Assignment 4

Programming Usable Interfaces - Spring 2009
Assigned: 26 Mar
Due: See below

Iteratively Design and User Test a Device

You are expected to do iterative refinement of the prototype for a device (loosely interpreted). Preferably, think of a real world device (or computer interface) that you personally feel is poorly designed (this, for example, was why I chose copiers last time). WWW sites are not a "device," but if you have a GUI or WWW interface that involves, for example, filling out forms, that would be okay. Examples of the kinds of devices people have traditionally worked on are below – note that the best projects are where people work on some quirky thing that most people wouldn't think of. Please feel free to iterate with me on your choice of device; choosing well will make your job much easier. Your choice must be approved by me, and must involve serious programming. I will reject your first suggestions for devices if they are too simple.

Potential Devices (but pick your own!): TV/VCR controls, complex telephone/answering machine, CD-changer/jukebox, complex thermostat for a house, microwave oven, various (very limited) PDA (personal digital assistants), simple interface to E-mail, car stereo controls, high-end vending machine, cell-phone controls, navigation system for a car, calendar interface. The level of complexity of the device (measured by the number of screens or the number of buttons) should be about the same as the copier from Assignment 3.

Dates

- Assigned: 26 Mar
- noon 2 Apr: email to the instructor a half-page write-up of the "device" you'll test/design. (I will help you revise your ideas, so the earlier you email, the better.)
- noon 21 Apr: paper prototype, user study of the paper prototype, complete first implementation.
- noon 28 Apr (HW5): completed Heuristic Analysis of each other's designs.
- noon May 5: send me your software, final report and PowerPoint file (if any) for your presentation.
- May 5: give oral report in class.

Objectives

You must go through at least four rounds of iterations, as follows:

1. Create paper prototype (design 1)
2. User test paper prototype (user test 1)
3. Build complete implementation in Flex based on what you learned from paper prototype user test (design 2)
4. Heuristic analysis of first implementation (this will be HW5) (HE 1)
5. Second implementation in Flex, based on results of HE (design 3)
6. User test of second implementation (user test 2)
7. Third implementation in Flex, based on results of user test (design 4)
8. User test of third implementation (user test 3)
9. Optional fourth implementation in Flex, if user test of third implementation shows significant problems (design 5)

This may seem like a lot of steps, but you have over a month. Be sure to start early.

You must test at least 2 users (but preferably 4) for each user test. For your report of each user test, and heuristic analysis, you should prepare User Action Reports of the critical incidents (both good and bad). See the template for the UAR reports on the course website.

Hints

The focus of your efforts should be on the iteration, not on the design itself. I am much more interested in you learning "how to learn from user testing", "how to do a good heuristic analysis," and "how to iteratively modify program code based on the results," than I am in you ending up with a good design. However, the final design will count, so it is definitely worth improving it as much as possible. Good grades on this assignment will strongly correlate with starting early and doing a large number of iterations with appropriate users. The more "normal" the users, the better. Finding normal users is part of your assignment. Minimize the number of users you recruit from the university students (or faculty) population.

Turning in

April 2 by noon

You should have emailed the instructor a half page description of your idea and got feedback on whether it is OK or not. The earlier you email, the quicker you can get started on your design. Use subject line "PUI hw4a <your name>".

April 21 by noon

Turn in to the instructor in class: an envelope/bag (i.e. not loose) containing your paper prototype materials

Email the instructor a single zip file called <firstname-lastname>-device-hw4a.zip containing the following:

- task script, including your introduction, recruitment, pre-qualifying questions, description of think-aloud, and the task(s) you actually have users perform with your paper prototype
- UARs from study of paper prototype, following instructions given in class
- change log, just listing the changes made from the paper prototype
- 1st Flex implementation. Your code must be well commented with variable names changed from their defaults to meaningful names.

April 28 by noon

Your heuristic evaluation report of someone else's user interface (this is hw5, and instructions for this to be handed out later).

May 5 by noon:

Send to the instructor via email

- A PowerPoint file for your presentation to the class titled: <firstname-lastname>-device-hw4.ppt. You should be prepared to give a verbal summary of your findings to the class, using a demo of your finished interface, with PowerPoint. Your presentation will be graded on clarity and content, not speaking/performing skills.
- A softcopy of your final report titled <firstname-lastname>-device-finalreport.<doc/pdf>
- A signle zip file titled: <firstname-lastname>-device-hw4final.zip. This zip file should contain a softcopy of your final report and a separate .zip file for each of your Flex iterations. Each of these .zip files must have a name making it clear which iteration it is for: (e.g. <firstname-lastname>-device-v1.zip, <firstname-lastname>-device-v2.zip, <firstname-lastname>-device-final.zip). Your code must be well commented with variable names changed from their defaults to meaningful names

Final Report

Since the assignment is more about testing than anything else, your grade will be primarily based on a final report you will produce that will include:

1. A copy of your task script – more than one if you changed them, making it clear which task script goes with which prototype.
2. The UARs generated from all rounds, as described earlier. I would consider fudging this data (i.e. back-dating a test to make it look like you started the project earlier than you really did) an academic violation as serious as plagiarism. Make it clear which UARs correspond to which users and which prototype version
3. The report provided to you by someone else from their HE of your interface (obviously, their HE won't count towards your grade, but your response to their analysis will!).
4. A 5-7 page summary of "lessons learned" from the testing. A well-done document will describe specific, concrete things that happened in your testing, the general design principles they indicate, and your response to each (what you changed, and whether that helped, as evidenced by subsequent user tests). You should also discuss which of the issues identified in the HE you decided to address, and how, and which ones you decided not to address, and why not.
5. Any additional material from the tests that you think would be relevant (full user logs/notes are fine if you want to "give me everything."). Just remember that I'll only carefully examine the 5-7 page summary.