HCI:
Focus Groups and Contextual Inquiry

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First, the news …

Coursework 1: Analyze a website

- Outlook web calendar
- Groups of 3-4
- Each member
  - Pick one methodology and run it on the Outlook calendar
  - Please do build on each other's work
- The group
  - Coordinate methodology selections, make sure at least one requirements method and one testing method
  - One page summary of what the group found as a whole
- Marks
  - 50 points, 40 from individual method write-up, 10 from group summary

Coursework 2: Build a webpage

- Build a web page/site that can convert between units like Yards to Meters

- Groups of 1-4
  - You are welcome to work alone
  - I encourage you to find people with complimentary skills

- Whole group
  - Turns in a web page that can run on a DICE computer (Linux computers in the Forest Hill labs)
  - Turns in a document that explains the design of the page including justification as to why you think this page is user friendly
  - Report is a mini version of a typical UG4/MSc report
    - Design requirements, design decisions, and evaluation

Academic Dishonesty

- Most important rule: **Attribution**
  - Sharing ideas is normal in HCI, in fact it is one of the best ways to learn and produce better solutions
  - Sharing design ideas is fine, but if you incorporate someone else's idea give them credit for it
- You need to be able to justify your decisions
  - If you incorporate someone else's idea that is fine, but you need to justify the decision on your own
  - There are many right answers, and many wrong answers
- Report write-ups need to be your own work or the work of your group

Different kinds of requirements

Users: Who are they?

— Characteristics: nationality, educational background, attitude to computers

— System use: novice, expert, casual, frequent

— Novice: prompted, constrained, clear

— Expert: flexibility, access/power

— Frequent: short cuts

— Casual/infrequent: clear menu paths

What are the users' capabilities?

Humans vary in many dimensions:

— size of hands may affect the size and positioning of input buttons

— motor abilities may affect the suitability of certain input and output devices

— height if designing a physical kiosk

— strength - a child's toy requires little strength to operate, but greater strength to change batteries

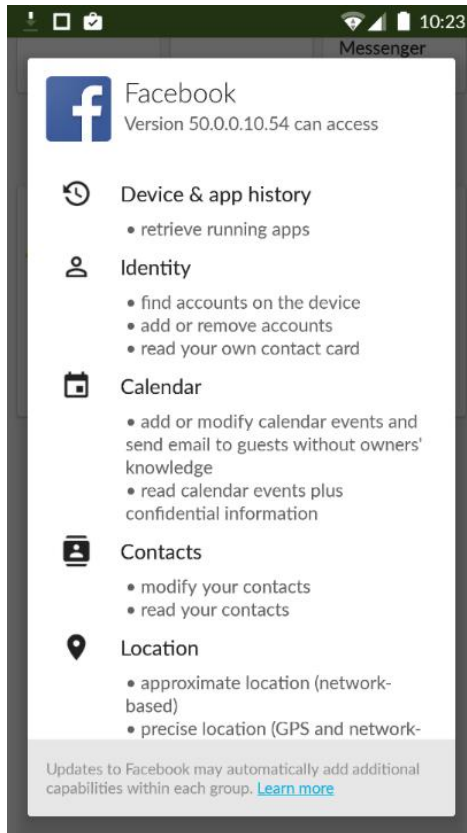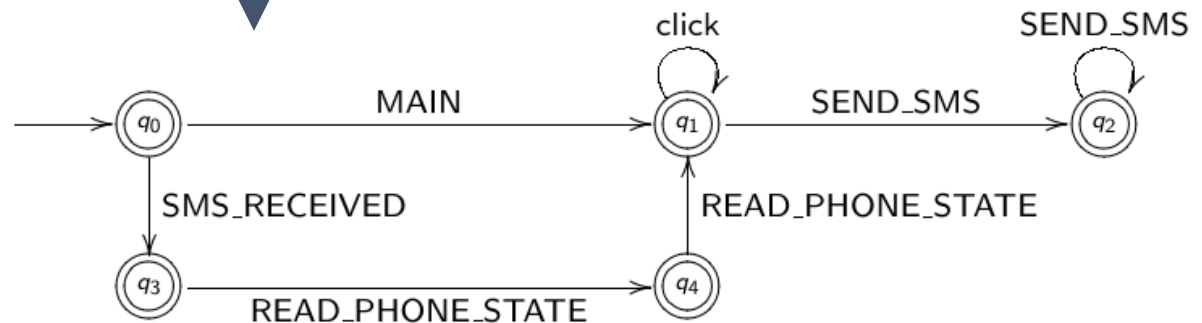— disabilities (e.g. sight, hearing, dexterity)

