Course: Game and Level Design

Topic:

By Alex Nogueira

Table of contents:

NOGAL

## What is the player going to do?

The player is going to fly around space with his spaceship, constantly searching for enemies to spawn so he can kill them and take their potential loot.

The player will level by killing enemies. Gaining levels will also promise better loot and stronger enemies. At specific levels new kinds of enemies will be unlocked, until he reached the target level requirement for the end boss to spawn. Then he needs to beat the boss to beat the Game.

Feel of the Game

The player should feel powerful like in Diablo. There will be trash mobs which should die pretty fast and enemies which are stronger (that's why there are enemies with different cplors, they're a stronger version of the same enemy). Then there's mini-bosses which should be pretty tough to kill. The Player will constantly be on the lookout for the next new Item drop which could change his playstyle drastically. These modifications are kept simple though like in Ratchet:Gladiator or Solomon's Keep, but in combination they will still offer a lot of variety and the player should have fun trying out combinations and destroying hordes of enemies.

Flowboard of game structure
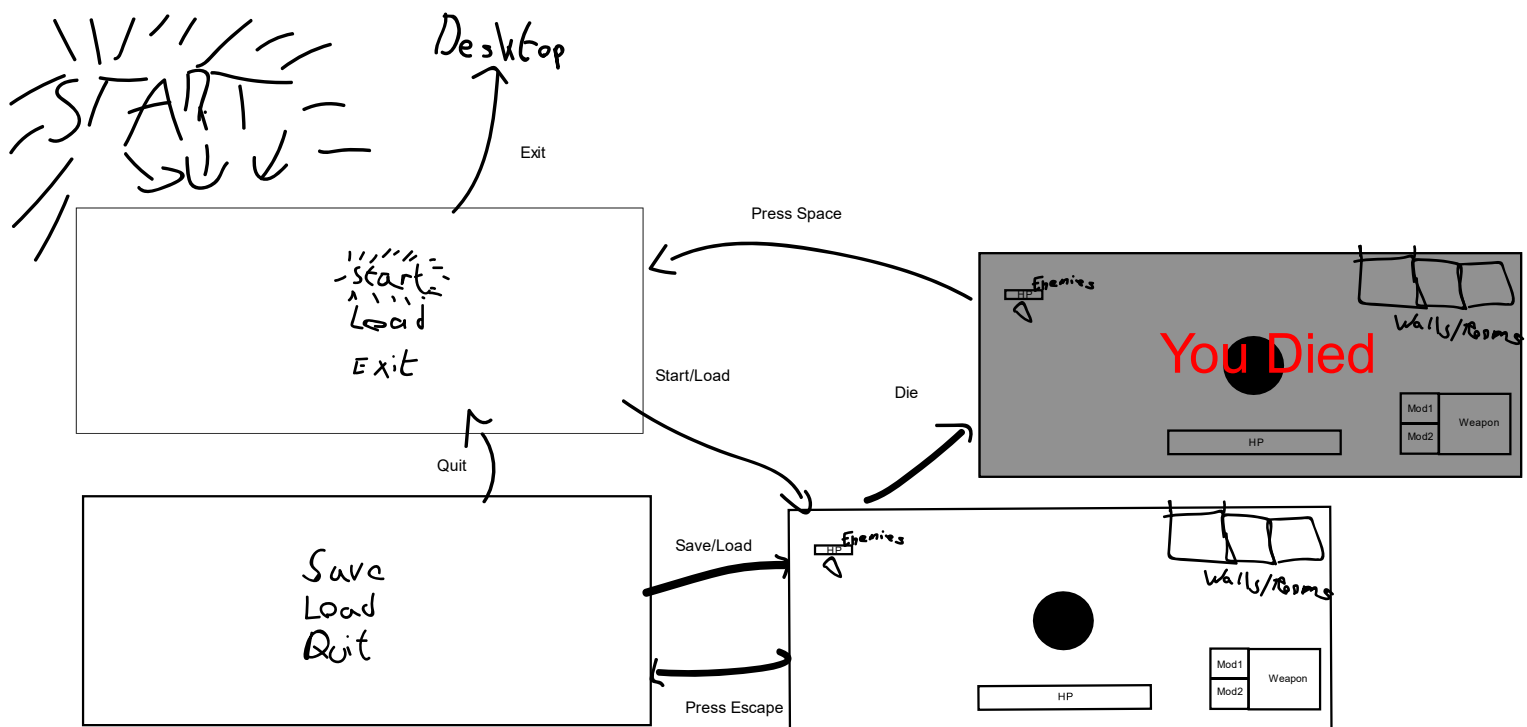
Game Mechanics

