Random Numbers

What we did:

- Generate random numbers and use them inside a game.
- Use the concept of frameCount to introduce a delay in the game.
- Spawn a sequence of game objects at different positions.

How we did it:

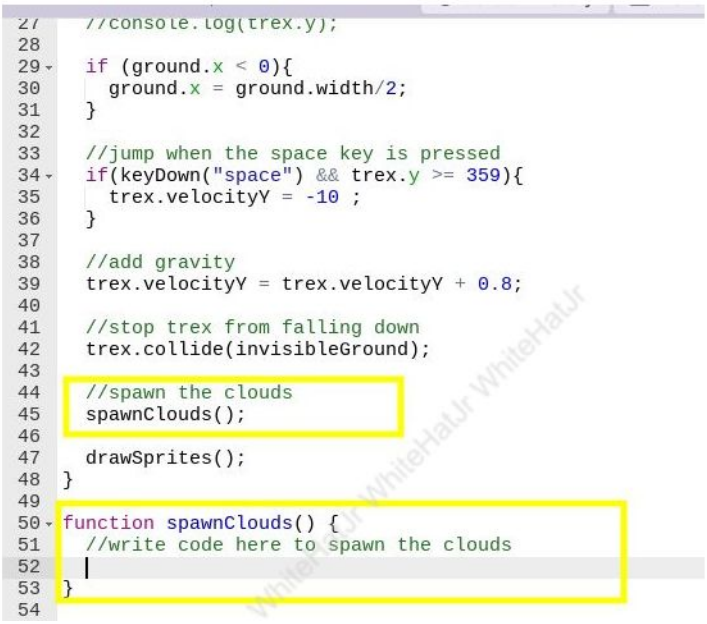
Step 1: Find the instruction to generate a random number

Step 2: Write code to generate a random number between 1 to 100 and store it in a variable called rand.

```
 8
 9  //create a ground sprite
10  var ground = createSprite(200,380,400,20);
11  ground.setAnimation("ground2");
12  ground.x = ground.width /2;
13
14  var invisibleGround = createSprite(200,385,400,5);
15  invisibleGround.visible = false;
16
17  //generate some randome number here
18  var rand = randomNumber(1,100);
19  console.log(rand);
20
21  function draw() {
22    //set background to white
23    background("white");
24
25    ground.velocityX = -2;
26
27    //console.log(trex.y);
28
29    if (ground.x < 0){
30      ground.x = ground.width/2;
31    }
32
33    //jump when the space key is pressed
34    if(keyDown("space") && trex.y >= 359){
```

Remember: Every time we run the code, a different random number will be printed on the screen.

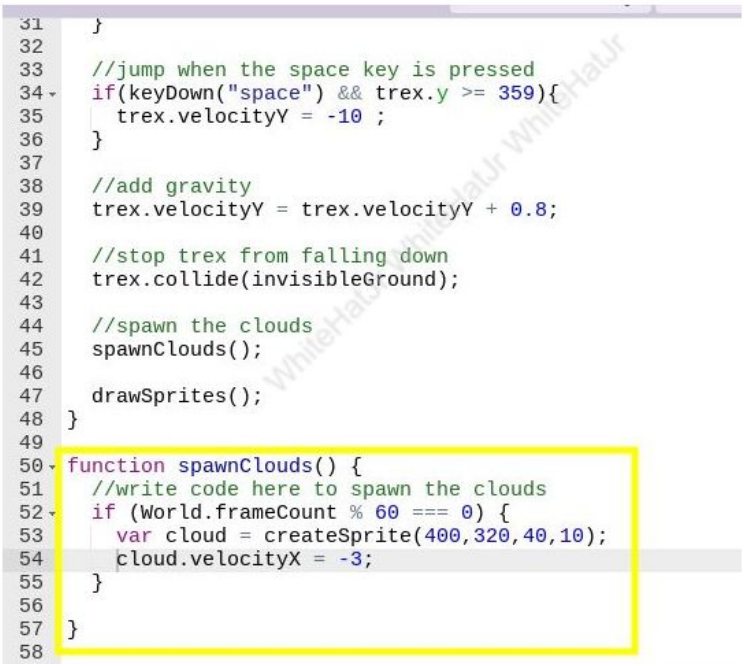
Step 3: Spawning clouds in the game at different random heights.



```
//console.log(trex.y);

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

//jump when the space key is pressed
if(keyDown("space") && trex.y >= 359){
  trex.velocityY = -10 ;
}

//add gravity
trex.velocityY = trex.velocityY + 0.8;

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

//spawn the clouds
spawnClouds();

drawSprites();
}

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

}
```

