

Accessibility and Inclusion – UI/UX – Power Apps

Charlie Phipps and Alex Baker-Wong
(The Power Platform Duo)





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Introduction



Charlie Phipps

MVP & Power Platform Architect and Developer at Akari Solutions Ltd

Power Apps Super User – phipps0218

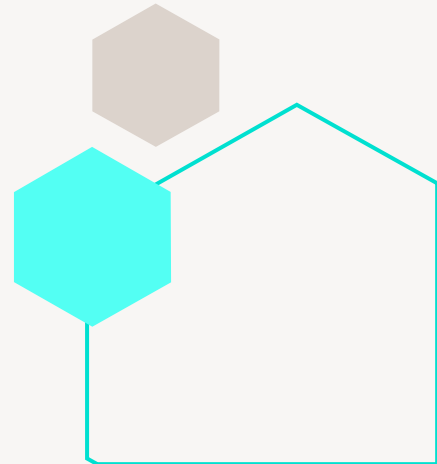
<https://www.linkedin.com/in/charlie-hipps-%F0%9F%91%A8%E2%80%8D%F0%9F%92%BB-91338715b/>



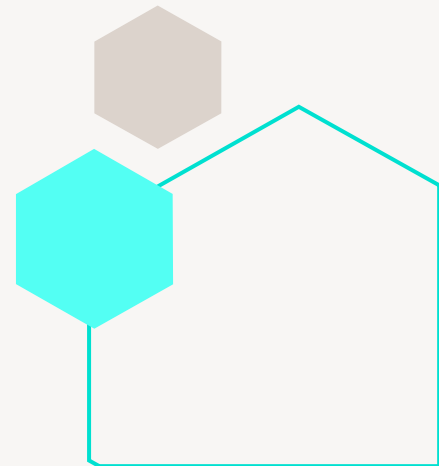
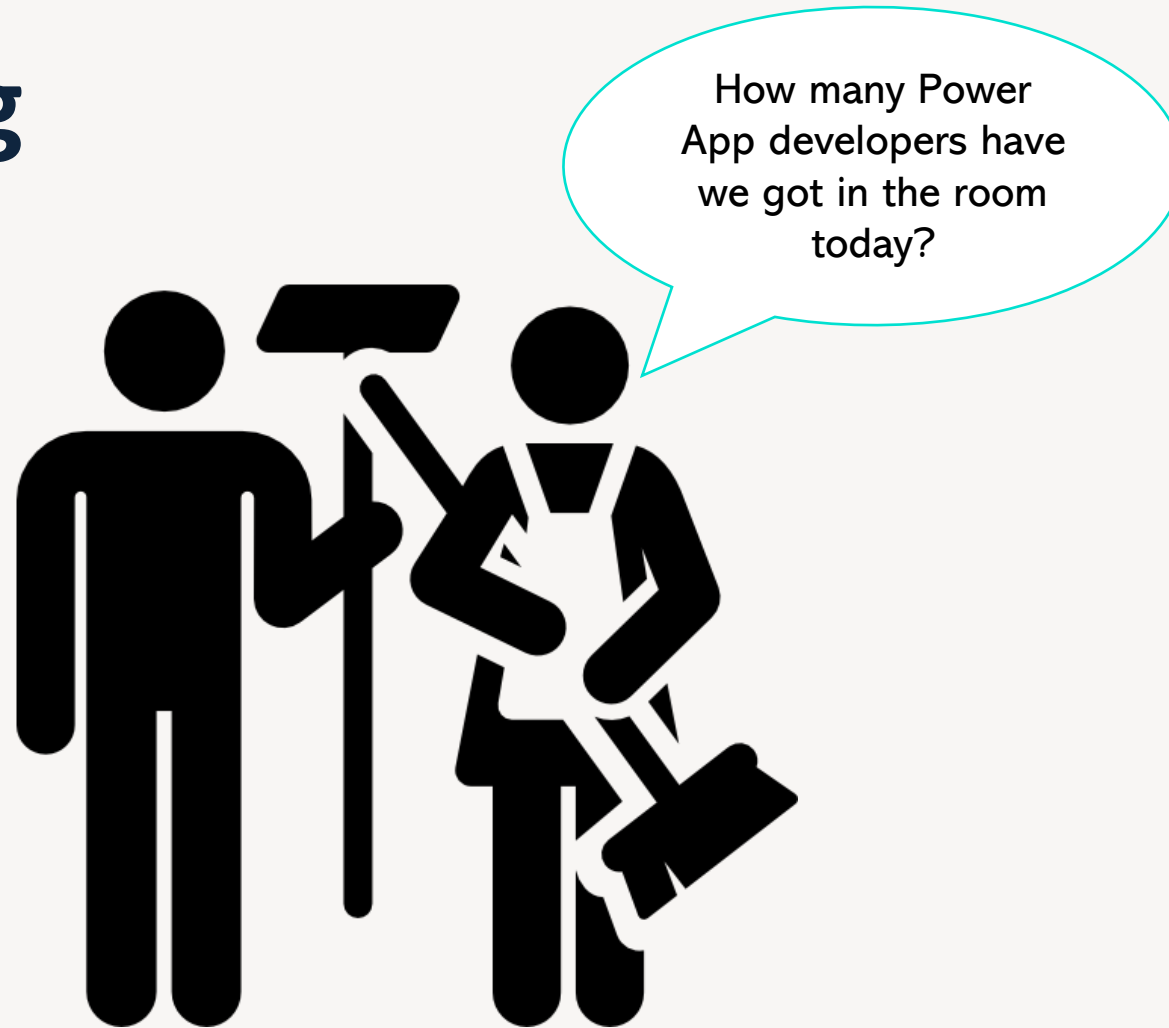
Alex Baker-Wong

Cloud Solution and Power Platform Architect at Akari Solutions Ltd

<https://www.linkedin.com/in/alexandrebaaker/>



House Keeping



A large cyan hexagon is the central focus, surrounded by four smaller hexagons: a blue one at the top right, a light cyan one at the bottom center, and two white ones with dark outlines at the bottom left and top left.

Why should I care?

Accessibility and Inclusion



More than 1 billion (15%)
people around the world live
with a disability.



28% of the world's
population have vision
impairment



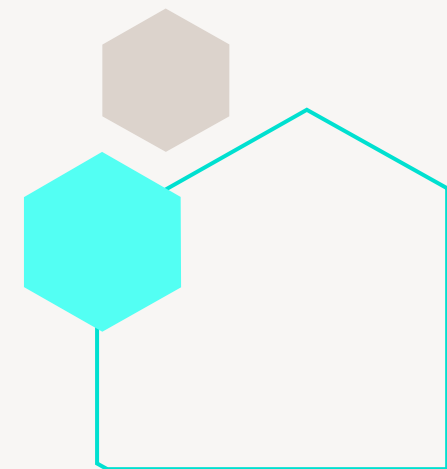
2% of the world's
population have autism



10% of the world's
population have
dyslexia




4% of the UK's adult
population have ADHD



Vision Field Loss

- facilitating development or evaluation and repair tools for a
- conducting education and outreach
- coordinating with research and development that can affect

How WAI is Organized

WAI is one of four Domains within the W3C, with two [Activities](#)  a

1. [WAI Technical Activity](#)
 - [Protocols and Formats Working Group \(PFWG\)](#)
 - [Web Content Accessibility Guidelines Working Group \(WCAG WG\)](#)
 - [Authoring Tool Accessibility Guidelines Working Group \(ATAG WG\)](#)
 - [User Agent Accessibility Guidelines Working Group \(UAAG WG\)](#)
 - [Evaluation and Repair Tools Working Group \(ERT WG\)](#)
2. [WAI International Program Office](#)
 - [Education and Outreach Working Group \(EOWG\)](#)

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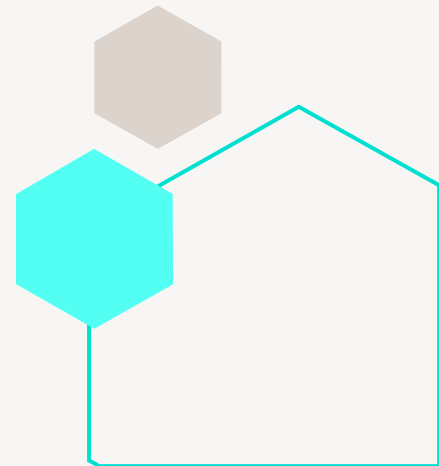
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How WAI is Organized

