CS3240 Project Semester 1 AY 2014/15

The purpose of the term project is to enhance your **understanding** of the design process from the lectures and **knowing how to apply them in practice**. Such understanding will come from the "real world" experience of working on a project.

This course is about the design of user-centered software applications in a rapid-prototyping development environment. This term project can be developed in a team of four members. The term project is developed iteratively through three design and development assignments.

Students will develop screen layouts, icons, and other assets for their prototytpes. Finished design may include more than graphics and text e.g. depending on the project, students may have to develop other digital media content, such as video, audio, and 3D models. Project documentation would typically include the design brief, composed of personas and scenarios, storyboards and evaluations. **Students may choose to maintain a project web site that documents the development process, and provides references. In that case, they could be exempted from submitting project reports. Please speak to your lecturer should you wish to maintain a project website instead of submissions to IVLE.**

Project Deliverables would include a software prototype, reports(or project-website), a video(or a poster) and presentations.

Find details and due dates of the deliverables in the sections below.

CS3240 project is divided in three assignments - G1, G2, and G3.

G1 : Proposal, Contextual Inquiry, Affinity Diagram and Task Analysis

DUE DATE Wednesday, September 17, 5pm (5% group grade)

The purpose of this assignment is to brainstorm for the selected project idea, and perform the initial task-centered interaction design.

1. **Identify target users**: Identify **4 potential target users** for the solution you plan to provide at the end of the project. Your users are real people who you know in person and are highly related to the problem you want to work on, such as your Dad's colleague or strangers with known ways to reach, or a professor in the physics department in NUS, a dentist in Alexandra Hospital, or a customer shopping at Cold Storage, etc. For example, if your design problem is to blind people can't interact with the web, you probably want to find a few blind users who are currently having such problems as your interviewers. List these potential users (however, don't use their real names for privacy concerns) and a short description of why s/he fits into your target user group.

2. Use the contextual inquiry methodology to learn more about the problem your target users are facing. The interviews will also help you perform a task analysis of the current practice of solving the problem. Perform contextual inquiry on atleast four target users (no CS3240 classmates and ideally they should not be your friends either) in their current working place. Follow the master and apprentice relationship model (you can divide the team to do this separately to save time, or you could do the first one with the entire group for practice, and then split the team to perform the remaining interviews in parallel. For each interview, you need to ask the participants to sign a consent form (you can download a template from Stuff to Download-Project folder). During the interview, one group member should be the apprentice, while the others take notes. You can also use a voice recorder (with the subject's permission). An interview could last between 30-90 minutes. During this process, keep an open mind. You are welcome to identify new "real" design problems from your users at this stage.

3. Based on what you have learned in class, interpret and analyze your data, and try to come up with a thorough analysis of the interview results. Identify the user needs, goals, problems and constraints as well as new design opportunities.

4. **Task analysis**: Answer the following 11 task analysis questions.

   1. Who is going to use the system?

   2. What tasks do they now perform?

   3. What tasks are desired?

   4. How are the tasks learned?

   5. Where are the tasks performed?.

   6. What's the relationship between user and data?

   7. What other tools does the user have?

   8. How do users communicate with each other?

   9. How often are the tasks performed?

   10. What are the time constraints on the task?

   11. What happens when things go wrong?

Deliverables (<u>speak to your Lecturer if you wish to maintain a project website instead of making submissions to IVLE</u>):

You will submit a write-up of text and sketches in a document. Name your document **YourTeamName_G1.doc** and post it to **IVLE G1 Submissions** folder. Your write-up should follow the outline below and will be graded accordingly. Try to be succinct but complete. Long-winded descriptions are just as bad as descriptions that are too short.

- *Cover page*

Each Team member's name and a short description (one sentence per person at most) of how they contributed to this assignment.

- *Design Problem Overview* (15%) **[upto 1 page]**

This overview should be a concise statement of the problem you are tackling.

- *Target Users* (15%) **[up to 1 page]**

Describe the rationale behind your choice of target users. For each of the target users, give some details of their background, their likes/dislikes and priorities. Avoid information that may reveal their identity.

