Heuristic Evaluation

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CS 147
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LG F7100
courtesy of Genevieve Bell, Intel
Launched in 2004 in UAE, Saudia Arabia, North Africa, India, Malaysia

Good
- targeted at Muslim audience
- need to pray 5x/day pointing towards Mecca

Hall of Fame!

WhatsApp mobile messaging

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Outline

- Wizard of Oz
- Heuristic Evaluation Overview
- The Heuristics
- Exercise
- Team Break

Wizard of Oz Technique

- Faking the interaction. Comes from?
  - the film "The Wizard of Oz"
  - "the man behind the curtain"

- Long tradition in computer industry
  - e.g., prototype of a PC w/ a DEC VAX behind the curtain

- Much more important for hard to implement features
  - speech & handwriting recognition
  - how would we do it for VR/AR?

Evaluation

- About figuring out how to improve design
- Issues with lo-fi tests?
Heuristic Evaluation

- Developed by Jakob Nielsen
- Helps find usability problems in a UI design
- Small set (3-5) of evaluators examine UI
  - independently check for compliance with usability principles (“heuristics”)
  - evaluators only communicate afterwards
    - findings are then aggregated
    - use violations to redesign/fix problems
- Can perform on working UI or on sketches

Heuristics

H1: Visibility of system status
H2: Match between system & real world
H3: User control & freedom

Heuristics (cont.)

H4: Consistency & standards
H5: Error prevention
H6: Recognition rather than recall

Heuristics (cont.)

H7: Flexibility and efficiency of use
H8: Aesthetic & minimalist design

Heuristics (cont.)

H9: Help users recognize, diagnose, & recover from errors
Good Error Messages

- Clearly indicate what has gone wrong
- Human readable
- Polite
- Describe the problem
- Explain how to fix it
- Highly noticeable

H10 – Help & Documentation

- Better if the system can be used without documentation, but it may be necessary

  - How
    - easy to search
    - focused on task
    - list concrete steps

Heuristic Violation Examples

1. [H6 Recognition Rather Than Recall]
   - Can’t copy info from one window to another
   - user needs to memorize the data & retype
   - fix: allow copying

2. [H4 Consistency and Standards]
   - Typography uses different fonts in 3 dialog boxes
   - slows users down
   - probably wouldn’t be found by user testing
   - fix: pick a single format for entire interface

Severity Ratings

0 - don’t agree that this is a usability problem
1 - cosmetic problem
2 - minor usability problem
3 - major usability problem; important to fix
4 - usability catastrophe; imperative to fix

Severity Ratings Example

1. [H4 Consistency & Standards] [Severity 3]
   - The interface used the string “Save” on the first screen for saving the user’s settings, but used the string “Store” on the second screen. Users may be confused by this different terminology for the same function.
   - Fix: Use “Save” everywhere in the application.

Decreasing Returns

- Caveat: graphs for a specific example
Heuristic Evaluation Summary

- Have evaluators go through the UI twice
- Ask them to see if it complies with heuristics – note where it doesn’t & say why
- Have evaluators independently rate severity
- Combine the findings from 3 to 5 evaluators – come to agreement on problems, fixes & severity
- Alternate with user testing

Problems Found

1. H3 – no purchase button [100]
2. H4 – remove column has check boxes and then one entry w/ yes/no [100]
3. H5 – illegal input (text) allowed in quantity field [90]
4. H1 – not clear who is logged in [10]
5. H2 – “what fits my car” is not a good term that people would know [20]
6. H5 – user can add “out of stock” items [80]

Problems Found Last Year

1. H5 Error Prevention allows non-numeric data in the quantity field; fix: don’t allow it. [80]
2. H5 Error Prevention quantity field doesn’t multiply by the price to give a correct total: fix: make it work. [60]
3. H10 Help & Documentation link for international visitors hidden at bottom & may not be reposable by non-english speakers; fix: move up to prominent location & include flag. [30]
4. H5 Error Prevention “Remove item booted in red,” but red used for multiple purposes. For get rid of ads in the checkout! More direct way to remove out of stock item or not even let me add a item that is out of stock. [100]
5. H5 Error Prevention No way to check out. [110]
Problems Found Two Years Ago

1. H4 Consistency
   - remove column, 4th item is different w/ checkboxes. [150]
2. H9 Error prevention
   - non-numeric data in the quantity. Do not allow. [126]
3. H2 Match between system & real world vehicle selection link not language I'd expect [100]
4. H1 Visibility of System Status
   - unclear which item to remove based on error message (*red/bold*). [150]

Further Reading

Heuristic Evaluation

- Longer lecture
  - https://drive.google.com/file/d/0BwE1B6wu4sBaN2f3QxKb2ruOTg/view
- Books
  - Usability Engineering, by Nielsen, 1994
- Web site
  - http://www.nngroup.com/articles/

Next Time

- Lecture
  - Human Abilities

- Readings

- Next assignment
  - Individual Heuristic Evaluation
  - Group Heuristic Evaluation (in studio)