CRUx Inductions Round 3 - 2023 Sem 1

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Duration: 12 days

Task: Clone [Tanks!](#)

Making 2D [Tanks!](#) Clone, but with twists.

Requirements

- Adding a player tank that can shoot 'N' bullets per level. The player can move (WASD) and aim using Mouse.
- Four types of enemy tanks. All can shoot unlimited bullets separated by 1 sec interval

Enemy	Aggression Mode	Peaceful Mode
Alpha	Pursues the player aggressively. Targets the position **behind** the player	Follows the player but keeps a distance
Beta	Pursues the player aggressively. Targets the position **in front of** the player	Keeps cycling through all the corners
Gamma	Moves around randomly. When the player is pursuing him / close to him, he runs	Follows Alpha

	back to Alpha	
Delta	Aims for the **position between** Alpha and Beta	Randomly scouts the arena

When the player first spawn into the arena the enemies stay in Peaceful mode for a maximum of 1 minute. In the event that the time has elapsed **or** the player has killed one of the enemies, all enemies will switch to aggression mode until the player has been killed.

Enemies **can not** hurt themselves or their own troops.

Your bullets hurt them, their bullets hurt only you.

Enemies die with only one bullet. You have 'N' number of lives.

Bullet gets reflected by the walls. They disappear after 'N' bounces.

The above table shows enemy pathing logic. They shoot the player if the player comes in sight.

This enemy AI was inspired by the [Pac-Man enemy AI](#).

- Game Loop
  - The player spawns
  - Tries to kill all enemies in least time as possible
  - If all enemies die player wins, otherwise loses
- Store the highscore in a database. Show that on the main menu. If the highscore is broken, update that. The score is the time taken to defeat the levels. The lower the better.
- The arena
  - Option 1: Handcraft 'N' number of arenas. In this case add a level selection screen.
  - Option 2: Have a procedural generation system to create the walls for you.
- SFX + Music
  - Tanks create sound when moving, when shooting projectiles and on death
  - Use SFX to convey the gravity of the situation. For example the music is calm when all four enemies are alive and becomes aggressive when in aggression mode.
- Death screen
  - Use shaders to make a death screen like this (The bowser face zooming out part only): [Super Mario 64 - Game Over (N64)](#), but with some other
- Game Juice
  - Make the camera shake every time the player is hit or enemy dies
  - Particle system
    - Tank trails

- - - Dust on shooting a bullet (near the muzzle)
    - ○ Add a line showing path of bullet
- ● Art:
    - ○ You are allowed to use the given below sprite-sheet. Furthermore all assets used need to be cited in an info screen: Topdown Tanks | OpenGameArt.org
- ● Additional Info
    - ○ Throughout the problem statement 'N' has been used as a variable number. Change these and the other parameters yourself to fine tune the game to your liking.

Brownie Points

1. Add your own enemy tank variety (don't copy from wii Tanks)
2. Make the game 2.5D instead of 2D
3. Make the line show the potential bounces of the bullet.
4. Make the enemies target the player more intelligently

General Instructions

1. Use git to record your progress throughout the induction process.
   a. Use Conventional Commits.
   b. For your final submission, use a single branch, preferably called "main" or "master." You may use any number of branches to aid your development process, but make sure you merge all your changes into "main" or "master."
   c. The repository must be made public on GitHub once the deadline is reached.
   d. Any commits after the deadline will be ignored.
2. Code quality (conciseness, modularity, etc.) and documentation (minimum required for someone to understand the project/tasks and how to run it) will also be evaluated.
3. Feel free to use the internet, but obviously, do not plagiarize.
4. Once done with your tasks, write a post on the CRUx community forum and reply to your Round 3 task email with the link to your GitHub repo. **The email and post are essential; do not skip them**. The post is for future applicants and the GB to check out your projects. Follow a similar pattern to those who posted from previous inductions.
5. Even if you can't complete your task, make sure what you submit is complete in itself (i.e., I should be able to run and test whatever you have done.)
6. If you have any doubts at any point, feel free to contact any of your task setter(s).

Task setter(s):

1. ADARSH DAS - 85278 59660