

CS3450 Project Selection

Assumptions

- Every student will be on a team.
- Each team will have three to six members. Four or five is the preferred size.
- Every student will commit to spending approximately 10 hours/week on the project. Some of those hours will be in class, but most will be outside of class.
- Every student will strive to help his/her team be successful.

Project Selection Criteria

- Must be interesting to all team members.
- Must include non-trivial requirements in three of the following five technologies:
 - Persistent data (e.g., databases)
 - Algorithms or business logic
 - Graphical user interfaces (pc-based or web)
 - Mobile development
 - Network communications
- The system must have at least three different types of “actors”, which are either distinct user groups, roles that users play, or connected software systems (outside the scope of what’s being built.)
- Among the actors, there must be at least 10 distinct, high-level use cases. It would not be uncommon to have 20 use cases. More than 30 would probably be too much.
- The team must have access to real people outside of team who can represent the different actors and act as domain experts. Those persons must be willing to meet with the team for between 4-6 hours during the semester, with most of the time occurring early in the semester when the team is trying to gather functional requirements.
- A rough estimate in hours for completing the project must fall between a minimum and maximum that is based on the number of team members. See table below:

# of Team Members	Min Hours	Max Hours
3	300	350
4	375	425
5	425	475
6	450	500

- The project cannot be anything done by CS3450 students in the last two years

Sample Project Ideas

Below is a list of sample projects. You need not choose a project from this list, but are free to do so if all your team members find it interesting. The primary purpose of this list is to help you get an idea of what would be an appropriate project.

Course Curriculum Management System

This system would allow faculty members to capture and document the courses in a curriculum, a course's prerequisites and co-requisites, the topics that each course covers, and expected level of mastery for each topic. Curriculum committee members could use such a system to coordinate instruction between classes, to make informed discussions about curriculum changes, and document reason for changes. A department head could use this system to help with making instructor assignments and creating class schedules. Students could use this system to explore courses and discover what each could offer in terms of new skills or knowledge.

Sidewalk Inventory System, including a Mobile App

This system could address goals that rely on crowd sourcing to build and update an inventory of sidewalks in a geographical area, like a city. As pedestrians use sidewalks, they could help gather data about those sidewalks, including their geo-locations and their current condition. The data-gathering activity could be a game, contest, or social activity. Pedestrians could also use the system to find suitable sidewalks for a particular walk or bike ride. City planners could use the system to analysis sideway network, pedestrian traffic patterns, and needs. They could then use this information for planning construction and maintenance projects. It could also be used for some interesting data mining and trend analysis.

A Distributed Environment Design, Testing, and Documentation Tool

This system would allow software developers to design operational environments for distributed systems. These are software systems that run on multiple hosts and coordinate work through network communications. Many cloud-based systems are distributed systems. To help design an operational environment, this would allow developer to identify the number and type of hosts, firewalls, routers, and security zones. It would also allow developers to specify relevant parameters and protocols for the desired inter-process communications. The system would allow operators or testers to check connectivity in an actual environment that was setup according to a particular design. The tool would document the desire configuration for all stakeholders.

Personal Health-management System, with Doctor and Pharmacy Interaction

This system would allow individuals and families to keep track of their own health records, including conditions, a history of medical events (illnesses, surgeries, etc.), prescriptions, and more. The system should allow parents to manage records for their children, but children would only be able to see their own data. Adults should also have the ability to

grant access to doctors and pharmacists, download the information into files of some standard format, or create a printout. The system could accept a secure feed of personal medical data from a health-information exchange or systems used by medical professionals, typically called an *Electronic Medical Record* (EMR) system.

Examples Ideas That May Not Meet Selection Criteria

Below is a list of ideas that do not meet the projection selection criteria

A game designed for a single player or only one type of player

Too few actors

A discussion forum

May not be interesting to all team members

Too few use cases

A multimedia player

Too few actors

Too few use cases

A code comparer to finds commonalities or differences in source code files

Doesn't involve non-trivial application of at least three of the five required technologies

A replacement for "Banner"

Too big!