A5: Low-Fidelity Prototype

Individual assignment
Due: **Prototype is due Monday, 12 February before 6:00pm**
          Usability Test Results are due on Friday, 16 February before 6:00pm
Submit on MarkUs: https://markus.teach.cs.toronto.edu/csc318-2018-01
Worth: 10% of your final grade

The purpose of this assignment is to develop and test your high-level solution supporting the user needs identified in assignment A4. You will develop a detailed **hierarchical task analysis** explaining the steps that a user must take in order to complete an activity, and represent your solution in **low-fidelity paper prototype** to support these tasks. This will be your individual, creative attempt at solving the problem. Your individual ideas will later be used to seed your group solution for A6 High-Fidelity Prototypes.

On February 13, you will **usability test** your low-fidelity prototypes in class and discuss the results of your tests in a complementary submission for A5, due on Friday February 16.

> ## Your Tasks
>
> *Develop low-fidelity prototype.* **Due Feb. 12**
> - Develop a detailed task analysis diagram.
> - Create low-fidelity paper prototype(s).
>
> *Usability test your low-fidelity prototype.* **In class on Feb. 13**
> - Usability test your low-fidelity prototypes in class
>
> *Usability test results.* **Due Feb. 16**
> - Report and discuss results of your tests

Task analysis

1. With your group discuss the prioritized user needs, key personas, main scenarios, and key tasks you identified in A4. From all these, identify distinct sections of the design that your solution will need to address, and develop a **list of high level tasks** that your solution should support.
2. Once you have divided the design into tasks, **isolate yourself from your group and plan your own creative solution.** Individually, perform a **hierarchical task analysis** that identifies all of the steps that a user must take to complete a high-level task.

From design concepts to low-fidelity prototype

Building on your individual task analysis that breaks down a high-level task into its constituent subtasks and operations, **design your own individual creative solution**. This approach is similar to the IDEO shopping cart design workflow[1] (watch the video again if you are unsure), where different project groups created different prototypes.

1. Create **low-fidelity paper prototype wireframes of screens** that demonstrate your proposed design solution's user interface and functions. Refer to the examples shown in lecture. Your prototypes will be tested so they should have some depth in order to support some of your critical tasks. During usability testing you will be "flipping the pages" for your participants, as you play the role of the computer. Your submission should include all of the material required to play the role of the computer, such as screens of your system showing step-by-step what the user must do to complete your key tasks.

2. Develop your usability testing script, comprised of the **scenario** that you will use to create a context to guide your usability test participant, as well as high-level **tasks** that your participants will attempt to accomplish using your paper prototype.
   For example:

   > **Scenario:** *You are a 3rd year computer science student trying to sign up for a summer Computer Science course. Using this system can you show me how you would do the following tasks*:
   > (1) *Look at all the available Summer Abroad courses*
   > (2) *Look at the prerequisites for the CSC396 course in Berlin*
   > (3) *Review the requirements and fees associated with taking this course*
   > (4) *Sign up to take this course*
   >
   > **Notes** for usability testing and for your prototype's **data details** to support the above tasks:
   >
   > (1) user may need to **login** (or not?), find **summer courses** offered, find summer courses offered **abroad**
   > (2) user will need to **find the CSC396** listed among other Summer Abroad courses, look at the **course details**, and find the **prerequisites**
   > (3) user will need to locate **requirements** and **fees** for this course
   > (4) user will need to be able to **login** to the system, and **register** for this summer course

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[1] www.youtube.com/watch?v=taJOV-YCieI

Usability testing

In class on February 13, you will test your low-fidelity prototype with at least one of the instructors (professor or TA) and at least 4 students **who are not in your group**.

1. **Bring all of your paper prototype materials to class** on **February 13**. Your material must be carefully organized so that you can **quickly** "flip the pages" in response to your participants' actions. You should also have your usability testing script handy for reference during the test.
2. You must **take notes between testing sessions**, to keep a record of what worked well, what didn't work well. It is critical that you are well prepared and highly organized for the usability testing session.
3. After testing, **write-up** the corresponding **description of the solution**, how it addresses the problem and requirements identified in A4 and what its shortcomings are, including **what you learned** from your low-fidelity usability testing. Show some of the changes you made to your prototype based on your user feedback, in your **report due February 16**.
4. After these usability tests, update your prototype(s) and share them with your group. Later in A6 with your team you will combine your best design ideas from all paper prototypes and make your designs more beautiful and hi-fidelity.

