



ESTD
2021

SUMMIT ACADEMY

NEXT LEVEL

CODING CLUB

Lesson Plan #4

STARTER PROJECT

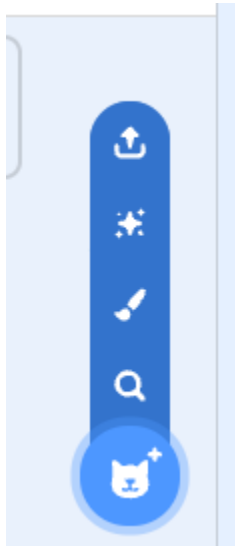
Connor Kalvar | 9/29/2021

Third Project – Zombies!

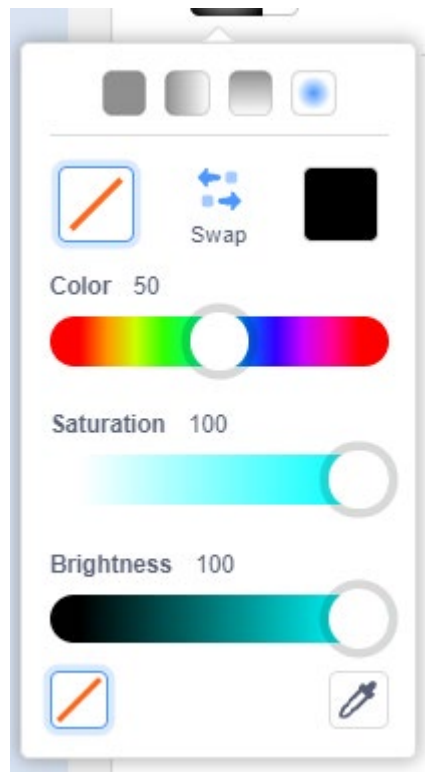
In this project we will make a slightly scary game, which will involve a dark setting and zombies coming at you from the dark.

1| We will start off again by creating a new project, which we do by clicking the create button on the home page at Scratch.mit.edu. Hopefully you have set up an account at this point, if you haven't, refer to the first lesson plan to find out how to set up a Scratch account.

2| Now to start off we will create a new sprite by clicking the blue circle with a picture of a cat on the bottom left.

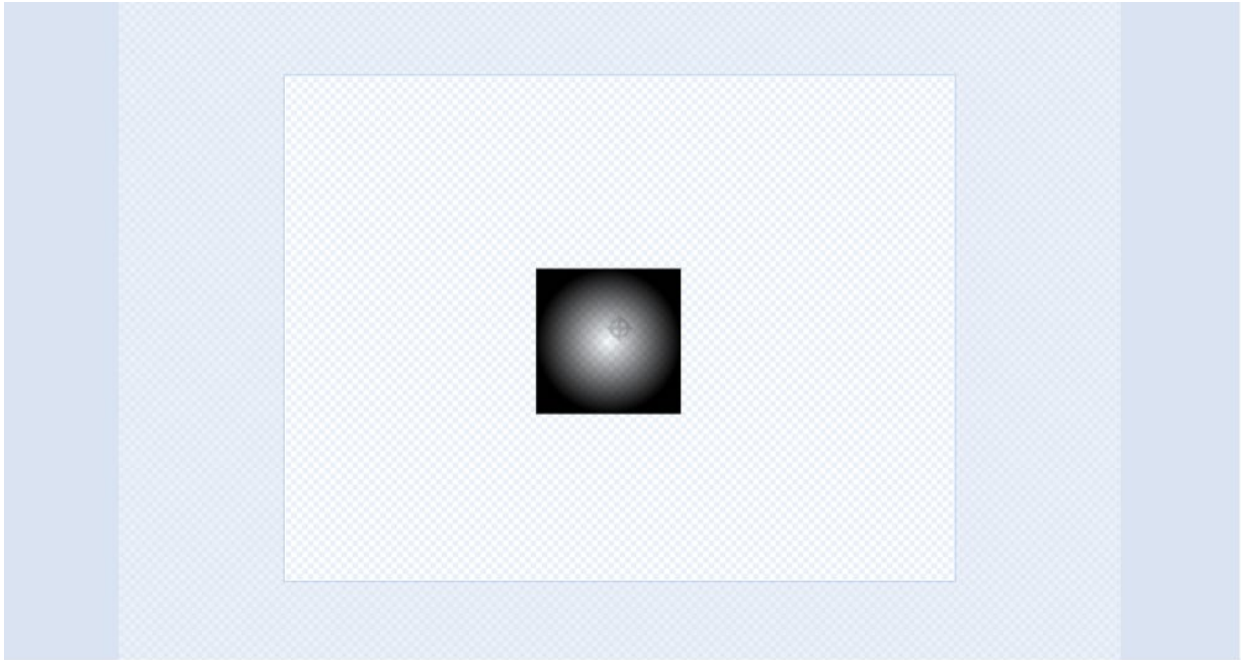


3| Once you are into the costume editor, we are going to select the square tool, set the outline to clear and for the fill set it up like this:

