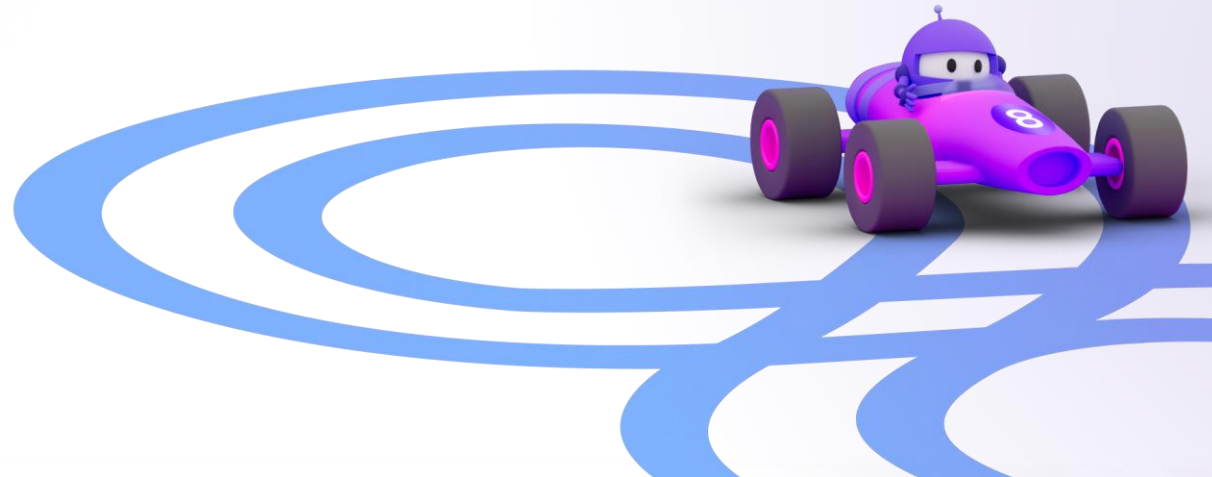


The Journey to Accessible Apps

Rachel Kang (she/her)
Product Manager, .NET MAUI
MAUI Hack Day















The Journey to **Accessible** Apps

What does it mean to be accessible?
Why should you care?



Over 1 billion people
currently experience
some form of disability

	Permanent	Temporary	Situational
Touch			
	One arm	Arm injury	New parent
See			
	Blind	Cataract	Distracted driver
Hear			
	Deaf	Ear infection	Bartender
Speak			
	Non-verbal	Laryngitis	Heavy accent

The Persona Spectrum

We use the Persona Spectrum to understand related mismatches and motivations across a spectrum of permanent, temporary, and situational scenarios. It's a quick tool to help foster empathy and to show how a solution scales to a broader audience.

<https://inclusive.microsoft.design/tools-and-activities/Inclusive101Guidebook.pdf>

**Designing for accessibility is not limited
to people experiencing disabilities**

**The best solutions
benefit everyone**



22:06



Leave



Serena Davis



Aadil Kapoor



Charlotte de Crum



Beth Davies



Babak Shammass

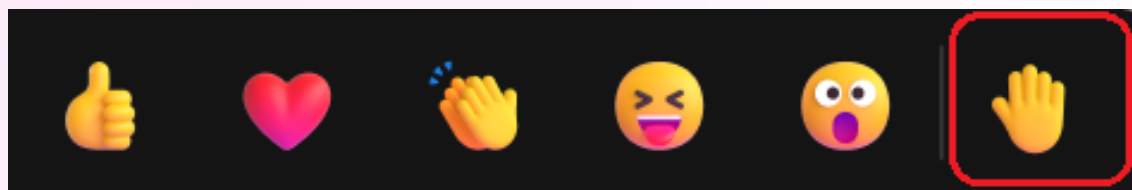


Hilary Reyes



Babak Shammass:

So what did you all think of today's kickoff meeting for the new building project?




