## Design Inclusive Digital Experiences, Involve People with Disabilities

A Human-Centered Approach to IDEA Data Reporting.

Presenters: Nichole Bui, Marcelo Paiva, and Sara Sinani.

January 26, 2024 – 9:45 AM – Magnolia 2



### Agenda:

- 1 About Rhonda Weiss Center.
- 2 Typical barriers based on unconscious bias.
- 3 Data Visualization vs. Data Representation
- 4 Human-centered approach for inclusive experiences.
- 5 Solutions and best-practices.
- 6 Q&A.

#### Introductions





**Nichole Bui,** Technology Lead



Sara Sinani, Technical Assistance Lead



Marcelo Paiva, Inclusive Design and Accessibility

### The Rhonda Weiss Center

Sara Sinani





#### Weiss Center Goals and Vision.

- Content Accessibility is our highest priority.
- Center was established in honor of Rhonda Weiss.
- Primary activities:
  - Create a free data reporting tool that allows States to publish **Individuals with Disabilities Education Act (IDEA)** data in ways that are accessible, usable, and manipulatable by persons with disabilities.
  - Provide Technical Assistance on making IDE A data reporting and publications accessible to persons with disabilities.

### Weiss Center Strategies (slide 1 of 2).

Designing an innovative accessible reporting tool to increase equitable data access and transparency for everyone, including persons with disabilities. Outputs include:

- Development of a reporting tool to make data and reporting accessible for everyone, including persons with disabilities.
- 2. Maintenance of the reporting tool over time.
- 3. Creation of tools and products that prioritize access and usability for everyone, including persons with disabilities.

### Weiss Center Strategies (slide 2 of 2).

- 4. Building a body of knowledge of content Accessibility, needs, requirements, tools, and technical products. Outputs include:
  - A training curriculum.
  - Strengthened knowledge base in the emerging field of data product accessibility and dynamic tools.
- 5. Other Strategies and Outputs:
  - Creating a system for technical assistance to States (universal, targeted, and intensive).
  - Establishing the Rhonda Weiss Center National Advisory Council.



## Typical Barriers Based on Unconscious Bias

Nichole Bui



# The failure to provide accessible content is a form of ableism.

**Ableism** – is a set of assumptions and practices promoting the differential or unequal treatment of people because of actual or presumed body or mind difference.

### **Explicit Bias**

Attitudes and beliefs that we have about a person or group on a conscious level. We are fully aware of these, so they can be self-reported.

The Unconscious Bias Iceberg (2 of 2)



Line of consciousness

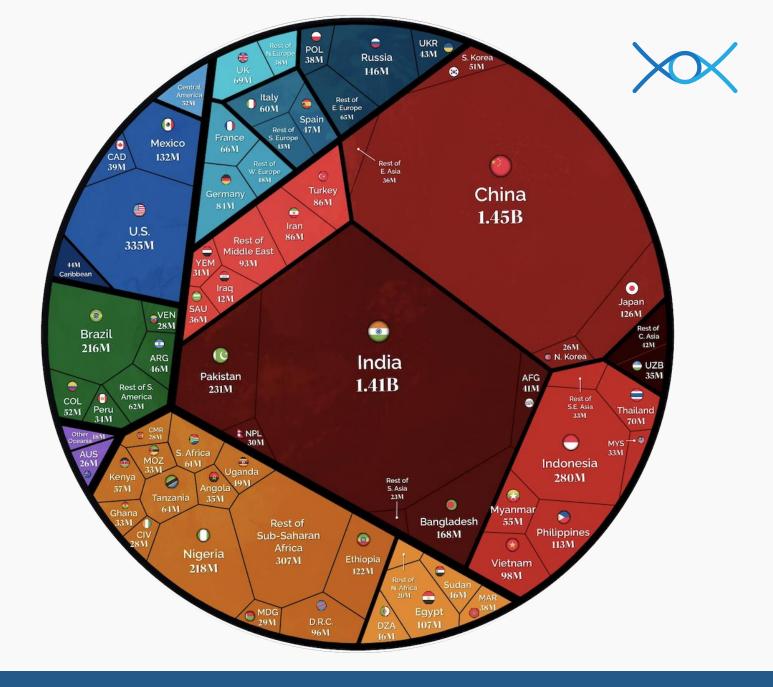
### **Implicit Bias**

Unconscious attitudes that lie below the surface but may influence our behaviors.



