2
3 const component = document.querySelector("example-component");
4 const result = document.querySelector("#result");
5 const circuitMap = document.querySelector("#map");
6
7 const map = L.map("map").setView([-23.7036, -46.6997], 14);
8 L.tileLayer("https://api.mapbox.com/styles/v1/{id}/tiles/{z}/{x}/{y}?access_token=pk.eyJ1Ijoicm93ZHlyYWJvdXciLCJhIjoieY2w",
9   attribution: 'Map data &copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contributors, Imagery © Mapbox',
10  maxZoom: 18,
11  id: "mapbox/streets-v11",
12  tileSize: 512,
13  zoomOffset: -1,
14  accessToken: "pk.eyJ1Ijoicm93ZHlyYWJvdXciLCJhIjoieY2wybjkybGdsMTdvOTNkbDF5dXI0bm93YyJ9.9ZmApFOe3AMtKnWPkaSsrQ",
15).addTo(map);
16
17 component.addEventListener("webComponentClick", (e) => {
18   console.log(e.detail);
19   const circuit = e.detail;
20   result.innerHTML = `
21     <h2 class="mb0">${circuit.circuitName}</h2>
22     ${circuit.Location.locality},
23     ${circuit.Location.country}
24   `;
25   map.setView([circuit.Location.lat, circuit.Location.long], 14);
26   circuitMap.style.visibility = "visible";
27 });
```

Events

Dispatch event

Inspector Console Debugger

Uitvoer filteren

Fouten Waarschuwingen Logboeken Info Debuggen CSS XHR

>>

EVENTS BETWEEN COMPONENTS

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 drivers</h1>
11    <driver-list></driver-list>
12    <driver-detail></driver-detail>
13    <script type="module" src="index.js"></script>
14  </body>
15 </html>
```

```
1 import "../driver-list.js";
2 import "../driver-detail.js";
3
4 const driverListComponent = document.querySelector("driver-list");
5 const driverDetailComponent = document.querySelector("driver-detail");
6
7 driverListComponent.addEventListener("selectDriver", (e) => (driverDetailComponent.driver = e.detail));
8
9 fetch("http://ergast.com/api/f1/2021/drivers.json")
10 .then((res) => res.json())
11 .then((data) => {
12   const drivers = data.MRData.DriverTable.Drivers;
13   driverListComponent.drivers = drivers;
14   driverDetailComponent.driver = drivers[0];
15 });
```

```
1  const template = document.createElement("template");
2  template.innerHTML = `
3    <style>
4      select {
5        font-size: 1rem;
6        padding: 0.2em 0.5em
7      }
8    </style>
9    <select></select>
10 `;
11
12 class DriverList extends HTMLElement {
13   get drivers() {
14     return this._drivers;
15   }
16
17   set drivers(value) {
18     this._drivers = value;
19     this._render();
20   }
21
22   constructor() {
23     super();
24     this.attachShadow({ mode: "open" });
25     this.shadowRoot.appendChild(template.content.cloneNode(true));
26     this.driverListElement = this.shadowRoot.querySelector("select");
27   }
28
29   _render() {
```

```
1  class DriverDetail extends HTMLElement {
2    get driver() {
3      return this._driver;
4    }
5
6    set driver(value) {
7      this._driver = value;
8      this._render();
9    }
10
11   constructor() {
12     super();
13     this.attachShadow({ mode: "open" });
14   }
15
16   _properDate(str) {
17     return str.split("-").reverse().join("-");
18   }
19   _render() {
20     this.shadowRoot.innerHTML = `
21     <style>
22       ul {
23         list-style: none;
24         padding: 0;
25       }
26       li {
27         padding-bottom: 0.5rem;
28       }
29     </style>
```

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta name="viewport" content="width=device-width, initi
6     <title>Web Components</title>
7     <link rel="stylesheet" href="/assets/css/style.css" />
8   </head>
9   <body>
10    <h1>Formula 1 drivers</h1>
11    <driver-list></driver-list>
12    <driver-detail></driver-detail>
13    <script type="module" src="index.js"></script>
14  </body>
15 </html>
16
```

Formula 1 drivers

Fernando Alonso

Permanent number: 14

Nationality: Spanish

Date of birth: 29-07-1981

VIDEO COMPONENT