Participants



Invite someone or dial a number



 Share invite

▼ In this meeting (3)



Aadi Kapoor

1 



Aaron Buxter

2 



Daniela Mandra
Organizer



▼ Others invited (14)



Babak Shammass
Accepted



Beth Davies
Accepted



Bruno Zhao
Tentative



August Bergmaa
Tentative

Personalization

Background

Colors

Lock screen

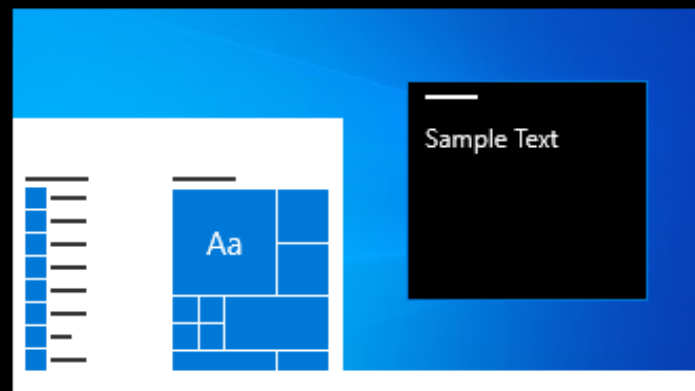
Themes

Fonts

Start

Taskbar

Colors



Choose your color

Custom

Choose your default Windows mode

☒ Light

☐ Dark

Choose your default app mode

☐ Light

☒ Dark

Related Settings

[High contrast settings](#)

[Sync your settings](#)

Help from the web

[Changing desktop or background colors](#)

[Changing taskbar color](#)

[Get help](#)

[Give feedback](#)



Huge business opportunity

**“disability touches 73% of consumers
and controls over \$13 trillion in
annual disposable income.”**

Growing number of legal consequences

POLITICS

Supreme Court hands victory to blind man who sued Domino's over site accessibility

PUBLISHED MON, OCT 7 2019-9:40 AM EDT | UPDA



Tucker Higgins

@IN/TUCKER-HIGGINS-5B162295/
@TUCKERHIGGINS

ON SMALL BUSINESS

U.S. Businesses Get Hit With Record Numbers of Disability Lawsuits

By Amy Yee | Bloomberg

April 14, 2022 at 5:03 p.m. EDT

FOOD // WINE, BEER & SPIRITS

50 Bay Area wineries got hit with disability lawsuits. The winemakers say they're 'predatory'



Esther Mobley

Mesnage v. Coles

In 2014, Gisele Mesnage, who is blind, [filed a lawsuit](#) against supermarket chain Coles for alleged accessibility barriers that prevented her from shopping on the company's website while using a screen reader. The case, which was ultimately settled out of court, was the first web accessibility lawsuit to reach the Federal Circuit Court.

In her complaint, Mesnage noted that changes to the website prevented her from selecting delivery times.

"I'm asking them to fix the website, I'm asking them to not repeat this cycle of upgrades and accessibility barriers that has been going on for the last six years," [Mesnage told ABC](#). "I don't want special consideration, just the same consideration of other customers."

Maguire v. Sydney Organising Committee for the Olympic Games

In 2020, Bruce Maguire, who is visually impaired, [filed a case](#) against the Sydney 2000 Olympics Organizing Committee (SOCOG) citing accessibility issues on the official Olympics Games website. Maguire noted that SOCOG's website did not include alternative text (or alt text) for many images, and the site failed to provide accessible tables with information about Olympic athletes.

SOCOG unsuccessfully argued that making the improvements would constitute an "unjustifiable hardship," estimating the costs of improvements at \$2.2 million AUD. However, the Australian Human Rights Commission ordered the committee to resolve the accessibility issues and ruled that Maguire could pursue compensation if the barriers were not addressed.

Maguire was ultimately rewarded \$20,000 AUD by the Human Rights and Equal Opportunities Commission.

The Journey to Accessible Apps

What makes our apps accessible?



Inclusive Design Principles

- Provide comparable experience
- Consider situation
- Be consistent
- Give control
- Offer choice
- Prioritize content
- Add value

<https://inclusivedesignprinciples.org>

Inclusive Design Principles

- Provide comparable experience → i.e. content for alternatives
- Consider situation → i.e. color contrast
- Be consistent → i.e. consistent design patterns
- Give control → i.e. allow zoom
- Offer choice → i.e. accessible alternatives
- Prioritize content → i.e. prioritizing tasks
- Add value → i.e. make task completion easier

Web Content Accessibility Guidelines

Web Content Accessibility Guidelines

1 – Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

- 1.1 - Text alternatives
- 1.2 - Time-based media
- 1.3 - Adaptable
- 1.4 - Distinguishable

2 – Operable

User interface components and navigation must be operable.