## Data Visualization as a form of ableism

World's Population of 8
Billion People



### Data Visualization

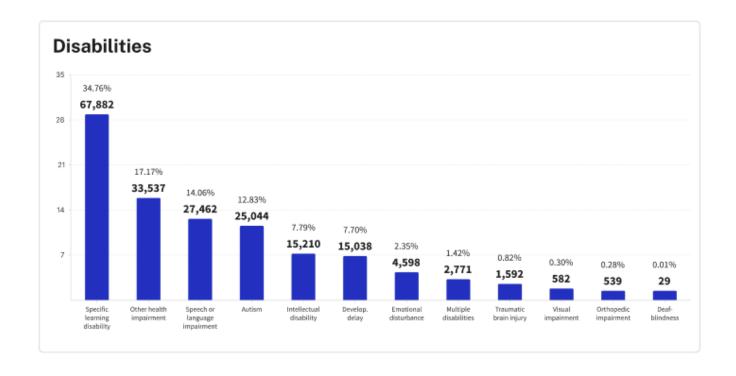
It is not about how we visualize the data to the user.

### Data Representation

How the data is represented to all users.

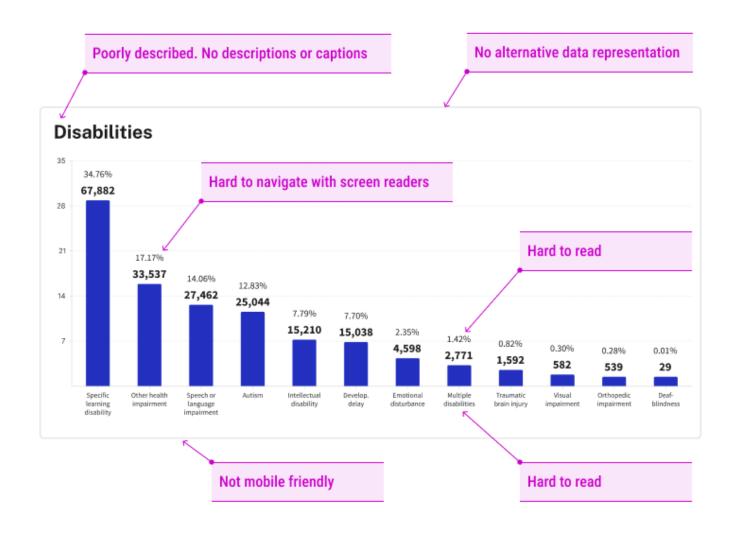
## Data Visualization as we know creates barriers

- Data visualization is the default approach for most content creators.
- Unfortunately, it reflects an implicit bias towards sighted users.



### Data Visualization unconscious bias

- The name itself carries the "visual" term.
- The data is not properly represented to all users.
- Making visualizations accessible is difficult.



### Data Visualization needs a reset

- It's about time we think about people with disabilities when creating reports.
- A proper term is needed.