The player can move and shoot. He has HP which he can lose upon getting hit by an enemy projectile or the enemy itself. He can equip weapons or modifications. Upon killing an enemy, there is a set chance that Loot will drop for the player. The stronger/rarer the enemy the higher the chance. The things that could drop are weapons or wodifications. The player can only have one weapon and two modifications equipped at the same time. The weapon determines the projectile speed, damage and

NOGAL

size. The modifications modify the projectiles themselves in a special way so they explode on impact or become homing.

Gameplay

There will only be one gameplay mode for now -> standard

Standard Game Mode

The player flies a spaceship through space. shooting projectiles at enemies and avoiding getting hit by the enemies and their projectiles.
The map will be randomly generated and infinite (theoretically).

The player will encounter randomly generated rooms with Loot or Mini Bosses inside of them.
The player can gain experience by killing enemies and level up.
The player can get new weapons or weapon modifications, and new spaceship models.
Those items can be acquired by randomly dropping from enemies or found in rooms.
The enemies will scale to the players level. new types of enemies will also be introduced based on the players level.
At a specific level (maybe also after a random amount of time on top of that, or a set amount of time) the end boss will spawn and will follow the player forever, he will be extremely slow at first, his speed will increase very slowly over time (maybe he will teleport to a random location periodically, always at a set radius around the Player).
The player will lose HP upon getting hit by an enemy.
The player's HP regenerates Automatically (while out of combat).
At 0 HP the game ends.
The player can save his game.

Levels

There are no set Levels. There are only the player levels which influence the game.

Additional challenges

More enemies spawned in a batch.
Tougher enemy HP and damage (damage as in DPS, which means that shooting speed is taken into account).
Several types of enemies, shooting in different styles/having some unique twist to them.
Less player HP.

Level breakdown – Level progression

Example difficulty scaling :

- Lv 1 : enemies spawn in groups of 1-4
- Lv 3 : enemy HP scaled up by 50%
- Lv 5 : enemies spawn in 2 groups of 1-4

When I deal with balancing most of the game should be done already.

Level progression

Still only player levels! There are no different game levels.

Upon dying, everything is lost. The player will be asked to reload from the last save. Or quit to Main menu.

After leveling up, the enemies will scale accordingly, and how these different types scale varies.

There are some key-levels which unlock new enemies or mini Bosses / the end boss.

The loot dropped will also scale to the player's level. (scaling in the sense of scaling damage, there will not be too much fancy maths).

The dropped loot will mostly be very good against the current enemies. As loot will be rare.

Non-gameplay actions

You can start the game or choose which level to load. You can also open the menu and quit the game or show the controls or the credits.

Controls

You will control the player's spaceship with mouse and keyboard. The mouse is used to point, left click to shoot, maybe a right click special-shot will be implemented which will have way lower shot speed (more cooldown time).The keyboard is used to move around (WASD) and interact (E). Q is also used to equip modifications to a certain slot. TAB is used to show the description of your equipped items and ESC to quit the game / switch game states.
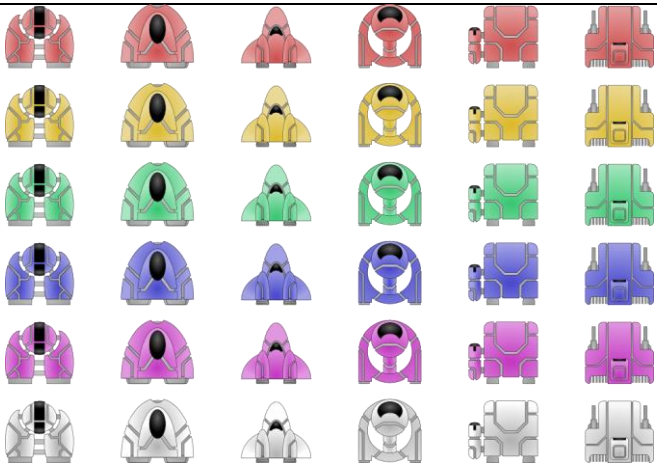
Gamepad respective controls would be left analog stick to move, right analog stick to aim and shoot. A is to equip a weapon, X is to equip a modification to the left slot and B is to equip it to the right. Y is to show the description of the item you're currently on and RB/LB is to show your inventory descriptions.

