NM2207 FINAL PROJECT

Marvel Adventures

App Concept Development

Introduction

This game is titled Marvel Adventures and this theme was chosen as Marvel have existed for many years and is a very well-known comic series and this game would appeal more to the masses. This game is primarily designed for children, hence the simplicity of the game with an emphasis on its aesthetics. In the game, the user would assume the role of a super hero and would be given a mission to complete in order to save the people on the planet. The user would have to avoid the red dots (asteroids) in the main game canvas for a certain amount of time. This game concept was chosen out of many other concept that I have considered as this concept would allow me to utilize many commands and skills that I have learnt in class. These skills used in this game are, but not limited to, loops, selection statements, used of media elements, Raphael and prompts. This game have also allowed me to express creativity, critical thinking and fostered independent learning as the bulk of the code written for this game have been written from scratch as it uses the Raphael library.

Process

Main Design

Apps are very common in our society and users are often looking forward to a responsive, interactive and aesthetically pleasing interface when using apps. This was the idea that I kept in mind when I was designing my game. One feature of the game is its aesthetics and this can be seen from the extensive use of images and mouse events (glow effect) in the game. The app page consists of 4 main containers – header (contains the title), profile bar (left), sound and status bar (right) and lastly, the main game canvas. This app also requires a few prompts and interaction with the users - they would be prompted for their input (eg name, character selection, mute sound, replaying the game) which will allow the users to 'personalise' the page based on their selection which will be further explained in the next section.

Algorithm and Implementation

I started off by modifying the HTML layout that we have been using in class and added background images to all the elements in the HTML. The main difficulty encountered here would be to find images of the best size to fit into the elements and the resolution of the picture. I also created several texts on the elements using **"(element).text"** for the game instructions and profile name etc.

The game code is highly reliant on event listeners as most of my elements has a glow effect around it when the mouse is over the element. For example, responsive buttons that would change the colour and text message contained inside when the user press the mute button were created. Initially I used

the **"click"** event listener which did not allow the users to revert back to 'music play' state which led me to changing the event to **"mousedown"** and **"mouseup"**, which is not ideal too as the music as it would not stop playing when my mouse left the button. Thus, I decided to use the **"mouseover"** and **"mouseout"** event with a nested **"if-else"** statement. The **"if-else"** statement included a condition which used the mod function **"%"** to determine the user's click count is odd. (odd number = user wants to mute the sound, vice versa)

Next, in order to make sure that the user inputs a name on landing, I used a **"do-while loop"** to prompt the user to input a name when they fail to do so. I also used the **'or'** operator, **"||"**, in the process to ensure that the user's inputs is valid. I encountered some difficulties trying to reflect the user's name input in the profile name box but it was resolved quickly.

The element of time is also important in the game. I have also utilized the **"setTimeout"** function in order to keep track the duration of the game and the time the planet appears in the game.

The importance of arrays can be seen when implementing the main game in code. Attributes were being assigned to all the dots in the array. The dots are also given different speeds by using the **"Math.random"** function and updating the dots' position using xpos and ypos. The **"setInterval"** function was also used to call the draw function periodically to update the position of the dots. There are also 4 "next to emit" functions placed at 4 different locations on the main canvas to shoot out 'asteroids' which different emission rates (different setInterval values).

Lastly, the audio which have been taken from youtube, would be looped by implementing it with "**audio.loop=true**". I have also experimented with "**document.location.reload(true);**" which will reload the entire webpage when the function has been called. Reference: http://www.w3schools.com/jsref/met_loc_reload.asp

Upon implementing the algorithm in code, I realised that my code is rather long and consisted of many repeated calls. Thus I decided to group the similar ones under a single function so that the code will be clear, more efficient and succinct.

Improvements and Further Implementations

Improvements to be made would include saving the images in the local directory instead referring to the image via its url as it will affect the aesthetics of the game should the picture be taken off the internet. I would also preload the images so that it the game can be played without hindrance and possible incident of lagging. I would also increase the complexity of the game by implementing different levels (different number of emitter and speed of the ball). Furthermore, I would also try to animate the planet and the galaxy during game play, so that it will entice the users more. In the event that I would be developing the game further, I would implement a continuation of the story line and continue to develop game two which could not be developed due to time constraints –ie. Game one would be to land on the planet safely, while game two would be to save the people in the planet etc)

In conclusion, I have learnt a lot from the planning and conceptualisation of the game down to its algorithm and implementation. It was also fulfilling to be able to adapt and solve the difficulties encountered during the process which have resulted in a smoother transition between functions and the running of the game which have been implemented with a lot of time and effort.

I hope that you will enjoy the game ! Let the battle begin !

Submitted by Margaret Leong Sem 1 15/16