

A11Y Tips for the Mindful Developer

The case for accessibility

accessibility

1 2 3 4 5 6 7 8 9 10 11

↓

a11y

The diagram illustrates a mapping or transformation from the word "accessibility" to "a11y". Above the word "accessibility", there is a horizontal scale with numerical tick marks from 1 to 11. A dashed blue arrow points downwards from the center of this scale to the word "a11y" below it, indicating a correspondence between the two.

Accessibility

Can be used by everyone, regardless if they have disabilities.

“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.”

– *Tim Berners-Lee, inventor of the World Wide Web*

Types of disabilities

Types of disabilities

Permanent



VISUAL



AUDITORY



MOBILITY



COGNITIVE

Types of disabilities

Permanent



VISUAL



AUDITORY



MOBILITY



COGNITIVE

Temporary or Situational



AGING



NEW PARENT



SUN



MEETING



POWER
USERS



INJURY

Why should we care about a11y?

Why should we care about ally?

1

*It affects more people than you think.
1.3 billion people with disabilities.*

Why should we care about ally?

1 *It affects more people than you think.*
1.3 billion people with disabilities.

2 *It's on the way to be mandatory.*
In some countries or fields, it already is.

Why should we care about ally?

1 *It affects more people than you think.*
1.3 billion people with disabilities.

2 *It's on the way to be mandatory.*
In some countries or fields, it already is.

3 *It's the right thing to do.*
And our damn job.

The WebAIM Million

Test top 1M website's homepages using automated accessibility tools.

The WebAIM Million

Test top 1M website's homepages using automated accessibility tools.

30% can be verified with **automation**.

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Test top 1M website's homepages using automated accessibility tools.

30% can be verified with **automation**.

97.8% pages with accessibility **failures**.

The WebAIM Million

Test top 1M website's homepages using automated accessibility tools.

30% can be verified with **automation**.

97.8% pages with accessibility **failures**.

+10.1% errors in **React** websites.

We are preventing people
from using our websites.

We need to do way better.

10 A11Y Tips



Beginner



Intermediate



Advanced



TIP #1

Landmarks

how we perceive a webpage

The screenshot shows a web browser window displaying the English Wikipedia article for "Porto". The title bar reads "Porto - Wikipedia". The address bar shows the URL "https://en.wikipedia.org/wiki/Porto". The page content starts with the heading "Porto" and a summary from Wikipedia. To the right, there is a sidebar titled "Porto" under "Municipality" featuring three images of Porto's architecture. The left sidebar contains links to the main page, contents, featured content, current events, random article, donation options, and various interaction and tool links.

Porto

From Wikipedia, the free encyclopedia

Coordinates: 41°9'43.71"N 8°37'19.03"W

"*Oporto*" redirects here. For other uses of *Porto* and *Oporta*, see *Porto (disambiguation)*.

Porto (Portuguese pronunciation: [poɾtu]) is the [second-largest city in Portugal](#) after [Lisbon](#)^[3] and one of the major urban areas of the Iberian Peninsula. The city proper has a population of 287,591 and the metropolitan area of Porto, which extends beyond the administrative limits of the city, has a population of 2.3 million (2011)^[4] in an area of 2,395 km² (925 sq mi),^[5] making it the second-largest urban area in Portugal.^{[6][7][8]} It is recognized as a [gamma-level global city](#) by the Globalization and World Cities (GaWC) Study Group,^[8] the only Portuguese city besides Lisbon to be recognised as a global city.

Located along the [Douro River estuary](#) in northern Portugal, Porto is one of the oldest European centres, and its historical core was proclaimed a [World Heritage Site](#) by UNESCO in 1996. The western part of its urban area extends to the coastline of the [Atlantic Ocean](#). Its settlement dates back many centuries, when it was an outpost of the [Roman Empire](#). Its combined [Celtic-Latin name](#), *Portus Cale*,^[10] has been referred to as the origin of the name "Portugal", based on [transliteration](#) and oral evolution from Latin. In Portuguese, the name of the city is spelled with a [definite article](#): *o Porto*. Consequently, its English name, *Oporto*, evolved from a misinterpretation of the Portuguese pronunciation.

Over time, one of Portugal's most famous exports, is named after Porto, since the

how we perceive a webpage

we are in wikipedia



A screenshot of a web browser displaying the English Wikipedia article for "Porto". The page title is "Porto". The main content area starts with a summary: "'Oporto' redirects here. For other uses of Porto and Oporto, see [Porto \(disambiguation\)](#).". The text describes Porto as the second-largest city in Portugal after Lisbon, with a population of 287,591 and a metropolitan area of 2.3 million. It is recognized as a gamma-level global city by the Globalization and World Cities (GaWC) Study Group. The article also mentions its historical significance as a Roman outpost and its role as a European center.

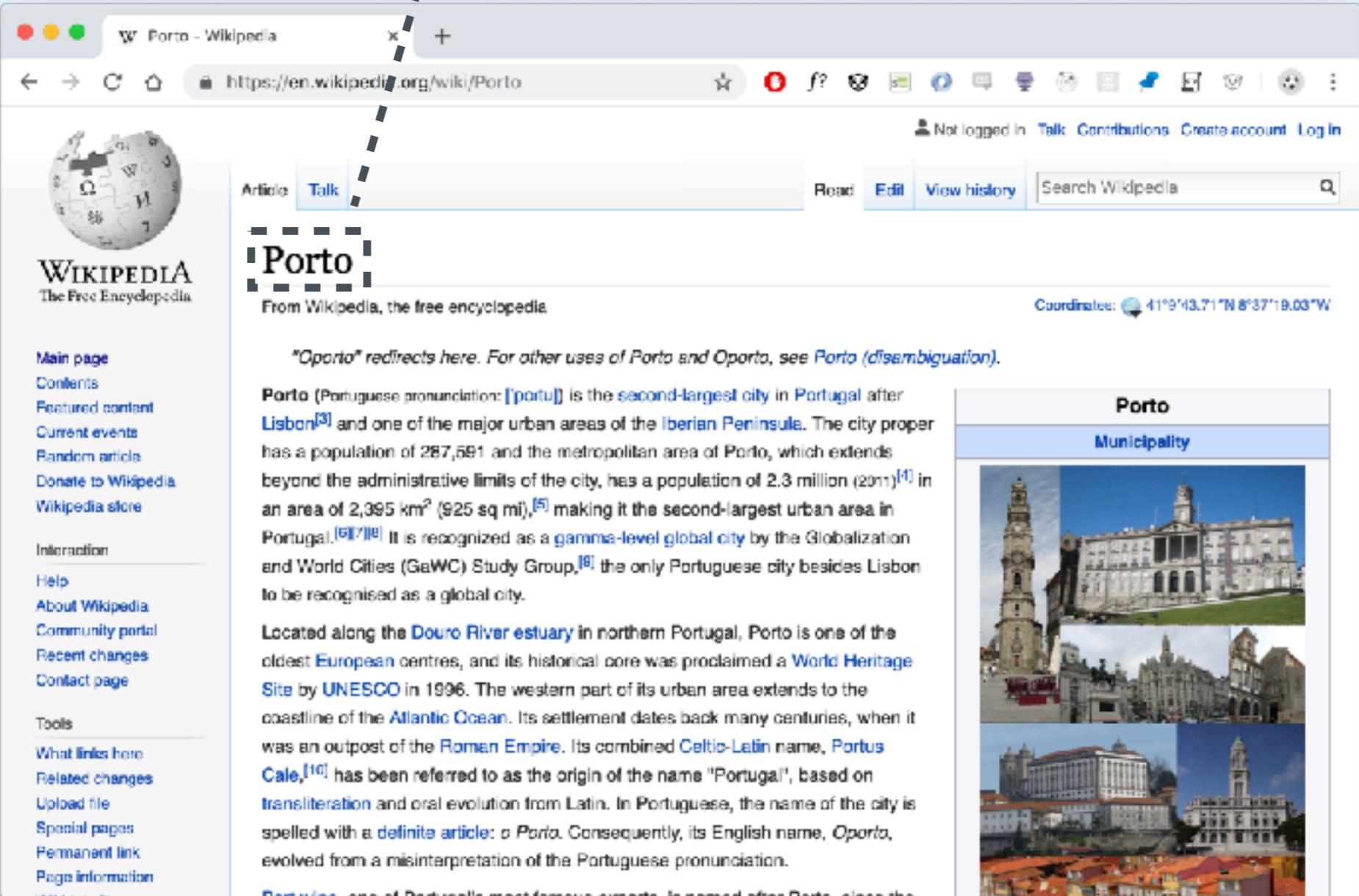
The right sidebar contains a "Porto Municipality" section with three images showing architectural details of buildings in Porto.