Readings

To help you complete this assignment, you should read:

- Article on how to perform a hierarchical task analysis
https://thestandardinteractiondesignprocess.wordpress.com/process/understand-and-specify-context-of-use/hierarchical-task-analysis/
- Article on how to develop scenario for usability testing:
https://www.nngroup.com/articles/task-scenarios-usability-testing/

What to submit?

You will make two submissions for this assignment, **before** and **after** **usability testing** in class:

Before usability testing **Prototype Documents**: **DUE MONDAY 12 FEBRUARY**

1. Detailed **hierarchical task analysis** explaining all of the steps that a user must take to complete an activity, represented as a graphical representation tree diagram, demonstrated in the reading above.

2. Scanned version of **your paper prototype**. Include all of the screens and parts that will be added to these screens (e.g., popup dialogs, menu options), and add descriptive information where necessary. Organize what you scan so that it is clear which parts will be used with a given screen (e.g., scan each screen on a separate page including all of the parts that will be used for that screen). Note, the paper prototype must be **scanned** (do not take a photo of the paper prototype), **kept to scale** (i.e, when it is printed, it is the same size as the original) and of a **good quality** (i.e. resolution and contrast) so that everything is perfectly readable when it is printed. This will enable anyone to be able to reuse your prototype. There are many scanners that are freely available on campus: https://onesearch.library.utoronto.ca/scanners

3. Detailed **usability test script**, describing your **scenario(s)** and **tasks** that your test participants will perform with your system.

Your **Prototype Documents** deliverable should be compiled into a single document, in Adobe Acrobat PDF format. Include your official names and email address, as well as the name of your group on page 1 of the document as the cover page. DO NOT include your name and email addresses on subsequent pages of the submission.

After usability testing **Usability Test Results**: **DUE FRIDAY 16 FEBRUARY**

1. Provide a **rationale** behind your proposed solution, for your **design concept** and **design choices** discussed in 2-3 paragraphs; its intended benefits when it is completed and its shortcomings, relating to takeaways that you developed in A3 and A4.

2. Describe the aspects of the solution that your prototype is trying to address. Include details on the **metaphor(s)** you chose, the **modalities** and **interactions** you envision, and on any design decisions you have made.

3. **What you learned** in general from usability testing about your ideas, your design, and your prototype. These are the **general results**, not related to the two specific pages of your prototype that you will be discussing next.

4. **One important and complex page** [*Page A1 – BEFORE TESTING*] from your prototype that you learned about the most from usability testing. On left hand side of your report page show the image of your prototype page. On the right hand side list of findings. If findings refer to any particular item of your page, then make a visual connection (line or arrow) to that section of the page. Make sure that your points in the list are "**Observations**" details that you observed (example: "users did not see this button," or "users did not understand this label")and **not** "Design Solutions," which will appear next.

5. **Updated design of important page** [*Page A2 - AFTER TESTING*] Updated design of Page A1 on the left hand side your report page with a list of changes you made to the

design and reasoning behind those changes. Here you should include the "**Design Solutions**" (example: "Button is bigger than before," or "button has a better affordance than previously" or "Label was changed to be less ambiguous to users.")

6. **Second important and complex page** [*Page B1 – BEFORE TESTING*].

7. **Updated design of second important page** [*Page B2 - AFTER TESTING*]

This **Usability Test Results** deliverable should be compiled into a single document, in Adobe Acrobat PDF format. Include your official names and email address, as well as the name of your group on page 1 of the document as the cover page. DO NOT include your name and email addresses on subsequent pages of the submission.

How will it be graded?

Prototype before usability testing (40%):
        10% for the hierarchical task analysis
        25% for the paper prototype before usability testing
         5% for the usability testing script

Usability testing (10%):
        10% for how well you conduct usability testing
        (instructors and TA's will assess during the class on February 13)

Solution and testing results (50%)
        10% for the rationale of your design
        10% for description of your solution
        10% for general results
        10% for important and complex Page A before and after testing
        10% for second important and complex Page B before and after testing