Accessibility of Android applications

Start of Block: Block 1

Q1 You are receiving this survey as our initial investigation identified you as either a contributor of an Android project or a professional software developer. This survey should take approximately 10 minutes to complete.

With this survey, we want to know your opinion regarding the practices pertaining to accessibility in Android projects.

Your participation is voluntary and confidential. You can withdraw at any time. We do not record any identifying information.

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- ○ I consent, begin the study
- ○ I do not consent, I do not wish to participate

Skip To: End of Survey If You are receiving this survey as our initial investigation identified you as either a contributor... = I do not consent, I do not wish to participate

Q2 In which country do you currently reside?

▼ Afghanistan ... Zimbabwe

Q3 Are you a professional software engineer paid by any company?

- Yes
- No

Skip To: Q5 If Are you a professional software engineer paid by any company? = No

Q4 How many people are employed at your organization?

- 1 - 49
- 50 -999
- 1,000 - 5,000
- More than 5000

Q5 How much experience do you have in developing Android apps?

- Less than 3 months
- 3 to 6 months
- 6 months to 1 year
- 1 to 2 years
- 2 to 5 years
- More than 5 years

End of Block: Block 1

Start of Block: Block 2

Start of Block: How much experience do you have in developing Android apps?

Q6 Is accessibility evaluation a part of your app development/testing process?

- ○ Yes.
- ○ No.

Skip To: Q9 If Is accessibility evaluation a part of your app development/testing process? = No.

Q7 What accessibility guidelines/recommendations do you use?

- ☐ Web Content Accessibility Guidelines (WCAG)
- ☐ Android Developers Accessibility Guidelines
- ☐ The British Broadcasting Corporation (BBC) Mobile Accessibility Guidelines
- ☐ Other, please specify. _____

Q8 What are the tools/techniques that you are using to test for accessibility?

- ☐ Google Accessibility Scanner
- ☐ Android Studio Lint
- ☐ IBM Automated Accessibility Tester
- ☐ Other, please specify _____

Q9 Based on your experience with software development, what do you think are some of the challenges with ensuring accessibility within apps?

- [ ] Lack of awareness about accessibility and its importance.
- [ ] Additional cost of ensuring accessibility
- [ ] Lack of standards and guidelines related to accessibility
- [ ] Lack of tools
- [ ] Accessibility not clearly defined, not sure which standards to follow
- [ ] Lack of support from management
- [ ] Other, please specify

_____

Q10 Have you ever received any feedback from users about accessibility issues in your app?

- ○ Yes, please describe the feedback

_____

- ○ No

Q11 In your experience, is accessibility considered to have the same importance as other quality aspects of apps such as security and performance?

- ○ Yes, they're equally important.
- ○ No, accessibility is less important.
- ○ No, accessibility is more important.

Q12 The following are examples of different accessibility issues that can be found within mobile apps:

Issues 1: Missing text label

People with visual impairment (such as blind people) depend on screen readers (a service that convert text into speech) to understand the purpose\meaning of the various UI elements on the screen that they can't see, elements such as buttons or images must have an alternative text label that a screen reader can read, if a label is missing for an element, this is an accessibility issue.

Issues 2: Text labels with redundant description

Typically, a screen reader reads the text label along with the type of the UI element automatically. For example, if the element is a button, and the label is "send email", a screen reader would automatically read “send email button”, adding the type of an element in the label would result in a screen reader reading “ send email button button” This can be confusing to the user, and is considered to be an accessibility issue.

Issues 3: Duplicate text labels

For people with visual impairment who depend on a screen reader, having two or more different UI elements (on the same screen) with the same labels can make it difficult for the user to distinguish between the elements. For example, two different buttons with the same label "send", a better lables would be "Send email", "Send SMS" for example.

Issues 4: Text and image contrast

Adequate color contrast makes text and images easier to read and understand by users with visual impairments such as low vision or color blindness. Having elements with low contrast makes reading the screen more difficult and is considered an accessibility issue.

Issues 5: Small touch target

Interactive UI elements such as buttons should have large enough touch targets to make it easy for people with motor control issues (such as Parkinson’s disease) to use the app. Elements with small touch target are considered an accessibility issue.

In your opinion, should the previous issues have the same ranking and priority when reported by automated accessibility testing tools?

- ○ Yes, these issues are equally important and should have the same ranking.
- ○ No, these issues are not equally important and should be ranked differently.

Skip To: Q14 If The following are examples of different accessibility issues that can be found within mobile apps... = Yes, these issues are equally important and should have the same ranking.

Q13 Please rank the accessibility issues explained in the previous question, on a 1 to 5 scale with 1 being very important and 5 being least important, based on each issue severity/importance

	1	2	3	4	5
Missing text labels	○	○	○	○	○
Text labels with redundant description	○	○	○	○	○
Duplicate text labels	○	○	○	○	○
Text and image low contrast	○	○	○	○	○
Small touch target	○	○	○	○	○

Q14 To help developers focus on fixing the important accessibility issues first, the following ranking criteria are suggested:

Criterion 1: Impact on the user
How large is the impact of the accessibility issue on the usability of the app?
We measure the impact based on several factors i.e., on which screen was the issue found and whether it prevents the user from using a specific functionality or make the full application much harder to use?

Suggested levels:
1. High impact
2. Medium impact
3. Low impact

For example, accessibility issues with **high impact** may be more important and have a higher ranking

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How much do you agree/disagree with the previous criterion as a way of accurately deciding the importance/ranking of an accessibility issue?

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Q15
Criterion 2: Certainty

Using automated tools, how certain are we that this is actually an accessibility issue and not a false alarm?

Suggested levels:
1. Errors (definitely errors and don't require manual investigation),
2. Warning (require manual investigation)\

For example, accessibility issues that we are sure are **errors** may be more important and have a higher ranking

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How much do you agree/disagree with the previous criterion as a way of accurately deciding the importance/ranking of an accessibility issue?

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Q16

Criterion 3: Fix cost
How easily can the accessibility issue be fixed?

Suggested levels:
1. Issues with a simple fix (require typically 1 or 2 simple changes)
2. Issues with a complex fix (may require a redesign of the UI)

For example, accessibility issues that are **easy to fix** may be more important and have a higher ranking

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How much do you agree/disagree with the previous criterion as a way of accurately deciding the importance/ranking of an accessibility issue?

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

End of Block: How much experience do you have in developing Android apps?