

Project 6: Final Project Part 1 - Proposal

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Due: Tuesday, 4/2/2024@11:59 PM PT

Contents I. Important logistics II. Introduction III. Complexity Guidelines IV. Approved Features V. Proposal Contents VI. Submission Guidelines VII. Proposal Review: What to Expect	TODOs: 1. 1 person per group signs up for a 10-minute slot on 4/3 or 4/8 to get proposal feedback for the group. Sign-ups are linked here. a. Meetings start promptly at the listed time, NOT at Berkeley time. b. Slots are first come first serve, so please make sure you sign up early! c. Please use your @berkeley.edu email when signing up. d. Everyone in the group should try to make the meeting e. If your group absolutely can't make any of the slots, make a private post on Ed (we can't guarantee a meeting in this case.) 2. Fill out the "Final Project Proposal" assignment on Gradescope a. Only one person per group needs to submit b. Don't forget to add your partner(s) to your submission! Stuck? Check out the Submission Guidelines section!
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Important logistics

1. You must work in groups of 2. Groups of 3 are sometimes permitted with approval from a TA, and we increase their project-complexity requirements accordingly. If you want to work alone you must get explicit permission from your lab TA. If you don't have a lab TA and want to work solo, you must **email Victoria Phelps at jedi_force@berkeley.edu**
2. **The deadline for this proposal part of the project is Monday, 04/01 at 11:59pm PST.** Please ensure that you submit your proposal before the deadline. **There will be NO extensions available for this assignment, and we will not offer any makeup review meetings — these meetings with a staff member are required to receive full credit on the project.**

3. Please [sign up for a time slot](#) to meet with a staff member for proposal review **before** you submit the assignment on gradescope. You should sign up as soon as you finalize a project group. Meetings will take place during labs and normal office hours.
 - a. **If none of the times work for you, please make a private post on Ed ASAP. If you do not notify us by 4/2, you will not be able to meet with a staff member and will receive a 0 on this part of the project.**
 - i. PS: while it is strongly encouraged that both partners be present during the meeting, it's okay if one can't make it — in this case, please sign up for a slot anyways (no need to post on Ed.)
4. **Late submissions:** Since this is important, we'll say it once again — it is required to sign up for a proposal review and submit your proposal by 4/2 11:59pm PST. there will be **NO** extensions available for this assignment. Students who don't submit / sign up for a meeting will receive a 0, since we logistically can't accommodate makeup meetings.

Introduction

For the final project, you'll be building a project that you envision in either Snap! or Python, completely from scratch (how cool is that!) First, however, you'll need to submit a project proposal that will be reviewed by a staff member to ensure that your project won't be too easy or too complex. The proposal should come to about 1-2 pages, single-spaced (before you transfer the information to Gradescope).

This proposal is meant to be just an ideas-focused starting point — the spec for the technical requirements of the final project will be released later this week, and you should reference that as you work with a staff member to ensure that your project idea will meet all requirements.

Please read through this entire spec before writing your proposal. And keep in mind that the project proposal is a REQUIRED element of the final project, and you will receive a 0 on this part of the project if you do not submit your proposal and meet with a staff member for feedback.

Complexity Guidelines

Complexity, for your project, basically means “how difficult is it to implement?” and is used as a measurement to ensure that final projects fit a happy medium of not too hard and not too simple, when taking into account both how much you've learned and how much time you have.

If your project idea relies heavily on the following, we recommend you consider alternate projects, or try a suggested workaround:

- *Using the 'is_touching?' block in Snap:* This is **NOT allowed**. Try implementing a grid instead, using the techniques we've covered in the 2048 project, to increase the complexity of the project.

- *Mainly being a guess-and-check game:* This is generally considered too easy since it consists primarily of a series of if-then-else statements. A number guessing game, for example, would not be complex enough. This might be a good mini-game in a bigger project.
- *Data entry:* Alone, this might be considered too simple. Often, projects that rely on data entry get ‘bigger’ by having a bigger database. A fix for this would be having the data component be just one part of a bigger project.
- *Robot/AI player:* Depending on the game, this could be a good fit, or too complex. An AI player for chess or Go would be too complex. An AI player for tic-tac-toe would be a good level of complexity.
- Games like Pong, Frogger, Tic-Tac-Toe, Guess the word, or Hangman would likely not be complex enough and are **NOT ALLOWED**.
- Games like Angry Birds, Balloons Tower Defense, or Need for Speed would likely be too complex.
- Games previously implemented in Projects are not allowed (because you’ve already done them).