Saving

The things that are saved are which walls were destroyed in the world, the position of the player and his equipment. Nothing else is saved. Every enemy will simply be re-generated.
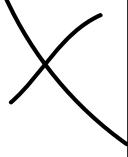
Mini-bosses will always respawn at the Same place until one wall in their chunk has been destroyed. Then you have to kill them in the same game session or they will not be loaded anymore.

Entities

	The player's Ship This is the player's ship. It will change appearance slightly upon leveling up. And with that it's stats will also increase more than usual. It can move and shoot in any direction independently. It's projectiles are affected by it's equipped weapon. Acceleration is immediate. (+deceleration)
	The projectiles (example representation) The projectiles in this game usually only affect the target they're shooting and fly in a straight line. Through various upgrades (modifications) they can follow enemies though or explode on impact and either trigger AOE Damage or split into multiple projectiles. The projectiles interact with every object in the game which is an entity. So far those are enemies, walls, the player and other bullets.
	The enemies The enemies in this game spawn at a random location outside of the player's view. They follow the player and try to shoot him or run into him to inflict damage. Enemies come in all shapes and sizes. Based on their shape the player will know how they act (how their projectiles shoot, how fast they are etc..) and based on their color the player will know how strong they are.

	The Mini bosses (type : enemy) The mini bosses spawn randomly in rooms. They do not care about the player until a wall of their Room has been destroyed. They are stronger than normal enemies and have a higher chance of dropping loot.
	The end boss (type : enemy) The end boss spawns at a certain player level and follows the player forever. After some time he will despawn and spawn again on a point of a given radius around the player so the player can't always expect him to come from a certain side. The end boss is exceptionally strong but slow. He is very big. He destroys walls by touching them.
	The walls The walls in this game are just static objects which are placed around a room and cannot be passed through. The player or the enemies can shoot those walls though as to destroy them and be able to enter the room.
	The weapons The weapons in this game modify the damage, spray pattern and shooting speed of projectiles. Killed enemies drop them and you can equip them as you want.
	Weapon modifications These modification give various bonuses to your projectiles. They can make them spread upon impact, explode, make them homing or burn enemies for example. For now it's planned that you can only equip two modifications at once. They drop like normal weapon loot.

NOGAL

Interactions

|	Player Ship	Bullet	Enemy Ship	Wall	Gun	Modification
Player Ship	✗	Bullet				
Bullet	Collision Event the Player loses HP, bullet is destroyed	Collision Event Both lose HP	Enemy Ship			
Enemy Ship	Collision Event, the Player usually loses HP and the Enemy can lose HP (depends on the Player Build)	Collision Event Enemy loses HP, bullet is destroyed	Collision, they can't pass eachother.	Wall		
Wall	Collision Event, the Player can't pass	Collision Event, Wall loses HP and bullet is destroyed	Collision Event, the Enemy can't pass	✗	Gun	
Gun	The Player can pick the Gun up, and have it equipped	Has a base Shot speed and Projectile Damage	✗	✗	✗	Modification
Modification	The Player can pick the Modification up, and have t most 2 of them equipped	Gives the Projectile special effects	✗	✗	Can enhance shot speed and Projectile Damage	✗

