

# Term Project Guidelines

## HCI Fall 2015

*Final Project report due: Friday, December 4.*

Three hard copies are due in class on that day – no exceptions.

Electronic copies to Ken ([kharsch@brandeis.edu](mailto:kharsch@brandeis.edu)), Maria ([maltebar@brandeis.edu](mailto:maltebar@brandeis.edu)), and Rick ([ralterma@brandeis.edu](mailto:ralterma@brandeis.edu)) by 11 am.

## 1 Overview

Developing a good interaction design is a very hard problem! Ideally the design creates an effective, efficient, easy to use, easy to learn how to use, memorable, satisfying, enjoyable .... interaction for the user. Achieving all of these aims is what makes the design process difficult. In class we have been learning principles and practicing methods for interaction design. The in-class activities and your participation in the knowledge community has given you (and will continue to give you) the opportunity to do some initial playing with the methods you are learning. The main goal of the term project is to give you the opportunity to use all the methods together to produce a designed interaction.

Your design work will be organized around some key *scenarios* for the application you envision being built. The term scenario has a lot of definitions in the literature. We will use it here to mean the critical tasks that your stakeholders will be doing vis-à-vis your application. For example, what are the critical tasks for the knowledge community platform you are using this semester? A critical task for the instructor is setting up an assignment. One critical task for a student is writing a blog post and another is accessing and browsing the posts of other students. (You can access the posts by going through a list of posts, the gold star list, or by the student's pseudonym. What would be a better design for accessing and browsing?) You want your design for each scenario to fit together in a way that is consistent with your underlying conceptual model, any interface metaphor you use, and the interaction type you select.

You will work as part of a team; this reflects how it is done in industry. The basic work of your term project will be to develop a product for two/three scenarios of use. The best projects will produce creative and interesting product concepts that are developed into superb designs and demonstrate a superior knowledge of the principles and methods you learn during the semester. **Be sure to pick a doable project!**

## 2 Working Together

Term projects will be done in teams of 2 or 3 students. The project as a whole will be assigned a grade. Each student will be assigned an individual grade that reflects each student's level

of participation in the group work. In other words, if you only did a half share of work, then you only get 50% of the grade that is assigned to the project. For most teams, but not all, everybody will get a full share of the grade. If you feel that one of you team members is not contributing enough, let us know.

Success on the term project directly depends upon establishing good team work. Use google sites/docs to help organize and coordinate your project. An easy thing to do is to create on the front page of your team site a “to do” list to keep track of assigned tasks and deadlines. Link to the site other documents you create as you work – it will make it much easier to share your work. Use google docs *forms* to create and administer your questionnaires. Write the Final Project Report using google docs. And so on ...

### 3 Project Organization

1. Project proposal/description.
2. Gather data and identify stakeholders, needs, and requirements. Develop problem space.
3. Develop two/three different scenarios: at least one per person.
4. Develop a paper prototype for all your scenarios.
5. Evaluate the paper prototype.
6. Develop a second prototype.
  - This prototype should be developed using one of the patterns websites (see post 9). An alternative is to create a running prototype, but remember your grade will be for your design!
7. Evaluate the second prototype.

### 4 Required Method Components of Project

Part of the goal of the project is to give you the opportunity to practice some of the design methods that are discussed in class. Each team, as a part of their term project, is required to use the following methods to develop their design product:

- At least one interview script and interviews of potential users or a focus group.
- At least one survey questionnaire and the data you collected.
- An analysis of requirements and needs.
- Develop two/three different scenarios of use of your interactive product.
- Develop at least three tasks for each of the scenarios.
- A paper prototype.
- A patterns-based prototype.
- Detailed cognitive walkthrough of your prototype for each of your scenarios.
- Observation of at least two subjects using paper prototype and doing a talk aloud.
- Observation of at least two subjects using your second prototype and doing a talk aloud.
- A design rationale that uses Gestalt principles to defend some design decisions.

- A task analysis of a user task that compares the efficiency at the keystroke level of two alternate designs.
- Expert reviews using the design rules of Shneiderman and/or Nielsen for the second prototype.

In the appendix of your final report you will document that you have fulfilled each of the required methodological components of the term project. This means, for example, your appendix will include questionnaire(s) and the data you collected with it (them).