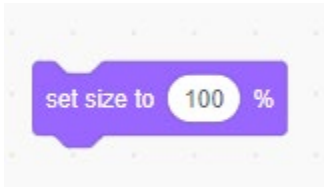


So, at the very top we have selected the radial gradient tool, which will cause the shape to transition from one color to another, in this case from black on the edges to clear in the center.

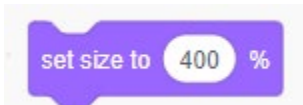
3 | Once you have done This create a small box near the center like this:



Now go into the coding tab, go to the looks section, grab a set size to block:



Now set it to 400% and right click on the block. If done correctly the sprite should increase in size.

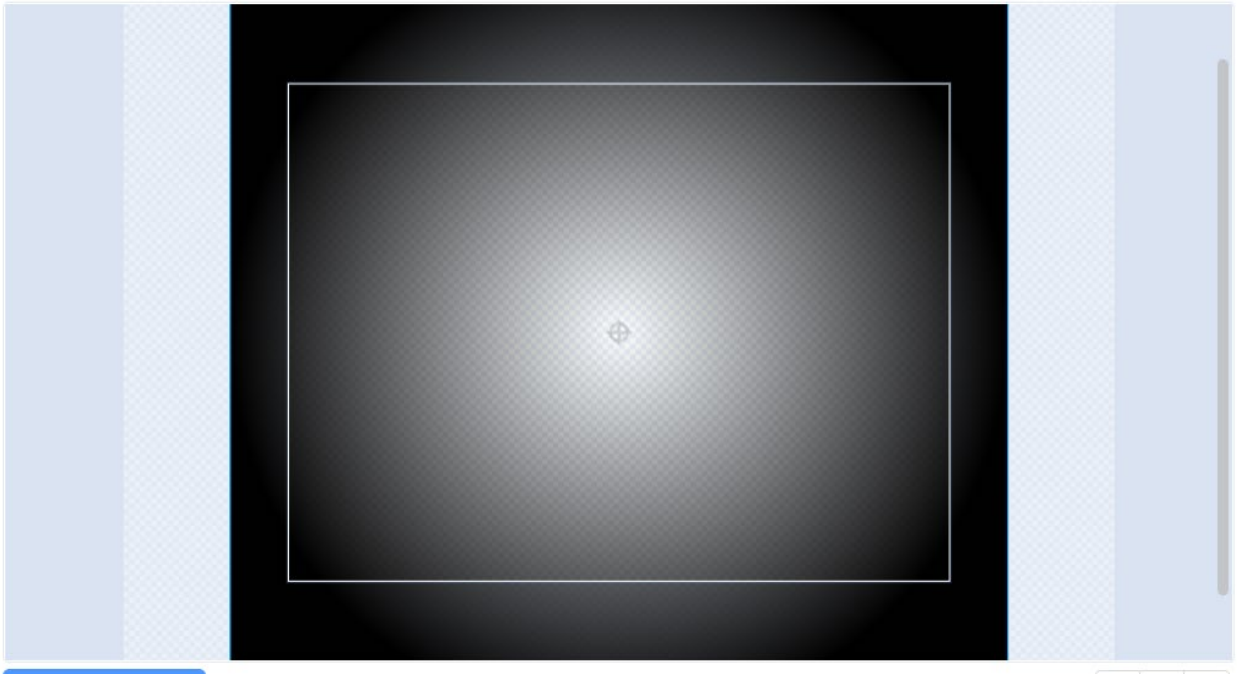




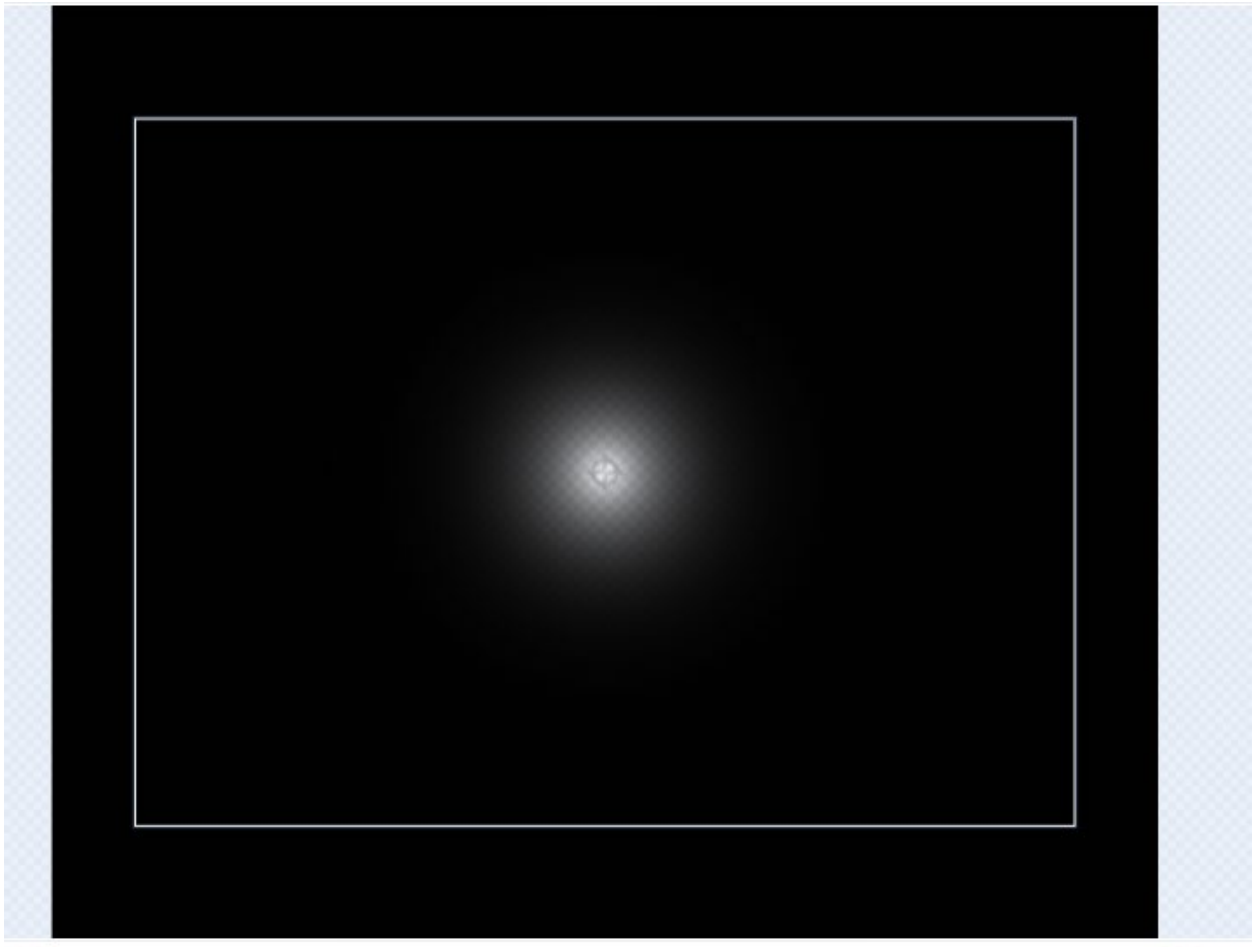
To



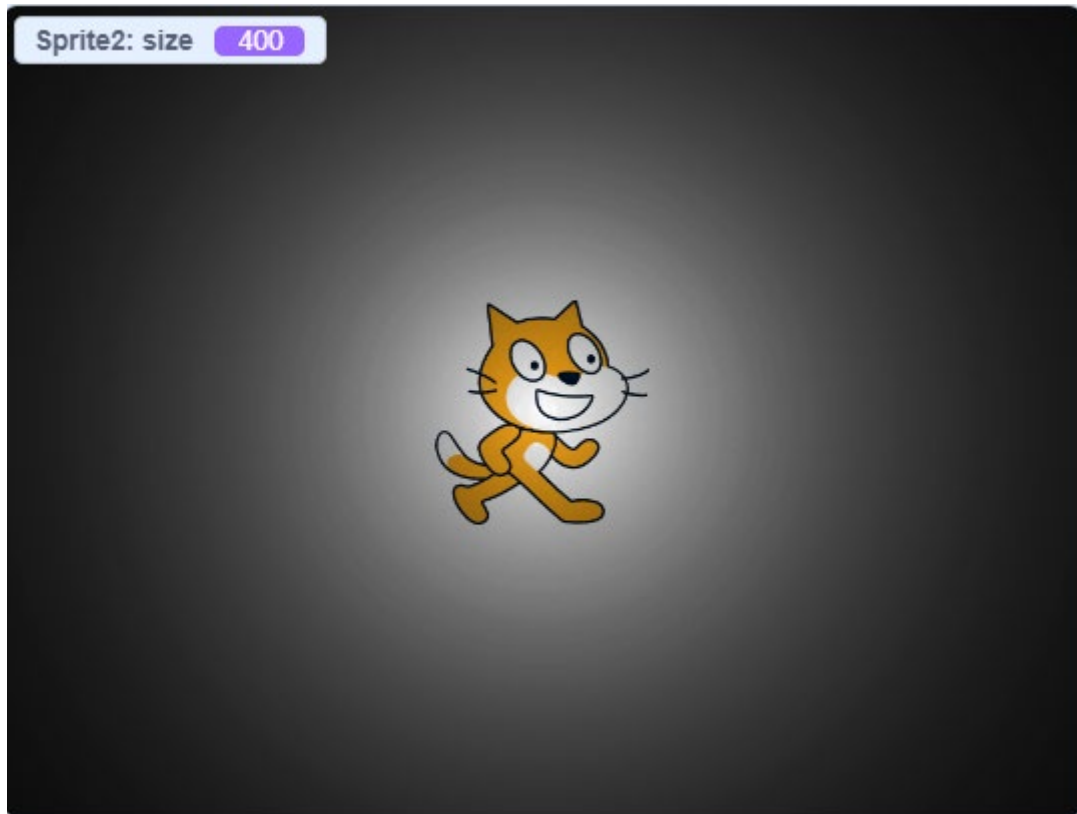
4 | Now go back into the the costume editor and enlarge the square so that It fills the whole editor.



Now click on the square and copy and paste it till a few times.



You should see it on the stage like this

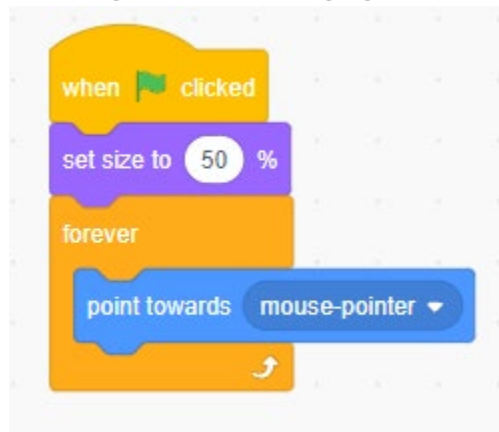


5 | Now go back into the code section and add this script.



