Invasodado Design Document

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**About This Document**

This document serves as a frame of reference for the video game that is to come of it. It is subject to change at any time in the development process. It is meant to be collaborated on by the aforementioned developers, hence its presence on Github.

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**The Name**

“Invasodado” is a corrupted form of the phrase “invasor dado,” meaning “cube invader” in Spanish.

**The Premise**

Invasodado is a fixed arcade shooter and puzzler. The player controls a ship at the bottom of the screen that is capable of moving left and right. The goal of the same is to shoot down a constant stream of colored aliens. When an alien is shot, it turns into a block, flies into the background, and falls down to the nearest vertical space available. When three or more like-colored blocks are aligned in a horizontal, vertical, or diagonal line, they disappear. The game ends either when the player loses all of his lives or when the blocks reach the top of the screen.

**Technologies**

Invasodado will be developed using the Python programming language and the Pygame game development library. It will be available for Windows, Mac OS X, and Linux (and possibly Android).

**Game Flow**

The application starts with a splash screen that displays the Corundum Games logo. This screen may be skipped if the Space button is pressed (or, on the Android version, the screen tapped). The main menu is then displayed, with the following options (each of which is described later);

* Start, 2-Minute, 5-Minute
  + Starts the game with the current settings.
  + When the player presses the left and right arrow keys while this entry is selected, it will cycle through normal, 2-minute, and 5-minute modes (which will be elaborated upon).
* Options
  + Allows the user to configure various settings of the game.
* Scores
  + Displays the highest scores for all difficulty settings.
* Help
  + Shows the player how to play the game.
* About
  + Displays information about the origin of the game (credits, etc.)
* Exit
  + Quits the game.

If the user selects “Start,” the game will begin. If he gets a Game Over, he will be taken to the high score screen. If his score made it onto the list, he may enter his name. He is then returned to the main menu. If the user selects “Exit,” the application will close. If the user selects anything else, he will be taken back to the main menu if he selects the “Menu” button.

**Start**

Starts the game. Gameplay will be elaborated upon in a further section.

**Options**

The user is to have the following options;

* Difficulty
  + The user may pick from one of four difficulty settings, which are elaborated on later.
* Resolution
  + Choose from whatever full-screen resolutions your system supports.
* Fullscreen
  + Choose whether or not the game is fullscreen.
* Color-Blind Mode
  + If toggled on, a symbol will be placed on every enemy and color to allow those who cannot distinguish colors to play.

**Gameplay**

**Alternate Modes**

**Scoring**

Unlike many other shooter or puzzlers, Invasodado will use lower denominations of points. The reason is that humans tend to identify better with smaller numbers; anything larger than about 100 starts to lose significance. Scoring will work like so:

* Shooting an enemy is worth 1 point.
* Clearing a cluster of blocks is scores points by the formula n^(k+1), where n is the number of blocks cleared and k is the chain length. That is, if the clearing of blocks causes a chain reaction, the score will increase exponentially.
  + For example: If three blocks (the minimum) are cleared, the player will get 9 points (because 3^(1+1) = 9).
  + If the
* Shooting a UFO is 10 points.
* Every block cleared by the block dropped by the UFO is the square of the number of blocks cleared.

**High Scores**

* There will be

**Player**

The player is subject to the following constraints;

* He can fire one bullet at a time
* He starts with three lives
* He is invincible for a few seconds upon spawning

**Enemies**

Aliens behave like so:

* Aliens originate in a symmetric formation
* Each alien is a color randomly chosen from red, blue, green, yellow, or purple, depending on the difficulty.
* Aliens start on the left end of the screen and move to the right. When one enemy hits the side, the entire formation moves down, speeds up, and reverses direction.
* When an enemy is killed, the entire formation speeds up.

**Art and Music**

The artwork is to be reminiscent of the NES days (but not limited to the color palette). The following sprites will be needed:

* Player ship
* A white enemy (will be recolored as necessary)
* Player bullets
* Enemy bullets
* White blocks (will be recolored as necessary)
* A UFO
* A simple grid background (to show where the blocks can land)

**Graphical Effects**

* There will be a particle system.
* Blocks and enemies, when destroyed, release particles of their color.
* There will be a horizontally-moving starfield done with particles. Parallax is simulated by randomly drawing from integral values of speed.
* When the player sets off a chain reaction, the chain level will appear on one end of the screen, as will the points earned.