YES, YOUR BROWSER CAN DO THAT (probably)

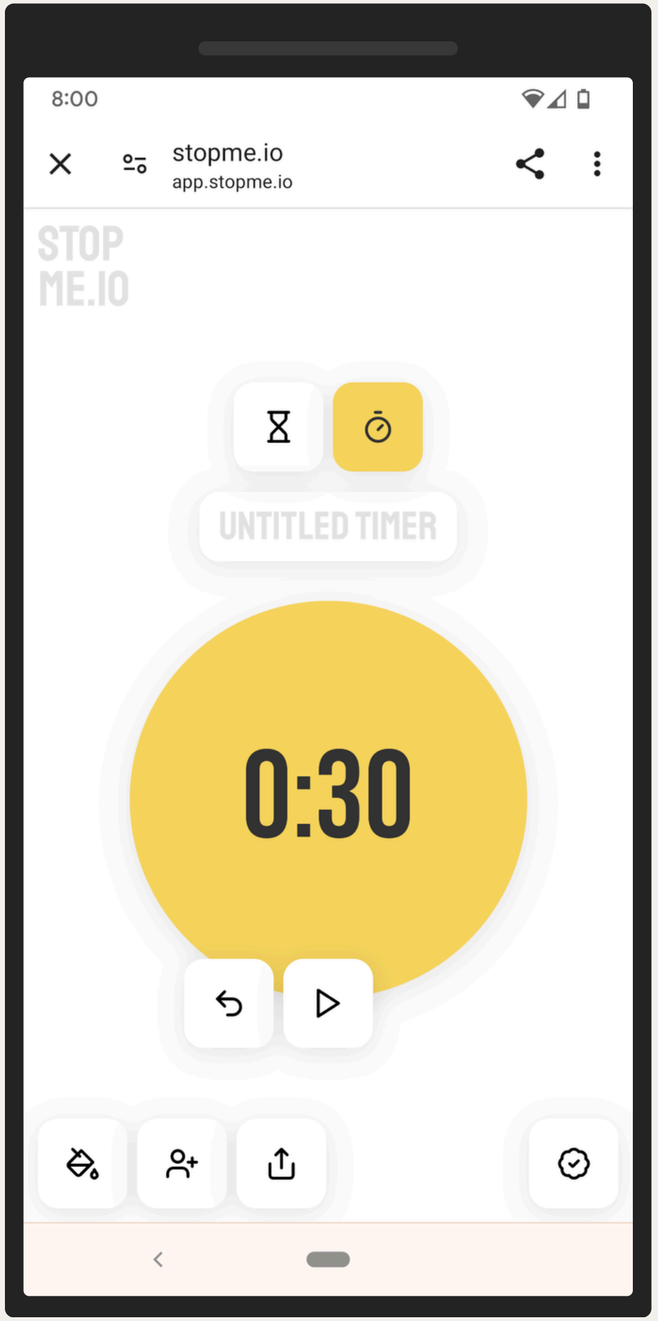
A Look At Modern Web APIs You Might Not Know

Progressive enhancement is a design philosophy that provides a baseline of essential content and functionality to as many users as possible while delivering the best possible experience only to users of the most modern browsers

https://developer.mozilla.org/docs/Glossary/Progressive_Enhancement

STOPME.IO

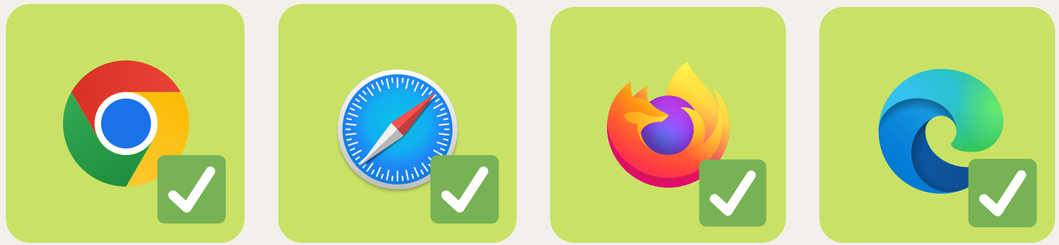
The ultimate SaaS (Stopwatch as a Service) product for everyone



OBSERVE YOUR APP ...

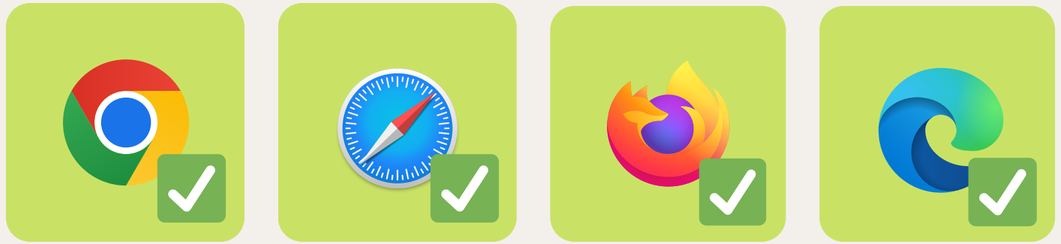
01

RESIZE & INTERSECTION OBSERVER



01

RESIZE & INTERSECTION OBSERVER

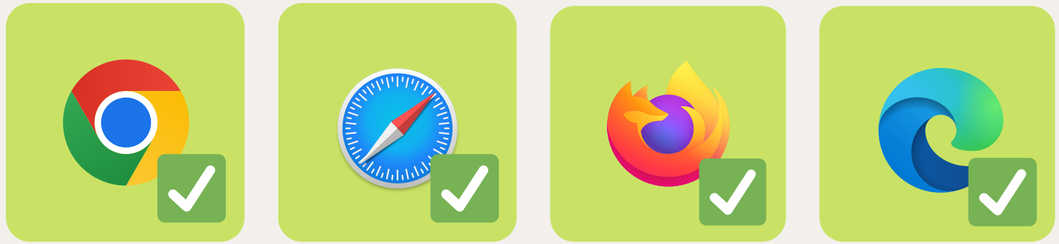


```
const callback = (entries) => {
  entries.forEach((entry) => {
    // *.contentBoxSize
  });
}

const observer =
  new ResizeObserver(callback, options);

const el = document.querySelector("element");
observer.observe(el);
```

https://developer.mozilla.org/en-US/docs/Web/API/ResizeObserver

01

RESIZE & INTERSECTION OBSERVER



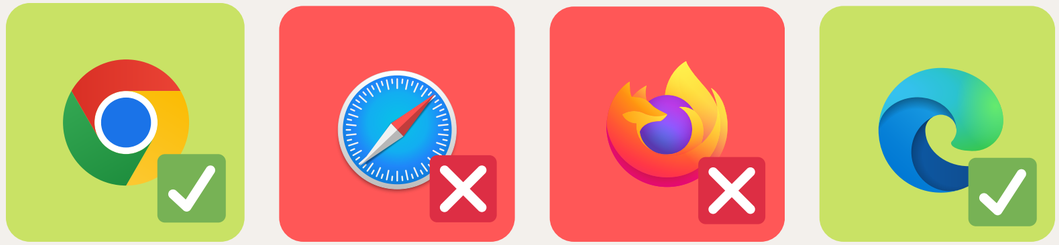
```
const callback = (entries) => {
  entries.forEach((entry) => {
    // *.isIntersecting
    // *.intersectionRect
    // *.intersectionRatio
    // ...
  });
}

const observer =
  new IntersectionObserver(callback, options);

const el = document.querySelector("element");
observer.observe(el);
```

https://developer.mozilla.org/en-US/docs/Web/API/Intersection_Observer_API

... AND THE USER'S DEVICE

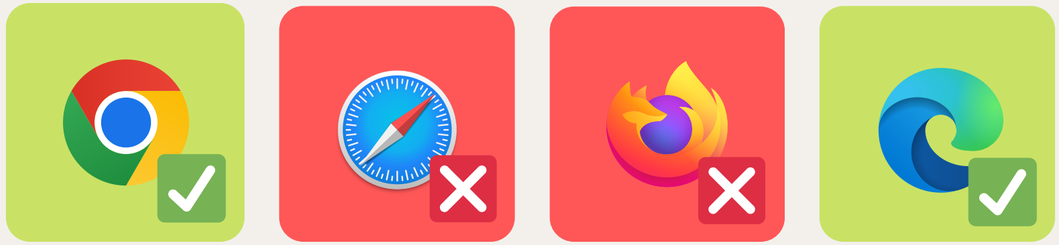
02

NETWORK INFORMATION API



02

NETWORK INFORMATION API

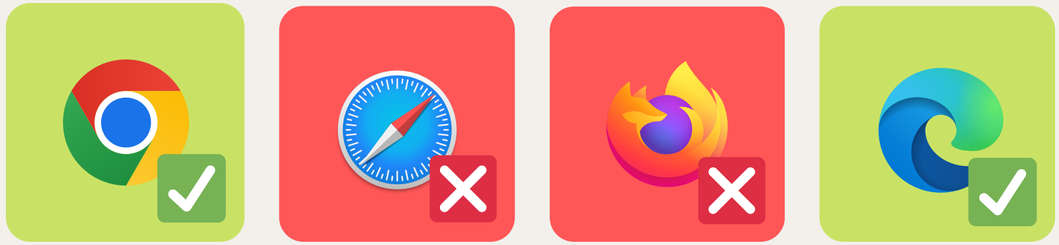


```
// Online status
let isOnline = navigator.onLine

const callback = () => {
  isOnline = navigator.onLine;
}

window.addEventlistener("online", callback);
window.addEventlistener("offline", callback);
```

