User Interactions and Permission Use on Android

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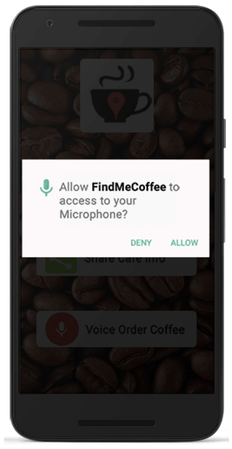
Research Questions

Can *user interactions* be taken as evidence of sensitive resource use authorization?

Should *non-interactive* sensitive resource uses require additional authorization?

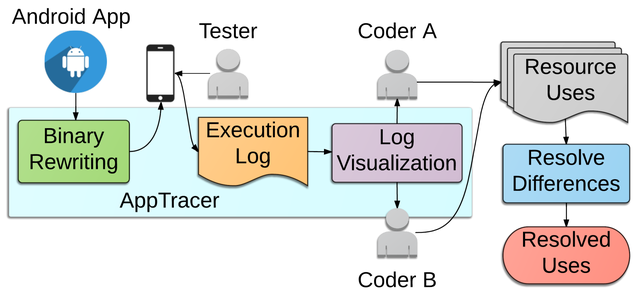
Background

Android controls sensitive data with permissions and grants authorization based on install and runtime notifications

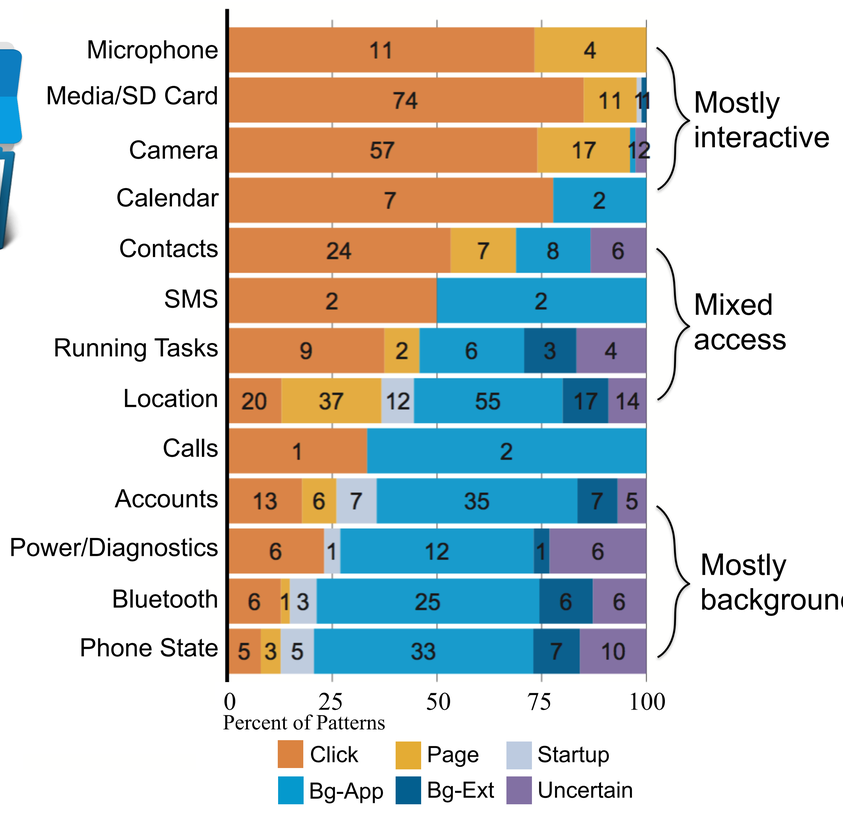


App Study

Measured interactivity of resource uses in 150 popular Android apps



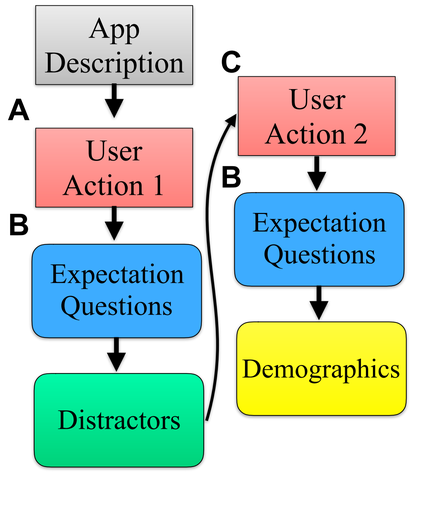
Results

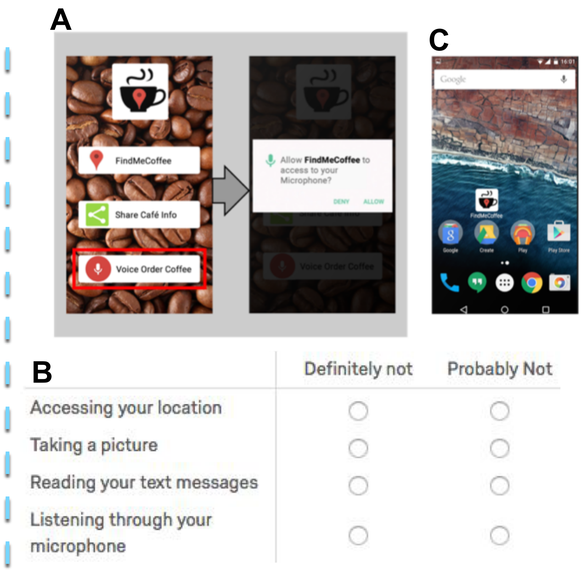


User Study

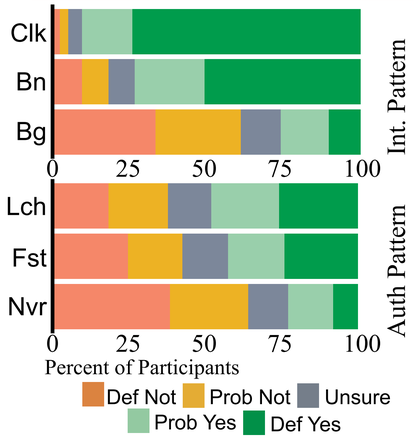
Surveys made up of 42 unique combinations of App, Resource, Authorization, and Interaction Patterns.

961 Amazon MTurk participants





Results



More likely to expect use after interaction.

Users expect future resource use after launch-time authorization more than at use-time.

Recommendations

1. Resource use should be made after associated interactions as much as possible.
2. Separate authorization dialogs might be unnecessary for resources that are accessed mostly interactively.
3. Authorization for background resource use should be distinct from authorization for interactive uses, and they may be most effective when the app is first launched.