

Accessibility 101

Agenda

1. Introduction to accessibility
2. Understanding accessibility
3. Designing for accessibility
4. Accessibility in development
5. Accessibility in product
6. Conclusion
7. Q&A

Introduction to accessibility

Models of disability

Medical

Social

Charity

A few definitions...

“It is a complex phenomenon, reflecting the interaction between features of a person’s body and features of the society in which he or she lives.”

World Health Organisation

“Disability happens at the points of interaction between a person and society”

Microsoft’s Inclusive Toolkit

“Disability is a mismatch between capability & barrier”

Ian Hamilton

“Accessibility is avoiding an unnecessary mismatch between capability & barrier”

Ian Hamilton

“A11y”

The numbers

20%

One in five have a disability of some kind

70%

The majority of disabilities are hidden

2,200,000,000

Have a vision impairment

43,000,000

Registered blind, worldwide

507,000,000

Require correction with glasses or contact lenses, worldwide

The regulations

The regulations

- UK: Public Sector Bodies (Websites and Mobile Applications)(No. 2) Accessibility Regulations 2018... AKA PSBAR
- EU: EN 301 549
- Australia: Disability Discrimination Act
- New Zealand: Web Accessibility Standard
- USA: Section 508 (Amendment to Rehabilitation Act of 1973) / Americans with Disabilities Act (ADA)

The regulations

- Web Content Accessibility Guidelines (WCAG) 2.1 AA
 - Perceivable
 - Operable
 - Understandable
 - Robust
- ISO 30071-1 digital accessibility

Understanding accessibility

Types of disability

Disabilities can be...

Permanent

Disabilities can be...

Temporary

Disabilities can be...

Situational

Hearing

- Hearing impairment
- Hearing loss
- Deafness
- Central Auditory Processing Disorder (ADP)

Hearing

- Lip reading
- Sign language
- Captions
- Transcripts

Vision

- Blindness
- Low vision
- Colour blindness
- Deafblind

Vision

- Screen reader
- Braille devices
- Screen magnifiers
- High contrast
- Screen tints

Mobility and dexterity

- Missing limbs
- Multiple sclerosis
- Cerebral palsy
- Stroke
- Arthritis

Mobility and dexterity

- Voice control/dictation
- Alternate input devices

Cognition

- For example...
 - Limited comprehension
 - Cognitive overload
 - Problem-solving skills
 - Short-term memory
 - Attention-deficit
- Dyslexia
- Autism

Cognition

- Screen tints
- Plain language
- Simple and consistent layouts
- Underlining/line focus
- Personalisation options