https://developer.mozilla.org/en-US/docs/Web/API/Navigator/onLine

02

NETWORK INFORMATION API

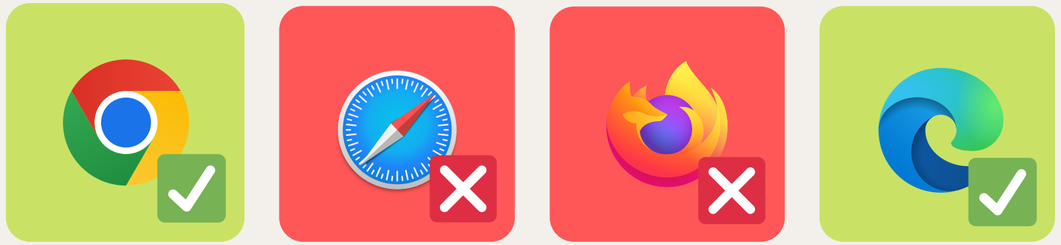


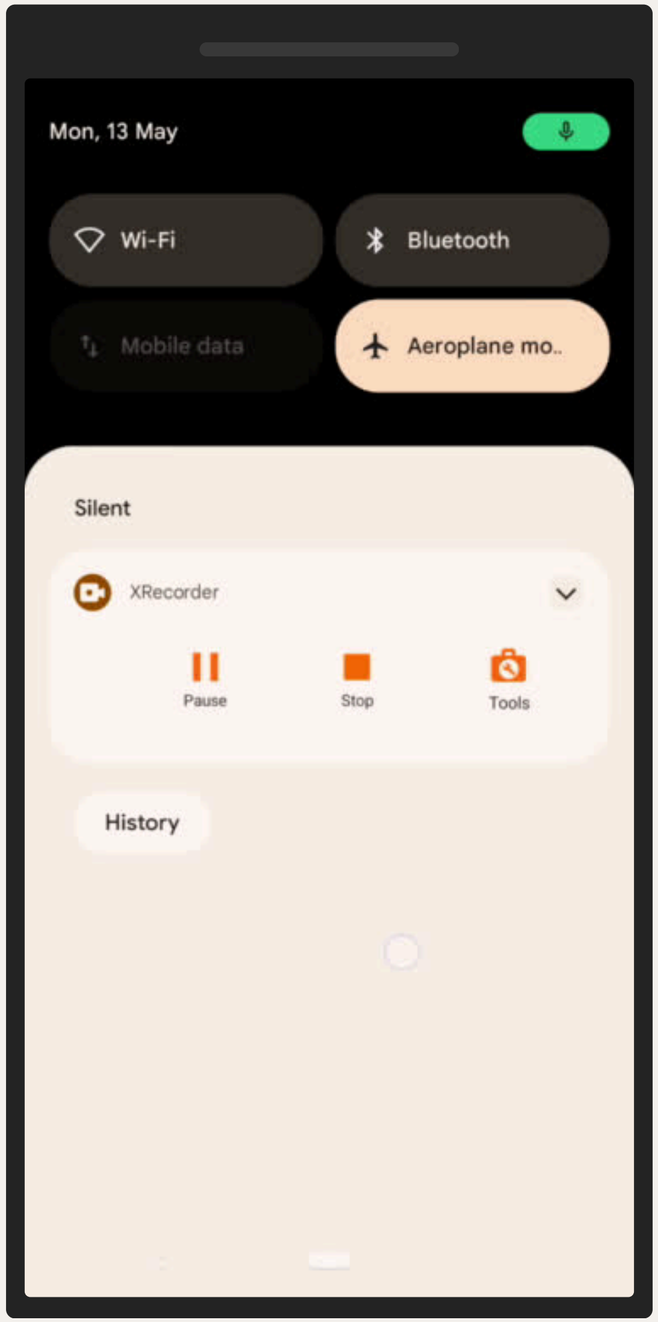
```
let userConnection = navigator.connection;
// *.type (e.g. wifi, ...)
// *.effectiveType (e.g. 2g, 3g, ...)
// *.downlink
// *.downlinkMax
// *.rtt
// *.saveData

const callback = () => {
  userConnection = navigator.connection;
}

navigator.connection
  .addEventListener("change", callback);
```