The left sidebar contains a navigation menu with links like Main page, Contents, Featured content, Current events, Random article, Donate to Wikipedia, Wikipedia store, Help, About Wikipedia, Community portal, Recent changes, Contact page, Tools, What links here, Related changes, Upload file, Special pages, Permanent link, and Page information.

A dashed arrow points from the top-left towards the browser window, indicating the user's perspective of viewing the page.

how we perceive a webpage

reading about Porto



The screenshot shows a web browser window displaying the English Wikipedia article for "Porto". The title "Porto" is at the top, followed by a subheader "From Wikipedia, the free encyclopedia". The main content discusses the city's history, population, and status as a global city. To the right, there is a sidebar titled "Porto Municipality" featuring three images of the city's landmarks: a tall tower, a large building, and a panoramic view of the city skyline.

"Porto" redirects here. For other uses of *Porto* and *Oporto*, see *Porto (disambiguation)*.

Porto (Portuguese pronunciation: [poɾtu]) is the [second-largest city in Portugal](#) after [Lisbon](#)^[3] and one of the major urban areas of the Iberian Peninsula. The city proper has a population of 287,591 and the metropolitan area of Porto, which extends beyond the administrative limits of the city, has a population of 2.3 million (2011)^[4] in an area of 2,395 km² (925 sq mi),^[5] making it the second-largest urban area in Portugal.^{[6][7][8]} It is recognized as a [gamma-level global city](#) by the Globalization and World Cities (GaWC) Study Group,^[8] the only Portuguese city besides Lisbon to be recognised as a global city.

Located along the [Douro River estuary](#) in northern Portugal, Porto is one of the oldest European centres, and its historical core was proclaimed a [World Heritage Site](#) by UNESCO in 1996. The western part of its urban area extends to the coastline of the [Atlantic Ocean](#). Its settlement dates back many centuries, when it was an outpost of the [Roman Empire](#). Its combined [Celtic-Latin name](#), *Portus Cale*,^[10] has been referred to as the origin of the name "Portugal", based on [transliteration](#) and oral evolution from Latin. In Portuguese, the name of the city is spelled with a [definite article](#): *o Porto*. Consequently, its English name, *Oporto*, evolved from a misinterpretation of the Portuguese pronunciation.

Coordinates: 41°9'43.71"N 8°37'19.03"W

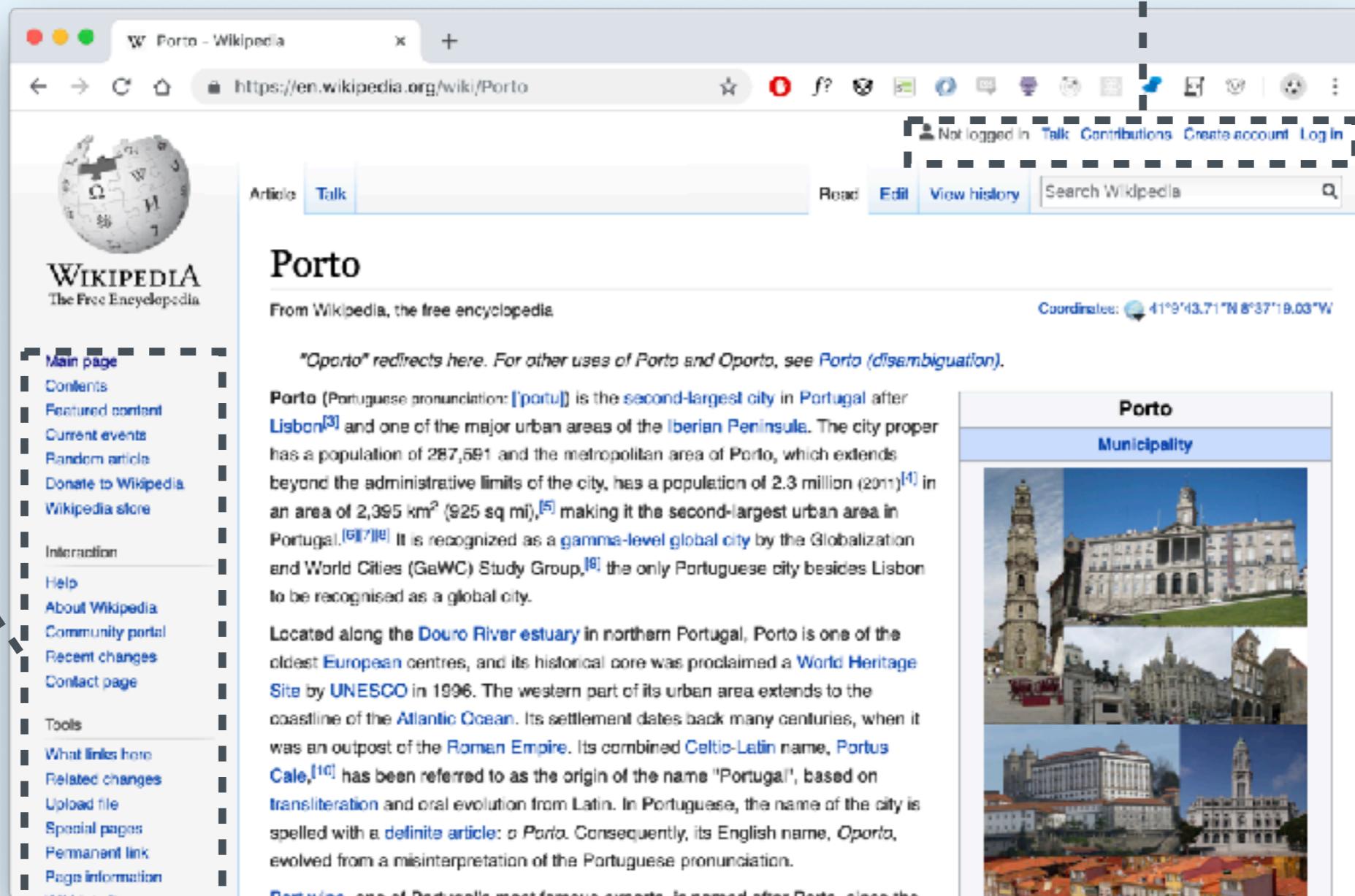
how we perceive a webpage

content starts here

A screenshot of a web browser displaying the English Wikipedia article for "Porto". The page title "Porto" is at the top, followed by a navigation bar with links for Article, Talk, Read, Edit, View history, and Search Wikipedia. A user interface icon indicates the user is not logged in. The main content begins with a bolded section header "Porto" and a subheader "From Wikipedia, the free encyclopedia". Below this is a disambiguation notice: "'Oporto' redirects here. For other uses of Porto and Oporto, see [Porto \(disambiguation\)](#)". The main text block describes Porto as the second-largest city in Portugal after Lisbon, mentioning its population of 287,591 and its status as a gamma-level global city. To the right of the text is a sidebar titled "Porto Municipality" featuring three images of the city's architecture. A dashed arrow originates from the word "Porto" in the title and points upwards towards the start of the main content text.

how we perceive a webpage

navigation ↗



The screenshot shows a Wikipedia article page for "Porto". The title "Porto" is at the top, followed by a short summary and the text: "'Oporto' redirects here. For other uses of Porto and Oporto, see [Porto \(disambiguation\)](#).
Porto (Portuguese pronunciation: [poɾtu]) is the [second-largest city in Portugal](#) after [Lisbon](#)[3] and one of the major urban areas of the Iberian Peninsula. The city proper has a population of 287,591 and the metropolitan area of Porto, which extends beyond the administrative limits of the city, has a population of 2.3 million (2011)[4] in an area of 2,395 km² (925 sq mi),[5] making it the second-largest urban area in Portugal.[6][7][8] It is recognized as a [gamma-level global city](#) by the Globalization and World Cities (GaWC) Study Group,[8] the only Portuguese city besides Lisbon to be recognised as a global city.
Located along the [Douro River estuary](#) in northern Portugal, Porto is one of the oldest European centres, and its historical core was proclaimed a [World Heritage Site](#) by UNESCO in 1996. The western part of its urban area extends to the coastline of the [Atlantic Ocean](#). Its settlement dates back many centuries, when it was an outpost of the [Roman Empire](#). Its combined [Celtic-Latin name](#), [Portus Cale](#),[10] has been referred to as the origin of the name "Portugal", based on [transliteration](#) and oral evolution from Latin. In Portuguese, the name of the city is spelled with a [definite article](#): *o Porto*. Consequently, its English name, *Oporto*, evolved from a misinterpretation of the Portuguese pronunciation.

