Web Accessibility

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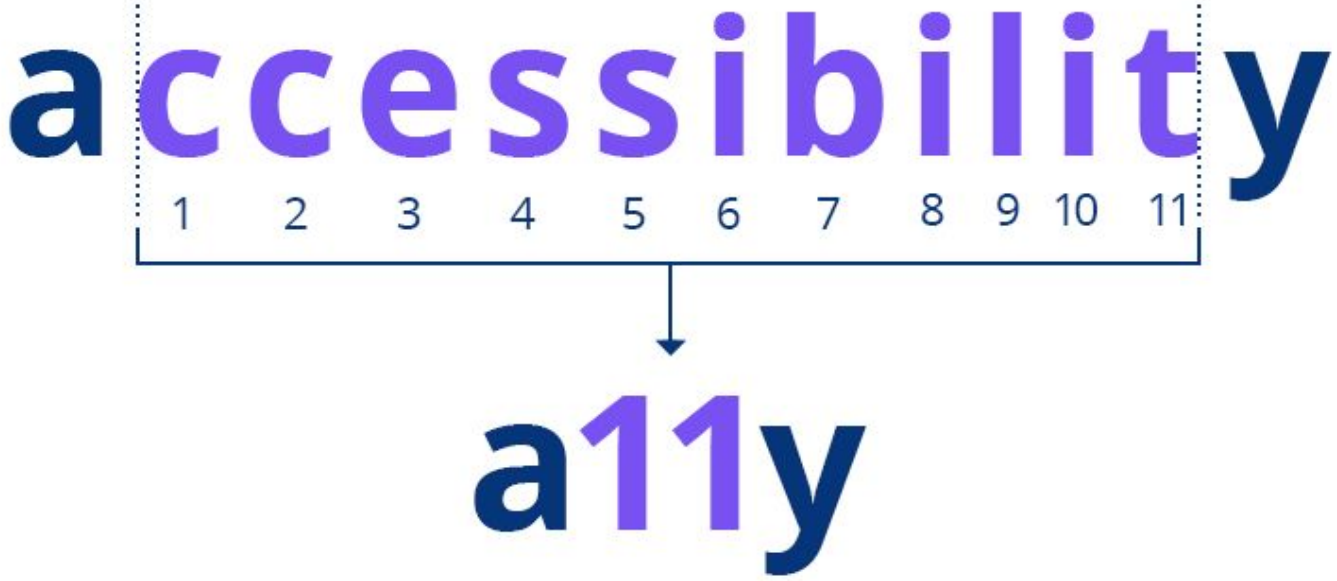
Introduction to Accessibility

This Course

- What is Accessibility?
- What are the legal requirements for websites
- Assistive technologies
- How to install and use screen readers
- Accessibility standards
- What is semantic HTML?
- Focus management
- Accessibility tricks
- Color and contrast
- Tools and testing


accessibility
1 2 3 4 5 6 7 8 9 10 11
a11y

What is Accessibility?

When websites and web tools are properly designed and coded, people with disabilities can use them. However, currently many sites and tools are developed with accessibility barriers that make them difficult or impossible for some people to use. Making the web accessible benefits individuals, businesses, and society.

- W3C Web Accessibility Initiative

What is Accessibility?

Web accessibility means that people with disabilities can **use** the Web.

More specifically, Web accessibility means that people with disabilities can **perceive**, **understand**, **navigate**, and **interact** with the Web, and that they can **contribute** to the Web.

Similar Fields

- Web Performance
- Internationalization
- UI Design

Disability Statistics

- 26 percent of adults in the United States have some type of disability.
- 2 in 5 adults age 65 years and older have a disability
- 20 percent of people in the US (48 million people) report some degree of hearing loss, and 29 million of them could benefit from using hearing aids.
- 2.3 percent of people in the US (7 million people) report having a visual disability, and 1 million people in the US are legally blind.

Types of Disabilities

- Mobility and physical
- Cognitive and neurological
- Visual
- Hearing

The web is already accessible

(even if your website is not)

World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.
Help
on the browser you are using
Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)
Technical
Details of protocols, formats, program internals etc
Bibliography
Paper documentation on W3 and references.
People
A list of some people involved in the project.
History
A summary of the history of the project.
How can I help ?
If you would like to support the web..
Getting code
Getting the code by anonymous FTP , etc.

https://info.cern.ch/hypertext/WWW/TheProject.html

Reasons to learn Accessibility!

- It's fun!
- We're the ones making the web inaccessible
- Human Rights
- Legal Issue
- Reach a larger audience
- Impactful
- Makes you a specialist

The Legal Landscape

Web accessibility and the law (US focused)

- web accessibility is a legal requirement under the americans with disabilities act (ada).
- lawsuits & regulations are increasing.
- non-compliance can result in **fines**, **lawsuits**, and **reputational damage**.

Key laws and standards

- ADA Title II & III → applies to government & businesses.
- Section 508 → federal agencies must comply.
- WCAG 2.1 level aa → the standard for web accessibility.
- New DOJ rules (2024) make compliance explicit.

Recent lawsuits and fines

- 2023: lawsuits targeting inaccessible sites rose 62%.
- Whirlpool (Kitchenaid) → sued for barriers on its website.
- Katz’s deli (2025) → fined $20k for ada violations.
- Fines can reach $150k per violation.

Who is being sued?

Industries facing high legal risk:

- e-commerce
- finance & banking
- hospitality & restaurants
- healthcare

Overlays & widgets don’t prevent lawsuits!

How to stay compliant

- ✅ follow wcag 2.1 level aa standards.
- ✅ test with real users & assistive tech.
- ✅ use automated tools (lighthouse, axe, wave).
- ✅ train teams on inclusive design.

AKA, take this course 😅

Assistive Technologies

Amazing ways people use the web

ASSISTIVE DEVICES & TECHNOLOGY

WWW.WECAPABLE.COM

Keyboard Only

Head wand and mouth stick

Single Switch

Screen Readers

Eye tracker keyboard

The curb cut effect

The Curb-Cut Effect, in its essence, asserts that an investment in one group can cascade out and up and be a substantial investment in the broader well-being of a nation -- one whose policies and practices create an equitable economy, a healthy community of opportunity, and just society.

Exercise 0 - Screen Readers

- https://github.com/jkup/learn-a11y
- https://learn-a11y.netlify.app/

Grab the source code, follow the instructions to install a free screen reader on your computer!

Standards and Guidelines

- Web Content Accessibility Guidelines (WCAG)
- The W3C Web Accessibility Initiative (WAI)
- Accessible Rich Internet Applications (WAI-ARIA)

W3C

- The World Wide Web Consortium (W3C)
- The International Standards Organization for the World Wide Web
- Creates the Standards for HTML, CSS and Accessibility
- https://www.w3.org/

WAI

- The W3C Web Accessibility Initiative (WAI)
- An Initiative within the W3C focused on Accessibility
- The authors of the official Accessibility Specification (WCAG)
- https://www.w3.org/WAI/

WCAG

- Web Content Accessibility Guidelines (WCAG)
- The official standard, published by WAI
- https://www.w3.org/WAI/standards-guidelines/wcag/

WAI-ARIA

- Accessible Rich Internet Applications
- Accessibility standard that goes beyond semantic HTML
- https://www.w3.org/WAI/standards-guidelines/aria/

WebAIM

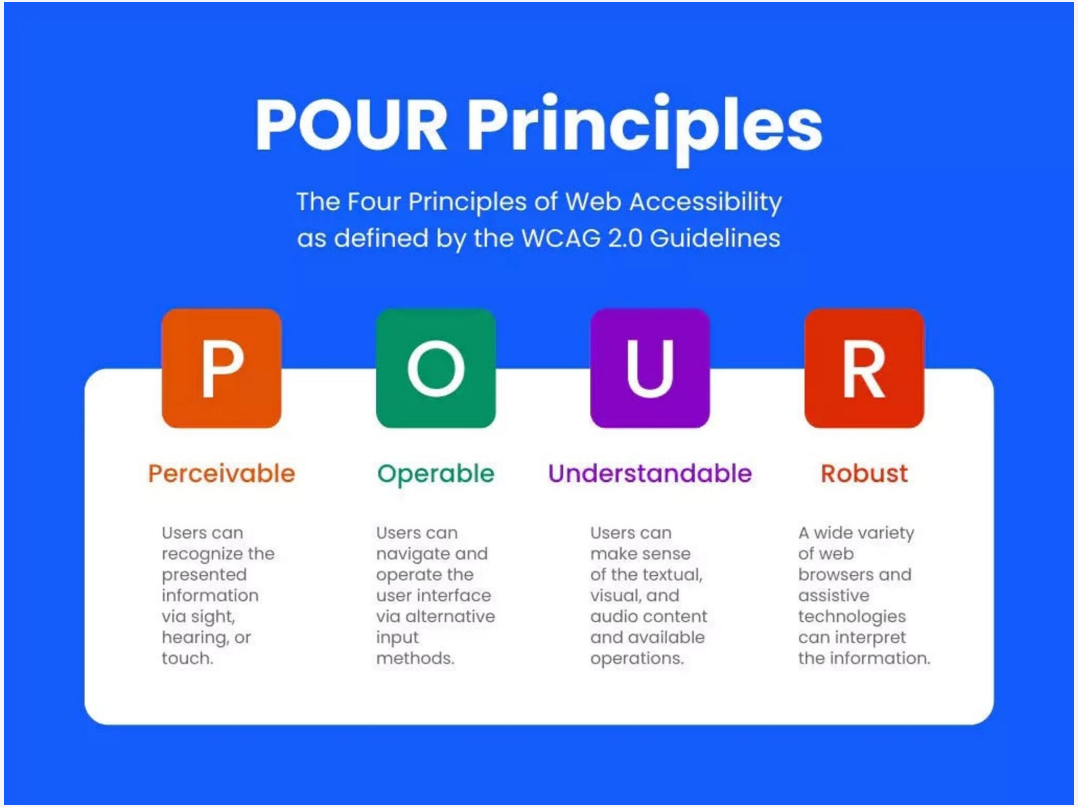
- Not an official standards body
- An **independent** advocacy and training group
- Provides easy to understand recommendations for Accessibility
- https://webaim.org/

WCAG Conformance Levels

- A (lowest)
- AA (mid range)
- and AAA (highest)
- https://www.w3.org/WAI/WCAG21/Understanding/conformance#levels

Level A sets a minimum level of accessibility and does not achieve broad accessibility for many situations. For this reason, UC recommends AA conformance for all Web-based information.

