

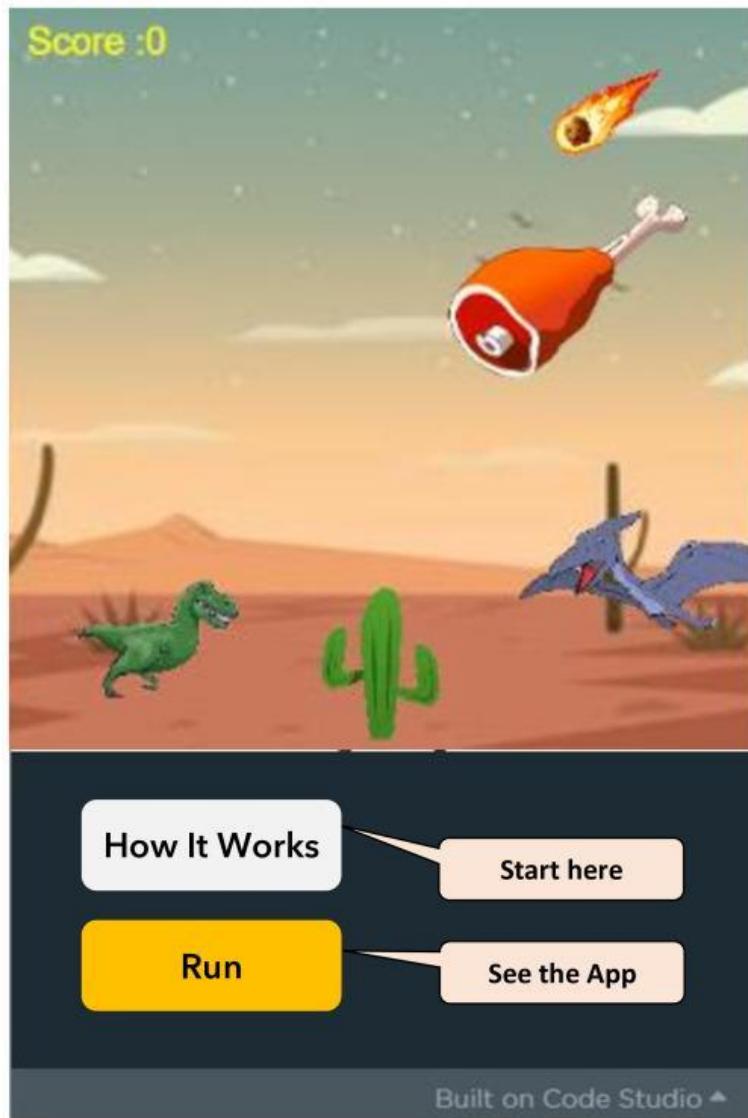
Project 70

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DP
EDUCATION

Coding School



- Let's create the Dino game.
- First let's create the background of the game and related sprites.



- First of all, create two variables at the top as time and score to record the time and score.

```
1 var score = 0;
2 var time = 0;
```

- Add a new sprite to design the background image. Name it bg and select the image "background.png_1".

```
var bg = createSprite(200, 200);
bg.setAnimation("background.jpg_1");
bg.scale = 2;
```

- After creating the background, let's create all the sprites.
- Create a new sprite for the Dinosaurs (Trex) sprite. Select the image "Trex1.png_1" for that.
- Give its x, y and scale values as below.

```
var trex = createSprite(80, 340);
trex.setAnimation("Trex1.png_1");
trex.scale = 0.5;
```

- In this way, let's create the sprites of the cactus tree, the flying dinosaur (Pterosaurs) and the piece of meat.

```

var tree = createSprite(350, 350);
tree.setAnimation("tree.png_1");
tree.scale = 0.5;
var bird = createSprite(400, 300);
bird.setAnimation("bird.png_1");
bird.scale = 0.5;
var astroid = createSprite(370, 8);
astroid.setAnimation("astroid.png_1");
astroid.scale = 0.2;
var meat = createSprite(350, 150);
meat.setAnimation("meat.png_1");
meat.scale = 0.5;

```

- Then let's create the sprite that will display the Game Over image as follows. Its specialty is. Its visibility is hidden at the beginning.

```

var gameOver = createSprite(200, 200);
gameOver.setAnimation("game_over.png_1");
gameOver.scale = 0.5;
gameOver.visible = 0;

```

- Let's create all the sprites and finally start coding to create the functionalities.
- Do all the coding in the “draw function”.
- For the time variable created above, let's match the time when the app starts running.

```

function draw() {
  time = World.seconds;
}

```

- Then let's make the tree move to the left repeatedly. Let's use time as the variable for that.

