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Project 2: Proposal
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Idea:

My final project is inspired by the combination of Whack-a-Mole and a few mobile applications called Helix Jump, Stack Ball, and Rolly Vortex. The story supposedly follows the point of view of a mole from the Whack-a-Mole game, rather than the person who hammers the mole into the hole. Instead, I decided to expand on the simple idea of getting the ball to reach the bottom of the canvas without "dying" (and try to have weirder/ unexpected things happen as the player proceeds to the next level).

Game:

My vision for the levels as of now is to control the environment for the ball to reach the bottom of the level. The first level uses the arrow keys to control all platforms in the same direction. The second would have every second platform move in the opposite direction of the one above it. I haven't thought further but perhaps for weirder levels, the ball's outline changes color after it has met the first color? Or the player might need to open their camera and use their hands to control the environment (in which I will use the ml5.js: Handpose library)? Or maybe the level requires the player to move the mouse to control parts of the platform for the ball to reach specific areas? (Though, I do see an issue of the mouse control, which might snap everything to the single mouse position again. Although, I can probably fix this by creating only one platform object for that level).

For the prototype, I had just tested the mechanics of moving the platform and the effect of the bouncing ball. Some difficulties that I have encountered were the gravity of the ball and the moving of the platform with the mouse. When gravity was included with the ball, the player couldn't leave the ball bouncing for too long because gravity will start pushing it down more, taking away the bouncing consistency. This was solved by putting the vertical acceleration to 0 when the ball bounces back up. The other issue with moving the platform using the mouse was that all of the platforms' objects (the danger zone and the holes of the platform) will snap to the mouseX and mouseY positions. Thus, making the hole and the danger zone overlap each other. To solve this, I decided to switch the mouse controls with the left and right arrow keys. Another issue that I have encountered from this, is that I should make the object which has left either side of the canvas, appear in the opposite direction to create a continuous loop of control.

Improvements/ Things to think about:

Things I would add more to this project are some visual cues to tell what the player should do. For example, the ball's outline could tell the player which hole it should fall into. A grey outline could indicate that it should fall into the black area, a pink outline indicates that it should fall into the red area, etc. I would also add a point system, a timer, some sounds, and perhaps a high score (Web storage API). If I would include another library in the project, using the annyang! Speech recognition to switch between levels and healing would be interesting as well.

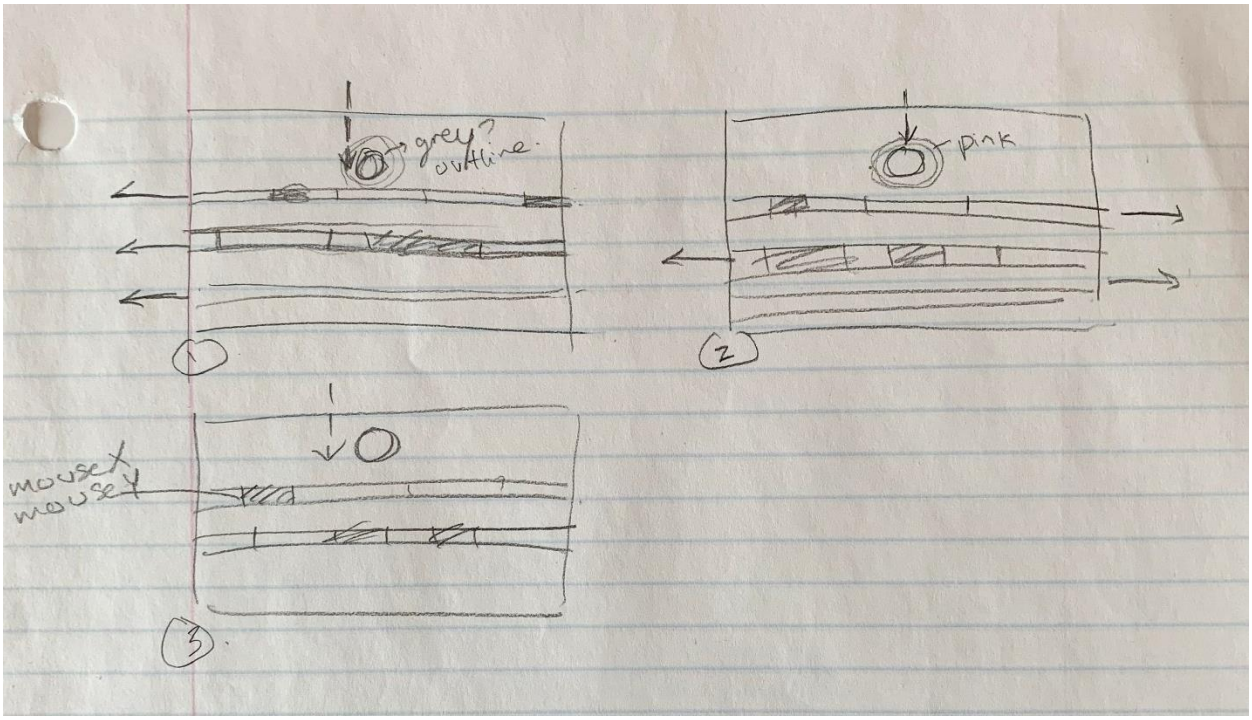

Fig. 1 Sketches of the levels.

1. **The ball bounces down. The player moves the platforms in the same direction.**
2. **The ball bounces down. The player moves each alternating platforms in opposite directions.**
3. **The ball bounces down. The player moves one platform object using the mouse.**

<u>Code References:</u>

p5.js library https://p5js.org/reference/#/p5/keyIsDown
https://github.com/Doumeki21/CART253/blob/main/exercises/05-juggle-garden/js/Ball.js

Inspiration:

Whack-a-Mole
Helix jump
Stack Ball
Rolly Vortex