Level 2

Flappy Parrot

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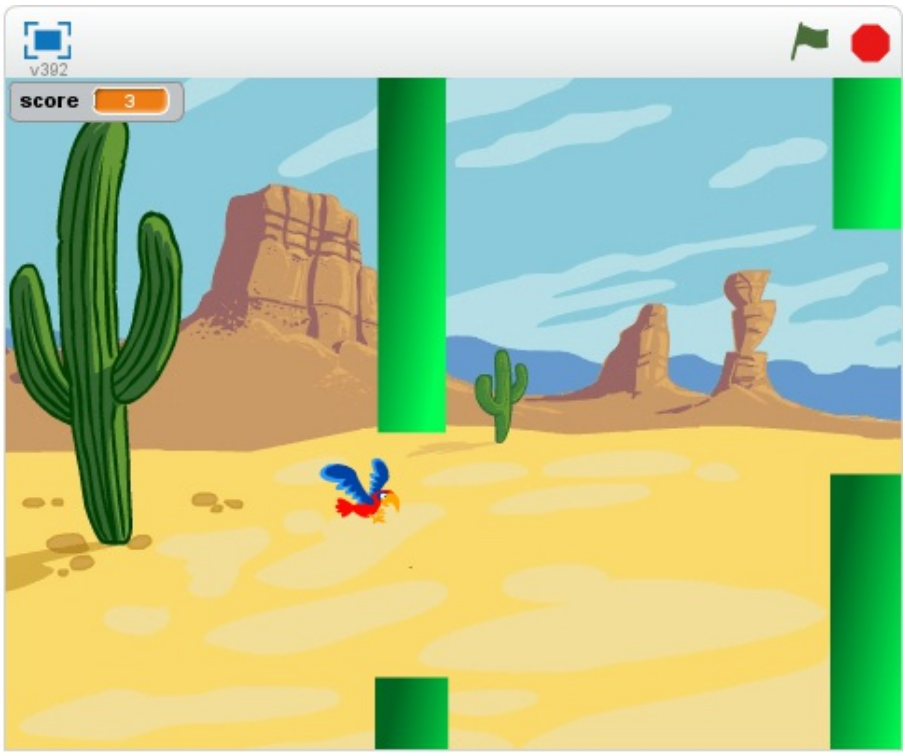
Introduction

In this project we'll make our own version of the highly popular mobile game Flappy Bird. This project requires Scratch 2.0.
Press the space bar to flap and try to navigate through the gaps in the pipes!



Activity Checklist — Follow these INSTRUCTIONS one by one

Test your Project — Click on the green flag to TEST your code

Save your Project

Make sure to SAVE your work now

Step 1: Make Flappy fall

Activity Checklist

1. Start a new Scratch project. Delete the cat by right-clicking it and selecting Delete ☐
2. Replace the background with an outdoor landscape. desert is a good choice. ☐
3. Add the Flappy character. You'll need a sprite with costumes for wings up and wings down. parrot is a good choice. ☐
4. Change the name of your sprite to Flappy. ☐
5. Give Flappy the following script: ☐

Test Your Project

Click the green flag, does Flappy start in the middle of the screen and then fall to the bottom?

Save your project

Step 2: Make Flappy fly

Next, we want Flappy to flap upwards when you press the space bar.

Activity Checklist

1. Click on the Costumes tab and name the costumes wings up and wings down. ☐
2. Now switch back to the Scripts tab and add this script: ☐

Test Your Project

Click the green flag, are you able to control Flappy with the space bar? Do you notice that sometimes you press the space bar but Flappy doesn't move? We'll fix that next...

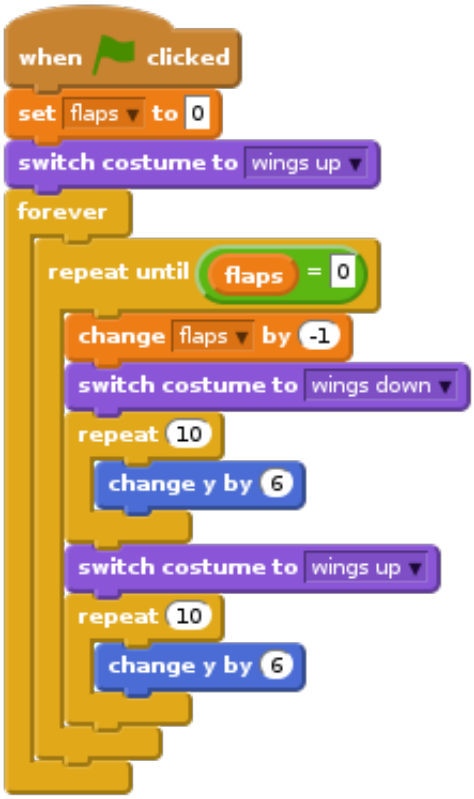
Save your project

Step 3: Fix the controls

We'd like Flappy to respond every time we press the space bar. But when we push the space bar Flappy begins two loops of movements. If we push the space bar again before these loops have finished, Scratch ignores the second press. To solve this, we'll use a variable to count up how many flaps we need to do.

