TP Videojuegos
Assignment 4

In this assignment, you will develop a variation of the classic Asteroids game. In what follows we explain the general requirements of the game, and in class/lab we will give more details (and slides) on how to carry out the implementation. You can get an idea of the general behavior by watching the demo video.

IMPORTANT: In all parts of the assignment, the actual numbers (e.g., velocity, number of bullets, number of asteroids, lives, etc.) are not important, feel free to try different setting until you get a reasonable game.

General Description

In the Asteroids game, there are 2 main actors: the fighter and the asteroids.

The objective of the fighter is to destroy the asteroids by shooting at them. The fighter has 3 lives, and when it collides with an asteroid it loses 1 life. If there are more lives the player can play another round. The game ends when the fighter has no more lives (loses) or destroys all asteroids (wins). When the round start, 5 to 10 asteroids are placed randomly on the edges of the window, with random velocity (keep them slow!).

Each asteroid has a *generations counter* that is initially set (for the asteroid created at the beginning of each round) to a random number between 1 and 3. When an asteroid X is destroyed it disappears from the screen, and if its generations counter is positive, we generate **N** new asteroids where **N** is random number between 2 and 4. The generations counter of each new asteroid is like that of X minus one. When generating the new asteroids, the velocity v_i of the i-th asteroid is obtained by rotating the velocity vector of X by i*30 degrees, and the position is like the position of X plus v_i (you can simply set the position as that of X if you like). Note that when the generations counter of X is 1 no asteroids are generated.

The fighter is equipped with a gun that can shoot 5 bullets every 3 seconds, and if the player succeeds to shoot **10 asteroids in the same round**, it is given a super-gun that can shoot without any limit **for 10 seconds**, after 10 seconds it should go back to the original gun.

The number of lives of the fighter should be displayed on the left-top corner, the total number of destroyed asteroids in the middle, and when the fighter has the super-gun a corresponding badge should be displayed in the right-top corner.

Between rounds and when the game is over, appropriate messages should be displayed and the player should be asked to press RETURN to continue.

Sound Effects and Music

You should play corresponding sounds when the fighter shoots a bullet, an asteroid explodes, the fighter explodes, etc. In addition, when the game is running, not between rounds, you should play some music.

Sound effects, music, and images for the fighter and for the asteroid can be found in the provided base code.