Answers to Guide 6

1. User Interface Design and Testing
   1. Why aren’t developers good at discerning usability issues?
      1. Too much knowledge and technical talent – too much abstract reasoning and mentally mapping out of complex spaces
      2. Devs care too much about computers compared to the general public
      3. They are not the average person.
   2. Nielsen favors paper prototyping. Is this practice compatible with agile methods?
      1. Yes, it is a simple and fast approach.
      2. Can be fast and cheap.
   3. What things does Nielsen say that you need for simple usability tests?
      1. Don’t need lab, one-way mirror, eye-tracking machine, digital recorders, etc.
      2. Just need to sit with a user at a regular table in a conference room and ask them to do something with your system.
      3. Just need a notepad to record what they do, what they think, and generally a running commentary on their thinking and actions.
      4. Can also test a drawing of a interface on paper.
2. Discount usability
   1. What are the three basic practices of discount usability?
      1. Simplified user testing:
         1. Handful of participants
         2. Focus on qualitative studies
         3. Use of thinking-aloud method
      2. Narrowed-down prototypes
         1. Paper prototypes – single path through user interface
         2. Much faster than something that embodies full user experience.
         3. Test early and iterate through rounds of design
      3. Heuristic evaluation
         1. Evaluate UI design by inspecting them relative to established usability guidelines.
   2. What is the minimum number of test subjects required to do a simple user test?
      1. 5 users or more.
   3. Wouldn’t testing more subjects always be better?
      1. No, graph of usability problems found versus # of users is based on the formula: N\*(1-(1-L)^N), where N is the total number of usability problems in the design and L is the proportion of usability problems discovered testing a single user.
      2. From the graph, it can be seen that at 15 users it is already asymptotic with nearly 100% of usability problems found.
      3. Basic concept: users often repeat the same things and thus many are not needed to discern most issues.
   4. Compare and contrast the so-called qual and quant approaches to usability testing.
      1. Discount usability gives better result over deluxe usability because its methods drive an emphasis on early and rapid iteration with frequent usability input (AGILE methodology).
      2. Qual offers decent results even when not using perfect research methodology
      3. Bad user testing beats no user testing
      4. Qual studies have much greater validity than Quant studies
      5. Qual requires far fewer users than Quant
      6. Qual requires simple design representations while Quant requires complex ones.
3. Checklist for planning usability studies
   1. What are the options for format and setting of the study?
      1. In lab or in field:
         1. most face-to-face studies conducted in-house in lab settings
         2. if users’ actual environment critical or difficult to represent users’ setup, field could be worth it
      2. moderated or unmoderated:
         1. moderated provides richer design insights and opportunities to probe and ask for clarification
         2. better source of open-ended comments from users
         3. unmoderated are cheaper, quicker, and could provide better access to hard-to-recruit participants
      3. in-person or remote:
         1. recommended in-person if possible as easier to detect subtle cues including body language
         2. Use remote if no travel budget, work within AGILE environment, or users can’t come physically
   2. Can proxy users be valuable?
      1. No, asking users to pretend or imagine a scenario might lead to invalid results.
   3. What types of tasks can be included?
      1. Exploratory tasks:
         1. Open-ended and answers broad research-oriented goals that may or may not have a correct answer
         2. Meant to learn how people discover or explore information
         3. Not appropriate for quantitative testing
      2. Specific tasks:
         1. More focused and usually have a correct answer or end point.
         2. Used for both qualitative and quantitative testing
4. Team members behaving badly during usability tests
   1. What are they key principle of ethical user research?
      1. Avoid harming people: don’t expose to unreasonable physical or mental stress
      2. Respect people’s dignity: don’t make derogatory remarks about clients, participants, or colleagues
      3. Act with integrity: conduct research and report findings in a fair and truthful manner
      4. Maintain confidentiality: respect the privacy and anonymity of the participants
   2. List the difficult scenarios and what to do about them
      1. Team insists that participants continue the study even when they don’t want to.
         1. Resolution: always allow users to take a break or leave for any reason.
         2. Attitude will taint the findings anyways
      2. Team wants you to lie to users.
         1. Resolution: don’t lie as trust is difficult to earn and easy to lose.
         2. Acknowledge that testing can be awkward and unnatural.
         3. Sometimes withholding the truth is acceptable, such as during competitive studies and not revealing the sponsor to avoid bias
      3. Team wants to rescind payment.
         1. Best to pay even if participant doesn’t fit criteria and allow them to leave gracefully.
         2. Participant put in time and effort and should be rewarded.
         3. Learn from experience, make changes to recruitment process, and move on
      4. The participant’s boss wants to observe the session.
         1. In intranet researches, make policy to not allow bosses to attend sessions of subordinates.
         2. Make notes, findings, and reports anonymous.
      5. Team becomes defensive when users don’t understand the interface.
         1. Set clear rules for proper observer etiquette.
         2. Review rules with team and explain the purpose of the study and the important of silence and keeping an open mind
         3. Allow observers to ask questions at end of each session and communicate them via a moderator to the participant
      6. Team is distracting during test sessions
         1. Keep any movement or sounds to an absolute minimum
         2. Only allow up to 3 observers in the same room
         3. Inform participants about the observers before they arrive
         4. Position observers away from user’s line of sight
         5. Inform observers of the rules of participation in the study
      7. Team jokes about users
         1. Help team members reframe conversations to what is wrong with the interface, not the user.
         2. Create work culture where participants are seen as partners and treated with respect.
         3. Ask team members to try being a user sometimes.
5. Android – storing data
   1. Name and briefly describe the alternate data storage options.
      1. Shared preferences – store private primitive data in key-value pairs
      2. Internal storage – store private data on the device memory
      3. External storage – store public data on the shared external storage
      4. SQLite databases – store structured data in a private database
      5. Network connection – store data on the web with your own network server
      6. Cloud backup – backing up app and user data in the cloud
      7. Content providers – store data privately and make them available publicly.
      8. Firebase realtime database – store and sync data with a NoSQL cloud database. Data is synced across all clients in real time, and remains available when your app goes offline.
   2. What data storage option will you be using for the team project?
      1. SQLite databases
6. Android – shared preferences
   1. With what is shared preference data shared?
      1. Read and write small amounts of primitive data as key/value pairs to a file on the device storage.
      2. Persists across user sessions, even if app is killed/restarted, or device is rebooted
      3. Data is private to the application
      4. Stores user preferences.
   2. What pattern does the SharedPreferences interface implement?
      1. Singleton – a single instance of the class that stores data.
7. Android – app settings
   1. What data storage option is used to store user preferences?
      1. SharedPreferences interface
   2. What is a fragment and how is it used for storing user preferences?
      1. Is a piece of an application’s user interface or behavior that can be placed in an Activity.
      2. Represents a particular operation or interface that is running within a larger Activity.
      3. Modular section of an activity – has its own lifecycle and receives its own input events, and can add/remove while activity is running.
      4. Use a SettingsActivity and a fragment for each preference XML file
         1. Add a SettingsActivity class that extends activity and hosts a fragment that extends PreferenceFragment
         2. Remain compatible with v7 accompat library by extending SettingsActivity with AppCompatActivity and the fragment with PreferenceFragmentCompat.