Focus Groups

The following is part of a MSc project from last summer on re-designing permission screens for Android.
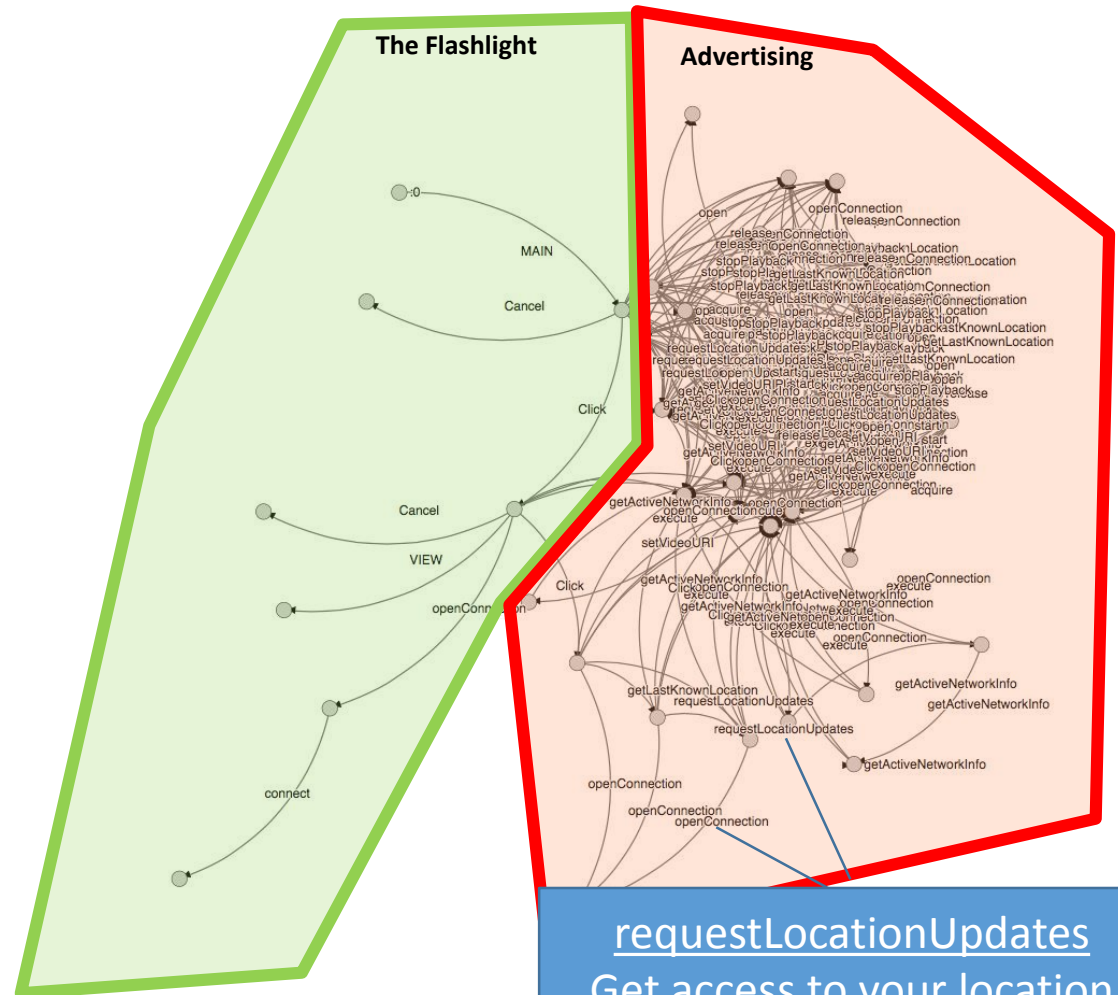
Describing how an app uses permissions