So we start off by going to the center at 0, 0 then we go to the front so that this sprite is on top of everything, then we have a forever loop that constantly makes us go to sprite 1, so that the light is always centered on our player.

Speaking of Sprite 1, lets go give it some functionality. Add this Script in:



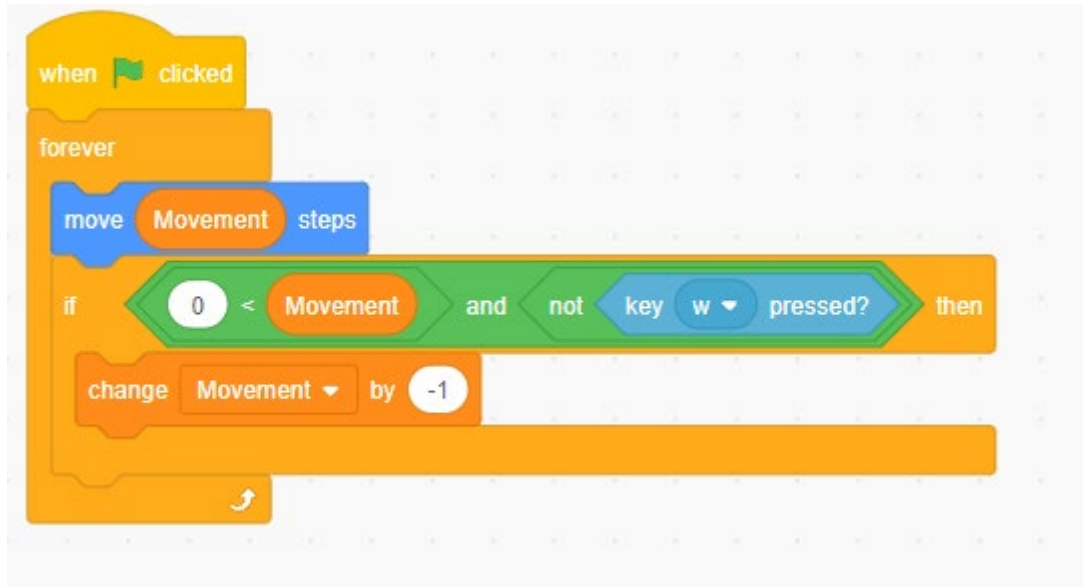
When we click the green flag, we set the size to 50% so that we aren't as big on the screen. Then inside the forever loop we put a point towards block that makes the sprite point toward our mouse.

