CODE INDENTATION AND GROUPS

What is our GOAL for this MODULE?

Create a group with similar game objects/sprites together and assign the same behavior to all of them and also, Indent the code for better readability.

What did we ACHIEVE in the class TODAY?

- Grouped similar game objects/sprites together in a group and assigned the same behavior to all of them.
- Added reset function when the game ends
- Indented the code correctly to make it more readable

Which CONCEPTS/ CODING BLOCKS did we cover today?

- Indent code for better readability
- Reset function
- Groups of similar objects

How did we DO the activities?

1. Add **Group** functionality to group similar objects into a single group (Cloud and obstacle(cactus)). Using group properties program the behavior of all the objects in a single stroke:

```
  invisibleGround = createSprite(200,390,400,10);
  invisibleGround.visible = false;

  //create Obstacle and Cloud Groups
  obstaclesGroup = new Group();
  cloudsGroup = new Group();

  console.log("Hello" + 5);

  score = 0;
}

function draw() {
  background(180);
  //displaying score
  text("Score: "+ score, 500,50);
```

2. Add **obstacle** sprites to the groups:

```
      case 2: obstacle.addImage(obstacle2);
              break;
      case 3: obstacle.addImage(obstacle3);
              break;
      case 4: obstacle.addImage(obstacle4);
              break;
      case 5: obstacle.addImage(obstacle5);
              break;
      case 6: obstacle.addImage(obstacle6);
              break;
      default: break;
    }

    //assign scale and lifetime to the obstacle
    obstacle.scale = 0.5;
    obstacle.lifetime = 300;

   //add each obstacle to the group
    obstaclesGroup.add(obstacle);
  }
}
```

3. Add **cloud** sprites to the groups:

```
function spawnClouds() {
  //write code here to spawn the clouds
   if (frameCount % 60 === 0) {
    cloud = createSprite(600,300,40,10);
    cloud.addImage(cloudImage);
    cloud.y = Math.round(random(280,320));
    cloud.scale = 0.4;
    cloud.velocityX = -3;

     //assign lifetime to the variable
    cloud.lifetime = 134;

    //adjust the depth
    cloud.depth = trex.depth;
    trex.depth = trex.depth + 1;

    //adding cloud to the group
   cloudsGroup.add(cloud);
    }
}
```

4. Write code to **END** the game when the Trex collides with the obstacles/cactus:

```
  if(obstaclesGroup.isTouching(trex)){
      gameState = END;
  }
}

 else if (gameState === END) {
    ground.velocityX = 0;

    obstaclesGroup.setVelocityXEach(0);
    cloudsGroup.setVelocityXEach(0);
 }
```

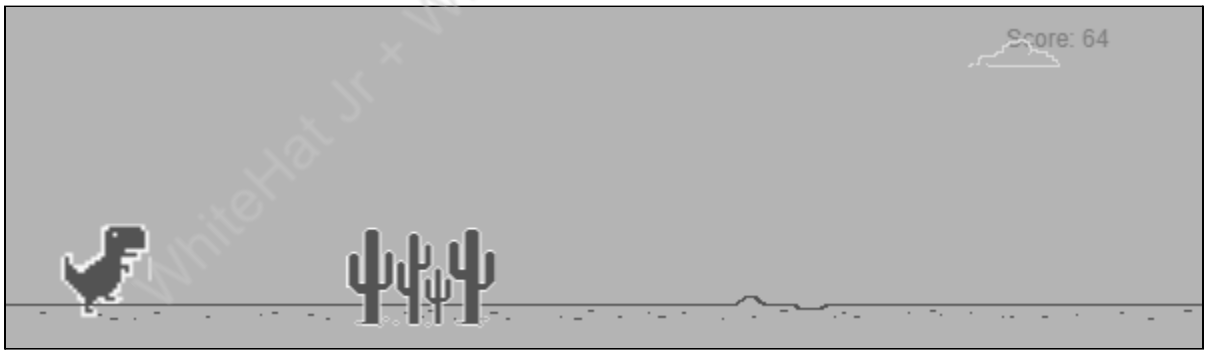
5. Give zero velocity to all the obstacles and the clouds using the **setVelocityXEach()**:

```
    if(obstaclesGroup.isTouching(trex)){
        gameState = END;
    }
}

else if (gameState === END) {
    ground.velocityX = 0;

    obstaclesGroup.setVelocityXEach(0);
    cloudsGroup.setVelocityXEach(0);
}
```

