

Implementation Notes

Although we were able to deliver a fully functional Asteroids game, there were still a few behaviours that we did not have time to implement:

Functional Requirements:

- **Interface**
 - User Interface
 - User cannot view their statistics (number of asteroids and alien ships destroyed).
 - Cannot view shooting accuracy
- **Game Environment**
 - 2- player simultaneous play
 - 2 players can connect to the same game over a network and play the game as a team. There will be two independent ships displayed on the screen
- **In-Game Health**
 - Ship Health
 - The ship has a health level that ranges from 0 to 100. The ship can take damage caused by asteroids (5 – 10 damage depends on the difficulty level) or aliens (10 – 30 damage depends on the difficulty level) till its health reaches 0. When it has no more health, a live is lost.
- **In Game Bonuses**
 - Score Bonuses
 - If a user achieves a high enough score, or collects all the required items during one round of the game, or achieves a high enough shooting accuracy, bonuses to the score can be obtained. These bonuses include extra points, lives, health, or new weapons and ships.

We did not have time to implement these requirements because when we had created the SRS document, they were prioritized as “Optional”. Although these behaviours would have positively impacted the gameplay, they were simply not necessary for what we needed to accomplish. If we had more time, then these features could have been easily implemented. However, we did make sure to implement all of the quality requirements in our program.

If we had time to make improvements to the program, we would start by making sure that all of the original functional requirements in the SRS document were implemented first. After the original features were completely implemented, we would want to further improve our program in the following ways:

Future Implementations

- **Variable Alien Difficulties**
 - The current enemies in the game can all be defeated in a single shot. We would have liked to improve this model by making the aliens harder to kill by giving them a health meter. Moreover, we would have liked to offer various types of aliens with different characteristics to make the gameplay more enjoyable.
- **Limited Ammunition (Per Round)**
 - In its current state, the spaceship is able to shoot as many projectiles as it wants. To make the game more challenging we have discussed the possibility of adding an option to limit the amount of shots the user can take in the round. Each asteroid destroyed will award more points than if they did not have a limited amount of projectiles. This game mode offers a similar experience to a “Hardcore Mode” in many other video games.
- **Bonuses**
 - Although we have successfully implemented bonuses for extra lives, a shield and weapons upgrade, we would have liked to improve that system. We would have liked to implement even more bonuses such as: Score bonuses, bombs and slower asteroids. However we have also discussed the possibility of adding detrimental drops such as: Asteroid speed increase, increase alien aggression, and alien spawn.
- **Boss**
 - Since there isn't a real “Goal” in most asteroids games, we really wanted to implement a boss character in our game. Although most people play the game to achieve the highest possible score, the game becomes quite repetitive after several levels and most players usually die because of boredom rather than the difficulty level. The boss character would appear after a set amount of levels and would act like a giant alien with a large amount of health. Once defeated, the user will be awarded with a set amount of points and bonus drops.
- **Fire Rate Control**
 - To make the game more challenging we would have liked to control the fire rate of the player's spaceship. That way they would not be able to repeatedly press the fire button as fast as they can. This would add a new level of complexity to the game because the user's would have to think before each shot.