https://developer.mozilla.org/en-US/docs/Web/API/Network_Information_API

02

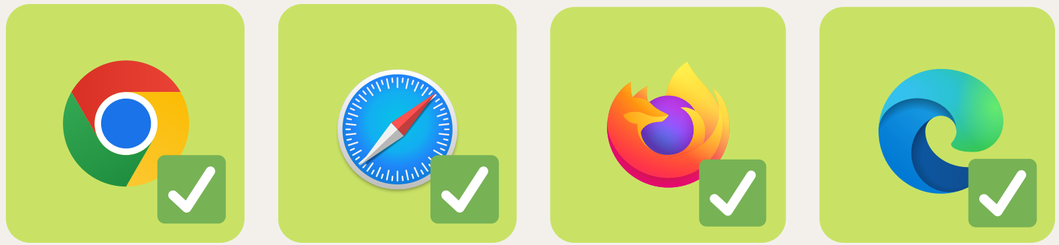
NETWORK INFORMATION API





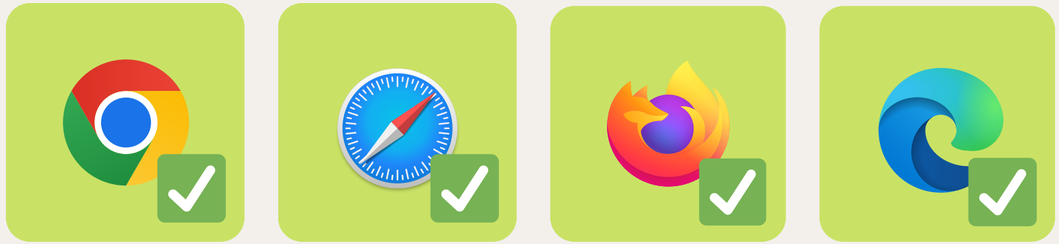
03

PAGE VISIBILITY API



03

PAGE VISIBILITY API

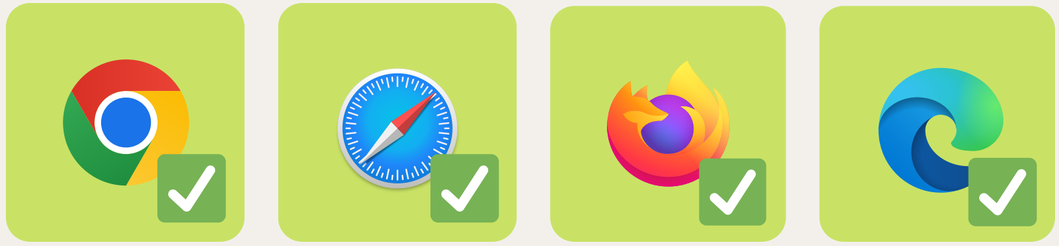


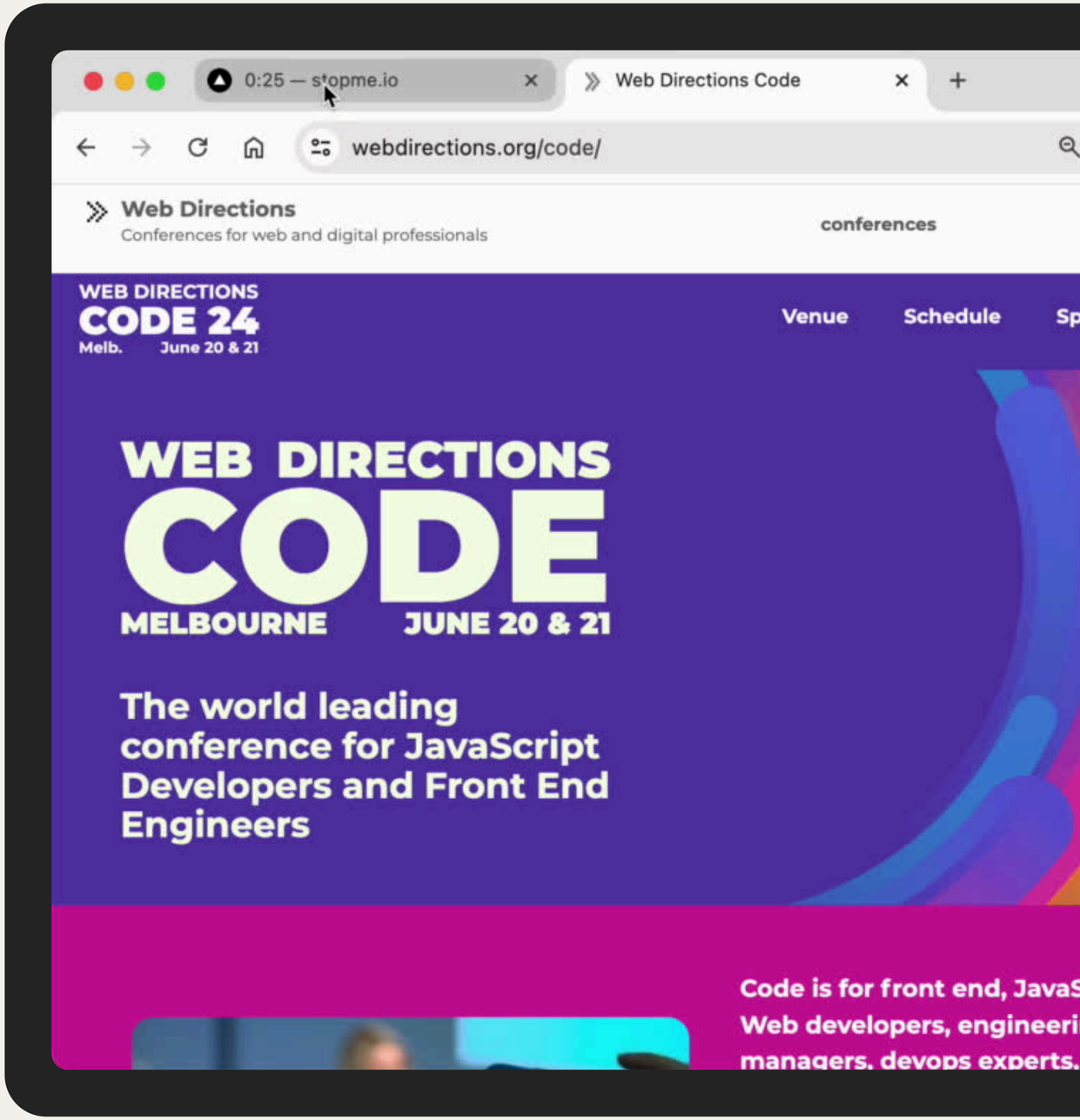
```
let isHidden = document.hidden;

const callback = () => {
  isHidden = document.hidden;
}

document.addEventListener(
  "visibilitychange",
  callback
);
```

https://developer.mozilla.org/en-US/docs/Web/API/Page_Visibility_API

03

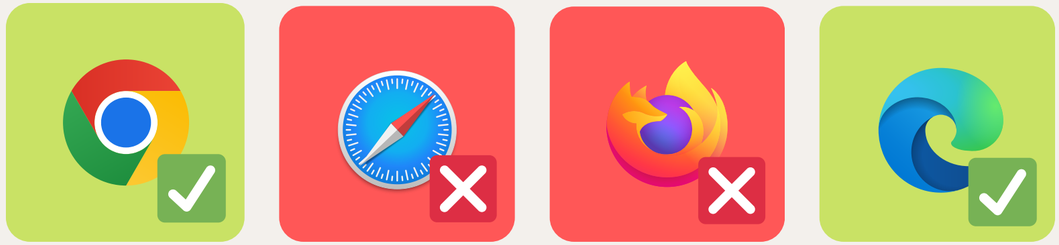
PAGE VISIBILITY API





04

BATTERY STATUS API



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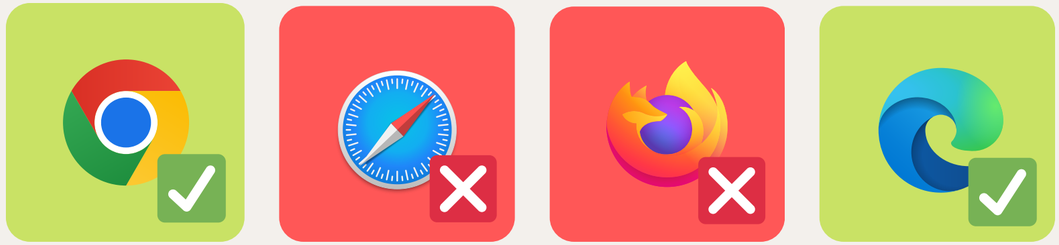
BATTERY STATUS API

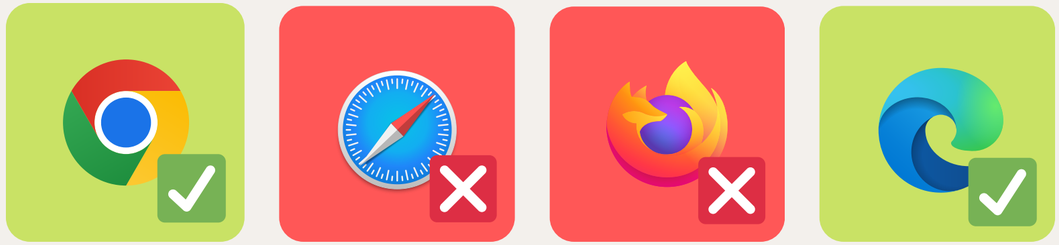


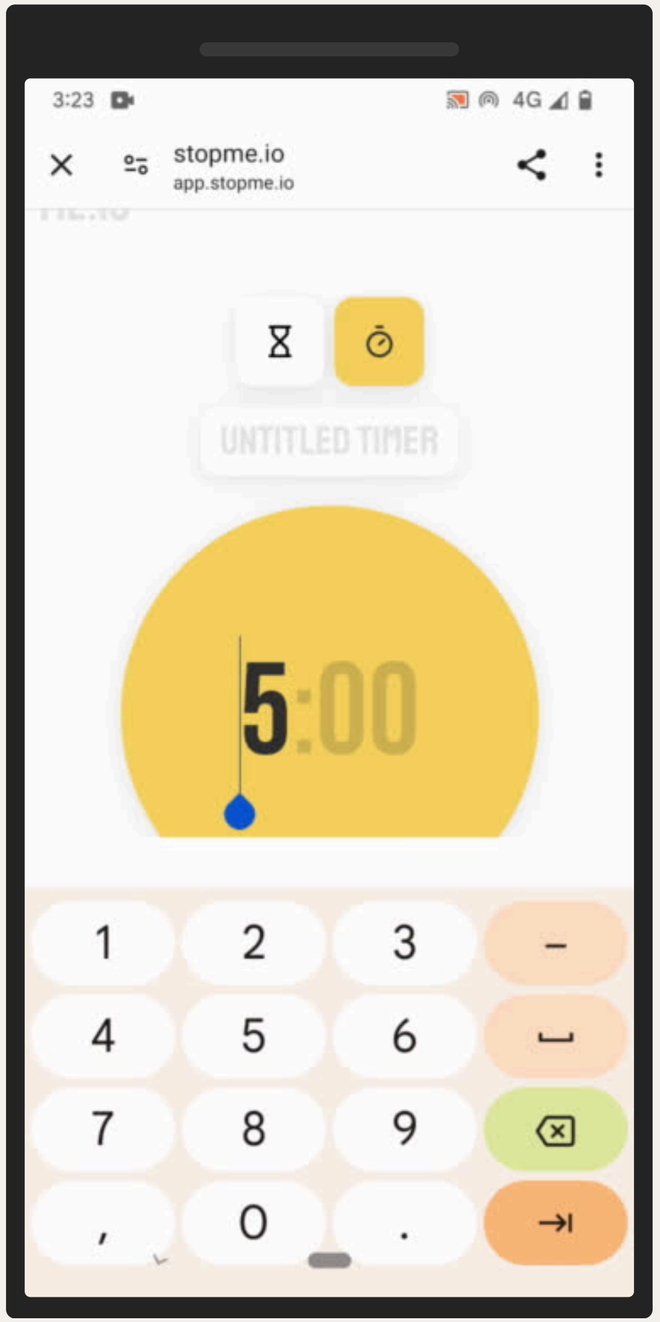
```
const info = await navigator.getBattery();
// *.level
// *.charging
// *.chargingTime
// *.dischargingTime

info.addEventListener("levelchange", ...);
info.addEventListener("chargingchange", ...);
// ...
```

