Writing code on a code editor - 1

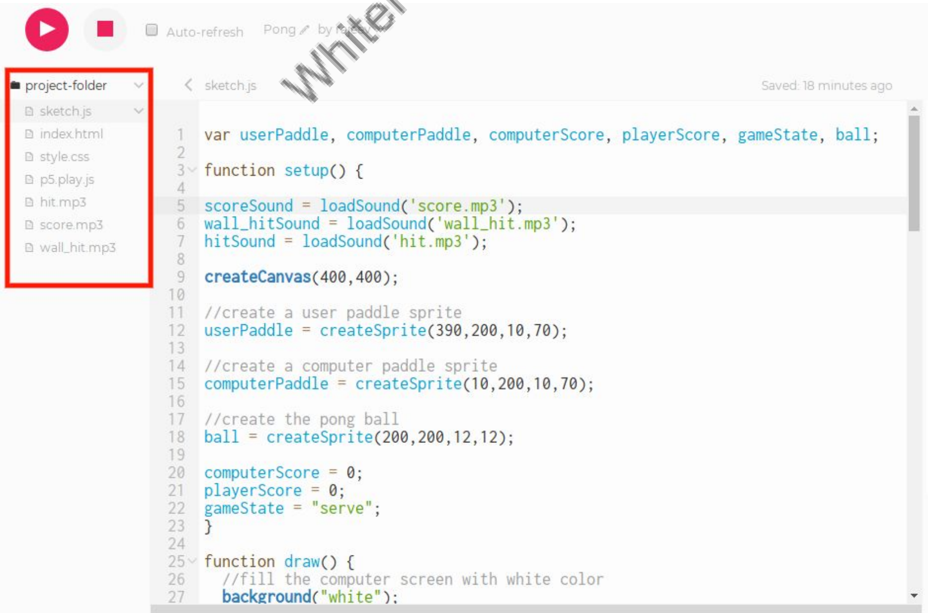
WhiteHat Jr + WhiteHat Jr + WhiteHat Jr

What we did:

- Explore the role of html, css and javascript in the design for a web page which can host their game page.
- Learn about javascript libraries and how to use them within our code.
- Modify their code.org T-Rex game code to p5 editor along with all the files and assets (images, music, etc.)

How we did it:

Step 1: Let's look at the file sketch.js— It contains the code for our PONG Game!! The library we are using in our code is called p5.play.js.



```
var userPaddle, computerPaddle, computerScore, playerScore, gameState, ball;

function setup() {

scoreSound = loadSound('score.mp3');
wall_hitSound = loadSound('wall_hit.mp3');
hitSound = loadSound('hit.mp3');

createCanvas(400,400);

//create a user paddle sprite
userPaddle = createSprite(390,200,10,70);

//create a computer paddle sprite
computerPaddle = createSprite(10,200,10,70);

//create the pong ball
ball = createSprite(200,200,12,12);

computerScore = 0;
playerScore = 0;
gameState = "serve";
}

function draw() {
  //fill the computer screen with white color
  background("white");
```