- 2.1 - Keyboard accessible
- 2.2 - Enough time
- 2.3 - Seizures and physical reactions
- 2.4 - Navigable
- 2.5 - Input modalities

3 – Understandable

Information and the operation of user interface must be understandable.

- 3.1 - Readable
- 3.2 - Predictable
- 3.3 - Input assistance

4 – Robust

Content must be robust enough that it can be interpreted by a wide variety of user agents, including assistive technologies.

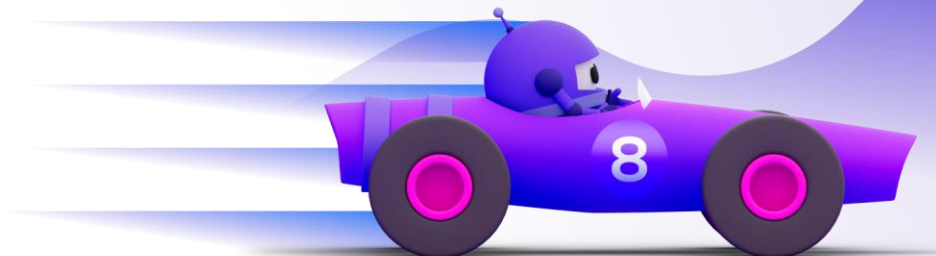
- 4.1 - Compatible

The Journey to Accessible Apps















How do we put these insights into practice?

How do you design and develop accessible apps?

How do you test apps for accessibility?

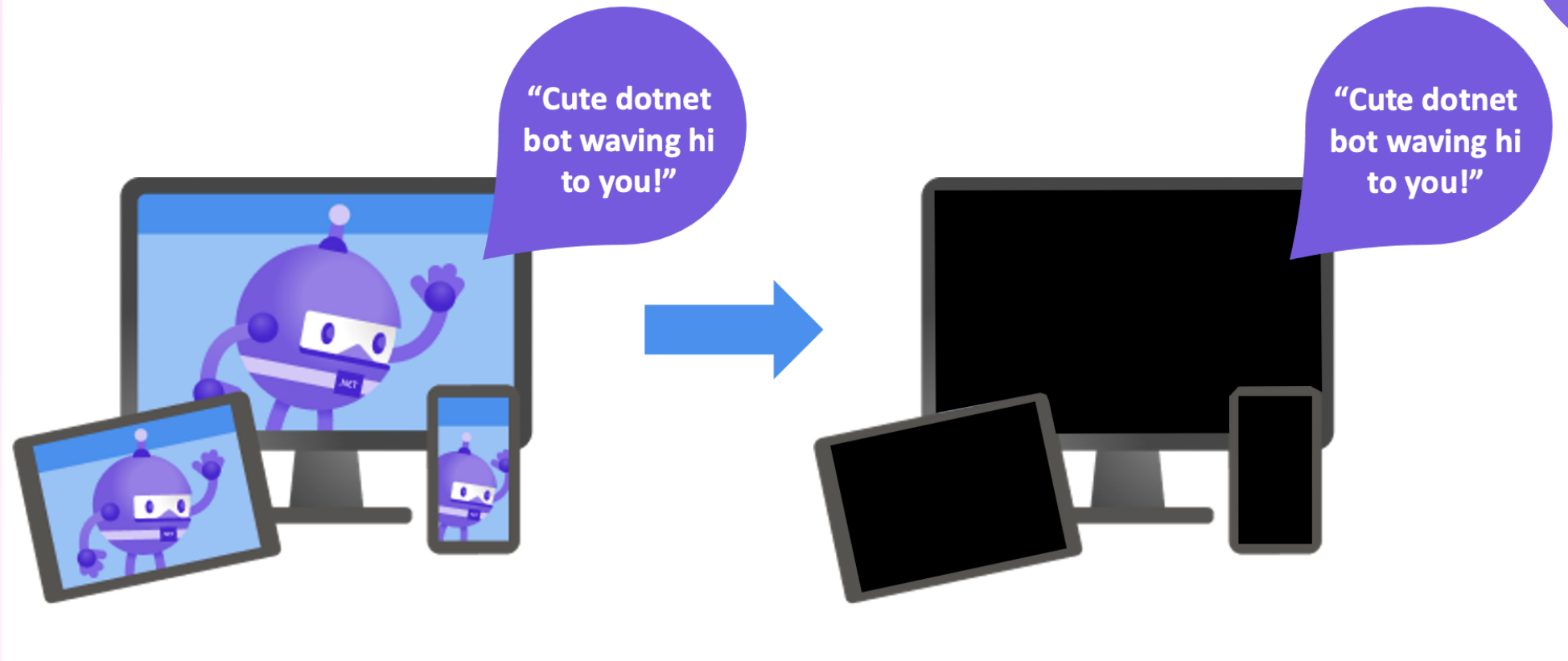


With .NET MAUI,
you'll be able to
create accessible
apps more
seamlessly than
ever before