6 | Now go to variables and create a new variable called movement. Now, with this new variable, add this script in.



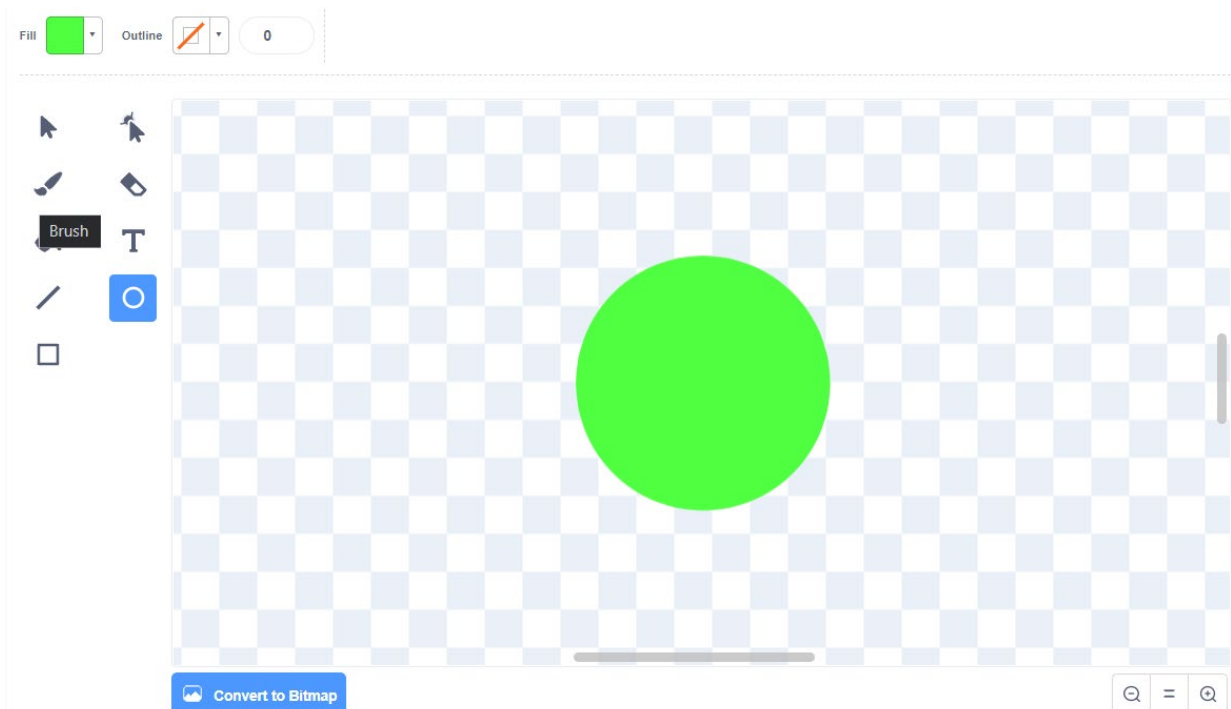
This should look similar to the scripts we used in previous lesson. When we press W, we check to see if movement is less than 5, this effectively caps our speed at 5, because we only add to speed when it's less than 5.

7 | Now let's add the other script for movements.

