Upcoming Reading Assignments
- Tues - 4/25/00 - N&L 1, 2, 4
- Thur - 4/27/00 - N&L 4&5
- Tues - 5/2/00 - N&L 6&7

Project #3
Interactive System Design
- In the remainder of the course you will build an interactive system
- Approaching the ideal way to design a system
- Similar to a project series you might have in a Software Engineering course, but more emphasis on the user-centered design process

How different from S/W Eng?
- What you might see in a Software Engineering set of projects
  - Systems Requirements Spec.
  - System Design Specification
  - The design process from a system-building procedure
    - Detailed discussion of system design
    - More detailed system-design documents
  - System documentation
  - Object-oriented design techniques and methodologies
    - Object, control, and functional model
    - Quality assurance
    - Verification and validation
    - Change control and management
    - Project management

Overlap with Software Engineering projects
- System Design Specification
  - Problem Statement
- Systems Requirements Spec.
  - Description of functionality
  - Object and dynamic models
  - Building a system

What you will probably only see here
- User-centered problem statement
- Emphasis on the user and the task
- User-centered design approach
- User and task study
- Task analysis
- Conceptual model or metaphor
- Detailed usability requirements
- Detailed user interface specification

One-Sentence Design Problem Statement
- Includes
  - Form of the solution
  - Level of support, or usability
  - Supported activity
  - Performers of action (users)
- Example: Design a cash-operated machine for quick, easy purchase of railway tickets by passengers.
- Why one-sentence?
- Write a one-sentence and four-sentence design problem statement for a system of your choice.
Describe your User and Task Study

- Find a real potential user of your system
- Conduct an interview or observational study
- For example: You want to build the first Palm Pilot, so you observe people as they accomplish real and specific tasks using their current paper-based planner and address book.
- First just describe the study, including sample forms.

Present the results from the User and Task Study

- Present the results of the study
- First describe what you learned about the participants in your study
- The reader can determine if this is a representative user
- Then describe what you learned about the tasks
- Use an activity or task model, such as a hierarchic model
- Example: Hierarchic model for making a lunch date.
- The language should be that of people doing tasks, and nothing about the device.

Functionality Overview

- Now you are talking in the language of the computer.
- First a high-level summary, and then a more detailed description.
- The kind of thing you would read in the review of a software product.
- Prioritize the functionality. You will not be able to implement all of it.

Conceptual Model or Metaphor

- What is the User Model you expect your user to have?
- You will probably get it wrong, but at least you have now stated it and can potentially compare it to the real user’s model later.
- Example: The User’s Model would be that of flipping through a paper-based address book

Object model

- Describes the static structure of the objects in a system and their relationships.
- Contains object diagrams, graphs in which nodes are classes and arcs are relationships among classes.

Dynamic model

- Describes the aspects of a system that change over time and specifies the control aspects of a system.
- Contains state diagrams, graphs in which nodes are states and arcs are transitions between states caused by events.

Usability Requirements

- Learnability and Usability
- Set objective criteria
  - Specific tasks and times
  - Core versus advanced features
  - Try to be realistic

User Interface Specification

- The dynamic blueprint
  - What the user will see
  - What actions can be performed at each screen
  - What happens as a result of each action
  - How do these relate to Norman?
  - How do these relate to Swing?
  - It all comes together