Allowed to do

Actually does

Static analysis: Breaks an app up into a control flow diagram
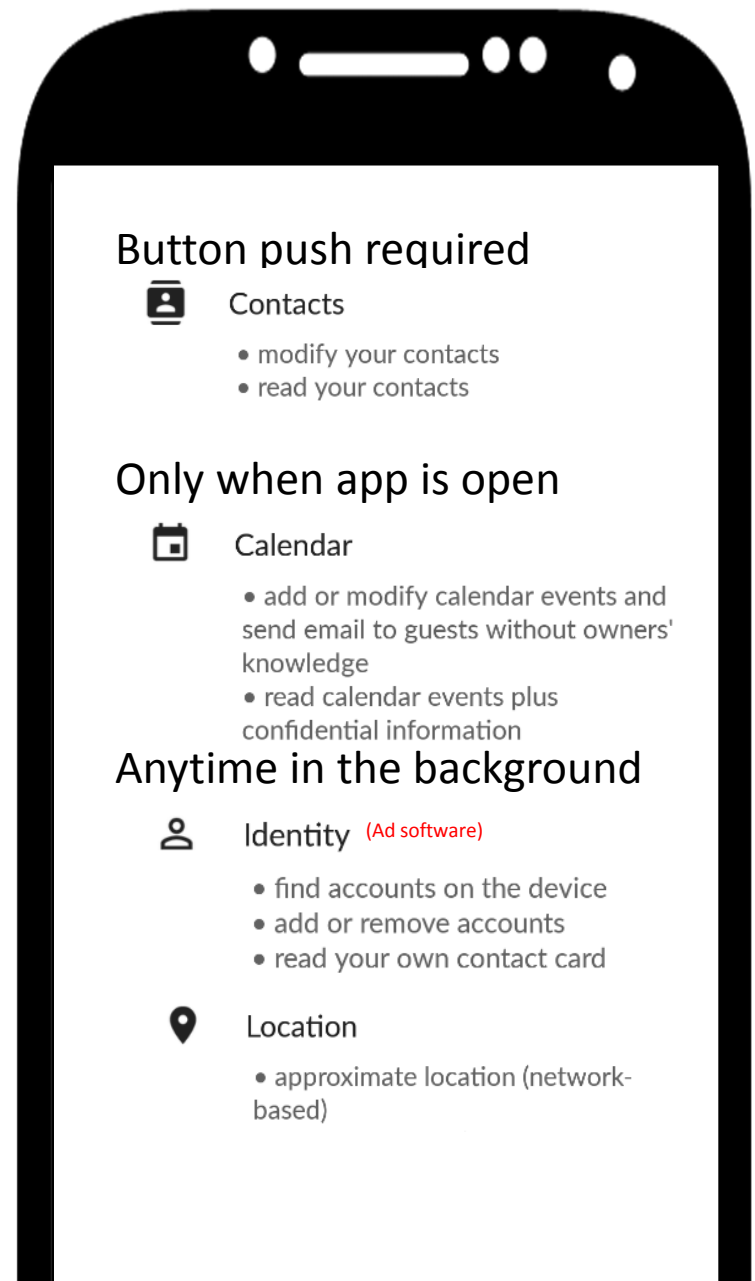