Activity Checklist

1. Disconnect the blocks under the `when space key pressed` and put them to the side (we'll use them in a few moments.) ☐
2. Make a new variable `For this sprite only` and call it `flaps`. ☐
3. Add the following script by draging in the blocks you put aside: ☐



1. Finally, add to your `when space key pressed` event: ☐

Test Your Project

Click the green flag, does Flappy now flap once for each time you press the space bar?

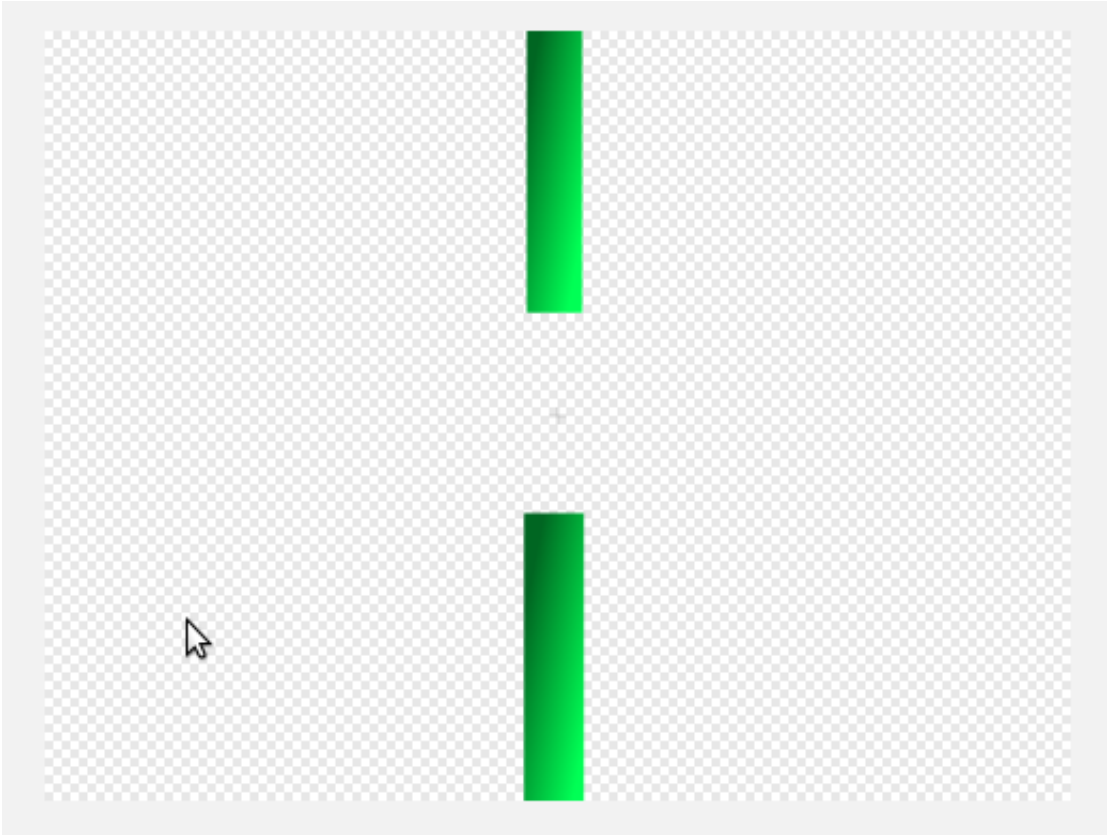
Save your project

Step 4: Add the pipes

Next we'll add some obstacles for Flappy to fly through.

Activity Checklist

1. Click on the `Paint new sprite` button. ☐
2. Name your costume pipe. ☐
3. If the costume is in `Bitmap Mode` click on the `Convert to vector` button. ☐
4. Click on the `Zoom -` so that you can see the entire drawing area. ☐
5. Click on the `Rectangle`, pick a colour, and click on the `Filled rectangle` button. ☐
6. Click and drag two boxes, one from the top middle and one from the bottom middle as shown: ☐



1. You can shade your pipes by clicking on the `Color a shape` button and click on the `Horizontal gradient` button. Choose two shades of the same colour one for the foreground and one for the background. When you click to fill the shapes, the colours will fade between your chosen colours. ☐
2. Name your sprite Pipe. ☐

Save your project

Step 5: Make the pipes move

Next we'll make the pipes move and arrange them randomly to provide an obstacle course for Flappy.

Activity Checklist

1. Click on your Pipe sprite and select the `Scripts` tab. ☐

2. Add the following scripts:

Test Your Project

Click the green flag, do pipes appear with gaps to fly through at different heights? If you find it difficult to navigate Flappy through the pipes without touching them, you can make the gap bigger in the pipe sprite by editing the costume.