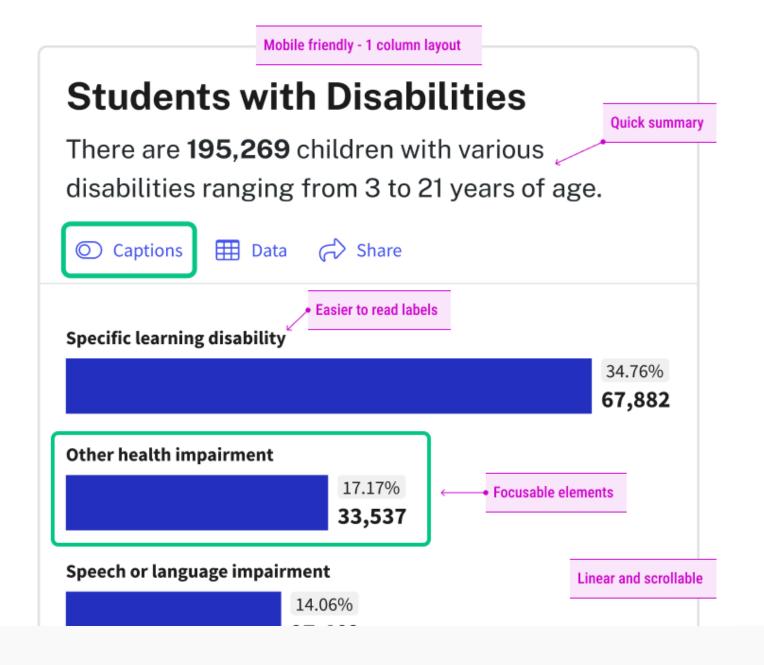
### Data Representation (for all users)

- Data representation should consider users with multiple disabilities or access limitations.
- Including those with data bandwidth limitations or intermittent connectivity.



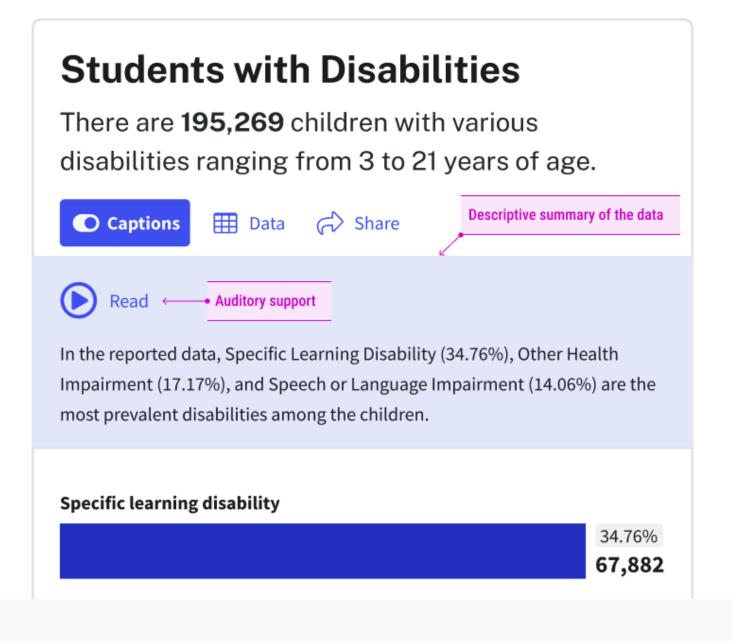
### Data Representation (multi-modal)

- Data representation considers users with multiple disabilities.
- Learning and cognitive challenges.
- Visual impairment and blindness.



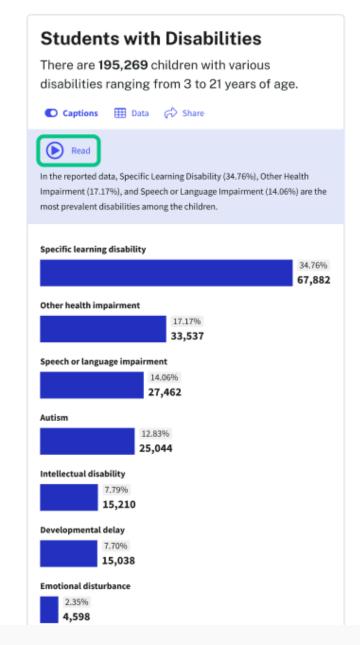
### Data Representation (extended)

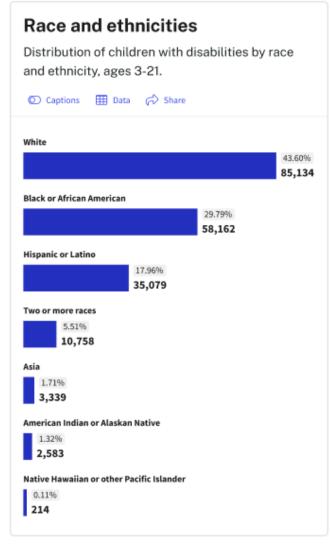
- Captions and audio transcription features provide an important element to non-visual users.
- Including those that find hard to read complex data.



