Runner Boy Computer Game

IC 1303 – Application Laboratory II
Level 1 – Semester 2

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Introduction

This project is creating a Computer Game named as Runner Boy developed using Java Script programming language, CCS and HTML. In this console application is a game that involves controlling a character (represented by an image of a boy) and performing various animations and actions.

The Runner Boy when paly the background and the boy start to move as well as the score also increase. When the boy collide with obstacle fire block, the boy dead and the game also end. At the end of the game the score board displayed, and the game score saved into the text file. When the player plays the game once again the new game platform load and display to play for the user. To increase the readability, I have broken the application in different functions. Each function of the project extensively uses in the java script function, so it is also a great project to understand the javascript and html and css.

Start Page

The start.html page displays the interface of the Runner Boy Game. Here the Game instructions and the paly button are in the html page.

Instructions:-

1. Enter key – If the user presses the Enter key, the boy starts to run.
2. Space key – If the user presses the space key, the boy stats to jump and continue to move by run.
3. Number 1 key – If the user presses the number 1 key, the boy stop running.

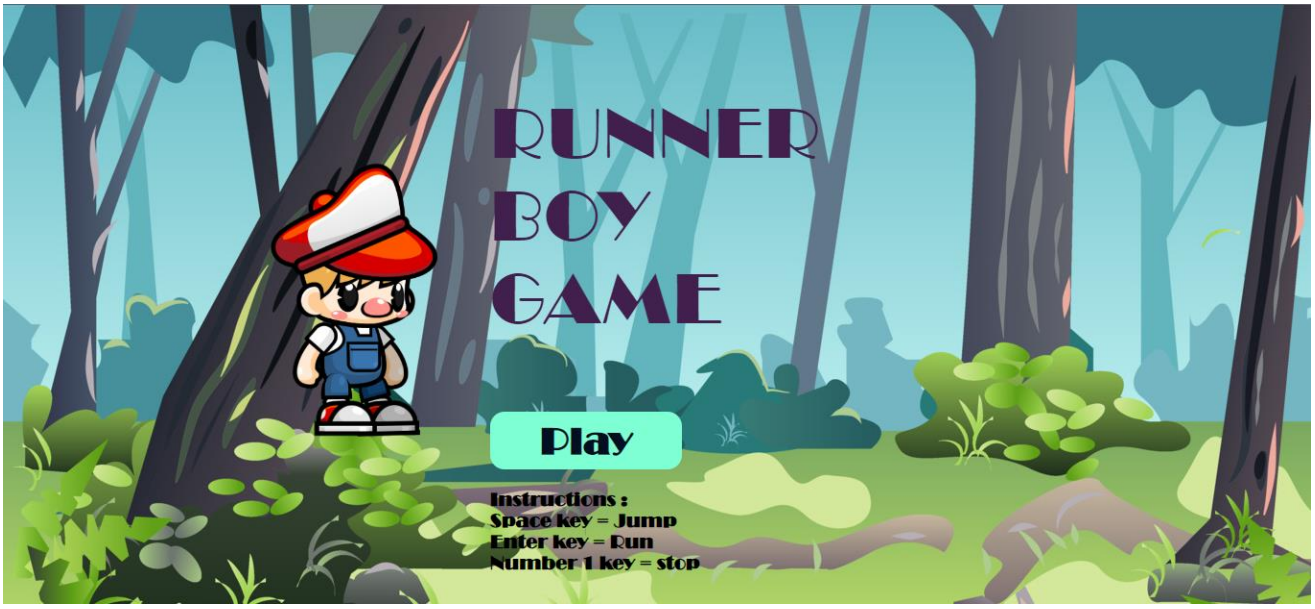

Figure 1: Start.html page

Enter key:

- The user press the play button the index.html page is displayed and the system required to press the key to start the game.

Index page

Figure 02. Index.html page

- When the index.html file displayed to user the ideal animation of the boy execute.
- The top left corner the score is set to zero in the initial stage of the game.
- If the user presses the enter button the run animation function executes and the boy visible to running to the user.
- The background move function and box animation function also execute when press the enter key in the keyboard.

Space key:

- When the user presses the space key the jump animation function will execute while the run animation function stopped. Then after that the jump animation stopped and the run animation execute. While the score increases one by one.

Number one key :

- When the user press the number one key the run animation, jump animation, move background animation and the score increase all are stopped as well as the background sound.

- All functions are iterated when the abstract collide with the asset. If they collide the dead function execute ,the final score and the game over message are displayed on the screen.

- If the user click the try again button he can play the game once again, And the reload function execute as well as the initial stage of the game displayed to the user.

- The game end page contains user's final score, play again button and the game over message.

