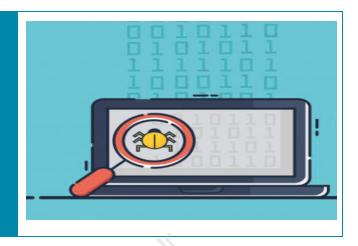


Code Debugging and Code Indentation



What is our GOAL for this MODULE?

Create the Trex Game similar to what we see in chrome browsers when not connected to the internet.

What did we ACHIEVE in the class TODAY?

- Learn to indent the code correctly to make it more readable.
- Learn to identify an additional condition needed in the program to stop the T-Rex from jumping again while it is in the air.
- Create an invisible ground sprite to make the T-Rex run below the ground.

Which CONCEPTS/ CODING BLOCKS did we cover today?

- Code indentation
- Identifying bugs in the program
- Debugging the code



How did we DO the activities?

Step 1: Code Indentation— Leave a space after every meaningful line of code.

```
Saved: 8 minutes ago
     sketch.js*
11 Tunction setup() {
12 createCanvas(400.
                            400)
13
14
       //create a trex sprite
       trex = createSprite(50,380,20,50);
15
16
       trex.addAnimation("running", trex_running);
17
       trex.scale = 0.5;
18
      //create a ground sprite
ground = createSprite(200,380,400,20);
19
20
       ground.addImage("ground",groundImage);
ground.x = ground.width /2;
21
22
23
       ground.velocityX = -2;
24
25
26
28 v function draw() {
29
       background(220)
30
31
           ump when the space key is pressed
32 ₹
       if(keyDown("space")) {
         trex.velocityY = -10;
33
34
35
36
       //add gravity
37
       trex.velocityY = trex.velocityY + 0.8
38
```

Leave an even space after every instruction contained inside another block of code.

```
sketch.js
      ground.addimage( ground , groundimage);
      ground.x = ground.width /2;
22
23
      ground.velocityX = -2;
24
25
26
27
28
29 ▼ function draw() {
      //set background color
30
31
      background(220);
32
33
      //jump when the space key is pressed
34 ₹
      if(keyDown("space")) {
35
        trex.velocityY = -10;
36
37
38
      //add gravity
39
      trex.velocityY = trex.velocityY + 0.8
40
41 W
        (ground.x < 0){}
42
        ground.x = ground.width/2;
43
44
45
      trex.collide(ground);
46
47
      drawSprites();
48
```

© 2019 The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.



Step 2: Fix bugs

Bug 1: The dinosaur is running above the ground: Let us create an invisible ground sprite just below the actual ground sprite.

```
sketch.js*
                                                      Saved: 18 minutes ago
12
      createCanvas(400, 400);
13
14
      //create a trex sprite
15
      trex = createSprite(50,380,20,50);
      trex.addAnimation("running", trex_running);
16
      trex.scale = 0.5;
17
18
19
      //create a ground sprite
      ground = createSprite(200,380,400,20);
20
      ground.addImage("ground", groundImage);
21
22
      ground.x = ground.width /2;
      ground.velocityX = -2;
23
24
25
      //creating invisible ground
      invisibleGround = createSprite(200,390,400,10);
26
27
28
    }
29
30 ▼ function draw() {
      //set background color
31
      background(220);
32
33
      //jump when the space key is pressed
34
      if(keyDown("space")) {
35♥
        trex.velocityY = -10;
36
37
38
39
      //add gravity
```

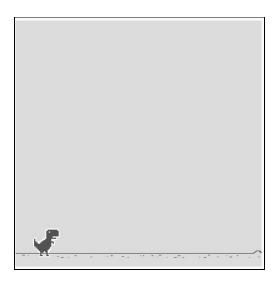


Instead of supporting the T-Rex on the ground, collide it with the invisible ground.

```
>
    sketch.js.
                                                        Saved: 1 minut
23
      ground.velocityx = -2;
24
25
      //creating invisible ground
      invisibleGround = createSprite(200,390,400,10);
26
27
28
29
30 ▼ function draw() {
      //set background color
31
      background(220);
32
33
      //jump when the space key is pressed
34
      if(keyDown("space")) {
35♥
        trex.velocityY = -10;
36
37
      }
38
      //add gravity
39
40
      trex.velocityY = trex.velocityY + 0.8
41
      if (ground.x < 0){
42 ₹
        ground.x = ground.width/2;
43
44
45
      //stop trex from falling down
46
      trex.collide(invisibleGround);
47
48
      drawSprites();
49
50
```



