TREX AND THE INFINITE GAME WORLD

What is our GOAL for this MODULE?

We create a jumping and running Trex Dinosaur Animation & Infinite Runner ground in a limited screen space for our Trex Game.

What did we ACHIEVE in the class TODAY?

- Created an array of multiple sprites.
- Made a jumping and running Trex.
- Learned to scale the images in the game.
- Learned to display messages/outputs from the program into the console for testing purposes.
- Learned to create an infinitely scrolling ground for the dinosaur to run on.

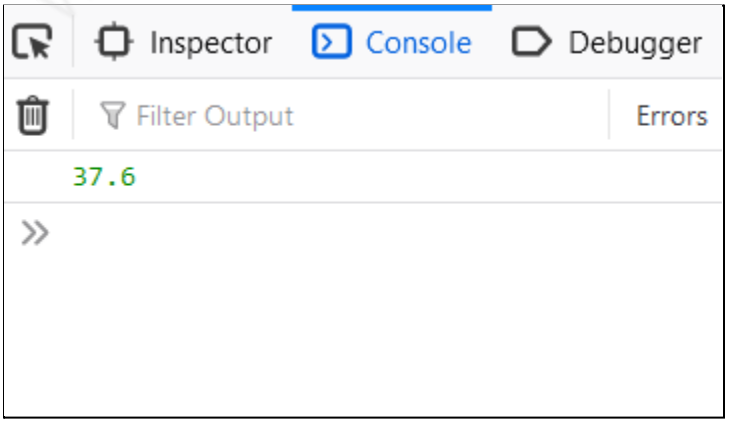
Which CONCEPTS/ CODING BLOCKS did we cover today?

- arrays
- learned to add animation to a sprite
- gravity effect to sprites
- console.log() to display messages on the console to test program
- infinitely scrolling ground

How did we DO the activities?

1. Introduce an array. An array is a collection of the same or different data types. Such as you can create an array named friends and name of your friends in it Eg. friends = [“sam”, “john”, “remy”].
    - In an array, each data is referred to as an element of an array.
    - Each element is given a unique index number.
    - The index number starts with 0.
    - We can access individual elements of an array using index numbers.

```
var marks = [30,35,45,38,40];

function score_average()
{
  var sum = marks[0] + marks[1] + marks[2] + marks[3] + marks[4];
  var avg = sum/marks.length;
  console.log(avg);
}
function setup()
{
  createCanvas(400, 400);
  score_average();
}

function draw()
{
  background(220);
}
```



- Create an array of weight values and find the average weight..

```
var weight = [35,38,40,45];


function setup() {
  createCanvas(400,400);

  var sum = weight[0] + weight[1] + weight[2] + weight[3];
  var average = sum/weight.length;
  console.log(average);

}
```

```
39.5
>>
```

2. Download boilerplate for Trex Game.
3. Start creating a Trex game using p5.play.js library.
4. Create a Trex Sprite and load a running Trex animation.

```
var trex ,trex_running;

function preload()
{
  trex_running = loadAnimation("trex1.png", "trex
3.png", "trex4.png");

}

function setup(){
  createCanvas(600,200)

  //create a trex sprite
  trex = createSprite(50,160,20,50);
  trex.addAnimation("running", trex_running);
}

function draw(){
  background("white")
  drawSprites();

}
```