Assistive technologies











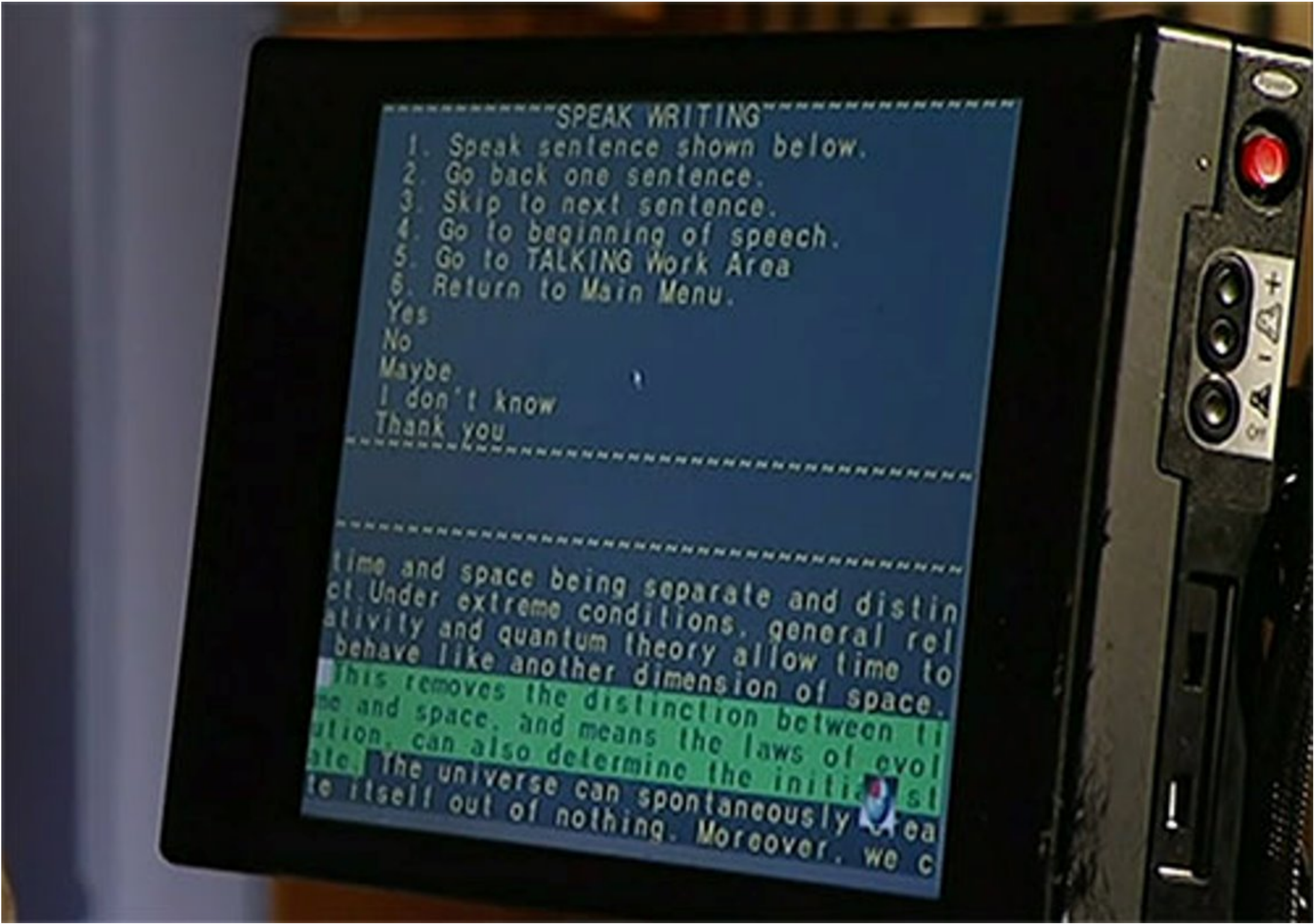


-----SPEAK WRITING-----

1. Speak sentence shown below.
2. Go back one sentence.
3. Skip to next sentence.
4. Go to beginning of speech.
5. Go to TALKING Work Area
6. Return to Main Menu.

Yes
No
Maybe
I don't know
Thank you

time and space being separate and distinct. Under extreme conditions, general relativity and quantum theory allow time to behave like another dimension of space. This removes the distinction between time and space, and means the laws of evolution, can also determine the initial state. The universe can spontaneously create itself out of nothing. Moreover, we c



Exercise

<https://talis.github.io/bootstrap-theme/example>

Designing for accessibility

Techniques

Universal design principles

- Equitable use
- Flexibility in use
- Simple and intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use

Techniques

Colour

- Text with a contrast ratio of 4.5:1
- Don't rely on colour to communicate information

Techniques

Operation

- Anything that can be done with a mouse should be keyboard accessible
- Focus states
- Tab order
- Target size
- Think about ways to skip lengthy sections
- Don't remove link underlines

