

CSE 403: Software Engineering

Assignment 1a: Project Proposals Due: 11:00PM Saturday, September 28th

Assignment 1b: Project and Teammate Preferences Due: 5:00PM Tuesday, October 1st

A link will be provided on the course website to submit items

Objectives:

The goal of the first part of this assignment is to develop a product idea, not only thinking from the customer's point of view but also considering feasibility. You are pitching your idea to the staff in the hopes that it will be chosen for implementation, and you are also pitching your idea to other students in order to attract them to work on your project. Such a proposal is sometimes called a "Lifecycle Objectives" or LCO document. You will create a brief (1–2 pages) written description and a set of at most 3 slides. The goal of the second part is to indicate to the staff some preference for projects and, optionally, teammates, so that we can assign teams to projects.

Process:

Project proposals, selection, and team formation will tentatively proceed as follows:

1. **Work in groups of two or three** to brainstorm several possible project ideas that meet the constraints given below and then concentrate on fleshing out at least one idea into a proposal (your group may submit two proposals if you can't decide which one of your ideas you like best).
2. Create two items (requirements for these items are described in more detail under "Deliverables" later in this document), and place all partner's names and UW and CSE netids, on all items before submitting:
 - a. a written 1–2 page description of the project
 - i. in a written document you can discuss more details and nuances than you can fit onto 3 slides
 - b. a set of 1–3 slides (no more than 3 including the title slide if any), giving a very high-level overview of the most important points, and including a diagram
 - i. slides are more suited to visual presentation of information although they can certainly include short text phrases
3. Submit project descriptions and slides by 11:00PM on Saturday 09/28, after which the staff will make them available for viewing.
4. Be prepared to present your project proposals in class on Monday, 09/30 (we may do presentations on Tuesday as well if necessary). Presentations will be casual and low-stress, but come prepared to describe your proposal to the rest of the class.

5. Review all the proposals online, and submit your preferences for both projects and team members by 5:00PM Tuesday 10/01.
6. The staff will evaluate projects for feasibility and assign teams.
7. Projects and teams will be announced by Thursday 10/03 or Friday 10/04.

Project Constraints:

Any proposed project has to meet the following constraints:

- The project should have **some connection to the real world**. This rules out many game proposals (but there are counterexamples, like those in the style of FoldIt). The best projects will satisfy someone's need for computation or automation — maybe even your own.
- The project must have **some non-trivial data component**. Briefly mention what specific data you will access/store.
- The project must involve **communication outside of a single computer** or device (e.g., be network-enabled, have a client-server component, fetch web or GPS data, etc.).
- The project must be **able to be installed and run on CSE computers** such as the undergraduate lab, and must be installable and testable by the course staff. Your project should not require group members to buy software or services. Please let us know of any new (free) software that you think you might need installed within reason, and we'll try to arrange it (not guaranteed). Projects requiring exotic hardware or operating environments are disallowed.
- This must be **a new project** for this class. For instance, you could create a new plugin or application for some existing framework, but not merely create a clone or minor improvement to something that you or others have built in the past. Your product should either cover new territory or have compelling feature(s) that would make your customer select it over related products.
 - See the instructor if you propose to integrate your project with an existing product, since such projects do carry an element of risk.
- You may **not receive monetary compensation or credit** in another course for working on this project (no double-dipping). You are allowed to create something that you think could generate revenue for you in the future, but not to do a project for a particular paying boss/client/organization.
 - In particular see <https://www.cs.washington.edu/commercialization>.
- The project should be of **suitable size and scope** for to be completed (including design, testing, and documentation, not just implementation) in one quarter by a team of 6-8 student engineers; not much more or less.

Part (a) Deliverables:

Your proposal will consist of both

- a 1–2 page written description, and
- a 1–3 slide presentation (including the title slide, if any).

Both deliverables address similar issues (project vision, high-level software architecture, and risks), although in different ways. Be sure to include in each, among any other points, the following:

Vision

1. What is your product, on a high level?
2. Whom is it for?
3. What problem does it solve?
4. What alternatives are available?
5. Why is this project compelling and worth developing?
6. Describe the top-level objectives, differentiators, target customers, and scope of your product.
7. What are the competitors and what is novel in your approach?

Software Architecture

1. Make it clear that the system can be built, making good use of the available resources and technology.
2. Describe at a very high level the system's architecture, identifying the components/modules that will interact.
3. How will you implement the functionality?
4. What is interesting about this project from a technical point of view?
5. Optionally, what languages/toolkits do you propose to use for the development?

Challenges and Risks

1. What is the single most serious challenge you see in developing the product on schedule?
2. How will you minimize or mitigate the risk?

Submit both the description (written document) and the presentation (slides) in PDF format using the link on the course website.

Part (b), Ranking Proposals and Forming Teams:

After viewing all the proposals (descriptions and presentations), you will have a chance to rank the proposals that you wish to work on. We will have each of you submit:

- A ranked list of the five projects you are most interested in working on. You don't have to include the project you proposed; you may prefer others!
- *Optionally*, a list of up to five other students in the class whom you would like to work with on a project. Include yourself, and sort the list by family (last) name. The list does not have to contain the people with whom you developed your initial proposal.
- *Optionally*, if there are students whom you do not wish to work with, indicate that privately to the instructor.
- Please note that teammate or entire group requests will be considered but are not guaranteed.

These are separate preferences; of course, it's more likely to get some or all of your preferred team members if you prefer the same projects! In any case, we will assign teams and projects using these criteria:

- We will try to give you your choice of projects, based on your project ranking. But, just as in the real world, you don't always get your first choice.
- If a project is selected to go forward, then the people who proposed that project have priority for it (assuming that they ranked it highly, of course).
- We may reject, or adjust, projects that we decide are poorly scoped for the course, even if they are preferred by many students. Our objective is to avoid projects that are too easy or too hard, that have an unreasonable chance of failure, that require unavailable resources, etc.
- All things being equal, we will try to balance the types of projects selected so you can see a range of projects.