

Creating a Pong Game

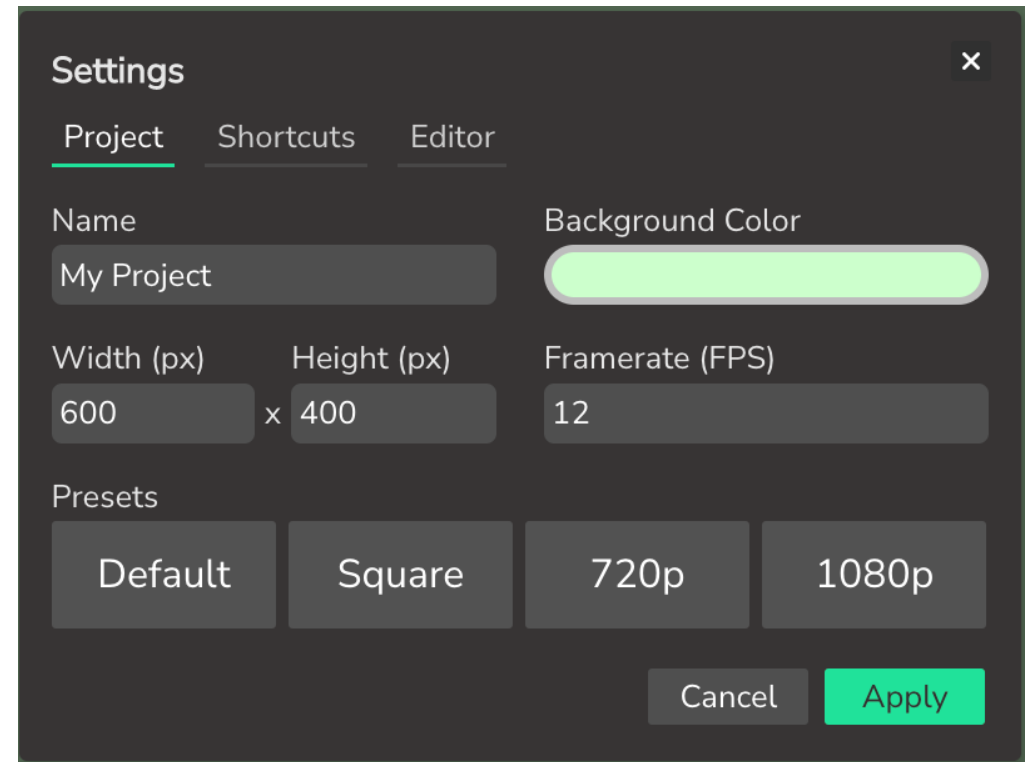


Important

1. Coding is always a series of experiments.
2. Solve problems incrementally.
3. Start with one piece of the problem, build it, and perform tests.