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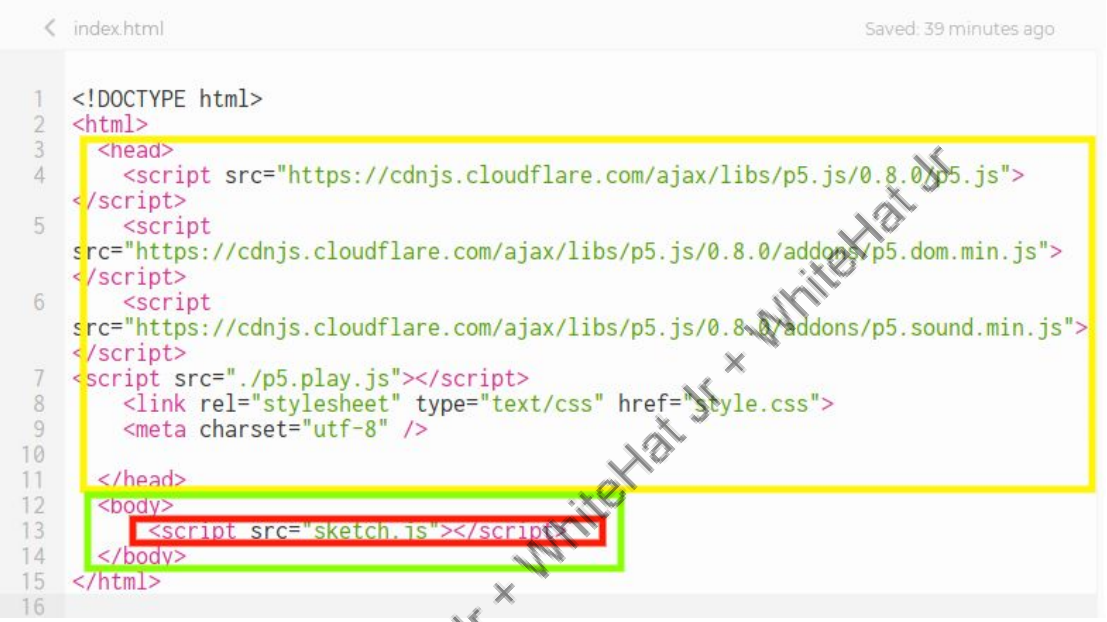
Step 2: We tell the computer to use different libraries in our index.html file. Index.html file contains tags which can tell the computer what to display. It is similar to the markdown file we learned earlier. Here we use tags instead of symbols.

For example <script> is a tag.

Inside two <script> </script> tags, we can tell the computer to load any javascript code.
Inside two <body></body> tags, we tell the computer what to display on the page.
Inside two <head></head> tags, we tell the computer the different libraries we want to load.



```
<!DOCTYPE html>
<html>
  <head>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/p5.js">
</script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.dom.min.js">
</script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.sound.min.js">
</script>
<script src="./p5.play.js"></script>
    <link rel="stylesheet" type="text/css" href="style.css">
    <meta charset="utf-8" />

  </head>
  <body>
    <script src="sketch.js"></script>
  </body>
</html>
```

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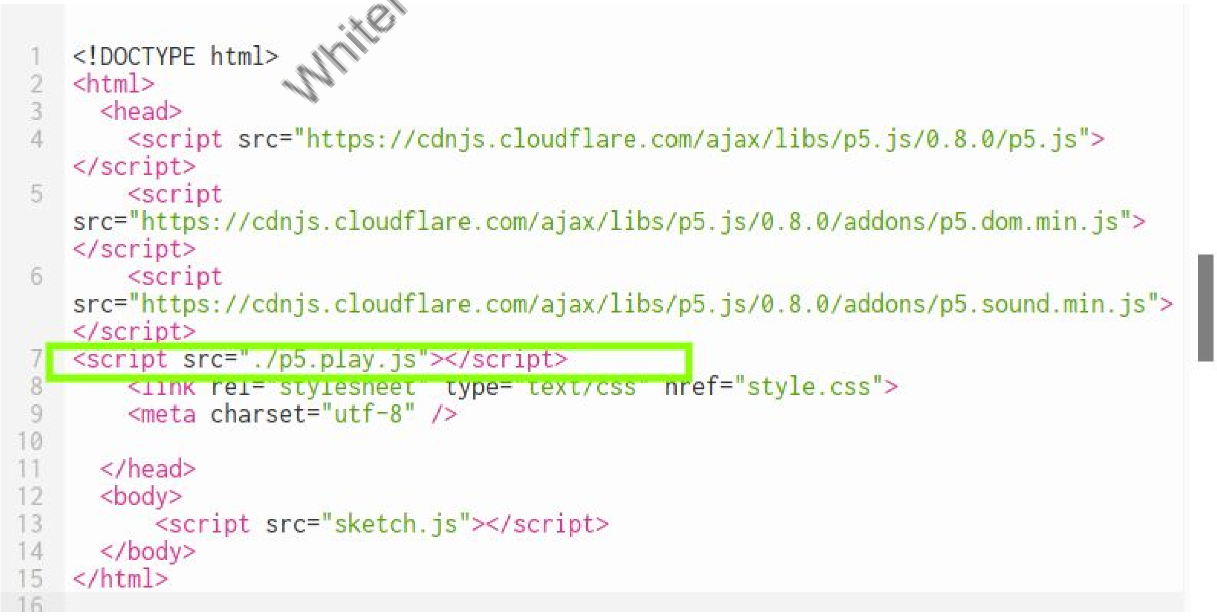
Step 3: Identify the line of code where p5.play library is being uploaded in the html file.



```
<!DOCTYPE html>
<html>
  <head>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/p5.js">
</script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.dom.min.js">
</script>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.sound.min.js">
</script>
<script src="./p5.play.js"></script>
    <link rel="stylesheet" type="text/css" href="style.css">
    <meta charset="utf-8" />

  </head>
  <body>
    <script src="sketch.js"></script>
  </body>
</html>
```

