

Kimberly Hansuwan 100752265  
Seshawn Suresh 100752981

## Game Engines Bonus Challenge Blog

*Game Chosen: Galaga*

Galaga is an arcade shooter game where the player controls the horizontal movement of a starship, shooting bullets to eliminate enemy ships in waves and destroying bosses in an endless cycle.



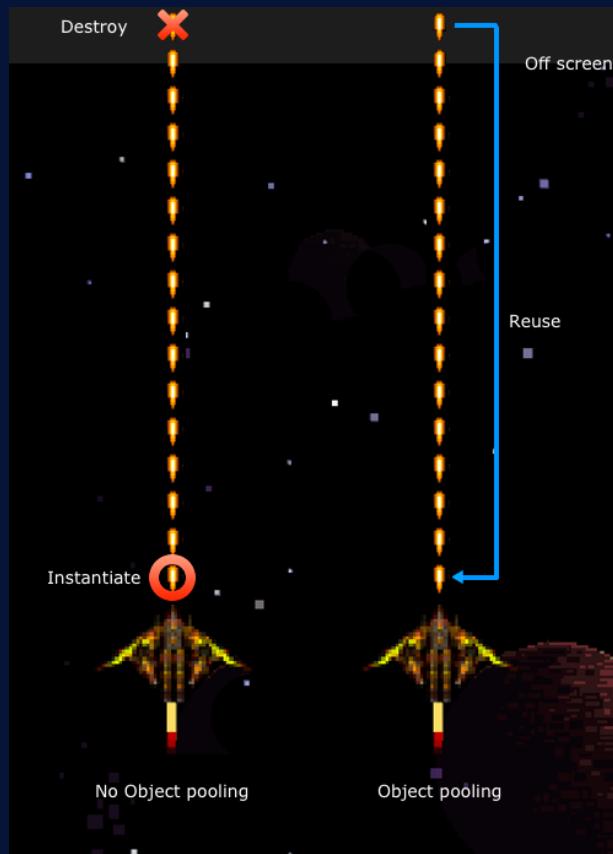
Still seeing Galaga remakes in arcade places such as Canada's Wonderland, Neb's Fun World brings back nostalgic memories. I used to play Galaga on my Gameboy and I loved the fact that it was very replayable. What I found difficult at the arcades were the button controls felt awkward and big compared to a Gameboy which was handheld and comfortable. Not to mention at the arcade places, the highscores wipes therefore, your name would never be there for years to come. It allows novice players to have a chance.



In the screenshot below, you can see the player is shooting out bullets from the starship. In theory, this means that this game is using object pooling. Object pooling in this game is to manage the amount of bullets on screen by reusing the bullets instead of storing empty destroyed objects.



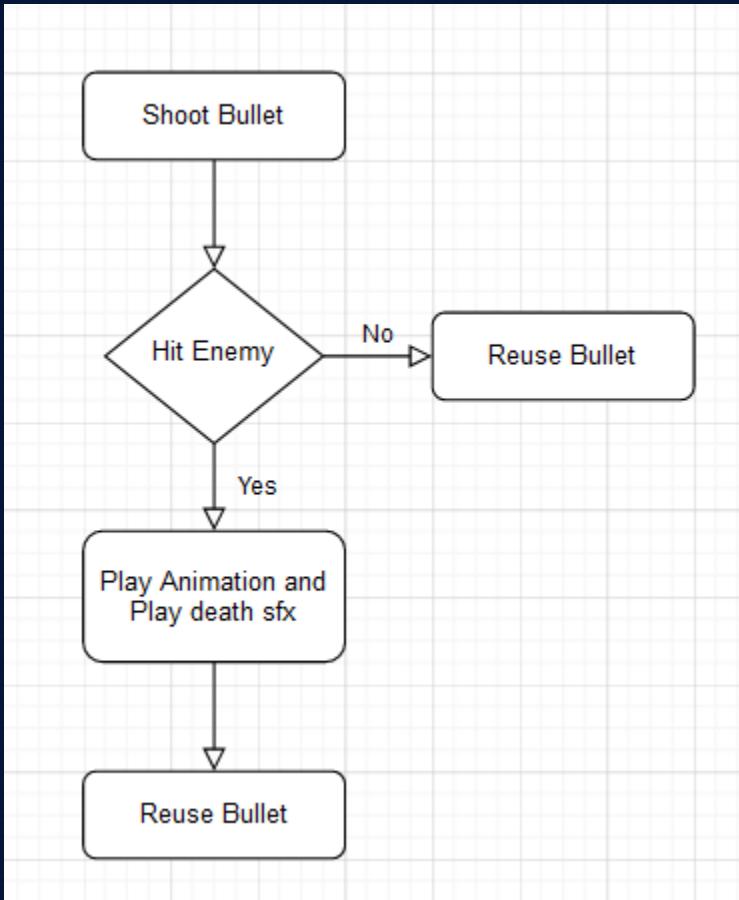
Here is an image that can visually describe what is happening.



Another design pattern that is apparent in Galaga is the observer pattern after destroying enemies. When a bullet collides with an enemy many things happen. There is a death animation, sound with the collision and the health of the enemy depleting to 0, increasing the player's score and then the game later deletes the enemy.

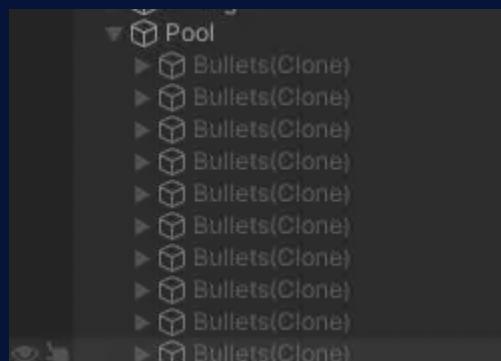


This is the object pool's flow chart:



The flow chart here shows when the player shoots a bullet what happens when it hits an enemy or if the bullet misses. There are different animations and processes that happen within the process of the bullets colliding or missing the enemy.

What we did to implement this model into the game was that we created a player that is able to shoot and when it collides with an enemy the bullet gets reused into the object pool in a queue.



GitHub: <https://github.com/kimberly-h/GameEnginesBonus>  
YouTube: <https://youtu.be/Zz97GRRybwc>