Hi! I'm Rachel ©

- Software engineer
- Xamarin.Forms
- Eating, reading, exploring Boston
- Accessibility, mobile app development, tech for good

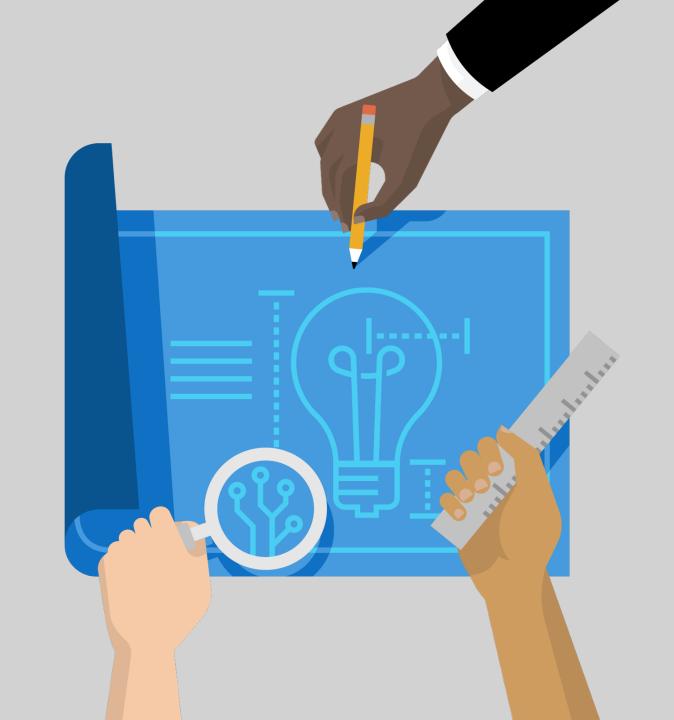


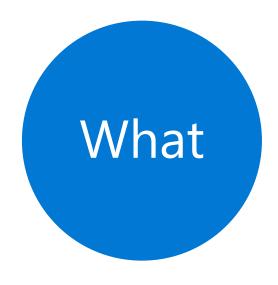
in https://www.linkedin.com/in/rachel-j-kang





Rachel Kang Software Engineer, Xamarin.Forms

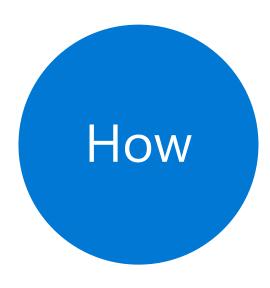




What does it mean?
What makes mobile apps inclusive?
What does it mean to develop mobile apps inclusively?



Why does this matter?
Why should you care?
Why is this relevant to you as a mobile app developer
/ software engineer /
person in tech?



How can you achieve this?

How can you build
accessible and inclusive
mobile apps on Android?
iOS? Xamarin.Forms?

- · Inclusive vs. Accessible
 - Accessible

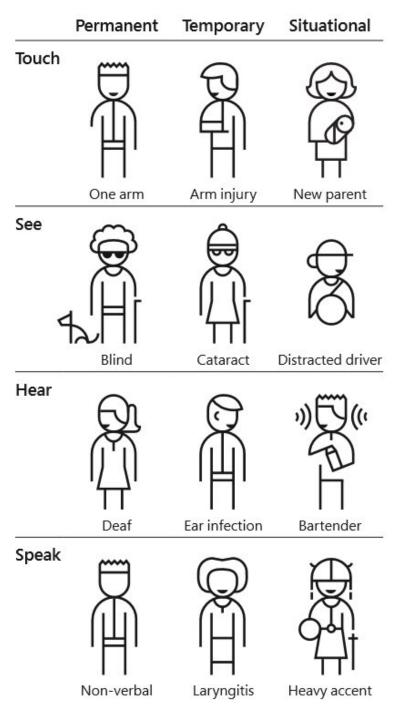
 Inclusive of people of all abilities
 - Inclusive → Inclusive of people of all abilities, identities, and experiences
 - · ability, age, gender, education, social grouping, income, ethnicity, nationality, sexual orientation, etc.
 - · If we use our own abilities as a baseline, we make things that are easy for some people to use, but difficult for everyone else.