<input type="checkbox"/>	 Fix SearchBar semantics ✓ area/a11y area/controls control-entry #7802 by rachelkang was merged on 8 Jun • Approved ↗ 6.0-sr2
<input type="checkbox"/>	 [Windows] Set WinUI picker description to title ✓ area/a11y area/controls control-picker platform/windows #6970 by rachelkang was merged on 9 May • Approved
<input type="checkbox"/>	 Only set AccessibilityTraits for heading when it matters ✓ area/a11y #6749 by PureWeen was merged on 2 May • Approved
<input type="checkbox"/>	 Tweak templates to fix accessibility bugs ✗ area/a11y area/templates #6322 by rachelkang was merged on 20 Apr • Approved ↗ 6.0.300
<input type="checkbox"/>	 Update template styles ✗ area/a11y area/templates area/Xaml </> #6312 by rachelkang was merged on 21 Apr • Approved ↗ 6.0.300-rc.3
<input type="checkbox"/>	 Remove interfering keyboard focus logic ✓ area/a11y area/controls area/shell control-entry #6246 by rachelkang was merged on 25 Apr • Approved ↗ 6.0.300-rc.3
<input type="checkbox"/>	 Create custom Automation Peer for MauiButton ✓ area/a11y area/controls control-button #6139 by PureWeen was merged on 18 Apr • Approved
<input type="checkbox"/>	 Respect UserAppTheme in RequestedTheme ✓ area/a11y t/bug #5071 by mattleibow was merged on 6 Mar • Approved ↗ 6.0.300-previe...
<input type="checkbox"/>	 Windows FlowDirection ✓ area/a11y #4936 by PureWeen was merged on 1 Mar • Approved ↗ 18 tasks ↗ 6.0.300-previe...
<input type="checkbox"/>	 [iOS] Implement IsFocused property and Focus(), Unfocus() methods ✓ area/a11y platform/iOS #4588 by jsuarezruiz was merged on 17 Feb • Approved ↗ 1 of 2 tasks
<input type="checkbox"/>	 [Android] Implement IsFocused property and Focus(), Unfocus() methods ✓ area/a11y platform/android #4587 by jsuarezruiz was merged on 17 Feb • Approved ↗ 1 of 2 tasks
<input type="checkbox"/>	 [Windows] Implement IsFocused property and Focus(), Unfocus() methods ✓ area/a11y platform/windows #4562 by jsuarezruiz was merged on 19 Feb • Approved ↗ 1 of 2 tasks
<input type="checkbox"/>	 [Android] Fix SetSemanticFocus ✗ area/a11y platform/android #3993 by rachelkang was merged on 20 Jan • Approved ↗ 12 tasks
<input type="checkbox"/>	 Fix keyboard navigation with modal pages ✓ area/a11y #3631 by PureWeen was merged on 16 Dec 2021 • Approved ↗ 18 tasks

Semantic Properties

1



Semantic Properties



`SemanticProperties.Description`

`SemanticProperties.Hint`

`SemanticProperties.HeadingLevel`

```
<Image Source="logo.png"  
        SemanticProperties.Description=".NET logo" />
```

```
Image image = new Image { Source = "logo.png" }  
SemanticProperties.SetDescription(image, ".NET logo");
```

