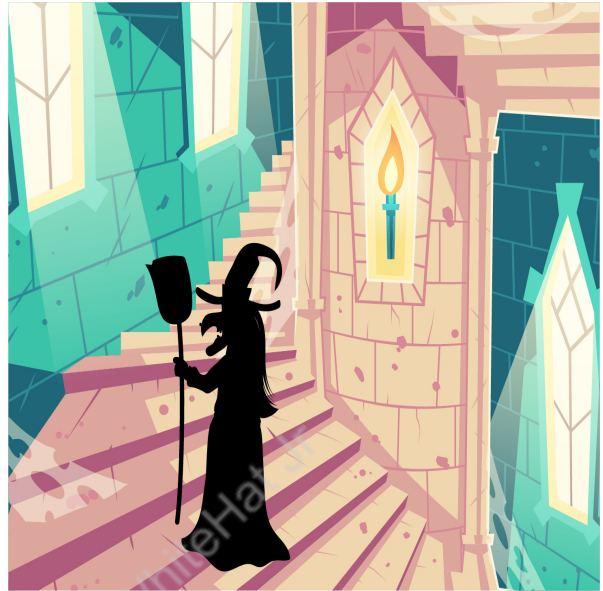


Capstone Class: Ghost Runner



What is our GOAL for this MODULE?

Use the knowledge about functions, loops, game states to create another endless game called Ghost Runner.

What did we ACHIEVE in the class TODAY?

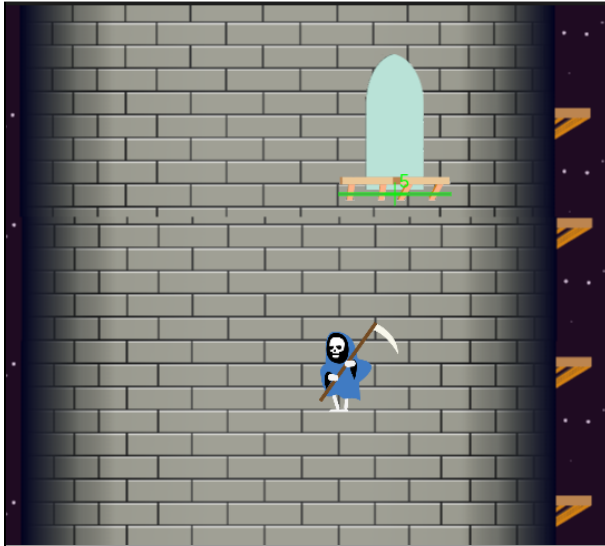
- Built the Ghost Runner game
- Reviewed the concepts covered in the past few classes

Which CONCEPTS/ CODING BLOCKS did we cover today?

- Functions
- Loops
- Adding images and game sounds
- Concept of touches

How did we DO the activities?

1. Observe the ghost game from different angles:



2. Start by building an infinite vertically scrolling tower:

```
var towerImg, tower;

function preload(){
  towerImg = loadImage("tower.png");
}

function setup(){
  createCanvas(600,600);
  tower = createSprite(300,300);
  tower.addImage("tower",towerImg);
  tower.velocityY = 1;
}

function draw(){
  background(0);

  if(tower.y > 400){
    tower.y = 300
  }
  drawSprites();
}
```

3. Add the code to implement the following tasks:

- Load the door image
- Create a door group
- Write a function to spawn doors

```
var towerImg, tower;  
var doorImg, door, doorsGroup;  
  
function preload(){  
  towerImg = loadImage("tower.png");  
  doorImg = loadImage("door.png");  
  
  doorsGroup = new Group();  
}  
  
function setup(){  
  createCanvas(600,600);  
  tower = createSprite(300,300);  
  tower.addImage("tower",towerImg);  
  tower.velocityY = 1;  
}
```

```
  }  
  spawnDoors();  
  drawSprites();  
}  
  
function spawnDoors() {  
  //write code here to spawn the doors in the tower  
  if (frameCount % 240 === 0) {  
    var door = createSprite(200, -50);  
    door.addImage(doorImg);  
  
    door.x = Math.round(random(120,400));  
    door.velocityY = 1;  
  
    //assign lifetime to the variable  
    door.lifetime = 800;  
  
    //add each door to the group  
    doorsGroup.add(door);  
  }  
}
```