https://developer.mozilla.org/en-US/docs/Web/API/Battery_Status_API

04

BATTERY STATUS API

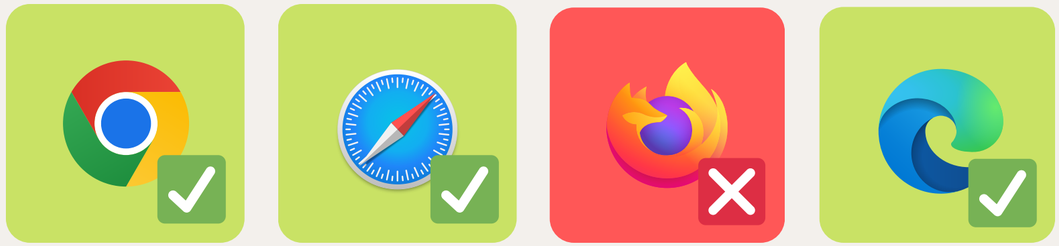




ENHANCE YOUR COMPONENTS

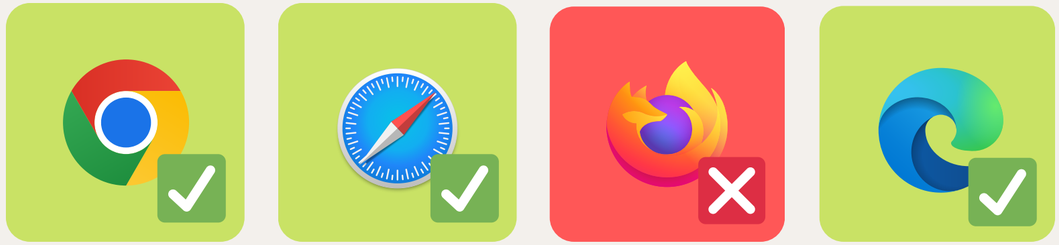
05

VIBRATION API



05

VIBRATION API

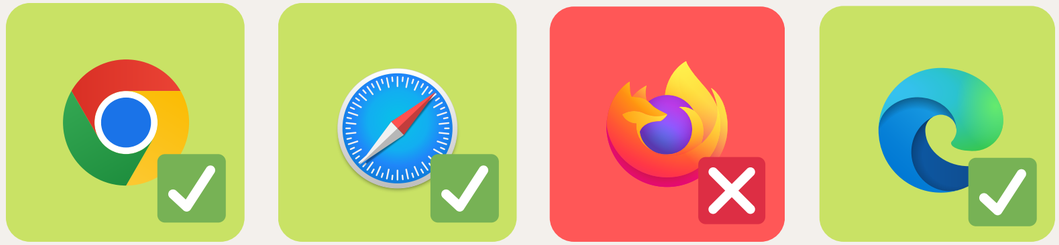


```
navigator.vibrate(duration);

// Patterns
// e.g. vibrate for 100ms with 50ms pauses
navigator.vibrate([100, 50, 100, 50, 100]);

// Stop long vibration or pattern
navigate.vibrate(0);
```

https://developer.mozilla.org/en-US/docs/Web/API/Vibration_API

05

VIBRATION API

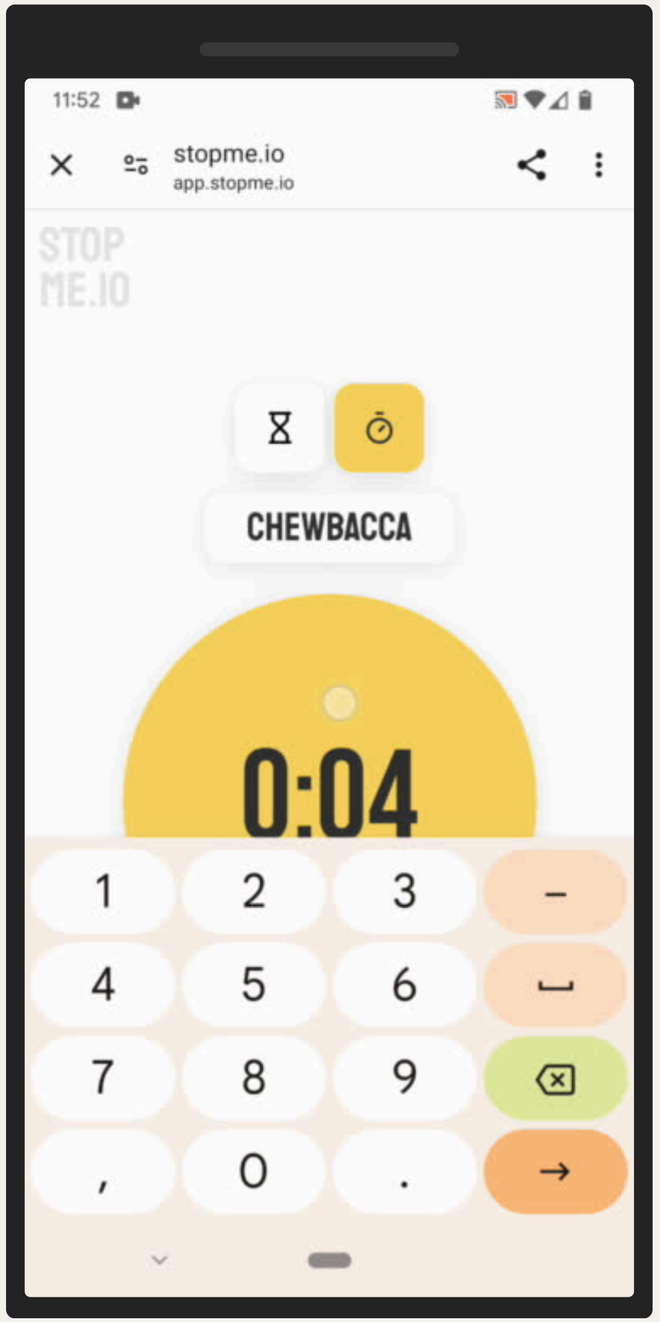


```
// SOS in Morse
navigator.vibrate([
  100, 30, 100, 30, 100, 30, 200, 30, 200,
  30, 200, 30, 100, 30, 100, 30, 100
]);

// Super Mario
navigator.vibrate([
  125, 75, 125, 275, 200, 275, 125, 75,
  125, 275, 200, 600, 200, 600
]);

// Star Wars
navigator.vibrate([
  500, 110, 500, 110, 450, 110, 200, 110,
  170, 40, 450, 110, 200, 110, 170, 40, 500
]);
```

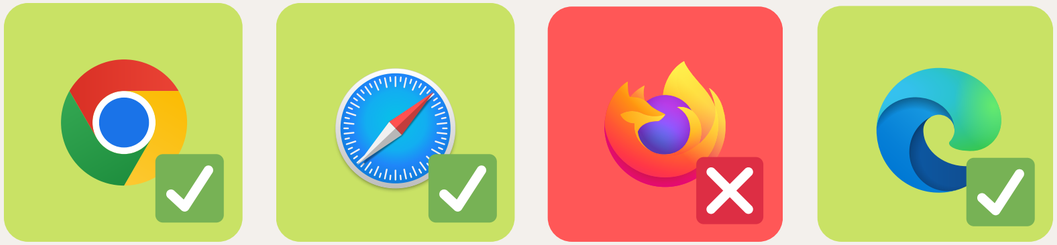
https://gearside.com/custom-vibration-patterns-mobile-devices/

05

It vibrates,
I swear!