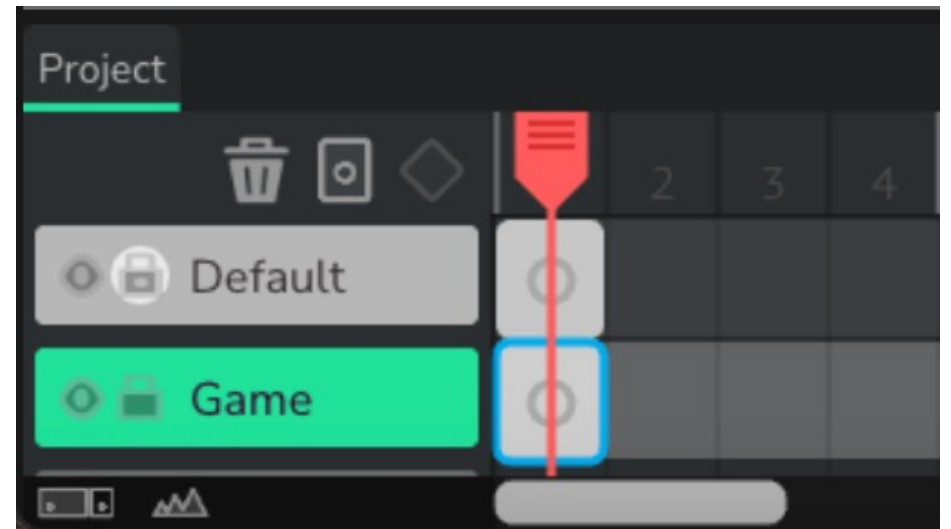
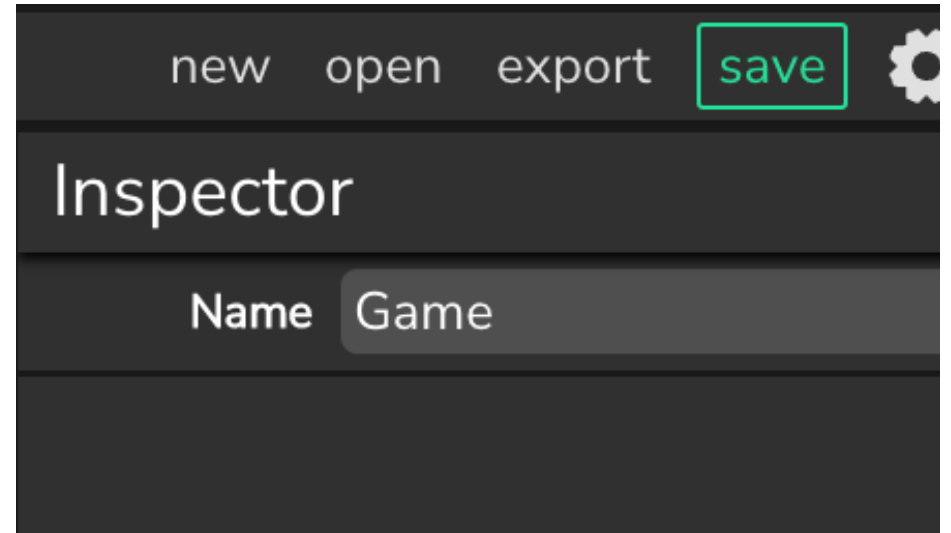
Step 1: Set up the Project

1. Open WickEditor in your browser (<https://www.wickededitor.com/>).
2. Click on "New" to start a new project.
3. Use Settings to set the stage size to 600x400 pixels (or adjust it to your preference).



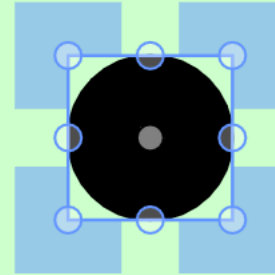
Step 2: The Game Layer

1. Create a new layer and name it Game.
2. Lock the default layer by clicking on the lock icon next to its name.



Experiment 1

Create a ball
that moves back
and forth.

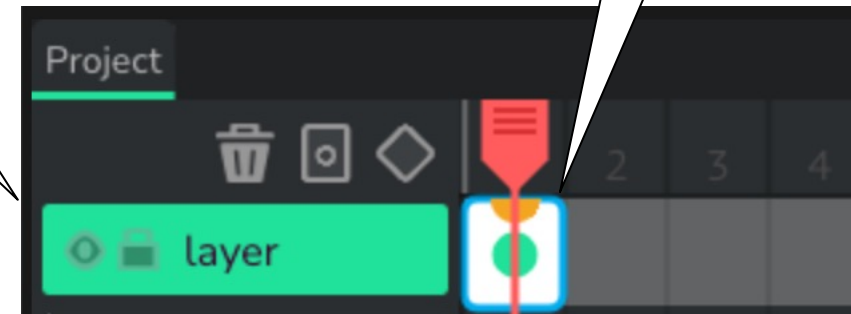


Clip name: **ball**

Width: 50
Height: 50

To apply a timeline script to a frame, make sure to select the layer and the frame.

Note the symbol that will appear when a script is applied.