Coordinates: 41°9'43.71"N 8°37'19.03"W

On the left, a sidebar lists navigation links: Main page, Contents, Featured content, Current events, Random article, Donate to Wikipedia, Wikipedia store, Interaction, Help, About Wikipedia, Community portal, Recent changes, Contact page, Tools, What links here, Related changes, Upload file, Special pages, Permanent link, Page information, and a link to the previous version.

On the right, there is a "Porto Municipality" section with three images showing architectural landmarks: a tall tower, a large building with multiple gables, and a view of buildings along a waterfront.

more navigation ↑

how we perceive a webpage



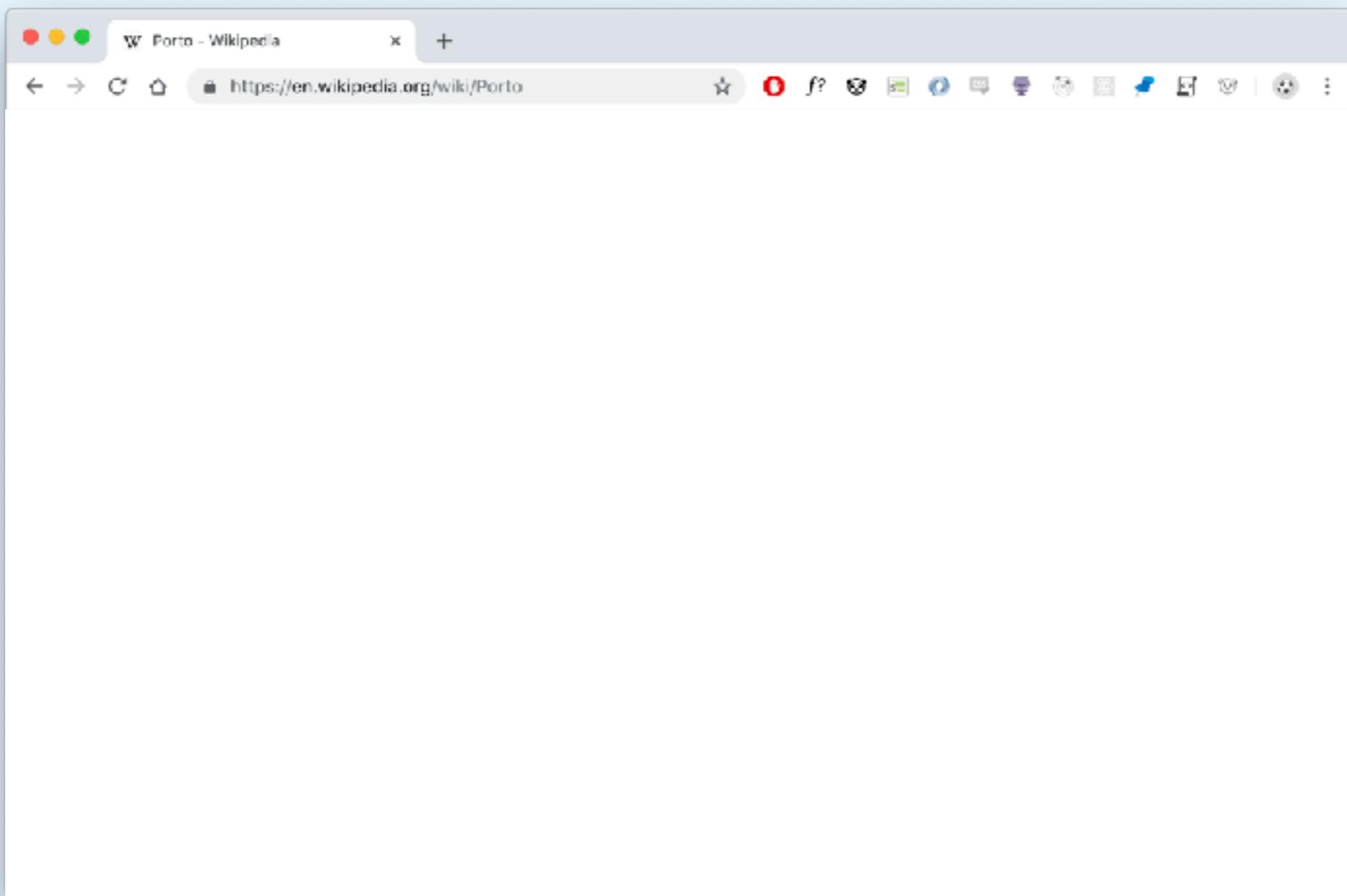
The screenshot shows a web browser window with the Wikipedia article for "Porto" open. The page title is "Porto". The main content area starts with a summary: "'Oporto' redirects here. For other uses of Porto and Oporto, see [Porto \(disambiguation\)](#).". The text describes Porto as the second-largest city in Portugal after Lisbon, with a population of 287,591 and a metropolitan area of 2.3 million. It is recognized as a gamma-level global city by the Globalization and World Cities (GaWC) Study Group. The text also mentions its historical significance as a Roman outpost and its name origin from the Celtic-Latin name "Portus Cale".

To the right of the main text, there is a sidebar titled "Porto" under "Municipality". It features three images: a tall clock tower, a large building complex, and a panoramic view of the city.

The browser's header includes the title "Porto - Wikipedia", the URL "https://en.wikipedia.org/wiki/Porto", and various navigation and search icons. The search bar at the top right contains the placeholder "Search Wikipedia".