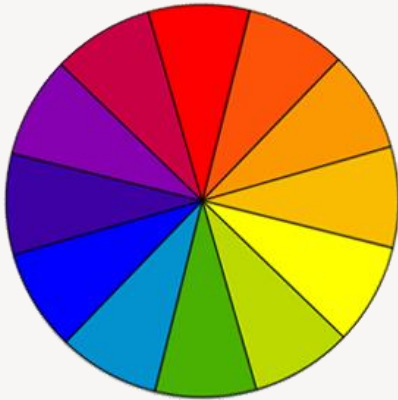
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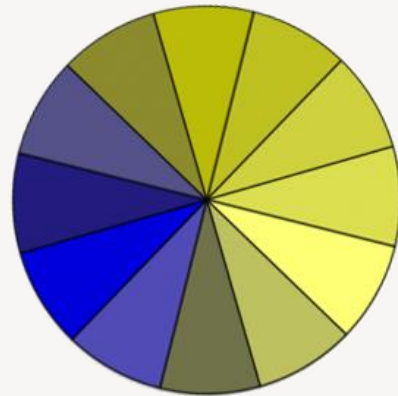


Colour Blindness

1 in 12 men (8%) and **1 in 200 women** are affected by colour blindness



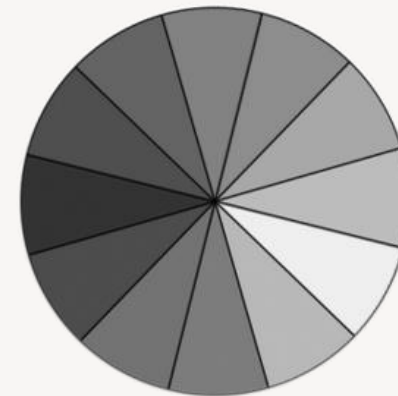
Full colour
spectrum



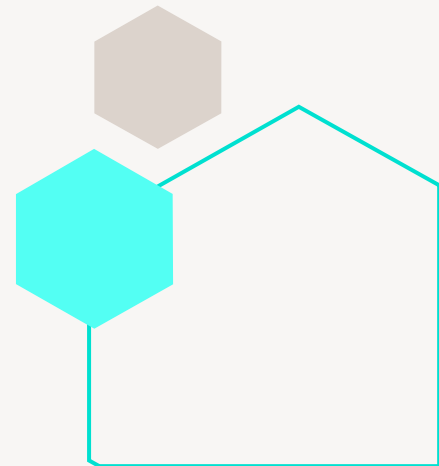
Red-green
colour blindness
(Deuteranopia)



Blue-yellow
colour blindness
(Tritanopia)



No colour
perception
(Achromatopsia)



Colour Blindness

Example Contrast

Overview

"Accessibility Requirements for People with Low Vision" describes what people with low vision need for electronic content, tools, and technologies to be accessible.

Sub-Point

"Accessibility Requirements for People with Low Vision" describes what people with low vision need for electronic content, tools, and technologies to be accessible.

Example Contrast

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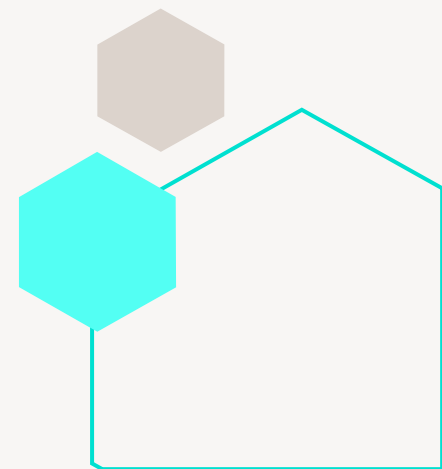
Example Contrast

Overview

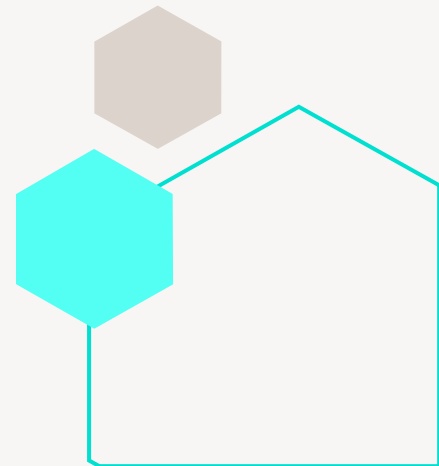
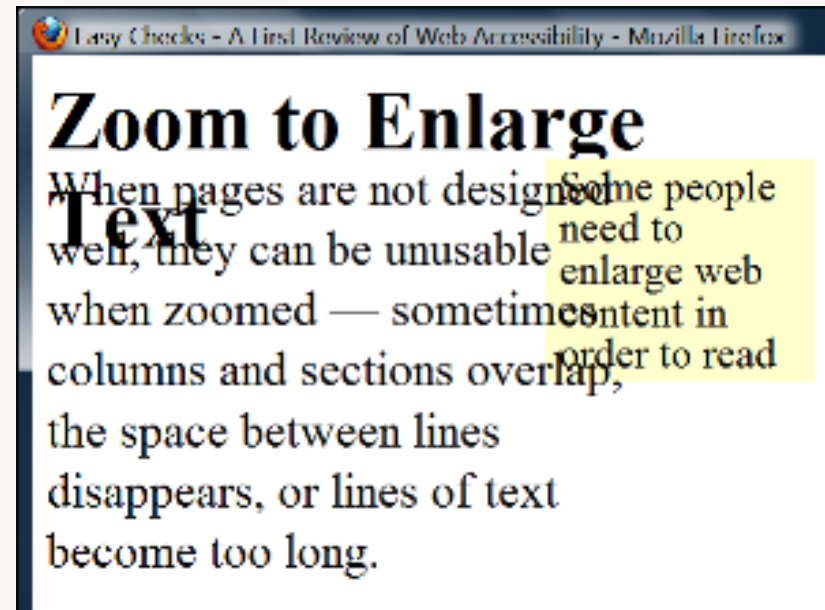
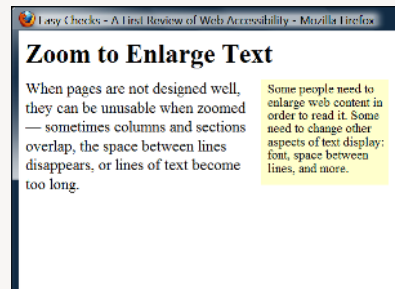
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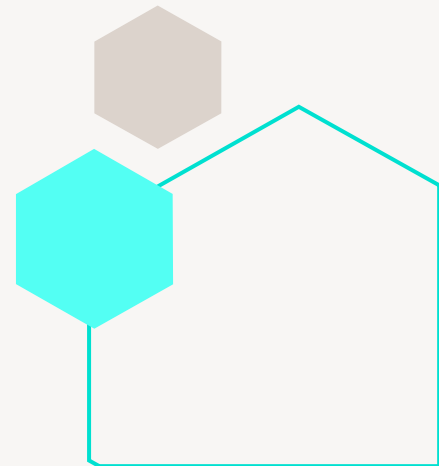
Vision Impairment