WCAG POUR Principles



Screen Readers

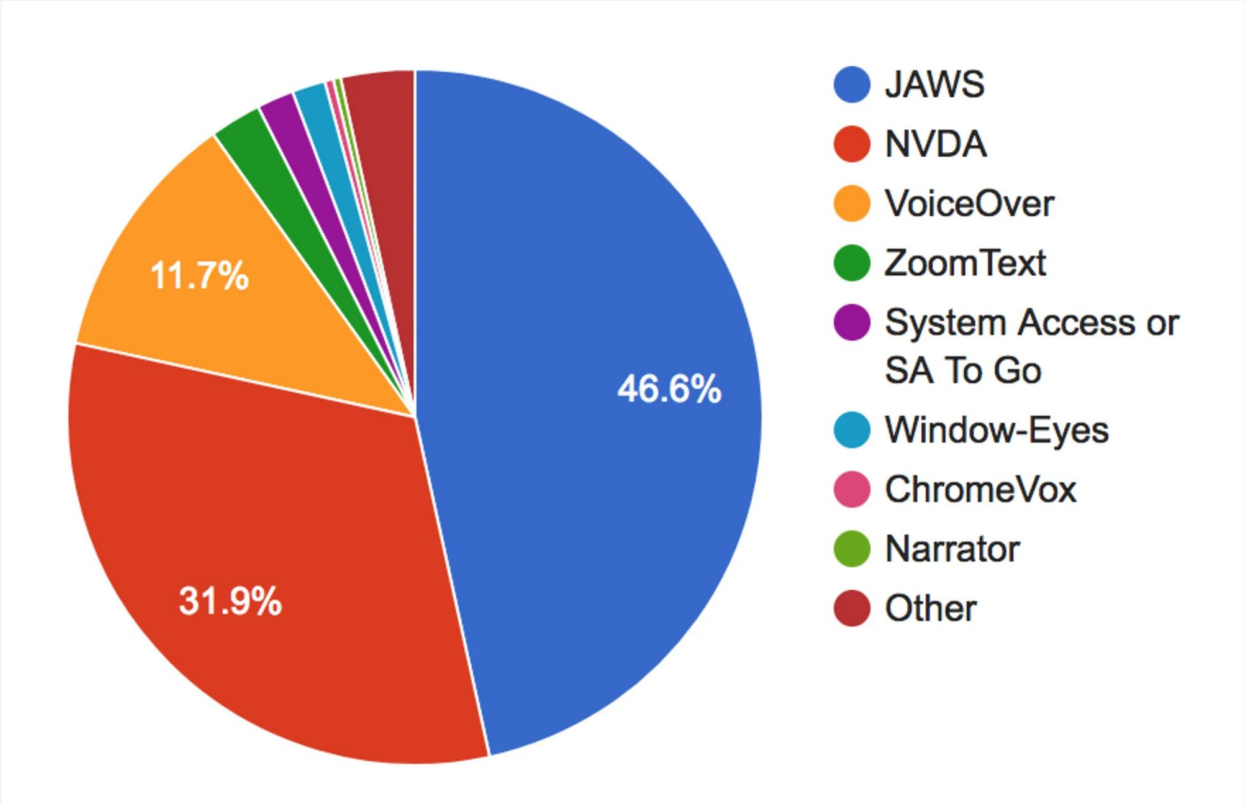
How do they work?

Screen readers convert digital text into synthesized speech. They empower users to hear content and navigate with the keyboard. The technology helps people who are blind or who have low vision to use information technology with the same level of independence and privacy as anyone else.

Screen Readers

1. Read all content
2. Display a list of links
3. Display a list of headings

Popular screen readers



Alternative Text

By default, when a screen reader encounters an image, if it can't find alt text it will read aloud the file's name.

This gets especially tricky for user generated images which often get hashed file names.

index.html

```
<!-- Flickr -->
<img id="photo_img_17242890442"
src="https://c2.staticflickr.com/8/7629/17242890442_cba8232a91.
jpg">

<!-- Facebook -->
<img class="scaledImageFitWidth img"
src="https://external.fsjc1-2.fna.fbcdn.net/safe_image.php?d=AQ
Abhgi6lp2_Y8Lc&amp;w=470&amp;h=246&amp;url=http%3A%2F%2Fthemigh
ty.com%2Fwp-content%2Fuploads%2F2015%2F02%2FIMG_5789-e142307608
7254.jpg&amp;cfs=1&amp;upscale=1&amp;sx=0&amp;sy=0&amp;sw=1296&
amp;sh=678">

<!-- Twitter -->
<img src="https://pbs.twimg.com/media/CDJUexkWIAE8reW.jpg">

```

Alt Text

Adding an alt attribute will override that behavior. Screen readers will read the alternative text instead of the file name.

Skipping over images

Sometimes your website will have images that are strictly for decorative purposes. In that case, an empty alt attribute will force the screen reader to skip over the image.

A note on SEO

Search engines also make use of alternative text. For years SEO shops have suggested stuffing the keywords you want to rank for into alt text wherever possible. This provides a very bad accessibility experience.

Success Criteria	WebAIM's Recommendations
1.1.1 Non-text Content (Level A)	▫ Images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. ▫ Images that do not convey content, are decorative, or contain content that is already conveyed in text are given empty alternative text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text. ▫ Equivalent alternatives to complex images are provided in context or on a separate linked page. ▫ Form buttons have a descriptive value. ▫ Form inputs have associated text labels. ▫ Embedded multimedia is identified via accessible text. ▫ Frames and iframes are appropriately titled.

Captions for audio

Remember not all content on the web is visual! If your application has video content, be sure to use a captioning service to add closed captioning.

Success Criteria	WebAIM's Recommendations
1.2.1 Prerecorded Audio-only and Video-only (Level A)	◻ A transcript of relevant content is provided for non-live audio-only (audio podcasts, MP3 files, etc.). ◻ A transcript or audio description of relevant content is provided for non-live video-only, unless the video is decorative.
1.2.2 Captions (Prerecorded) (Level A)	◻ Synchronized captions are provided for non-live video (YouTube videos, etc.).
1.2.3 Audio Description or Media Alternative (Prerecorded) (Level A)	◻ A transcript **or** audio description is provided for non-live video. NOTE: Only required if there is relevant visual content that is not presented in the audio.

Semantic HTML

Some elements have semantic meaning but no special functionality.

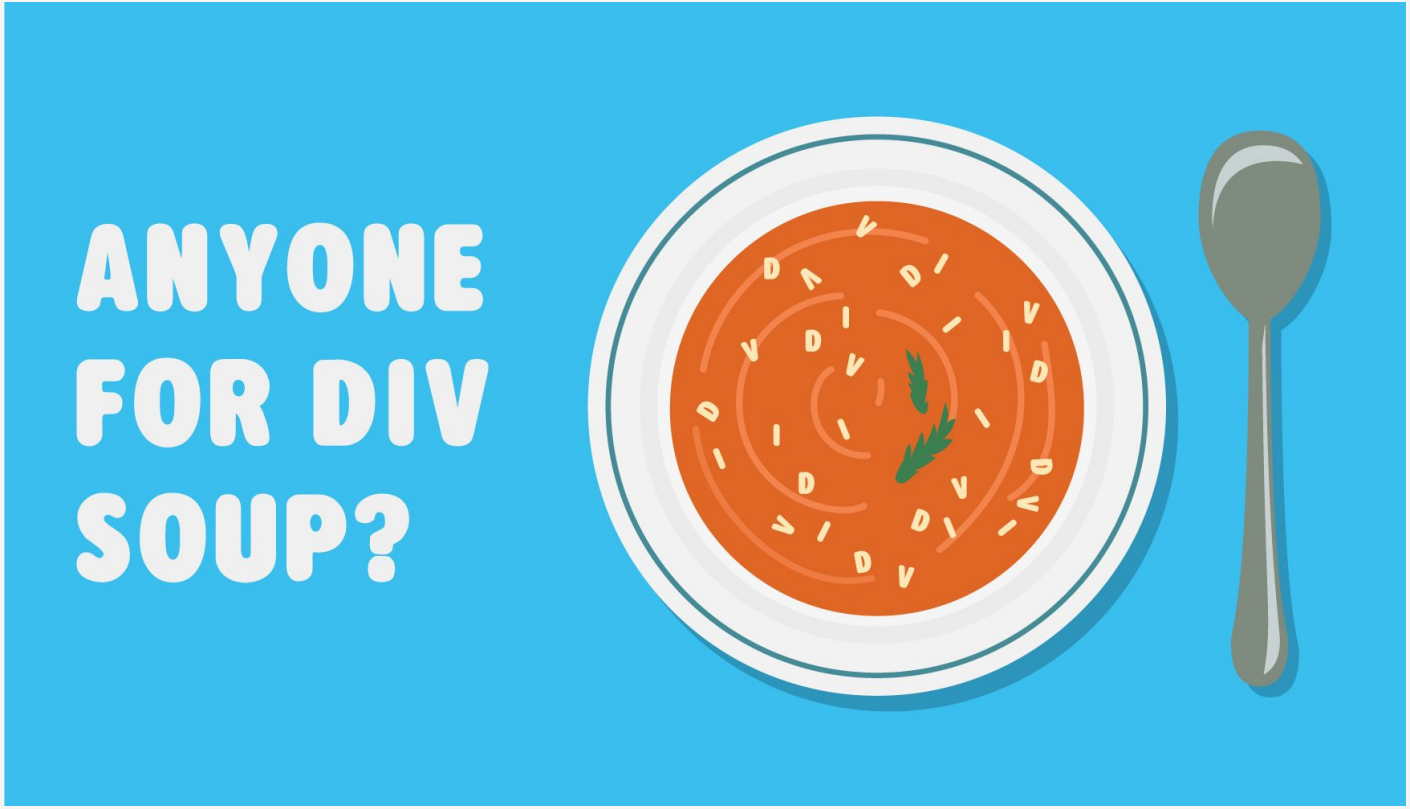
- `<aside>`
- `<footer>`
- `<header>`

Other's provide a lot of built-in functionality such as:

- `<button>`
- `<input>`
- `<textarea>`

Success Criteria	WebAIM's Recommendations
1.3.1 Info and Relationships (Level A)	◻ Semantic markup is used to designate headings (<h1>), regions/landmarks, lists (, , and <dl>), emphasized or special text (, <code>, <abbr>, <blockquote>, for example), etc. Semantic markup is used appropriately. ◻ Tables are used for tabular data and data cells are associated with their headers. Data table captions, if present, are associated to data tables. ◻ Text labels are associated with form input elements. Related form elements are grouped with fieldset/legend. ARIA labelling may be used when standard HTML is insufficient.
1.3.2 Meaningful Sequence (Level A)	◻ The reading and navigation order (determined by code order) is logical and intuitive.