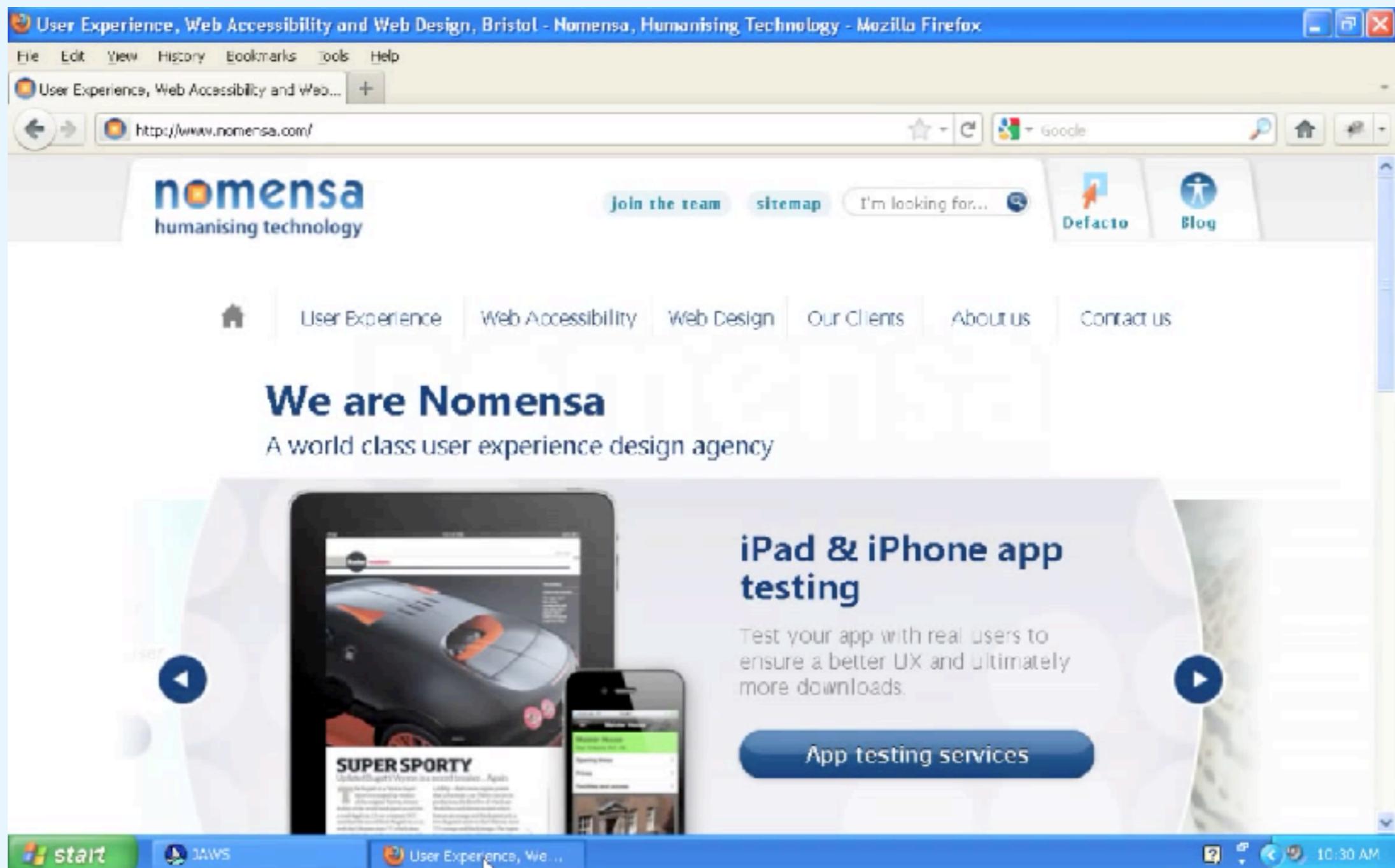
search

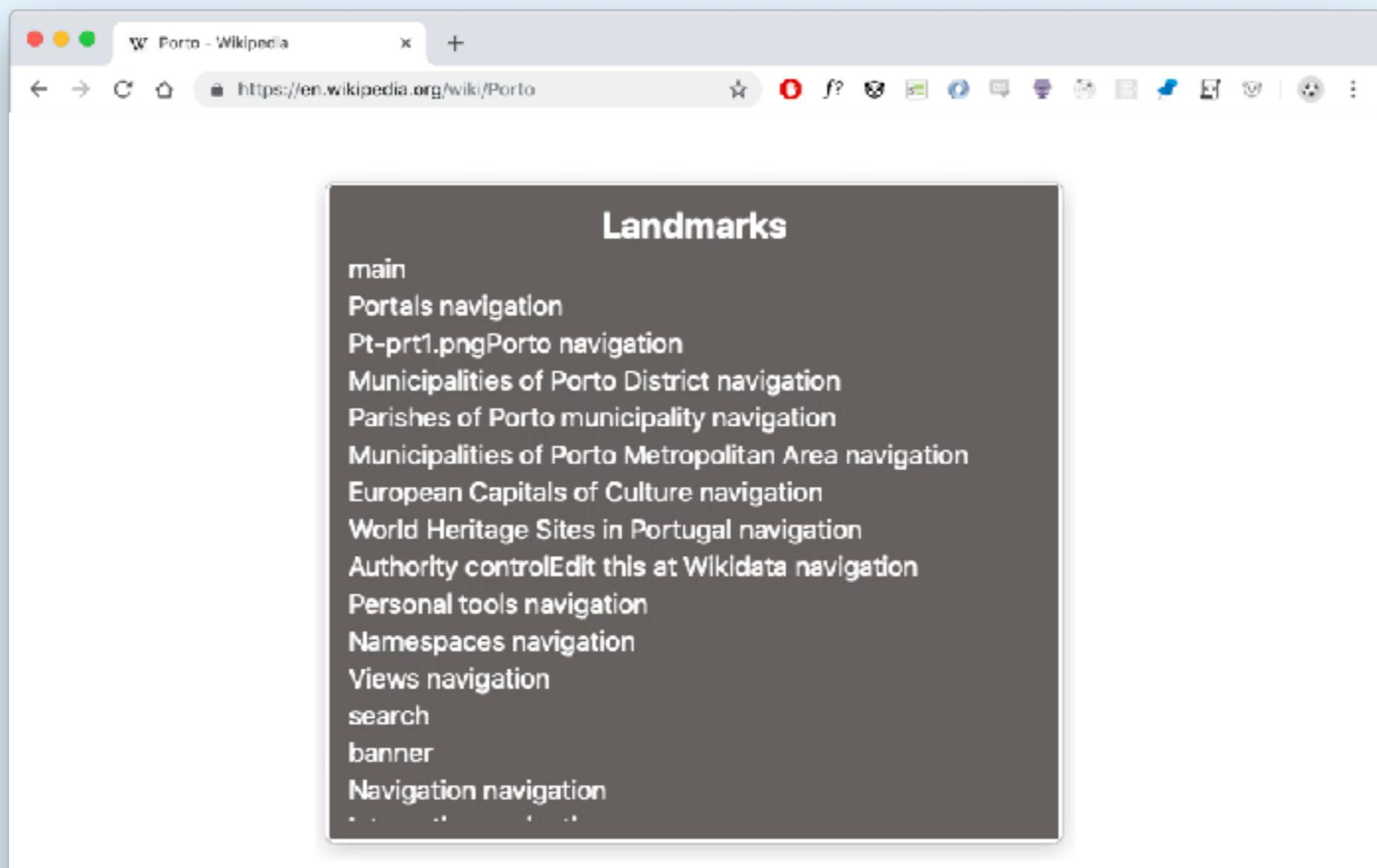
how people with disabilities perceive a webpage



