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#DCO2024

Developing for Inclusion: Building Accessible Menus with accessible-menu



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HI!

I'm Nick Milton

I am a front-end developer at Coldfront Labs.

You can find me at [@NickDJM](#) & nmilton@coldfrontlabs.ca.



“

As a large language model, I cannot create a slideshow. However I can provide inspiration and ideas for you to create your own.

1.

**What makes a
menu
accessible?**



ARIA Authoring Practices Guide

- ▶ Otherwise known as the APG
- ▶ Your first source for accessible web components

<https://www.w3.org/WAI/ARIA/apg/>

Let's take a look!



Three main types of **Menus**

- ▶ Disclosure Navigation
- ▶ Navigation Menubar
- ▶ Navigation Treeview

Some have subcategories like Disclosure Navigation with Top-Level Links.



Disclosure Navigation

- ▶ The “standard” navigation for websites
- ▶ Tab navigation
- ▶ Least amount of features of all the menus



Navigation Menubar

- ▶ More suited for application-level menus
- ▶ Arrow key navigation
- ▶ Character search



Navigation Treeview

- ▶ The vertical navigation for hierarchical lists
- ▶ Arrow key navigation
- ▶ Character search



Let's focus on: **Disclosure Navigation**

The “standard” menu



Step 1: Markup

- ▶ Standard navigation structure
- ▶ `<nav>` is the root
- ▶ `` is the menu
- ▶ `` is the menu item
- ▶ `<button>` is the dropdown toggle
- ▶ `<a>` is the menu link

```
<nav>
  <ul>
    <li>
      <a href=" ..." >Home</a>
    </li>
    <li>
      <a href=" ..." >About</a>
    </li>
    <li>
      <button>Projects</button>
      <ul>
        <li>
          <a href=" ..." >Project 2</a>
        </li>
        <li>
          <a href=" ..." >Project 3</a>
        </li>
        <li>
          <a href=" ..." >Project 1</a>
        </li>
      </ul>
    </li>
    <li>
      <a href=" ..." >Contact</a>
    </li>
  </ul>
</nav>
```



Step 2: Roles & Attributes

Role	Attribute	Element	Usage
	aria-controls	button	ID of the controlled menu
	aria-expanded	button	Indicates open/closed state of the menu
	aria-current	a	Indicates the currently displayed link

```
<nav>
  <ul>
    <li>
      <a href=" ..." >Home</a>
    </li>
    <li>
      <a href=" ..." >About</a>
    </li>
    <li>
      <button>Projects</button>
      <ul>
        <li>
          <a href=" ..." >Project 2</a>
        </li>
        <li>
          <a href=" ..." >Project 3</a>
        </li>
        <li>
          <a href=" ..." >Project 1</a>
        </li>
      </ul>
    </li>
    <li>
      <a href=" ..." >Contact</a>
    </li>
  </ul>
</nav>
```



```
<nav>
  <ul>
    <li>
      <a href=" ..." aria-current="page">Home</a>
    </li>
    <li>
      <a href=" ..." >About</a>
    </li>
    <li>
      <button aria-controls="projects-submenu" aria-expanded="false">Projects</button>
      <ul id="projects-submenu">
        <li>
          <a href=" ..." >Project 2</a>
        </li>
        <li>
          <a href=" ..." >Project 3</a>
        </li>
        <li>
          <a href=" ..." >Project 1</a>
        </li>
      </ul>
    </li>
    <li>
      <a href=" ..." >Contact</a>
    </li>
  </ul>
</nav>
```



Step 3: Keybindings

Tab / Shift + Tab

Moves focus among top-level buttons and into/out of a dropdown if it's open.

Space or Enter

Activates links/buttons.

Escape

If a dropdown is open, closes it and focuses the button controlling it.

Down / Right Arrow *

Moves focus forward through the menu and submenus.

Up / Left Arrow *

Moves focus backward through the menu and submenus

Home / End *

Focuses the first or last item in the menu or submenu.

* Optional



What about the others?

How do Menubars and Treeviews differ?

Let's check it out in the APG!

<https://www.w3.org/WAI/ARIA/apg/patterns/>



Other considerations

- ▶ Colour contrast (at least 4.5)
- ▶ *Visible* hover/active/focus states (not just colour!)
- ▶ Touch screen usability
- ▶ Events at the beginning or end of an interaction

2.

Why is all this important?

“

Navigation menus reflect the underlying structure of websites... Thus menus are critical parts of web pages and applications and require particular attention during design and development.

<https://www.w3.org/WAI/tutorials/menus/>



Screen reader users

- ▶ *Hear* your website, not see your website
- ▶ Keybindings provided by the screen reader
- ▶ Roles and standard markup help assign keybindings



Who benefits from screen readers?

- ▶ People who are visually impaired
- ▶ People who have dyslexia
- ▶ People who have literacy difficulties
- ▶ People who don't feel like reading today



Keyboard users

- ▶ Don't/can't use a mouse
- ▶ Tabbing and other keybindings are super important
- ▶ Keyup events are more controllable



Who benefits from keyboards?