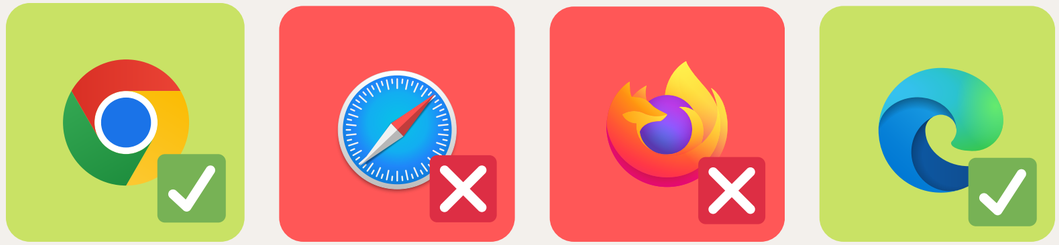


VIBRATION API



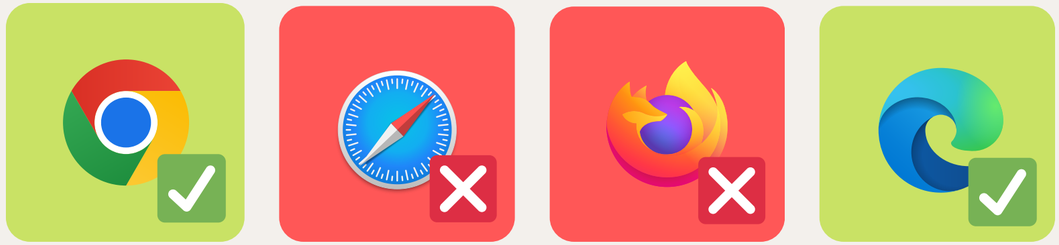
06

EYEDROPPER API



06

EYEDROPPER API

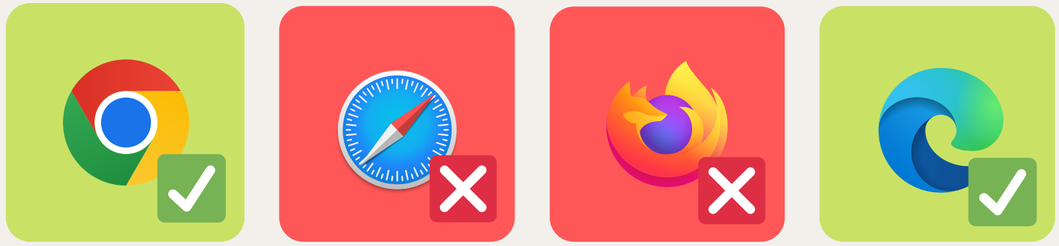


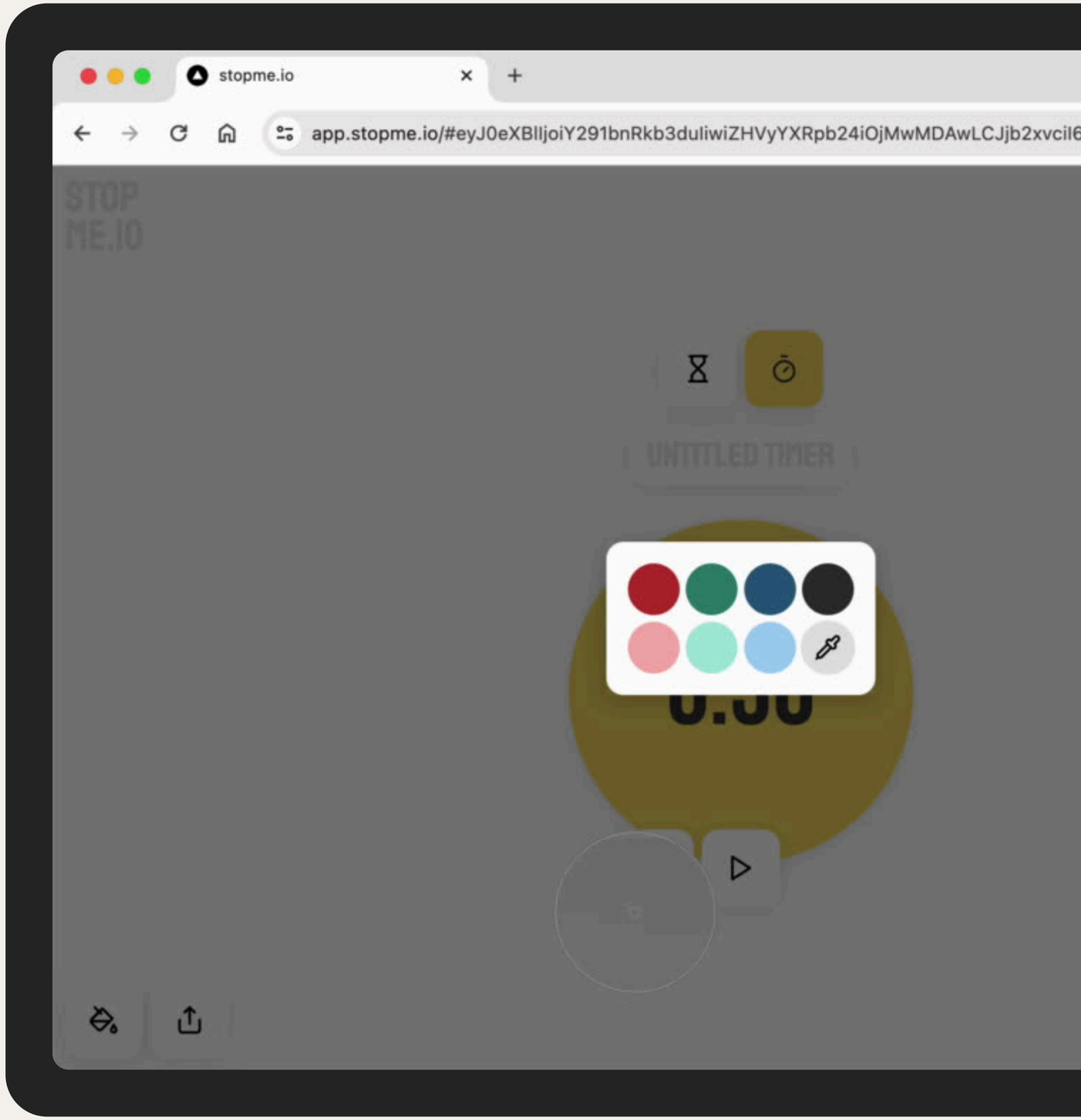
```
const eyeDropper = new EyeDropper();

document.getElementById("btn")
  .addEventListener("click", () => {
    // Needs to be triggered by user action
    eyeDropper.open()
      .then((result) => {
        // Returns the selected color
        // *.sRGBHex
      })
      .catch((e) => {
        // Catches any errors, including
        // when the user cancels selection
      });
  });
```

https://developer.mozilla.org/en-US/docs/Web/API/EyeDropper_API

06

EYEDROPPER API

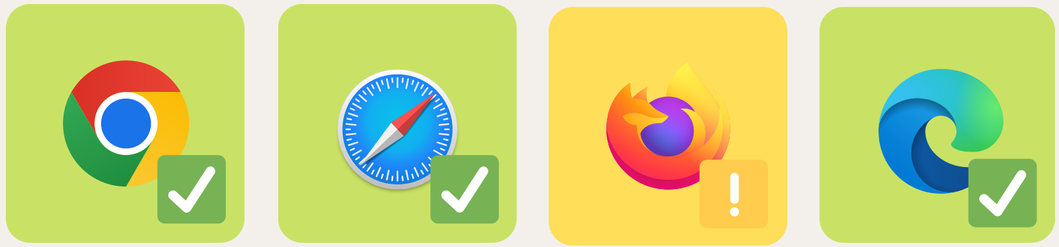




ALOMOST AS GOOD AS NATIVE

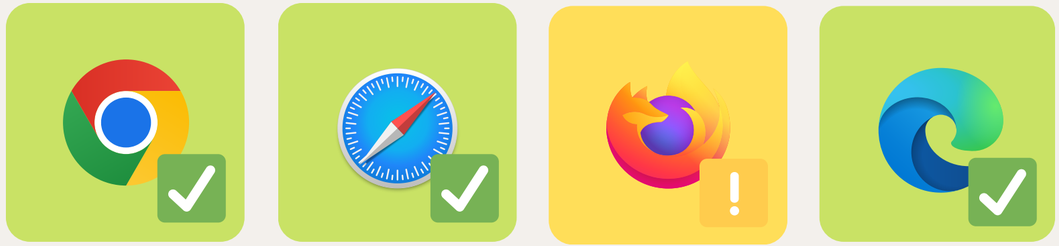
07

WEB SHARE API



07

WEB SHARE API

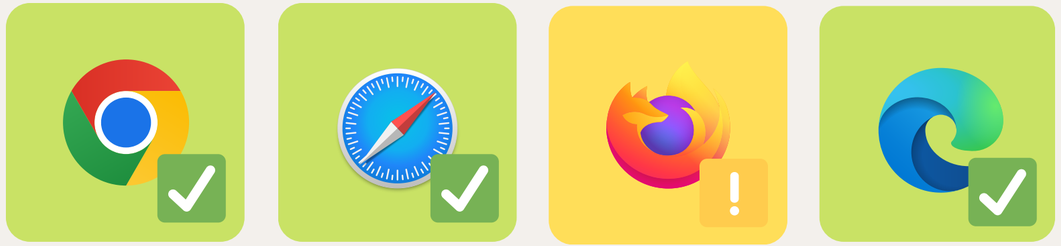


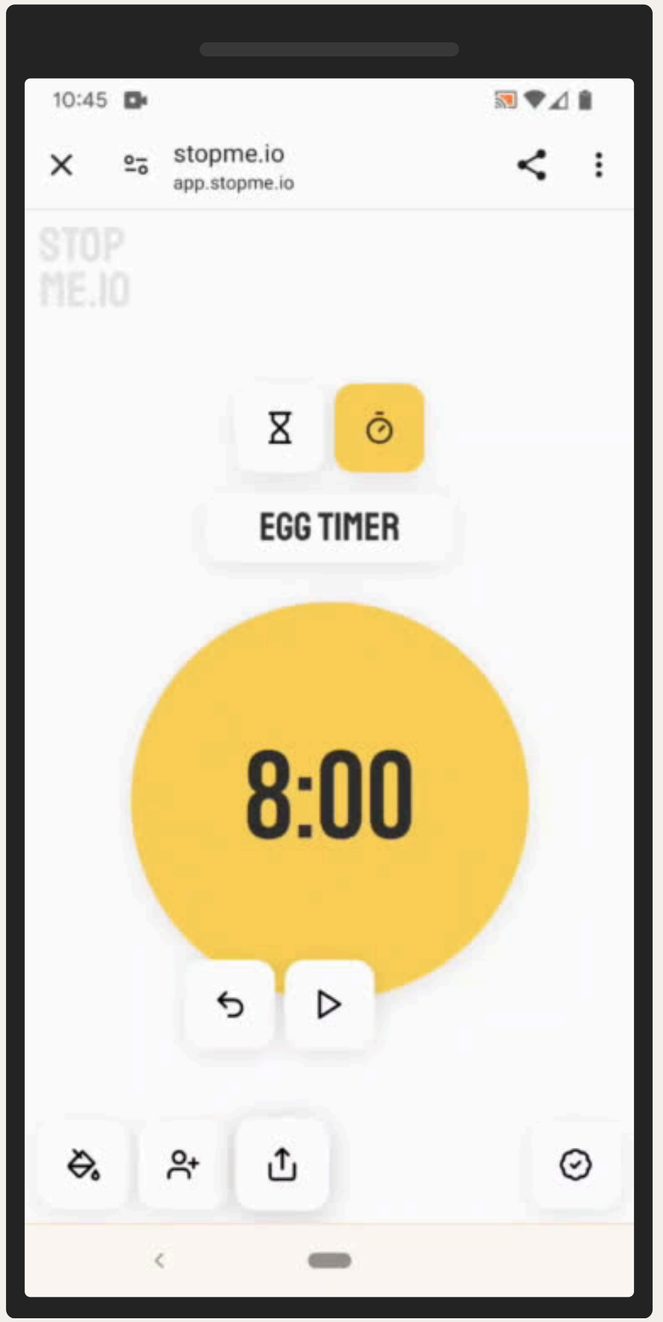
```
const shareData = {
  title: "../NEW",
  text: "Celebrate all things technology",
  url: "https://slashnew.tech"
  files: [imageFile, videoFile]
};

document.getElementById("btn")
  .addEventListener("click", () => {
    navigator.share(shareData)
      .catch((e) => {
        // Handle any errors
      });
  });
```