Output:



6. Assign the variables and load the image for **gameover and restart**

```
sketch.js
sketch.js > setup
 8   var cloudsGroup, cloudImage;
 9   var obstaclesGroup, obstacle1, obstacle2, obstacle3, obstacle4, obstacle5, obstacle6;
10
11   var score;
12   var gameOverImg,restartImg
13
14
15   function preload(){
16     trex_running = loadAnimation("trex1.png","trex3.png","trex4.png");
17     trex_collided = loadAnimation("trex_collided.png");
18
19     groundImage = loadImage("ground2.png");
20
21     cloudImage = loadImage("cloud.png");
22
23     obstacle1 = loadImage("obstacle1.png");
24     obstacle2 = loadImage("obstacle2.png");
25     obstacle3 = loadImage("obstacle3.png");
26     obstacle4 = loadImage("obstacle4.png");
27     obstacle5 = loadImage("obstacle5.png");
28     obstacle6 = loadImage("obstacle6.png");
29
30      restartImg = loadImage("restart.png")
31     gameOverImg = loadImage("gameOver.png")
32
33   }
```

7. Set the **GAME OVER** text and **restart icon** displayed on the screen when the game ends:

```
trex = createSprite(50,380,20,50);
trex.addAnimation("running", trex_running);
trex.scale = 0.5;

ground = createSprite(200,380,400,20);
ground.addImage("ground",groundImage);
ground.x = ground.width /2;

gameOver = createSprite(300,100);
gameOver.addImage(gameOverImg);

restart = createSprite(300,140);
restart.addImage(restartImg);

gameOver.scale = 0.5;
restart.scale = 0.5;

invisibleGround = createSprite(200,390,400,10);
invisibleGround.visible = false;
```

8. Set the visibility of **gameOver** and **restart** as **true** as highlighted in the following screenshot:

```
}
 else if (gameState === END) {
    gameOver.visible = true;
    restart.visible = true;

    ground.velocityX = 0;
    trex.velocityY = 0

    //change the trex animation
    trex.changeAnimation("collided", trex_collided);

    //set lifetime of the game objects so that they are never destroyed
   obstaclesGroup.setLifetimeEach(-1);
   cloudsGroup.setLifetimeEach(-1);

    obstaclesGroup.setVelocityXEach(0);
    cloudsGroup.setVelocityXEach(0);
 }
```

9. Perform **code indentation** — leave an even space by selecting the code and pressing **TAB** button, after every instruction contained inside another block of code:

```
function setup() {
  createCanvas(600,200);

  //create a trex sprite
  trex = createSprite(50,160,20,50);
  trex.addAnimation("running", trex_running);
  trex.scale = 0.5;

  //create a ground sprite
  ground = createSprite(200,180,400,20);
  ground.addImage("ground",groundImage);
  ground.x = ground.width /2;
  ground.velocityX = -4;

  //creating invisible ground
  invisibleGround = createSprite(200,190,400,10);
  invisibleGround.visible = false;

}

function draw() {
  //set background color
  background(220);

  console.log(trex.y)
```

What's next:

We will fix the bugs in the game.

Extend Your Knowledge:

Learn & Experiment with Groups:
https://studio.code.org/docs/gamelab/createGroup/#:~:text=Creates%20a%20new%20group%20and,all%20the%20%22enemy%22%20sprites