```
←!— YouTube embed →  
<iframe scrolling="no" marginheight="0" marginwidth="0"  
type="text/html" src="https://www.youtube.com/embed/  
Q0oeeI3daj4?  
autoplay=0&fs=0&iv_load_policy=3&showinfo=0&rel  
=0&cc_load_policy=0&start=0&end=0&vq=hd1080&  
origin=https://youtubeembedcode.com" width="640" height="360"  
frameborder="0"></iframe>  
  
←!— Vimeo embed →  
<iframe allow="autoplay; fullscreen; picture-in-picture"  
allowfullscreen="" src="https://player.vimeo.com/video/  
705066644" width="640" height="360" frameborder="0"> </iframe>  
  
←!— HTML5 video →  
<video controls="" width="640" height="360">  
  <source src="max-vs-godzilla.mp4" type="video/mp4" />  
</video>
```

```
←!— YouTube embed →  
<video-component youtube="Q0oeeI3daj4"></video-component>  
  
←!— Vimeo embed →  
<video-component vimeo="705066644"></video-component>  
  
←!— HTML5 video →  
<video-component html5="max-vs-godzilla.mp4"></video-component>  
  
<script src="video-component.js"></script>
```

JS video-component.js

15-video-component > JS video-component.js > ...

```
1  const template = document.createElement("template");
2  template.innerHTML = `<div></div>`;
3
4  class VideoComponent extends HTMLElement {
5    static get observedAttributes() {
6      return ["youtube", "vimeo", "html5"];
7    }
8
9    set youtube(value) {
10     this.videoElement.innerHTML = `
11       <iframe frameborder="0" scrolling="no" marginheight="0" marginwidth="0" width="640" height="360" type="text/html"
12         src="https://www.youtube.com/embed/${value}?autoplay=0&fs=0&iv_load_policy=3&showinfo=0&rel=0&cc_load_policy=0&";
13     </iframe>`;
14   }
15
16   set vimeo(value) {
17     this._vimeo = value;
18     this.videoElement.innerHTML = `
19       <iframe width="640" height="360" frameborder="0" allow="autoplay; fullscreen; picture-in-picture" allowfullscreen
20         src="https://player.vimeo.com/video/${value}">
21     </iframe>
22   `;
23   }
24
25   set html5(value) {
26     this.videoElement.innerHTML = `
27       <video controls width="640" height="360">
28         <source src="${value}" type="video/mp4" />
29     </video>
```

Video Component





```
←!— YouTube embed →  
<video-component youtube="Q0oeeI3daj4"></video-component>  
  
←!— Vimeo embed →  
<video-component vimeo="705066644"></video-component>  
  
←!— HTML5 video →  
<video-component html5="max-vs-godzilla.mp4"></video-component>  
  
<script src="https://unpkg.com/@rowdy.rabouw/video-component/  
src/video-component.js"></script>
```



package.json

```
"dependencies": {
  "@angular/animations": "~13.0.0",
  "@angular/common": "~13.0.0",
  "@angular/compiler": "~13.0.0",
  "@angular/core": "~13.0.0",
  "@angular/forms": "~13.0.0",
  "@angular/platform-browser": "~13.0.0",
  "@angular/platform-browser-dynamic": "~13.0.0",
  "@angular/router": "~13.0.0",
  "@rowdy.rabouw/video-component": "^1.0.0",
  "rxjs": "~7.4.0",
  "tslib": "^2.3.0",
  "zone.js": "~0.11.4"
},
```

add max-vs-godzilla.mp4 to src/assets

app.module.js

```
import { NgModule, CUSTOM_ELEMENTS_SCHEMA } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import '@rowdy.rabouw/video-component';

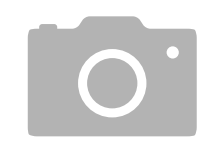
import { AppComponent } from './app.component';