https://developer.mozilla.org/en-US/docs/Web/API/Web_Share_API

07

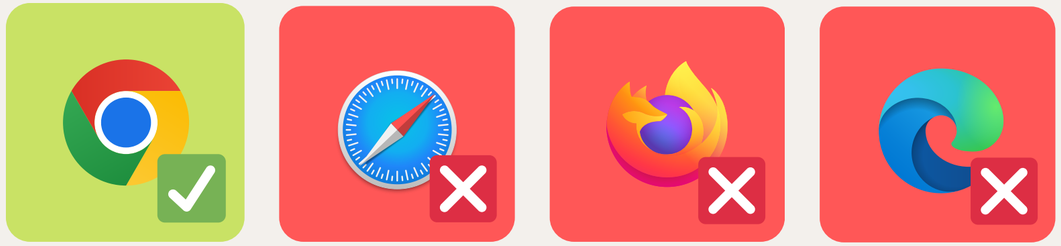
WEB SHARE API





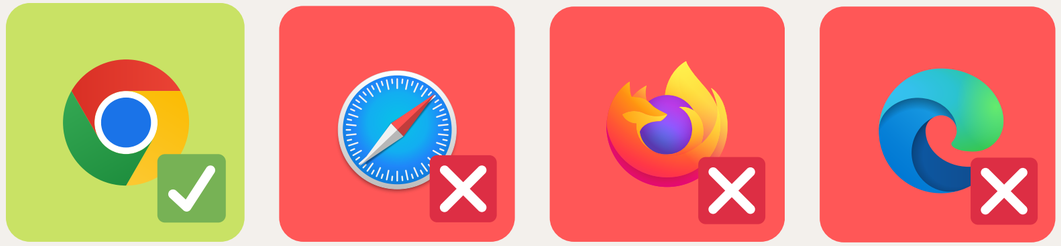
08

CONTACT PICKER API



08

CONTACT PICKER API

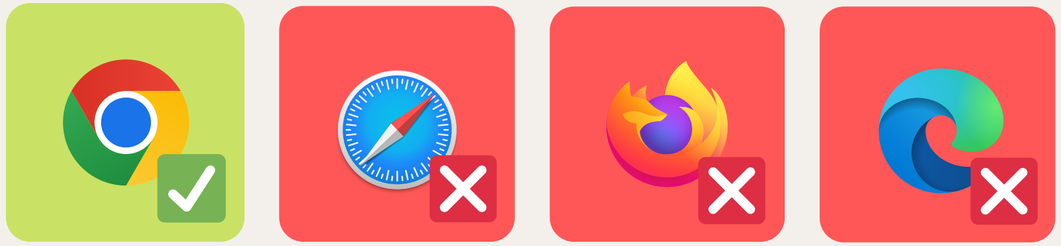


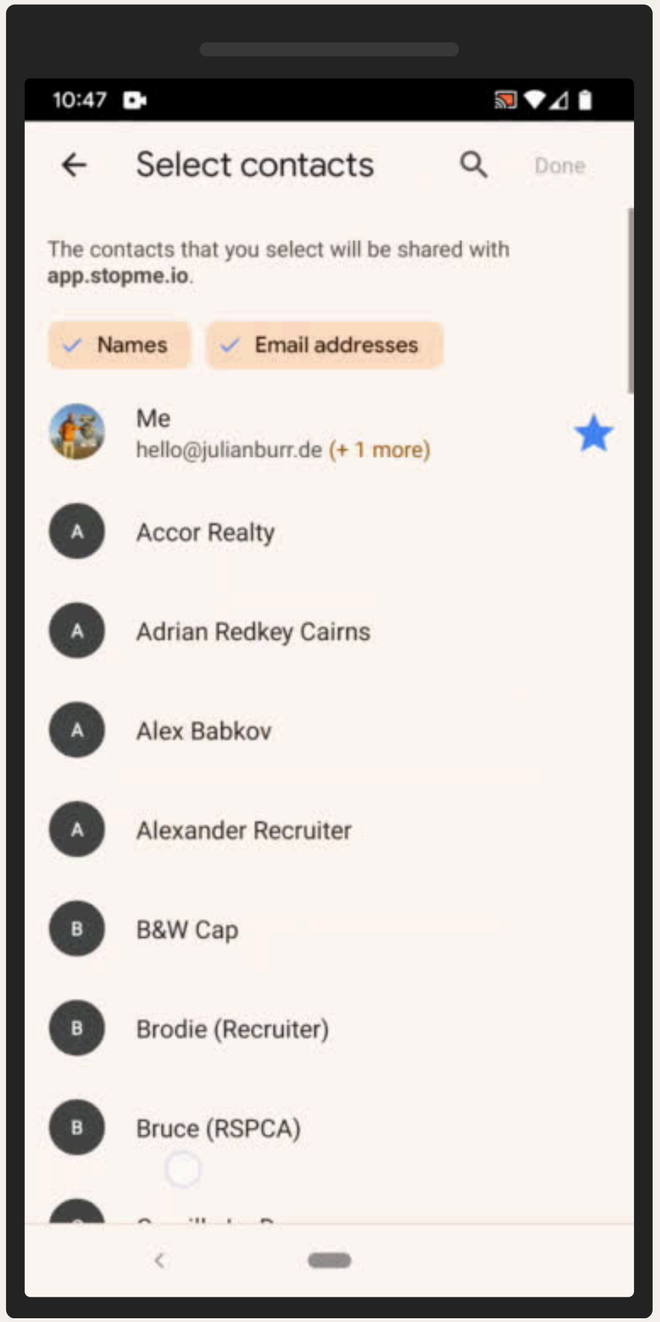
```
const props = ["name", "email", "tel", "icon"];
const opts = { multiple: true };

const contacts = await navigator.contacts
  .select(props, opts);
  .catch((e) => {
    // Handle any errors
  });
```