Div Soup



Form Labels

Form fields can be confusing for screen reader users. There are many ways to label form fields so the label is read out loud whenever the field has focus.

Antipattern - Visual only labels

A common pattern is using div's or paragraph tags to label form fields.

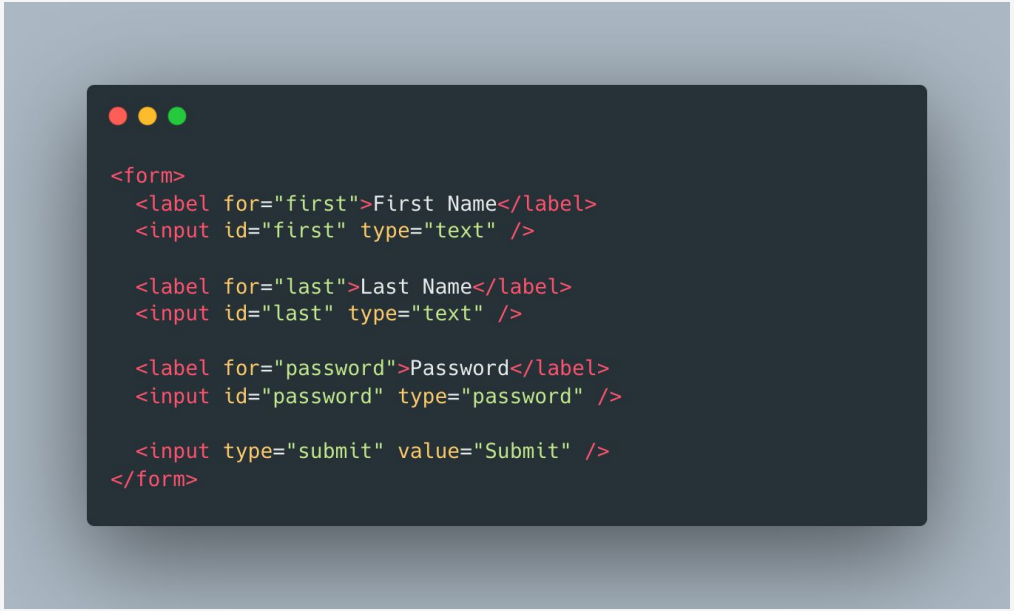
Antipattern - Visual only labels

A screen reader will read this as “Edit text, blank” to the user.

```
<form>
  <p>First Name</p>
  <input type="text" />
  <p>Last Name</p>
  <input type="text" />
  <p>Password</p>
  <input type="password" />
  <input type="submit" value="Submit" />
</form>
```

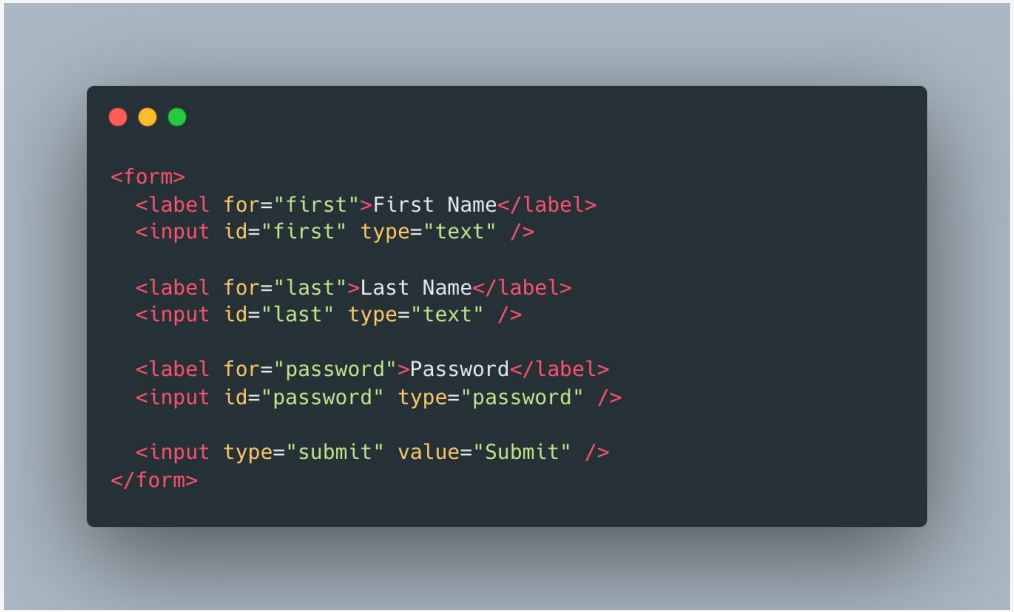
HTML Labels

A better option is to use the HTML label tag which will allow screen readers to recite the label when the field is focused.



HTML Labels

A screen reader will read this as “First Name, edit text, blank” to the user.



```
<form>
  <label for="first">First Name</label>
  <input id="first" type="text" />

  <label for="last">Last Name</label>
  <input id="last" type="text" />

  <label for="password">Password</label>
  <input id="password" type="password" />

  <input type="submit" value="Submit" />
</form>
```

Implicit HTML labels

Another cool trick you can do is wrap your inputs with the label tag. This is called implicit labelling.

Limitations with the <label> tag

The label tag can only works with "labelable" elements. Those include:

- `<button>`
- `<input>`
- `<keygen>`
- `<meter>`
- `<output>`
- `<progress>`
- `<select>`
- `<textarea>`

aria-label

If you ever need to label an element not on that list, use aria-label instead.

Week #26

Divs Are Not Buttons

Accessibility Weekly

Brought to You by Equalize Digital

Let’s make a button (with a div!)

Tell screen readers it’s clickable

Allow users to tab to it

Allow keyboard users to interact with it!

Tell screen readers what it does!

```
<div
  aria-label="Alert the word hello"
  tabindex="0"
  role="button"
  onclick="alert('hello')"
  onkeyup="alert('hello')"
>
   Click me!
</div>
```

Or, just use a button

Twitter’s Div Soup

Screen reader only content

Sometimes you'll want to communicate with a screen reader directly! One cool example is announcing to screen reader users that you offer accessibility features! In that case you can make some HTML and wrap it in a visually hidden class.

```
.visuallyhidden {
  position: absolute;
  left: 0;
  top: -500px;
  width: 1px;
  height: 1px;
  overflow: hidden;
}
```

Exercise 1 - Screen Readers

Focus Management

Focus Styles

Visible focus indicators are crucial for keyboard users. In this exercise, you'll learn how to create clear, beautiful focus styles that meet WCAG requirements.

Focus Style Requirements

- Focus indicators must have a minimum contrast ratio of 3:1 against adjacent colors
- Focus areas should be at least 2px thick
- Focus styles should be visible in both light and dark modes
- Consider using multiple indicators (outline + background change)
- Animations can enhance focus visibility but shouldn't be distracting

Exercise 2 - Focus Styles

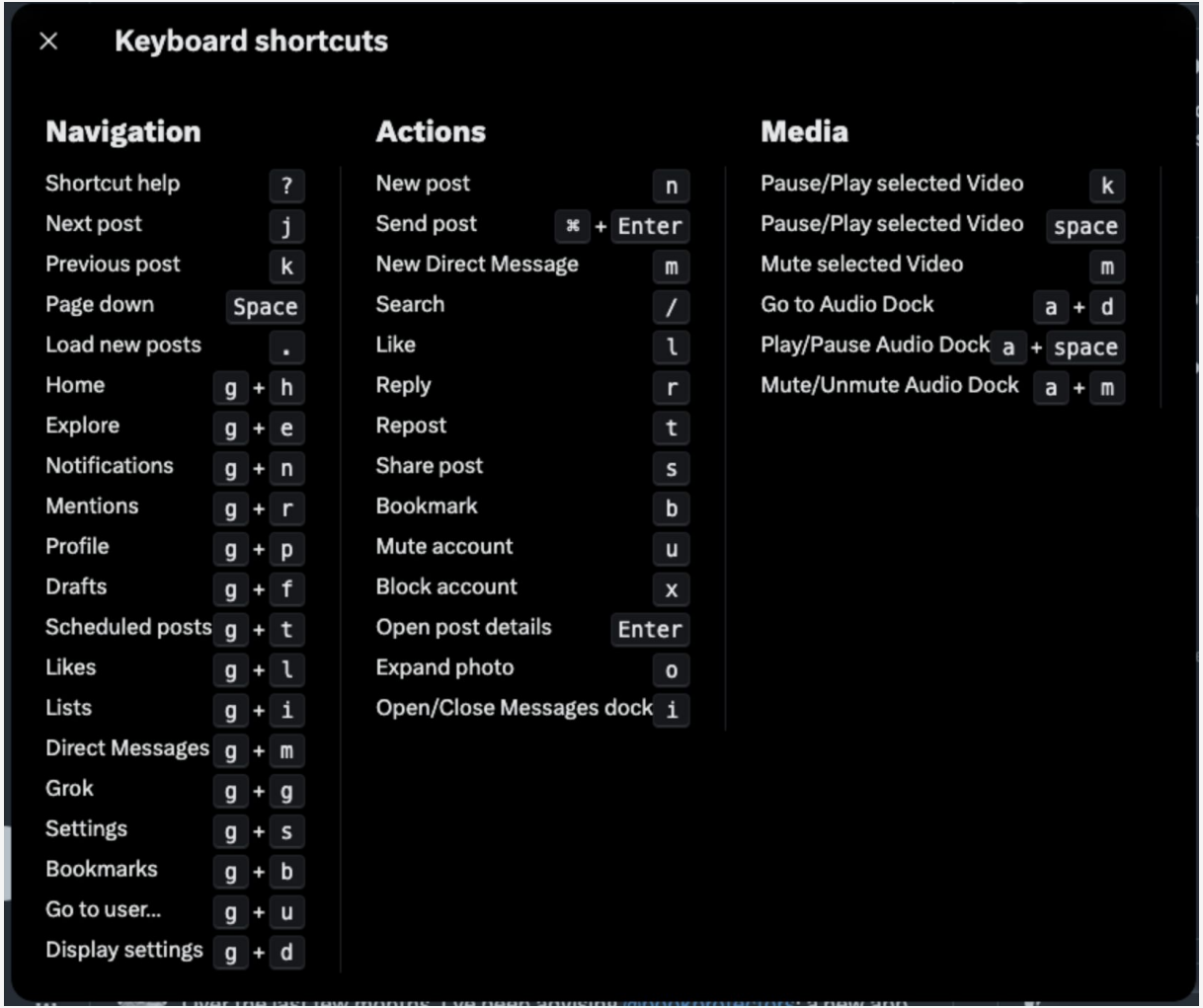
Keyboard only users

- Your entire application should be usable with only the keyboard (forms, buttons, etc)
- Some type of focus indicator should be used to provide a necessary clue as to the currently active item.
- Consider offering a shortcut for keyboard-only users to jump quickly to the main content (a skip link)

Success Criteria	WebAIM's Recommendations
3.2.1 On Focus (Level A)	▫ When a page element receives focus, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user.
3.2.2 On Input (Level A)	▫ When a user inputs information or interacts with a control, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user unless the user is informed of the change ahead of time.
3.2.3 Consistent Navigation (Level AA)	▫ Navigation links that are repeated on web pages do not change order when navigating through the site.

