Term Project
(draft, to be finalized)

Due Times/Dates

2PM November 2 (Wednesday), 2016	Proposal Presentation
5PM November 21 (Monday), 2016	1st Preliminary Design Document
2PM November 23 (Wednesday), 2016	1st Prototype Demo
5PM December 12 (Monday), 2016	2nd Preliminary Design Document
2PM December 14 (Wednesday), 2016	2nd Prototype Demo
5PM January 3 (Tuesday), 2017	Complete Design Document
January 3 (Tuesday) – January 4 (Tuesday), 2017	Complete System Demo
2PM January 4 (Wednesday), 2017	Final Report and Presentation

The proposal presentation slides, design documents, and the final report should be submitted in printed form. Please use A4 paper and *double-sided* printing. Simply staple on the upper left corner; NO plastic or cardboard covers and NO binders, either. Drop each design document, by its deadline, in the physical mailbox of Yih-Kuen Tsay (the instructor); put the proposal presentation slides and the final report on the instructor's desk before the repsective presentation starts. Late submissions will be penalized by 20% for each working day overdue.

Warning: the short time gap between the deadline of a design document and that of the corresponding demo is for you to reflect all design changes in the design document. You should, of course, start the implementation far before the deadline of the design document.

Project Description

The term project is to be carried out by teams (groups) of 3 to 6 students. Detailed rules for the formation of teams will be announced in class.

Every team may propose to do whatever they like, as long as the proposed project meets the general requirements listed below. As a probable choice, you may consider redoing the project from the pervious year of this course, namely the development of a Web-based system called "AlumniBook", for facilitating the interactions between a university (or an academic department within a university) and her alumni and also interactions among the alumni.

General Requirements

- The progression of the project must be devided into three milestones (or sprints in the Agile Software Development terminology), each with a coherent set of demonstratable functions/features.

- You must use the Git version control system, set up for this course, to manage your development work.

- The system/service must be accessible from a Web browser. Note: try not to tie your system to a particular brand of browser.

- The system must have a multilingual interface, supporting at least Chinese and English.

- The system provides API with all data encoded in the JSON format, allowing developers to build new services on top of it.

- Requirements concerning security (secrecy, privacy, access control, software security, etc.) and system robustness.

  - **Secrecy**: Transmission and storage of sensitive data should be protected.
  - **Privacy**: Privacy of all users should be respected. A policy of privacy should be in place and enforced.
  - **Access Control**: An adequate access control policy should be in place. Every piece of data can be accessed only by a person with the access right. Access control should be implemented with single sign-on technology. Note again that a single sign-on server will be provided for demos.
  - **System Robustness**: The system should be robust and gracefully handle any illegal inputs by the user. In particular, it should be free from injection vulnerabilities.

- **Concurrency Control**: Several users may access the website at the same time, without interfering with each other or causing inconsistency in the data.

- DO NOT plagiarize (i.e., do not use material without crediting the source).

Proposal Presentation

Each team will have 5 minutes to give an oral presentation of their proposal to the class. The presentation should provide an overview of the product/service to be developed, giving the motivation and objectives, along with some highlights on its functions/features.

Design Documents

The system is expected to be implemented in three stages. Accordingly, there will be three required design documents: two preliminary design documents and one complete design document, at most 8, 12, and 16 pages long respectively. The preliminary design documents constitute an evolution to the complete design document, which gives a complete and thorough description of your system design.

A design document should include at least the following items:

- an overview of the *entire* system, including a description of its high-level architecture and all features/functions that will be provided,

- design of the components in the scope covered up to the current stage, including the various UML diagrams and their accompanying specifications,

- any other verbal or diagrammatic descriptions that would help clarify the design (e.g., the graphical interfaces).

Demonstrations

- Preliminary prototype demos

  - For a preliminary prototype demo, each team will have 5 minutes to show that the current implementation meets the goals of its preliminary design.
  - All preliminary demos will be scheduled during the class meeting on their due date.

- Complete system demo

- The complete system demonstration should be about 15 minutes long.

- To allow time for discussions, half an hour will be allotted to each team.

- Please schedule well in advance (at least one week before the due dates) a date and time with the instructor.

Final Presentation

Each team should give a 15-minute oral presentation with an appropriate set of slides; the presentation is to be followed by a 5-minute Q&A session. The slides should be designed in such a way that they can be made publicly available on the course website. The presentation must include a demo.

Final Report

The final report should be at most 10 pages long and include the following two parts:

Part One

- an overview of the system from the users' perspectives

- simple (but self-contained) manuals for the user or application developer

Part Two

- a summary of the final design (including possible changes and the reasons for these changes, since the final design document)

- the lessons (not necessarily technical) you have learned

- the task allocation, identifying what each team member has contributed to the project

Grading

Item	Percentage
Proposal Presentation + Slides	10%
1st Preliminary Design Document	10%
1st Prototype Demo	10%
2nd Preliminary Design Document	10%
2nd Prototype Demo	10%
Complete Design Document	10%
Complete System Demo	10%
Final Report	10%
Oral Presentation (with slides)	10%
Source Code (style, documentation, etc.)	5%
Usage of Tools (IDE, Git, etc.)	5%

The grading of the proposal presentation, the preliminary demos, and the final presentation will be based primarily on peer evaluation (by all the other teams).

All members of a team basically will receive the same score for the term project. However, a peer evaluation will be conducted within each team following the final presentations. The evaluation result will be used to adjust the score of each team member, up to 20% more or 50% less than the original score.