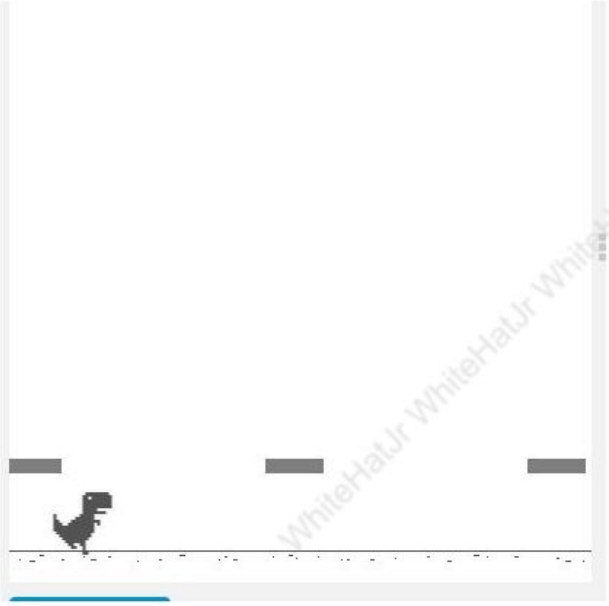
Step 4: Write code to create just one small cloud sprite. Generate it outside the screen and give it some x velocity so that it appears moving. Write the code to generate a cloud for every 60 frames

Code:



```
}

//jump when the space key is pressed
if(keyDown("space") && trex.y >= 359){
  trex.velocityY = -10 ;
}

//add gravity
trex.velocityY = trex.velocityY + 0.8;

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

//spawn the clouds
spawnClouds();

drawSprites();
}

function spawnClouds() {
  //write code here to spawn the clouds
  if (World.frameCount % 60 === 0) {
    var cloud = createSprite(400,320,40,10);
    cloud.velocityX = -3;
  }

}
```

Output:



Step 5: Add animation to the cloud

```
49
50 function spawnClouds() {
51   //write code here to spawn the clouds
52   if (World.frameCount % 60 === 0) {
53     var cloud = createSprite(400,320,40,10);
54     cloud.setAnimation("cloud");
55     cloud.scale = 0.5;
56     cloud.velocityX = -3;
57   }
58
```

Step 6: Change the height of the clouds, make it more random.
Code:

```
49
50  function spawnClouds() {
51    //write code here to spawn the clouds
52    if (World.frameCount % 60 === 0) {
53      var cloud = createSprite(400,320,40,10);
54      cloud.y = randomNumber(280,320);
55      cloud.setAnimation("cloud");
56      cloud.scale = 0.5;
57      cloud.velocityX = -3;
58    }
```

Output:

Step 7: Change the depth of the clouds to be same as the T-Rex and then increase the depth of the T-Rex by 1. This will ensure that T-Rex has a higher depth than the clouds.

```
function spawnClouds() {
  //write code here to spawn the clouds
  if (World.frameCount % 60 === 0) {
    var cloud = createSprite(400,320,40,10);
    cloud.y = randomNumber(280,320);
    cloud.setAnimation("cloud");
    cloud.scale = 0.5;
    cloud.velocityX = -3;

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

What's next? : Fixing Memory leaks which make games and apps crash.