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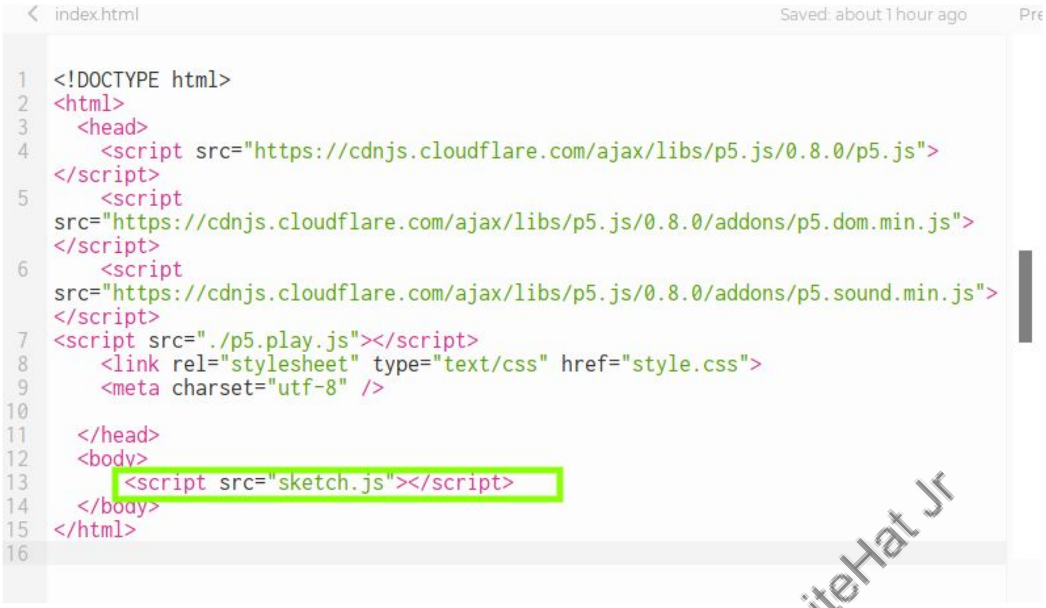
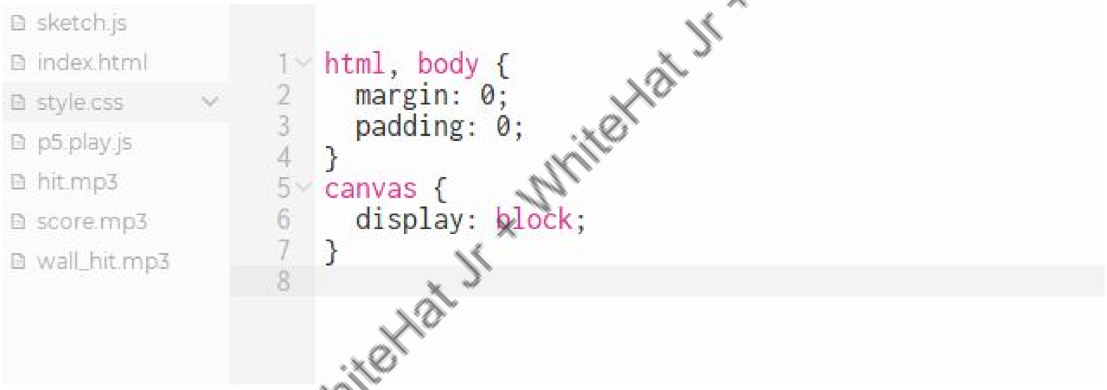
Step 4: Identify the line of code where our game is being displayed



```
<!DOCTYPE html>
<html>
  <head>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/p5.js"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.dom.min.js"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.8.0/addons/p5.sound.min.js"></script>
<script src="./p5.play.js"></script>
    <link rel="stylesheet" type="text/css" href="style.css">
    <meta charset="utf-8" />

  </head>
  <body>
    <script src="sketch.js"></script>
  </body>
</html>
```

