**Asteroids**         **Shape Shooter**
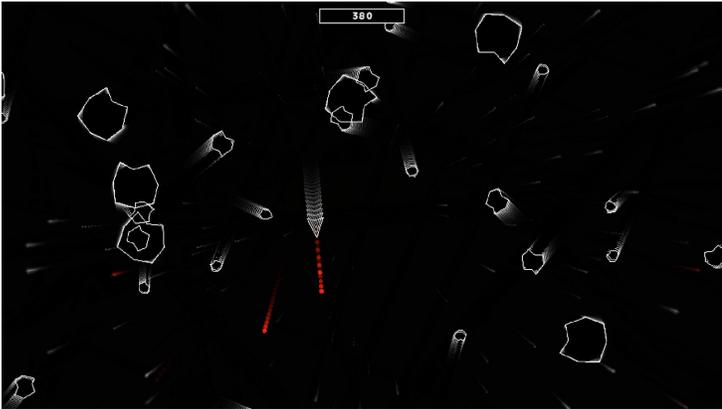




# Polybius

**Group Members:**

Andrew (Joey) Hubbard | (Chris) Ramirez | (Adolfo) Valencia | Jose (Luis) Manahan | (Joseph) Gaede

CMPS 3350

**Overview:**

Polybius is a fast-paced, shape-driven space shooter. Your objective is to survive as long as you can until you fight the main boss. Dangerous shapes, polygons, and compound shapes will test your skill. Upgrades galore are also present to help aid you in fighting said enemies. Will you be the one to smash the final boss? Or end up like the rest of the shapes?

The game is inspired by Asteroids and other variants such as Shape Shooter. The goal of the game is to survive and beat the final boss. You will encounter a myriad of enemies composed of polygons. You will be rewarded with upgrades as you progress to deal with the incoming enemies.

**Technical Requirements:**

- Asteroids C++ OpenGL framework provided by Gordon Griesel
- 2D Graphics
- Keyboard and Mouse User Input

**Product Features:**

- Randomly Generated Enemies (featuring 3 archetypes)
    - Simple Shapes
    - Compound Shapes
    - Randomized Polygons
- Varying Enemy Pathing
- Progressively Increasing Difficulty
- Sound Effects (Mono/Stereo)
- Physics (Debris/Enemies), Collision Detection
- Multiple Ship Archetypes (Upgrades)
- High-Score System

**Primary Goals**

- Enemies split into smaller shapes which adds to the obstacle factor (Ship Fragmentation)
- Bullet Fading (Distance Deterioration)
- Power Ups
- Ship Health Indicator (Damage Taken/Current Health)
- Multiple Pathing
- Enemy Generator

**Stretch Goals**

- Endless Mode (Arcade style gaming)
- Multiple Player Ship Archetypes w/ progression

**Division of Labor** (Tentative)

Enemy and Level Design (Enemy Templates)
-   Group Effort
Combat Engineer (Bullet Spread/Difficulty Progression)
-   Luis
Physics Engineer (Collision/Ship Fragmentation)
-   Joey
Sound
-   Chris
Pathfinding AI
-   Joseph
UI Design Menu/Gameplay UI
-   Adolfo

**References:**

Shape Shooter by Ryan Albano
https://ryan-albano.itch.io/shape-shooter

OSG Asteroids by Nocturne Games
https://marketplace.yoyogames.com/assets/4454/osg-asteroids