https://developer.mozilla.org/en-US/docs/Web/API/Contact_Picker_API

08

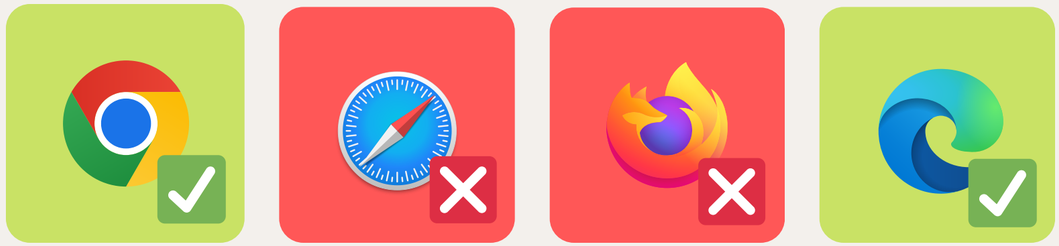
CONTACT PICKER API





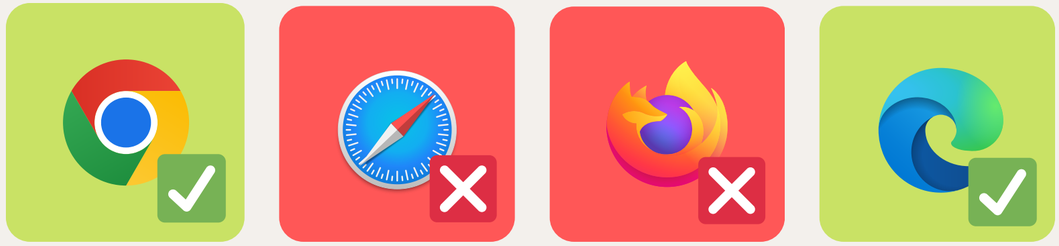
09

WEB OTP API



09

WEB OTP API

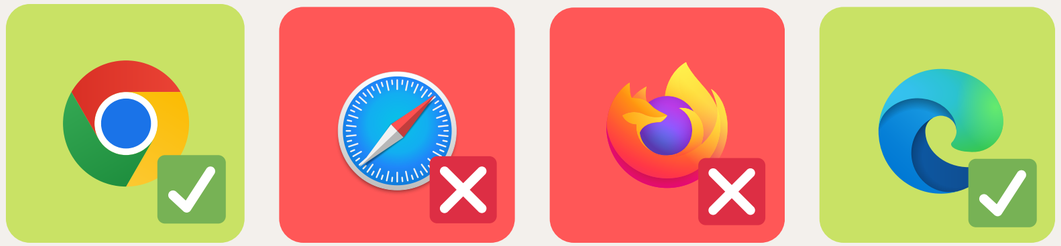


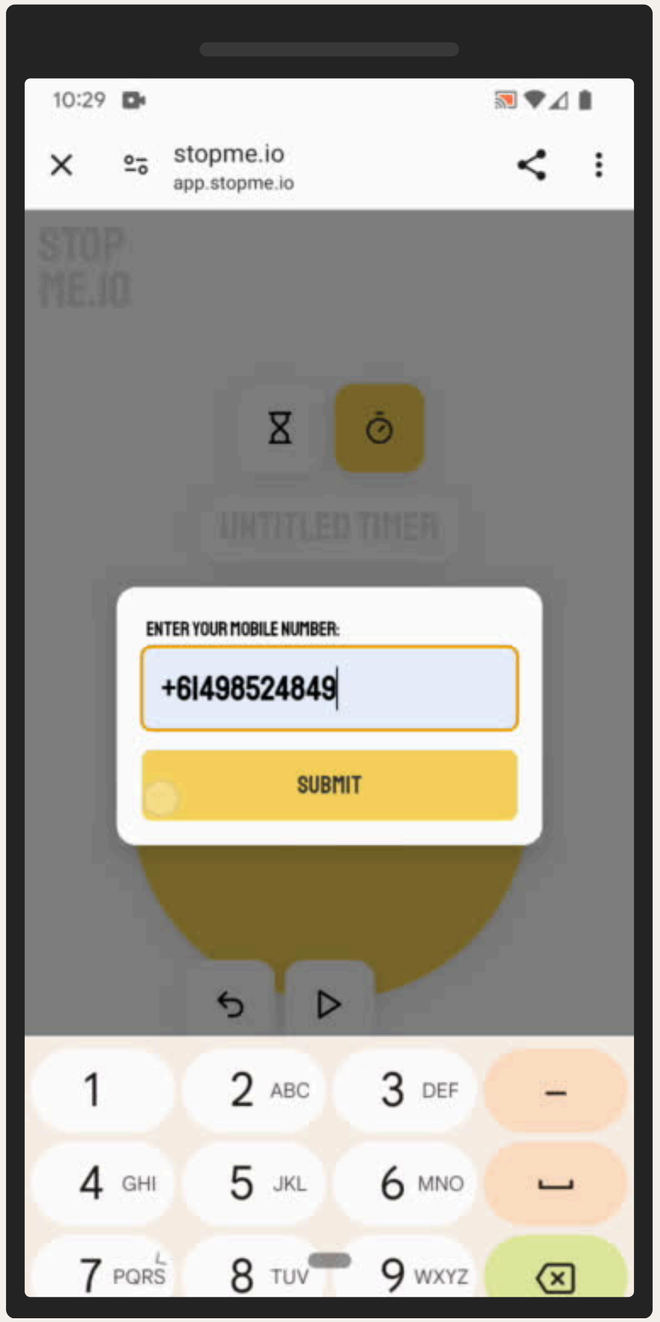
```
navigator.credentials
  .get({
    otp: { transport: ["sms"] },
    signal: ac.signal,
  })
  .then((otp) => {
    // *.code
  })
  .catch((e) => {
    // Handle any errors
  });

// Format of the SMS so it can be processed
//   Your verification code is 123456.\n\n
//   @app.stopme.io #123456
```

https://developer.mozilla.org/en-US/docs/Web/API/WebOTP_API

09

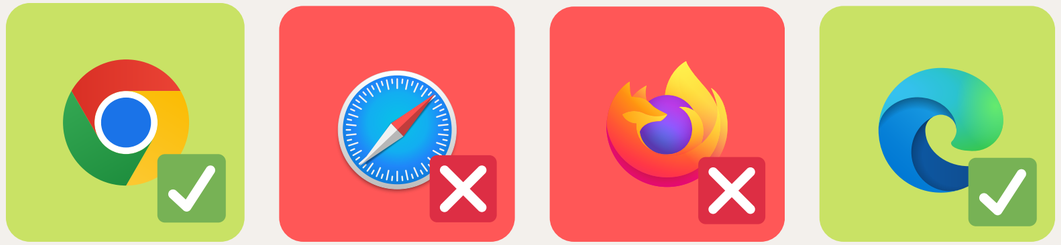
WEB OTP API

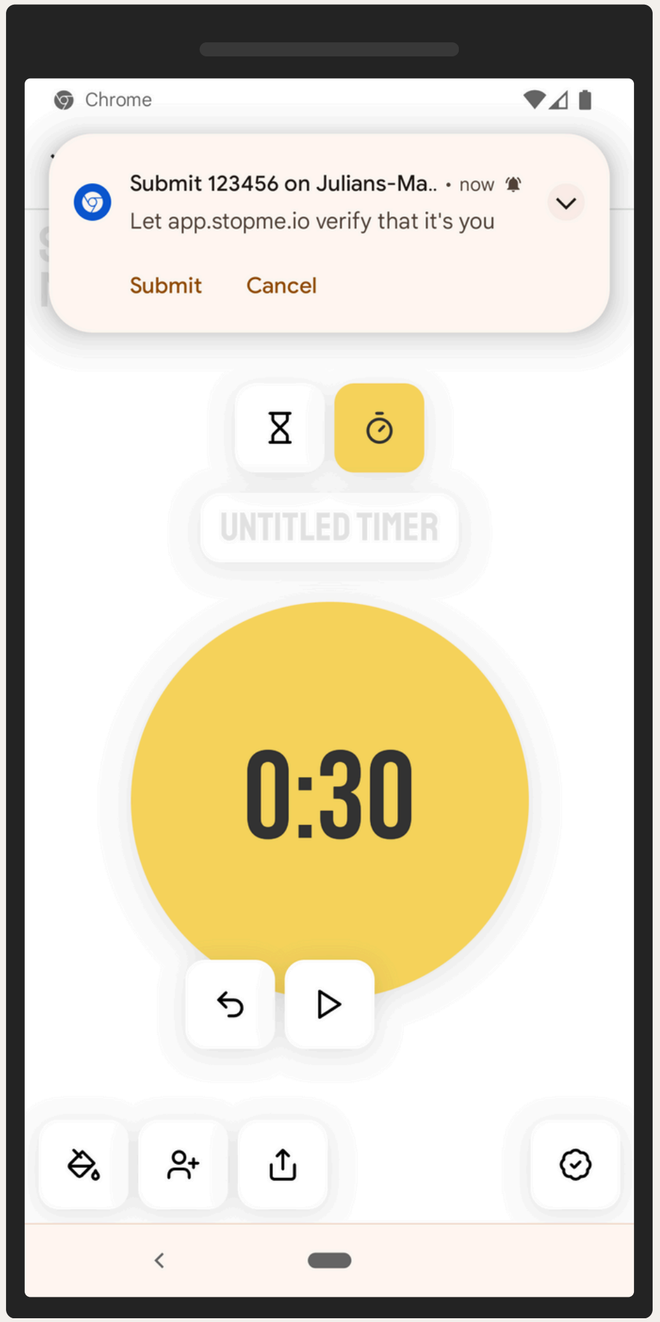




09

WEB OTP API





HONOURABLE MENTIONS

DEBUGGING

CONSOLE

PERFORMANCE

MEMORY

DEBUGGING

CONSOLE

PERFORMANCE

MEMORY

```
console.log(...);

console.assert(...);
console.count(...);
console.countReset(...);

console.dir(...);
console.table(...);
console.group(...);
console.groupCollapsed(...);
console.groupEnd(...);

console.time(...);
console.timeEnd(...);

console.trace(...);

console.clear();
```

https://developer.mozilla.org/en-US/docs/Web/API/Console_API

DEBUGGING

CONSOLE

PERFORMANCE

MEMORY

```
const time = performance.now();

performance.mark("start");
performance.mark("end", { detail: { ... } });

performance.measure("login", "start", "end");

const observer =
  new PerformanceObserver((list, obj) => {
    list.getEntries().forEach((entry) => {
      // *.name
      // *.startTime
      // *.duration
      // *.detail
    });
  });
observer.observe({ type: "resource" });
```

https://developer.mozilla.org/en-US/docs/Web/API/Performance

DEBUGGING

CONSOLE

PERFORMANCE

MEMORY

```
const memory = navigator.deviceMemory;
// Device has at least ${memory}GiB of RAM

const memorySample = await performance
  .measureUserAgentSpecificMemory();
// *.bytes
// *.breakdown[].bytes
// *.breakdown[].attribution
// *.breakdown[].types
```

https://developer.mozilla.org/en-US/docs/Web/API/Device_Memory_API

AUTH BUT BETTER

CREDENTIALS API

AUTHN API

AUTH BUT BETTER

CREDENTIALS API

AUTHN API

```
const cred = new PasswordCredential({
  id,
  password,
  name
});

// Store credentials
await navigator.credentials.store(cred);

// Get stored credentials
const user = await navigator.credentials.get();

// Prevent automatic login when user signs out
await navigator
  .credentials
  .preventSilentAccess();
```

https://developer.mozilla.org/en-US/docs/Web/API/Credential_Management_API

AUTH BUT BETTER

CREDENTIALS API

AUTHN API

```
// Create credentials object on the client
// using challenge generated on the server
const registerCredential =
  await navigator.credentials.create({
    publicKey
  });

// Credentials are stored with the user
// identity are sent back and stored on the
// server

// Authenticate again using server challenge
const authCredential =
  await navigator.credentials.get({
    publicKey
  });

// Use stored public key to verify validity
// of auth crendentials
```