- *Contextual Inquiry* (20%) **[up to 3 pages]**

Summary of each contextual interview, including the person's gender, approximate age (20s, 30s, etc.), job title, the location of the interview, who conducted and who took notes, how long it took to complete, etc. For privacy, don't use people's real names or any other uniquely identifying information. Also, include any difficulties you had or surprises you encountered in conducting the contextual interview. **[upto 2 pages]**

Reflect on the experience of doing a Contextual Inquiry. What was easy? What was hard? What did you expect? What was surprising? Did you ask too many questions? Did you ask too few? What types of questions worked best? Which lead to poor answers? Which lead to in-depth answers? Which work models were difficult to produce? Which were easy? Which helped most in developing your understanding? Which helped least? **[upto 1 page]**

- *Data Analysis* (15%) **[up to 3 pages]**

Briefly describe the process you adopted to analyse the particular problem you are working on. Be specific by discussing the process in the context of your specific problem and the data you collected and provide examples.

Share the result of the bottom-up hierarchy of notes of the following types of notes

  - *Key observations*
  - *User statements*
  - *Breakdowns*
  - *Insights*
  - *Design ideas*
  - *Questions and ambiguities*

Remember, the goal is to **summarise**, prioritise, find trends, patterns, by *finding the rules of the world*, *pushing knowledge up the hierarchy*, and *making data more presentable. You* also want to **explain** differences, contradictions, generate **new knowledge,** more *design ideas, more concepts.* This analysis also can help you to make **design decisions** by understand *what matters and how should we respond.* Whenever possible, **involve** the people you interviewed with the data for the discussion together.

- *Task Analysis Questions* (15%) **[up to 2 pages]**

Answer the 11 task analysis questions. Use examples from your interviews when applicable.

- *Requirement Analysis for your solution* (20%) **[up to 3 pages]**

Based on the task analysis and contextual inquiry, now describe the main features and components needed for the new solution. Justify your decisions and analysis. For example,

don't just give the final requirements. Convince the reader that your requirement analysis is based on data discovered in the contextual inquiry.

Note: this assignment will be graded based on

- The quality of the contextual inquiry carried out.
- The quality of the information you collected via the contextual inquiry
- The quality of the analysis you have performed based on the collected data.
- The quality of the writing.
- *Appendices*. These **may** include the following:

  - consent form (submit a blank copy, keep completed confidential forms on file until the end of the term)
  - the questionnaire(s)
  - useful raw data (don't worry about typing this up if handwritten)
  - group meeting notes (don't worry about typing this up if handwritten)

G2 : Persona, storyboarding, and alternative paper prototypes

The purpose of this assignment is to transform the design requirements into low fidelity prototypes.

DUE DATE : **Thursday 16th October, 5pm** **(7% group grade; 3% individual grade)**

Note: Each team will give a short presentation summarizing their work on Friday 17th October during Lecture hrs.

Persona, storyboarding, and alternative paper prototypes

What to do

1. **Define Primary user persona (20%)**: Starting with the target users you decided for the last assignment, further refine each persona, by providing additional details and/or pictures. By the end, they should be full-featured descriptions that can be used as a reference by the design team.
2. **Define key tasks (30%)**: Starting from the primary persona's goals, decide **three** key tasks that your system will support. Tasks are specific sets of actions that will allow users to achieve their goals. These tasks should address a broad set of important user priorities. Using your personas as actors, depict in a scenario how your system would be used to achieve each of these tasks using a storyboard. (Use graphics, even if you can't draw or sketch! Stick figures are awesome and encouraged!)
3. **Build paper prototype (30%)**: Using paper, index cards, post-its, cardboard, tape, glue and anything else you can imagine, build at least **4-5** low-fidelity prototypes (i.e.,

paper prototype) that can be used to mock "perform" the tasks depicted above. Each member of your team should build one prototype (***Label each prototype with your name and matric number. This part of the assignment will be graded individually***) Try to make a prototype that covers all three tasks. Try to come up with prototypes that are as different from each other as possible.

4. Formative evaluation (20%)

Evaluate 4-5 prototypes with at least 3 external users (at least two of them will be your target user). Ask the users to step through the 3 tasks outlined in your scenarios. Utilize the "Think-Aloud" protocol described in class. Once again, take detailed notes of the user's evaluation. Once the three user studies were completed, discuss the pros and cons of each prototype.

Deliverable: (speak to your Lecturer if you wish to maintain a project website instead of submissions to IVLE):

Submit a zip file **YourTeamName_G2 in IVLE workbin G2 Submissions folder** that contains the following elements.

- who did what in this part of the assignment
- a brief description of the problem you aim to solve,
- the description of personas,
- storyboards (scanned images) of the three tasks and images that represent each of the low fidelity prototypes.

  {Actual paper prototypes will be evaluated in class on Friday, 17th October.}

- Summary of the user evaluation process (1/2 page), major findings from users (up to 1½ page), and any reflection about the evaluation process itself (1/2 page to 1 page)

  List the pros and cons of the prototypes in a table (keep it simple, bullet points are encouraged, see below).