Interface

Game user interface and HUD

There is one weapon slot and two modification slots, and those will always be visible to the player. There is no extra inventory or equipment menu. If you want to pick something up, you press E next to it. If you want to switch your second modification with the one lying on the floor,
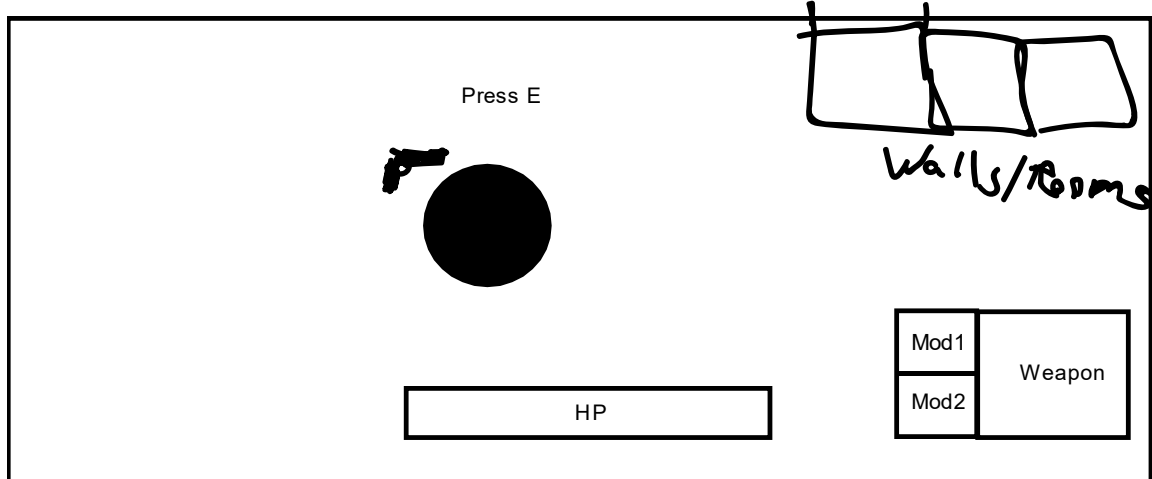
Main Menu

Start

Load

Exit

In-Game Screen

Enemies

HP

Walls/Rooms

Mod1
Mod2
Weapon

HP
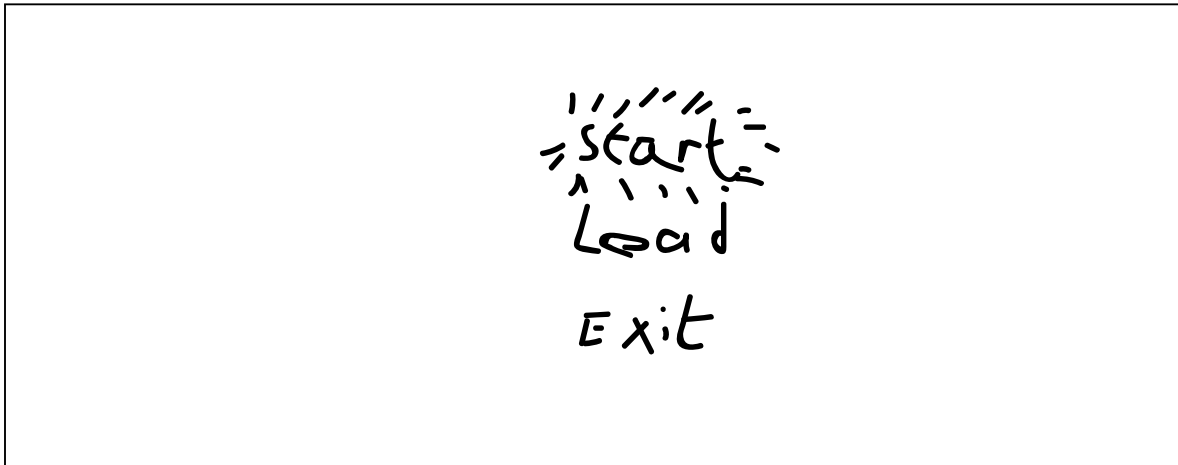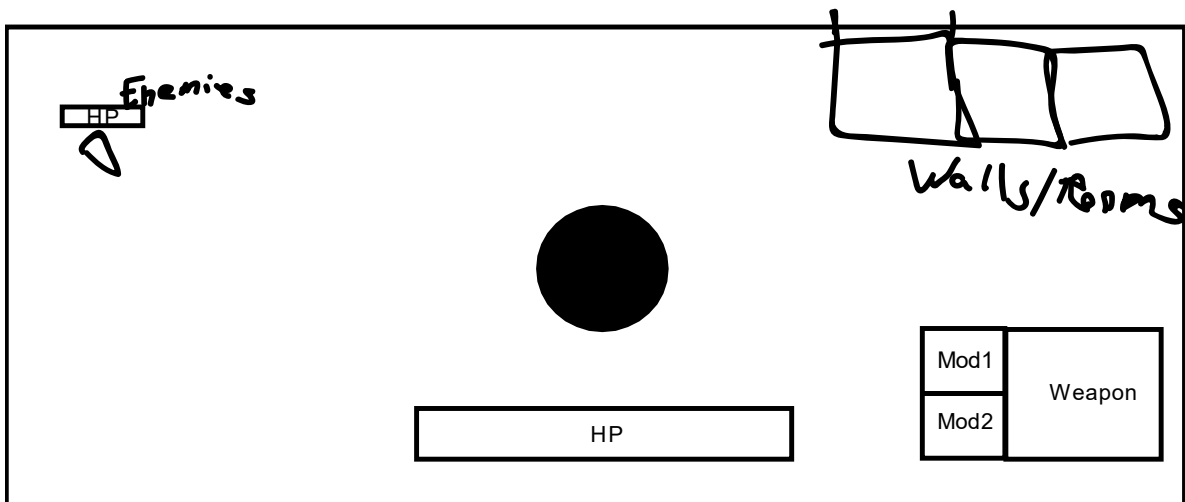
Loot Dropped and prompts you to press E if you want to pick it up