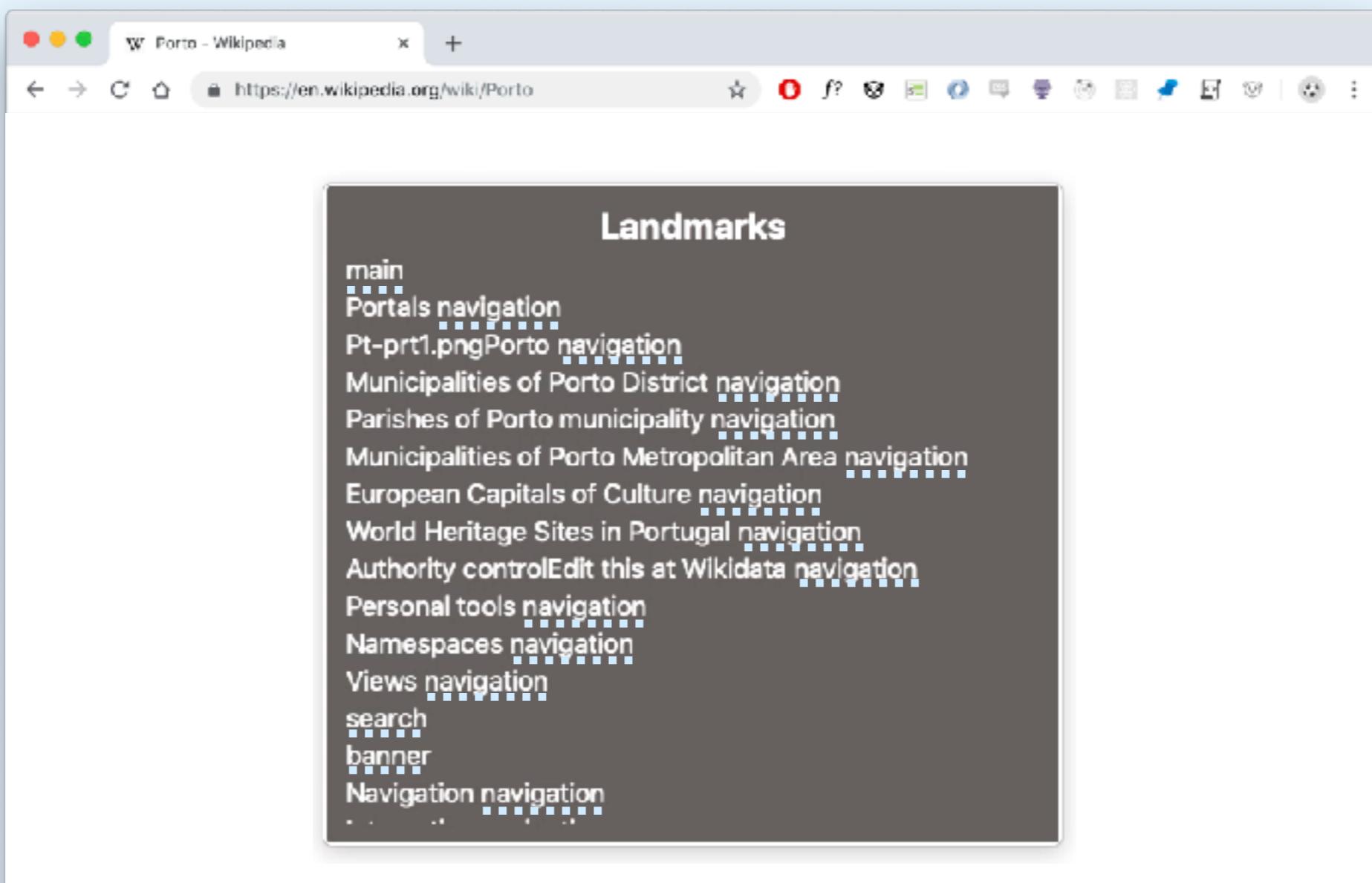
Screen Reader

Assistive technology that reads the content of a page for people who have visual disabilities.





HTML5 elements is a good start.



HTML5 (tag)	Role (attribute)
--------------------	-------------------------

<code><header /></code>	<i>banner</i> *
-------------------------------	-----------------

<code><main /></code>	<i>main</i>
-----------------------------	-------------

<code><footer /></code>	<i>contentinfo</i>
-------------------------------	--------------------

<code><nav /></code>	<i>navigation</i>
----------------------------	-------------------

<code><section /></code>	<i>region</i>
--------------------------------	---------------

<code><form /></code>	<i>form</i>
-----------------------------	-------------

<code><aside /></code>	<i>complementary</i>
------------------------------	----------------------

	<i>search</i>
--	---------------

* Does not apply if descendant of **article**, **aside**, **main**, or **section**.

Explicitly override a role when needed.

```
<form role='search'>
  <input type='search' aria-label='search text' />
  <button>search</button>
</form>
```



TIP #2

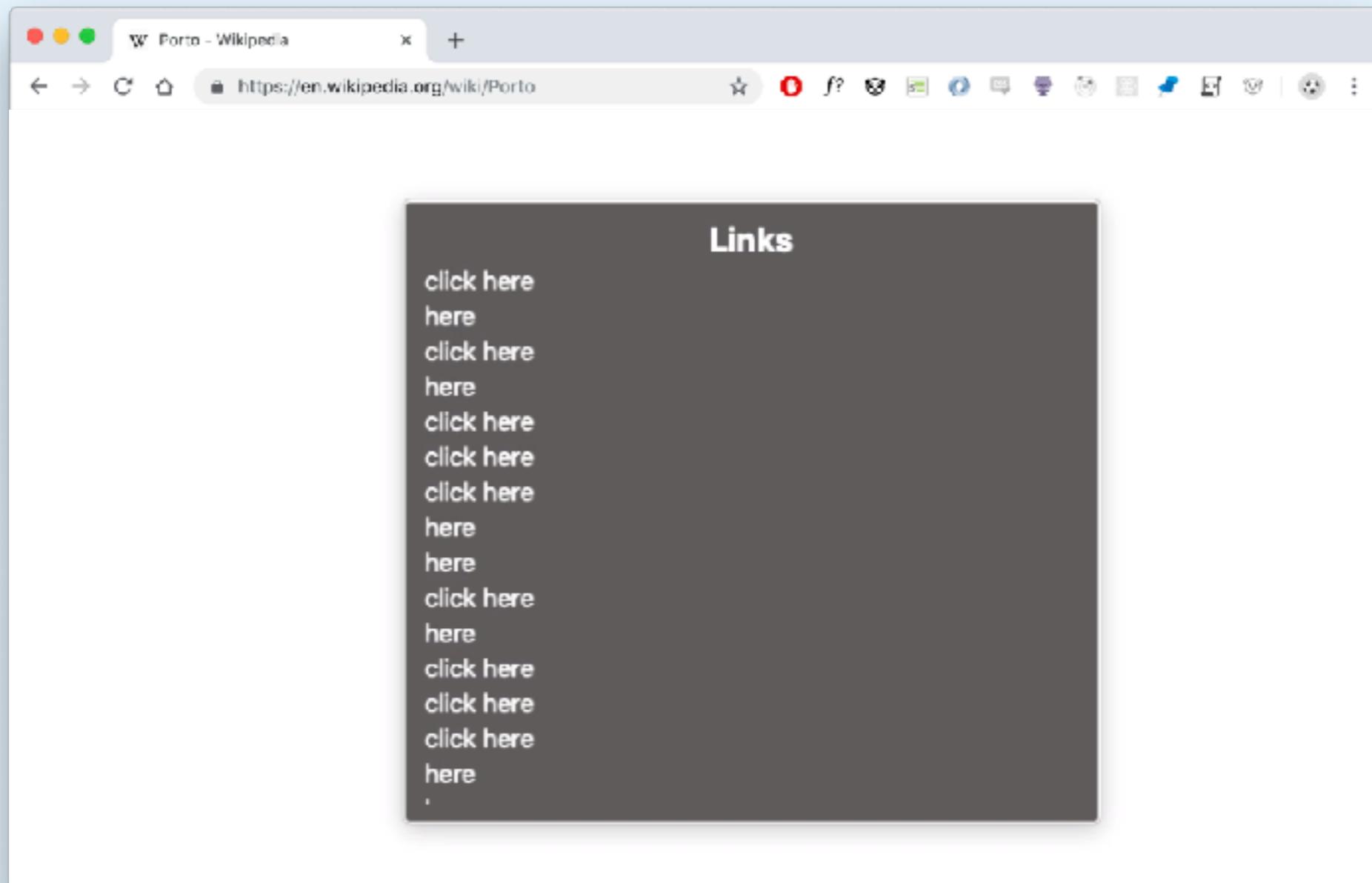
Read More Links

To see our documentation [click here](#).

Interested in our roadmap? Read it [here](#).

To see our documentation [click here](#).

Interested in our roadmap? Read it [here](#).



Option A: change copy.

Yes, accessibility is not only about code.

←!—  BAD —→

To see our documentation <[a href="/README.md">click here](/README.md).

Option A: change copy.

Yes, accessibility is not only about code.

←!—  BAD →

To see our documentation <[a href="/README.md">click here](/README.md).

←!—  Better →

We have made our <[a href="/README.md">documentation](/README.md) available.

Sometimes there's nothing we can do.

Keep exploring features.
See all the ways we can help your company grow.

Smart Dashboards
Deep dive into your metrics.

Recover
Stop losing money to failing charges.

Email Reports
Scheduled or instant updates.

Trial Insights
Improve your conversion rate.