Step 3: Add the following line of code anywhere outside the function draw() and after creating the invisible Ground Sprite: invisibleGround.visible = false;



Step 4:

Bug 2: The Trex jumps even when it is in the air! Add an additional condition inside the IF block where we make the T_Rex jump only when it is on the ground.

```
Saved: ju
      //creating invisible ground
21
      invisibleGround = createSprite(200,390,400,10);
28
29
      invisibleGround.visible = false;
30
31
32▼ function draw() {
33
      //set background color
      background(220);
34
35
36
      console.log(trex.y)
37
38
      //jump when the space key is pressed
      if(keyDown("space") && trex.y >= 362) {
39 1
40
        trex.velocityY = -10;
41
42
43
      //add gravity
      trex.velocityY = trex.velocityY + 0.8
44
45
46 ₹
      if (ground.x < 0){
        ground.x = ground.width/2;
47
48
49
50
      //stop trex from falling down
      trex.collide(invisibleGround);
51
52
53
      drawSprites();
54 }
```

© 2019 The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.



There are several other ways consoles can be used.

1. We can use console.count() to count how many times a particular program is called.

```
27
        //creating invisible ground
       invisibleGround = createSprite(200,390,400,10);
 28
       invisibleGround.visible = false;
 29
 30
 31
     }
 32
 33
 34 ▼ function draw() {
 35
       //set background color
 36
       background(220);
 37
 38
 39
       console.count("Draw frame is called:");
 40
 41
 42
       //jump when the space key is pressed
if(keyDown("space") && trex.y >= 362) {
 43
         trex.velocityY = -10;
 45
 46
 47
Console
    Draw frame is called:: 80
    Draw frame is called:: 81
    Draw frame is called:: 82
    Draw frame is called .. 92
```



2. We use console.time() to start keeping log of the time and console.timeEnd() to stop and print the time on the console.

console.time() when the draw function starts

```
>
    sketch.js*
32
33
    function draw() {
34 ₹
35
36
      console.time();
37
38
      //set background color
39
      background(220);
40
      //jump when the space key is pressed
41
      if(keyDown("space") && trex.y >= 362) {
42 V
43
        trex.velocityY = -10;
44
45
46
      //add gravity
47
      trex.velocityY = trex.velocityY + 0.8
48
49 ₹
      if (ground.x < 0){
```

console.timeEnd() when the draw function ends.

```
41
       //jump when the space key is pressed
       if(keyDown("space") && trex.y >= 362) {
 42 ₹
         trex.velocityY = -10;
 43
 44
 45
       //add gravity
 46
 47
       trex.velocityY = trex.velocityY + 0.8
 48
 49 ₹
       if (ground.x < 0){
 50
         ground.x = ground.width/2;
 51
 52
 53
       //stop trex from falling down
 54
       trex.collide(invisibleGround);
 55
       drawSprites():
 56
 57
       console.timeEnd();
 58
 59
    }
Console
    default: 0.2800000074785203ms
    default: 0.09499999578110874ms
   default: 0.14999997802078724ms
    default: 0.3549999964889139ms
```

© 2019 The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.



3. You can also find out how long it takes for function setup or function preload to run before your game can start.

```
invisibleGround.visible = false;
 29
 30
 31
 32 ▼ function draw() {
 33
       console.time();
 34
 35
       for(var i=0; i<100; i++){
 36 ₹
         console.log("Running Loop");
 37
 38
 39
       //set background color
       background(220);
 40
 41
       //jump when the space key is pressed
 42
       if(keyDown("space") && trex.y >= 362) {
 43 ▼
         trex.velocityY = -10;
 44
 45
 46
       //add gravity
 47
       trex.velocityY = trex.velocityY + 0.8
 48
 40
Console
100 Running Loop
    default: 4.374999989522621ms
100Running Loop
    default: 9 76500002/3//772ms
```



4. Console.log() is used to print a simple message. You can use console.warn() to print a warning. The warning message is formatted differently. Similarly, you can use console.error() to print an error(). the error message is formatted differently. You can also use console.info() to print any information.

```
invisibleGround.visible = false;
 30
     }
 31
 32 ▼ function draw() {
 33
       console.info("Start of the draw function");
 34
       console.error("This is how error appears");
 35
       console.warn("A warning!")
 36
 37
       //set background color
 38
       background(220);
 39
       //jump when the space key is pressed
 40
 41 ▼
       if(keyDown("space") && trex.y >= 362) {
 12
         trav valocituV - - 10.
Console
   A warning!
    Start of the draw function
   This is how error appears
    A warning!
```

What's next?

We will start creating floating clouds at different heights.