<https://docs.microsoft.com/dotnet/maui/fundamentals/accessibility>

Semantic Extensions

2

`SetSemanticFocus()`

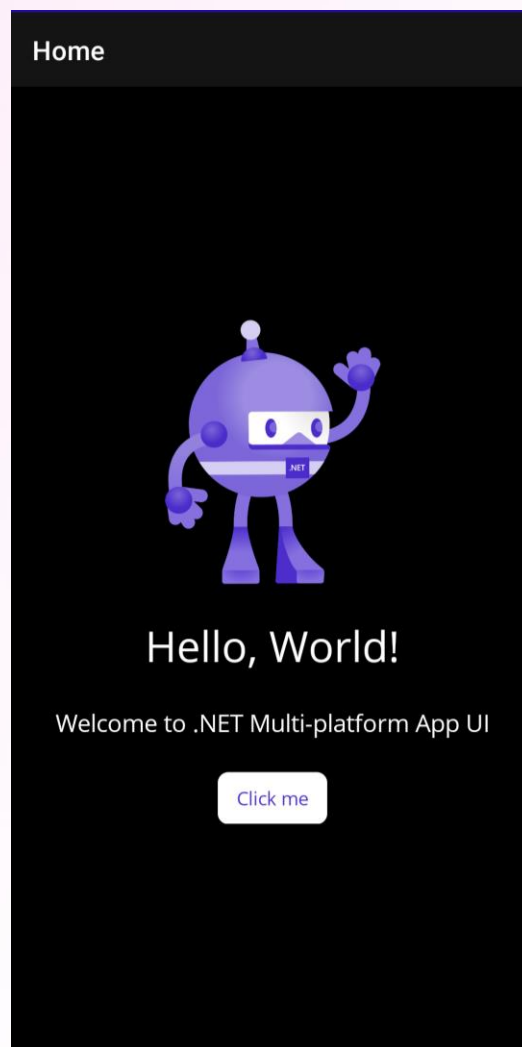
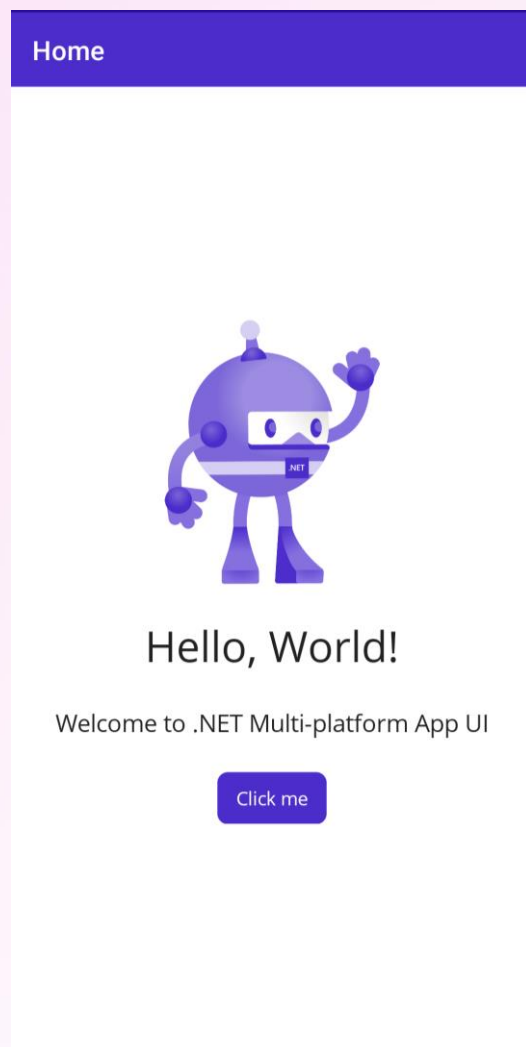
`Announce()`

```
Image image = new Image { Source = "logo.png" }  
image.SetSemanticFocus();
```

```
SemanticScreenReader.Announce("I am being announced!");
```