[Learn More](#) [Learn More](#) [Learn More](#) [Learn More](#)

Option B: override labelling with aria-label

```
<!-- ⚡ BAD -->  
<a href="/smart-dashboards">Read more</a>
```

Option B: override labelling with aria-label

```
<!-- ⚡ BAD -->  
<a href="/smart-dashboards">Read more</a>  
  
<!-- ✅ Better -->  
<a  
  href="/smart-dashboards"  
  aria-label="read more about smart dashboards">Read more</a>
```



TIP #3

Decorative Images

See all attendees >

See all attendees >

```
<a href='/attendees'>
  See all attendees
  <svg> ... </svg>
</a>
```

See all attendees >

```
<a href='/attendees'>
  See all attendees
  <svg aria-hidden='true'> ... </svg>
</a>
```

See all attendees >

```
<!--  BAD: SC will announce the "src" -->
<a href='/attendees'>
  See all attendees
  <img src='/icons/arrow-1230dashd9a8h12s1892s1.svg' />
</a>
```

See all attendees >

```
<!-- - BAD: SC will announce the "src" →  
<a href='/attendees'>  
  See all attendees  
  <img src='/icons/arrow-1230dashd9a8h12s1892s1.svg' />  
</a>
```

```
<!-- ✓ Better →  
<a href='/attendees'>  
  See all attendees  
  <img  
    src='/icons/arrow-1230dashd9a8h12s1892s1.svg'  
    alt=''  
  />  
</a>
```

See all attendees >

```
<!-- 🚫 BAD: SC will announce the “src” →  
<a href='/attendees'>  
  See all attendees  
  <img src='/icons/arrow-1230dashd9a8h12s1892s1.svg' />  
</a>
```

```
←—— ✅ Better →  
<a href='/attendees'>  
  See all attendees  
  <img  
    src='/icons/arrow-1230dashd9a8h12s1892s1.svg'  
    role='presentation'  
  />  
</a>
```



TIP #4

Icon Buttons





```
←!—  BAD →  
<button>  
  <svg> ... </svg>  
</button>
```



```
<!-- ⚡ BAD -->
<button>
  <svg> ... </svg>
</button>
```

```
<!-- ✅ Better -->
<button>
  <svg aria-hidden='true'>...</svg>
</button>
```



```
<!-- ⚡ BAD -->
<button>
  <svg> ... </svg>
</button>
```

```
<!-- ✅ Better -->
<button aria-label='close'>
  <svg aria-hidden='true'>...</svg>
</button>
```



TIP #5

Toggle Icon Buttons





```
<button  
  aria-label='mute'  
  aria-pressed='false'  
>  
  <svg aria-hidden='true'>  
    ...  
  </svg>  
</button>
```



```
<button  
  aria-label='mute'  
  aria-pressed='false'  
>  
  <svg aria-hidden='true'>  
    ...  
  </svg>  
</button>
```



```
<button  
  aria-label='mute'  
  aria-pressed='false'  
>  
  <svg aria-hidden='true'>  
    ...  
  </svg>  
</button>
```



```
<button  
  aria-label='mute'  
  aria-pressed='false'  
>  
  <svg aria-hidden='true'>  
    ...  
  </svg>  
</button>
```

```
<button  
  aria-label='mute'  
  aria-pressed='true'  
>  
  <svg aria-hidden='true'>  
    ...  
  </svg>  
</button>
```

You still have to manage state.

You still have to manage state.

```
function ButtonMute() {
  const [pressed, setPressed] = useState(false);

  return (
    <button
      aria-label='close'
      aria-pressed={pressed}
      onClick={() => {
        setPressed(!pressed);
        // do the thing ...
      }}
    >
      <svg aria-hidden='true'> ... </svg>
    </button>
  )
}
```

You still have to manage state.

```
function ButtonMute() {
  const [pressed, setPressed] = useState(false);

  return (
    <button
      aria-label='close'
      aria-pressed={pressed}
      onClick={() => {
        setPressed(!pressed);
        // do the thing ...
      }}
    >
      <svg aria-hidden='true'> ... </svg>
    </button>
  )
}
```



TIP #6

Form Validation

Email

not-a-valid@email

You didn't enter a valid email address.

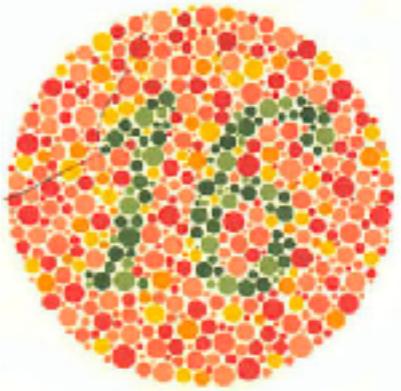
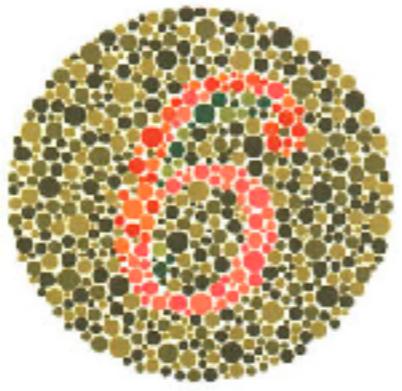
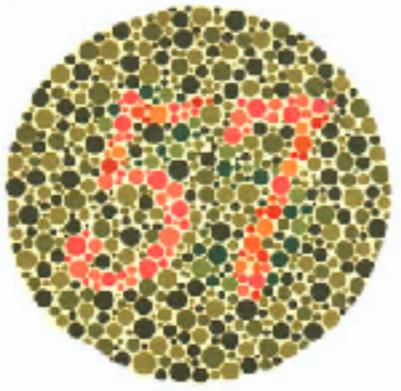
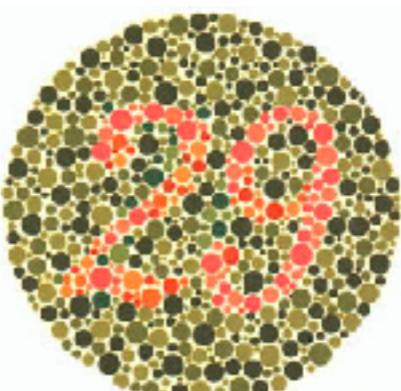
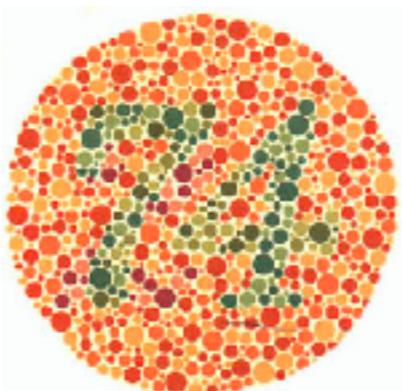
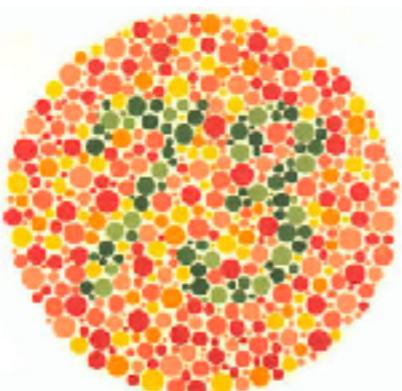
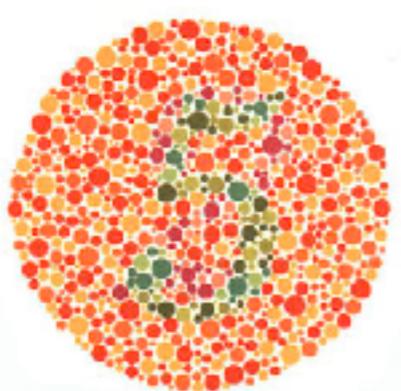
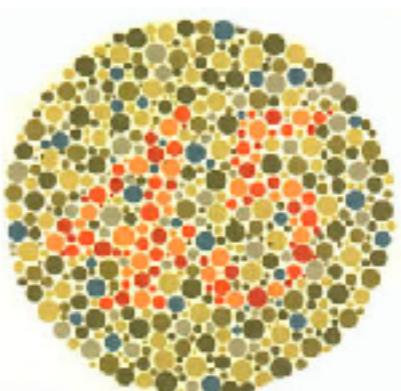
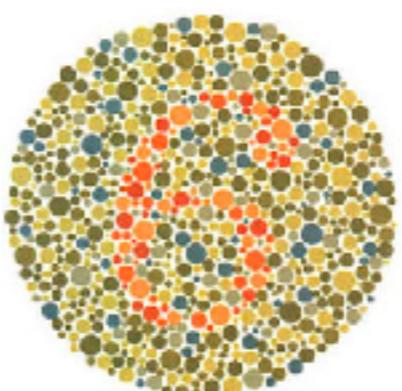
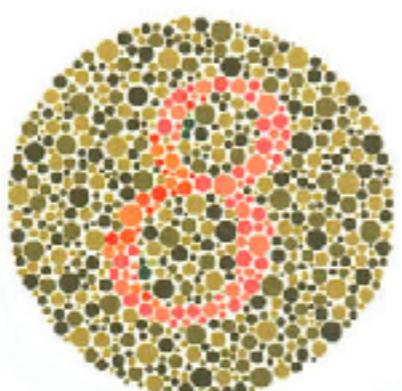
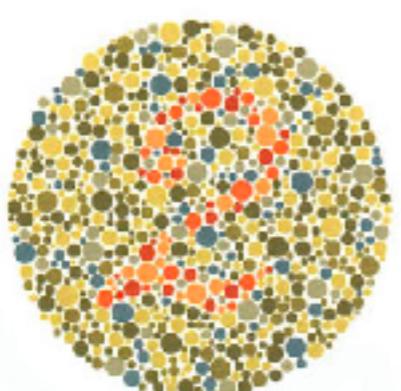
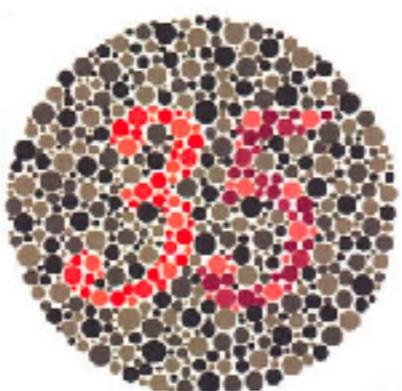
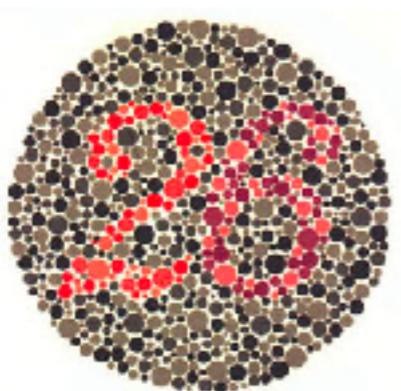
Email

