CIS 443/543 User Interfaces
Winter 2004
Final Project

Due March 17 at 8am-10am (time of the final exam) at a place to be announced. This assignment is worth 30% of your overall grade. Note that I will accept the written part of the assignment up until 5pm, March 17 in my CIS mailbox.

During the previous six assignments we have been working in teams to create an on-line election system for the November 2004 General Election in Oregon. This is the US Presidential election. (To prepare for this we are using the November 2000 General Election as a model.) This system that would be used by all voters in Oregon and would replace the current mail-in balloting used now.

The purpose of the final project is to complete the design project by producing a fully functional user interface for the following mandatory core functions: voter registration, on-line election pamphlet and other information, casting a ballot, and viewing election results. This software must be able to run cross-platform (Netscape and Internet Explorer), work on an 800 x 600 laptop display, and meet requirements for screen-readers for visually impaired users. It must also demonstrate a well-designed usable interface. Please note that we are giving priority here to the design of the user interaction component of the software. Other software issues such as database querying, concurrency control, cryptographic analysis of messages, network security, etc. will be assumed to be fully functioning with the UI just "hooking" up to that later.

Demos. During the final exam period we will all have the opportunity to test out each team's final project. In order to do this, I will have to find a suitable room for the demos. All groups will be expected to have fully functioning websites by that time.

Hand in for grading the following in a manila envelope with your team name and member names on the outside:

1. *How to run the system* (URL's for on-line testing, any other needed instructions)

2. *On-Line Election System Design Report* (See below.) This report pulls together many aspects of your six exercises into an overall description of the system.

3. *Paper version of source code* - well commented. IMPORTANT: Please highlight the code you have added to any HTML or GUI builder generated code.

4. *CD-ROM* containing the project. This should contain the necessary directory structure, data and *source code;* and an electronic copy of the *On-Line Election System Design Report*. Please provide an identifier on all visible web pages that gives the copyright symbol, year and your names.

The On-Line Election System Design Report

This document must COMMUNICATE your design and its 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.

STRUCTURE OF THE REPORT

PART I: INTRODUCTION

- Introduction to genre: What kind of program is it? What are the challenges?
- Problem statement: What is the program's purpose in general? What core functions does it support? You will also need to describe briefly how the system provides alternative methods that are not on-line for some voters.
- 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?
- Comparing programs of similar functionality:
  - What's good and bad with the existing mail-in balloting system?
  - What's good and bad with your proposed on-line balloting system?
- Brief description of the user studies conducted to gather design information and test usability.

PART II. USABILITY REQUIREMENTS SPECIFICATION

- Description of program's overall functionality
- How does the UI fit in with the rest of the system? You can use a diagram here to show system elements such as a database.
- Functional requirements (be specific)
  - What functionality is absolutely necessary for your users? What is nice to have? What is a future dream? (This essentially prioritizes your functions for implementation.) What functions need to be supported by on-line help or training? How does this system integrate into other software available on the computer?
- Overall interface style and design goals
- Conceptual models or metaphors used
- Usability specifications (be specific)
  - How much time will users have to learn the system--the core functions and the advanced functions? How much time should it take to do the core functions and the advanced functions? What is the acceptable level of errors? What is the acceptable level of user satisfaction?
- Description of target hardware/software
- Any outstanding constraints on design

PART III. DETAILED USER INTERFACE SPECIFICATION

In this part of the design document, you describe how the functional requirements are achieved through specific *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. These descriptions must include any error processing and on-line help.

1. Interaction scenarios integrated with storyboards. These are narrative descriptions of the core user activities. Include a few uses of help or possible errors. 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!

2. User Interaction Network. Describe your system's user interaction as a network. (Note: You can give an overall abstract network that shows major sub-systems and then elaborate each sub-system as a detailed user interaction network.) Label each node with a name and reference number. For each reference number, provide a figure that shows the screen display. Label each link in the network with a user action, e.g. select menu item "foo", drag mouse, etc. This allows us to sequentially simulate the flow of the interface. Be sure that labels and screens are large enough that we can read the text!

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

Testing and Evaluation with users

Briefly describe the videotaped usability study you did, including any interviews, questionnaires, etc. Who were the testers? How did you choose them? What tasks did they do? How did you record it? How did you analyze it?

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!!

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

Where should this design go in the future?

Is the design working? Improvements, extensions etc.

Overall reflection on the usability issues for an on-line election system.

Grading

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).

See the Grading Sheet for Final Project.