	Prototype 1	Prototype 2	Prototype 3	…
Pros	• Bla • Bla • …	• Bla1 • Bla1 • …	• Bla2 • Bla2 • …	…
Cons	• Bla • Bla • …	• Bla1 • Bla1 • …	• Bla2 • Bla2 • …	…

G3: Evaluation, Interactive Prototype, Project Video or Poster

DUE DATE **tbd, in Reading week (20% group grade - 10% Final Interactive Prototypes and Evaluation, 10% Report + Poster / Video + presentation)**
Note: Each team will present during Term-end Project Showcase.

In this assignment, you will showcase the final result of your group's iterative design and development during this semester. You will combine the pros of each prototype from the previous stage into a final interactive prototype. You can use PowerPoint interaction diagrams or any of your preferred method to create the interactive prototype.

You will perform one more round of evaluation on the interactive prototype, and revise it, produce a video, and make a poster to present for the final poster session to the class and instructors.

What to do

1. **Evaluation & Analysis**: Evaluate the interactive prototype produced after G2 with **3 more** target users using the same tasks used in G2 or different tasks, and collect user feedbacks. Based on the results of your evaluation, tell us what aspects of your design were successful and what were not? Refer to your evaluation results to justify why something was successful or unsuccessful. If unsuccessful, explain how your design could be altered to address this problem. Based on your results, adjust the final interactive prototype.
2. **Project video or Poster**: You also need to create either a project video **no longer than 3 minutes** to demonstrate the problem you want to address, your prototype, how it is used, and how did you come up with the design OR a **Poster. T**he poster should explain the **entire** project. It should include the problem you try to solve, the solution, and some of the findings in your user evaluations.

Deliverables (speak to your Lecturer if you wish to maintain a project website instead of submissions to IVLE):

A zip file **YourTeamName_G3 in IVLE workbin G3 Submissions folder** that contains

1) A document that describes the evaluation process, the major findings and changes you made to the final prototype
    a. Who did what in this assignment
    b. Overview of the problem you aim to solve and the solution you have come up (1/2 pages)
    c. Describe the evaluation process (1/2 – 1 page)
    d. Findings of the evaluation (1 – 2 pages)
    e. Describe the adjustment you plan to make for the final prototype and tell us why (1-2 pages)

f. The key ideas you have learned in this class about interaction design (be concise and to the point, maximum 1 page)

2) The final interactive prototype
3) A video (upload your video to youtube and include the link in the document) or the poster
4) Any additional supporting documents (such as consent forms, meeting notes, evaluation notes, etc.)

Instruction for project video

Your video must adhere to the following guidelines:

At most 3 minutes in length, noting that 2 minutes is a more common length.

Include titles, Learning Squad members' names, and the class name, affiliation (such as cs3240 SEM 1 AY2014/15, School of Computing, NUS) for the video.

Resolution of at least 720px x 480 px. Send as high a resolution copy of your video as possible.

We strongly recommend 16:9 aspect ratio. Encode your video using square pixels for the pixel aspect ratio to avoid your movie looking stretched when projected.

We ask you to upload your video to a video sharing service such as Youtube and submit the link to video instead.

Suggested video encoding format is MP4 using the H.264 codec. Most video editing software provides an exporting option to MP4/H.264, for example iMovie, Adobe Premiere, and Final Cut Pro. If you prefer to use free software, x264 can encode any video into H.264.

Third-party material and copyright

It is very important that you have the rights to use all the material that is contained in your submission, including music, video, images, etc. Attaining permissions to use video, audio, or pictures of identifiable people or proprietary content rests with the author. You are encouraged to use Creative Commons content, for example music available at ccMixter.

Videos will be graded according to two main criteria:

Content: The topic of the video is ultimately up to you, but some approaches that have worked well in the past include the following: presentations of interactive prototype and usage scenarios, visions of the future, humorous parodies or thoughtful critiques of Interaction Design, and reports on contextual inquiries and user studies. A video's content evaluation depends on how it addresses design problem, and whether its message is interesting and engaging.

Presentation: Is the video edited well? Does it make appropriate use of pacing, music, and special effects? Does it drag on, or will it hold an audience's attention? We encourage creative editing of your videos. The tight time limit is imposed to keep videos short and punchy. In addition to effective pacing, your video should include appropriate music or soundtrack. Your idea may be brilliant, but if you can't convey it in an engaging way, it will not make a good live video piece.