- Coding here requires knowledge of Remainder.

$$\begin{array}{r}
 4 \leftarrow \text{Quotient (size)} \\
 6 \overline{)25} \\
 24 \\
 \hline
 1 \leftarrow \text{Remainder(Remaining)}
 \end{array}$$

- Remainder is the remainder when a number is divided by another number.

- "%" is used to get Remainder in program. Accordingly, when 25 is divided by 6, the Remainder is obtained as follows.

remainder = 25 % 6;

- Here the value of Remainder is 1.

- Since time continues to pass, when the time is divided by a certain value, the remainder will be one less than the divided number.
- When Time / n the remainder = 0,1,2,3...n-1.
- Therefore, using a remainder obtained like this, it is possible to create the same thing to happen again and again after some time has passed.
- Code as below to move the tree repeatedly to the left. First the tree must be given a velocity to move to the left.
- Use these codes to make the tree move to the left repeatedly every 8 seconds.

```

if (time%8 == 7) {
  if (tree.x < -5) {
    tree.x = 400;
  }
}

```

- Here, when the x position value of the tree is reduced by -5, the x position of the tree will be 400 again.
- Similarly, create the movement of the flying dinosaurs (Pterosaurs). Give the tree its velocity in the y direction as -1 to make it take longer to fly.

- The flying time should be 15 seconds. For that, if the x position is -5 as above to obtain the remainder, then change the x position to 400 again.
- Similarly, create the piece of meat to move. But there also change the velocity and travel time as below.

```

meat.velocityX = -1;
if (time%20 == 19) {
  if (meat.x <-5) {
    meat.x = 400;
  }
}

```

- Now let's create the motion of the meteor.

```

astroid.velocityX = -1;
astroid.velocityY = 1;
if (time%30 == 29) {
  if (astroid.y <-395) {
    astroid.y = -5;
    astroid.x = 370;
  }
}

```

A meteor falling from the sky must also have motion in the x direction. Let's create this to take 30 seconds.

- After creating the motions of all the sprites, let's create how Trex's motion happens when the key is pressed.

```

if (keyWentDown("up")) {
  trex.velocityY = -5;
}
if (trex.y < 100) {
  trex.velocityY = 0;
}

```

- When the up-arrow key is pressed, give the trex a velocity of 5 in the north direction. When the Y position is 100, set the velocity to 0 and create as above to stay at that position.

- In this way, when the left, right and down arrow keys are pressed, make the trex move in that direction. In other directions it is not necessary to design to stop at 100 as in North direction.
- But if the y position becomes 400 while moving in the right direction, create the game over sprite.
- Now let's create game over if trex is touched by tree or flying dinosaur or meteorite. Use the following codes for that.

```
if (trex.isTouching(bird)) {
  trex.destroy();
  gameOver.visible = 1;
}
```

- In the same way, create what should happen when the tree and the meteorite touch.
- Now let's design how trex is eaten when it touches the piece of meat and then 10 points are added.

```
if (trex.isTouching(meat)) {
  score = score + 10;
  meat.x = 550;
}
```

- Here, change the x position of the meat sprite to 550 to show that it disappears when touched.
- Finally, let's use a text to display the scores.

```
drawSprites();
fill("yellow");
textSize(20);
text("Score :" + score, 10, 25);
```

- Choose the correct answer.

- What does the code line at the end of the code set used to create the game over sprite do to that sprite?

```
var gameOver = createSprite(200, 200);
gameOver.setAnimation("game_over.png_1");
gameOver.scale = 0.5;
gameOver.visible = 0;
```

Makes the visible of the sprite equal to 0.

Visibility is false and hides its visibility.

Displays the sprite.

- `time % 23` What is the highest value that can be obtained as the remainder when the time of this code that obtains the remainder is divided by 23?

13

23

22

- Which of the following code block set is correct if the trex should be designed to stop rightward motion when the x position is 340 while moving to the right?

```
if (trex.y < 100) {
  trex.velocityY = 0;
}
```

```
if (trex.x == 340) {
  trex.velocityY = 0;
}
```

```
if (trex.x == 340) {
  trex.velocityX = 0;
}
```

4. Which answer correctly explains this block set?

```
if ( trex.isTouching(bird) ) {  
    trex.destroy();  
    gameOver.visible = 1;  
}
```

When Trex touches the flying dinosaur, Trex's sprite is destroyed and the game over sprite is visible.

When Trex touches the flying dinosaur, the bird's sprite is destroyed and the game over sprite is equal to 1.

Trex's sprite is destroyed and displayed as game over.

5. The Asteroid sprite was created above with motion to the right and west. What are the parts to be removed in this block set if its movement is only to the right?

```
astroid.velocityX = -1;    astroid.velocityY = 1;  
  
astroid.velocityX = -1;    astroid.x = 370;  
  
if ( astroid.y <-395 ) {  
    astroid.y = -5;  
    astroid.x = 370;  
}
```