@NgModule({
  declarations: [AppComponent],
  imports: [BrowserModule],
  providers: [],
  bootstrap: [AppComponent],
  schemas: [CUSTOM_ELEMENTS_SCHEMA],
})
export class AppModule {}
```

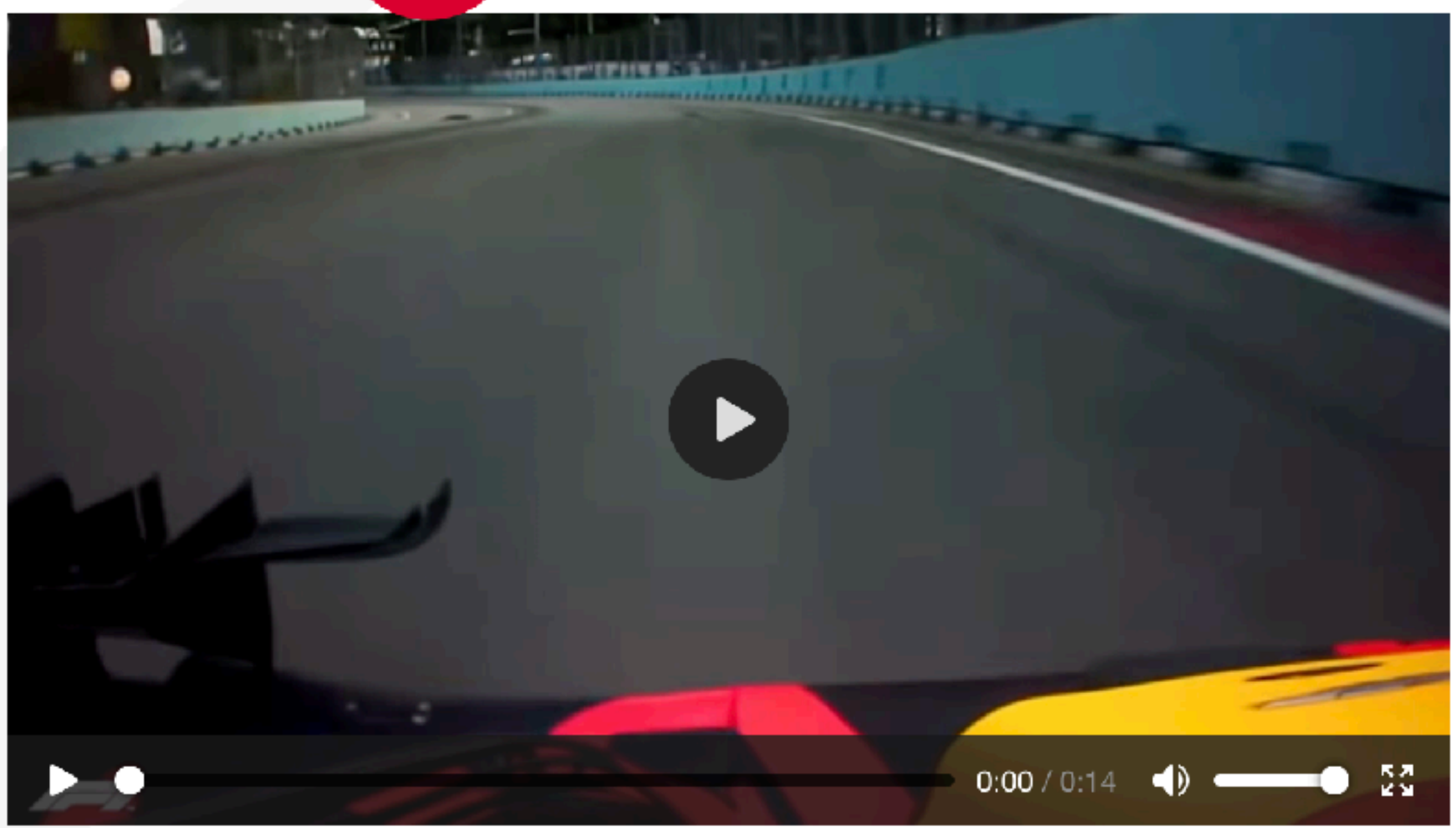
app.component.html

```
<video-component html5="assets/max-vs-godzilla.mp4"></video-
component>

<!-- Resources -->
<h2>Resources</h2>
```








 angular-video-app app is running!



Resources

Here are some links to help you get started:

-  [Learn Angular >](#)
-  [CLI Documentation >](#)
-  [Angular Material >](#)
-  [Angular Blog >](#)
-  [Angular DevTools >](#)

Next Steps



package.json

```
"dependencies": {  
  "@rowdy.rabouw/video-component": "^1.0.0",  
  "core-js": "^3.8.3",  
  "vue": "^3.2.13"  
},
```

main.js