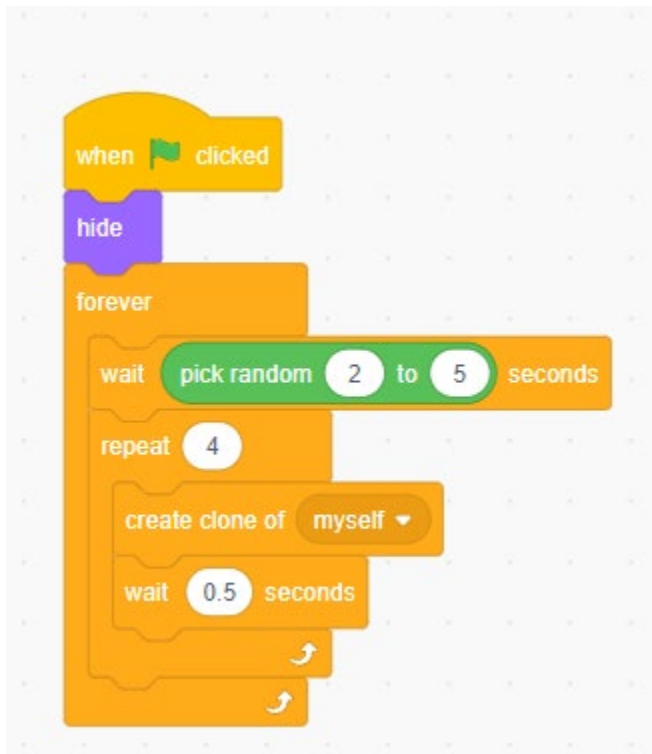


This script here is a two in one package deal, it moves the sprite by the movement variable, and because of how the move steps block works, we move in the direction we are facing, which is always towards the mouse pointer. The second part, the if statement, is what slows us down when we let go of the W key. So, in the second part if statement we check to see if movement is great then zero, because we don't want to slow down if we're not moving because that would just move us backwards.

8 | Now, let's add those zombies! Like we did in the beginning, go to the bottom right corner and click on paint. Zoom in three or four times and then make a green circle like this.