Keyboard Shortcuts

Keyboard shortcuts are another curb cut example. Sites like Twitter and Facebook offer keyboard shortcuts for almost any action which are great for both keyboard only users and and power users!


Keyboard shortcuts
Navigation
Shortcut help ?
Next post j
Previous post k
Page down Space
Load new posts .
Home g + h
Explore g + e
Notifications g + n
Mentions g + r
Profile g + p
Drafts g + f
Scheduled posts g + t
Likes g + l
Lists g + i
Direct Messages g + m
Grok g + g
Settings g + s
Bookmarks g + b
Go to user... g + u
Display settings g + d
Actions
New post n
Send post ⌘ + Enter
New Direct Message m
Search /
Like l
Reply r
Repost t
Share post s
Bookmark b
Mute account u
Block account x
Open post details Enter
Expand photo o
Open/Close Messages dock i
Media
Pause/Play selected Video k
Pause/Play selected Video space
Mute selected Video m
Go to Audio Dock a + d
Play/Pause Audio Dock a + space
Mute/Unmute Audio Dock a + m

All Facebook keyboard shortcuts

Global

Report a problem ⌘ + b

Show shortcuts f1

Show shortcuts ⇧ + ?

Disabled

Search Facebook /

Search

Disabled

Next result j

Previous result k

News Feed

See more ↵

Disabled

Leave a comment c

Jump to the next post j

Previous post k

Like or unlike a post l

Open attachment of post o

Create a post p

Search Messenger contacts q

Share post s

Photo albums

Disabled

Enter or exit fullscreen f

Previous photo j

Next photo k

Like photo l

Communities

Previous video ⌥ + ←

Next video ⌥ + →

Previous pinned group ⌥ + ↑

Next pinned group ⌥ + ↓

Search Communities ⌘ + /

Disabled

Create an event e

Single-character shortcuts
Use single-character shortcuts to perform common actions faster on Facebook.

Pin keyboard shortcut help
In the corner of your screen, you'll see shortcuts that relate to what you're doing. They'll change as you use Facebook.

Keyboard shortcuts

PLAYBACK

Toggle play/pause	k
Rewind 10 seconds	j
Fast forward 10 seconds	l
Previous video	P (SHIFT+p)
Next video	N (SHIFT+n)
Previous frame (while paused)	,
Next frame (while paused)	.
Decrease playback rate	< (SHIFT+,)
Increase playback rate	> (SHIFT+.)
Seek to specific point in the video (7 advances to 70% of duration)	0..9
Seek to previous chapter	OPTION + ←
Seek to next chapter	OPTION + →

GENERAL

Toggle full screen	f
Toggle theater mode	t
Toggle miniplayer	i
Close miniplayer or current dialog	ESCAPE
Toggle mute	m

SUBTITLES AND CLOSED CAPTIONS

SPHERICAL VIDEOS

Dismiss

Skip Links

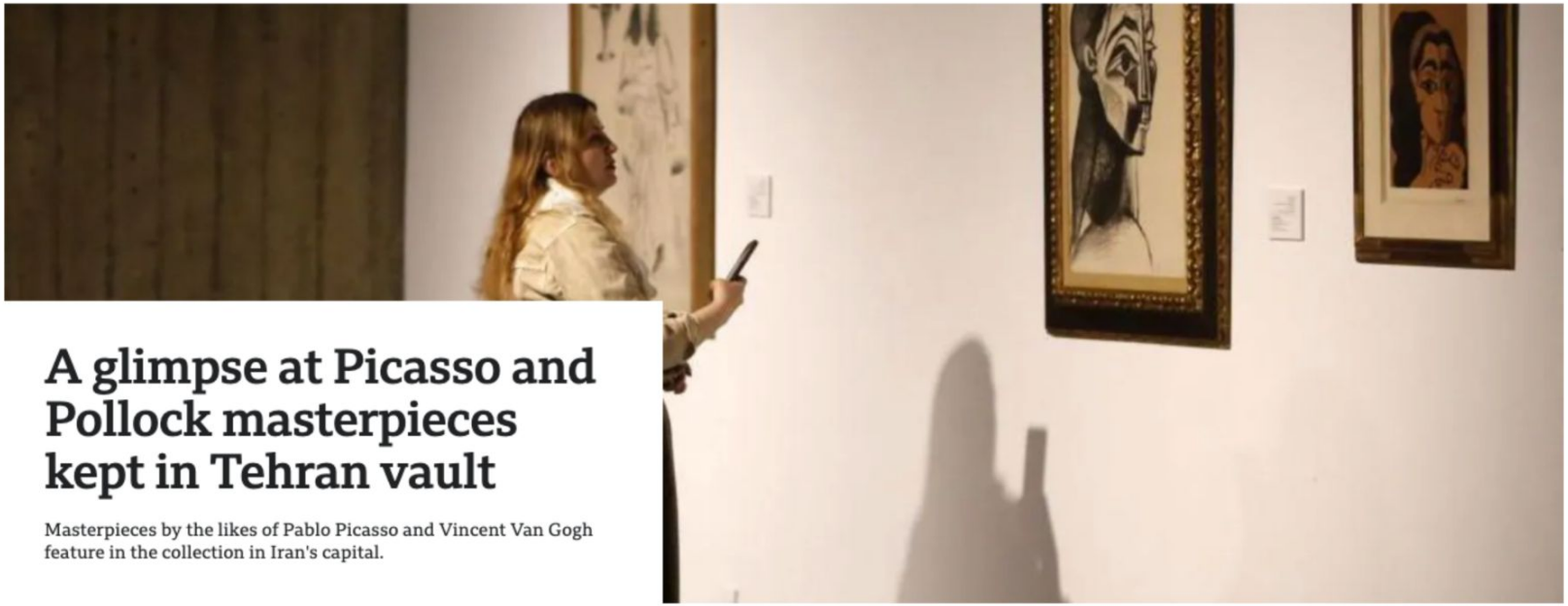
Skip links help users skip over large headers and navigation and jump right into the "main" content of your site. When a user hits tab for the first time, a button will appear and offer users to jump right to the main section.

Arts

A glimpse at Picasso and Pollock masterpieces kept in Tehran vault

Masterpieces by the likes of Pablo Picasso and Vincent Van Gogh feature in the collection in Iran's capital.

Arts



A glimpse at Picasso and Pollock masterpieces kept in Tehran vault

Masterpieces by the likes of Pablo Picasso and Vincent Van Gogh feature in the collection in Iran's capital.

How to make a skip link

- Create an anchor with the body "Skip to content"
- Prepend it to the body of your website
- Make it visually hidden
- Give it a focus state which makes it visible

Success Criteria	WebAIM's Recommendations
2.4.1 Bypass Blocks (Level A)	▫ A link is provided to skip navigation and other page elements that are repeated across web pages. ▫ A proper heading structure and/or identification of page regions/landmarks may be considered a sufficient technique. Because navigating by headings or regions is not supported in most browsers, WebAIM recommends a "skip" link (in addition to headings and regions) to best support sighted keyboard users.
2.4.2 Page Titled (Level A)	▫ The web page has a descriptive and informative page title.
2.4.3 Focus Order (Level A)	▫ The navigation order of links, form elements, etc. is logical and intuitive.

Tab Navigation

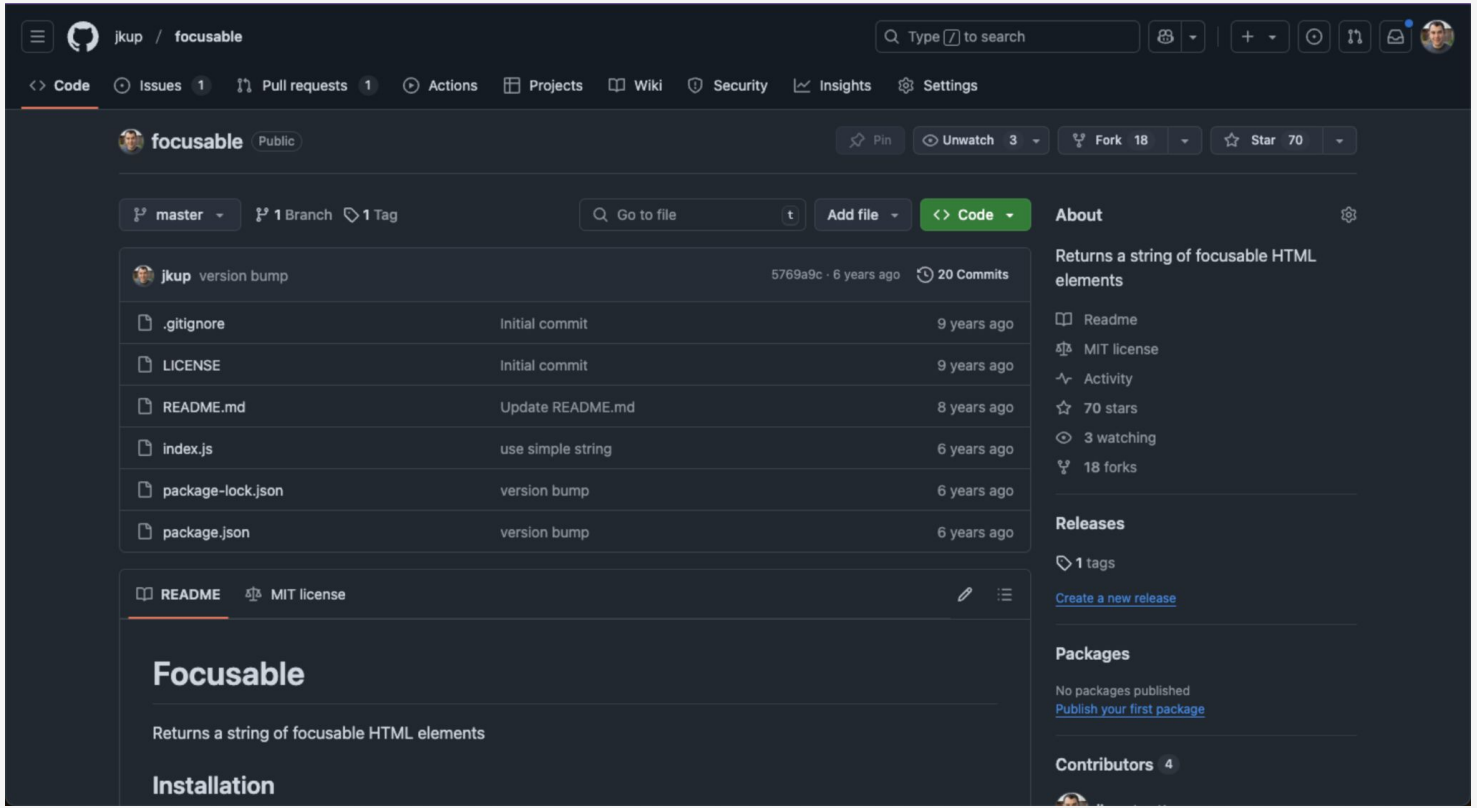
You can use the tab key to navigate to the next tabbable item and shift + tab to navigate to the previous item.