not-a-valid@email

You didn't enter a valid email address.

Design Error: relying on color alone.

1 in 12 men and 1 in 200 women are color blind.



Email

not-a-valid@email



You didn't enter a valid email address.

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<p>Email:</p>
<input type='email' />
<p>
  <svg> ... </svg>
  You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<p>Email:</p>
<input type='email' />
<p>
  <svg aria-hidden='true'> ... </svg>
  You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<label>Email:</label>
<input type='email' />
<p>
  <svg aria-hidden='true'> ... </svg>
  You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<label for='email'>Email:</label>
<input type='email'
       id='email' />
<p>
  <svg aria-hidden='true'> ... </svg>
  You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<label for='email'>Email:</label>
<input type='email'
       id='email'
       aria-describedby='message' />
<p id='message'>
  <svg aria-hidden='true' >...</svg>
  You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

```
<label for='email'>Email:</label>
<input type='email'
       id='email'
       aria-describedby='message' />
<p id='message'
   aria-live='polite|assertive'>
   <svg aria-hidden='true' >...</svg>
   You didn't enter a valid email address.
</p>
```

Email

not-a-valid@email

 You didn't enter a valid email address.

aria-live="polite"

Any updates made to this region should only be announced if the user is not currently doing anything

aria-live="assertive"

Any updates made to this region are important enough to be announced to the user as soon as possible, but it is not necessary to immediately interrupt the user.



TIP #6

Notifications



Success

You just became a Mindful Developer



Success

You just became a Mindful Developer

```
<div>
  <svg> ... </svg>
  <span>Success</span>
  <span>You just became a Mindful Developer</span>
</div>
```



Success

You just became a Mindful Developer

```
<div>
  <svg aria-hidden='true'> ... </svg>
  <span>Success</span>
  <span>You just became a Mindful Developer</span>
</div>
```



Success

You just became a Mindful Developer

```
<div role='status'>
  <svg aria-hidden='true'> ... </svg>
  <span>Success</span>
  <span>You just became a Mindful Developer</span>
</div>
```



Success

You just became a Mindful Developer

```
<div role='status'  
      aria-live='polite'>  
  <svg aria-hidden='true'> ... </svg>  
  <span>Success</span>  
  <span>You just became a Mindful Developer</span>  
</div>
```

By adding `role="status"`, the element gets `aria-live` set to "polite".



TIP #8

Tooling



Linting

Accessibility issues as linting errors.



Linting

Accessibility issues as linting errors.

```
npm install eslint-plugin-jsx-a11y --save-dev
```

```
// .eslintrc
{
  "extends": [
    "plugin:jsx-a11y/recommended"
  ],
  "plugins": [
    "jsx-a11y"
  ]
}
```

A screenshot of a dark-themed code editor, likely VS Code, showing a file named `Image.js`. The editor displays the following code:

```
1 import React from 'react';
2
3 export const Image = () =>
4   ;
5 (JSX attribute) React.ImgHTMLAttributes<HTMLImageElement>.src?: string
```

An ESLint error is highlighted on line 4, column 1, under the `src` attribute of the `img` tag. A tooltip provides the error message: "img elements must have an alt prop, either with meaningful text, or an empty string for decorative images. eslint/jsx-a11y/alt-text)". Below the code editor, the status bar shows the following information: 1 file, 0 errors, 1 warning, Line 5, Column 1, Spaces: 2, UTF-8, LF, JavaScript, Prettier: ✓, a smiley face icon, and a bell icon.

A screenshot of the Visual Studio Code (VS Code) interface. The left sidebar shows icons for file, search, and other tools. The main editor area displays a file named `Image.js`. The code contains the following:`1 import React from 'react';
2
3 export const Image = () =>
4 ;
5
(JSX attribute) React.ImgHTMLAttributes<HTMLImageElement>.src?: string
|img elements must have an alt prop, either with
|meaningful text, or an empty string for decorative
|images. eslint(jsx-a11y/alt-text)
|`The line `src="./ketchup.png"` is underlined with a red squiggle, indicating an ESLint error. A tooltip has appeared over the squiggle, containing the following text:

img elements must have an alt prop, either with
meaningful text, or an empty string for decorative
images. eslint(jsx-a11y/alt-text)

At the bottom of the tooltip, there are two buttons: `Quick Fix...` and `Peek Problem`.

The status bar at the bottom of the screen shows the following information: `Ln 5, Col 1`, `Spaces: 2`, `UTF-8`, `LF`, `JavaScript`, `Prettier: ✓`, and icons for a smiley face and a bell.

Console

Accessibility issues as console errors.

axe-core



Console

Accessibility issues as console errors.

axe-core



```
npm install --save-dev react-axe
```

```
import React from 'react';
import ReactDOM from 'react-dom';

if (process.env.NODE_ENV !== 'production') {
  import('react-axe').then(axe => {
    axe(React, ReactDOM, 1000);
    ReactDOM.render(<App />, document.getElementById('root'));
  });
} else {
  ReactDOM.render(<App />, document.getElementById('root'));
}
```

Console

Accessibility issues as console errors.

axe-core



```
npm install --save-dev react-axe
```

```
import React from 'react';
import ReactDOM from 'react-dom';

if (process.env.NODE_ENV !== 'production') {
  import('react-axe').then(axe => {
    axe(React, ReactDOM, 1000);
    ReactDOM.render(<App />, document.getElementById('root'));
  });
} else {
  ReactDOM.render(<App />, document.getElementById('root'));
}
```

DevTools - localhost:8000/

Elements **Console** Sources Network Performance Memory Application **✖ 2** :

▶ ⚡ top Default levels ▾ 1 hidden

▼ New aXe issues [index.js:146](#)

- ▶ **serious:** Elements must have sufficient color contrast [index.js:166](#)
<https://dequeuniversity.com/rules/axe/3.2/color-contrast?application=axeAPI>
- ▼ **moderate:** Document must have one main landmark [index.js:166](#)
<https://dequeuniversity.com/rules/axe/3.2/landmark-one-main?application=axeAPI>
- ▶ **moderate:** All page content must be contained by landmarks [index.js:166](#)
<https://dequeuniversity.com/rules/axe/3.2/region?application=axeAPI>

▶ |



Unit Test

Accessibility issues can be integrated in your CI.