The Flashlight

Advertising

requestLocationUpdates
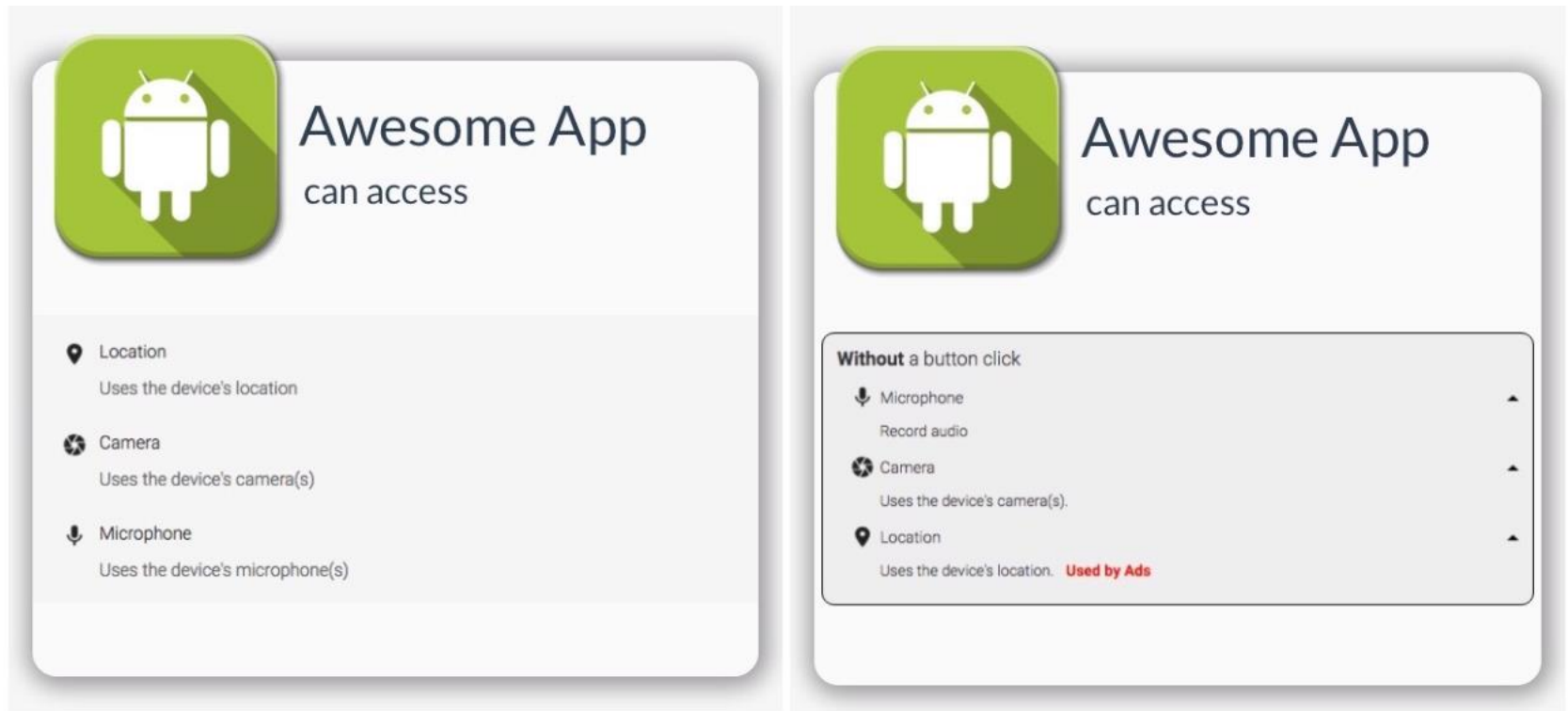Get access to your location probably to send it on using the later openConnection call

The brief:

Create a new permission screen using the output from a static analysis tool that helps people understand the context in which permissions will be used.

We designed an interface that shows permissions in context of when they can be used.

Button push required

👤 Contacts

- modify your contacts
- read your contacts

Only when app is open

📅 Calendar

- add or modify calendar events and send email to guests without owners' knowledge
- read calendar events plus confidential information

Anytime in the background

👤 Identity *(Ad software)*

- find accounts on the device
- add or remove accounts
- read your own contact card

📍 Location

- approximate location (network-based)

Created two interfaces to AB test

(a) Control group screen

(b) Experiment group screen

Figure 5.1: Survey question screens

Which of the following can this app do?

	Absolutely Impossible	Impossible	Neutral	Possible	Absolutely Possible
Charge purchases to your credit card at any time.	○	○	○	○	○
Get your location.	○	○	○	○	○
Allow ads to know your location.	○	○	○	○	○
Load ads.	○	○	○	○	○
Write on the SD card					

The results:

(a) Control Group
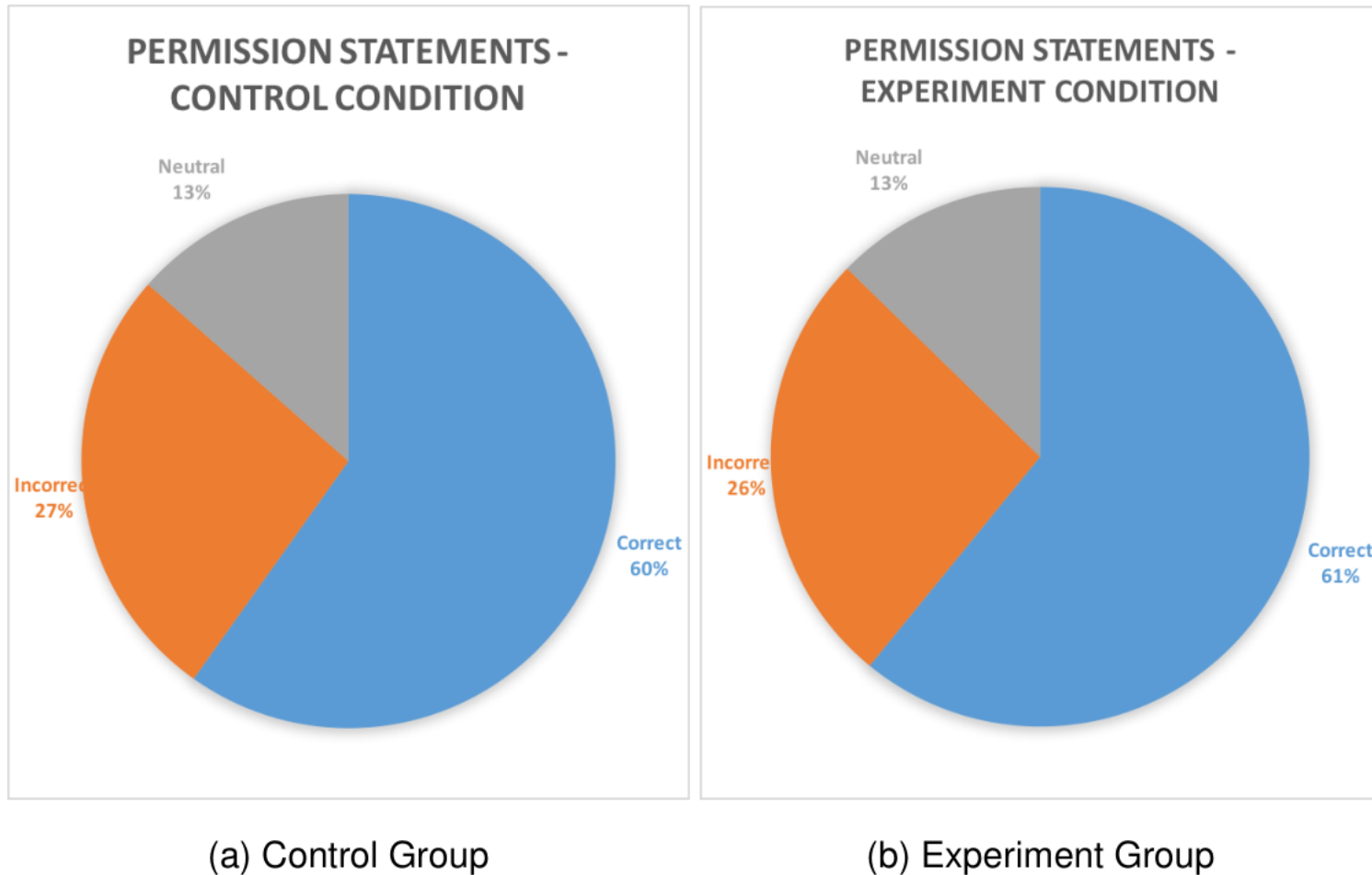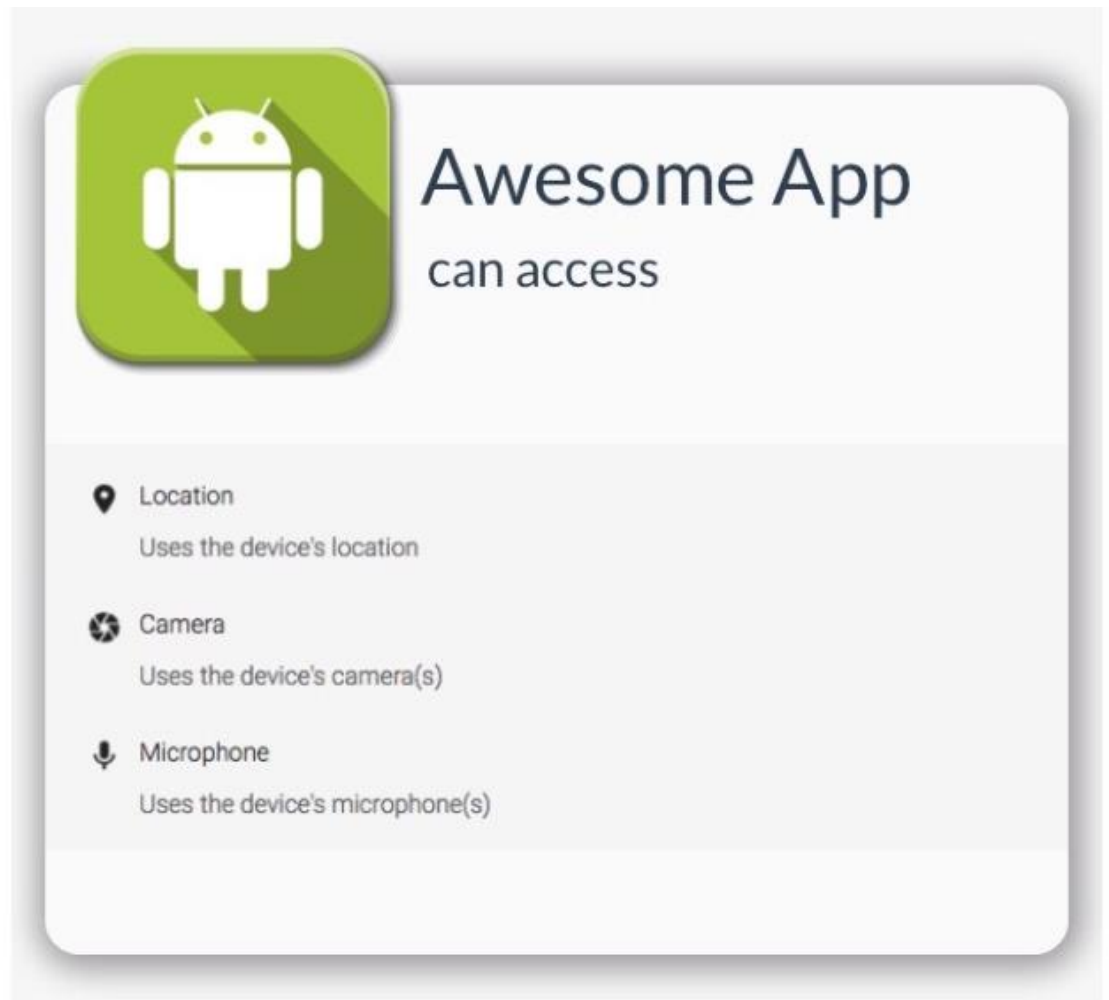
(b) Experiment Group