Press E

Walls/Rooms

Mod1	Weapon
Mod2	

HP

The Weapon on the Floor has been equipped

Press E

Walls/Rooms

Mod1	
Mod2	

HP

Screen after Dying

Enemies

HP

Walls/Rooms

You Died

Mod1	Weapon
Mod2	

HP
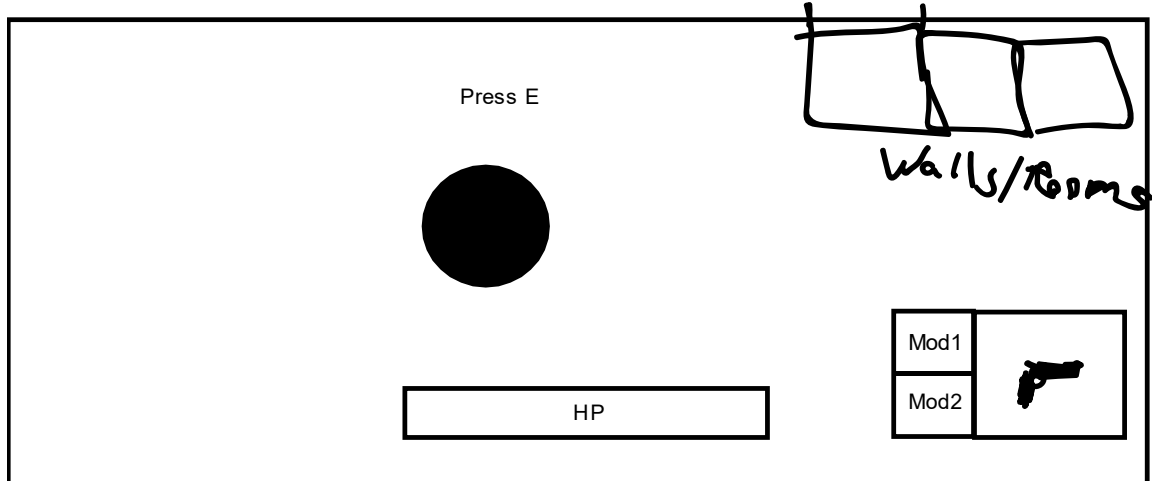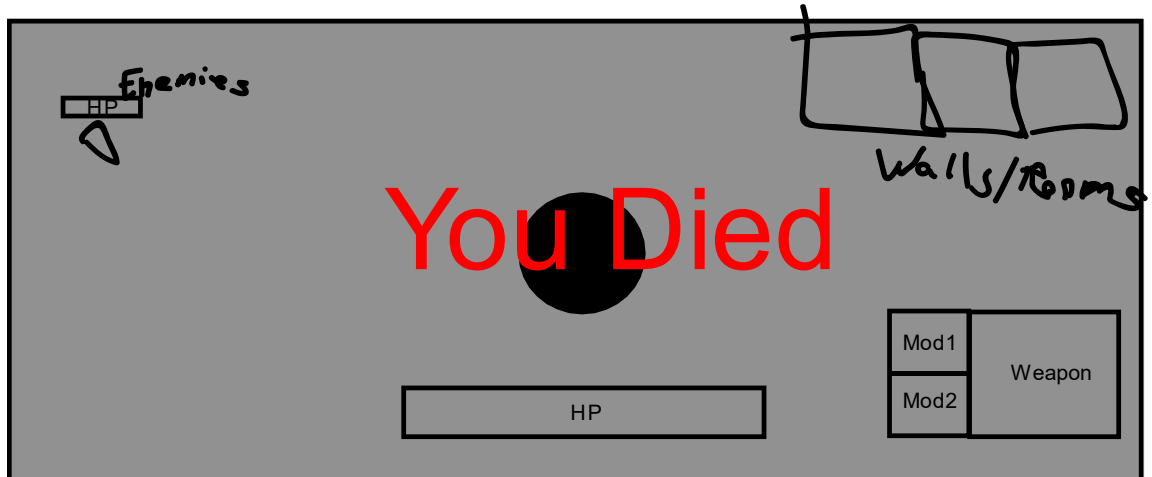
Screen after winning the Game
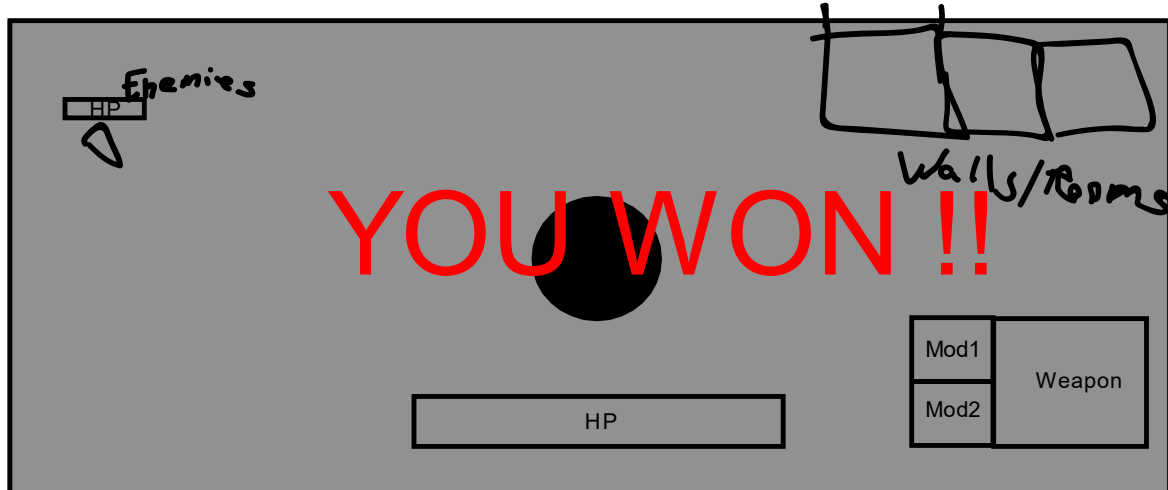
Inspiration