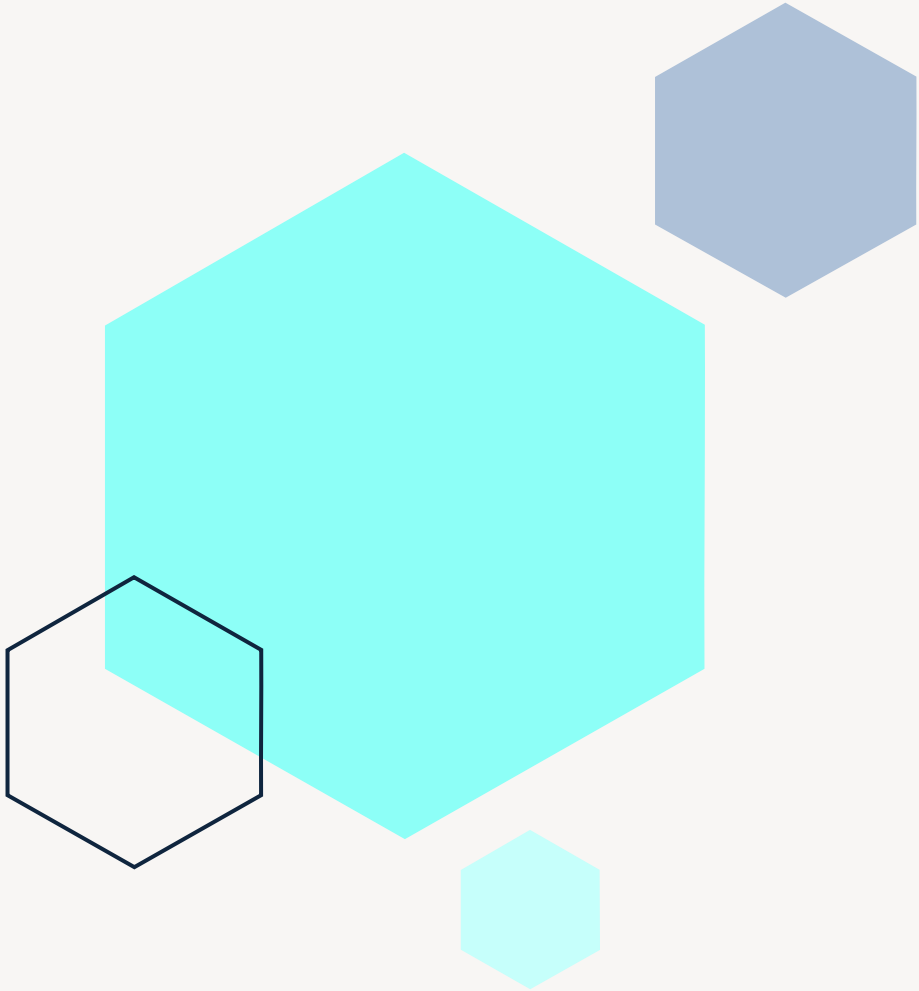


ADHD, Dyslexia & Autism



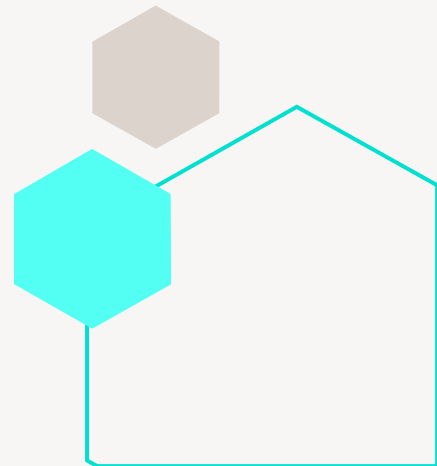
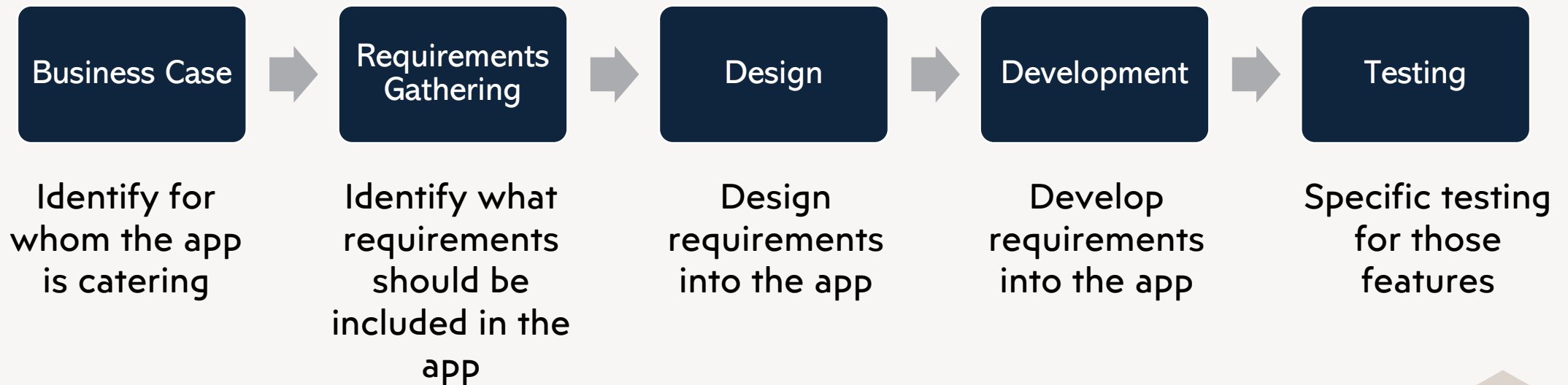
Mobility





What can I do?

When to take accessibility into account?



A large cyan hexagon is the central focus, surrounded by four smaller hexagons: a blue one at the top right, a light cyan one at the bottom center, and two white ones with black outlines at the bottom left and top left.

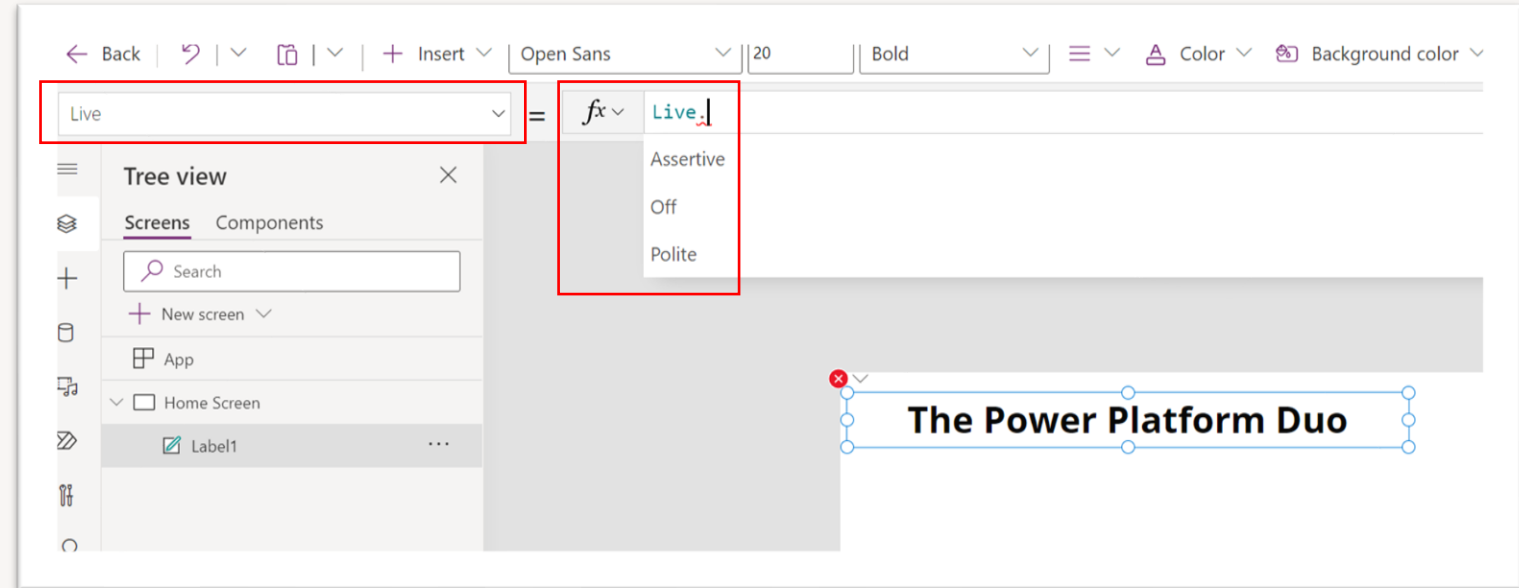
**How can I build
accessible apps?**

PowerApps – Accessibility Feature:

Live?

How screen readers should announce changes to content.
Only applicable to label control.

- Off, the screen reader doesn't announce changes.
- Polite, the screen reader finishes speaking before announcing any changes that occurred while the screen reader was speaking.
- Assertive, the screen reader interrupts itself to announce any changes that occurred while the screen reader was speaking.

