# Bugs - The Curious Case of Disappearing Game Objects


## What is our GOAL for this MODULE?

We fixed the problem of disappearing obstacles and clouds.

## What did we ACHIEVE in the class TODAY?

- Set the collider radius so that the game ends when the Trex touches the obstacle.
- Designed a solution to the problem of disappearing obstacles and clouds.
- Added animation and reset function when the game ends.

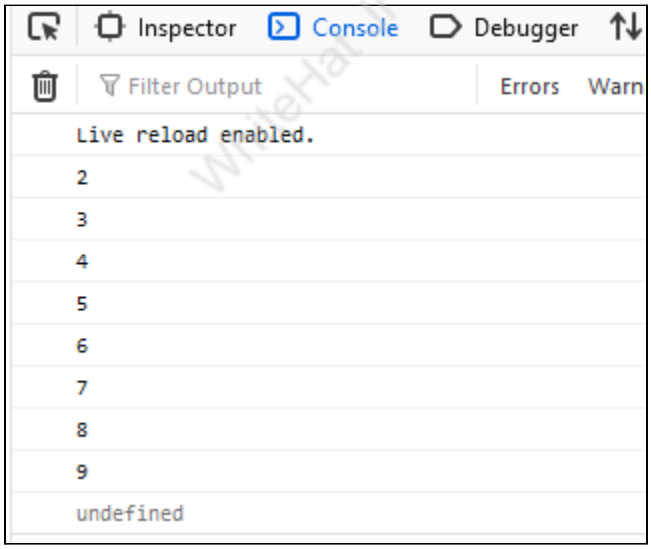
## Which CONCEPTS/ CODING BLOCKS did we cover today?

- Adding animation
- Collider
- Changing Animation

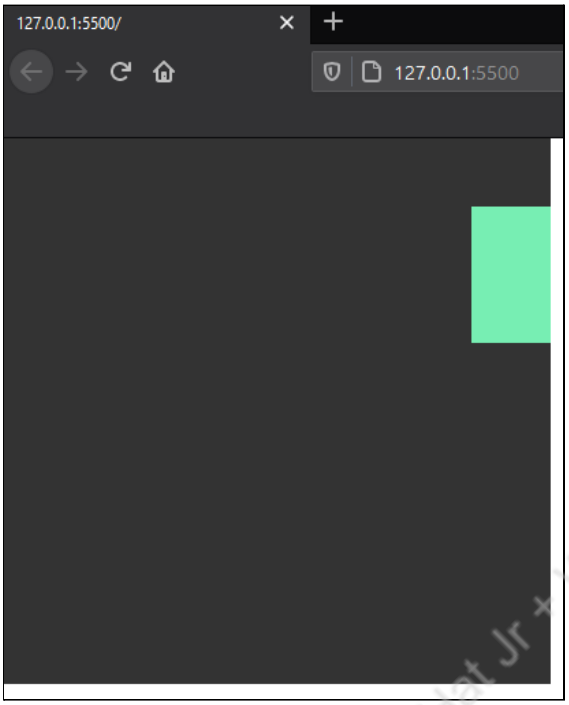
## How did we DO the activities?

1. Debug the code to find the reason for getting the output of an undefined variable.

```
function setup() {
  createCanvas(400, 400);
  count();
}

function draw() {
  background(220);
}

function count() {
  let numbers = [1,2,3,4,5,6,7,8,9];
  let len = numbers.length;

  for (let i = 1; i <= len; i++) {
    console.log(numbers[i]);
  }
}
```



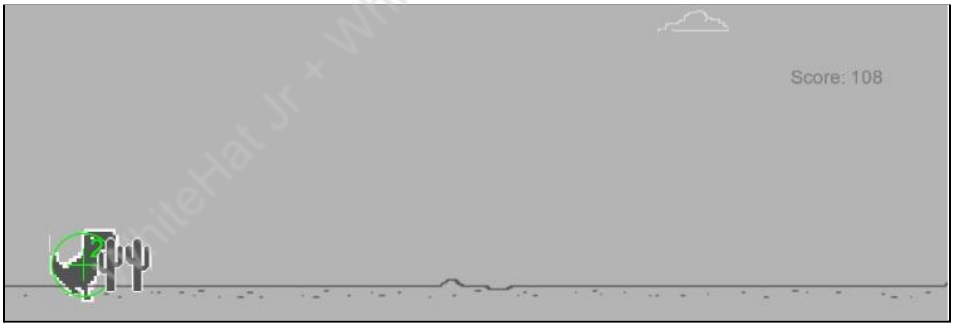
- Fix the bug by changing the initializing value of i to 0 instead of 1.
- Debug one more code which was giving output as:




```
var ball;
var vx = 2;  //velocity in  x direction

function setup() {
  createCanvas(400, 400);
  ball = createSprite(100,100, 100,100);

}
function draw() {
  background(51);

  //updated condition
  if(ball.position.x<=50 || ball.position.x>=width-50)
  {
    //mave the velovoty negative to change the direction
    vx = -vx;
  }

  ball.velocity.x = vx;

  drawSprites();
}
```

2. Change collider of Trex to fix the bug:
    - sprite.setCollider() function is used to set the collider shape and size — trex.setCollider("circle",0,0,40).

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

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

console.log("Hello" + 5);

trex.setCollider("circle",0,0,40);
trex.debug = true

score = 0;

}
```



3. Print the game state in the console and see it change when the collision happens.

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

  console.log("this is ",gameState)


  if(gameState === PLAY){
    //move the ground
    ground.velocityX = -4;
    //scoring
    score = score + Math.round(frameCount/60);

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

4. Change the Trex animation after the END state changes to a different image where its eyes pop out after the collision.

5. Change the Trex animation when the gameState becomes END.

```
  }
}
else if (gameState === END) {
 ground.velocityX = 0;
 //change the trex animation
 trex.changeAnimation("collided", trex_collided);
 obstaclesGroup.setVelocityXEach(0);
 cloudsGroup.setVelocityXEach(0);

}
```

6. Set the lifetime of the game object to -1. This is so that every frame will move away from 0 and never reach 0. This will also avoid objects disappearing from the canvas.

7. Write the code for setting the lifetime of all the spawned objects in the groups to be -1 in the END condition of the game.

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

 }

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

8. Resolve the bug where, when we press space just at the time of the collision the Trex flies upwards without gravity.

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

```
}
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);
}
```



## What's next?

We will make the game more fun by adding sounds to the game.

## Extend Your Knowledge:

1. Learn and experiment more about Collider Radius.