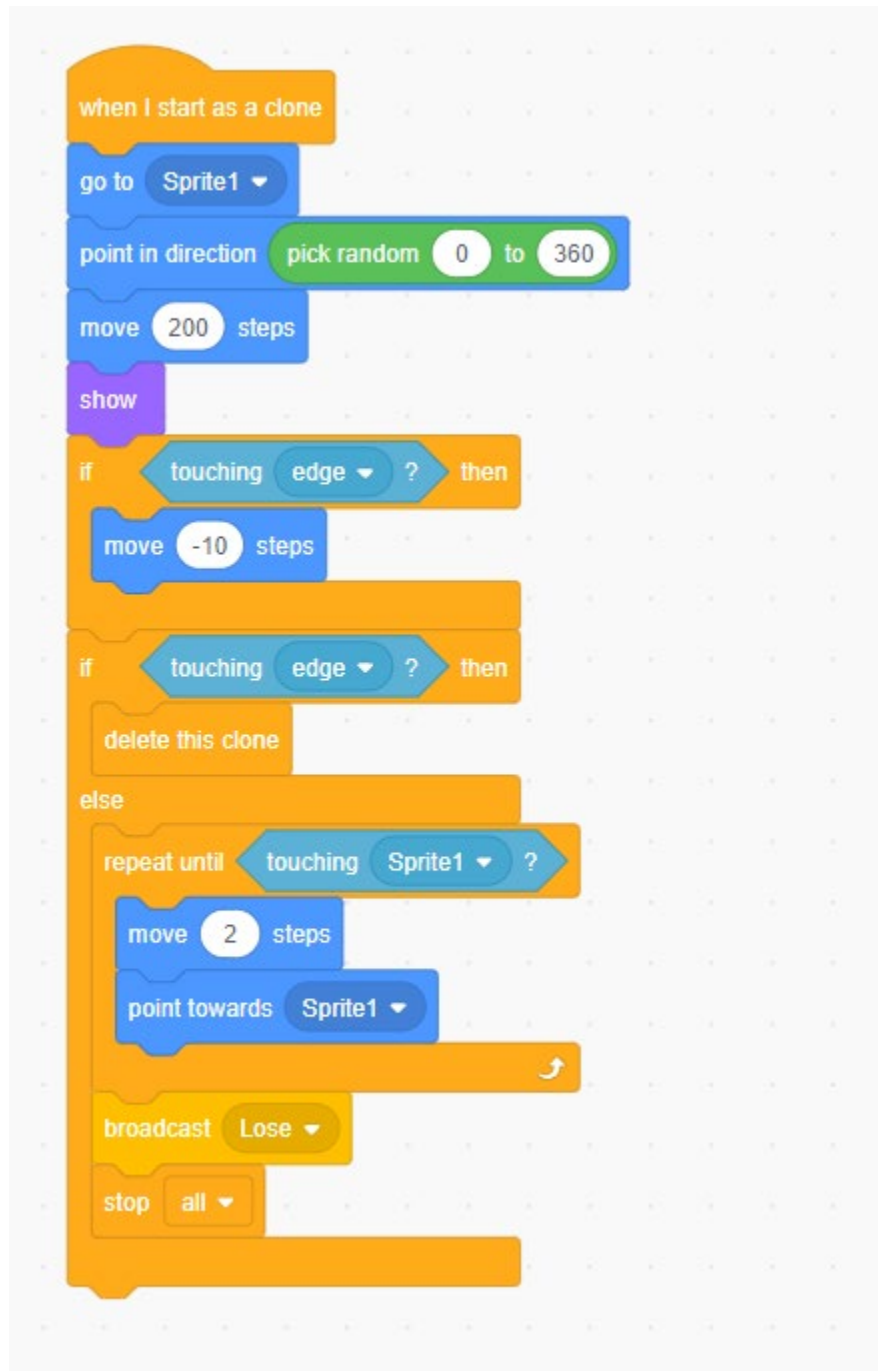


9 | Lets give some functionality to these zombies, click into the code tab and add this script:



So, when we click the green flag, we hide the sprite, so we don't see it anymore, then we wait 2 to 5 seconds, (pick random is found in operators). Then we clone the sprite 4 times, we do the set of actions forever, so that there are always zombies that spawn in waves.

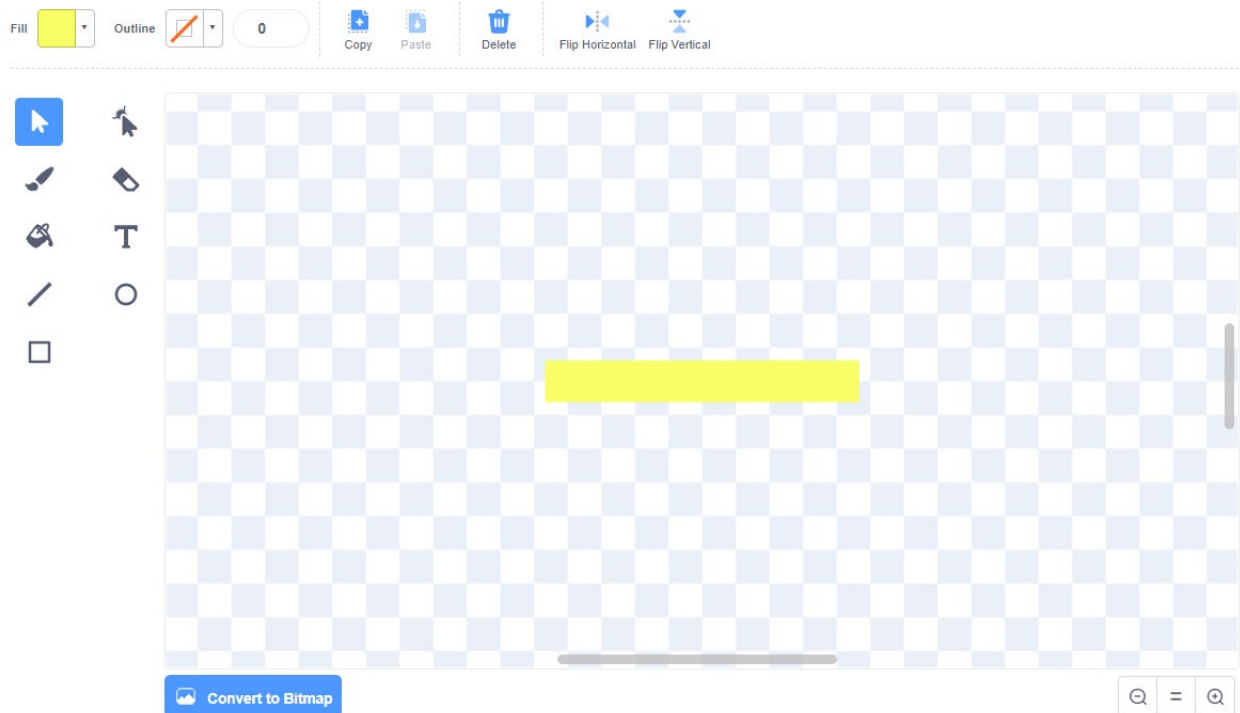
10 | But the clones right now don't have any functionality, let's fix that with this big script:



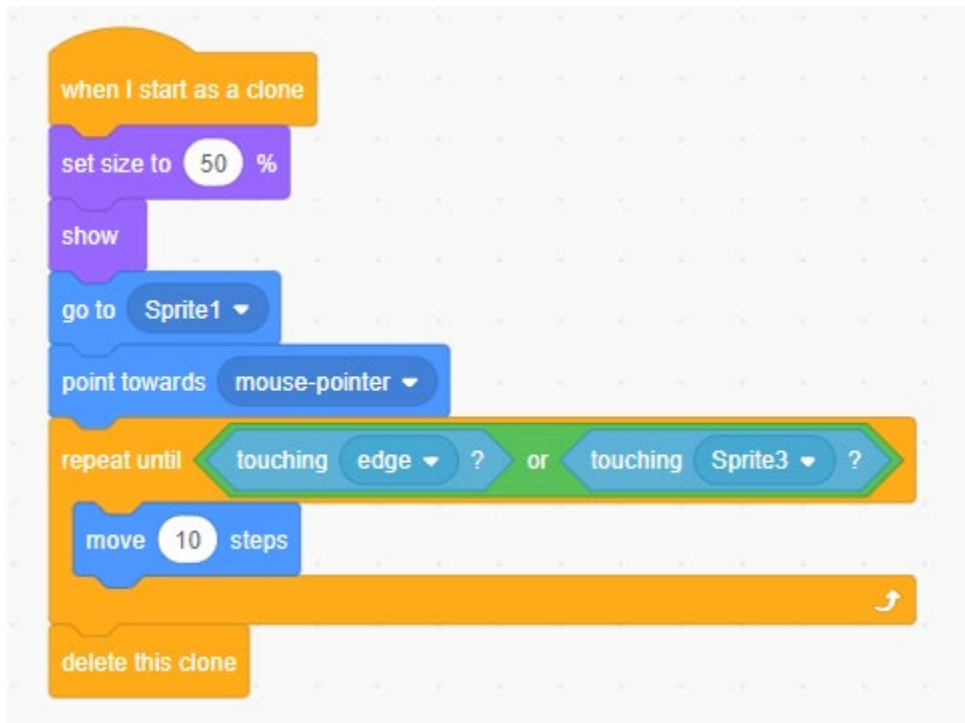
Let's break this down starting from the top. We go to the player (sprite 1), then we point in a random direction from 0 to 360, a full circle. Next, we move in that direction 200 steps, so effectively what this code does is place zombies in a circle with a radius of 200 units around the player. The next part, we show the clone then check to see if we are touching the edge, or otherwise beyond the stage. If we are then we move 10 steps forward, and at that point if we're still touching the edge or out of bounds, we delete the clone. But if we aren't out of bounds, we enter into the repeat until loop. In this loop, we move 2 steps and then point towards sprite 1,

doing this continuously caused the zombie to move toward the player. Of course, we only repeat this till we touch sprite 1, at which point we stop the project and broadcast a lose message.

11 | Now we need to make so way for the player to fight those zombies. Once again, we are going to create a new sprite, go to the bottom left, hover on the blue circle and click on paint. Once you are in the editor, zoom in 5 to 6 times, select the rectangle tool and make a long and thin rectangle like this:



12 | Click into the code tab and add this script:



So, this script defines the functionality of the clones. So, to start we set the clone's size to 50 so that it isn't too big on the screen. Next, we show the clone, go to sprite 1 (the player) and then point towards the mouse, so that the clone will fly towards the mouse. After pointing towards the mouse pointer, we start a repeat until loop that will continuously move the clone forward 10 units until it either touches the edge or touches sprite 3, which is the zombie sprite.

13 | Now we need to add two scripts into two other sprites. For sprite 1 (the player) add this script.



This is a simple script that says when we press space, we clone sprite 4, the projectile sprite we just created, and wait 0.3 seconds so that we can't spam it.

The second script we're adding in will be in the zombie sprite, and it looks like this:



This is once again very simple; this script adds some additional functionality to the zombie clones so that they will be removed by the projectile sprite (sprite 4).

14 | Normally, we might add some other stuff, but today I will let you add your own stuff using what we've learned.

So, what could you add? Here are some ideas:

Add a win and lose screen

Have the difficulty increase overtime. There is a built-in timer found in the sensing section.

Change how the projectile works, maybe have it be more cone shaped and not travel as far.

Add different types of zombies (you probably need to use variables to do this)

Add a powerup on the map, that can change speed. (Once again need variables to do this)