<https://docs.microsoft.com/dotnet/maui/fundamentals/accessibility>

App Theming

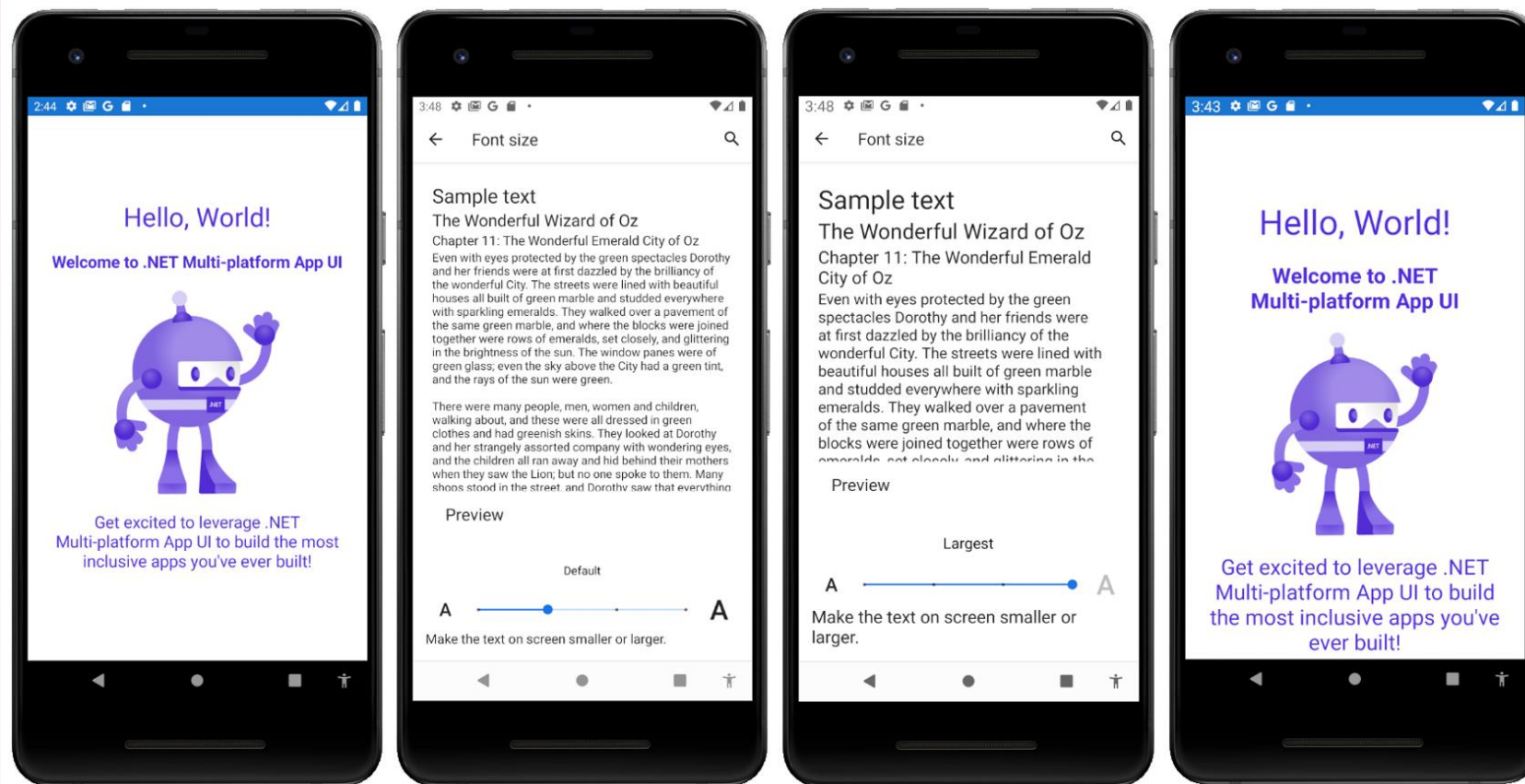


```
<Setter
    Property="BackgroundColor"
    Value="{AppThemeBinding
        Light={StaticResource White},
        Dark={StaticResource Black}}"
/>
```