5. Make the Trex jump and add gravity effect to it. Make sure the Trex falls on the ‘ground’.

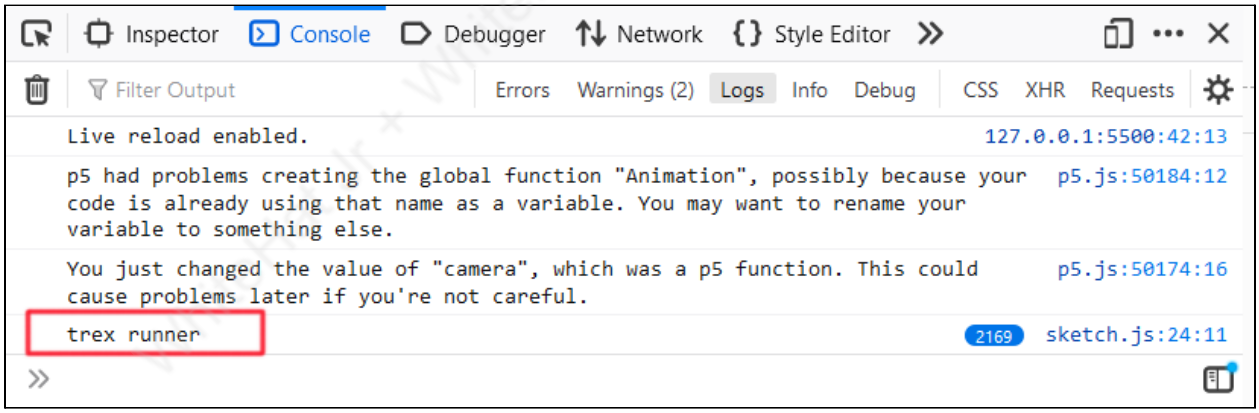
```
function setup(){
  createCanvas(600,200)
  trex = createSprite(50,160,20,50);
  trex.addAnimation("running", trex_running);
  edges = createEdgeSprites();

}

function draw(){
  //set background color to white
  background("white");

  //jump when space key is pressed
  if(keyDown("space"))
  {
    trex.velocityY = -10;
  }
  trex.velocityY = trex.velocityY + 0.5;

  //stop trex from falling down
  trex.collide(edges[3]);
  drawSprites();
}
```

6. Scale the dinosaur to the right size.

```
  edges = createEdgeSprites();

  //adding scale and position to trex
  trex.scale = 0.5;
  trex.x = 50;
}

function draw(){
  //set background color to white
  background("white");
```

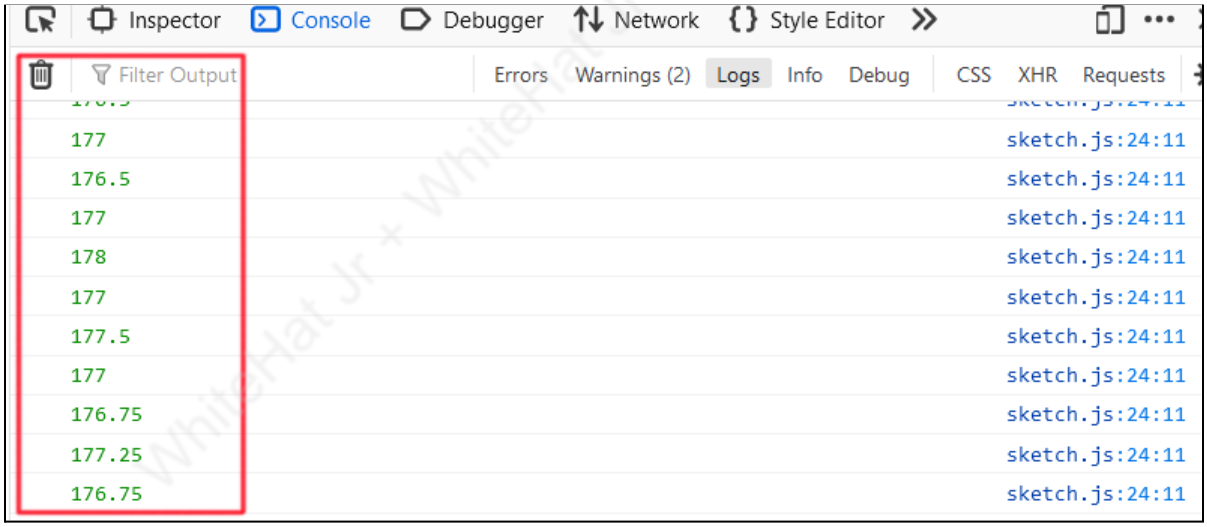
7. Use console.log() to display the Trex runner text.

```
function draw(){
  //set background color to white
  background("white");

  //using console.log
  console.log("trex runner");

  //jump when space key is pressed
  if(keyDown("space"))
  {
    trex.velocityY = -10;
  }
```