FYI: Style.css instructs the computer to apply formatting - changing the style, adding the margin, padding etc.



```
html, body {
  margin: 0;
  padding: 0;
}
canvas {
  display: block;
}
```

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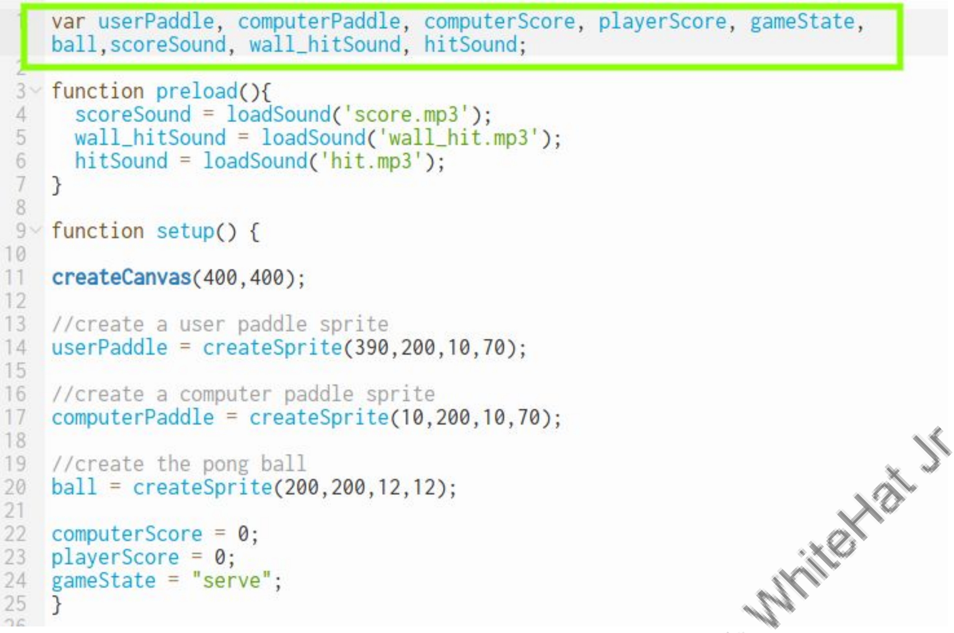
Step 5: All our variables into global variables - so that they can be accessed anywhere in our code.



```
var userPaddle, computerPaddle, computerScore, playerScore, gameState,
ball,scoreSound, wall_hitSound, hitSound;

function preload(){
  scoreSound = loadSound('score.mp3');
  wall_hitSound = loadSound('wall_hit.mp3');
  hitSound = loadSound('hit.mp3');
}

function setup() {

createCanvas(400,400);

//create a user paddle sprite
userPaddle = createSprite(390,200,10,70);

//create a computer paddle sprite
computerPaddle = createSprite(10,200,10,70);

//create the pong ball
ball = createSprite(200,200,12,12);

computerScore = 0;
playerScore = 0;
gameState = "serve";
}
```

