

# FP0: Initial Planning for Final Project

## This is a team assignment designed as an in-class activity.

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This team assignment was created by Dr. Jan Pearce

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### Directions for use:

- One member of your team should make a copy of this worksheet in his or her Google account.
- Turn on sharing by link. Do not make it publically accessible by web, only by link.
- Share your copy with pearcej@gmail.com and your partner(s) via their Google account.
- Change the usernames in the document title as directed. (Your username is your Berea username--mine is pearcej.)
- Submit the sharing address (not the edit address) of your completed activity into Moodle.

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### Member Roles

- If you have only two people, combine Recorder & Spokesperson
- Make up a team name which suits your team!

| <b><u>Team Roles</u></b>                                                                                                  | <b>Member Name</b> |
|---------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Facilitator:</b><br>Reads the questions aloud, keeps track of time, and makes sure everyone contributes appropriately. |                    |
| <b>Recorder:</b><br>Records all answers and questions and uploads when complete.                                          |                    |
| <b>Spokesperson:</b><br>Talks to the instructor(s), TA(s) and other teams. Compiles and runs programs when applicable.    |                    |
|                                                                                                                           |                    |

|            |  |
|------------|--|
| Team Name: |  |
|------------|--|

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## FP1: Initial Planning for Final Project

### Objectives

- Reflect on your own learning
- Gain practice in identifying key concepts from the course materials
- Develop materials to help others understand key concepts in the course
- Synthesize data structures concepts learned in this course
- Explain data structures in an organized manner in a video

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### Each Team will focus on a key topic:

**Each team of 1 or 2 or 3 people will draw a number to be assigned a project.**

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In this final project you will be randomly assigned a data structure topic that we have covered in this course. You will choose and enhance C++ code from the course (text, assignments, labs, teamwork, etc) that highlights this topic, analyze the big O of this code, and create a video that illustrates your topic.

|    |                          |  |  |
|----|--------------------------|--|--|
| 1  | arrays and vectors       |  |  |
| 2  | big O and why it matters |  |  |
| 3  | classes and ADTs         |  |  |
| 4  | hashing and hash tables  |  |  |
| 5  | linked lists             |  |  |
| 6  | pointers and variables   |  |  |
| 7  | queues and stacks        |  |  |
| 8  | recursion                |  |  |
| 9  | searching                |  |  |
| 10 | sorting                  |  |  |
| 11 | trees                    |  |  |

For your final project, you will be submitting the following:

- C++ codebase enhanced from code used in the class (from the book or a lab, etc)  
Clone this repo for your final project: **FP-Code**
- Project Report and Big O Analysis
- Video you create on your topic
- Team evaluation

|                        |  |
|------------------------|--|
| <b>Selected Topic:</b> |  |
|------------------------|--|

**Warning--do not give a long lecture in your video. Why? See [Lectures aren't just boring, they're Ineffective, too, study finds](#). Many other studies show the same thing. Although people may enjoy a lecture if the lecturer uses humor, people simply do not learn much from lectures. Worse, lectures teach people to be passive learners, which is the exact opposite of what is needed for success in the rapidly changing discipline of information technology. Hence, no long lectures.**

**Here is an example of a good video on a topic from this class.**

Video Example by Vi Hart

The video below illustrates the following key ideas in a creative way:

- decimal place values
- binary place values
- How to count in binary



## Binary Hand Dance - YouTube

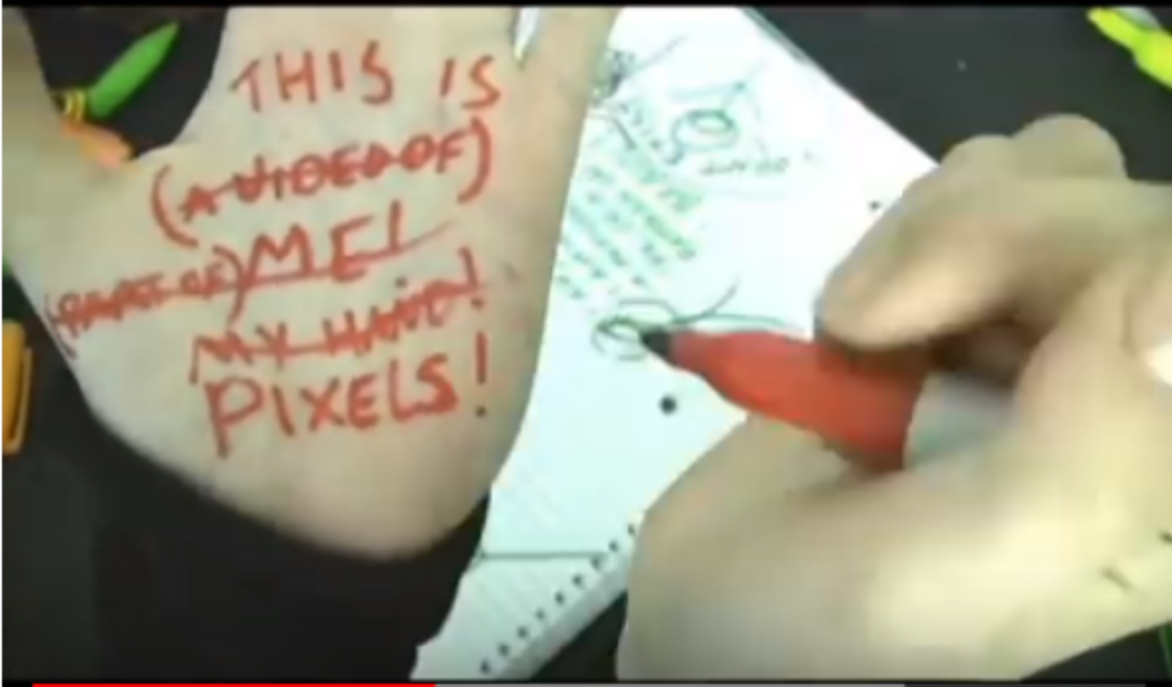
YouTube · Vi Hart

See: <https://www.youtube.com/watch?v=OCYZTg3jahU>

### How to Make a Great Video by Vi Hart

The video below illustrates the following key ideas in a creative way:

- A little bit about recursion
- The process of making a video
  - Choose a topic for the video
  - Create a script
  - Revise the script by cutting to make it succinct Vi recommends cutting ~30%
  - Film stuff (maybe writing or drawing or construction paper or clay or whatever...)
  - Cut out lots of the boring parts of the film
    - She does not actually have interns, or an agent, or a stunt double--those are just jokes....
  - Read and record the script



How To Make A Video About How To Make A Video About How To Make A Video About How To Make a Video...

See: <https://www.youtube.com/watch?v=4gZ5rsAHMI4>

|                             |                                                                |
|-----------------------------|----------------------------------------------------------------|
| Thoughts on code to enhance | <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul> |
| Thoughts on video           | <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul> |

| List your team's assigned initial tasks (if any additional)                                                                                                                                      | List specifically who is assigned to what here (if any additional)                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• All team members should have read your text sections, thought about code to enhance, and thought a bit about the video</li> <li>•</li> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• All team members</li> <li>•</li> <li>•</li> </ul> |

## Milestones

- **FP1 All team members should have reread your text sections and thought about code to enhance.**
  - **FP2 Your C++ codebase, report, and big O analysis.**
  - **FP3 A video script and a link to your video is due.**
  - **FP4 an evaluation of your work and the work of your teammates**
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## To Submit

**When you are finished with your initial planning:**

- **Share your copy with both pearcej@gmail.com and all team partner(s). Be sure you do NOT make it publically accessible on the web.**
- **Turn on commenting for those with the link.**
- **Change the usernames in the document title as directed. (Your username is your Berea username--mine is pearcej.)**
- **Submit the sharing link address (not the edit link address) of your completed lab activity in Moodle. Be sure that EVERYONE submits in Moodle.**