

User Interface Design, Prototyping, and Evaluation

Low-fi Prototyping

Prof. James A. Landay
 University of Washington
 Autumn 2008

November 4, 2008

Interface Hall of Shame or Fame?



- Amtrak Web Site

Interface Hall of Fame/Shame!



- Amtrak Web Site
- Good
 - tells you what's wrong
 - gets your attention
- Bad
 - doesn't label where to fix
 - tells you that you made an error, because you didn't know their codes

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Low-fi Prototyping

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Outline

- Review midterm course survey
- Low-fi prototyping
- Wizard of Oz technique
- Informal UI prototyping tools
- Go over Low-fi assignment (#6)

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Midterm Course Survey

Things you like!

- Teaching with examples
- Slides & other materials online
- Interactive lectures
 - especially on candy days
- Project work focuses on lecture material
- Readings tied to lectures

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Midterm Course Survey

Areas to Improve

- In class workshop with early feedback & help
 - we have one this Thursday, one after the midterm, and one at the end of course, but it sound like in the future I should have another one earlier (after ESM/TA?)
- Better communication about non-graded parts of course
 - e.g., web site. Usually in final presentation grade. We will create a web site grading FAQ and present this earlier in course next time
- Emphasize and define key points, terms, concepts earlier
 - too late now, but can I get examples for future?
- Pre-work/troubleshoot technical aspects before course
 - we did pre-work phone/ESM, but it IS research software. Prefer avoiding?
- Clarify grading criteria
 - Try to pretty explicit on each assignment. Examples would help me know where you need more. Remember, there is not a “right” or “best” answer as in a math or programming course.

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7

Fidelity in Prototyping

- Fidelity refers to the level of detail
- High fidelity?
 - prototypes look like the final product
- Low fidelity?
 - artists renditions with many details missing



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8

Why Use Low-fi Prototypes?

- Traditional methods take too long
 - sketches → **prototype** → evaluate → iterate
- Can instead *simulate* the prototype
 - sketches → evaluate → iterate
 - sketches act as prototypes
 - designer “plays computer”
 - other design team members observe & record
- Kindergarten implementation skills
 - allows non-programmers to participate

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9

Hi-fi Prototypes Warp

- Perceptions of the tester/reviewer
 - representation communicates “finished”
 - comments focus on color, fonts, & alignment
- Time
 - encourage precision
 - specifying details takes more time
- Creativity
 - lose track of the big picture



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10

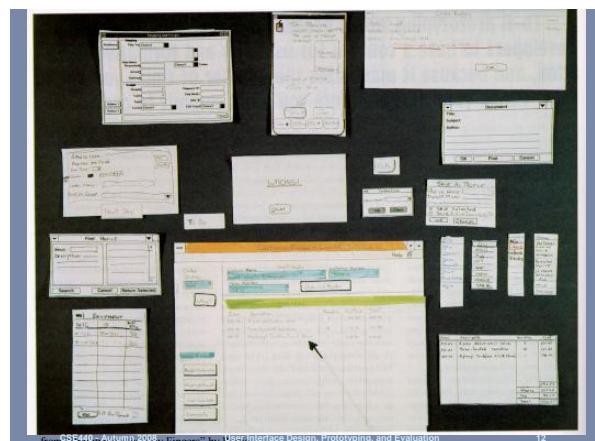
The Basic Materials

- Large, heavy, white paper (11 x 17)
- 5x8 in. index cards
- Post-its
- Tape, stick glue, correction tape
- Pens & markers (many colors & sizes)
- Overhead transparencies
- Scissors, X-acto knives, etc.

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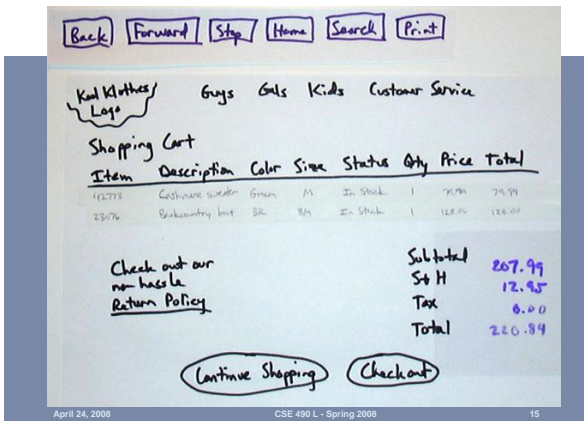
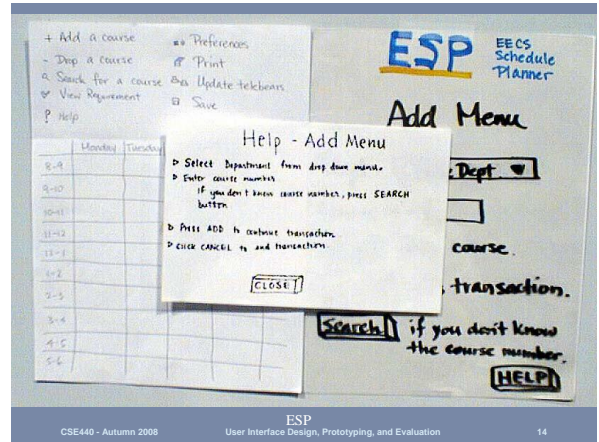
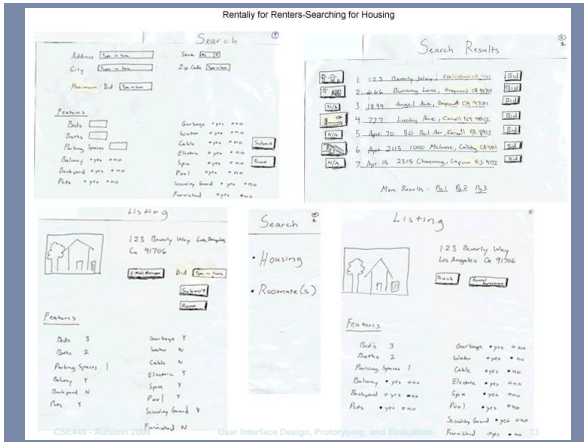
11