Unit Test

Accessibility issues can be integrated in your CI.

```
npm install jest-axe --save-dev
```

```
const React = require('react')
const { render } = require('react-dom')
const Page = require('./Page')

const { axe, toHaveNoViolations } = require('jest-axe')
expect.extend(toHaveNoViolations)

it('<App /> should pass automated accessibility tests', async () => {
  render(<App/>, document.body)
  const results = await axe(document.body)
  expect(results).toHaveNoViolations()
})
```



Unit Test

Accessibility issues can be integrated in your CI.

```
npm install jest-axe --save-dev
```

```
const React = require('react')
const { render } = require('react-dom')
const Page = require('./Page')

const { axe, toHaveNoViolations } = require('jest-axe')
expect.extend(toHaveNoViolations)

it('<App /> should pass automated accessibility tests', async () => {
  render(<App/>, document.body)
  const results = await axe(document.body)
  expect(results).toHaveNoViolations()
})
```



TIP #9

Client-Side Routing

PROBLEM

*When users click a link, screen readers
don't announce new dynamic content.*

Option A: focus on wrapper

Option A: focus on wrapper

```
function MyPage() {  
  const pageRef = useRef(null);  
  useEffect(() => {  
    pageRef.current.focus();  
  }, []);  
  return (  
    <div tabIndex={-1} aria-labelledby='title' ref={pageRef}>  
      <h1 id='title'>Page Title</h1>  
      {/* ... */}  
    </div>  
  )  
}
```

Make wrapper “focusable”.

Option A: focus on wrapper

```
function MyPage() {  
  const pageRef = useRef(null);  
  useEffect(() => {  
    pageRef.current.focus();  
  }, []);  
  return (  
    <div tabIndex={-1} aria-labelledby='title' ref={pageRef}>  
      <h1 id='title'>Page Title</h1>  
      {/* ... */}  
    </div>  
  )  
}
```

Provide labelling to the wrapper.

Option A: focus on wrapper

```
function MyPage() {  
  const pageRef = useRef(null);  
  useEffect(() => {  
    pageRef.current.focus();  
  }, []);  
  return (  
    <div tabIndex={-1} aria-labelledby='title' ref={pageRef}>  
      <h1 id='title'>Page Title</h1>  
      {/* ... */}  
    </div>  
  )  
}
```

Move focus to wrapper when component mounts.

Option B: focus on title

```
function MyPage() {
  const titleRef = useRef(null);
  useEffect(() => {
    titleRef.current.focus();
  }, []);
  return (
    <div>
      <h1 id='title'
          tabIndex={-1}
          ref={titleRef}>
        Page Title
      </h1>
      { /* ... */ }
    </div>
  )
}
```

Option B: focus on title

```
function MyPage() {  
  const titleRef = useRef(null);  
  useEffect(() => {  
    titleRef.current.focus();  
  }, []);  
  return (  
    <div>  
      <h1 id='title'  
        tabIndex={-1}  
        ref={titleRef}>  
        Page Title  
      </h1>  
      {/* ... */}  
    </div>  
  )  
}
```

Make title “focusable”.

Option B: focus on title

```
function MyPage() {
  const titleRef = useRef(null);
  useEffect(() => {
    titleRef.current.focus();
  }, []);
  return (
    <div>
      <h1 id='title'
        tabIndex={-1}
        ref={titleRef}>
        Page Title
      </h1>
      {/* ... */}
    </div>
  )
}
```

Make title “focusable”.

What we learned from user testing of accessible client-side routing techniques.

– *Marcy Sutton, Head of Learning at Gatsby*

<https://www.gatsbyjs.org/blog/2019-07-11-user-testing-accessible-client-routing/>

A screenshot of a Microsoft Edge browser window. The title bar says "Example 6: Accessible JavaScript". The address bar shows the URL "mercy.codes/prototypes/routing/example-6-final.html". The main content area has a dark background. At the top left is a navigation menu with four items: "Home", "About", "Portfolio", and "Contact", each preceded by a small triangle icon. Below the menu, the word "Home" is bolded in black. Underneath it is a large amount of placeholder text: "Doggie ipsum wew very hisil I am bekon fed idem idling the wew a nice Roof congo hekin good boys and girls, lolsa pels extremely can amule long his long wudie". A white cursor arrow is positioned in the lower-middle part of the page. The bottom of the screen shows the Windows taskbar with several pinned icons, including "100% User Testing", "Example 5: Accessible", "Zoom - Pm Account", "Meeting Controls", and the Start button.

zoom



TIP #10

Accordion

Delivery

+

Billing

+

Payment

+

Delivery



Mr John Smith
132, My Street,
Kingston, New York 12401
United States

[Edit](#)

Billing



Payment



Payment

+

```
<div>
  Payment
</div>
<div>
  ...
</div>
```

Payment

+

```
<h3>  
  Payment  
</h3>  
<section>  
  ...  
</section>
```

*Add semantic meaning
(good for landmark or heading navigation)*

Payment

+

```
<h3>
  <button>
    Payment
  </button>
</h3>
<section>
  ...
</section>
```

Make trigger usable to mouse and keyboard users.

Payment

+

```
<h3>
  <button>
    Payment
    <svg aria-hidden="true"> ... </svg>
  </button>
</h3>
<section>
  ...
</section>
```

Add icon and make it decorative.

Payment

+

```
<h3>
  <button id="accordion-trigger-1">
    Payment
    <svg aria-hidden="true"> ... </svg>
  </button>
</h3>
<section aria-labelledby="accordion-trigger-1">
  ...
</section>
```

*Defines the accessible name
(required in region landmark).*

Payment

+

```
<h3>
  <button aria-controls="accordion-1"
    id="accordion-trigger-1">
    Payment
    <svg aria-hidden="true"> ... </svg>
  </button>
</h3>
<section id="accordion-1"
  aria-labelledby="accordion-trigger-1">
  ...
</section>
```

*Points to the ID of the panel
which the header controls.*

Payment

+

```
<h3>
  <button aria-expanded="false"
          aria-controls="accordion-1"
          id="accordion-trigger-1">
    Payment
    <svg aria-hidden="true"> ... </svg>
  </button>
</h3>
<section id="accordion-1"
         hidden
         aria-labelledby="accordion-trigger-1">
  ...
</section>
```

*Add state to screen readers.
When closed, hide content from screen reader users.*

Payment

...

```
<h3>
  <button aria-expanded="true"
    aria-controls="accordion-1"
    id="accordion-trigger-1">
    Payment
    <svg aria-hidden="true"> ... </svg>
  </button>
</h3>
<section id="accordion-1"
  aria-labelledby="accordion-trigger-1">
  ...
</div>
```

When opened, remove the hidden attribute.

Where to go from here

Where to go from here

1

*Be an a11y advocate within your own projects .
Accessibility is a team's job. You need to get everyone on board.*

Where to go from here

1 *Be an a11y advocate within your own projects .
Accessibility is a team's job. You need to get everyone on board.*

2 *Incrementally improve your projects.
Slow and steady wins the race.
Start by forcing yourself to only use keyboard, for example.*



Weekly tips on Twitter
@lucalanca

aditus.io joao@aditus.io

That's a wrap. Thank you.



Weekly tips on Twitter

@lucalanca

aditus.io

joao@aditus.io