CIS 443-543: User Interfaces
Winter 2006
Final Project

Due March 21, 2006 by 5:00pm in the CIS Office in Deschutes Hall.

Description: The goal of this assignment is to produce a prototype of software that has excellent usability. This is a team project with 2-4 people on a team, worth 30% of your overall grade. You can produce the software using any GUI builder or programming language you want…..as long as I can run it to grade it.

Studio: During the final weeks of the course we will have brief (15 minute) presentations and group discussion of your projects as they develop. These are called “studios”. Their purpose is to openly discuss your design ideas and problems and get feedback from the class and instructor.

Ideas for Final Projects:
- Information kiosk and travel planner for Lane County Transit
- Hiking guide for Lane County
- Math tutor
- Distributed, multi-player games: Wheel of Fortune, “Chinese” checkers
- Furniture layout editor
- Planner for a CIS major
- Greeting card creator
- Debugger or better interactive programming tools for Tcl/Tk/Python

Grading:
Written Report (40%)
Programming effort and Quality of final running code (40%)
Usability of Final Artifact (20%)
NOTE: You will be graded on (1) completing all the parts of the assignment, (2) correctly applying the methods and techniques, (3) having the content make sense and be representative of the real world, and (4) the quality of your presentation and writing—communicating ideas clearly, concisely, completely, and correctly (spelling and grammar).

Hand-in:
1. How to run the system and any other needed instructions.

2. Interactive System Design Report (See below.)

3. CD-ROM containing the project. This should contain source code and application version ready to run.

4. Paper version of source code - well commented. IMPORTANT: Please highlight the code you have added to any GUI builder generated code.
5. Group Member Evaluation (GME) form rating each of your team-mates and documenting any major problems you had with your group. (You should send this to me by email or put it in my CIS mailbox.)
The Interactive System Design Report

This document must COMMUNICATE your design and its usability evaluation. Keep that goal in mind. Another programmer should be able to imagine an interactive system and how it will work, or possibly implement from your description.

Use the following headings and contents for your report. This font is an explanation.

PART I: INTRODUCTION
A. Introduction
   What kind of interactive program is it? Adventure game, Web-based information system, graphics editor?
B. Problem statement: What is the program’s purpose in general?
C. Comparing programs of similar functionality:
   What’s good and bad with existing similar systems? What overall usability goals do you have?
D. Description of potential users
   Who are the users? What is their experience with other similar devices? What are their skills? How often will they use this system, and thus will they become expert users? Is there anything special about them?
E. Brief description of the user studies you conducted:
   What kind of study did you do? (Task Analysis, Interviews, Observation, Questionnaire, etc.) Include example forms.

PART II. REQUIREMENTS SPECIFICATION
A. Description of program’s overall functionality
   What are the typical user tasks or activities? Describe briefly.
B. Functional requirements (What the system should do.)
   1. Core Functions
      What core functions are absolutely necessary for your users? What functions need to be supported by on-line help? (List & describe. Be very specific. These are what you should implement.)
   2. What would be nice to have? (List & describe. Be very specific.)
   3. What would be a future dream? (List & describe. Be very specific.)
B. Context
   1. Description of target hardware/software.
   2. Integration: Other application software
      How does this application integrate into other software available on the computer? Have you accommodated that in the design.
   3. Products
      What products will it produce and at what level of quality?
   4. Outstanding constraints on design (standards, laws, etc.)
C. Overall interface style chosen and why
D. Conceptual model or metaphor (if any) used
E. On-line help facilities required
F. On-line learning materials (tutorials) and manuals required
G. Usability requirements

1. Overall Learning Time
   How much overall time will users have to learn the system—the core functions and the advanced functions?

2. Online Help Time
   How much time should they spend looking things up in a manual?

3. Overall Performance Time
   How much overall time should it take to do core functions and the advanced functions?

4. Core Function Usability
   For each core function, give a set of average user usability requirements: learning time, skilled performance time, and accuracy. (List & describe. Be very specific)

PART III. DETAILED USER INTERFACE SPECIFICATION

In this part of the design document, you describe how the functional requirements are achieved through specific tasks/activities of the user with the user interface. This is the “blueprint” for the implemented user interface design: What functions the user can perform are tied to what the screens look like and what user actions occur. Provide several interaction scenarios integrated with storyboards. These are narrative descriptions of the core user activities. In these narratives, coordinate storyboards to represent what the user sees and responsive action that are described in the narrative. You can refer to these as figures in the narrative. For example, “(See Figure 1 & 2.)” in the narrative text. This will provide a description of how the user interface works for core activities without having to run the program. These also can be used for training purposes in the user manual. Be sure that labels and screens are large enough that we can read the text!

A. How the user interface works:
   a. Scenario for a typical set of core activities
   b. Scenario for a typical set of core activities
   c. Scenario for a typical set of core activities

B. How the user interface works:
   a. Scenario for a typical learner of core activities
   b. Scenario for a typical learner of core activities

C. How the user interface works:
   a. Scenario for a problem session during core activities with error dialogs and undo
   b. Scenario for a problem session during core activities using on-line help

PART IV. TESTING AND EVALUATION OF THE USER INTERFACE:
USABILITY STUDY with USERS

A. Testing and Evaluation without users
   Describe any of the following studies you may have done. Include a description of the study, what you discovered about usability and specific design solutions you proposed.
   1. Guidelines
   2. Interface Walkthrough
   3. Keystroke Level Model (KLM)
B. Testing and Evaluation with users (Usability Study)
   1. Description of Usability Study
      Briefly describe the videotaped usability study you did, including any interviews, questionnaires, etc. What were your usability testing goals? Who were the people you tested? How did you choose them? What tasks did they do? How did you record it? How did you analyze it?
   2. Summary of Findings
      Summarize what you learned from this testing regarding overall usability of the design, and the usability requirements that were specified in Part II. BE SPECIFIC!
   3. Design Solutions to Problems
      What are the specific problems you observed? What problems were you able to fix? What problems still need to be fixed? What further usability testing do you need to do?

PART V. CONCLUSIONS
A. Future Design
   Is the design working? Improvements, extensions, etc. Where should this design go in the future?
B. Overall reflection on achieving the usability issues for your system