### Data Representation (visual representation)

- Visual representation is still very important,
- But should not be the only way to represent data,
- Nor be the most important.





## Human-centered approach for inclusive experiences.

Marcelo Paiva





### Be inclusive from Day-1

- As a first step, collect a diverse group of end-users including people with disabilities.
- Meet with each person from this group and ask the same open-ended questions about their needs.
- Identifying barriers and pain-points from a diverse group will lead to better product requirements and acceptance criteria.

# Addressing Accessibility with Inclusive Design Practices (slide 1 of 4)



#### **Blindness:**



- Enhanced compatibility: By including users with severe visual impairment can ensure the interface is compatible with various screen reader software, improving navigation and content accessibility for all users.
- Proper labeling: They can also help identify and implement appropriate labels and descriptions for buttons, links, and images, making it easier for screen reader users to understand and interact with the content.

# Addressing Accessibility with Inclusive Design Practices (slide 2 of 4)



#### Low Vision:



- Improved contrast and text legibility: including users with low vision can advise on optimal color contrast, font sizes, and text formatting, enhancing readability for users with vision impairments.
- can guide the implementation of user-friendly magnification and zoom options, ensuring the interface remains accessible and usable when enlarged.

# Addressing Accessibility with Inclusive Design Practices (slide 3 of 4)





### **Motor Impairment:**

- Inclusive navigation options: Users with motor impairments can recommend alternative navigation methods, such as voice control, switch access, or keyboard-only navigation, welcoming users with limited dexterity or mobility.
- Optimal button and link sizing: Their input can help optimize the size and spacing of interactive elements, making them easier to select and interact with for users with motor impairments.

# Addressing Accessibility with Inclusive Design Practices (slide 4 of 4)



### Neurodivergent:



- Simplified layout and clear information hierarchy: Users who are neurodivergent can provide insights on structuring content and design layout to minimize cognitive overload and enhance comprehension for users with cognitive differences.
- Customizable user interface: Their perspective can help develop customizable settings, allowing users to adjust text size, colors, and other interface elements to suit their needs and preferences.



By including people with disabilities and their intersectionality early in our product life-cycle we can create better experiences for all users.

## Unlearn bad habits.

Re-evaluate current practices that might trigger exclusion.



### Be aware of exclusionary triggers

- Unconsciously, businesses tend to apply exclusionary practices, such as the Pareto Principle – 80/20 Rule or the Minimum Viable Product (MVP), where they focus on the quickest and highest return possible.
  - Who's in the 20% group?
  - Is the 80% diverse and well-represented?
- Recognize and combat your team's unconscious bias.

## Aim towards the highest standard

Aiming for compliance is not enough.



### Strive for the highest standards early



- Aiming for the highest standard possible <u>early</u> will create a pattern of quality thinking among your team members.
- This practice motivates everyone to learn about new guidelines and produce innovative solutions.
- It also removes bad-habits and reduces technical debt over time.

### It takes a village

Team learning and growth



### Accessibility learning as individual goals

- Empower team members to set individual goals to learn and share about Accessibility design and development patterns
  - Internally team demos, Slack community, design review sessions
  - Externally blog posts, social media, etc.
- Promote Accessibility research, learning, and sharing
  - YouTube Channels
  - Slack communities

## Stop using Lorem ipsum!

It creates barriers.



### Good Content = Good Accessibility

- Use a content-first approach to make your concepts accessible to early in the design process.
- Do not use Latin placeholders like lorem ipsum, it creates barriers.

### Mind the gap.

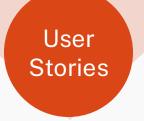
You process may need adjustments.