Techniques

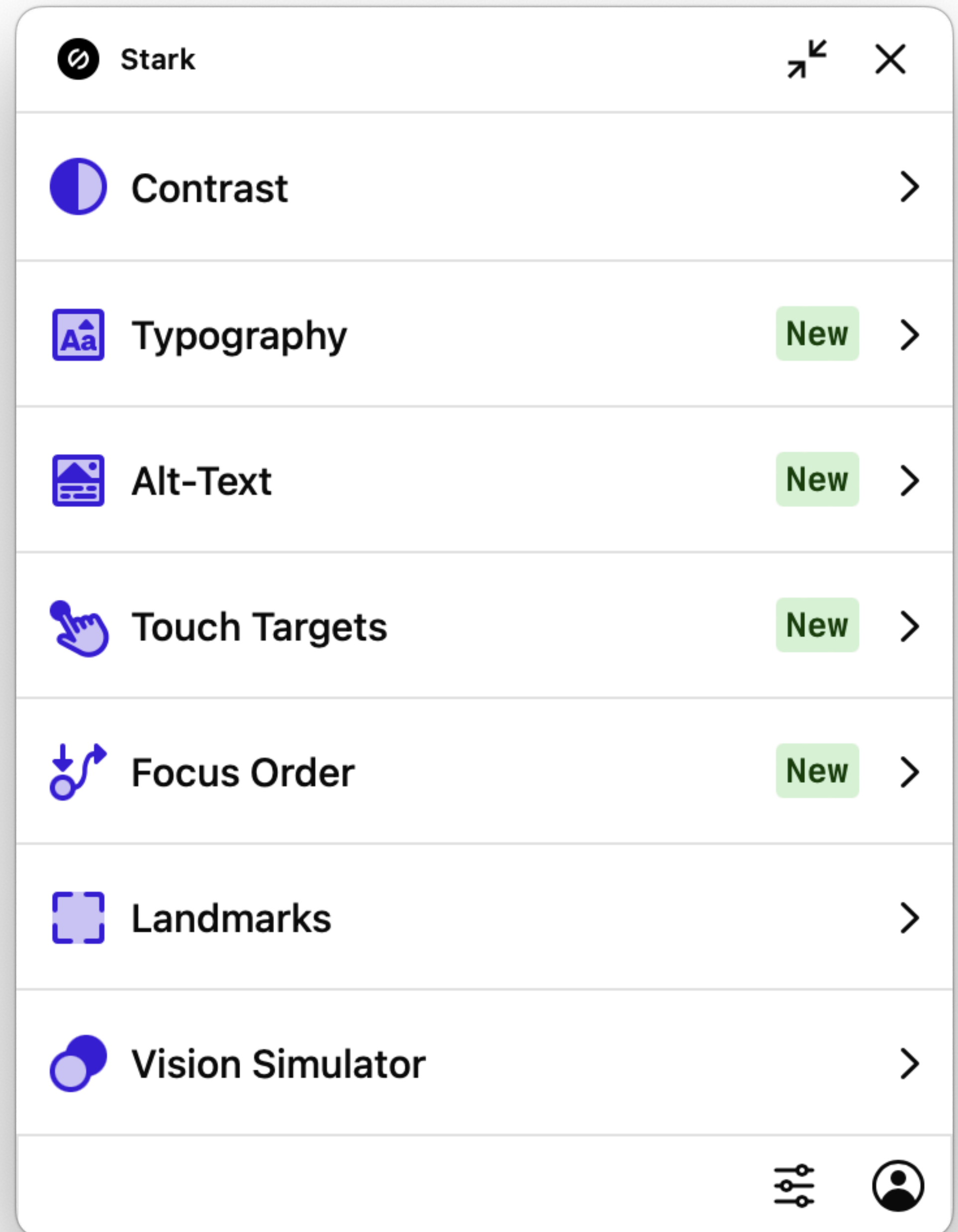
Misc.

- Elements should be identified the same on all pages
- Where should alternative content formats live?
- Simple page design for easy skimming
- Include diverse group of users in user research and testing