```
import { createApp } from "vue";  
import App from "./App.vue";  
import "@rowdy.rabouw/video-component";  
  
createApp(App).mount("#app");
```

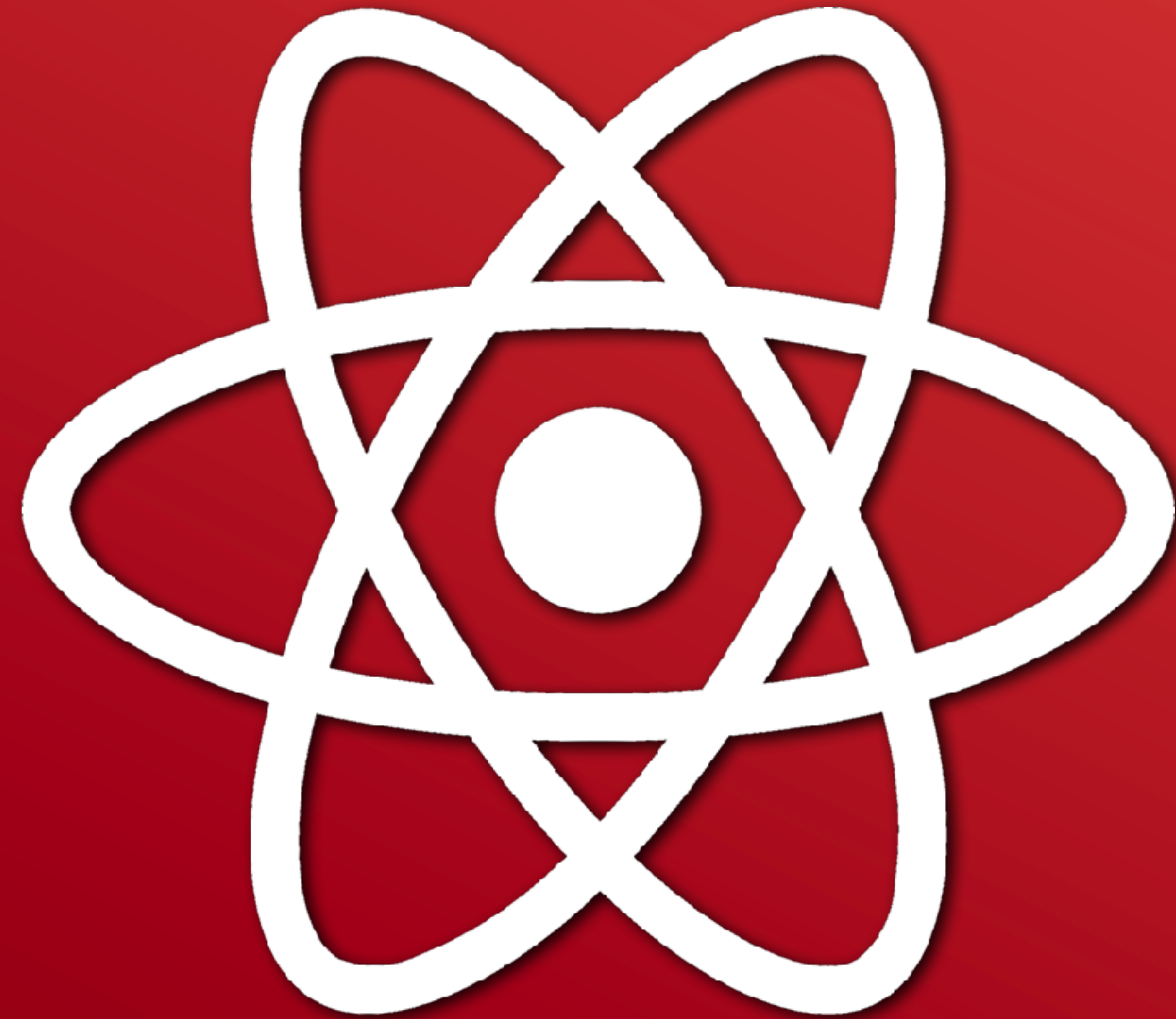
App.vue