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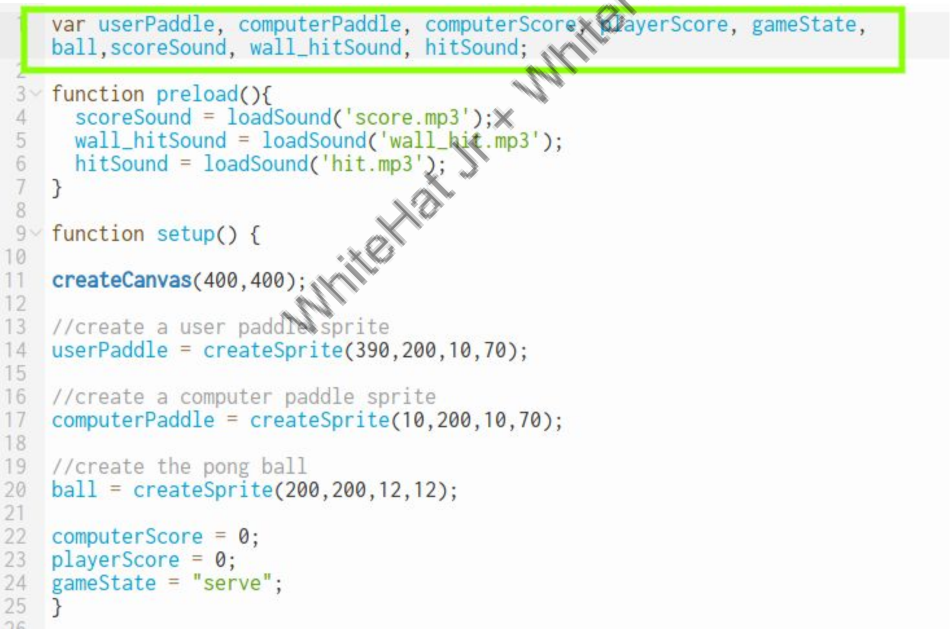
Step 6: We are using a preload function where we are loading all the assets in our game (music,images etc) so that they are into computer's memory before the game starts.



```
var userPaddle, computerPaddle, computerScore, playerScore, gameState,
ball,scoreSound, wall_hitSound, hitSound;

function preload(){
  scoreSound = loadSound('score.mp3');
  wall_hitSound = loadSound('wall_hit.mp3');
  hitSound = loadSound('hit.mp3');
}

function setup() {

createCanvas(400,400);

//create a user paddle sprite
userPaddle = createSprite(390,200,10,70);

//create a computer paddle sprite
computerPaddle = createSprite(10,200,10,70);

//create the pong ball
ball = createSprite(200,200,12,12);

computerScore = 0;
playerScore = 0;
gameState = "serve";
}
```

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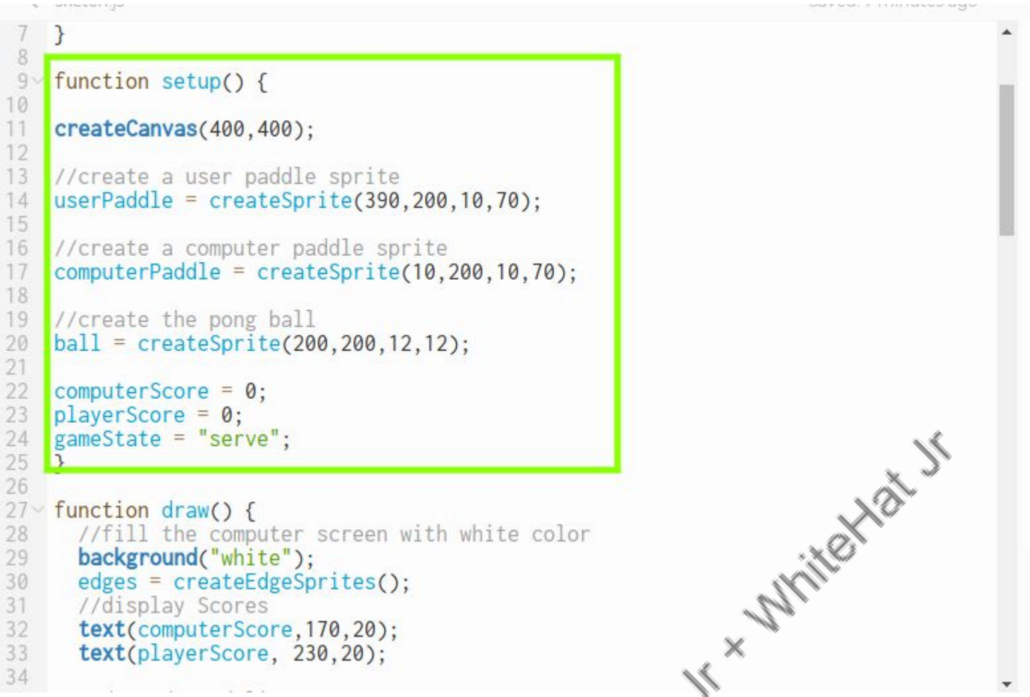
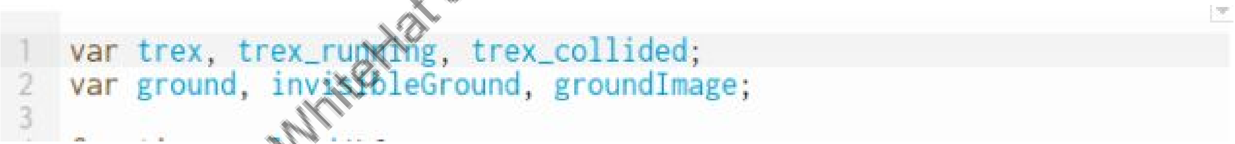
Step 7: Use function setup() where we are writing code which we want to run only once in the game.



```
}

function setup() {

createCanvas(400,400);

//create a user paddle sprite
userPaddle = createSprite(390,200,10,70);

//create a computer paddle sprite
computerPaddle = createSprite(10,200,10,70);

//create the pong ball
ball = createSprite(200,200,12,12);

computerScore = 0;
playerScore = 0;
gameState = "serve";
}

function draw() {
  //fill the computer screen with white color
  background("white");
  edges = createEdgeSprites();
  //display Scores
  text(computerScore,170,20);
  text(playerScore, 230,20);
```