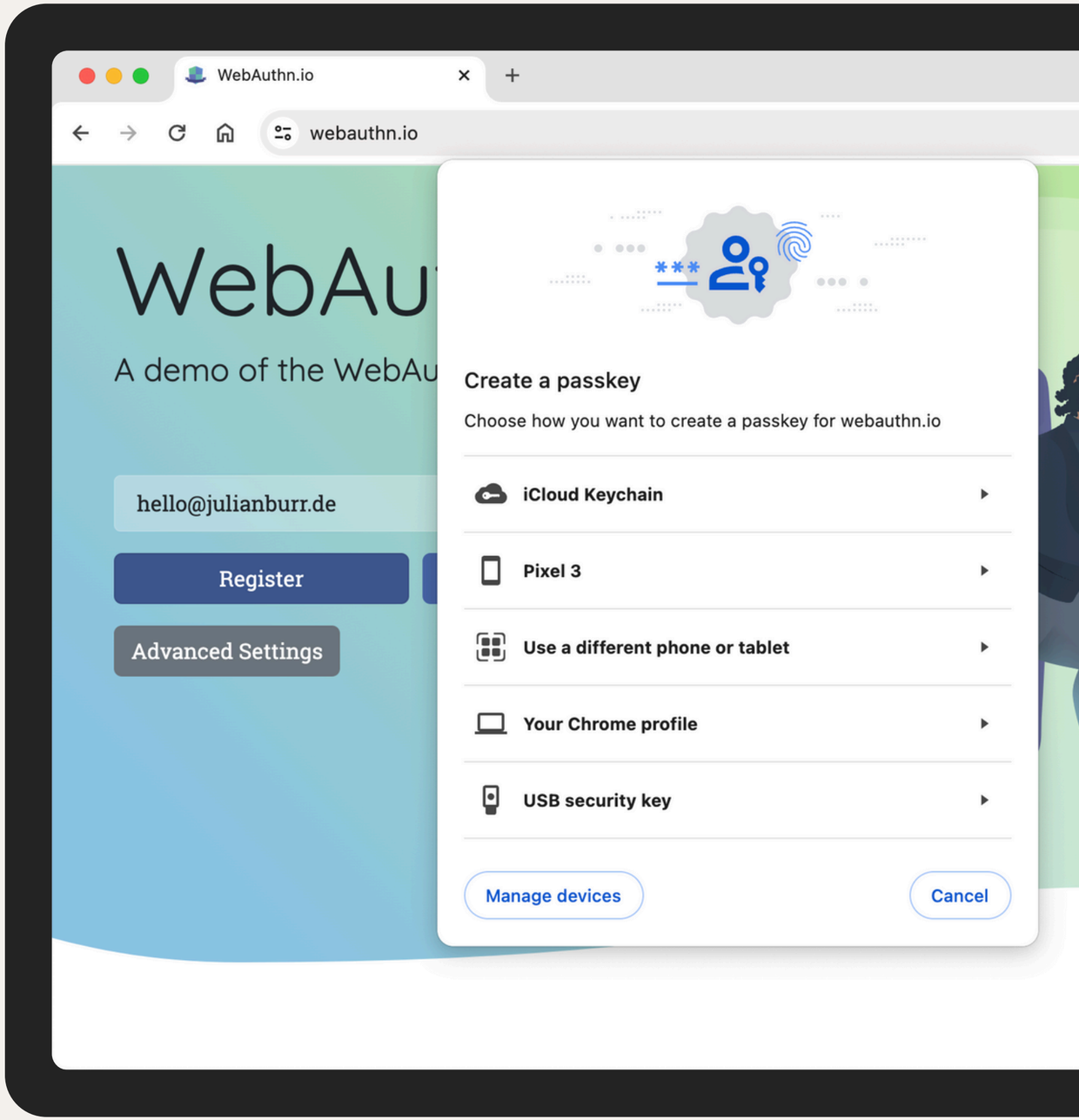
https://developer.mozilla.org/en-US/docs/Web/API/Web_Authentication_API

https://webauthn.io/

AUTH BUT BETTER

CREDENTIALS API

AUTHN API



THE NEXT GENERATION

INTL API

TEMPORAL*

NAVIGATION API

THE NEXT GENERATION

INTL API

TEMPORAL*

NAVIGATION API

```
const options = {
  dateStyle: "full",
  timeStyle: "long",
  timeZone: "Australia/Sydney"
});

new Intl.DateTimeFormat("en-US", options)
  .format(date);
// Friday, December 2, 2022 at 12:21:40 PM
// GMT+11

// Relative time
const fmt = new Intl.RelativeTimeFormat(
  "en",
  { style: "narrow" }
);
fmt.format(3, "day"); // in 3 days
fmt.format(-2, "year"); // 2 years ago
```

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Intl

THE NEXT GENERATION

INTL API

TEMPORAL*

NAVIGATION API

```
const au = new Intl.NumberFormat("en-AU");
au.format(123_456.79);
// 123,456.79

const de = new Intl.NumberFormat("de-DE");
de.format(123_456.79);
// 123.456,79

const fmt = new Intl.NumberFormat(
  "de-DE",
  { style: "currency", currency: "EUR" }
);
fmt.format(123_456.79)
// 123.456,79 €
```

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Intl

THE NEXT GENERATION

INTL API

TEMPORAL*

NAVIGATION API

```
// Get exact current system time
Temporal.Now.instant();

// Get time zone
Temporal.Now.timeZoneId();

// Useful utilities
const date = Temporal.PlainDate.from(dateStr);
// *.year
// *.inLeapYear
// *.toString()
// ...

// Manipulate time
date.add({ hours: 1 });
```

https://tc39.es/proposal-temporal/docs/

THE NEXT GENERATION

INTL API

TEMPORAL*

NAVIGATION API

```
// Promises for the win (finally!)
await navigation.reload({ info, state });

// Navigate around
await navigation.navigate(url, options);
await navigation.back(options);
await navigation.forward(options);
await navigation.traverseTo(key, options);

// Events
navigation
  .addEventListener("currententrychange");
  .addEventListener("navigate");
  .addEventListener("navigatesuccess");
  .addEventListener("navigateerror");
```

https://developer.mozilla.org/en-US/docs/Web/API/Navigation_API

THE NEXT GENERATION

URL PATTERNS

POPOVER

VIEW TRANSITION

```
const p = new URLPattern({ pathname: "/foo" });
p.test("https://example.com/books")); // true

const p =
  new URLPattern({ pathname: "/books/:id" });
const match =
  p.exec("https://example.com/books/123");
// *.pathname.groups.id = 123

const p =
  new URLPattern(
    "/books/:id(\\d+)",
    "https://example.com"
  );
```

https://developer.mozilla.org/en-US/docs/Web/API/URL_Pattern_API

THE NEXT GENERATION

URL PATTERNS

POPOVER

VIEW TRANSITION

```
<button popovertarget="mypopover">
  Toggle the popover
</button>

<div id="mypopover" popover>
  Popover content
</div>

document.addEventListener("keydown", (e) => {
  if (e.key === "h") {
    mypopover.togglePopover();
  }
});
```

https://developer.mozilla.org/en-US/docs/Web/API/Popover_API

THE NEXT GENERATION

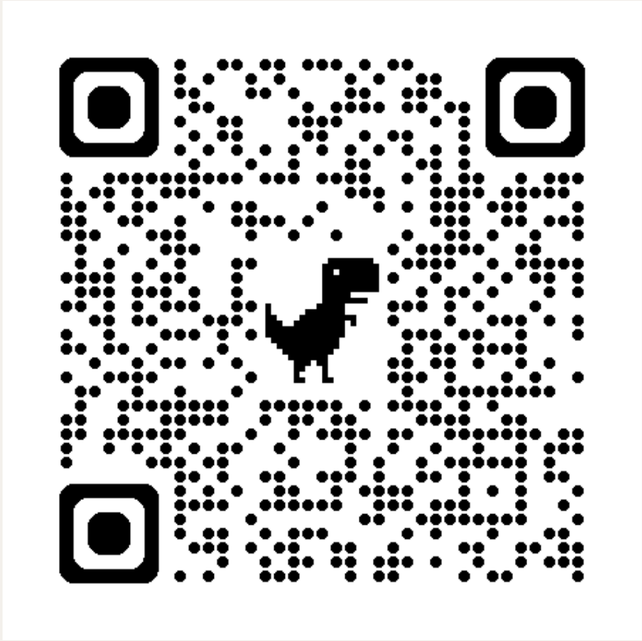
URL PATTERNS

POPOVER

VIEW TRANSITION

```
function updateView(e) {
  e.preventDefault();
  const details =
    e.target.closest("details");

  if (!document.startViewTransition) {
    // Fallback for older browsers
    details.toggleAttribute("open")
  }

  document.startViewTransition(() =>
    details.toggleAttribute("open")
  );
}
```

https://developer.mozilla.org/en-US/docs/Web/API/View_Transitions_API



THANKS!

@JBURR90 / JULIAN BURR

HTTPS://WWW.JULIANBURR.DE/WEB-DIRECTIONS-CODE-2024-SLIDES.PDF