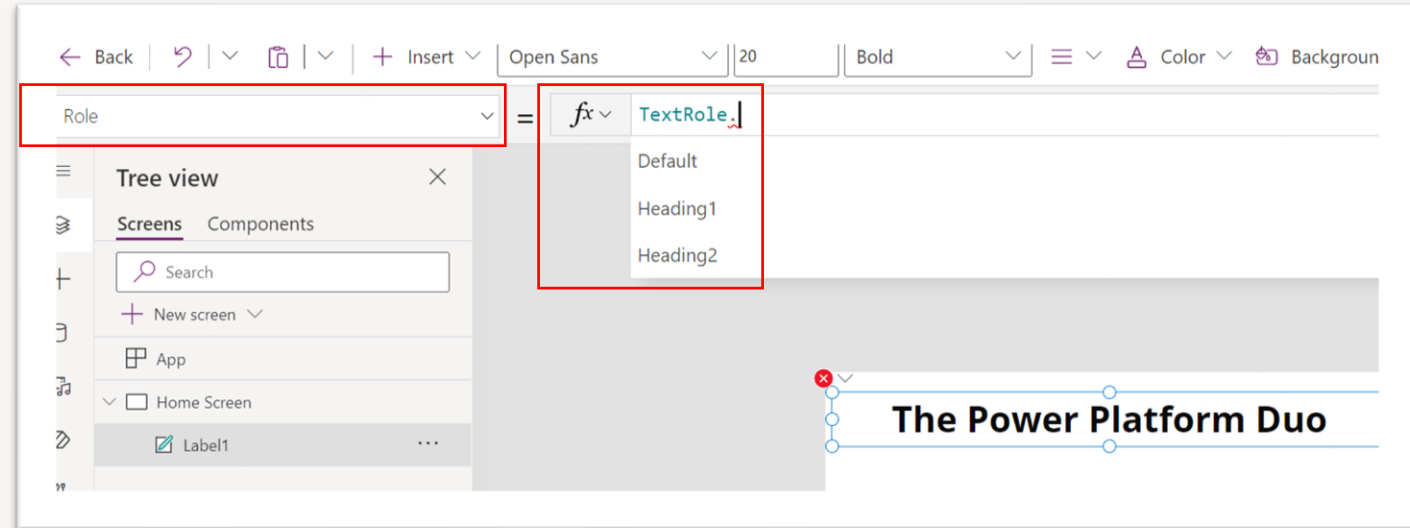


PowerApps – Accessibility Feature:

Role?

Tell users the intended purpose.
Only applicable to label control.

- Let a screen reader users know whether a Label is a heading and allows them to navigate quickly to different parts of the app.
- There should be one Heading1 in each screen.
- Use Heading2 for subheadings.

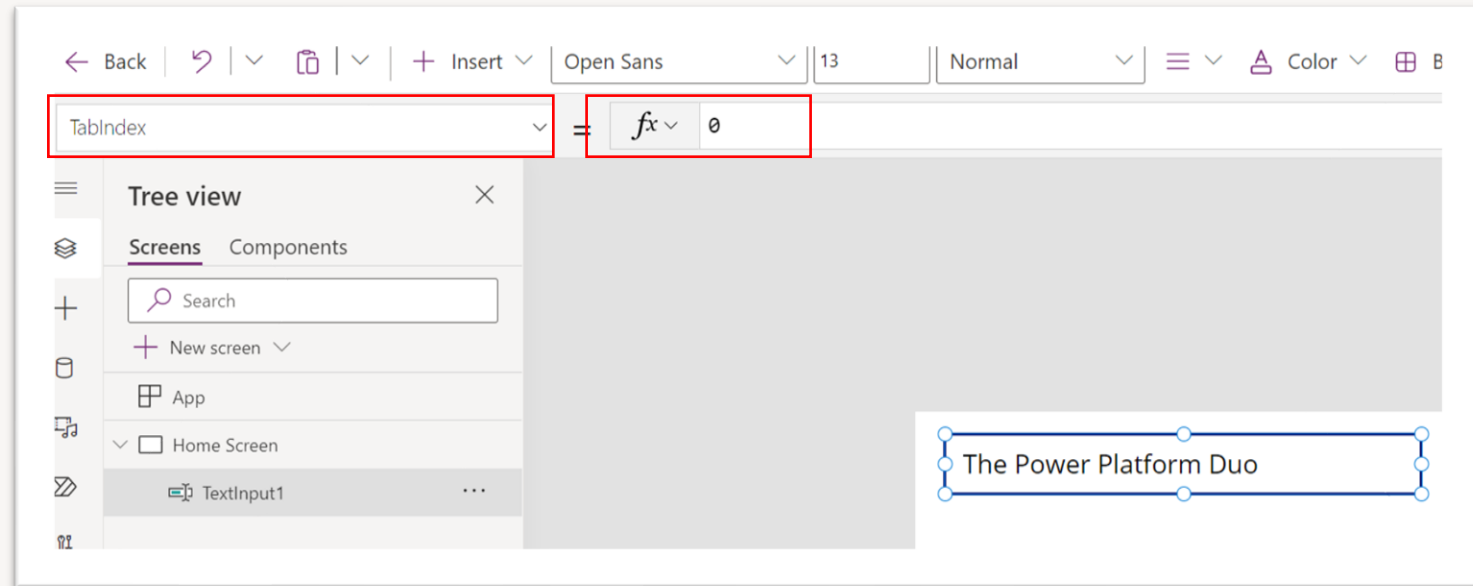


PowerApps – Accessibility Feature:

TabIndex

Determines if the control participates in keyboard navigation.

- When TabIndex of all controls are set to either -1 or 0. 0 means the control participates in keyboard navigation.
- Navigation order goes from left-to-right, then top-to-bottom, in a "Z" pattern.
- The order is based on the X and Y property values of the controls.

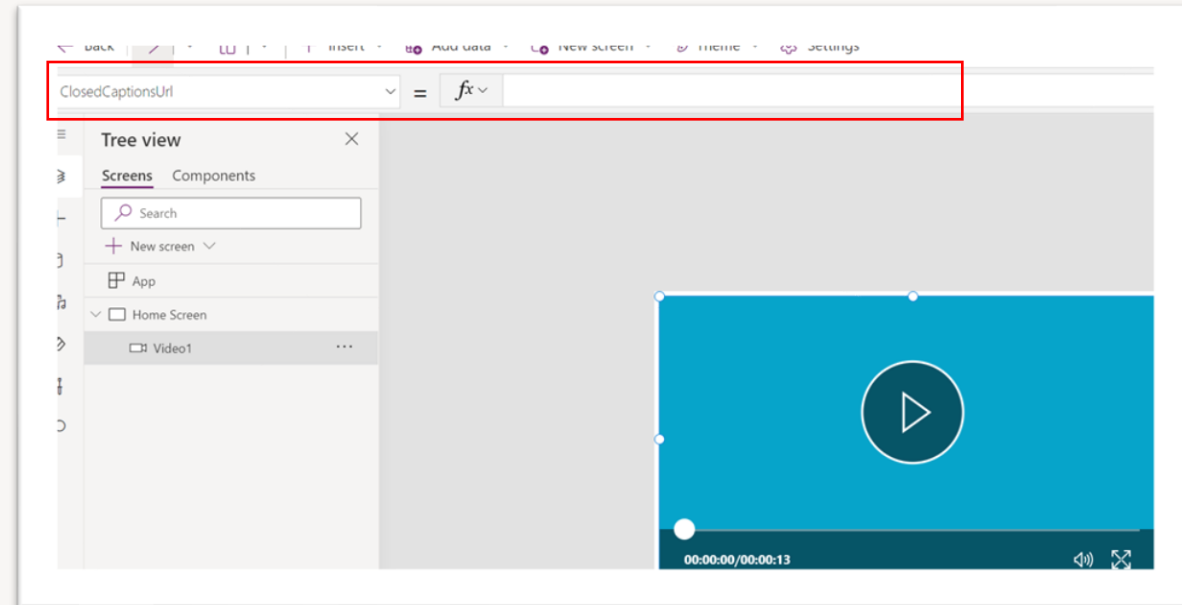


PowerApps – Accessibility Feature:

Videos in PowerApps:

When adding videos in PowerApps, ensure all videos are **captioned** and a **transcript** of all audio recordings is available to the user.

- You can add closed captions in WebVTT format in ClosedCaptionsURL.
- Add a description in the accessibility label property to describe the video content.

