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 canvasContext;

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 handleMouseClick(evt) {

if (showingWinScreen) {

player1Score = 0;

player2Score = 0;

showingWinScreen = false;

}

}

window.onload = function() {

canvas = document.getElementById('gameCanvas');

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

canvasContext.font = "30px Arial";

var framesPerSecond = 30;

setInterval(function() {

moveEverything();

drawEverything();

}, 1000 / framesPerSecond);

canvas.addEventListener('mousedown', handleMouseClick);

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 th escreen with green.

colorRect(0, 0, canvas.width, canvas.height, 'green');

if (showingWinScreen) {

canvasContext.fillStyle = 'white';

if (player1Score >= WINNING\_SCORE) {

canvasContext.fillText("You Won!", 350, 200);

} else if (player2Score >= WINNING\_SCORE) {

canvasContext.fillText("You didn't win. Try again.", 250, 200);

}

canvasContext.fillStyle = '#adff2f';

canvasContext.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');

canvasContext.fillText(player1Score, 100, 100);

canvasContext.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 shage of green~^^

function colorCircle(centerX, centerY, radius, drawColor) {

canvasContext.fillStyle = drawColor;

canvasContext.beginPath();

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

canvasContext.fill();

}

function colorRect(leftX, topY, width, height, drawColor) {

canvasContext.fillStyle = drawColor;

canvasContext.fillRect(leftX, topY, width, height);

}