CE218 Assignment Report

Design choices

Most of the gameplay of my program is simple. I say this because there are only two difficulties, which only determines if you have a shield or not, two enemy types and two power ups, plus the aim of the game is just to destroy as many enemies and asteroids as possible to get a high score. I chose this because the game can be accessible to a wider audience but can offer a challenge in later levels for those willing to try.

I decided to use sprites instead of shapes as they look better and are surprisingly easy to implement.

I decided to use text files to store high scores as I only wanted to save one high score for each difficulty and the reading from and writing to a text file is also easy to implement.

Parameter tuning

I tuned the number of asteroids and enemies for each level of the game and settled on a starting number of 5 asteroids and 2 enemies, each level this goes up by 2 asteroids and 1 enemy. I did this to allow for a challenging experience but one that doesn’t take too long. When there are too few objects in the game, you are less likely to kill an object, so the score goes up slower.

Then I tuned the timings and chances for powerups/buffs. I didn’t want the powerups/buffs to last too long and spawn too often so that the game became easy, so I settled on 5 second invincibility when hit, a 10% chance on enemy death to spawn a double damage powerup which lasts 20 seconds, a 10% chance on enemy death to spawn a health powerup, and a 5 second powerup lifetime when they are on the field.

I also briefly tuned the speeds of ships, asteroids and bullets.

Project Overview

This project went well, but it wasn’t without its challenges. Collision detection gave me the most problems as I kept forgetting to add in a new section when adding new features, so some objects would interact with each other when they weren’t supposed to. There are no unresolved problems with my project, that I am aware of.

I’d say that I enjoyed making the visual element of the program the most so I would say that is the part that I am most proud of. I even added an easter egg that has a 1 in 500 chance of happening each game, a red Among Us character spawns in the background.

(For references to all images used in this project see the image references text file in the CE218\_Assignment folder, each image is named as they are in the images folder of the code)