Don’t be worried if you really like a project idea but think it may be too complex, or not complex enough — that’s the purpose of having a proposal and proposal review process, so you can work with a TA to get your project complexity into the right range!

When considering what your project is, and how you plan to implement it, see if you can figure out a solution or a structure for a solution first, before defaulting to what you’ve seen done before! A few gauges for the complexity of the kinds of solutions we’re looking for are: coming up with logic to check for four-in-a-row in Connect 4, or figuring out how to make Flappy Bird seem realistic(ish) in Snap!

Of course, there’s a range of project complexity that falls into the “accepted proposal” range. Here are a few examples:

[The Chrome Dinosaur Game:](#)

- Feature 1: Randomly generated shrubs and pterodactyls appear on the screen as obstacles.
- Feature 2: The game ends when the dinosaur runs into an object.

[Mancala:](#)

- Feature 1: When a player chooses a group of marbles, those marbles get distributed around the board, picking up more marbles when the last one falls on a non-empty hole
- Feature 2: Game over when all marbles are in the two goals, winner is the one with more marbles

[Doodle Jump:](#)

- Feature 1: Doodle jumps continuously, moving higher up in the sky as he lands on bouncing platforms that continuously move downwards

- Feature 2: Game ends when Doodle falls off the screen

Bubble Shooter (Difficult):

- Feature 1: Computer will generate randomly colored bubbles that players can shoot
- Feature 2: If the program detects groups of the same color, it will delete them.

Other projects that fit complexity requirements that students have done in the past include: Flappy Bird, Snake, Chutes & Ladders, various puzzle games, data science analysis, Battleship, and chatbots.

Approved Features

Here is a list of approved features. Your 2-3 features should be from the following list. If you are proposing to have a feature that does not fit within the guidelines below, you will need to discuss it with your TA, but it is unlikely to be approved.

- 2D, Nested lists. The nested list can be a representation of the game board, highscores, positions, or some other structure
- Extensive, dynamic visual display
 - Must include:
 - At least one background
 - At least two sprite costumes
 - At least one sound
 - A help screen or guide to interact with program / instructions
- Organized Text UI in Python
 - Must include:
 - A visual print statement of current state of program
 - A list of functions the user can (such as help, place move, restart, etc.)
- Extensive use of OOP in Python
- API calls (calls to other programs or websites) - Don't worry about doing this one; but it's an option if you're interested!
- Structures keeping track of important data
 - Examples: Dictionaries, Lists, Trees, Sets
- Complex Algorithm
 - Examples:
 - Binary Search Algorithm
 - Determining whether a game is over condition
 - Determining whether a move is valid
- Extensive use of libraries (in either Python or Snap!)
 - Must use at least three different functions for the library imported
 - Or three different libraries imported, and one function each is used.
- An AI that runs the program/plays game and tries to optimize for winning moves

Features that DON'T COUNT:

- Randomization (it's completely okay to have randomization, but it doesn't count as a feature)
- Helper functions
- Inputs/outputs
 - Example: Games that simply ask a user for a response/prompt to input

Proposal Contents

So now that you've got a project idea in mind, it's time to write about it! The questions you should answer in your project proposal are below. We recommend you draft your answers out on a Google Doc or Word document before submitting them into Gradescope.

- 1. Who are the members of the group?** *List each group member's name and SID.* You should work in pairs of 2, but if you want to work alone (or in groups of 3) you'll need to get explicit permission from your TA during the meeting. This is a complicated project, so we very rarely permit students to work solo.
- 2. What language will your project be in?** *Python or Snap? If you're doing a graphics-heavy project, we recommend Snap!, as staff will have limited capacity to assist with debugging Python libraries.* If you're not sure, pick whichever you and your group feels more comfortable coding in, and you can check in with your TA/tutor about it later.
- 3. What is your vision for the project?** *Describe the specific project and the major 2-3 features you'd like to accomplish. Groups of 2 should list 2 features, groups of 3 should list 3.* Please go into detail on this one, even if you think your project is well-known! The clearer you are, the better your TA/tutor will be able to help you adjust the project if it falls outside the optimal range of complexity.
- 4. How will someone interact with your project?** *Describe the controls that will be used.* For Projects 1-2, the answer to this question would be text input via keyboard. For Project 3, the answer would be keyboard controls/arrow keys.
- 5. What are the technical elements behind your features?** *Go into more detail about your preliminary thoughts about how you'll make the 2-3 features happen.* What you come up with here doesn't have to be exactly what you end up doing, but it should convey how you plan on implementing the project in terms of blocks/functions or computing ideas. For example, Pytris utilizes object-oriented programming to build and abstract different elements of the game.