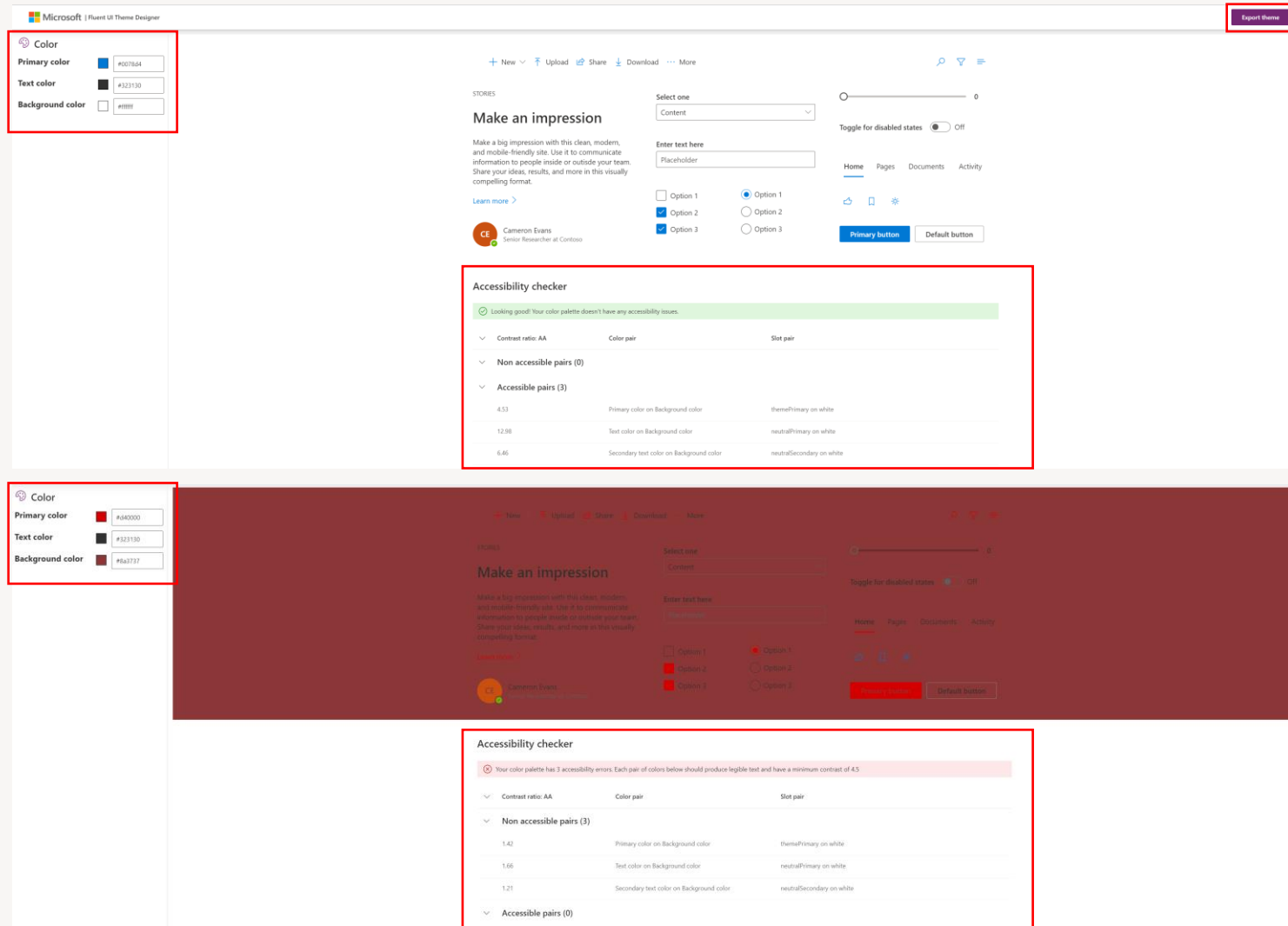


PowerApps – Accessibility Feature:

Colour / Creator Kit

The Creator Kit helps you create Power Apps experiences with easy-to-use sample controls and components.

- The kit contains a component library, several commonly used Power Apps component framework controls, and other utilities that increase developer productivity.
- The kit has a Theme Designer to check whether the colour theme is accessible.



Microsoft | Fluent UI Theme Designer Export theme

Color

Primary color: #0070C0
Text color: #323130
Background color: #FFFFFF

Accessibility checker

Looking good! Your color palette doesn't have any accessibility issues.

Contrast ratio: AA	Color pair	Slot pair
Non accessible pairs (0)		
Accessible pairs (3)		
4.53	Primary color on Background color	themePrimary on white
12.98	Text color on Background color	neutralPrimary on white
6.46	Secondary text color on Background color	neutralSecondary on white

Color

Primary color: #A40000
Text color: #323130
Background color: #5A0737

Accessibility checker

Your color palette has 3 accessibility errors. Each pair of colors below should produce legible text and have a minimum contrast of 4.5

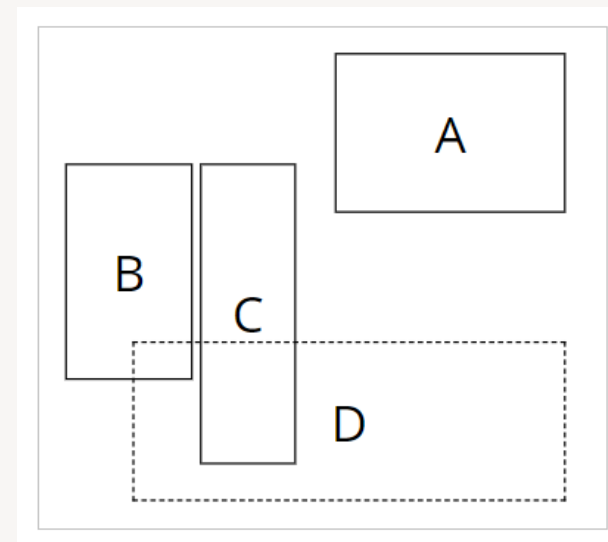
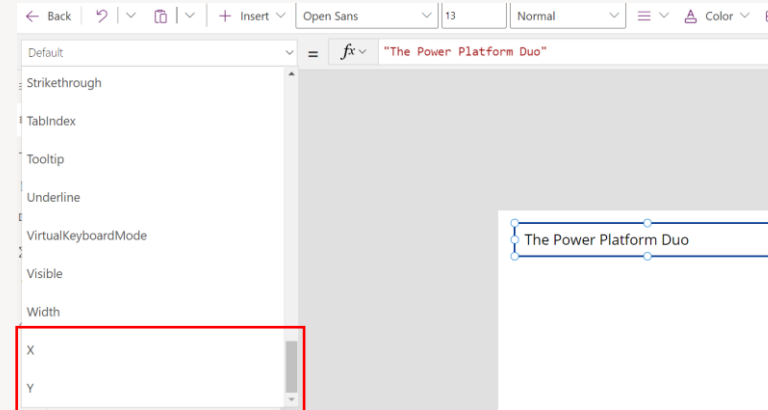
Contrast ratio: AA	Color pair	Slot pair
Non accessible pairs (3)		
1.42	Primary color on Background color	themePrimary on white
1.66	Text color on Background color	neutralPrimary on white
1.21	Secondary text color on Background color	neutralSecondary on white
Accessible pairs (0)		

PowerApps – Accessibility Feature:

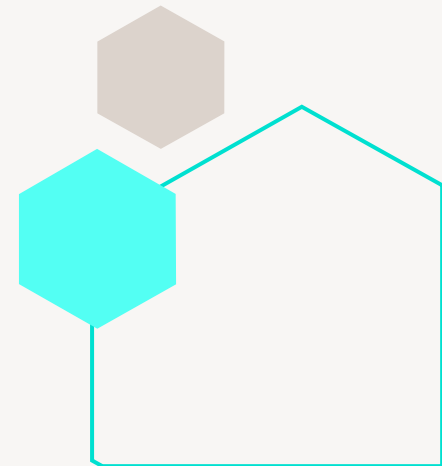
Logical Control Order

Screen reader users can navigate content sequentially. The order is determined by the position of controls, starting from top to bottom, then left to right. The size of the control doesn't matter, only its X and Y properties matter.

- In this example, A appears first in the sequence since it's closest to the top.
- B and C have the same vertical position, but since B is closer to the left, and hence, it appears before C.
- D appears last since it's furthest from the top.