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12



Constructing the Model

- Set a deadline
 - don't think too long - build it!
- Draw a window frame on large paper
- Put different screen regions on cards
 - anything that moves, changes, appears/disappears
- Ready response for any user action
 - e.g., have those pull-down menus already made
- Use photocopier to make many versions

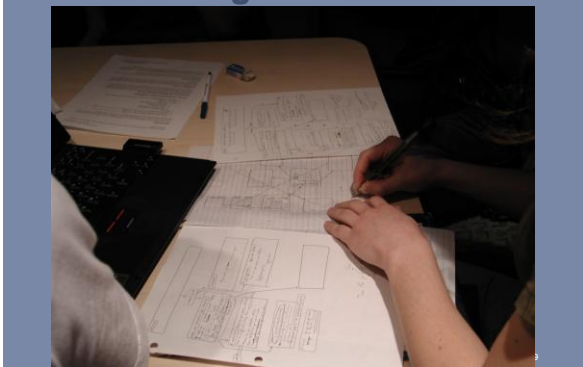
Constructing the Model



Constructing the Model



Constructing the Model



Constructing the Model



Constructing the Model



Preparing for a Test

- Select your “customers”
 - understand background of intended users
 - use a questionnaire to get the people you need
 - don’t use friends or family
 - I think existing “customers” are OK (Rettig disagrees)
- Prepare scenarios that are
 - typical of the product during actual use
 - make prototype support these (small, yet broad)
- Practice to avoid “bugs”

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22

Conducting a Test

- Four testers (minimum)
 - greeter – puts users at ease & gets data
 - facilitator – only team member who speaks
 - gives instructions & encourages thoughts, opinions
 - computer – knows application logic & controls it
 - always simulates the response, w/o explanation
 - observers – take notes & recommendations
- Typical session is 1 hour
 - preparation, the test, debriefing
- Read the Gommel paper (1 page) for details on conducting a test

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23

Conducting a Test



6/13/2002

Evaluating Results

- Sort & prioritize observations
 - what was important?
 - lots of problems in the same area?
- Create a written report on findings
 - gives agenda for meeting on design changes
- Make changes & iterate

Advantages of Low-fi Prototyping

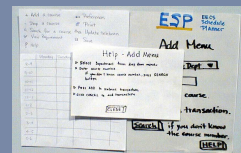
- Takes only a few hours
 - no expensive equipment needed
- Can test multiple alternatives
 - fast iterations
 - number of iterations is tied to final quality
- Almost all interaction can be faked

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 VAX behind the curtain
- Much more important for hard to implement features
 - speech & handwriting recognition

Problems with Low-fi Prototypes

- “Computer” inherently buggy
 - timings not accurate
- Hard to implement some functionality
 - pull-downs, feedback, drag, viz ...
- Won't look like final product
 - sometimes hard to recognize widgets
- End-users can't use by themselves
 - not in context of user's work environment



Informal UI Prototyping Tools

- Support advantages of low-fi paper prototypes
 - brainstorming
 - consider different ideas rapidly
 - do not require specification of details
 - incomplete designs
 - need not cover all cases, just illustrate important examples
- Add advantages of electronic tools
 - evolve easily
 - support for “design memory”
 - transition to other electronic tools
 - allow end-user interaction

Summary

- Low-fi testing allows us to quickly iterate
 - get feedback from users & change right away
- Informal prototyping tools bridge the gap between paper & high-fi tools

Further Reading *Prototyping*

- Books
 - [Paper Prototyping: The Fast and Easy Way to Design and Refine User Interfaces](#), by Carolyn Snyder, Morgan Kaufmann, 2003
- Articles
 - “[Prototyping for Tiny Fingers](#)” by Marc Rettig, in *Communications of the ACM*, 1994
 - “[Using Paper Prototypes to Manage Risk](#)” by Carolyn Snyder, <http://world.std.com/~uieweb/paper.htm>
 - “[The Perils of Prototyping](#)” by Alan Cooper, <http://www.chi-sa.org.za/Documents/articles/perils.htm>
- Web Sites
 - [dub Group](#) web site, for DENIM & SUEDE downloads, <http://dub.washington.edu>
 - [InfoDesign Toolkit](#), <http://www.infodesign.com.au>

Lo-fi Prototyping Assignment

- Due: Thur. 11/13
- Presentation by new team member
- Get industry mentor involved
 - you are not required to do everything they say, simply to give you a resource
- Make sure to use new participants
- Two good reports from CSE 440, Au07
 - [What's Happening](#)
 - [TripMe](#)
- Questions?

Next Time

- In class work on project
- Come to class and I will move around between the teams giving feedback