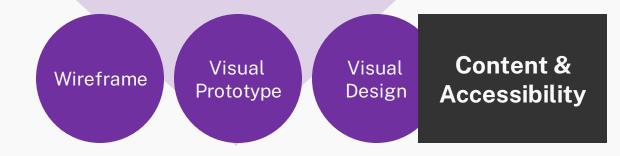


### Content and Accessibility as afterthought

### Requirements

### Interface







# Shifting accessibility left is crucial

Requirements

Interface

Content & Accessibility

Shift Left



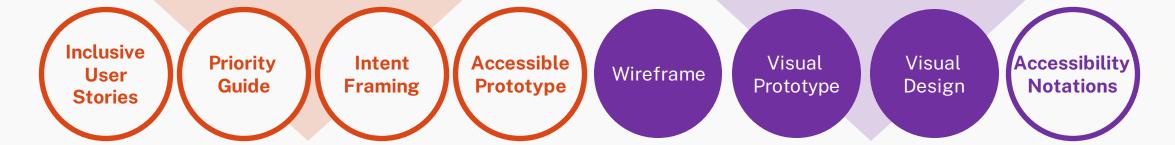
## **Adding Inclusive UX Artifacts**

**Problem Definition** 

content

Visual Definition

## interfaces





# **Inclusive UX Artifacts – What are they?**

## **Inclusive User Stories**

Inclusive User Stories help plan features in a way that considers and includes the needs of people with disabilities.

## **Priority Guides**

Priority Guides help organize and prioritize design elements based on user needs, focusing on content importance over visual layout.

## **Intent Framing**

Intent Framing is structuring interactions to clarify user intent, ensuring systems understand and respond to user needs accurately.

## **Accessible Prototyping**

Prioritizing content early allows for building accessible prototypes to be tested by screen reader users before designing interfaces.

## **Accessibility Notations**

Accessibility Notations are markings or notes added to designs to indicate accessibility features or requirements for inclusive use.

## **Priority guides** example

- Priority guides are like designing with "words".
- It helps to focus on the user's motives before thinking about the visual elements, minimizing accessibility debt.

## **Entry-points**

How could the users be invited to visit the landing page?

WEISS-

When I am invited I want review what's available, considering I'm phone user. So I can evaluate if this is a good and accessible initiative, as they

#### Weiss Center website

What's the user's expectation? Please describe

#### Email

What's the user's expectation? Please describe

#### Shared URL

What's the user's expectation? Please describe

#### **QR Code**

What's the user's expectation?

#### Marketing collateral

What's the user's expectation? Please describe

#### Parents Meetings

What's the user's expectation?

01-Landing

## Landing page

the first encounter the user will have with the Weiss Reporting Tool

WEISS-

#### When I visit the website.

I want to learn and understand the benefits for using this platform over my existing way of generating reports.

considering I'm a screen reader

So I can quickly learn and understand the purpose of the reporting tool.

#### Welcome to [Product Name]

A new way for creating your IDEA data reports that are accessible to individuals with disabilities.

What's your question?

#### Welcome to Product Namel. We create Accessible Reports for IDEA data.

This a reporting tool to make data visualizations and reporting accessible for everyone, including persons with disabilities.

Heading, a paragraph with a button to sign up/ sign in or provide additional option to view a sample

Expected action (Gherkin)

Link to primary action:

- Link to secondary action:
- Test drive (demo page)

#### About the Rhonda Weiss Center for IDEA Data

The Rhonda Waise Center for IDEA

02-Authentication

#### Authentication

User requests a register account.

WEISS-

Questions For Nichole

Will this be available for MVP?

When I am ready to spend time in this tool.

I want the ability to log in with unique credentials

considering I don't have a user test account

So I can securely access the platform and test the Accessibility features the product claims to

Please describe.

## Sign-up or Sign-

What's the user's expectation?

#### Create an account

What's the user's expectation? Please describe.

#### Already have an account?

What's the user's expectation? Please describe.

#### Forgot your credentials?

What's the user's expectation? Please describe.

03a-Overview (State)

#### Overview page for State admin users

State user is registered in the system. Depending on their role and permissions, users can perform specific tasks.

WEISS-

When I log into my State account, I want to learn how to use the import and report features. considering I don't have much

So I can effectively utilize its features and achieve my tasks.