## 5 Project Proposal

It is advisable to start early and make steady progress. The remaining homework assignments will keep you on track. Because you are doing homework in the knowledge community, there will be lots of opportunities to get peer feedback on you own work and see how other teams of students approach the project and do their work.

You are required to submit an electronic copies to Ken ([kharsch@brandeis.edu](mailto:kharsch@brandeis.edu)), Maria ([maltebar@brandeis.edu](mailto:maltebar@brandeis.edu)), and Rick ([ralterma@brandeis.edu](mailto:ralterma@brandeis.edu)) and three hard copies of a project proposal/description on **Monday, October 26** in our mail boxes in the department office. The project proposal/description will include:

1. An initial description of the design problem you intend to work on. What is the situation you imagine? What issues will your interactive product address?
2. Your initial product concept and an explanation of why you think it is a good idea.
3. Two initial scenarios.
4. Explain why you think your project is doable.
5. A development plan that details how you will proceed, what data gathering and evaluation methods you will use, and when each method will be used.
  - The development plan will provide biweekly milestone markers that mark your expected progress.
6. A list of three “users”, who have agreed to be the subjects for your project. You should have them sign a “contract” that states they will participate in all the data gathering and evaluation parts of the project. You cannot use your fellow classmates as your users: you will want to use them to help debug your materials.

## 6 Final Report

The Final Project Report is due December 4 at 11; submit electronic copies of your report to Ken, Maria and Rick. You must bring three hard copies of your final report to class on that day — no exceptions! Each final report should include the following elements:

### A. Executive Summary

1. Tell us about the design problem and the situation in which it emerges. Give some details about the problem space.
2. Tell us about product concept. Include a picture or two. Convince us that this is a good product concept. Your project proposal is an earlier draft of this part of the final term project report.
3. Discuss what existing interactive products influenced your design. What did you learn from these existing products? Review post 6 for examples.

### B. Methods

1. A narrative that explains how your design was developed. When did you apply which method? What data did you collect and when? ...
2. Present your *data gathering plan*. Did you revise it as you went along? Reflect on how you would have changed the original plan if you knew then what you know now. Convince it was a good plan and you asked good questions.
3. A list and explanation of your *stakeholder* types. Review post 8 for examples.
4. Complete list of *needs and requirements* (functional, data, environmental, user). See post 8.

### C. Prototyping

1. Your two/three *scenarios*. At least two of these were developed in post 7.
2. A description of the underlying *conceptual model*, the interaction type, and the interface type, and a defense of why these are appropriate. Review post 2 for examples of conceptual models and interaction types. Review post 4 for examples of the different types of interfaces.
3. Your *paper prototype* and your *evaluation* of it.

### D. Final Design/ Second Prototype

1. A presentation and walkthrough of your final design for each scenario. Your narrative should include the following design rationales:
2. One design rationale based on a cognitive walkthrough.
3. A design rationale motivated by the basic usability criteria (easy to use, easy to learn how to use, memorable, ....). Review post 1 for examples.
4. Describe how your design was informed by the cognitive factors discussed in chapter 3 (review post 3 for examples): attention, perception; memory; learning; reading, speaking, and listening; and problem solving, reasoning, and decision making.
5. One design rationale based on Gestalt principles.
6. One design rationale based on a keystroke level task analysis.
7. A design rationale based on an expert review.
8. Your *evaluation* of the *second prototype*.

### E. An appendix that documents your application of the methods. At the beginning of the appendix section include a *checklist of all the required method components*, marking the one's you have completed and are included in the appendix.

Convert this outline into section/subsection headings for your final report. Start your report early and continue to write as you go along; rushing to finish at the end will be more work.

## 7 Grading

Your grade will depend on two parts:

### **Quality of your design (60%) :**

- What is the overall quality of the design product? How interesting were the design problems the project tackled? How good were the designs for those design problems? Is there a good conceptual model for how the interaction works? How easy it to do the designed-for tasks? Is it easy to learn? Is the design efficient at the key-stroke level? Is it easy to recover from errors? Does the design follow the basic rules and principles we discussed in class? ...
- How well written is the final project report?
- Are your design rationales convincing?

### **Use of design methods (40%) :**

- Did the project meet all the requirements?
- Were the methods knowledgeably and skillfully applied?