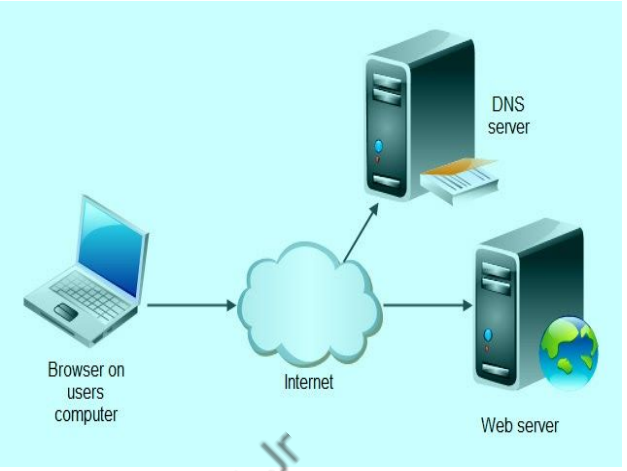
Capstone Class: T-Rex Game Code



What we did:

- Rewrite the Trex Game code for spawning game objects - clouds and obstacles - and adding score.
- Use switch statement to assign different actions for the computer-based on the different conditions
- Start a small local webserver and host the files locally to see the game

How we did it:

Step 1: Change the canvas size we have so that we have a longer width and smaller height.

```
function preload(){
  trex_running = loadAnimation("trex1.png","trex3.png","trex4.png");
  trex_collided = loadImage("trex_collided.png");

  groundImage = loadImage("ground2.png")
}

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

  trex = createSprite(50,180,20,50);
  trex.addAnimation("running", trex_running);
  trex.scale = 0.5;

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

  invisibleGround = createSprite(200,190,400,10);
  invisibleGround.visible = false;
}
```

Step 2: Create the clouds and the obstacles in our game in p5 editor before we use a web server to host our game.

```
var trex, trex_running, trex_collided;
var ground, invisibleGround, groundImage;

var cloudsGroup, cloudImage;
var obstaclesGroup, obstacle1, obstacle2, obstacle3, obstacle4, obstacle5, obstacle6;

function preload(){
  trex_running = loadAnimation("trex1.png","trex3.png","trex4.png");
  trex_collided = loadImage("trex_collided.png");

  groundImage = loadImage("ground2.png")
}

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

  trex = createSprite(50,180,20,50);
  trex.addAnimation("running", trex_running);
  trex.scale = 0.5;

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

Step 3: Load the images into these variables.

```
var cloudsGroup, cloudImage;
var obstaclesGroup, obstacle1, obstacle2, obstacle3, obstacle4, obstacle5, obstacle6;


function preload(){
  trex_running = loadAnimation("trex1.png","trex3.png","trex4.png");
  trex_collided = loadImage("trex_collided.png");

  groundImage = loadImage("ground2.png");

  cloudImage = loadImage("cloud.png");

  obstacle1 = loadImage("obstacle1.png");
  obstacle2 = loadImage("obstacle2.png");
  obstacle3 = loadImage("obstacle3.png");
  obstacle4 = loadImage("obstacle4.png");
  obstacle5 = loadImage("obstacle5.png");
  obstacle6 = loadImage("obstacle6.png");
}

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

  trex = createSprite(50,180,20,50);
```

Step 4: Create cloudsGroup and obstaclesGroup using new Group()

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

  trex = createSprite(50,180,20,50);
  trex.addAnimation("running", trex_running);
  trex.scale = 0.5;

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

  invisibleGround = createSprite(200,190,400,10);
  invisibleGround.visible = false;

  cloudsGroup = new Group();
  obstaclesGroup = new Group();
}

function draw() {
  background(220);

  if(keyDown("space")) {
```

Step 5: make changes in their code in the function spawnClouds() so that it can run on the p5 editor. We were using cloud.setAnimation("cloud")...but now we are calling cloud.addAnimation(cloudImage)

```
function spawnClouds() {
  //write code here to spawn the clouds
  if (frameCount % 60 === 0) {
    var cloud = createSprite(600,120,40,10);
    cloud.y = Math.round(random(80,120));
    cloud.addImage(cloudImage);
    cloud.scale = 0.5;
    cloud.velocityX = -3;

     //assign lifetime to the variable
    cloud.lifetime = 200;

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

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

}
```

Step 6: Call the function in our code; make the background a little darker - so that the clouds are clearly visible.

```
  cloudsGroup = new Group();
  obstaclesGroup = new Group();
}

function draw() {
  background(180);

  if(keyDown("space")) {
    trex.velocityY = -10;
  }

  trex.velocityY = trex.velocityY + 0.8

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

  trex.collide(invisibleGround);
  spawnClouds();
  drawSprites();
}

function spawnClouds() {
  //write code here to spawn the clouds
```

Step 7: Copy code from code.org for spawnObstacles()

```
function spawnObstacles() {
  if(World.frameCount % 60 === 0) {
    var obstacle = createSprite(400,365,10,40);
    obstacle.velocityX = -6;

    //generate random obstacles
    var rand = randomNumber(1,6);
    obstacle.setAnimation("obstacle" + rand);

    //assign scale and lifetime to the obstacle
    obstacle.scale = 0.5;
    obstacle.lifetime = 70;
  }
}
```

Step 8: When we are using obstacle.addAnimation(), it expects us to supply it a variable.

```
function spawnObstacles() {
  if(World.frameCount % 60 === 0) {
    var obstacle = createSprite(400,365,10,40);
    obstacle.velocityX = -6;

    //generate random obstacles
    var rand = randomNumber(1,6);
    obstacle.setAnimation("obstacle" + rand);

    //assign scale and lifetime to the obstacle
    obstacle.scale = 0.5;
    obstacle.lifetime = 70;
  }
}
```

Step 9: Write the switch statement and make other changes in spawn clouds()

```
function spawnObstacles() {
  if(frameCount % 60 === 0) {
    var obstacle = createSprite(600,165,10,40);
    obstacle.velocityX = -4;

    //generate random obstacles
    var rand = Math.round(random(1,6));
    switch(rand) {
      case 1: obstacle.addImage(obstacle1);
              break;
      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;
```

Step 10: Call the spawnObstacles() inside function draw and see if our code works

```
106     //assign scale and lifetime to the obstacle
107     obstacle.scale = 0.5;
108     obstacle.lifetime = 300;
109     //add each obstacle to the group
110     obstacleSprite.add(obstacle);
111   }
112 }
```

Step 11: Get a score on the screen— use getFrameRate() rather than framerate

```
34   ground.velocityX = -4;
35
36   invisibleGround = createSprite(200,190,400,10);
37   invisibleGround.visible = false;
38
39   cloudsGroup = new Group();
40   obstaclesGroup = new Group();
41 }
42
43 function draw() {
44   background(180);
45
46   score = score + Math.round(getFrameRate()/60);
47   text("Score: "+ score, 500,50);
48
49   if(keyDown("space")) {
50     trex.velocityY = -10;
51   }
52
53   trex.velocityY = trex.velocityY + 0.8
54
55   if (ground.x < 0){
```

What's next? : Finish up rewriting the T-Rex game and learn how we can host it online so that our friends and family can play the game.