An inspiration for this game would be Solomon's Keep (for the projectiles) which is an Android/IOS game. And also the diablo Franchise for the Generation aspects and "Violent farming".

Used Assets

I drew the Weapons myself.

Player Spaceship : https://itch.io/queue/c/378358/space-assets?game_id=149856

Background : https://opengameart.org/content/space-background-6

Basic Enemies : https://metalsnail.itch.io/svg-spaceships

Mini-Bosses/End Boss and some Effects : https://opengameart.org/content/complete-spaceship-game-art-pack

Upgrades :

      Lightning : https://opengameart.org/content/radial-lightning-effect

      Explosion: https://untiedgames.itch.io/five-free-pixel-explosions

      Homing : https://opengameart.org/content/eye-lander

Projectiles : https://kicked-in-teeth.itch.io/projectiles

Clutter : https://opengameart.org/content/space-background-3

SOUNDS :

SFX : https://opengameart.org/content/sfx-the-ultimate-2017-8-bit-mini-pack

Main Menu : https://opengameart.org/content/teck-sound

In-Game :

      Track 1 : https://opengameart.org/content/m31

NOGAL

Track 2 : https://opengameart.org/content/crystal-cave-mysterious-ambience-seamless-loop

Track 3 : https://opengameart.org/content/please-answer-me-my-friend

Track 4 : https://opengameart.org/content/szymon-matuszewski-space-chase

Sound for chain mod drop : https://opengameart.org/content/2-high-quality-explosions

In my project folder there's a folder called "res" in which there is every resource that I downloaded for this game with the respective link.

NOGAL