Note: Control order is not the same as that shown in the tree view of controls in Power Apps Studio. Tree view sorts controls according to the Z order.



PowerApps – Accessibility Feature:

Grouped Controls

The default order is suitable for isolated content but not for grouped content.

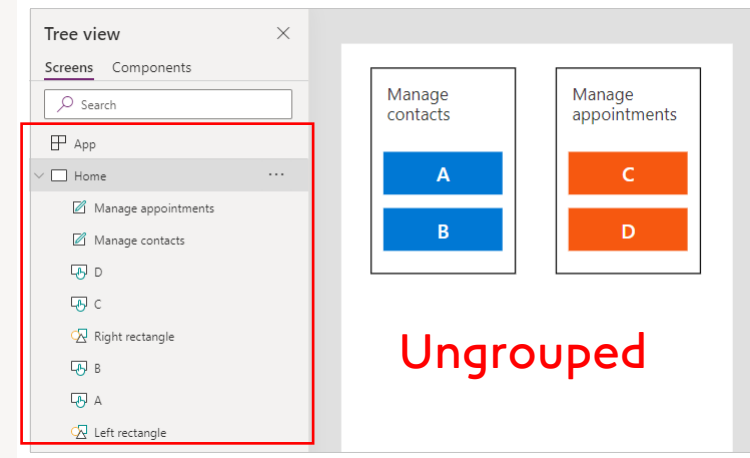
The default order goes from top to bottom, then left to right. Which would mean the order of the controls is:

Left Rectangle, Right Rectangle, Left heading, Right heading, A, C, B, D

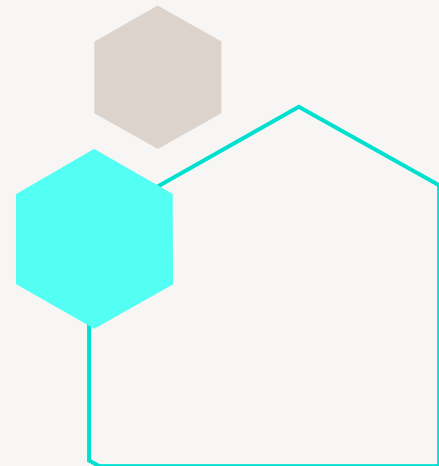
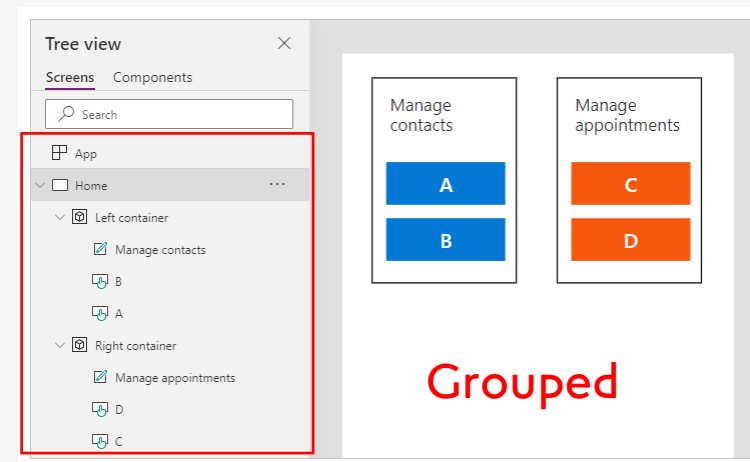
Use **Containers** to group related content. All controls in a Container will appear together in sequence.

The control order is now logical for screen reader users:

Left Container, Left heading, A, B, Right Container, Right heading, C, D



VS



PowerApps – Accessibility limitations:

Dialogs and Overlays

Dialogs and user interfaces that appear on top of other content are not supported.

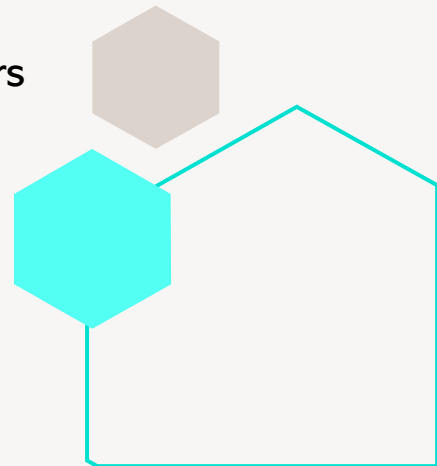
Custom Tables

The only built-in control that supports two-dimensional data is the Data Table. **Avoid using Galleries to present data in rows and columns.** Rows and columns must be annotated so that a screen reader user can understand their structure and navigate cells.

Scrollable Content

Keyboard users can't scroll Forms, Scrollable screens, and Containers if there are no interactive controls inside them.

For Galleries with no interactive content, you can set TabIndex on the Gallery itself so that keyboard users can focus on it and use arrow keys to scroll it.



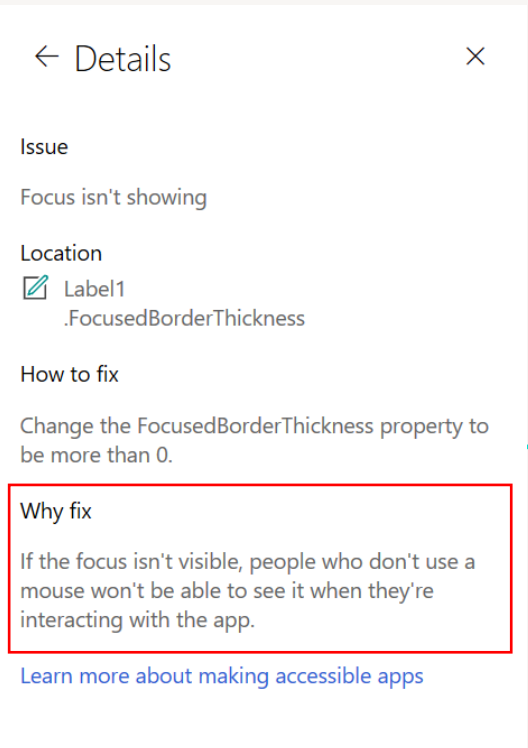
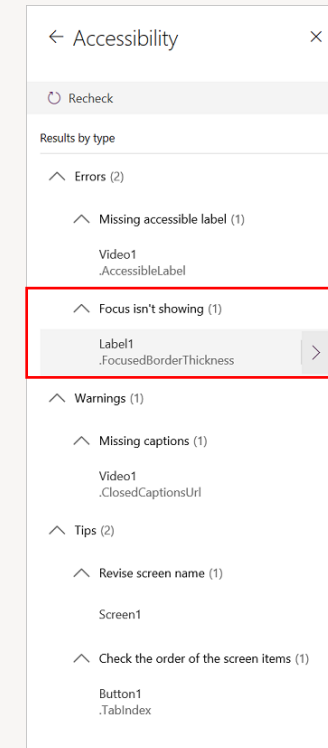
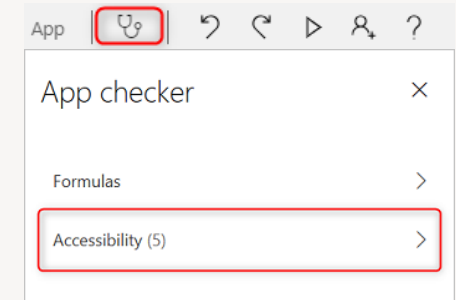
PowerApps – Accessibility Checker:

