TP3 Update

- Added a downdraft period that happens every minute
    - The player's downwards acceleration increases significantly for a number of seconds (depending on your energy loss per jump)
    - Thus, jumps are smaller and have to be more frequent in order to not fall too low
- Added increment buttons for customizing the obstacle speeds for clearer instructions
- Edited the increment button for the energy loss per jump
    - Now can increment by 0.1 instead of 0.25 for more specific customization
    - Cannot go over 1 (or you would definitely die during the downdraft period)
- Removed energy label because of the floating point representation problems that happened when I changed the custom energy increment to 0.1 instead of 0.25
- Added a scrolling background that moves at the same speed as the webs since webs are stationary

TP2 Update

- Instead of having a wasp sprite, I think I'll make it an image (along with the other obstacles) since having to run CMUImage every redrawAll reallyyyyyyy slowed things down
- I'm worried that the custom level difficulty that I'm currently working on (where the player can choose how fast the obstacles come, the time they need to survive, etc.) isn't algorithmically complex. Because instead of doing OOP, the way I've done my code since the beginning of the project would make the simplest implementation of customizable difficulty to be just resetting the app variables

TP1 Update

- No lives bar, but there is an energy bar that decreases every time the player jumps
- 2 different kinds of flowers
    - Red has more energy than pink

Project Description

Project Name: Brave Butterfly
Description: Similar to Flappy Bird, but butterfly themed and is inspired by monarch butterfly migration patterns. Basically you're a butterfly and you're migrating south and you have to avoid getting eaten by birds, getting caught in spiderwebs, etc.

Similar Projects

As stated earlier, this project is similar to Flappy Bird, but I plan to add a little more pizzazz by creating multiple different kinds of obstacles, such as having to avoid running into wasps, spiderwebs, butterfly nets, etc. Each of these will require different kinds of maneuvering. I also want to add some sort of "energy depletion" feature where if your butterfly goes too long without food/flowers, it dies. I'm hoping to also include a start menu where you can select the difficult level, customize your butterfly color, and other stuff if possible.

Structural Plan

Visuals

- Terrain
    - Moving background
    - Obstacles
        - Wasps
        - Spiderwebs
        - Butterfly nets
- Butterfly
    - Customizable color
    - Flapping wings animation
- Start menu
- ~~Lives bar,~~ energy bar
- Flowers (2 kinds, carry different energy points)
- Death screen
- Win screen

Mechanics

- Semi-randomized obstacles, ~~based on difficult level~~
- Depleting/adding energy, based on flowers

    - ~~Perhaps every certain number of steps, subtract an energy point~~
    - Every flap of wing, subtract energy
- Moving the butterfly up with space bar
- Create a Butterfly/Player class, with properties energy, color, ~~lives~~, and position
- Create an Obstacle superclass with subclasses Wasp, Spiderweb, and Net
- If you survive long enough (probably 1 minute), you win!
- Also I might do a sandbox build-your-level feature where the player can choose the frequency of obstacles, timing, etc.

Algorithmic Plan

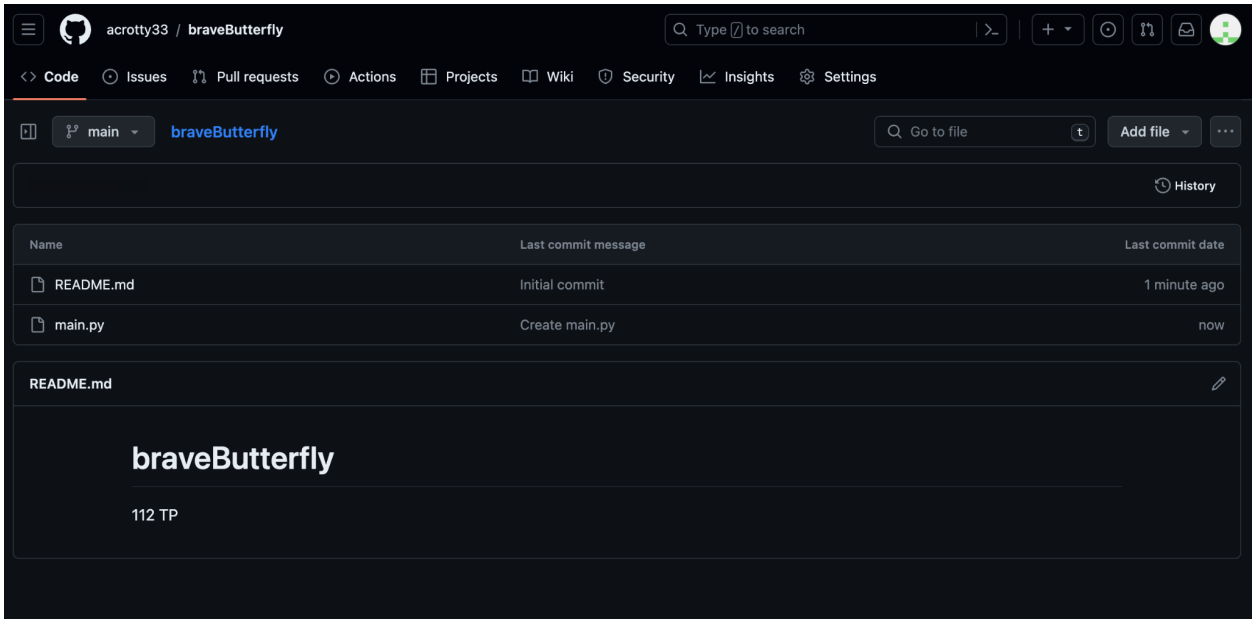
The obstacles and random generating of them will likely be the most difficult. I'm hoping to just create a class of each obstacle category (wasp, spiderweb, net, etc.), and assign each of those a number, so that I can call random.randrange(0,n) and draw a different one every few steps. I think placing the obstacles visually will also be difficult, as I want to create different sizes of spiderwebs and different positions for nets/wasps. I think I'll also create a set of random positions/sizes for each obstacle and randomly call one of those as well.

Timeline Plan

- ☑ ~~11/27: Basic animation with a circle for the butterfly and obstacles. Algorithmically works like Flappy Bird. All the obstacles are the same.~~
    - ☑ ~~Space key control for butterfly~~
    - ☑ ~~Obstacles move left (toward butterfly) even certain number of steps~~
- ☐ 11/29: Butterfly class, replace ball with butterfly (no animation of butterfly yet)
- ☐ 11/30: Wasp obstacle, spiderweb and net obstacles (including sizes)
- ☑ ~~12/01: Random generator of wasp, spiderweb, and net obstacles~~
    - ☑ ~~Generates position/size as well~~
- ☐ 12/02: Win screen, death screen
- ☐ 12/03: Add Flower class and energy depletion feature in Butterfly class; make butterfly animation
- ☐ 12/04: Add start menu
    - ☐ Difficulty levels, butterfly color customization

Version Control Plan

I plan to use GitHub as my version control plan. I have practice with Git and GitHub from GPI.



Module List

Only cmu graphics
And the builtin modules (random, time, etc?)