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*Department of Mechanical, Industrial and Aerospace Engineering*

**MECH 415**

**Advanced Programming for Mechanical and Industrial Engineers**

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THE GAME

“Space Adventure” is 2D game created in C++ using object orientated programming principles and the 2D DirectX graphics library. The main objective is to collect all the 10 candies without hitting the asteroids. The player is given 3 lives to win the game, and each asteroid hit costs 1 life.

The player spaceship can be maneuvered using the following keys:

W: Move forward

A: Turn left

D: Turn right

NOTE: We have noticed that sometimes the game sounds do not sync properly with the game. Please close the program, and ‘Start without debugging’ again if that happens.

The program is divided into the following classes:

1. Space – This is the main class that encapsulates the sub-classes: spaceship, asteroid, candy, and astronaut. These sub-classes are called in the int main() through the space class. The Space class determines the initial positions, inputs, and velocities of the sub-classes. The collision detections are also functions of the Space class.
2. Spaceship – This class provides the create sprite, draw sprite and simulation equations of the spaceship.
3. Asteroids - This class provides the create sprite, draw sprite and simulation equations of the asteroids.
4. Candy - This class provides the create sprite, draw sprite and simulation equations of the candies.
5. Astronaut - This class provides the create sprite, draw sprite and simulation equations of the floating astronauts. The two astronauts you see are the two creators of this game who got lost in space and serve no purpose to the functioning of the game (!)
6. Music – This is an independent class that is used to provide sound effects during candy collections, asteroid hits, victory, and defeat.
7. Background – This class is used to provide the Background for the game during Gameplay, Victory and Defeat.

PROJECT CONTRIBUTION

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| --- | --- | --- |
| Afroza | 50% | Created classes for the Music, Worked on the main Space Class |
| Ashfaq | 50% | Created classes for the Objects, Worked on the main Space Class |

Both team members worked on brainstorming ideas and resolving issues that popped up during the creation of the game.