#### Admin Overview

A State user will log into the admin tool via the State's website. Once logged in, the State user will perform any of the following options:

#### 1st time experience banner

This is the first time the user experiences this page. Let's give them something to learn from.

#### Summary banner

What data is already available in the system? Which reports can I render given the data availability? When will the rest of the data be available? Can I double check the status of the data in OSEP?

#### Manage Data

User can view key metrics and data status, upload data files for creating new reports, they can replace existing data files previously uploaded, and they can publish data after proper peer-review (internal approval) for public reporting

03b-Overview (Public)

#### Overview page for public users

User is registered in the system. Depending on their role and permissions, users can perform specific tasks.

WEISS-

- · Will this be available for MVP?
- Public users will have access to published reports, but if they want to add comments, they will need to create a profile in the system, so we can enhance their experience and provide additional features. Not for MVP

When I log into my profile, I want to review reports that relates to my children or school

considering I have a cognitive

So I can stay informed about the progress my district is making and how it is helping my children.

#### **Public Overview**

Landing page for registered public users. A public user can have multiple motives, whether they are parents, educators, state representatives or legislators, or even news media reporters.

#### Registered user Summary

A welcoming banner to give the user a level of confirmation. displaying their name, recent searches, comment threads, and recent reports visited

#### Staying informed

How might we provide news events. stats numbers, fun-facts or success stories related to the IDEA data published or user's school district?

## **Intent Framing**



Take the content from priority guides and build a HTML page accessible to screen readers.

https://nolatin.com/share/weiss-ux002

nolatin.com (open-source)

## **≡** Rhonda Weiss Center Usability Studies (i)

## Welcome to our Usability Study!

We appreciate your participation in our effort to improve the accessibility and user-friendliness of our IDEA data platform. The aim of this study is to understand how effectively our system enables diverse users, particularly those with disabilities, to access, navigate, and interpret the data we provide.

#### **About this session**

Today, you will be evaluating our platform's interface design. Your task will involve navigating our Public Overview page, searching for a specific report (Child Count), and analyzing the data within the report. We're particularly interested in your feedback about the usability of our system and how the data is organized.

## **Getting started**

Please remember there is no right or wrong response—your experience and perceptions are what matter most to us. Our goal is to learn from you and make the necessary improvements to our system. Click on the link below to proceed to the Public Overview page and begin the evaluation. Thank you again for your participation.

Continue to task instructions

Accessible Prototype by No Latin - Shift-left Accessibility

# MVPs must be accessible.

Minimum Viable Products should and can be inclusive.

# Any Minimum Viable Product (MVP) Must be Accessible



- Avoid the 80/20 rule (AGAIN)
- Prioritize accessible features over "cool" features
- Prioritize functionality over aesthetics
- Document your success and failures
- Test your MVP with individuals with disabilities



# Making your MVP accessible

- Choose a design system and component library that is accessible and tested with individuals with disabilities.
- United States Web Design System (USWDS) is a formidable choice.
- Semantic layouts with descriptive sections and headings.
- Interaction design for Keyboard-only users.
- Collaborate and share.



## **Best-practices Summary**

# Inclusive from Day-1

# Good content leads to good accessibility

# Accessible design systems & methods

## Accessible MVP

- Avoid the 80/20 rule
- Collect a diverse group of endusers including people with disabilities
- Meet with each person from this group and ask the same open-ended questions about their needs
- Strive for highest standards
- Set Accessibility learning as individual goals for team members
- Join an Accessibility community

- Use a content-first approach to make your concepts accessible to early in the design process
- Don't use Latin placeholders like lorem ipsum, it creates barriers
- Create priority guides and intent framing before screen layout
- Leverage ChatGPT for good preliminary content creation
- Share Accessibility patterns with product stakeholders and team members

- Choose a design system and component library that is accessible and tested with individuals with disabilities
- USWDS is a formidable choice
- Semantic layouts with descriptive sections and headings
- Interaction design for Keyboard-only users
- Collaborate and share

- Avoid the 80/20 rule (AGAIN)
- Prioritize functionality over aesthetics
- Prioritize accessible features over "cool" features
- Document your success and failures
- Improve continuously
- Test your MVP with individuals with disabilities

# Questions

We want to hear from you.