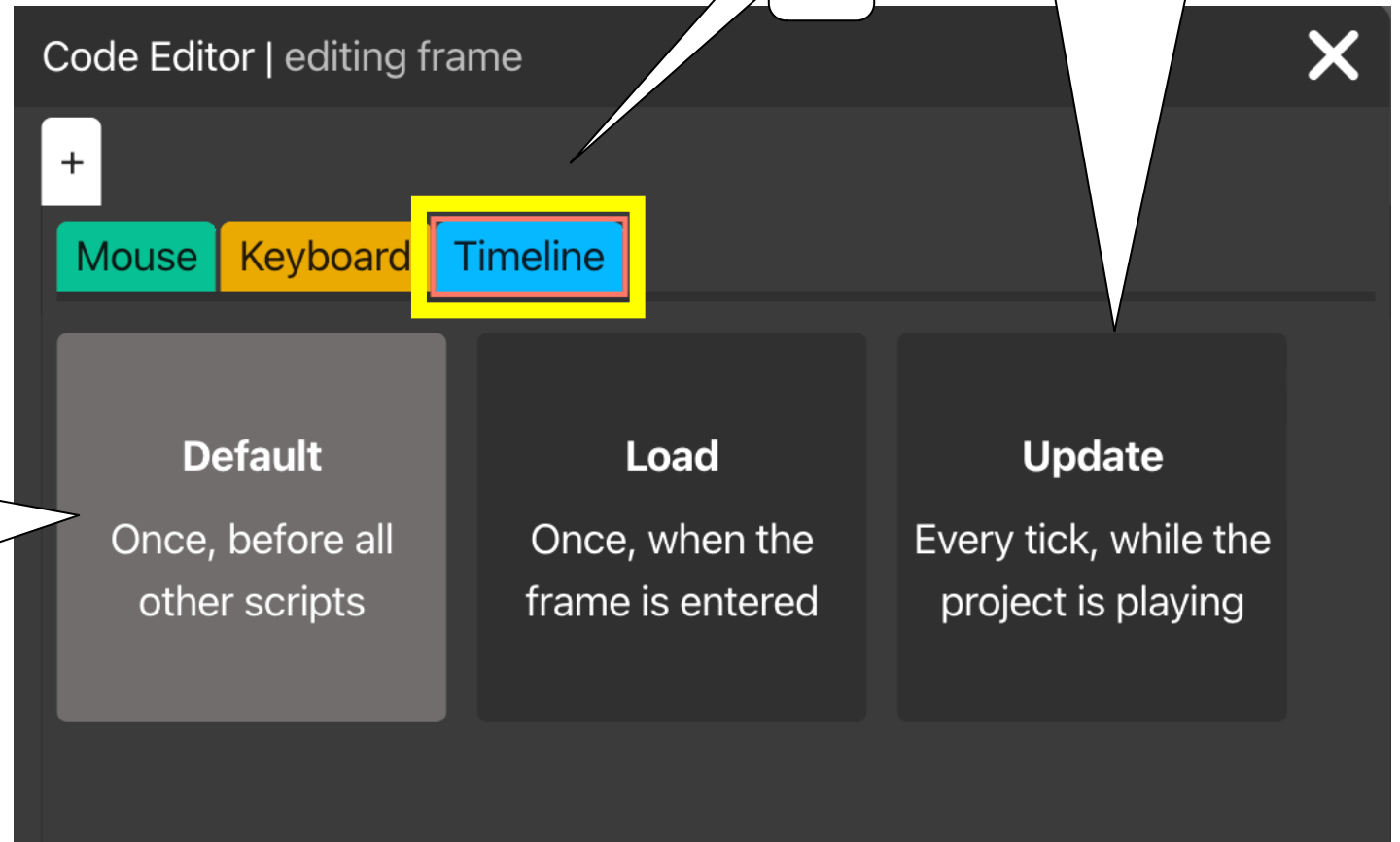


Experiment 1 Scripts

This experiment requires two scripts.

Script 1:
Timeline **Default** script: This script will execute only once, at the start of the game. This script will contain initial values.

Script 2:
Timeline **Update** script: This script will execute at every frame. This is a game loop.