- ▶ People with motor impairments
- ▶ People who use screen readers
- ▶ People who like to tab
- ▶ People who's wireless mouse has run out of batteries



Touch device users

- ▶ Hover isn't a thing*
- ▶ Tabbing isn't a thing
- ▶ Touch events are similar but different to click events



Who benefits from touch devices?

- ▶ People who have motor or cognitive disabilities
- ▶ People with tablets
- ▶ People *with phones*

You guys all have phones, right?



**Why is all this
important?**

**Because it helps
*people!***



3.

The Problem

Why are
accessible
menus so hard?



Clients want unique, **not accessible***

- ▶ Custom styles
- ▶ Custom animations
- ▶ Custom menu items

*Typically accessibility is an afterthought, not the goal.



Different frameworks

- ▶ Bootstrap
- ▶ WXT (a.k.a. Bootstrap)
- ▶ TailwindCSS



Markup can be **weird**

- ▶ Divs wrapped around items?
- ▶ Links? Buttons? Who knows?
- ▶ Drupal doesn't help!

4.

Solutions!

What are our
options?



Accessible Mega Menu?

<https://adobe-accessibility.github.io/Accessible-Mega-Menu/>

Pros

- ▶ People know jQuery
- ▶ Clients *love* mega menus

Cons

- ▶ jQuery? What is this, 2010?
- ▶ Does not follow the APG



Bootstrap?

<https://getbootstrap.com/>

Pros

- ▶ Responsive
- ▶ Easy to use
- ▶ Lots of support
- ▶ Not jQuery (if v5)

Cons

- ▶ Relatively heavy
- ▶ jQuery (if v3 or v4)
- ▶ Does not follow the APG



VueJS, React, or Angular?

<https://madewithvuejs.com/>

Pros

- ▶ Loads of options
- ▶ Very popular
- ▶ Not jQuery

Cons

- ▶ Requires a framework
- ▶ A lot of options do not follow the APG



Custom implementation

Pros

- ▶ Will be very popular and easy to use.
- ▶ OSS Maintainers are treated very well.
- ▶ Not jQuery
- ▶ Follows the APG!

Cons

- ▶ Can't think of any
- ▶ What could go wrong?



5.

**Enter,
accessible-menu**



What was our **goal**?

- ▶ A library that makes *making* accessible navigation simple.
- ▶ Accessibility is the *priority* not the afterthought.
- ▶ No CSS. Classes and properties only.
- ▶ No dependencies.
- ▶ Supports all browsers (Chrome, Firefox, Safari... IE)



Demo: it just works!

Let's take a look at how to implement accessible-menu into Drupal!

https://gitlab.com/dco-demo-2024/dco_demo_project



How did we get here?

v1.0 - November 2019

Focus was on supporting existing clients with Bootstrap 3 and WXT.

Only Menubar support.

v2.0 - June 2020

Removal of out-of-the-box Bootstrap support.

Added Disclosure Menu support.

v3.0 - August 2021

Added an extendable BaseMenu class.

Added Treeview support.

Added full documentation site.

Added automated tests.

v4.0 - February 2024

Added Top Link Disclosure Menu support.

Lots of behind the scenes improvements.

Documentation overhaul.

Automated test overhaul.



7,037,260

Requests on jsDelivr alone in 2023.





Where are we going?

- ▶ Documentation improvements
- ▶ New features for Treeviews
- ▶ New menu types

And more...



Demo: it just works, but better!

Lets see how accessible-menu will be implemented into Drupal in the near future!

https://gitlab.com/dco-demo-2024/dco_demo_project

We're always looking for contributors!

Find a bug, want to improve some documentation, or
request a feature?

<https://accessible-menu.dev/>



THANKS!

Any questions?

You can find me at [@NickDJM](#) & nmilton@coldfrontlabs.ca.





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Resources

Here are some links to various resources involving accessibility.

- ▶ ARIA Authoring Practices Guide (<https://www.w3.org/WAI/ARIA/apg/>)
- ▶ MDN Web Docs (<https://developer.mozilla.org/en-US/>)
- ▶ Colour contrast calculator (<https://color.review/>)



Accessible Menu Resources

Here are some links for accessible-menu.

- ▶ Documentation (<https://accessible-menu.dev/>)
- ▶ GitHub (<https://github.com/NickDJM/accessible-menu>)
- ▶ Drupal Module (https://www.drupal.org/project/accessible_menu)
- ▶ Bootstrap 3/4 variant
(<https://github.com/NickDJM/accessible-menu-bootstrap-4>)
- ▶ Bootstrap 5 variant
(<https://github.com/NickDJM/accessible-menu-bootstrap-5>)



Credits

Special thanks to all the people who made and released these awesome resources for free:

- ▶ [Simple line icons](#) by Mirko Monti
- ▶ [E-commerce icons](#) by Virgil Pana
- ▶ [Streamline iconset](#) by Webalys
- ▶ Presentation template by [SlidesCarnival](#)
- ▶ Emojis by [Emoji Kitchen](#)