

# Maintenance Documentation

## Supporting Files

Any supporting files which include images, sound files and text files should be stored into the 'content' folder. The SDL Framework files should be one directory behind the executable running the code (../Frameworks from the directory that contains the executable). If you wish to add more frameworks you will need to link them through Xcode as well as placing them in the folder.

## Building on Windows

If you want to build the program on Windows, you will need to change the import statements in main.c to:

```
#include <stdio.h>  
#include <stdlib.h>  
#include <stdbool.h>  
#include <SDL_image.h>  
#include <SDL.h>  
#include <SDL_ttf.h>  
#include <SDL_mixer.h>
```

You will also need to change the font directories to:

```
font = TTF_OpenFont("/Windows/Fonts/Georgia.ttf", 100);  
font2 = TTF_OpenFont("/Windows/Fonts/Arial.ttf", 100);
```

## High Score file Formatting (score.txt)

If any highscores need to be reset or changed, you will need to follow this format of 5 different highscores in descending order with a name, a space and a number score on each line. Ending with an 'x' on the 6th line. For example:

```
Name1 500  
Name2 400  
Name3 300  
Name4 200  
Name5 100  
x
```

## Adding Extra Modes

If you want to add an extra mode (i.e. the 'fireball' mode), you will want to use the 'mode' int variable and assign it to a number. (The base game has two modes, mode = 0 which is Fireballs and mode = 1 which is Moving Walls). You will need to implement a setup/switch modes to ensure there is a smooth transition between the different modes.

## Adding Extra Menus

The way our game is set up around one big while loop, if you want to access a menu then the menus boolean should be true, and every other menu booleans should be false. If all are false, then no menu is displayed and the game is running. To add a new menu in, you must add some condition that makes you enter the menu (i.e. button press) and when it becomes true, all others must be false.

## Adding Images

To add an image using SDL, you will need to:

Create a Rectangle for the image to go into:

```
SDL_Rect rectangle = {0, 0, 300, 200}; {x, y, width, height}
```

Load the image in as a surface:

```
SDL_Surface *surface = IMG_Load("content/example.png");
```

Make a texture from the surface:

```
SDL_Texture *texture = SDL_CreateTextureFromSurface(renderer, surface);
```

Then you can display the image (Put this line in the part of the code where you want the image to be displayed):

```
SDL_RenderCopy(renderer, texture, NULL, &rectangle);
```

## Destroy and Free Surfaces and Textures

If you need to destroy and free a surface and texture, we have a method setup called 'destroyAndFree' for doing that. Example:

```
destroyAndFree(surface, texture);
```

It is important to destroy and free surfaces/textures that get called in every time the game loops, as it will completely fill memory until the game crashes.

## Time left method

This method is an important one to have, as it sets the frame rate for the computer game is being run on. This prevents higher performance computers running the game at a faster rate than lower performance computers.

## Leaderboard

The leaderboard is currently only set up to hold the top 5 scores. It will read through the scores.txt file (which is located in the content folder) and stop reading when it reads the 'x' to say that there is no more to read. To add more (for example top 10 scores) you will need to add the positions in the score.txt file and move the x under the top 10. You will need to adjust the leaderboard screen so that it can fit 10 scores on the page. You will also need to change the variables in the leaderboard section to tell it to place the x after reading 9 values (lines 411 and 427).

## Game Speed

To adjust the speed the game runs at, and at what points of the game it changes, you will need to change the contents of the if statement at line 743. Changing or adding more to the score detectors (i.e. score == 2000) will make the speed increase more/less. Currently it is setup to speed up everytime a player makes it through both stages. Changing the 'CounterAdd' variable will change how much it speeds up each time.

To change the speed of the walls you change the 'speed2' variable. For example, in our Beta it was on speed2 = 2, but we found it was too easy, so now it is set to speed2 = 3.

To change the speed of the fireballs you change the 'speed' variable.