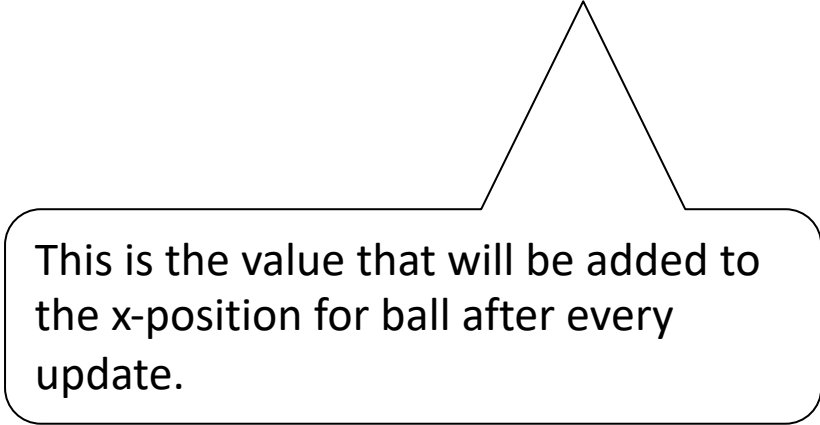


Script 1: Timeline Default Tasks

Task 1: Set the x property for ball to 100.

Task 2: Set the y property for ball to 100.

Task 3: Create a new property for ball called **velocityX** and set it to 5.



This is the value that will be added to the x-position for ball after every update.

Script 1: Timeline Default Solution

```
1 ball.x = 100;  
2 ball.y = 100;  
3  
4 ball.velocityX = 5;
```

Properties can be added to clip objects.

Script 2: Timeline Update Tasks

Task 1:

Move the ball by incrementing its x property.
Increment using the velocityX value.

The ball had a width of 50.
The canvas screen has a width of 600.

Task 2:

Use an if statement to check if the ball collides with
the left or right wall.

Task 3:

If the ball collides with left or right wall, reverse
the velocityX of the ball.

Script 2: Timeline Update Solution

```
1
2 ball.x = ball.x + ball.velocityX;
3
4 if (ball.x > 575){
5     ball.velocityX = -5;
6     ball.x = 575;
7 }
8 else if (ball.x < 25){
9     ball.velocityX = 5;
10    ball.x = 25;
11 }
```

How can this be performed more efficiently?

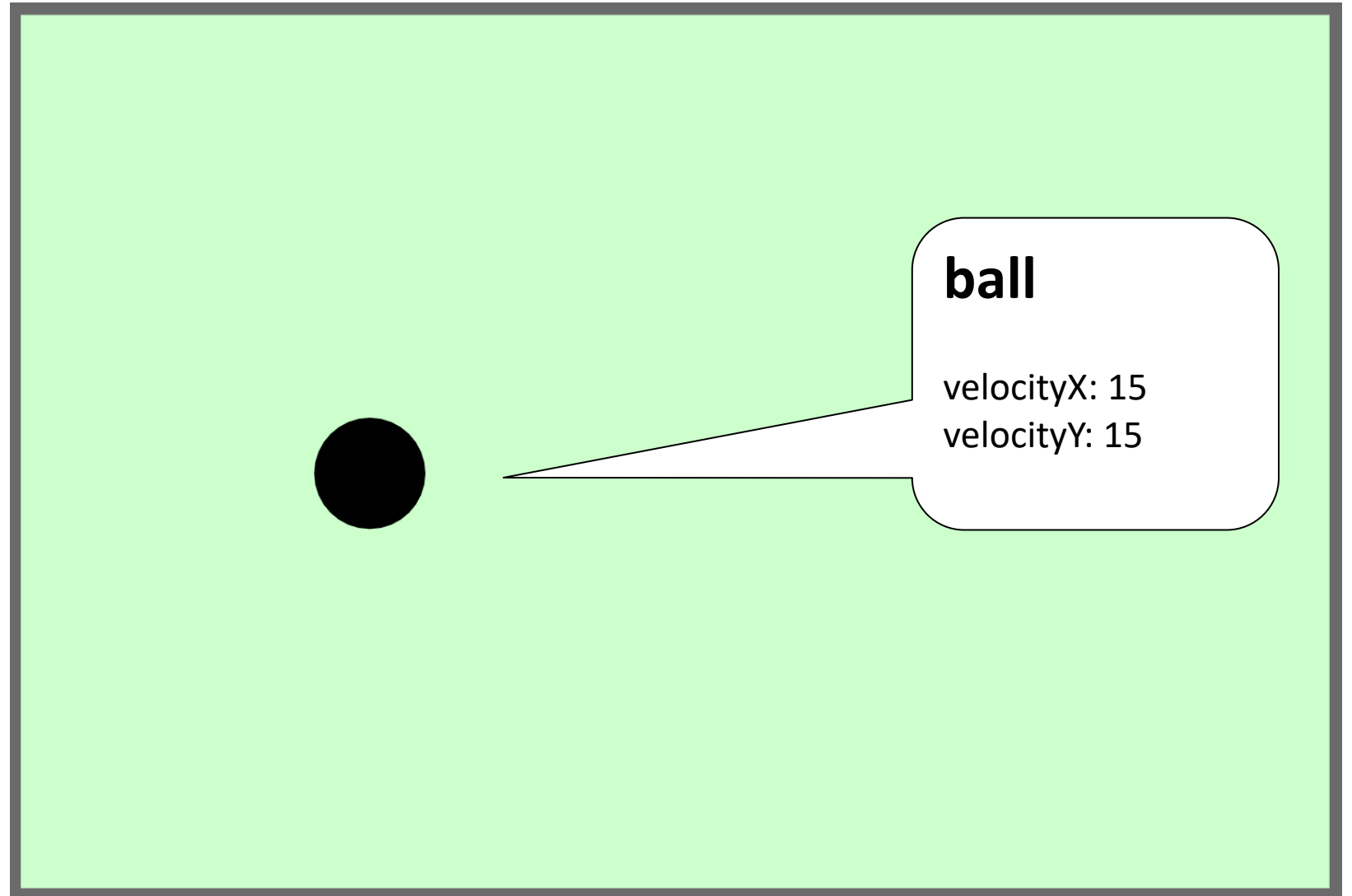
Script 2: Timeline Update Solution

```
1
2 ball.x = ball.x + ball.velocityX;
3
4 if (ball.x > 575){
5     ball.velocityX *= -1;
6     ball.x = 575;
7 }
8 else if (ball.x < 25){
9     ball.velocityX *= -1;
10    ball.x = 25;
11 }
```