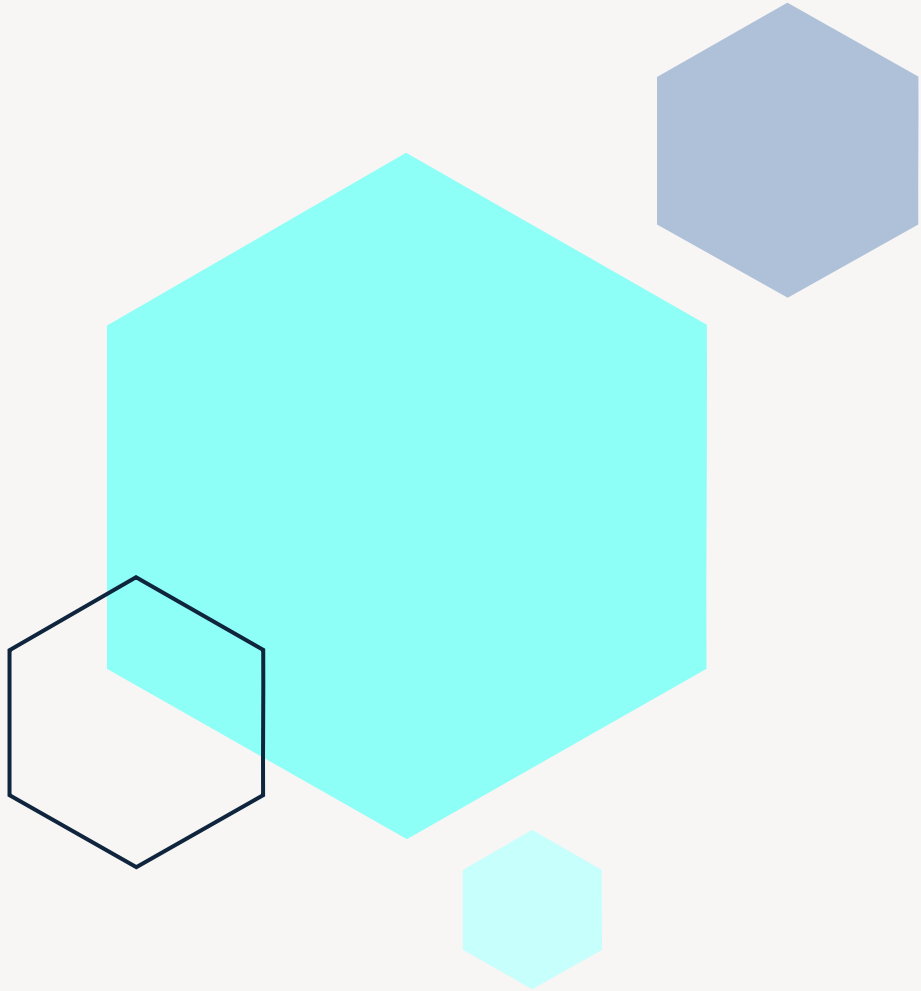
Accessibility Checker (screen names, accessibility label, focus border, tabindex)

Accessibility checker finds potential accessibility issues but also explains why each might be a potential problem for users who have a specific disability and offers suggestions on how to resolve each issue. The Accessibility checker detects screen-reader and keyboard issues for you, and you can find information about how to fix color-contrast issues by using accessible colors.

The Accessibility checker classifies each issue as an error, a warning, or a tip based on the issue's severity.

- Errors identify issues that make the app difficult or impossible to use and understand for users who have a disability.
- Warnings identify issues that make the app difficult to use or understand for most but not all users who have a disability.
- Tips help you improve the experience of users who have a disability.





What have we learnt?

PowerApps – User Feedback:

Use Notify

“Thanks for the pointer on Notify. I added that to a test app and by and large it works well. It is in some ways better than live because the text sticks around longer.”

Meaningful Screen Names

When a screen is loaded, screen readers will say its name – pick a meaningful name.

Avoid Complexity

“Do not add too many controls to a screen.”

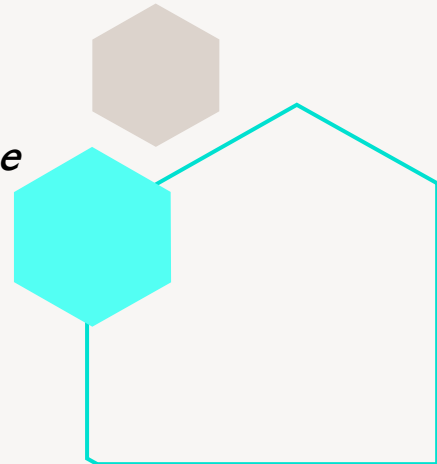
Include Accessibility in your test cases

“Test with users and build in time for feedback.”

Connect with an accessibility expert

“The enterprise Disability Answer Desk is a support resource for organizations that have questions about the accessibility of Microsoft products and product conformance with accessibility standards.”

<https://support.microsoft.com/en-us/accessibility/enterprise-answer-desk>



PowerApps – Colour Themes:

Add New Account

* ServiceNow Ticket No

* Preferred First Name

* Preferred Last Name

* Location
Select Location

* Department
Select Department

Workday EmployeeID

* Email Domain
Select Domain

Notes

* Requested By
Select Requested By

Preferred Middle Name

Preferred Second Last Name

* Employee Type
Select Employee Type

* Job Title
Select Job Title

Existing User To Copy Groups From
Select User

Company Mobile User
☒ Yes

Preferred Last Name Prefix

* Manager
Select Manager

* Start Date
11/10/2022

Groups
Select Groups

Personal Email Address ☒ Show

User Settings

Theme
Default

Add New Account

* Requested By
Select Requested By

Preferred Middle Name

Preferred Second Last Name

* Employee Type
Select Employee Type

* Job Title
Select Job Title

Workday EmployeeID

* Email Domain
Select Domain

Notes

Existing User To Copy Groups From
Select User

Company Mobile User
☒ Yes

Preferred Last Name Prefix

* Manager
Select Manager

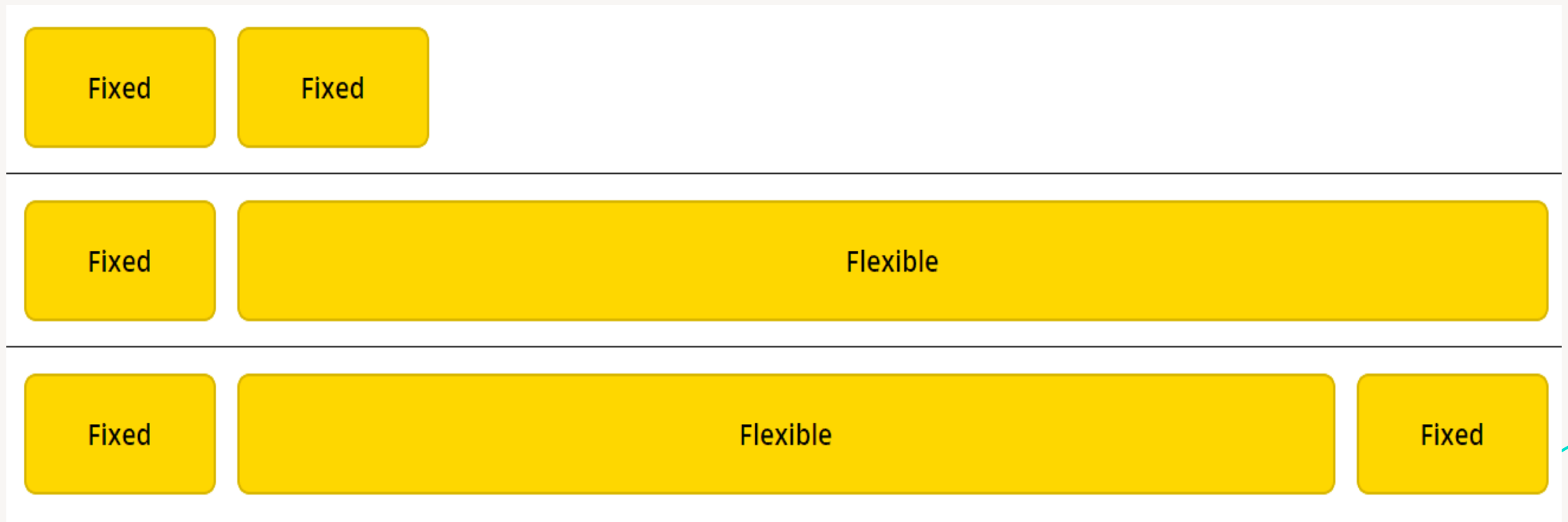
* Start Date
11/10/2022

Groups
Select Groups

Personal Email Address ☒ Show

Add

PowerApps – Responsive Layout:



Key Takeaways

The Accessibility
and Inclusion into
account right from
the beginning

Just because you
cannot see it does
not mean it is not
there

Try out the
different features
and use the
accessibility tools

Key design elements:

Don't make text
size too small
(avoid below 12px)

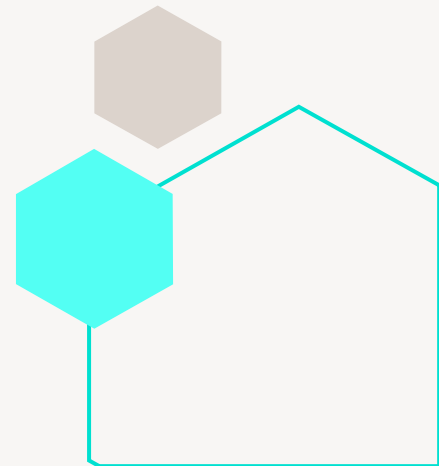
Pick accessible
colours (tip: use
company /
marketing colours)

Keep the page
simple. Not too
many items on a
screen.

