The UI Design Process

User-Centered Design

This material has been developed by Georgia Tech HCI faculty, and continues to evolve. Contributors include Gregory Abowd, Jim Foley, Diane Gromala, Elizabeth Mynatt, Jeff Pierce, Colin Potts, Chris Shaw, John Stasko, and Bruce Walker. Modified by Valerie Summet, 2011. Permission is granted to use with acknowledgement for non-profit purposes. Last revision: January 2011.
Iterative Design Process

DESIGN

IMPLEMENT

USE & EVALUATE
User-Centered Design

• 9 step design process
• Focuses on user and builds design from user needs/wants
• (Roughly) followed in project
User-Centered Design Process

1. Understand constraints/context
2. User analysis
2. Task analysis
4. Function allocation
5. Define usability criteria

• All of the above included in requirements definition and task analysis (Pt. 1 and last week).
User-Centered Design (cont’d)

6. Design UI - including help and documentation
   – Consider alternatives!
   – Apply formative evaluation techniques & iterate

7. Build & test prototypes
   – Apply formative / summative evaluation techniques & iterate

8. Build & test the real application
   – Apply summative evaluation techniques & iterate

9. Release, update and maintain
   – Apply summative evaluation techniques & iterate
6. Design the UI (Pt. 2)

• Summary of the components and their basic design
• Cross-check with any Requirements Documents; Human Factors refs; Hardware specs; Budgets; Laws (ADA); etc.
• Ensure that the system will support the design and comply with constraints
• (Verification and Validation, in the language of software engineering)
HCI Design

• Design is driven by requirements
  *What* the artifact is for …
  Not *how* it is to be implemented

• Design represents the artifact
  – Storyboards or screen sketches
  – Task flow diagrams - more detailed than in task analysis stage
  – Executable prototypes

• Representations should always *simplify*
Get Informal Feedback ASAP!

- Present prototype design to users
- Do a quick questionnaire/interview
- Watch (quietly) as user struggles with your terrible design
Team Tip: Avoid Design Fixation

- Keep an open mind
- Don’t get wedded to an idea
- Don’t let design review become about whose idea wins

- Honor the truth. People come first. Not your ego, not your team's ego.
Once More, with Feeling

Abandon bad ideas!
UCD Nine-Step Overview

1. Understand constraints/context
2. User analysis
2. Task analysis
4. Function allocation
5. Define usability criteria
6. Design UI - including help and documentation
7. Build & test prototypes
8. Build & test the real application
9. Release, update and maintain
UCD: Focusing Your Efforts

• There are real-world constraints
• Cutting out steps is not the way to economize!
• Optimize the efficiency of each step
• *In course:* Focus on the context and the user, to get the most value for the time spent
Quotable Quotes: Practice

- “The secret to having good ideas is to have many ideas” -- Bill Buxton
- “You’ve got 100,000 bad drawings inside you. You’re here at art school to get them out.” -- Chuck Jones
- Design takes practice!!
Quotable Quotes

• “Where principle is put to work, not as a recipe or as a formula, there will always be style”  -- Le Corbusier

• “Every curve and line has to have real meaning; it can’t be arbitrary.”  -- Frank Lloyd Wright

• *Form follows function!*
Design

- How do we come up with new (good) designs for interactive systems?
- Why is it so difficult?
Why is HCI Design Difficult?

- Increasing complexity/pressure
- Marketplace pressures
- People often consider cost and appearance over human factors design
- Creativity is challenging
- Difficult to deeply analyze human behavior
- May be too close to the domain
- Multiple clients
- Co-evolution makes it even harder
Idea Creation

How do we create and develop new interface ideas and designs?

• Ideas come from
  – Imagination
  – Analogy
  – Observation of current practice
  – Observation of current systems

• Borrow from other fields
  – Animation
  – Theatre
  – Information displays
  – Architecture
  – ...

Turn off your natural critique mechanism!
Design Alternatives & Ideas

• Guidelines, Theories, Principles (Ch 2, 3)
  – Coming up next!

• Interaction styles (Ch 5, 6, 7)
  – What are different types of interaction?
  – When are they appropriate?
  – Next week