Tools

Stark

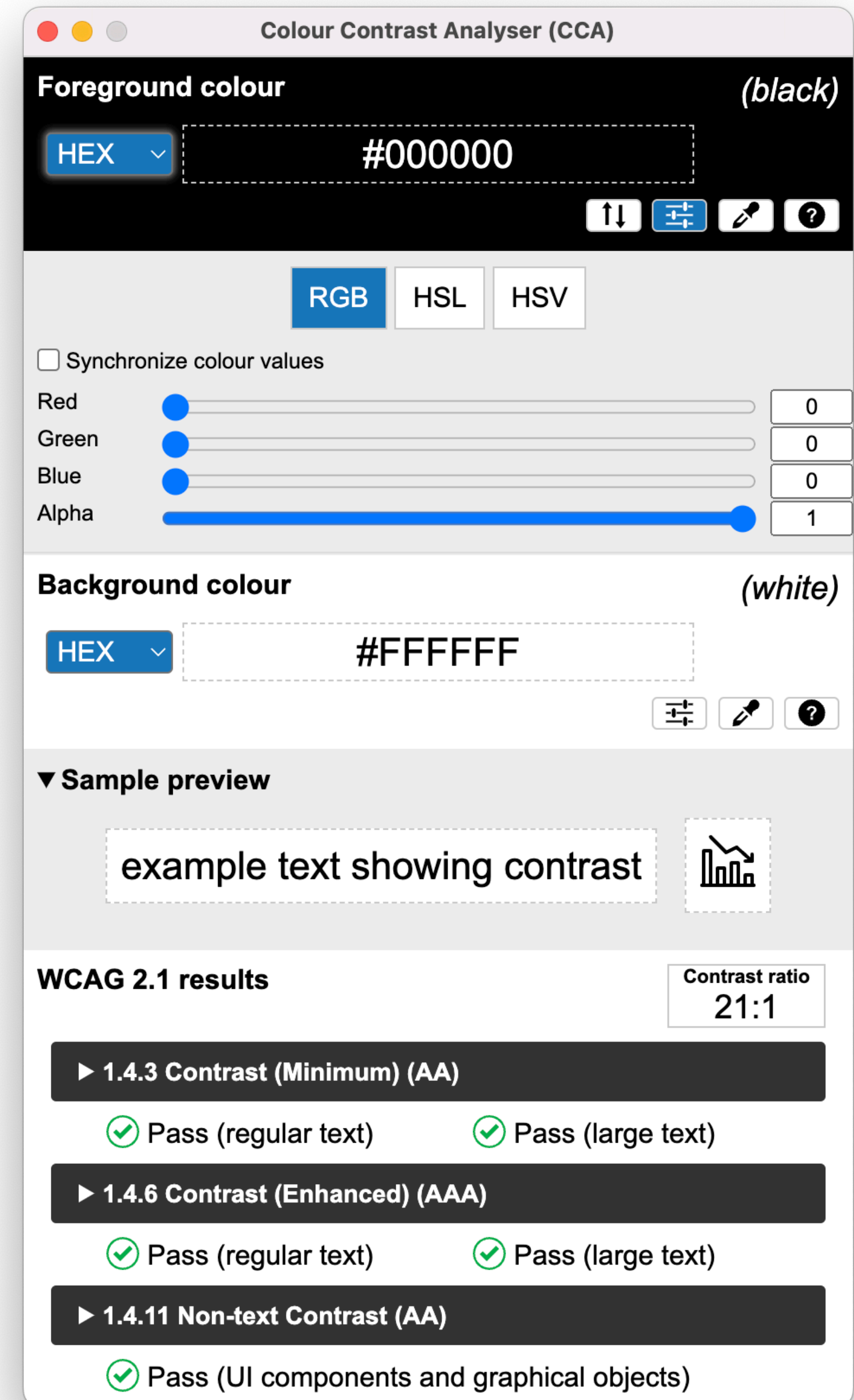
- Plugin for design tools (Sketch, Figma)
- Browser extensions
- Desktop application



Tools

Colour Contrast Analyser

- Desktop application
- Ensures same algorithm is in use



Techniques

Personas

Personas		All docs ▾	🔍	↕	⚙️
Title	🔗 Assistive Technologies	T Description	+		
1	📄 Dominique	high contrast magnifier	Dominique is partially sighted, and uses a screen magnifier to make cor		
2	📄 Lucia	screen reader	Lucia has blurred vision and struggles to make out the details of what's		
3	📄 Chris	voice control	Chris uses voice control software (e.g Dragon Dictate) to operate his co		
4	📄 Pawel	soothing colours	Pawel finds animations, flashing colours, and sound effects distracting		
5	📄 Simone	tinted background dyslexia font	Simone has dyslexia, and prefers to use a yellow screen tint to make thi		
6	📄 Saleem	audio description captions	Saleem is deaf and relies on captions to follow video content		
+ New doc					

Accessibility in development

Techniques

HTML

- Use the platform
- Form elements
- Buttons
- Links
- Elements introduced in HTML5 – header/nav/section/footer

Techniques

Accessible Rich Internet Applications (ARIA)

- Offers attributes to help express connections and states between HTML elements
- Roles help describe the structure of the page
- Allows creation of complex UI widgets
- Needs to be used carefully

Techniques

Automated testing

- Unit tests
- Browser tests

Techniques

Semi-automated testing

- Browser extensions
 - Lighthouse
 - WAVE
 - ARC
 - Axe

Techniques

Manual testing

- Confirming tab order
- Using screenreader

Exercise(s)

<https://000498073.codepen.website/problems/>

Accessibility in product

Techniques

- Make time to do accessibility right
- Familiarise with guidelines and best practice
- Should be part of the 'Definition of Done'
- Can't always be fixed with third-party products
- Create a "System Accessibility Log"

Conclusion

Accessibility is a...

Responsibility

Accessibility is an...

Opportunity

Questions?