Step 8: Create a canvas in our game here. code.org was creating this automatically for us. Here we can make the canvas of any size.

Step 9: Rewrite the T-Rex game so that it runs on the p5 editor— create a T-Rex sprite which is running



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

Step 10: Create the ground and the invisible ground on which the T-Rex runs.

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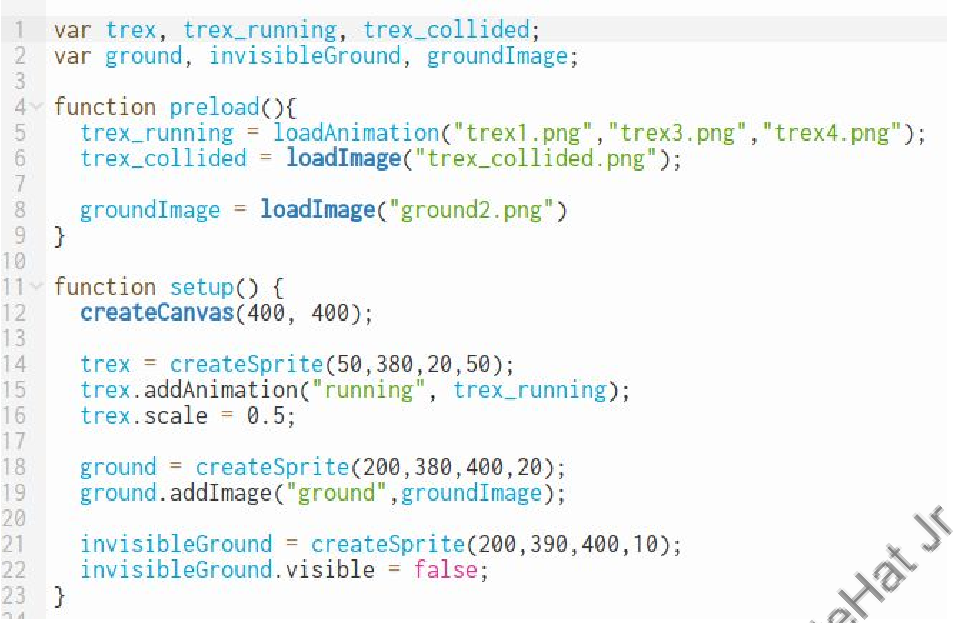
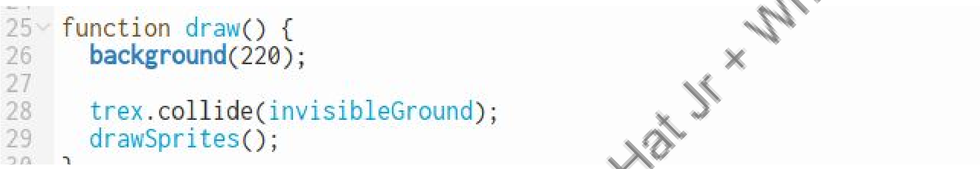


```
var trex, trex_running, trex_collided;
var ground, invisibleGround, groundImage;

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

  groundImage = loadImage("ground2.png")
}

function setup() {
  createCanvas(400, 400);

  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);

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



