

## Documentation

In order to show case the learnings in HTML, CSS and JavaScript, a Game website was created.

This document will cover the game structure and code

On the initial page called [basic.html](#) , the standard structure as the website was kept. It also starts a game song in loop and the player hidden.

```
<body onload="startGame()">

    <h1>Isabel's Tennis Game</h1>

    <embed src="game.mp3" autostart="true" loop="true" hidden="true">

    <canvas id="gameCanvas" width="800" height="600"></canvas>

    <script src = "js/main.js"></script>

</body>
```

The game is created on the file [main.js](#)

First part is to create/state all variables and constants, another audio was added when the paddle hits the ball.

```
var canvas;

var ctx;

var ballX = 50;

var ballY = 50;

var ballSpeedX = 10;

var ballSpeedY = 4;

var ballSize = 10;

var audioBall = new Audio('break.mp3');

var player1Score = 0;
```

```
var player2Score = 0;

const WINNING_SCORE = 10;

var showingWinScreen = false;

var paddle1Y = 250;

var paddle2Y = 250;

const PADDLE_THICKNESS = 10;

const PADDLE_HEIGHT = 100;
```

As some of the code was commented on the code itself, below will follow the code and some further explanation:

```
function calculateMousePos(evt) {

  var rect = canvas.getBoundingClientRect();

  var root = document.documentElement;

  var mouseX = evt.clientX - rect.left - root.scrollLeft;

  var mouseY = evt.clientY - rect.top - root.scrollTop;

  return {

    x: mouseX,

    y: mouseY

  };

}

function handleClick(evt) {

  if (showingWinScreen) {

    player1Score = 0;

    player2Score = 0;

    showingWinScreen = false;
```

```

    }
}

window.onload = function() {

    canvas = document.getElementById('gameCanvas');

    ctx = canvas.getContext('2d');

    ctx.font = "30px Arial";

    var framesPerSecond = 30;

    setInterval(function() {

        moveEverything();

        drawEverything();

    }, 1000 / framesPerSecond);

    canvas.addEventListener('mousedown', handleMouseClicked);

    canvas.addEventListener('mousemove', function(evt) {

        var mousePos = calculateMousePos(evt);

        paddle1Y = mousePos.y - (PADDLE_HEIGHT / 2);

    });

}

function ballReset() {

    if (player1Score >= WINNING_SCORE ||

        player2Score >= WINNING_SCORE) {

        showingWinScreen = true;

    }

    ballSpeedX = -ballSpeedX;

    ballX = canvas.width / 2;

    ballY = canvas.height / 2;

}

function computerMovement() {

```

```

var paddle2YCenter = paddle2Y + (PADDLE_HEIGHT / 2);
if (paddle2YCenter < ballY - 35) {
    paddle2Y += 6;
} else if (paddle2YCenter > ballY + 35) {
    paddle2Y -= 6;
}
}

function moveEverything() {
    if (showingWinScreen) {
        return;
    }
    computerMovement();
    ballX += ballSpeedX;
    ballY += ballSpeedY;
    if (ballX < 0) {
        if (ballY > paddle1Y &&
            ballY < paddle1Y + PADDLE_HEIGHT) {
            ballSpeedX = -ballSpeedX;
            audioBall.play(); //audio
            //
            var deltaY = ballY -
                (paddle1Y + PADDLE_HEIGHT / 2);
            ballSpeedY = deltaY * 0.35;
        } else {
            player2Score++; // must be BEFORE ballReset()
            ballReset();
        }
    }
}

```

```
}
```

```
if (ballX > canvas.width) {  
  if (ballY > paddle2Y &&  
    ballY < paddle2Y + PADDLE_HEIGHT) {  
    ballSpeedX = -ballSpeedX;  
    audioBall.play(); //audio  
    //  
    var deltaY = ballY -  
      (paddle2Y + PADDLE_HEIGHT / 2);  
    ballSpeedY = deltaY * 0.35;  
  } else {  
    player1Score++; // must be BEFORE ballReset()  
    ballReset();  
  }  
}
```

```
if (ballY < 0) {  
  ballSpeedY = -ballSpeedY;  
}  
  
if (ballY > canvas.height) {  
  ballSpeedY = -ballSpeedY;
```

```

    }
}

function drawNet() {
    for (var i = 0; i < canvas.height; i += 40) {
        colorRect(canvas.width / 2 - 1, i, 2, 20, 'white');
    }
}

function drawEverything() {
    // next line blanks out the screen with green.

    colorRect(0, 0, canvas.width, canvas.height, 'green');
    if (showingWinScreen) {
        ctx.fillStyle = 'white';
        if (player1Score >= WINNING_SCORE) {
            ctx.fillText("You Won!", 350, 200);
        } else if (player2Score >= WINNING_SCORE) {
            ctx.fillText("You didn't win. Try again.", 250, 200);
        }
        ctx.fillStyle = '#adff2f';
        ctx.fillText("click to continue", 300, 500);
        return;
    }
    drawNet();
    // this is LEFT player paddle.
    colorRect(0, paddle1Y, PADDLE_THICKNESS, PADDLE_HEIGHT, 'black');
    // this is RIGHT computer paddle.
    colorRect(canvas.width - PADDLE_THICKNESS, paddle2Y, PADDLE_THICKNESS,
PADDLE_HEIGHT, 'white');

```

```

ctx.fillText(player1Score, 100, 100);

ctx.fillText(player2Score, canvas.width - 100, 100);

// next line draws the ball.

colorCircle(ballX, ballY, ballSize, generateColor());
}

function generateColor(ranges) {
  if (!ranges) {
    ranges = [
      [0, 256],
      [0, 256]
    ];
  }

  var g = function() {
    //select random range and remove
    var range = ranges.splice(Math.floor(Math.random() * ranges.length), 1)[0];

    //pick a random number from within the range
    return Math.floor(Math.random() * (range[1] - range[0])) + range[0];
  }

  return "rgb(" + g() + "," + 255 + "," + g() + ")";
}

//keep it in the shade of green~^^

function colorCircle(centerX, centerY, radius, drawColor) {
  ctx.fillStyle = drawColor;

  ctx.beginPath();

  ctx.arc(centerX, centerY, radius, 0, Math.PI * 2, true);

  ctx.fill();
}

```

```
function colorRect(leftX, topY, width, height, drawColor) {  
    ctx.fillStyle = drawColor;  
    ctx.fillRect(leftX, topY, width, height);  
}  
  
// END game
```

This last part of the javascript was developed to toggle between the show/ hide button of the home page, on the “about us” and “about the Ping Pong game”

```
function containerL() {  
    var x = document.querySelector("#myDIV1");  
    if (x.style.display === "none") {  
        x.style.display = "block";  
    } else {  
        x.style.display = "none";  
    }  
}  
  
function containerR() {  
    var x = document.querySelector("#myDIV2");  
    if (x.style.display === "none") {  
        x.style.display = "block";  
    } else {  
        x.style.display = "none";  
    }  
}
```