Figure 5.2: Permission Statements Results: Correct, Incorrect and Neutral

27% of people think they know what this screen says and are wrong.

13% are uncertain what this screen really means.

(a) Control group screen

Then my MSc student graduated …

So lets design a focus group to answer the question of why reading the permission screen is so challenging.

Focus Groups

- Group interview sessions
- Pros
  - Get group consensus about issues
  - Efficient way to test early ideas/designs
  - Good way to identify issues or areas of conflict
- Cons
  - Can be taken over by assertive individuals
  - Focus on people's opinions not actual behaviors
  - Limited sample size

When designing a focus group...

- Make sure to invite your target users
- Prepare a list of questions in advance, these questions should be designed to promote discussion
  - Similar to an interview, start with a few easy questions, then get to the harder ones, and finally wrap up with some easy questions
- Remember: You are there to mediate and learn from the participants, your opinions do not matter, listen to theirs

Our plan

1. Explain what is going to happen to the participants
2. Ask the attendees to introduce themselves and share their last app installation experience
3. Hand out paper copies of the interface and associated questions, similar to the survey questions
4. Ask participants to try and use the interface to answer the questions silently by themselves
5. Ask participants to discuss the answers one interface at a time
6. Finish with an easy question and thank the participants

Think-pair-share

What tasks could we ask participants to do silently that would help them think about using this interface?

Awesome App
can access

Without a button click

🎤 Microphone
Record audio

📷 Camera
Uses the device's camera(s).

📍 Location
Uses the device's location. **Used by Ads**

Imagine that you are trying to install a stopwatch app and are considering the one below. When you click "install" the following screen appears.