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Your feedback helps us serve you better.





## **Contact Us**

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# Thank you!

The contents of this presentation were developed under a grant from the US Department of Education, H373Q220002. However, those contents do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government. Project Officer: Eric Caruso.

# Accessibility Resources & Tools

For Designers and Developers

http://bit.ly/mp-a11y



# **Accessibility Auditing Ideas**

- Put your mouse away, just use your keyboard
- Try to fill out a form without using your mouse
- Watch a presentation with your monitor turned off
  - Or use this chrome extension to <u>turn off the lights</u>
- Watch a video with the sound down
- Remove the CSS styles from the page you are testing
  - https://techstacker.com/how-to-remove-all-css-from-site-withjavascript/



# **Accessibility Checkers**



- SiteImprove
  - <a href="https://chrome.google.com/webstore/detail/siteimprove-accessibility/djcglbmbegflehmbfleechkjhmedcopn">https://chrome.google.com/webstore/detail/siteimprove-accessibility/djcglbmbegflehmbfleechkjhmedcopn</a>
- IBM Equal Access
  - <a href="https://chrome.google.com/webstore/detail/ibm-equal-access-accessib/lkcagbfjnkomcinoddgooolagloogehp">https://chrome.google.com/webstore/detail/ibm-equal-access-accessib/lkcagbfjnkomcinoddgooolagloogehp</a>

## **Automating Accessibility Testing**



- Automating the accessibility tests with GitHub Actions
  - https://www.adrianbolonio.com/blog/accessibility-github-actions
- Fix accessibility and compatibility bugs while you code
  - <a href="https://dev.to/hxlnt/these-vs-code-extensions-help-you-fix-accessibility-and-compatibility-bugs-while-you-code-2196">https://dev.to/hxlnt/these-vs-code-extensions-help-you-fix-accessibility-and-compatibility-bugs-while-you-code-2196</a>

# **Auditing Tools**



- SkipTo Chrome Extension
  - https://chrome.google.com/webstore/detail/skipto-landmarksheadings/fjkpbfcodhflpdildjbmdhhmcoplghgf/related
- Landmarks Chrome Extension
  - https://chrome.google.com/webstore/detail/landmark-navigation-viak/ddpokpbjopmeeiiolheejjpkonlkklgp

# **Design Support Tools**

- Contrast App for MacOS
  - https://apps.apple.com/us/app/contrast-coloraccessibility/id1254981365?mt=12
- Color Blindness (Mac/Windows/Linux)
  - https://colororacle.org/
- Focus Appearance web app
  - https://wtfoc.us/
- Chrome DevTools
  - Ctrl+Shift+P > Rendering



## Visual Studio Code Extensions



- Axe Accessibility Linter Accessibility linting for HTML, Angular, React, Markdown, ar
- <u>Error Lens</u> ErrorLens turbo-charges language diagnostic features by making diagnostics stand out more prominently, highlighting the entire line wherever a diagnostic is generated by the language and also prints the message inline.
- <u>Webhint</u> provides hints and parsers for HTML and template-making systems (JSX/TSX, Angular, and so on), JavaScript/TypeScript, common pitfalls, and more.
- <u>Web Accessibility</u> This extension is here to help you get feedback on what parts need some more attention for it to be accessible, this is just the basics and doesn't cover all the rules but will help with making your project more accessible.

## Screen Reader Keyboard Shortcuts



## Desktop

- Desktop Screen Readers Survival Guide - Basic Keyboard Shortcuts
- <u>Desktop Screen Readers Forms</u> <u>Guide</u>

## Windows

- NVDA Keyboard Shortcuts
- JAWS Keyboard Shortcuts
- Narrator Keyboard Shortcuts
- JAWS Keyboard Shortcuts for Word

## Mac

- VoiceOver Keyboard Shortcuts on a Mac
- Enabling Keyboard Accessibility on a Mac
- Using Windows Screen Readers on a Mac

## Mobile

- TalkBack Gestures on Android
- VoiceOver Gestures on iOS