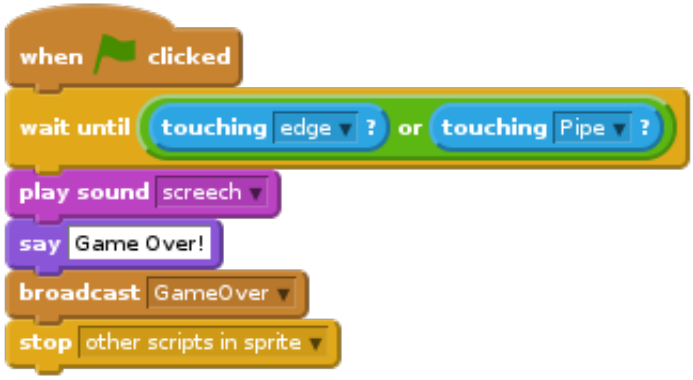
Save your project

Step 6: Detect collision with the pipes

To make the game a challenge, the player needs to guide Flappy through the gaps without touching the pipes or the edges of the screen. Now we'll add some blocks to detect if Flappy hits something.

Activity Checklist

1. Let's add a sound to play when Flappy collides. Click on the Flappy sprite then on the `Sounds` tab. ☐
2. Click the `Choose sound from library` button. ☐
3. Pick a collision sound for Flappy. The screech sound is good. ☐
4. Now click back on the `Scripts` tab. ☐
5. Add the following script: ☐



1. Click on the Pipe sprite and add a script: ☐

Test Your Project

Click the green flag, does the game end when Flappy touches a pipe or the edge of the screen?

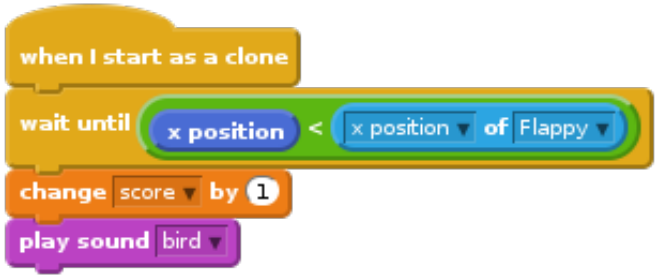
Save your project

Step 7: Add scoring

The player should score a point every time Flappy makes it though a pipe. Let's add that next.

Activity Checklist

1. Let's add a sound to play when Flappy scores a point. Click on the Pipe sprite add a score sound. bird is a good choice. ☐
2. Now click back on the `Scripts` tab. ☐
3. Make a new variable `For all sprites` and call it `score`. ☐
4. Add a block to set the score to 0 when the flag is clicked. ☐
5. Add the following block: ☐



Test Your Project

Click the green flag, does the player score points for flying Flappy through the pipes?

Save your project

Things to try

- How many ways can you make this game easier or harder?
- Well done you've finished the basic game. There are more things you can do to your game though. Have a go at these challenges!

Challenge 1: add a high score

- [ ] Make a new variable and tick the `Cloud variable (stored on server)` box. Call the variable `hi-score`
- [ ] when the game is over check if you need to set a new high score:

Test Your Project

Click the green flag, does your score update the hi score?

Save your project

Challenge 2: add gravity

When something falls under gravity it doesn't usually fall at a fixed rate. For this challenge we will make Flappy fall as if under gravity.

- [ ] Add a new variable `For this sprite only` to Flappy and call it `rise`.
- [ ] Change Flappy's falling script:

- [ ] And change Flappy's flapping script:

Test Your Project

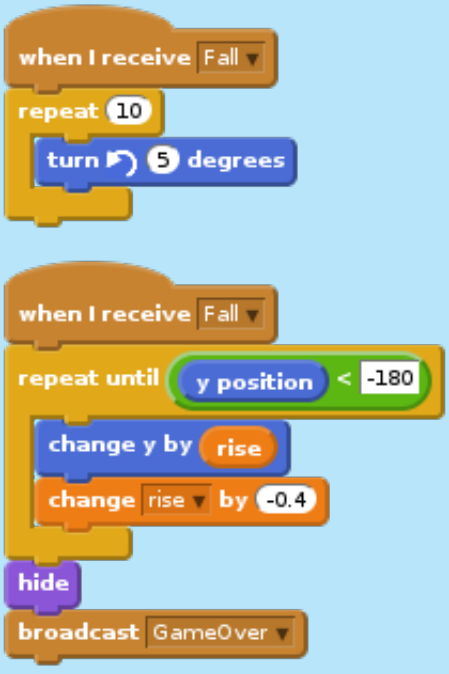
Click the green flag, does Flappy now accelerate when falling and flapping?

Save your project

Challenge 3: fall off screen

When the player loses make Flappy fall off the bottom of the screen before ending the game.

- [ ] Replace the `broadcast GameOver` block with `broadcast Fall`
- [ ] Now add the following scripts:



- [ ] Don't forget to add a `show` block and reset Flappy's direction when the game restarts.

Test Your Project

Click the green flag, does Flappy now fall off the screen after hitting a pipe? Does Flappy reappear in the correct orientation when restarting the game.

Save your project

Well done you've finished, now you can enjoy the game!
Don't forget you can share your game with all your friends and family by clicking on Share on the menu bar!