```
<template>  
    
  <video-component youtube="Q0oeeI3daj4"></video-component>  
  <HelloWorld msg="Welcome to Your Vue.js App" />  
</template>
```



Welcome to Your Vue.js App

For a guide and recipes on how to configure / customize this project, check out the [vue-cli documentation](#).

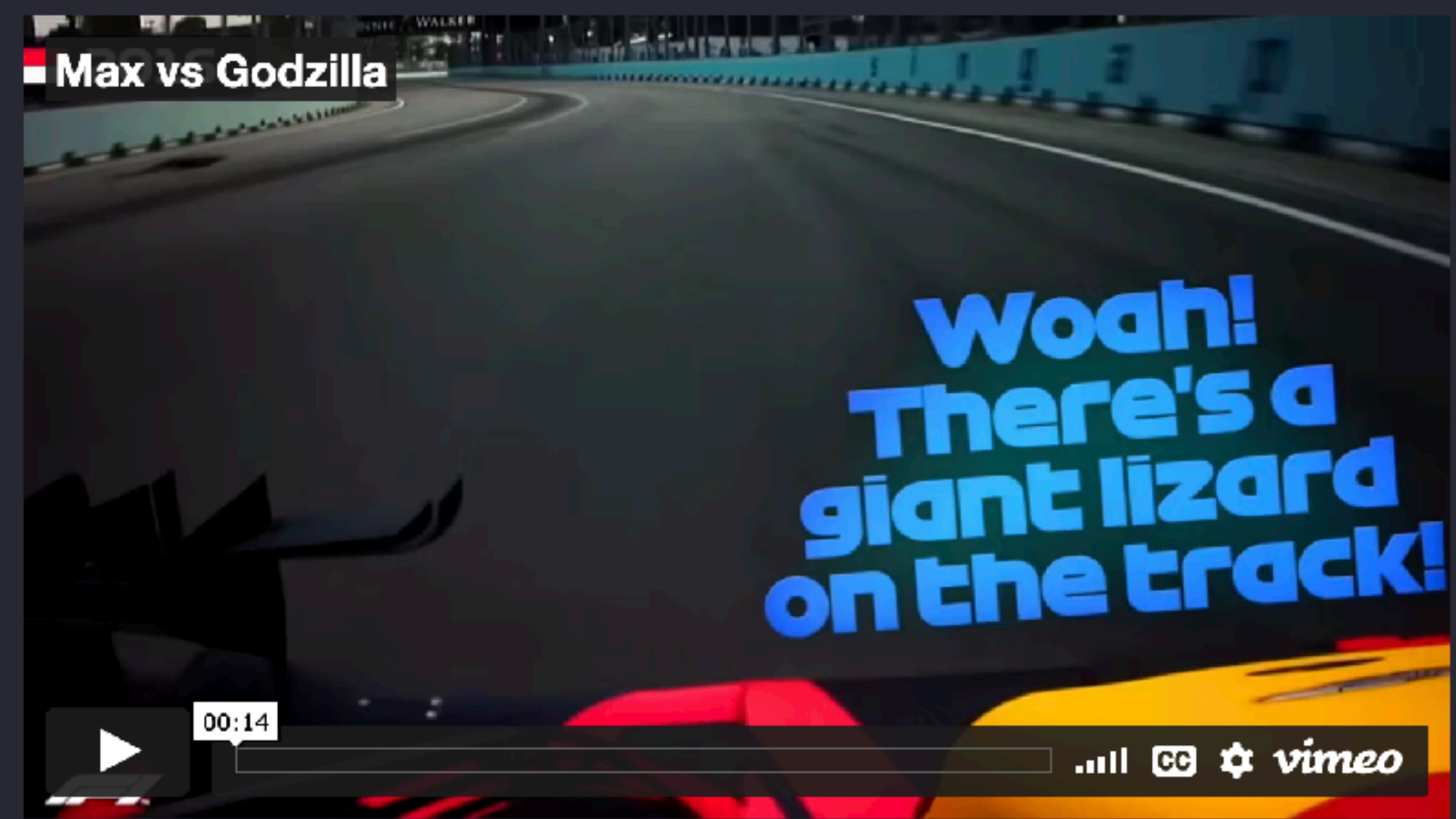


package.json

```
"dependencies": {
  "@rowdy.rabouw/video-component": "^1.0.0",
  "@testing-library/jest-dom": "^5.16.4",
  "@testing-library/react": "^13.1.1",
  "@testing-library/user-event": "^13.5.0",
  "react": "^18.1.0",
  "react-dom": "^18.1.0",
  "react-scripts": "5.0.1",
  "web-vitals": "^2.1.4"
},
```

App.js