Microsoft Design

· Great accessibility shouldn't be an obscure feature that only a small number of people use. At its best, accessibility should be a first-class citizen of the product or service you are creating and should benefit everyone.

- Rob Whitaker,

Developing Inclusive Mobile Apps: Building Accessible Apps for iOS and Android



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://www.microsoft.com/design

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

- 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 (WCAG)
 - · Global a11y standard and legal benchmark for both web and mobile
 - 4 principles

Perceivable

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

- Text alternatives
- Time-based media
- Adaptable
- Distinguishable

Operable

User interface components and navigation must be operable.

- Keyboard accessible
- Time limits
- Seizures and physical reactions
- Navigable
- Input modalities

Understandable

Information and the operation of user interface must be understandable.

- Readable
- Predictable
- Input assistance

Robust

Content must be robust enough that it can be interpreted by ...assistive technologies.

Compatible

https://www.w3.org/WAI/standards-guidelines/wcag/https://www.w3.org/WAI/WCAG21/quickref/https://www.w3.org/TR/WCAG21/

- Empathy is the name of the game
- · Do your due diligence!
 - Accessibility settings and features
 - · i.e. screen readers (TalkBack/VoiceOver), keyboard accessibility
 - Sample apps https://github.com/rwapp
 - Accessibility Model and APIs
 - https://developer.android.com/guide/topics/ui/accessibility
 - https://developer.apple.com/accessibility/ios/
 - https://docs.microsoft.com/en-us/xamarin/xamarin-forms/app-fundamentals/accessibility/
- Test and leverage available tools/resources

Let's explore together!





```
<TextView
...
android:importantForAccessibility="no"
/>
```



labelName.isAccessibilityElement = false



```
<Button
...
android:contentDescription="Submit" />
```

buttonName.setContentDescription("Submit")



buttonName.accessibilityLabel ="Play"





sliderName.accessibilityValue = "0"



```
<EditText
...
android:hint="Email address" />

editTextName.setHint("Email address")
```



```
buttonName.accessibilityHint =
    "Sends your message."
```



importantForAccessibility
contentDescription
labelFor
hint



isAccessibilityElement
accessibilityLabel
accessibilityValue
accessibilityHint







importantForAccessibility
contentDescription
labelFor
hint

AutomationProperties.
IsInAccessibleTree

AutomationProperties.
Name

AutomationProperties. **HelpText**

AutomationProperties. LabeledBy

isAccessibilityElement
accessibilityLabel
accessibilityValue
accessibilityHint

Demo time!





importantForAccessibility
contentDescription
labelFor
hint



isAccessibilityElement
accessibilityLabel
accessibilityValue
accessibilityHint



importantForAccessibility contentDescription labelFor hint focusable accessibilityTraversalAfter, accessibilityTraversalBefore nextFocusDown, nextFocusUp, nextFocusLeft, nextFocusRight nextFocusForward isAccessibilityHeading minWidth, minHeight colorControlHighlight



isAccessibilityElement accessibilityLabel accessibilityValue accessibilityHint accessibilityElementsHidden accessibilityViewIsModal accessibilityElements accessibilityTraits accessibilityLanguage accessibilityViewIsModal accessibilityFrame, accessibilityActivationPoint accessibilityIncrement(),







importantForAccessibility
contentDescription
labelFor
hint
focusable
accessibilityTraversalAfter,
accessibilityTraversalBefore
nextFocusDown, nextFocusUp,

nextFocusDown, nextFocusOp,
nextFocusLeft, nextFocusRight
nextFocusForward
isAccessibilityHeading
minWidth, minHeight
colorControlHighlight



isAccessibilityElement accessibilityLabel accessibilityValue accessibilityHint accessibilityElementsHidden accessibilityViewIsModal accessibilityElements accessibilityTraits accessibilityLanguage accessibilityViewIsModal accessibilityFrame, accessibilityActivationPoint accessibilityIncrement(),

Accessibility on Xamarin

- Native support
- Automation properties
 - https://docs.microsoft.com/en-us/xamarin/xamarin-forms/appfundamentals/accessibility/automation-properties
- We're working on it!
 - https://github.com/xamarin/Xamarin.Forms
 - https://github.com/dotnet/maui
- Share your thoughts/ideas with us ©
 - · dotnet/maui repo
 - Monthly accessibility panel with Xamarin customers

Thank you!