Success Criteria	WebAIM's Recommendations
2.1.1 Keyboard (Level A)	◻ All page functionality is available using the keyboard, unless the functionality cannot be accomplished in any known way using a keyboard (e.g., free hand drawing). ◻ Page-specified shortcut keys and accesskeys (accesskey should typically be avoided) do not conflict with existing browser and screen reader shortcuts.
2.1.2 No Keyboard Trap (Level A)	◻ Keyboard focus is never locked or trapped at one particular page element. The user can navigate to and from all navigable page elements using only a keyboard.
2.1.3 Keyboard (No Exception) (Level AAA)	◻ All page functionality is available using the keyboard.

Tabbable elements

- `<a>`
- `<button>`
- `<input>`
- `<select>`
- `<textarea>`
- `<iframe>`

Focusable


jkup / focusable
Type / to search
Code
Issues 1
Pull requests 1
Actions
Projects
Wiki
Security
Insights
Settings
focusable Public
Pin
Unwatch 3
Fork 18
Star 70
master
1 Branch
1 Tag
Go to file
t
Add file
Code
jkup version bump
5769a9c · 6 years ago
20 Commits
.gitignore Initial commit 9 years ago
LICENSE Initial commit 9 years ago
README.md Update README.md 8 years ago
index.js use simple string 6 years ago
package-lock.json version bump 6 years ago
package.json version bump 6 years ago
README
MIT license
Focusable
Returns a string of focusable HTML elements
Installation
About
Returns a string of focusable HTML elements
Readme
MIT license
Activity
70 stars
3 watching
18 forks
Releases
1 tags
Create a new release
Packages
No packages published
Publish your first package
Contributors 4

Making an element tabbable

You can add the tabindex attribute to any element like this:

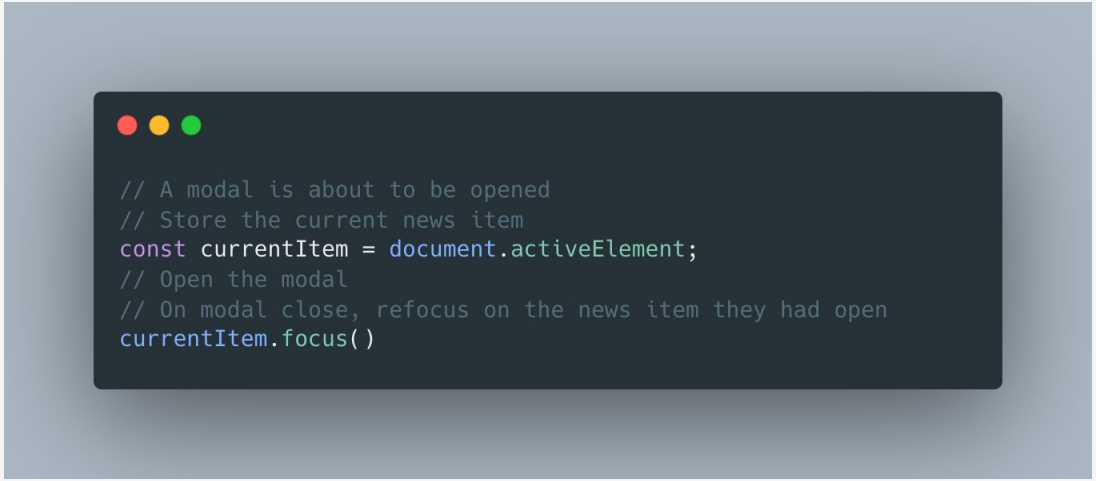
Tabindex values

- a **negative** value means that the element should be focusable, but should not be reachable via sequential keyboard navigation;
- **0** means that the element should be focusable and reachable via sequential keyboard navigation, but its relative order is defined by the platform convention;
- a **positive** value means should be focusable and reachable via sequential keyboard navigation; its relative order is defined by the value of the attribute: the sequential follow the increasing number of the tabindex. If several elements share the same tabindex, their relative order follows their relative position in the document.

⚠ **Warning:** You are recommended to only use `0` and `-1` as `tabindex` values. Avoid using `tabindex` values greater than `0` and CSS properties that can change the order of focusable HTML elements (Ordering flex items). Doing so makes it difficult for people who rely on using keyboard for navigation or assistive technology to navigate and operate page content. Instead, write the document with the elements in a logical sequence.

Active Element

Sometimes, especially on single page applications, it's helpful to store the currently focused element before a page transition so you can return to it later.



Tab trapping

Another useful concept is tab trapping. Consider opening a modal on a page which contains a form. A keyboard only user will want to tab around the form but unless we help, tabbing while focused on the last form element will send us all the way back to the main document.

Exercise 3 - Tab Trapping

ARIA

W3C Recommendation

TABLE OF CONTENTS

Allowed descendants of ARIA roles

Role	Kind of content	Descendant allowances
`alert`	Flow content	Flow content but with no main element descendants.
`alertdialog`	Flow content	Flow content
`application`	Flow content	Flow content
`article`	• Flow content • Sectioning content • Palpable content	Flow content but with no main element descendants.
`banner`	• Flow content • Palpable content	Flow content but with no main, header, or footer element descendants.
`blockquote`	• Flow content • Palpable content	Flow content but with no main element descendants.
`button`	• Flow content • Phrasing content • Interactive content • Palpable content	Phrasing content, but with no interactive content descendants, and no descendants with a `tabindex` attribute specified.
`caption`	N/A	Flow content but with no main or table element descendants.

WAI-ARIA vs. WCAG

The main difference between WCAG and WAI-ARIA is that **WCAG sets** the overall accessibility **standards** (like requiring sufficient color contrast), while **WAI-ARIA provides techniques** to meet those standards, especially for complex, dynamic content (like using the `aria-label` attribute to give a name to a custom-built component).

Specific example

WCAG: Requires that text and interactive elements have sufficient color contrast. This is a requirement.

WAI-ARIA: Doesn't directly address color contrast. Instead, it helps screen readers understand the role of a complex widget. For instance, if you build a custom slider, WAI-ARIA attributes like `aria-valuenow`, `aria-valuemin`, and `aria-valuemax` help screen readers convey the slider's current value and range to users, fulfilling WCAG's principle of making information and user interface components presentable to users in ways they can perceive.

WAI-ARIA helps make complex components accessible in ways that simple HTML often can't, but it doesn't replace the need for basic accessibility principles like color contrast (which WCAG covers).

Labels, revisited

Earlier, we learned about the <label> tag in HTML and how it can be used to label **certain** form elements.

The ARIA spec provides us with great tools for labelling and describing any element we want. They are:

- aria-label
- aria-labelledby
- aria-describedby

labelledby vs. describedby

A label provides essential information about an object, while a description provides extended information that the user might need.

```
<form>
  <label id="quantity-label" for="quantity">Quantity:</label>
  <input type="number"
         id="quantity"
         aria-labelledby="quantity-label product-info"
         aria-describedby="quantity-description"
         value="1"
         min="1"
  >
  <p id="quantity-description">
    Enter the desired quantity (1-10).
  </p>

    <button type="submit">Add to Cart</button>
</form>
```

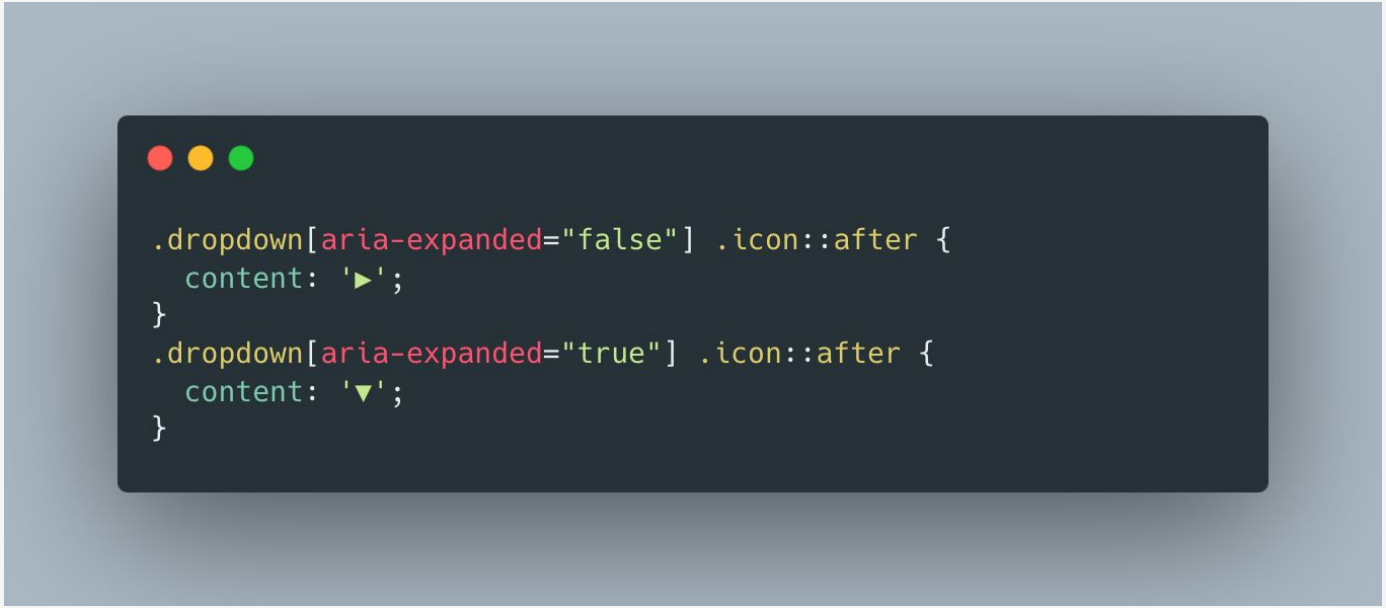
Roles, States and Properties

ARIA also provides roles which can be applied to any element. Examples include:

- `button`
- `checkbox`
- `tree`
- `banner`
- `aria-autocomplete`
- `aria-haspopup`

ARIA in CSS

ARIA properties can be accessed in CSS!



```css
.dropdown[aria-expanded="false"] .icon::after {
  content: '▶';
}
.dropdown[aria-expanded="true"] .icon::after {
  content: '▼';
}
```

Live Regions

Applications can become very dynamic. For cases where important information could be coming in at any time, the ARIA spec provides the ability to mark an element as containing live data so that screen readers can read out updates as they come.

Politeness

One of my favorite APIs of all time, the value that you pass in to aria-live is a politeness setting. You can pass in:

- **assertive** - will interrupt whatever it's doing to announce.
- **polite** - will announce the live region update when it next idles.
- **off** - will not read the update.

Imagine a sports application

```
<div aria-live="polite">
  <h3>Live Scores</h3>
  <div id="game1">
    <span id="team1-score">Team A: 10</span> - <span
id="team2-score">Team B: 7</span>
  </div>
  <div id="game2">
    <span id="team3-score">Team C: 14</span> - <span
id="team4-score">Team D: 12</span>
  </div>
</div>

<script>
  // ... (Code that updates scores dynamically) ...

  // Example of updating a score:
  const team1ScoreElement = document.getElementById('team1-
score');
  team1ScoreElement.textContent = "Team A: 12"; // Score has
changed!

  // No need to do anything special for the screen reader.
  // Because the parent div has aria-live, the change is
announced.
</script>
```

Exercise 4 - ARIA

Color and Contrast

Contrast Checker

Home > Resources > Contrast Checker

Foreground

Hex Value

0000FF

Color Picker

Alpha

1

Lightness

Background

Hex Value

FFFFFF

Color Picker

Lightness

Contrast Ratio

8.59:1

permalink

Normal Text

WCAG AA: Pass
WCAG AAA: Pass

The five boxing wizards jump quickly.

Large Text

WCAG AA: Pass
WCAG AAA: Pass

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: Pass

- Quick Web Acces
- WebA Evalu
- Web Desig
- Link
- Cont Book

Foreground

Hex Value

A46060

Color Picker | Alpha

1

Lightness

Background

Hex Value

FFFFFF

Color Picker

Lightness

Contrast Ratio

4.75:1

permalink

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

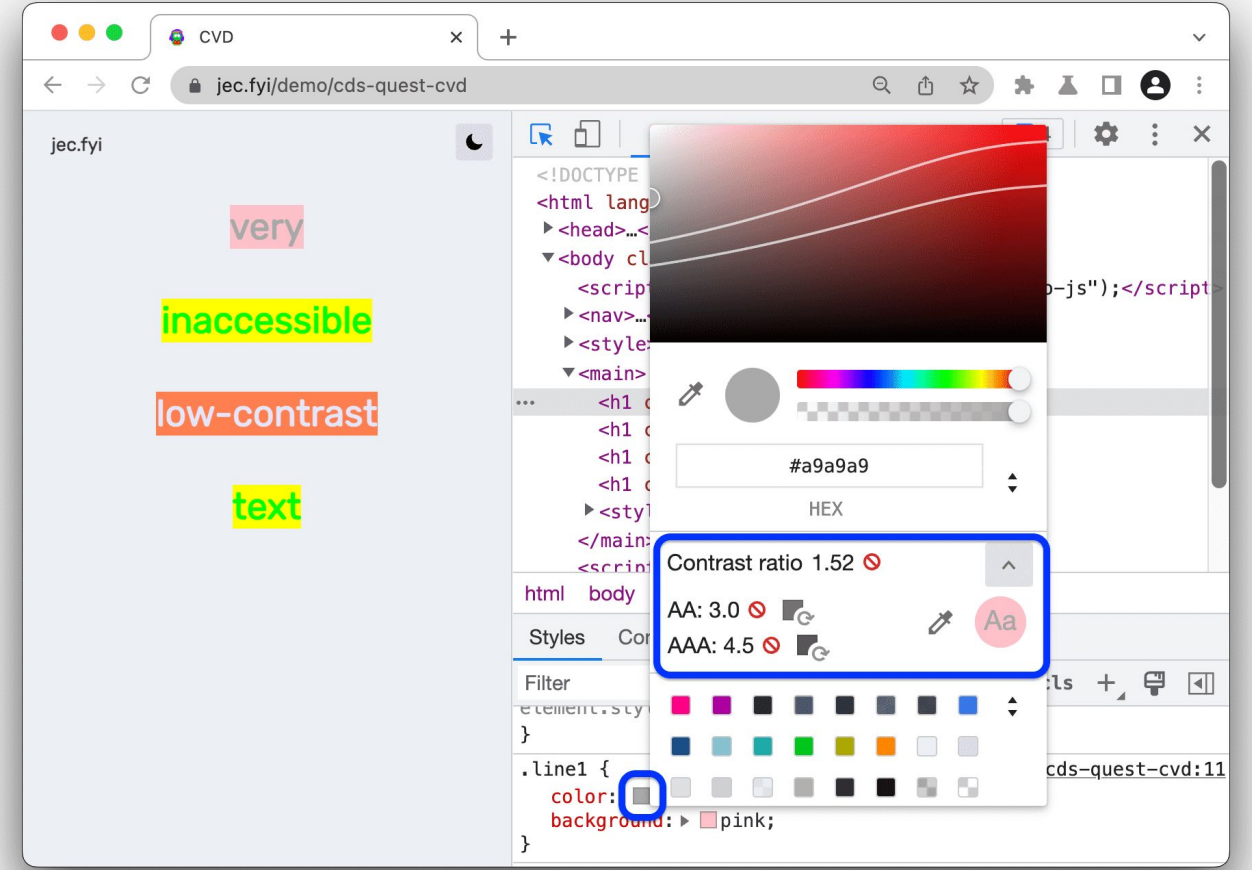
The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

★

Text Input

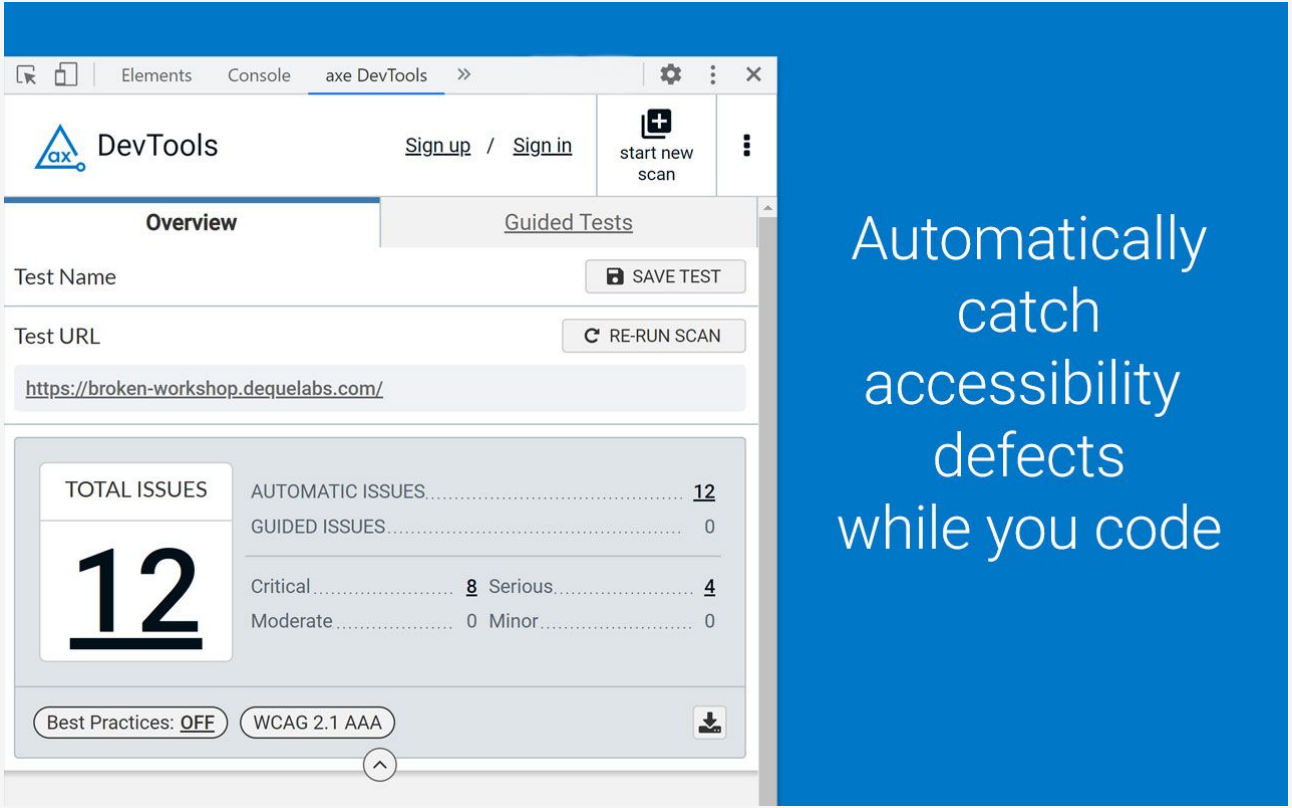

CVD
jec.fyi/demo/cds-quest-cvd
jec.fyi
very
inaccessible
low-contrast
text
<!DOCTYPE
<html lang
<head>…
<body cl
<main>
#a9a9a9
HEX
Contrast ratio 1.52
AA: 3.0
AAA: 4.5
Aa
html
body
Styles
Filter
.line1 {
color:
background:
pink;
}
cds-quest-cvd:11