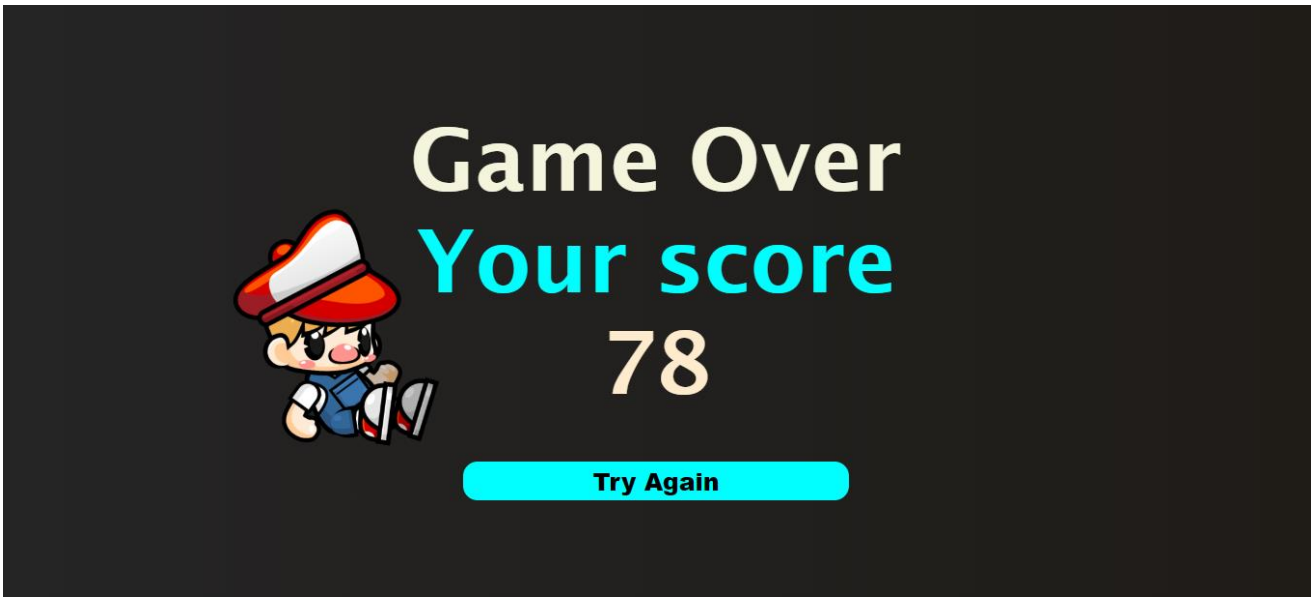

Figure 03:Game over

- If the user get 1000 points the user won the game, and the win page displayed.