```
function App() {
  return (
    <div className="App">
      <header className="App-header">
        <img src={logo} className="App-logo" alt="logo" />
        <video-component vimeo="705066644"></video-component>
        <p>
```



Edit src/App.js and save to reload.

[Learn React](#)



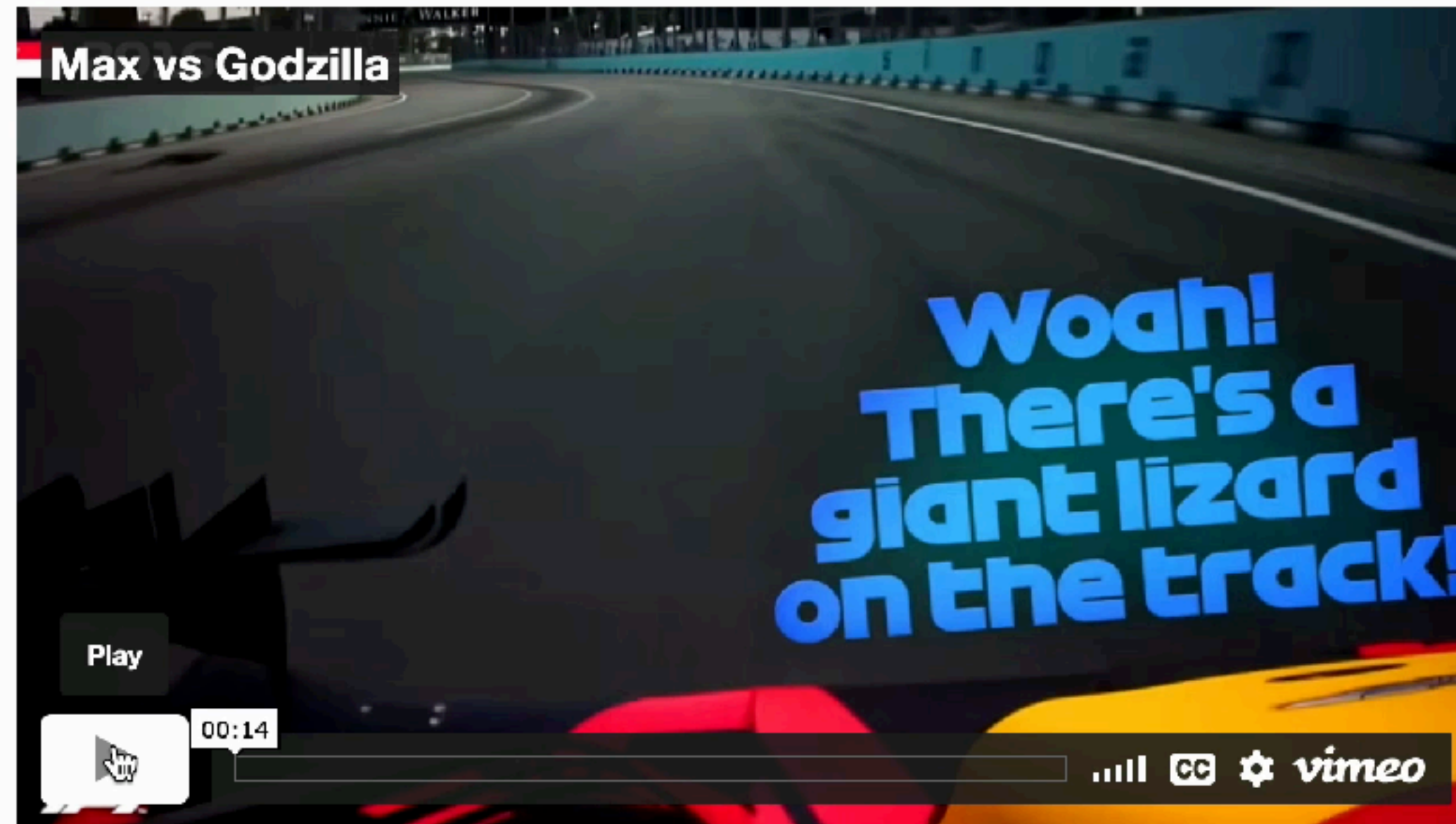
package.json

```
"dependencies": {  
  "@rowdy.rabouw/video-component": "^1.0.0",  
  "sirv-cli": "^2.0.0"  
},
```

App.svelte

```
<script>  
  import '@rowdy.rabouw/video-component';  
  export let name;  
</script>  
  
<main>  
  <h1>Hello {name}!</h1>  
  <video-component vimeo="705066644"></video-component>  
  <p>Visit the <a href="https://svelte.dev/tutorial">Svelte  
tutorial</a> to learn how to build Svelte apps.</p>  
</main>
```

HELLO WORLD!



Visit the [Svelte tutorial](#) to learn how to build Svelte apps.



DANKE SCHÖN

<https://rowdy.codes/wadwc>