Exercise 5 - Color Contrast

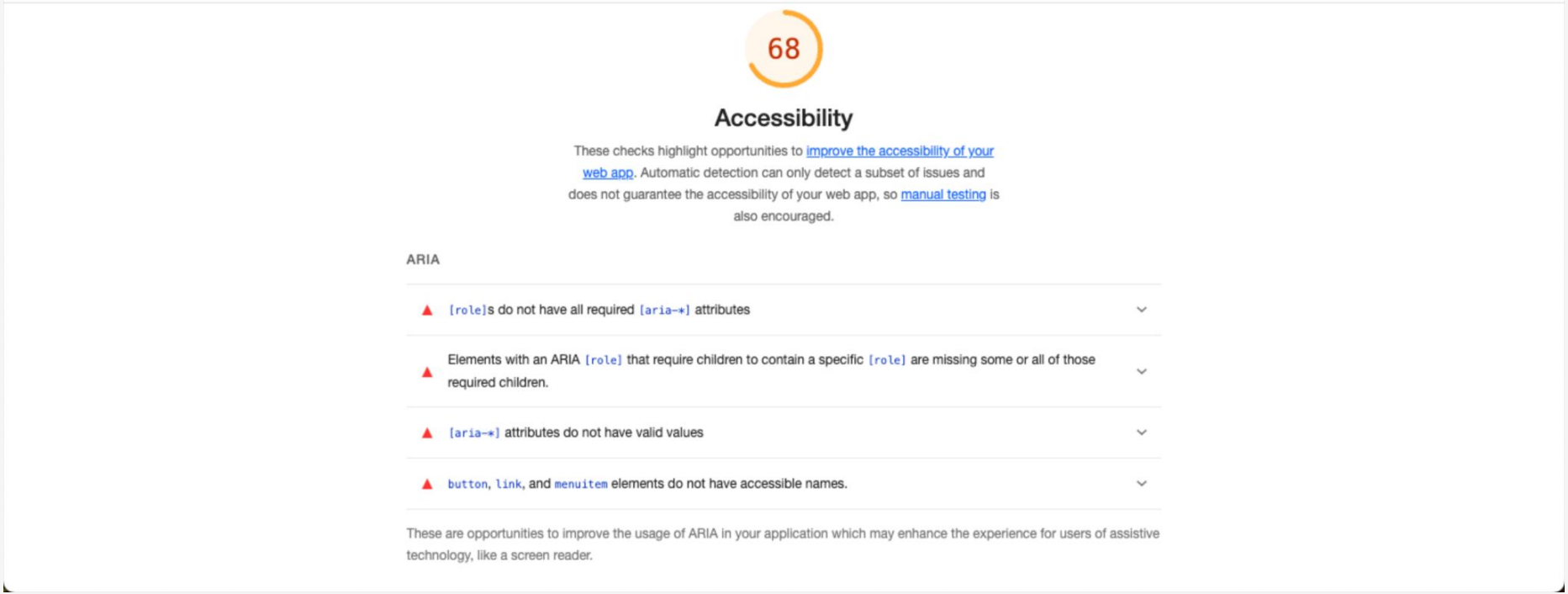
Testing and Tooling

- DevTools
- CI/CD audits
- Linters

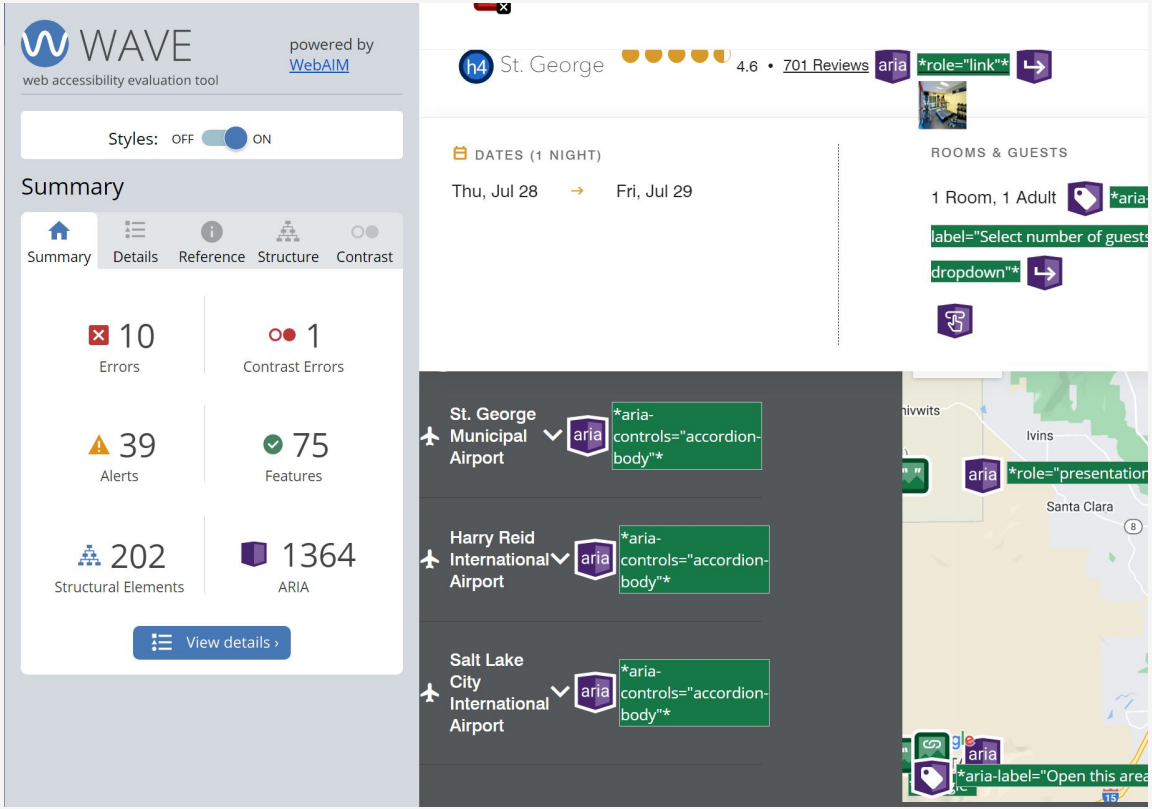
AXE DevTools by Deque



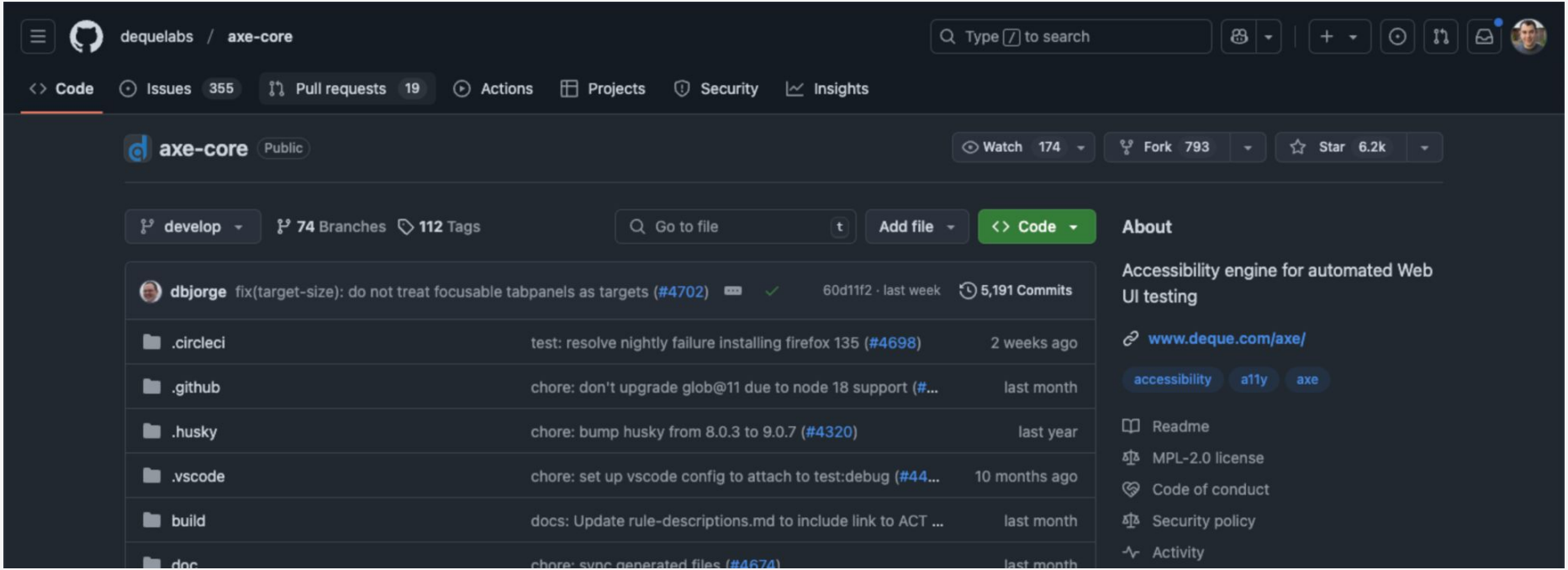
Google Lighthouse



Wave by WebAIM



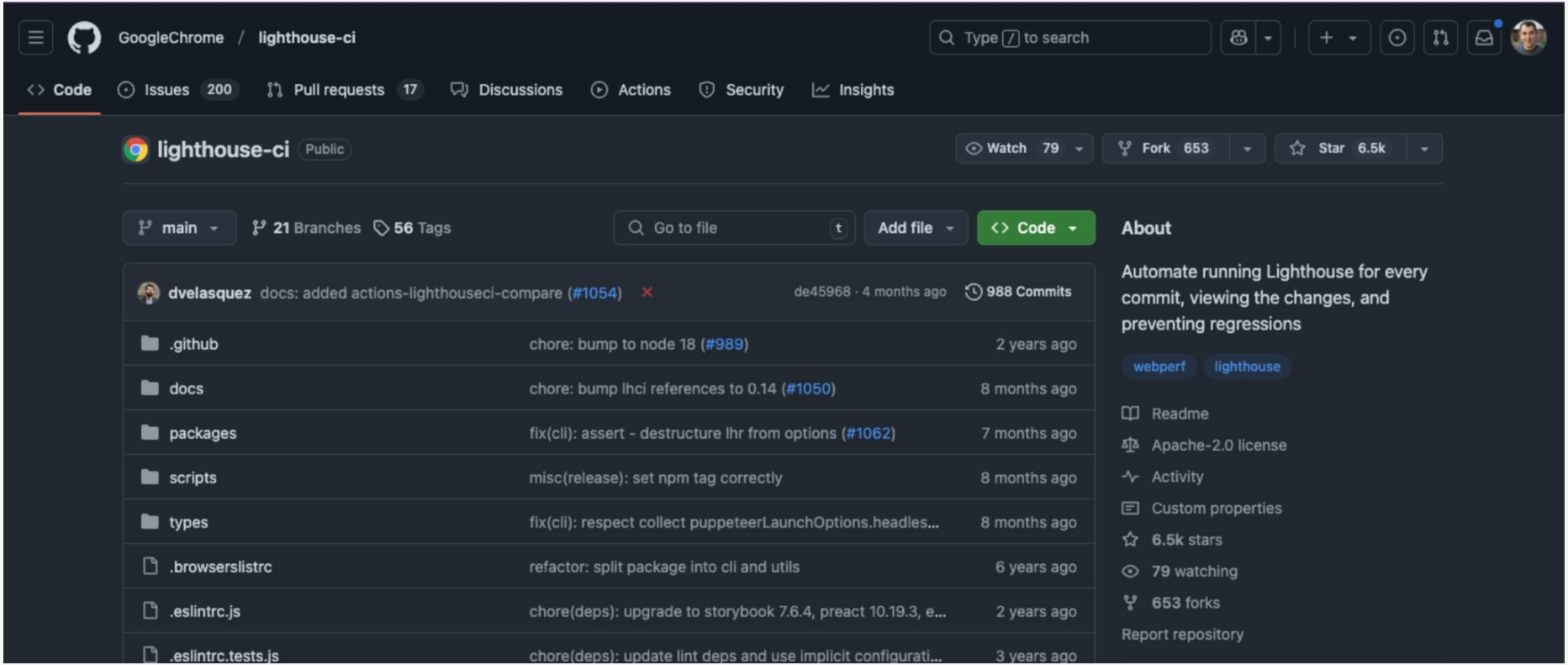
Axe-core by Deque



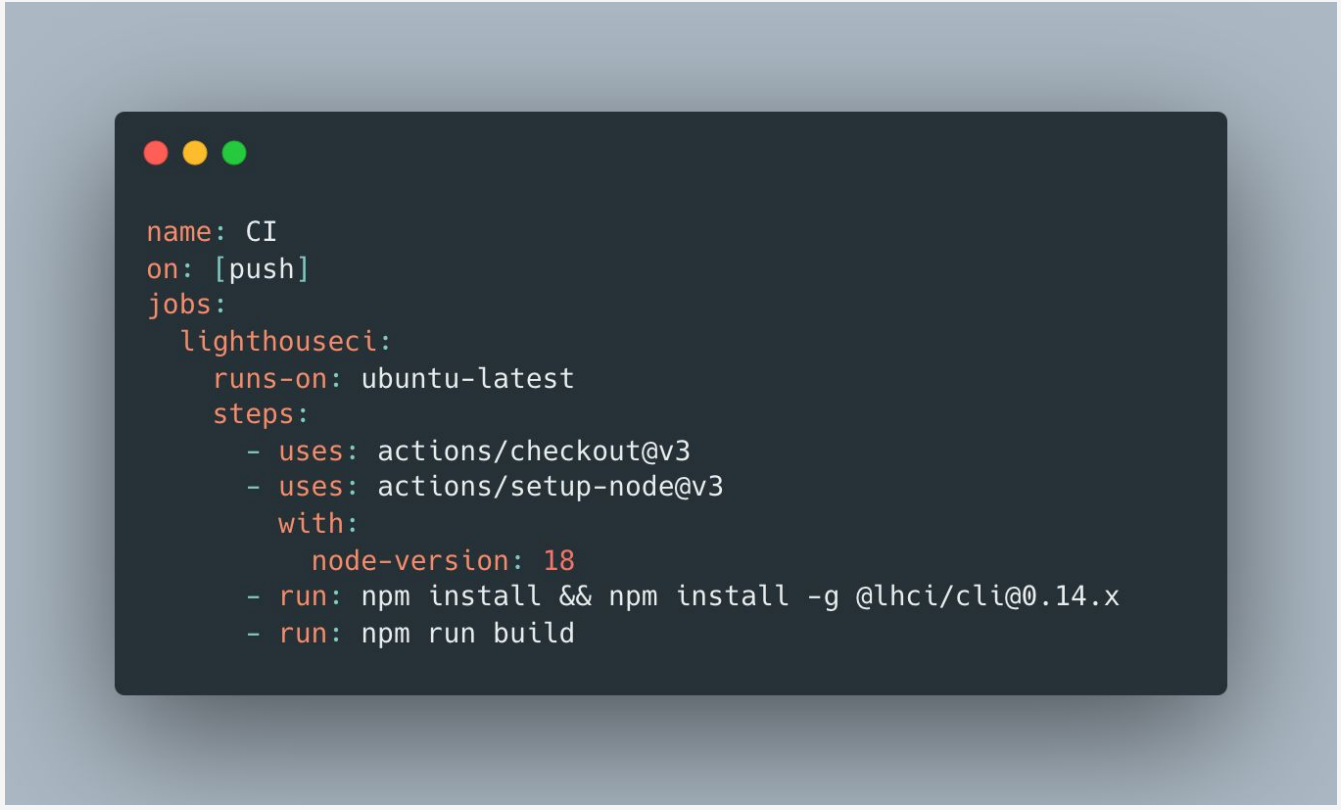
Axe-core by Deque

```
axe
  .run()
  .then(results => {
    if (results.violations.length) {
      throw new Error('Accessibility issues found');
    }
  })
  .catch(err => {
    console.error('Something bad happened:', err.message);
  });
```

Lighthouse CI



Lighthouse CI - GitHub Workflow



```yaml
name: CI
on: [push]
jobs:
  lighthouseci:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v3
      - uses: actions/setup-node@v3
        with:
          node-version: 18
      - run: npm install && npm install -g @lhci/cli@0.14.x
      - run: npm run build
```

Authoring Tools

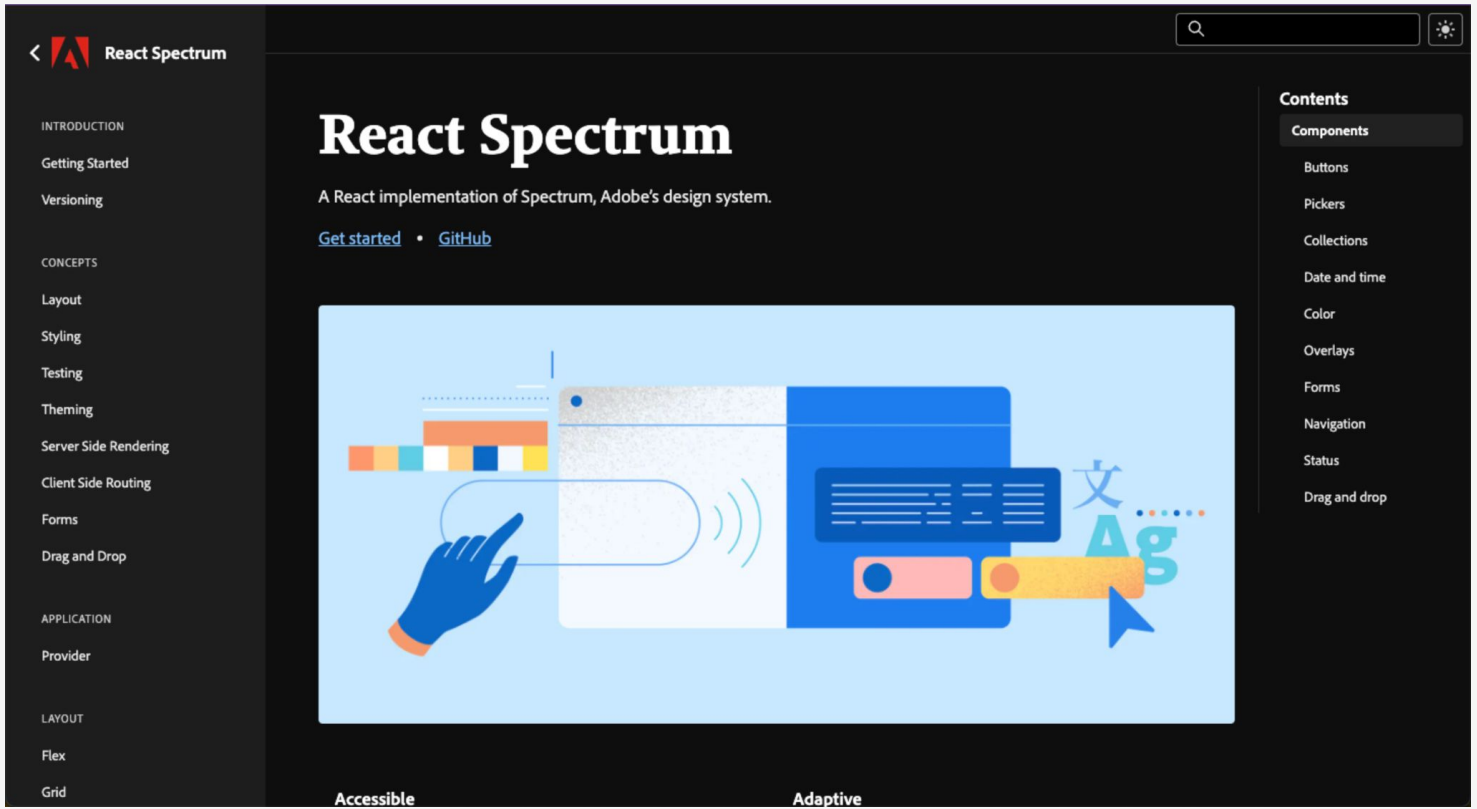
Linters

- eslint-plugin-jsx-a11y
- Angular Codelyzer
- eslint-plugin-vuejs-accessibility

Accessible Design Systems

- Adobe's React Spectrum
- Google's Material Design

Accessible Components and Libraries



Exercise 6 - Accessibility Audit

Resources

- Web Content Accessibility Guidelines (WCAG)
- WebAIM
- Microsoft Inclusive Design
- Global Accessibility Awareness Day
- Web App Accessibility (feat. React)

Thanks!