4. Add railings below the doors.

```
var towerImg, tower;
var doorImg, door, doorsGroup;
var climberImg, climber, climbersGroup;

function preload(){
  towerImg = loadImage("tower.png");
  doorImg = loadImage("door.png");
  climberImg = loadImage("climber.png");

  doorsGroup = new Group();
  climbersGroup = new Group();
}

function setup(){
  createCanvas(600,600);
  tower = createSprite(300,300);
  tower.addImage("tower",towerImg);
  tower.velocityY = 1;
}
```

```
36 function spawnDoors() {
37   //write code here to spawn the doors in the tower
38   if (frameCount % 240 === 0) {
39     var door = createSprite(200, -50);
40     door.addImage(doorImg);
41
42     var climber = createSprite(200,10);
43     climber.addImage(climberImg);
44
45
46
47     door.x = Math.round(random(120,400));
48     door.velocityY = 1;
49
50     climber.x = door.x;
51     climber.velocityY = 1;
52
53     //assign lifetime to the variable
54     door.lifetime = 800;
55     climber.lifetime = 800;
56
57     //add each door to the group
58     doorsGroup.add(door);
59     climbersGroup.add(climber);
60
61   }
62 }
```

5. Create a ghost character with the ability to jump when the space key is pressed and move left and right on the press of arrow keys:

```
var ghost, ghostImg;

function preload(){
  towerImg = loadImage("tower.png");
  doorImg = loadImage("door.png");
  climberImg = loadImage("climber.png");
  ghostImg = loadImage("ghost-standing.png");
}

function setup(){
  createCanvas(600,600);
  tower = createSprite(300,300);
  tower.addImage("tower",towerImg);
  tower.velocityY = 1;

  doorsGroup = new Group();
  climbersGroup = new Group();

  ghost = createSprite(200,200,50,50);
  ghost.scale = 0.3;
  ghost.addImage("ghost", ghostImg);
}
```

```
function draw(){
  background(0);
  if(tower.y > 400){
    tower.y = 300
  }

  if(keyDown("left_arrow")){
    ghost.x = ghost.x - 3;
  }

  if(keyDown("right_arrow")){
    ghost.x = ghost.x + 3;
  }

  if(keyDown("space")){
    ghost.velocityY = -5;
  }

  ghost.velocityY = ghost.velocityY + 0.8

  spawnDoors();
  drawSprites();
}
```

6. Add depth so that the ghost character appears on the door:

```
door.velocityY = 1;
climber.velocityY = 1;
invisibleBlock.velocityY = 1;

ghost.depth = door.depth;
ghost.depth +=1;

//assign lifetime to the variable
door.lifetime = 800;
climber.lifetime = 800;
invisibleBlock.lifetime = 800;
```

7. Write code for the ghost to rest on the railing:

```
ghost.x = ghost.x - 3;
}

if(keyDown("right_arrow")){
    ghost.x = ghost.x + 3;
}

if(keyDown("space")){
    ghost.velocityY = -5;
}

ghost.velocityY = ghost.velocityY + 0.8

if(climbersGroup.isTouching(ghost)){
    ghost.velocityY = 0;
}

spawnDoors();
drawSprites();
}

function spawnDoors() {
    //write code here to spawn the doors in the tower
    if (frameCount % 240 === 0) {
        var door = createSprite(200, -50);
```

8. Write code to end the game when the ghost touches the bottom of the railing:

```
if(invisibleBlockGroup.isTouching(ghost) || ghost.y > 600){
    ghost.destroy();
    gameState = "end"
}
```


9. Add game state and create the game over screen:

```
if (gameState === "end"){  
  stroke("yellow");  
  fill("yellow");  
  textSize(30);  
  text("Game Over", 230,250)  
}
```

What's next?

Next class is our **project booster** class where we are going to help each other to solve the uncompleted projects.

Extend Your Knowledge:

Learn more about Touches by Mozilla Contributors (licensed under CC-BY-SA 2.5):

<https://developer.mozilla.org/en-US/docs/Web/API/TouchEvent/touches>