User navigation -
left to right, top to
bottom

Ensure accessible
attributes are
completed

Ensure embedded
content is also
accessible and
inclusive



Get Involved



How many of you
have learnt
something today?

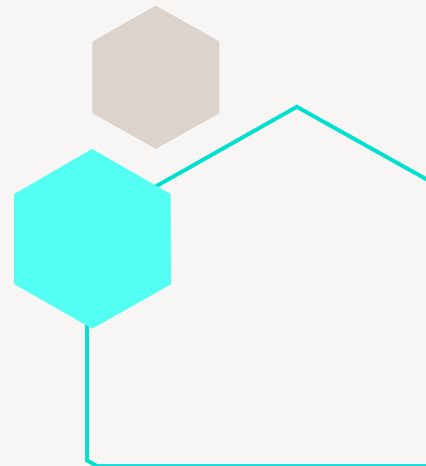
We will stick around
for questions. Come
speak to us and
please provide
feedback on the
session.

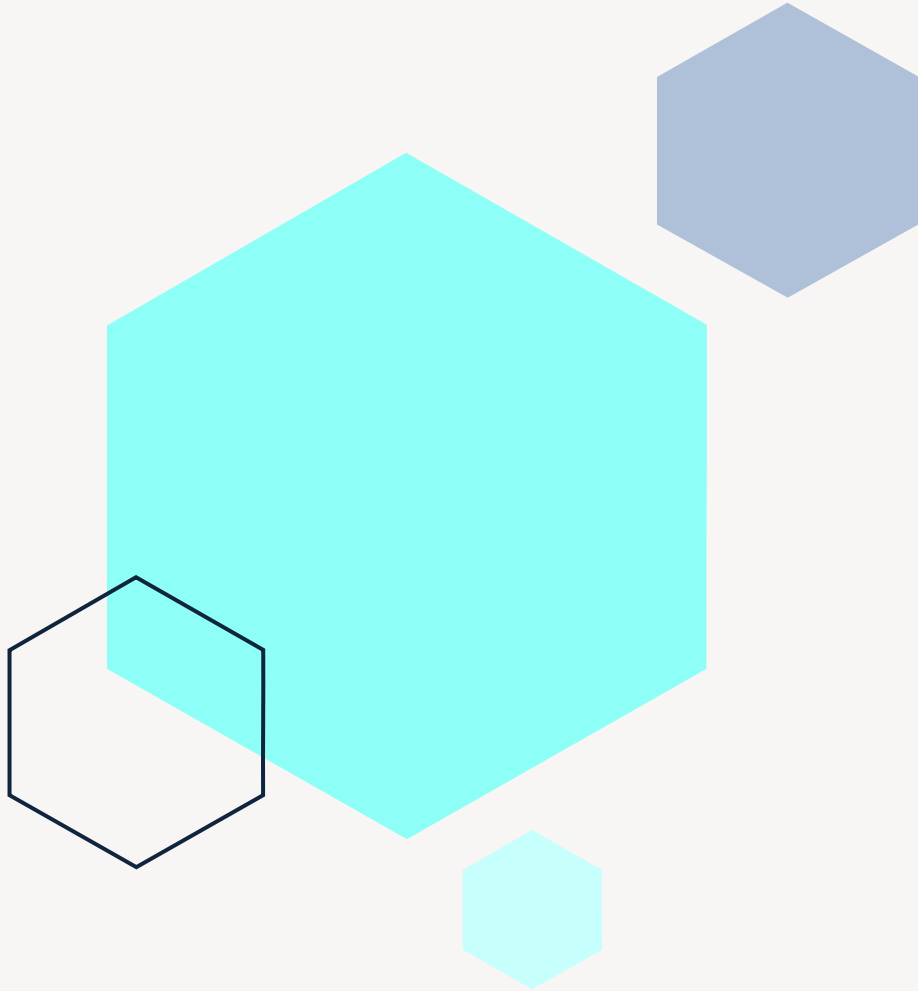
Go to the
Accessibility
Stand

Visit in the Microsoft
Community Zone Today till
4 pm

HOW TO SET
UP YOUR
OWN
ACCESSIBILITY
PROGRAM

Follow Power
Platform Duo





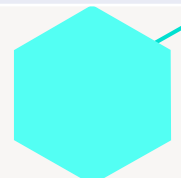
Appendix

PowerApps – Accessibility Issue Types:

Issue Title	Severity	Issue Description	How to fix	Why fix
Missing accessible label	Error	When the accessible-label property of an interactive control contains no text. An interactive control can be inherently interactive, as a button is, or it has interactive properties. For example, you might have set the OnSelect property of an image or set its TabIndex property to 0 or higher.	Edit the accessible-label property to describe the item.	If the accessible-label property contains no text, people who can't see the screen won't understand what's in images and controls.
Focus isn't showing	Error	When the FocusBorderThickness of a control is set to 0. It is good practice to ensure a proper color-contrast ratio between the focus border and the control itself so it's clearly visible.	Change the FocusedBorderThickness property to a value that's higher than 0.	If the focus isn't visible, people who don't use a mouse can't see it when they interact with the app.
Missing captions	Warning	When the ClosedCaptionsURL property of an Audio or Video control is empty.	Set the ClosedCaptionsURL property to the URL for captions.	Without captions, people who have disabilities might not get any information from a video or audio segment.
Missing helpful control settings	Warning	When any of several settings (such as showing labels and markers for charts and showing default controls for Audio , Video , and Pen input controls) are turned off.	Select the warning, and then set the property to true .	By changing this property setting, you give the user better information about how the controls in your app function.

PowerApps – Accessibility Issue Types:

Issue Title	Severity	Issue Description	How to fix	Why fix
HTML won't be accessible	Warning	When a control other than an HTML text control contains HTML. In that case, Power Apps doesn't support accessibility of custom HTML elements.	Use a method other than HTML, or remove the HTML from this element.	Your app won't work correctly or be accessible if you add interactive HTML elements.
Turn off autostart	Warning	When an Audio or Video control's Autostart property is set to true .	Set the control's Autostart property to false .	Video and audio files that play automatically can distract users. Let them choose whether to play a clip.
Revise screen name	Tip	When a screen has a default name, which will be read out by screen readers when users navigate the app.	Give the screen a name that describes what's on the screen or what it's used for.	People who are blind, have low vision, or a reading disability rely on screen names to navigate using the screen reader.
Add State indication text	Tip	When a control that has a state, such as a toggle, but the value labels are turned off.	Set the ShowValue property of the control to true to show its current state.	Users won't get confirmation of their actions if the state of the control doesn't appear.



PowerApps – Accessibility Issue Types:

Issue Title	Severity	Issue Description	How to fix	Why fix
Check the order of the screen items	Tip	When the TabIndex property is greater than 0. App creators can set custom tab orders by setting the TabIndex property to a value greater than 0 but it is highly discouraged as it is hard to get right, maintain, and can break screen readers.	Set all TabIndex properties to 0 or -1 whenever possible. Instead of using TabIndex , use the Enhanced group control to change the navigation order from the default. If values of TabIndex greater than 0 must be used, make sure that your screen elements match the order in which you'd want to tab through them.	The navigation order should mirror the order in which controls appear on the screen, which is the default. If manual adjustments are made, it is difficult to maintain the correct order especially in the presence of the browser's address bar and other controls outside of the app. This can make a screen reader very difficult to use. When read by the screen reader, the controls should be presented in the same order in which they are seen on the screen, instead of an order that's less intuitive.
Add another input method	Tip	When an app contains a Pen control. This tip reminds you to include a separate method of input.	Add a Text input control in addition to the Pen control for an accessible experience.	Some users can't use a pen and require another way to provide information (for example, by typing a signature).