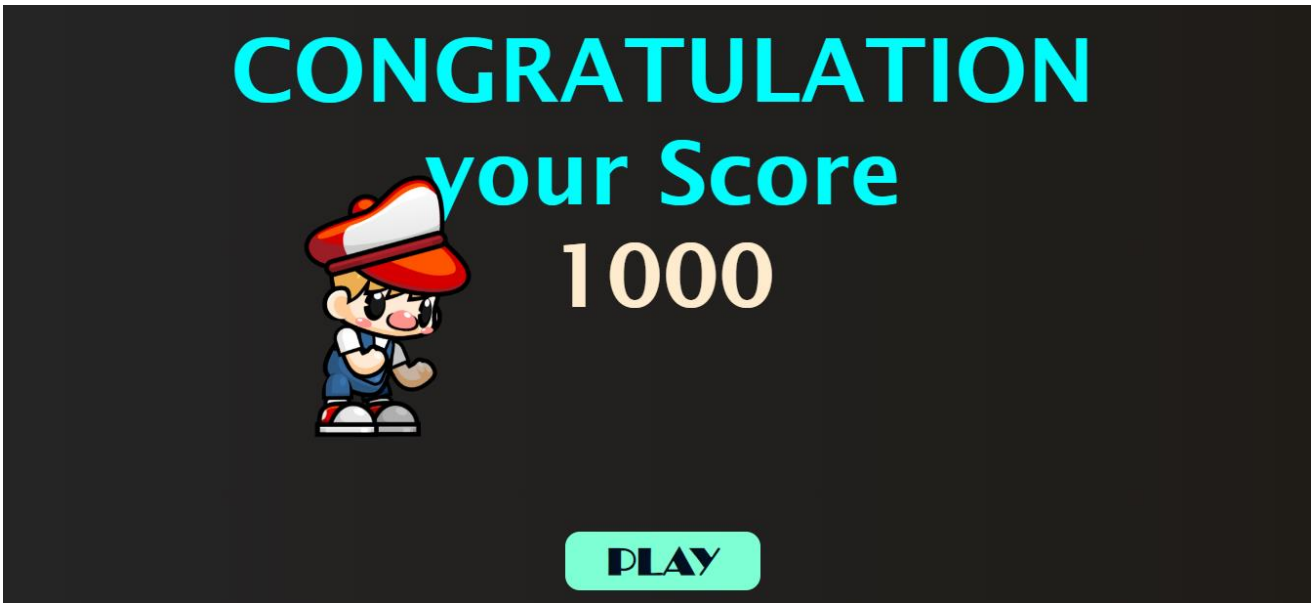

Figure 04:Game win

Animation Functions

Sound Setup:
The game includes several sound effects, such as jumpSound, runSound, winSound, and deadSound, which are loaded using the Audio class.

```
// add sound
let jumpSound = new Audio('recource/sound1 (2).wav');
let runSound = new Audio('recource/sound1 (2).mp3');
let winSound = new Audio('recource/sound1 (1).wav');
let deadSound = new Audio('recource/sound1 (1).mp3');
```

Figure 05:Sound setup

Idle Animation :

This function is responsible for animating the idle state of the character. It updates the image source of the boy element to display different idle images.

```
let idleImageNumber = 1;
let idleAnimationNumber = 0;
function idleAnimation(){

    idleImageNumber = idleImageNumber + 1;
    if(idleImageNumber == 11){
        idleImageNumber = 1;
    }
    boy.src ="recource/Idle ("+ idleImageNumber +").png";
}
```

Figure 06- idle animation

Run Animation:

This function animates the running state of the character. Like idleAnimation, it updates the image source of the boy element to display different running images. It also plays the runSound.

```
function runAnimation(){
    runImageNumber = runImageNumber + 1;
    if(runImageNumber == 9){
        runImageNumber = 1;
    }
    else if(runImageNumber !=9){
        runSound.play();
    }
    boy.src ="recource/Run ("+ runImageNumber +").png";

}
```

Figure 07- Run animation

JumpAnimation:

This function handles the jumping animation of the character. It adjusts the margin top property of the boy element to simulate jumping. It plays the jumpSound and transitions back to the running animation after the jump is complete.

```
function jumpAnimation(){
    jumpImageNumber = jumpImageNumber + 1;

    if (jumpImageNumber <= 7){
        boyMarginTop = boyMarginTop - 35;
        boy.style.marginTop = boyMarginTop + "px";
    }
    if (jumpImageNumber >= 8){
        boyMarginTop = boyMarginTop + 35;
        boy.style.marginTop = boyMarginTop + "px";
    }
    if(jumpImageNumber == 13){
        jumpImageNumber = 1;
        clearInterval(jumpAnimationNumber);
        jumpAnimationNumber = 0;
        runImageNumber = 0;
        runAnimationStart();
    }
    boy.src ="recource/Jump ("+ jumpImageNumber +").png";
    jumpSound.play();

}
```

Figure 08 – Jump animation

Boy Death Animation:

This function animates the death of the character. It displays a sequence of images indicating the character's death. It plays the deadSound and shows the end screen when the animation is complete.

```
deadImageNumber = 1;
deadAnimationNumber = 0;
function boyDeathAnimation(){
    deadImageNumber = deadImageNumber +1 ;

    if(deadImageNumber == 2){
        deadSound.play();
    }

    if(deadImageNumber == 11){

        deadImageNumber = 10;
        document.getElementById("end").style.visibility = 'visible';
        document.getElementById("endscore").innerHTML = score;
    }
    boy.src ="recource/Dead ("+ deadImageNumber +").png";
}
```

Figure 09- boy dead animation

Animation Start Functions:

Idle Animation Start:

This function starts the idle animation by invoking the idleAnimation function repeatedly at a specified interval using setInterval.

```
function idleAnimationStart(){
    idleAnimationNumber = setInterval(idleAnimation,200);
}
```

Run Animation Start:

This function starts the running animation by invoking the runAnimation function repeatedly at a specified interval using setInterval. It also clears the idle animation interval.

```
function runAnimationStart(){
    runAnimationNumber = setInterval(runAnimation,100);
    clearInterval(idleAnimationNumber);
}
```

Jump Animation Start:

This function starts the jump animation by invoking the jumpAnimation function repeatedly at a specified interval using setInterval. It clears the idle and running animation intervals.

```
function jumpAnimationStart(){
    clearInterval(idleAnimationNumber);
    runImageNumber = 0;
    clearInterval(runAnimationNumber);
    jumpAnimationNumber = setInterval (jumpAnimation,100);
}
```

Key Check Function:

keycheck:

This function is triggered when a key is pressed. It checks the key code of the pressed key and performs different actions based on the key code. Pressing enter or space starts the running or jumping animation, respectively. Pressing the number 1 stops all animations and starts the idle animation.

```
function keycheck(event){
    //window.alert(event.which);
    // enter = 13;
    // space = 32;
    // number 1 = 49;
    var keyCode = event.which;

    if(keyCode == 13){
        if(runAnimationNumber == 0){
            runAnimationStart();
        }
        if(movebackgroundAnimationId == 0){
            movebackgroundAnimationId = setInterval(movebackground,100);
        }
        if(boxAnimationId == 0){
            boxAnimationId = setInterval(boxAnimation,100);
        }

    }
```

```
else if (keyCode == 32){
    if(jumpAnimationNumber == 0){
        jumpAnimationStart();
    }
    if(movebackgroundAnimationId == 0){
        movebackgroundAnimationId = setInterval(movebackground,100);
    }
    if(boxAnimationId == 0){
        boxAnimationId = setInterval(boxAnimation,100);
    }
}
```

```
    else if(keyCode == 49){
        idleAnimationNumber = 0;
        if(idleAnimationNumber == 0){
            clearInterval(boxAnimationId);
            boxAnimationId = 0;
            clearInterval(runAnimationNumber);
            runAnimationNumber = 0;
            idleAnimationStart();
            clearInterval(movebackgroundAnimationId);
            movebackgroundAnimationId = 0;
        }
    }
}
```

Background Movement and Scoring:

Move background:

This function handles the movement of the background by updating its background position at a specified interval. It also increments the score and updates it on the screen. If the score reaches 1000, it triggers the win condition, displaying the win screen and playing the winSound.

```
//Move background
var backgroundImagePositionX = 0;
var movebackgroundAnimationId = 0;
var score = 0;
let bk = document.getElementById('background');

function movebackground(){
    backgroundImagePositionX = backgroundImagePositionX - 20 ;
    bk.style.backgroundPositionX =backgroundImagePositionX + "px";
    score = score +1;
    document.getElementById('score').innerHTML = "Score :" + score;
    if(score == 1000){
        document.getElementById('win').style.visibility = 'visible';
        document.getElementById("endscore1").innerHTML = score;
        clearInterval(boxAnimationId);
        clearInterval(runAnimationNumber);
        runSound.pause();
        runAnimationNumber = -1;
        clearInterval(jumpAnimationNumber);
        jumpAnimationNumber = -1;
        jumpSound.pause();
        clearInterval(movebackgroundAnimationId);
        movebackgroundAnimationId = -1;
        winSound.play();
        slideAnimationStart();


    }
}
```

Create Box:

This function dynamically creates brake boxes on the background.

```
// create brake boxes
boxMarginLeft = 2000;
function createBox(){
    for( let i = 0; i<= 15;i++){

        var box = document.createElement('div');
        box.className = "box";
        document.getElementById("background").appendChild(box);
        box.style.marginLeft = boxMarginLeft + "px";
       // boxMarginLeft = boxMarginLeft + 1000;

       box.id = 'box' + i;

       if(i < 7){
        boxMarginLeft = boxMarginLeft + 2000;
       }
       else if(i >= 7){
        boxMarginLeft = boxMarginLeft + 1500;
       }
    }
}
```

Box Animation:

This function animates the movement of the brake boxes by updating their margins. If the character collides with a box, it triggers the death animation.

```
let boxAnimationId = 0;
function boxAnimation(){
   for(let i = 0;i <= 10; i++){
       let box = document.getElementById("box"+i);
       let currentMarginLeft = getComputedStyle(box).marginLeft;
       let newMarginLeft =parseInt(currentMarginLeft) - 25;
       box.style.marginLeft = newMarginLeft + "px";

       if(newMarginLeft >= -70 & newMarginLeft <= 70){
           if(boyMarginTop >300){
               clearInterval(boxAnimationId);
               clearInterval(runAnimationNumber);
               runSound.pause();
               runAnimationNumber = -1;
               clearInterval(jumpAnimationNumber);
               jumpAnimationNumber = -1;
               clearInterval(movebackgroundAnimationId);
               movebackgroundAnimationId = -1;

               deadAnimationNumber = setInterval(boyDeathAnimation,100);
           }
       }
   }
}
```

Reload Function:

This function reloads the webpage, essentially restarting the game.

```
//reload
function reload(){
   location.reload();
}
```

Reference

1. w3school –

https://www.w3schools.com/javascript/

https://www.w3schools.com/css/default.asp

https://www.w3schools.com/tags/tag_audio.asp

2. YouTube videos-

https://www.youtube.com/watch?v=PlbupGCBV6w&list=PLsyeobzWxl7rrvgG7MLNIMSTzVCDZZcT4

3. websites –

https://giphy.com/explore/transparent-background

https://favicon.io/favicon-converter/

https://www.google.com/search?q=how+to+stop+play+adudio+in+javas+cript&oq=how+to+stop+play+adudio+in+javas+cript&aqs=chrome..69i57.17636j0j4&sourceid=chrome&ie=UTF-8

https://mobcup.net/ringtone/gaming-youtube-background-music-bjbk8w5g

https://www.vecteezy.com/vector-art/3303295-mountains-background-game