Awesome App can access

Without a button click
- 🎤 Microphone
  Record audio
- 📷 Camera
  Uses the device's camera(s).
- 📍 Location
  Uses the device's location. **Used by Ads**
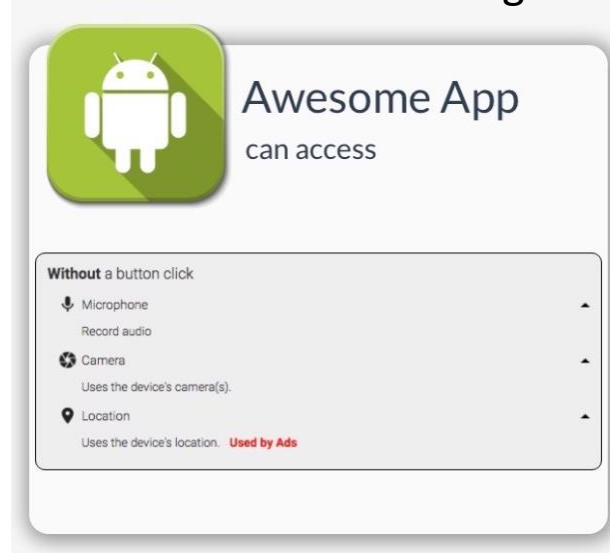
How possible is it that this app could do each of the following after installation?

	Absolutely Impossible	Impossible	Neutral	Possible	Absolutely Possible
Charge purchases to your credit card at any time.	○	○	○	○	○
Get your location.	○	○	○	○	○
Allow ads to know your location.	○	○	○	○	○
Load ads.	○	○	○	○	○
Write on the SD card					

Do you consider this app to be trustworthy?

Contextual Inquiry

Contextual Inquiry

- An approach to ethnographic study where user is expert, designer is apprentice

- A form of interview, but

  — at users' workplace (workstation)

  — 2 to 3 hours long

- Four main principles:

  — Context: see workplace & what happens

  — Partnership: user and developer collaborate

  — Interpretation: observations interpreted by user and developer together

  — Focus: project focus to understand what to look for

Contextual design
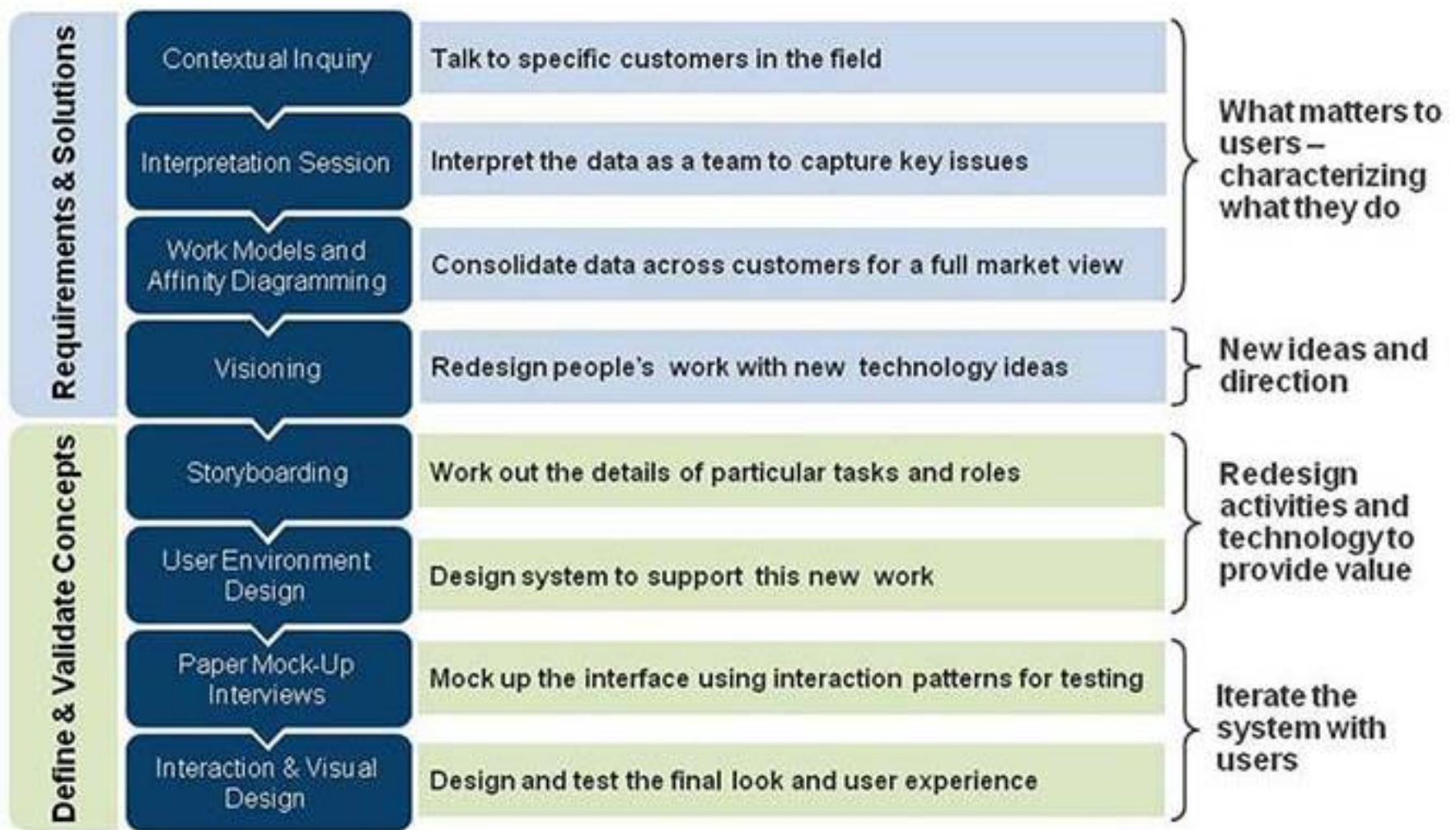
"Principle: People are experts at what they do - but are unable to articulate their own work practice."

