# CS 106 Winter 2019

Final Project

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**Due: Friday, April 5th, 11:59pm**

Starter code: None

## Question 1 Project

As a final assignment of the term, we would like to give you the opportunity to explore the many new ideas and tools you learned in CS 106 to create something of your own. This mini-project is very open-ended: you can basically choose any theme or concept you want, as long as it uses a sufficient number of CS 106 ideas. The rules are spelled more fully below.

The project runs over two weeks. There will be no extensions. The project is worth double the weight of a regular assignment. And while we will drop your lowest assignment mark at the end of the term, **this project is not eligible for dropping**: it will be counted, even if it's your lowest mark.

### The Menu

We'd like to see some breadth in the libraries, tools, and ideas you use in the project. To that end, we offer you a "menu" of topics from the term that you can choose from. Below you will find **six** course-related topics. Your project must use **four of them**.

1. **Input and Output:** Reading and displaying images and vector illustrations; writing images, vector illustrations, or text.
2. **Advanced Shapes:** `beginShape()`, `vertex()`, `endShape()`, `PVector` and polar coordinates.
3. **User Interfaces:** Direct manipulation; `ControlP5`.
4. **Geometric Context:** `pushMatrix()`, `popMatrix()`, `translate()`, `scale()`; hierarchical modelling.
5. **Randomness and Noise:** `random()`, `randomSeed()`, `noise()`; generative art and design.
6. **Data Processing:** Reading text, parsing text, finding patterns, processing information in tables or JSON, getting data from online APIs, data visualization.

You can choose any combination of four features that suit your project idea. Of course you can use more than four if you need to, but it's not required.

For each of the features you're using, you'll be marked for both *correctness* (whether you're able to make the feature work as intended) and *effectiveness* (whether the feature is making a useful, non-trivial contribution to your project). The effectiveness mark is a bit of a judgment call, but we will be generous. The goal is to make sure you do something interesting with your feature. For example,

adding a single line reading `save();` to your sketch, saving a screenshot of your sketch window, would not be considered effective use of Input and Output.

It's important that we'll be able to run your sketch when you submit it. Please ensure that it's self-contained (for example, it doesn't rely on local files on your hard drive). Don't rely on unusual hardware (no Arduinos, no Myo armbands, no Leap Motion, etc.).

## The Write-Up

Because we don't know what you're going to give us, you'll need to describe it to us. In the same folder as your sketch, you must include a **write-up** describing your project. The write-up can be a plain text file or a PDF, and must include the following sections:

- **Description:** What is your project? What does it do? What was your inspiration? (One paragraph is enough for this.)
- **Instructions:** Explain how to run your sketch, and how to use its features. The length of this section depends on how complex your sketch's user interface is.
- **Features:** List which of the features from the menu above you used in your sketch. For each one, give one or two sentences explaining how you used that feature.

Your write-up will also be graded for correctness and effectiveness. It needs to explain the content and features of your project correctly, and it should make it easy for the course staff to understand how to use your sketch.

Call your write-up `readme.txt` or `readme.pdf`.

# Submitting

Create a folder “FinalProject_username”, but replace “username” with your UW id. So if your email is “jac926@edu.uwaterloo.ca” you would create a folder “FinalProject_ jac926”.

SAVE your sketch in that folder as “FinalProjectQ01_username”. Again, replace username with your UW id.

Zip your “FinalProject_username” folder (with “username” replaced by your UW id) and submit it the correct assignment dropbox.

It is your responsibility to submit to the correct dropbox with the correct files before the deadline. Otherwise you will have marks deducted.

# Academic Integrity

All assignments in CS106 are done individually. Group work and sharing of code is not allowed.

Detecting Plagiarism:

- We monitor Reddit, File Trading Sites, past year CS106 assignments, etc.
- We use Measure Of Software Similarity (MOSS)
    - automatic system for determining the similarity of code

Discipline

Discipline (Policy 71)

- https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71