

LCOM 2024/2025
L.EIC018

“Pharaoh’s Curse”



Turma 18 - Grupo 6

Gustavo Madureira - up202304978

João Miranda - up202207769

Tiago Cunha - up202305564

2. Overview

Menu



Gameplay



Pharaoh's Curse is our pixel art bullet heaven/reserve bullet hell game.

The game features enemy spawning and collision, health tracking & managing, clean movement and 2 different attacks!

Control your character movement using keyboard and use your mouse to unleash powerful ranged attacks!

All this with the game running at 60 FPS.

Your objective is to survive **as long as possible!**

Gameover



The best players may see a **secret** enemy that spawns at the 3 minute mark...

3. Project Structure

Our project follows a well-organized architecture based on the Model-View-Controller (MVC) pattern:

```
└─ proj
    ├─ doc
    └─ src
        ├─ controller // Handles game states and player actions
        ├─ drivers     // Locations of all the lab's functions
        ├─ events      // Mouse & Keyboard event handlers
        ├─ macros      // Definition of color and scancodes
        ├─ model       // Storing of entities and game state
        ├─ resources   // Location of all our sprites
        ├─ viewer      // Drawing of menus, arena, and entities
        └─ game.c     // Our main.c, where the proj_main_loop runs
    └─ Makefile
```

We also implemented double buffering.

First we draw each frame on a secondary buffer and then we load that buffer onto our main/display buffer, this makes it so only complete frames are shown ensuring good performance throughout the entire game.

4. Devices Usage

Device	Usage	Interrupts?
Timer	Refreshes the screen and regulates de frame rate	Y
Keyboard	Navigating menus, player control	Y
Mouse	Aiming Ranged Attack In-Game	Y
Graphics	Sprites/Animations Drawing	N

Timer → Generates regular interrupts to update game logic and refresh the screen, maintaining a consistent frame rate of 60 frames per second.

Keyboard → Using interrupts it enables player control and menu navigation, allowing the our game to be playable

Mouse → Handles aiming and ranged attacks in-game, using movement & click interrupts for accurate targeting.

Graphics → Renders all sprites and animations each frame on the screen. Uses double buffering to ensure clean frame transitions.

5. Special Features

1. Endless scrolling background: To make the main menu more dynamic, we implemented an infinite horizontal scroll effect on the background. This smooth, continuous animation adds a sense of motion without affecting interactive elements like buttons. When the image reaches its end, it seamlessly loops back to the beginning, creating a beautiful visual experience.
2. Our “moving” arena: when a player moves the character, the arena behind appears to move as well. This happens because everything on the game has a position unrelated to the screen and so the real arena is way bigger than what the screen allows! The character is always centered and the arena is the one moving, allowing for more dynamic gameplay.
3. Keeping highscores on a .txt file: the game saves and loads the player’s best time using a .txt file, allowing high scores to persist on game shut down / boot up.
4. A secret enemy! Players that can survive until the 3 minute mark may be able to see a special, mysterious enemy!