Questions?

• Project #1 due today
• Project #2 out today
• Grad project due in a week
• Remember: mid-term on 10/29
User centered design and prototyping

- Two approaches to design
  - System centered design
    - Design what is easy to implement or cool
    - Limiting yourself to a specific platform/toolkit
    - Limiting yourself to using tools you know
  - User centered design
    - Users capabilities
    - Users tasks
    - Users needs
User centered design

• Goal: satisfied customers
• Collaboration with users
  – Users primary source of information
    • *Expert in the subject matter*
  – Designer assist users in establishing their needs
    • *Designer must be honest!*
  – On going collaboration between designers and users
    • Users
    • Testers
    • Informants
    • Design partners
User centered design: difficulties

• Where to find users?
  – The product does not exist yet!
  – User might be fearful

• Several Masters
  – Real users
  – Their representatives
  – Who will buy the product

• Users might not know how to formulate their needs
  – Users are not designers

• Designer might influence users
  – Pushing a cool idea
  – Pushing what you have been working on for the last month
How to extract users knowledge and needs?

• Ethnographic approach
  – Interviews
    • Preferably where users will perform the task
    • Phone
  – Diary
    • Paper, annotated photographs, video
    • Debrief with them
  – Direct observations
    • Paper, photographs, Video
    • Debrief with them
  – Logging
    • Google, Amazon
How to explain your design to users?

• Verbal description
  – Often difficult to do
• Storyboarding
• Low fidelity prototypes
• Wizard of Oz
• Medium fidelity prototypes
Storyboard example (Troops)

See http://www.theforce.net/theater/shortfilms/troops/
Storyboarding a computer telephone

Help →

Establishing connection →

Call connected →

Call completed →

From Ben Bederson’s slides
Storyboarding (Summary)

• Storyboarding
  – Series of key frames depicting key steps in the process
  – Check your understanding of the process users are going through
    • Observe user reaction
    • Debrief users
  – Good reference point during the design process
Low fidelity prototypes

• Paper/plastic based
  – Using sketches, foamcore, transparency, and PICTIVE

• Mode of operation
  – User use the interface
  – Someone play the computer
  – Designer observe users reactions
  • Video camera might be helpful

*Plastic Interface for Collaborative Technology Initiatives through Video Exploration” Muller, CHI 91

From Ben Bederson’s slides
Low fidelity prototypes (summary)

• Inexpensive
• High level feedback about the dynamic of the interface
• Trigger users reactions
  – Debrief users
• Might be inaccurate
Medium fidelity prototypes

• Using prototyping tools (Flash, Director, JavaScript,…)
  – Horizontal prototype: the full interface without the functionality
    • *Is the command structure OK?*
  – Vertical prototype: Provide answer about a specific question
    • *Is dialog box design A faster than dialog box design B?*
  – Scenario
Wizard of Oz

• Testing a system that does not exist
  – Voice recognition, face identification, handwriting recognition

• Mode of operation
  – Users use with the interface
  – A wizard (sometime hidden) responds to users behavior
    • Follow an algorithm
    • Reproduce the expected capability of the system
Medium fidelity prototypes (Summary)

• Time consuming and more expensive
• Be careful about user expectations
  – Developer might resist change
  – Management might think it is real
• Do not get distracted by too small a detail
  – Color, font,…
High fidelity prototypes

- Piecewise prototype
  - Horizontal, vertical, scenario
  - Controlled setting

- Alpha and Beta releases
  - Small scale distribution
    - *Quick*ken

- Final product?
  - Monitor help line
  - Monitor sell rep.

- Costly
  - Problem can be deeply rooted in the software architecture