Reverse by
multiplying it by -1.

Experiment 2

Ball moves in
two dimensions,
x and y.



Script : Timeline Default Solution

```
1 ball.x = 100;  
2 ball.y = 100;  
3  
4 ball.velocityX = 15;  
5 ball.velocityY = 15;
```

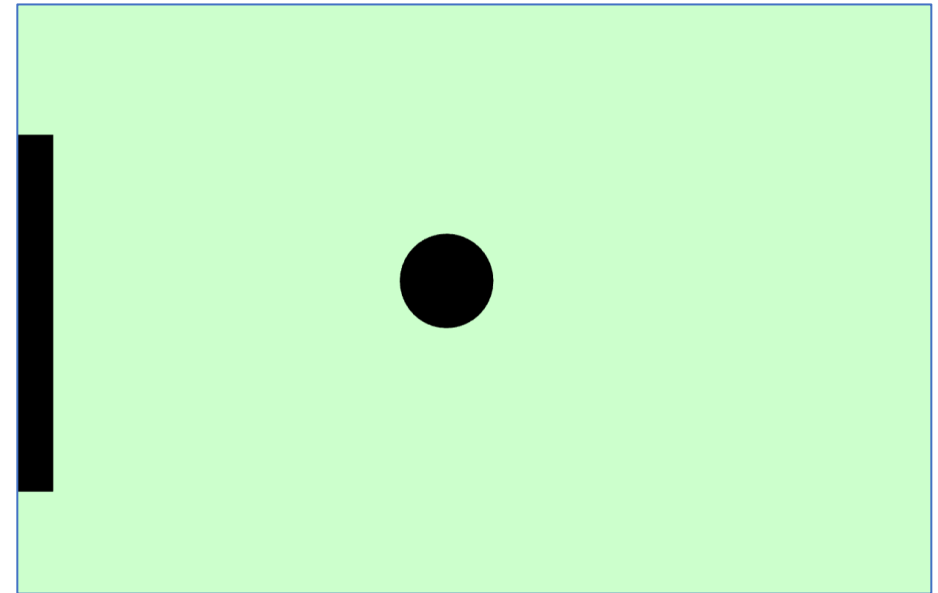
Script Timeline Update Solution

```
1
2 ball.x = ball.x + ball.velocityX;
3 ball.y = ball.y + ball.velocityY;
4
5 if (ball.x > 575){
6     ball.velocityX *= -1;
7     ball.x = 575;
8 }
9 else if (ball.x < 25){
10     ball.velocityX *= -1;
11     ball.x = 25;
12 }
13
14 if (ball.y > 375){
15     ball.velocityY *= -1;
16     ball.y = 375;
17 }
18 else if (ball.y < 25){
19     ball.velocityY *= -1;
20     ball.y = 25;
21 }
```