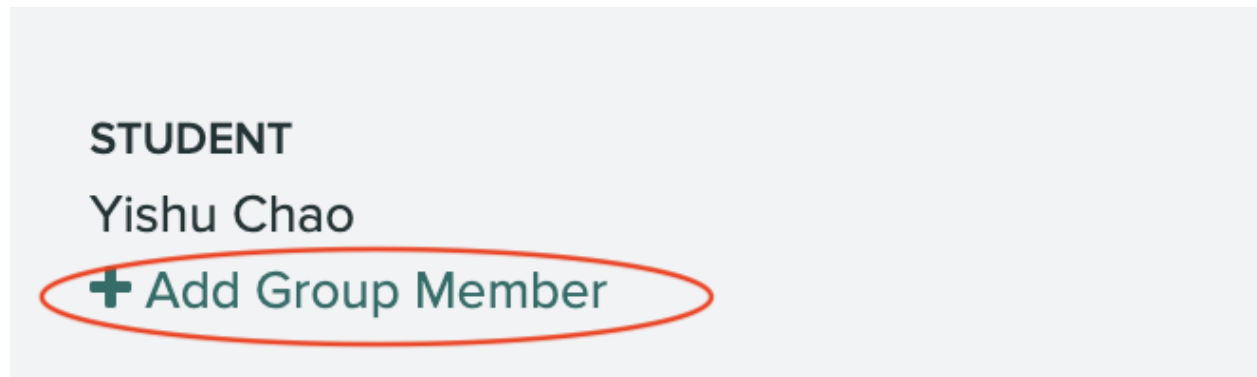
Here is an [example proposal](#); it should give a sense of how much detail we want you to go into on the proposal.

Submission Guidelines

First, **one person in your group** should [sign up for a slot](#) on 4/3 or 4/8 when your entire group can meet with a staff member to discuss your proposal. Please note that spots come first come first serve, so please sign up early. **You can sign up for any slot you are available for. Please only sign up for one spot per group.**

By the 4/2 11:59pm PST deadline, you and your partner(s) will submit your project proposal as a group on Gradescope. There is 1 assignment, and you should mention the date and time of the slot you signed up for in Question 2 of the assignment.

The assignment has the proposal format in it, so your group will need to fill out all of the boxes with your answers to the questions listed in the previous section! Only one person from the group needs to submit. After you submit, **please don't forget to add your partner(s) to the submissions!**



Your project proposal review will take place during the time slot your group signs up for. These slots are during labs or office hours. You need to ensure that you can show up for the time slot you signed up for.

If you signed up for a spot between 6-8pm PST on 4/03 or 4/08, you will attend the meeting in the Moffit-145. Otherwise, your meeting will be held in SDH200.

While only 1 person per group should sign up for a slot, your whole group should attend the proposal review session, but if only part of the group can make it, that's okay – just make sure to catch everyone up afterward. **If none of your group members can attend any of the proposal review slots, make a private Ed post. You must notify us by 4/2 11:59pm PST.**

Proposal Review: What to Expect

A staff member will review your project proposal, and either approve or disapprove it. Keep in mind that even if your initial proposal is disapproved, that's only an indication that *that specific*

version of the project might have been too complex or not complex enough! Your TA/tutor will work with you during the proposal review session to figure out a fix or adjustment to your project idea or suggest other ideas if necessary.

Regardless of the status of your project proposal (whether it's unfinished or you've changed your mind), you must attend the project proposal review meeting with a TA/tutor. If you are able, please try to attend the lab/OH of the TA/tutor you have your proposal reviewed for the duration of the final project.

If your initial project proposal is *not* approved:

It's okay! This happens to lots of students every semester, and really just means that you'll have to adapt your idea a bit to ensure it fits our complexity requirements, which the staff member you meet with for your proposal review will help you with. If you decide you'd rather pursue a different project idea, please note that you'll need to write up another project proposal, and have that approved before you can start working.

Note: If you choose not to adjust your project as suggested or do not submit a second proposal when your idea changes, you are unlikely to receive full credit for complexity.

If your initial project proposal is approved:

Congrats! You can start working on your project. Note any questions (for resources, clarifications, or suggestions/advice on implementation) that you might have for your project TA/tutor, and bring them up during your proposal review session!

As you begin to code, you may feel the need to make adjustments to your project and features (often because of time constraints or unexpected complexity). This is perfectly okay! You don't have to run the changes by your project TA/tutor to start implementing them, but we do recommend that you check in with any adjustments to ensure that you are still within complexity guidelines.