Font Autoscaling

FontAutoScalingEnabled

4



Keyboard Accessibility

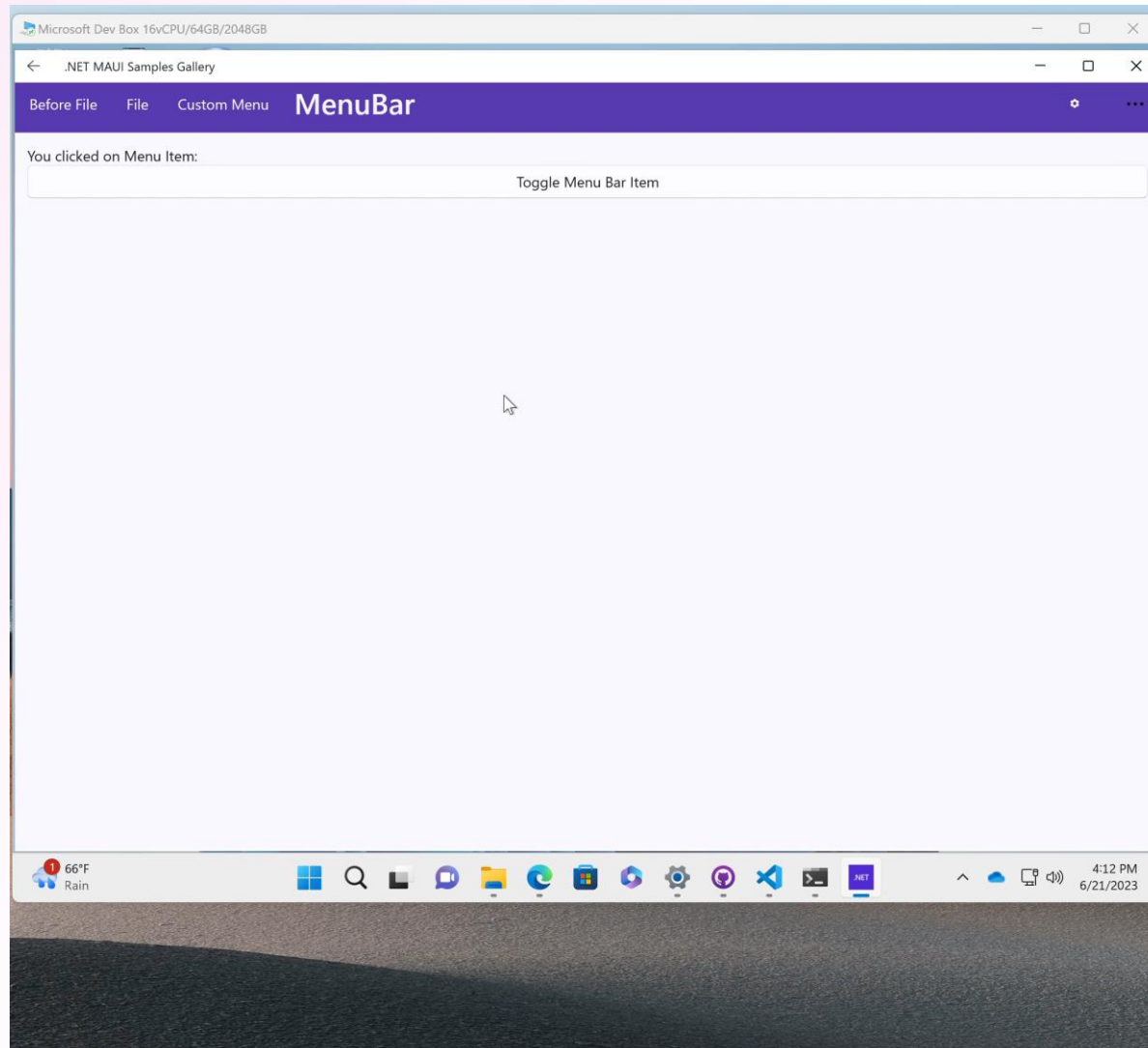


WCAG 2.1 – Keyboard Accessible:
Make all functionality available from a keyboard.

- Keyboard Focus
 - Some control must and will always have focus
- Keyboard Navigation
 - Controls must be keyboard navigable (tab, arrow keys)
- Keyboard Shortcuts
 - Keyboard accelerators enhance the keyboard experience

Keyboard Accessibility

5



The Journey to Accessible Apps

- **Empathy** is the name of the game
- Explore accessibility settings and features
 - Screen readers
 - VoiceOver (iOS, Mac); TalkBack (Android); Narrator (Windows)
 - NVDA, JAWS (third party Windows)
 - Input modalities
 - Keyboard, Pointer, Touch, Voice, Eye gaze, etc.
- Research accessibility models and APIs
 - .NET MAUI semantic properties and extensions
- Stay up to date on the latest!

The Journey Continues!

The Journey to Accessible Apps



April 14th, 2021

No matter what stage of the app development process you're at, and no matter your level of familiarity with developing inclusive apps, it is always the right time to make your apps more inclusive. Get started on your journey to developing inclusive apps today.

Ensuring your apps are inclusive has wide implications. It involves making sure that your app appeals to audiences of all different identities – of age, gender, ethnicity, ability, education, and so much more. It involves making sure all your app's users are granted an equitable user experience. It involves executing proper customer validation and working with a representative team.

With all these moving parts, it can be tough to know where to start – but fear not!

You can start here, with accessibility, today.

<https://devblogs.microsoft.com/xamarin/the-journey-to-accessible-apps>

Thank you!



@therachelkang



@rachelkang



<https://linkedin.com/in/rachel-j-kang>



<https://aka.ms/discord-maui> > #maui-accessibility

