Game States and Groups

What we did:

- Create two new game states - PLAY and END. Assign different game behaviour for the different states.
- Group similar game objects together in a group and assign the same behaviour to all of them
- Create colliders for the T-Rex and each obstacle. End the game if T-Rex collides with the obstacle.

How we did it:

Step 1: Group all objects into a single group (Cloud and obstacle(cactus))

Using group properties program the behaviour of all the objects in a single stroke.

```
23  //generate some randome number here
24  var rand = randomNumber(1,100);
25  console.log(rand);
26
27  //create Obstacle and Cloud Groups
28  var ObstacleGroup = createGroup();
29  var CloudsGroup = createGroup();
30
31  //set text
32  textSize(18);
33  textFont("Georgia");
```

Step 2: Add the sprites to groups


```
88
89      //assign scale and lifetime to the obstacle
90      obstacle.scale = 0.5;
91      obstacle.lifetime = 70;
92
93      //add each obstacle to the group
94      ObstaclesGroup.add(obstacle);
95    }
96  }
```

```
110     //adjust the depth
111     cloud.depth = trex.depth;
112     trex.depth = trex.depth + 1;
113
114     //add each cloud to the group
115     CloudsGroup.add(cloud);
116   }
117
```

Step 3: Introduce a variable which will hold the value of the game state. Game State could be PLAY or END.

```
1  //initiate Game STATEs
2  var PLAY = 1;
3  var END = 0;
4  var gameState = PLAY;
5
6  //create a trex sprite
7  var trex = createSprite(200,380,20,50);
8  trex.setAnimation("trex");
9
```

Step 4: Put an IF and ELSE IF condition inside the function draw()

```
34
35   if(gameState === PLAY){
36
37   }
38
39   else if(gameState === END) {
40
41   }
42
```

Step 5: Put code behaviours inside the game state

```
38 function draw() {
39   //set background to white
40   background("white");
41
42   if(gameState === PLAY){
43
44   }
45
46   else if(gameState === END) {
47
```

Step 6: Move the ground, in PLAY state, stop the movement in END state

```
38 function draw() {
39   //set background to white
40   background("white");
41
42   if(gameState === PLAY){
43     //move the ground
44     ground.velocityX = -6;
45   }
46
47   else if(gameState === END) {
48     ground.velocityX = 0;
49   }
50
```

Step 7: Display score at all times

```
38 function draw() {
39   //set background to white
40   background("white");
41   //display score
42   text("Score: "+ count, 250, 100);
43
44
45   if(gameState === PLAY){
46     //move the ground
47     ground.velocityX = -6;
48     //scoring
49     count = Math.round(World.frameCount/4);
50   }
```

Step 8: Reset ground during play state

```
44     //scoring
45     count = Math.round(World.frameCount/4);
46
47     if (ground.x < 0){
48       ground.x = ground.width/2;
49     }
50   }
51
52   else if(gameState === END) {
53     ground.velocityX = 0;
54   }
```

Make T-Rex jump during play state only

```
49    }
50
51     //jump when the space key is pressed
52    if(keyDown("space") && trex.y >= 359){
53      trex.velocityY = -10 ;
54    }
55
56    //add gravity
57    trex.velocityY = trex.velocityY + 0.8;
58  }
```

Step 9: Make the invisible ground support the T-Rex at all times

```
61  else if(gameState === END) {
62    ground.velocityX = 0;
63  }
64
65  //console.log(trex.y);
66
67  //stop trex from falling down
68  trex.collide(invisibleGround);
69
70  //spawn the clouds
71  spawnClouds();
```

Step 10: Spawn the cloud and the obstacles In PLAY state

```
79    //spawn the clouds
80    spawnClouds();
81
82    //spawn obstacles
83    spawnObstacles();
84
```

Step 11:

Write code to END the game when the T-Rex collides with the obstacles/ cactus.

```
62
63    //spawn obstacles
64    spawnObstacles();
65
66    if(ObstaclesGroup.isTouching(trex)){
67      gameState = END;
68    }
69  }
70
```

Give ‘0’ velocity to all the obstacles and the clouds in the game when the T-Rex collides with an obstacle.

```
72
73  else if(gameState === END) {
74    ground.velocityX = 0;
75
76    ObstaclesGroup.setVelocityXEach(0);
77    CloudsGroup.setVelocityXEach(0);
78  }
79
80  //console.log(trex.y);
81
82  //stop trex from falling down
83  trex.collide(invisibleGround);
```

What's next? : Fix More Bugs