TP0: Project Proposal

Project Description:

In Take Flight, the player controls a customizable bird who must use hills to gain speed and momentum to fly forward. Pressing and holding the bottom key will cause the bird to drop when its in the air, and the better the player’s timing, the faster the bird will fly as it slides down and up hills. The bird will encounter obstacles that slow it down and power-ups that speed it up. There will be two game modes: a training mode with randomly generated infinite terrain so the player can practice, and a race mode with a set terrain but competing AI birds. Each of those modes will also have a day and night mode, which will change the background game.

Similar Projects:

Similar projects include Tiny Wings. Tiny Wings is an iOS game wherein the player controls a bird and taps and holds on the screen to make the bird drop and slide up and down hills. The dynamics of the bird in my project will be identical to the bird in Tiny Wings. Additionally, Tiny Wings has a flight school mode which pairs the player against bird AI who race to finish a level, which will be like my race functionality. However, the bird in my game will be customizable by color, and the training mode will not be finite. In Tiny Wings, the non-race mode is timed and tracks the player’s points, while mine will be infinite and will only end once a player exits back to the main screen. In both versions however, the terrain will become more difficult as time passes.oHowe

Structural Plan:

The project will have three main files. One will generate the 1d random terrain and the set terrain for the racing mode. Another will store a bird class and keep track of the bird’s color, speed, and location. The final one will create the game itself, as well as animate the welcome screen, bird customization, and pause and restart functionality.

Timeline Plan:

By the TP1 due date (Sun-20 Nov), I want to have finalized the terrain generation algorithm and started on creating an animated shape (doesn’t have to be a bird yet) that can move on the terrain. By Fri-25 Nov, I want to have implemented the physics of the bird and finished the training mode. By TP2 due date, I want to have finished the ai birds and finalized the racing mode. By TP3, I want to have added the power-ups, created the welcome and pause screens, created the day and night mode, and added all other final touches.

Algorithmic Plan

For the terrain generation, I will write an algorithm that creates perlin noise and implement that in graphics. The obstacles will likely be patches of terrain that slow down the bird’s speed and the powerups will be colored balls that sit on the terrain, and both of those will be randomly generated along with the terrain. The AI birds in the racing mode will likely be set to certain speeds or ways of finishing the course, as it may be too difficult to randomize those elements.

Version Control Plan:

I will be using Git in vs code to commit changes and keep track of past versions

Text

Description automatically generated

Modules: No external modules will be used until MVP

Storyboard:

A piece of paper with writing on it

Description automatically generated

T1 Updates:

I am having difficulty making the terrain generation infinite in my current algorithm structure, so I am considering making the training mode timed with the goal being to get as far as possible. This result will be in “levels” of increasing difficulty, with enough levels created that the end will not be reached before the time is elapsed.

T2 Update: Both modes will start immediately when the key is pressed. There will be no countdown as seen in vignette 4 above.

TP3 Update: No new design implementations