```
function draw() {
  background(220);

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

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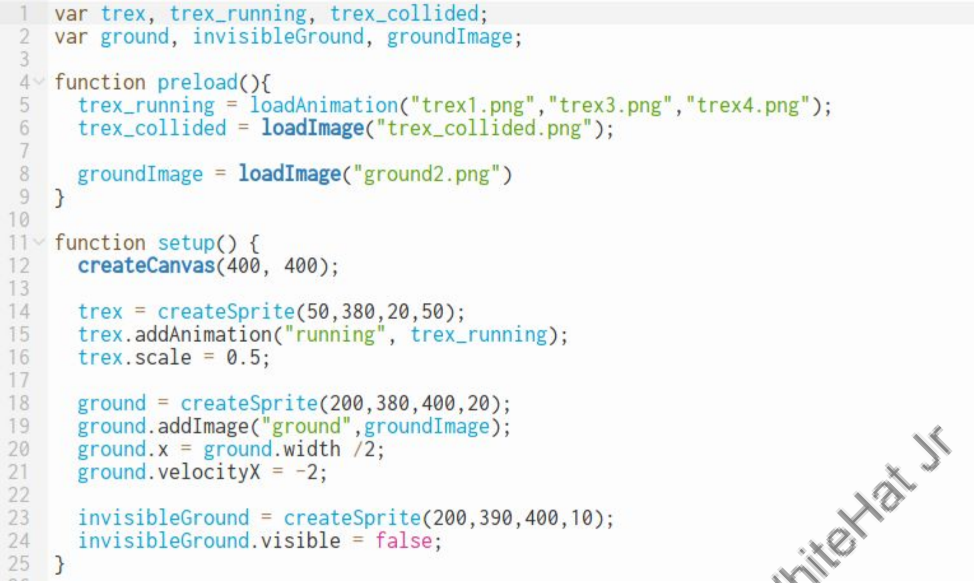
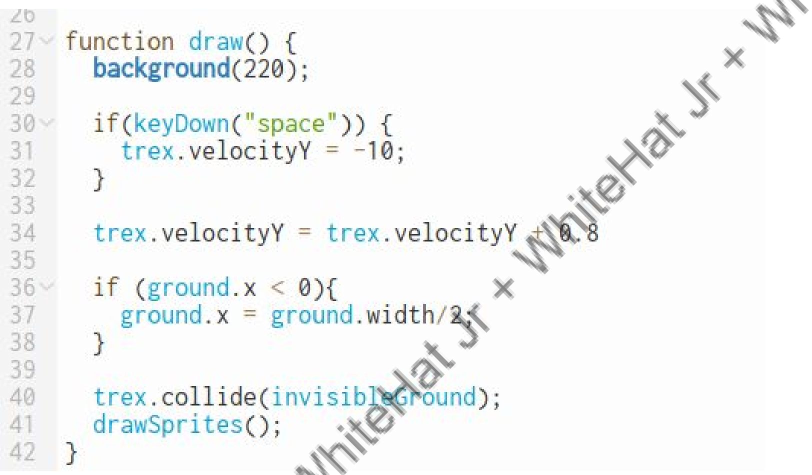
Step 11: Make the T-Rex jump when the space key is pressed; make the ground scroll again - so that the dinosaur keeps running on the ground infinitely.



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

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

  groundImage = loadImage("ground2.png")
}

function setup() {
  createCanvas(400, 400);

  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;
  ground.velocityX = -2;

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



```

function draw() {
  background(220);

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

  trex.velocityY = trex.velocityY + 0.8

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

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

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What's next? :

Our next class is going to be a capstone class. In our class we will be adding obstacles, clouds, game states, game over, scoring system.

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