8. Write the console.log() instruction inside the draw() function. Try displaying the y position of the Trex sprite when it jumps.

```
function draw(){
  //set background color to white
  background("white");

  //logging the y postion of the trex
  console.log(trex.y);

  //jump when space key is pressed
  if(keyDown("space"))
  {
    trex.velocityY = -10;
  }
```

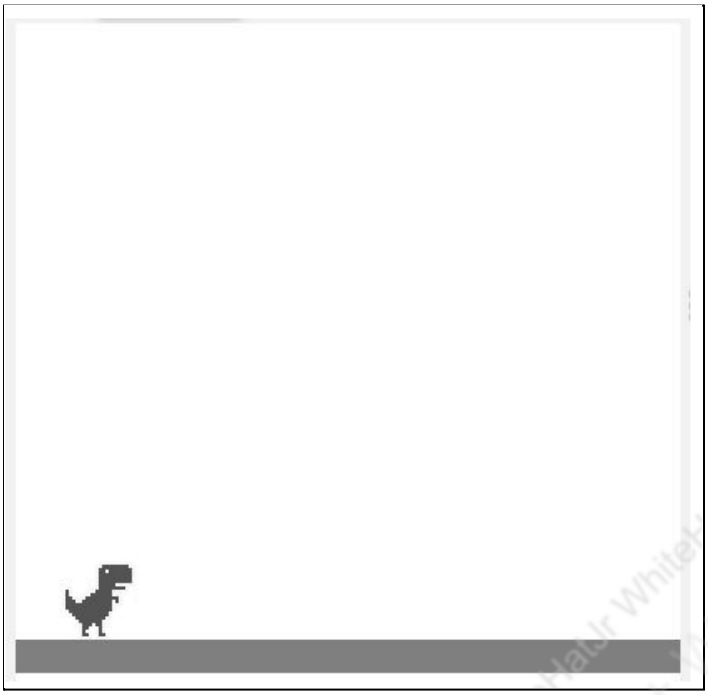


9. Create a rectangular sprite called ground. This is where the Trex dinosaur will run. The ground sprite should ideally cover the entire screen.

```
function setup(){
  createCanvas(600,200)
  trex = createSprite(50,160,20,50);
  trex.addAnimation("running", trex_running);

  //adding scale and position to trex
  trex.scale = 0.5;
  trex.x = 50;

  //create ground Sprite
  ground = createSprite(200,180,400,20);

}
```

```
  //create ground Sprite
  ground = createSprite(200,180,400,20);
}

function draw(){
  background(220);

  //jump when space key is pressed
  if(keyDown("space"))
  {
    trex.velocityY = -10;
  }
  trex.velocityY = trex.velocityY + 0.5;

  //stop trex from falling down
  trex.collide(ground);

  drawSprites();
}
```

Output:



10. Give a backward velocity to the ground to show the dinosaur moving and add the code to reset the ground.

```
  //create ground Sprite
  ground = createSprite(200,180,400,20);
  ground.addImage("ground",groundImage);
  ground.x = ground.width/2;
}

function draw(){
  background(220);

  ground.velocityX = -2;
  console.log(ground.x);

  if (ground.x<0)
  {
    ground.x = ground.width/2;
  }
```

11. Use an actual ground image.

```
var trex ,trex_running;
var groundImage;

function preload()
{
  trex_running = loadAnimation("trex1.png", "trex3.png", "tre
x4.png");
  groundImage = loadImage("ground2.png");
}
```

What's next?

We observed certain bugs in the game; in the next class, we will fix those bugs.

Extend Your Knowledge

1. Bookmark following link: it will be a reference for p5 codes: https://molleindustria.github.io/p5.play/docs/classes/Sprite.html