

CS211 Final Project - Flappy Bird

Overview

In this project, you are going to work out a simple version of flappy bird individually (If you know nothing of the game, then see the website flappybird.io). In the game, the player only needs to control the vertical movement of the bird using a button. Each time the button is pressed the bird will move up a bit, and will fall if there's no control. The player has to carefully control the bird so as not to hit any tube or the ground, otherwise, the bird will die and then the game stops.

The project requirements are divided into the basic part and advanced part. You can get most of the score after finishing the basic part. However, you have to complete some (not all) challenging tasks in the advanced part so as to get the full score.

Basic Requirements (75 pts)

You need to draw two types of elements on the screen. They are as follows

- a small square, acts as the bird
- some slender rectangles, represent tubes

The bird is horizontally still. The tubes keep moving leftwards and new tubes appear from the right side. In this way, it seems like the bird is flying forward.

The player controls the vertical movement of the bird using a button. The bird will move up a bit each time the button is pressed. Moreover, the game starts once the button is pressed, and then the bird can start to fall (In others words, the bird will stay somewhere if the game is not started).

Once the bird hits any tubes or the ground, the game stops and everything on the screen becomes still. Since we use a square to represent the bird, the crash here happens whenever any edge of the square touches the tubes or the ground.

The game score, initially zero, is added by one whenever the bird passes a tube. The game score is shown by the 7-seg display.

The game can be restarted using the global reset button (S6).

Advanced Requirements (25 pts)

Each of the following bullets is worth 5 points.

- Display the game with a resolution higher than 640x480.
- Show the game score on the screen somewhere rather than using 7-seg display.
- Add some bonus on the screen. The game score will be increased when the bird catches the bonus.
- Randomize the height of the tubes.
- Implement different levels of difficulty, the logic is up to you.
- In the basic requirements, your bird probably move up or down in a uniform speed. Now you need to add some kind of gravity to make the movement smooth.
- Implement a well-designed and detailed game graphics rather than just a square together with a few rectangles.
- Put the keyboard into use.