CAPSTONE CLASS: SUPER MARIO

What is our GOAL for this MODULE?

We used our knowledge about functions, game states to create another endless game called Super Mario.

What did we ACHIEVE in the class TODAY?

- Built the Super Mario game.
- Reviewed the concepts covered in the past few classes.

Which CONCEPTS/ CODING BLOCKS did we cover today?

- isTouching() function
- if() conditional block
- Adding game sounds using play() function.

How did we DO the activities?

1. Observe the Super Mario game from different angles.

2. Load all the animation needed for the Super Mario game.

```
localStorage["HighestScore"] = 0;

function preload() {
  mario_running = loadAnimation("Capture1.png", "Capture3.png",
"Capture4.png");
  mario_collided = loadAnimation("mariodead.png");
  groundImage = loadImage("backg.jpg");
    coinImage = loadImage("coin.png");
  obstacle2 = loadImage("obstacle2.png");
  obstacle1 = loadImage("obstacle1.png");
  obstacle3 = loadImage("obstacle3.png");
  restartImg = loadImage("restart.png");
}

function setup() {
  createCanvas(600, 200);
  mario = createSprite(50, 180, 20, 50);
  mario.addAnimation("running", mario_running);
  mario.scale = 0.5;

  ground = createSprite(0, 190, 1200, 10);
  ground.x = ground.width / 2;
```

3. Increase the score whenever it touches the coin by first removing the **getFrameRate()** from the previous Trex game.

```
function draw() {
  background("blue");
  textSize(20);
  fill(255);
  text("Score: "+ score, 500,40);
  text("Life: "+ life , 500,60);
  drawSprites();
  if (gameState===PLAY){
   //score = score + Math.round(getFrameRate()/60)
    if(score >= 0){
      ground.velocityX = -6;
    }else{
      ground.velocityX = -(6 + 3*score/100);
    }

    if(keyDown("space") && mario.y >= 139) {
      mario.velocityY = -12;
    }

    mario.velocityY = mario.velocityY + 0.8
```

- Add the score whenever Mario touches the coin.

```
  spawnCoin();
  spawnObstacles();

 if(obstaclesGroup.isTouching(mario)){
      gameState = END;
  } if(coinGroup.isTouching(mario)){
      score=score +1;
  }
}
```

4. Remove the **score=0** from reset function.

```
function reset() {

  gameState = PLAY;
  restart.visible = false;

  obstaclesGroup.destroyEach();
  coinGroup.destroyEach();

  mario.changeAnimation("running", mario_running);
  mario.scale = 0.5;

  if (localStorage["HighestScore"] < score) {
    localStorage["HighestScore"] = score;
  }

  score = 0;
}
```

5. Reduce the life of Mario whenever it touches the enemy by assigning the initial value for life.

```
var coinGroup, coinImage;
var obstaclesGroup, obstacle2, obstacle1, obstacle3;
var score = 0;
var life = 3;
```

6. Decrement life each time whenever it touches the enemy.

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

  mario.collide(ground);

  spawnCoin();
  spawnObstacles();

  if (obstaclesGroup.isTouching(mario)) {
    life = life - 1;
    gameState = END;
        }
  if (coinGroup.isTouching(mario)) {
    score = score + 1;
```

7. Add sound effects to the game by loading the sound inside the **preload()** function.

```
function preload(){
  mario_running =
loadAnimation("Capture1.png","Capture3.png","Capture4.png");
  mario_collided = loadAnimation("mariodead.png");
  groundImage = loadImage("backg.jpg");
    coinSound = loadSound("coin.wav");

  coinImage = loadImage("coin.png");
  obstacle2 = loadImage("obstacle2.png");
  obstacle1 = loadImage("obstacle1.png");
  obstacle3 = loadImage("obstacle3.png");
  gameOverImg = loadImage("gameOver.png");
  restartImg = loadImage("restart.png");
}
```

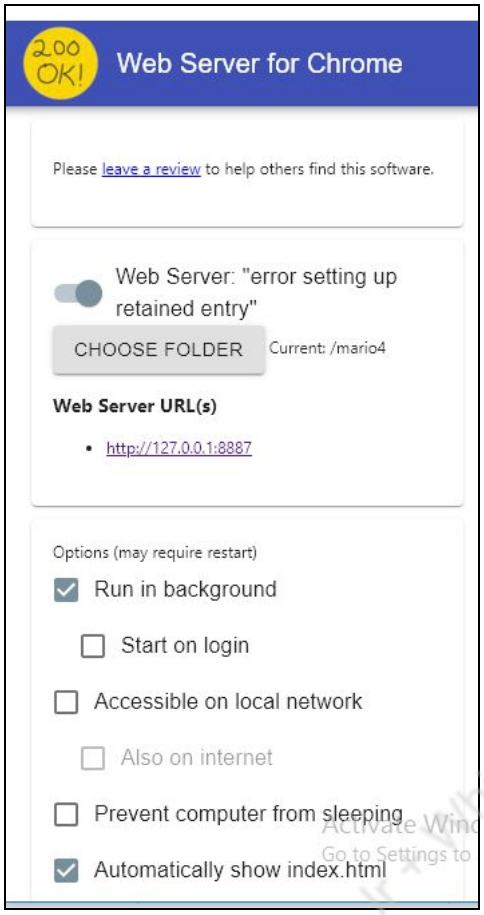
8. Add sound inside the **coinGroup**.

```
        gameState = END;
      }
    }
    if(coinGroup.isTouching(mario)){
        score=score +1;
      coinSound.play();
    }
  }
  else if (gameState === END ) {
    gameOver.visible = true;
    restart.visible = true;
    mario.addAnimation("collided", mario_collided);
```

9. Destroy the coin using **coinGroup**.

```
    life = life - 1;
    gameState = END;

  }
  if (coinGroup.isTouching(mario)) {
    score = score + 1;
    coinSound.play();

   coinGroup[0].destroy();

  }
} else if (gameState === END) {
  restart.visible = true;
   text("restart", 280,170 );
  mario.addAnimation("collided", mario_collided);


  //set velcity of each game object to 0
  ground.velocityX = 0;
  mario.velocityY = 0;
  obstaclesGroup.setVelocityXEach(0);
  coinGroup.setVelocityXEach(0);
```

10. Host our game on the localhost address using 200 OK! Web Server.



Output:

What's next?

We'll try to host the game remotely and share the link with your friends. We will also learn more about the issue of why our score keeps on increasing as long as it touches the obstacles using the Collision Detection Algorithm in our next session.

Extend Your Knowledge:

1. Learn more about GitHub**:** https://guides.github.com/activities/hello-world/.