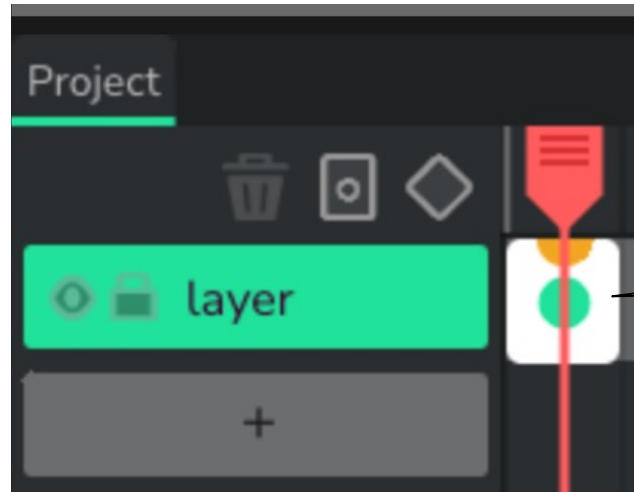
Experiment 3:

Create the Game of Pong

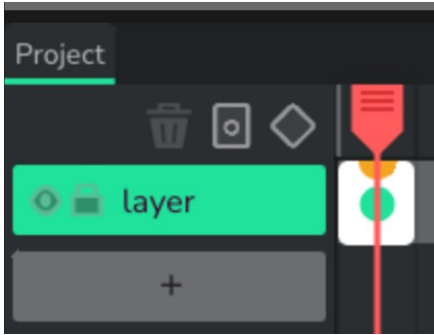
1. Create a rectangle for the paddle. Width of 20 and height of 330.
2. Create a circle for the ball. Width and height of 50.
3. Select the timeline layer and create the scripts.



Add Two
Scripts in the
Timeline
Frame

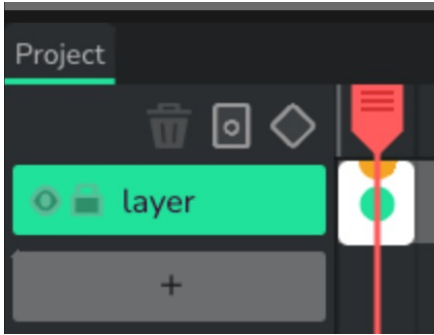


Scripts



Default Script

```
ball.x = 300;  
ball.y = 200;  
  
ball.velocityX = -10;  
ball.velocityY = 5;
```

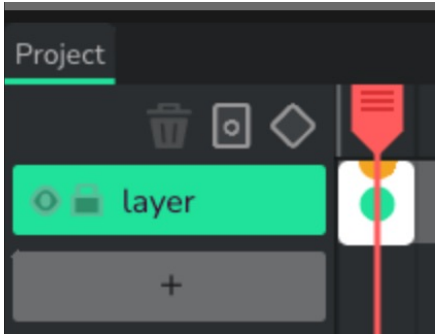


Update Script

Tasks 1 and 2

```
//TASK 1: REPOSITION THE BALL
```

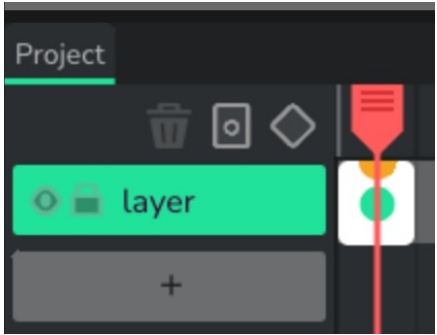
```
//TASK 2: MOVE THE PADDLE USING THE MOUSE
```



Update Script

Task 3

```
//TASK 3: CHECK IF BALL COLLIDES WITH WALLS
```



Update Script

Task 4

```
//TASK 4: BALL COLLIDES WITH THE PADDLE
```