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/contextual-design

Example Contextual Inquiry

- I: "I noticed that after putting the order into the system you called the stocking room and told them about the order. Why did you do that?"

- P: "I just wanted to let them know that the order is coming."

- I: "Why do they need to know that the order is coming?"

- P: "They can't see the order system and it takes them a few minutes to find items in the stocking room. So when the customer shows up we look unprepared, so I always call down and tell them. Order from this department always look fast!"

Contextual Inquiry

- Ethnographic interviews
- Pros
  - Strong understanding of how a particular user works
  - Deep understanding of the context in which your software will be used
  - Opportunity to build a relationship with a user
- Cons
  - Harder to use on infrequent tasks (like app installs)
  - Limited sample size

Contextual inquiry would not be my first choice for understanding app permission decisions. App installation is a rare task and hard to observe in the wild.

But if we were going to use contextual inquiry this is how…

Our plan: before the observation

1. Contact participants ahead of time and ask them to identify an app or set of apps they are considering installing, but have not yet installed

2. Arrange to meet at their home/work/school, wherever they normally are when making these decisions

3. Inform them that you will be video and audio recording and make sure they are ok with this.

Our plan: during observation

1. Explain how the session will go and that you are there to learn about how they normally do things
2. Ask to go to the room they are normally in
3. Ask them to tell me about their phone and how they normally install apps (easy question)
4. Ask them to tell me about the app they have been thinking about (ok if there are many)
5. Watch them go through and interact with the phone interface
   a) Ask questions about what they are doing and why
   b) Take photos of anything that the video camera can't see
6. End with an easy question and thank the participant for their time

Considerations for data gathering (1)

- Identifying and involving stakeholders:
  users, managers, developers, customer reps?, union reps?, shareholders?

- Involving stakeholders: workshops, interviews, workplace studies, co-opt stakeholders onto the development team

- 'Real' users, not managers

- Political problems within the organisation

- Dominance of certain stakeholders

- Economic and business environment changes

- Balancing functional and usability demands

Considerations for data gathering (2)

- Requirements management: version control, ownership

- Communication between parties:

  —within development team

  —with customer/user

  —between users… different parts of an organisation use different terminology

- Domain knowledge distributed and implicit:

  —difficult to dig up and understand

  —knowledge articulation: how do you walk?

- Availability of key people

Data gathering guidelines

- Focus on identifying the stakeholders' needs

- Involve all the stakeholder groups

- Involve more than one representative from each stakeholder group

- Use a combination of data gathering techniques

- Support the process with props such as prototypes and task descriptions

Data interpretation and analysis

- Start soon after data gathering session

- Initial interpretation before deeper analysis

- Different approaches emphasize different elements e.g. class diagrams for object-oriented systems, entity-relationship diagrams for data intensive systems

Questions?