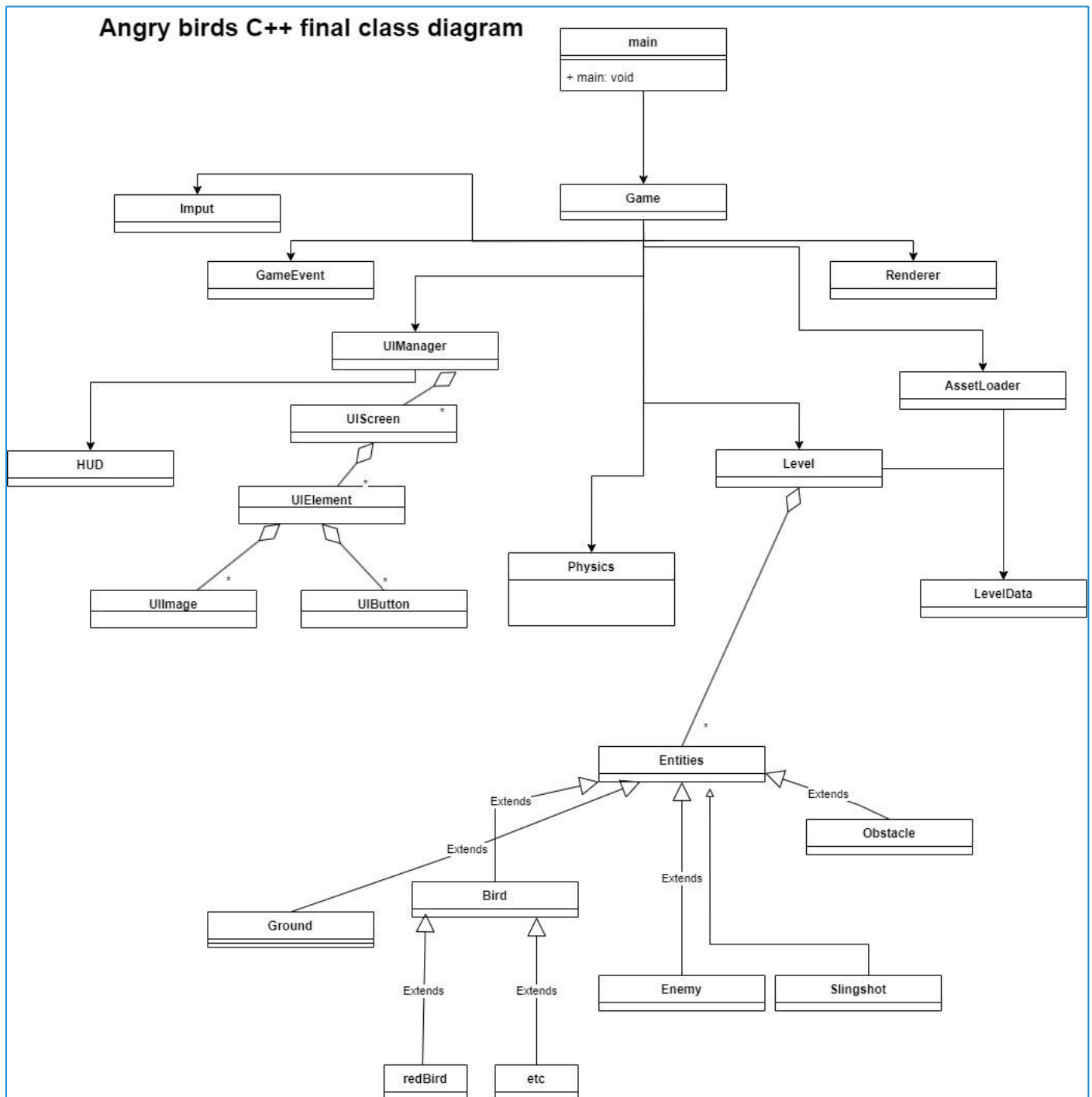**Overview:**

In this project, we successfully created an engaging Angry Birds-style game with three levels of gameplay. The game involves player-controlled slingshots to launch birds, each possessing unique abilities. The game uses 2D physics through the Box2D library, and we implemented a user-friendly graphical interface using SFML library. Various levels have different amounts of enemies, and the structures of the levels are different. The game also supports the functionality to load levels from text files.

Software structure:

Angry birds C++ final class diagram

main
+ main: void

Imput

Game

GameEvent

Renderer

UIManager

AssetLoader

UIScreen *

HUD

Level

UIElement *

Physics

LevelData

UIImage *

UIButton *

Entities

Extends

Obstacle

Extends

Extends

Bird

Extends

Ground

Enemy

Slingshot

Extends

Extends

redBird

etc

Instructions for building:

- Clone the repository to Ubuntu
- On the repository location, open Visual Studio Code
- Choose CPP compiler on the popup window
- Click the launch button (arrow) at the bottom left of the window
- The game is launching

Instructions for using the game:

When you run the game, a graphical user interface pops up. In the main menu screen, you can choose from one of three levels by clicking on the corresponding level number.

In the game level screen, you see level number on the top left corner of the screen, amount of eliminated enemies in the top middle, and restart level- and main menu-buttons on the top right corner. The birds you have remaining appear on the bottom left, and the current level in the middle.

Your objective is to eliminate the enemies by shooting the birds with a slingshot towards them. To do that, you must select the bird from the options on the bottom left, click and hold on the slingshot, and drag the bird with the mouse towards the left side of the screen to adjust the angle and the strength of the shot. Then release the mouse button to launch the bird towards the enemies.

Different birds do different amounts of damage to objects and enemies. Yellow and big red birds have abilities that you can use by clicking on the screen when the bird is mid-air after the launch. Yellow bird will accelerate towards your current cursor location when clicking on the screen. The big red bird will accelerate downwards from its current location, when clicking the mouse. If the birds collide with something before their special ability has been used, they will not be able to use their ability anymore. The smaller red bird has no special ability.

After eliminating all enemies of the level, the level is completed, and you can continue to the next level. After completing all three levels, you have won the game. If you play the game from beginning to the end using the next level button, the score from each level will accumulate until you complete the game.

Testing:

No tests were implemented. We only did manual testing, by testing the graphics and game logic in the graphic user interface.

Work division:

- Entities: Quang
- UI: Maksim
- Level design: Auvo
- Game logic: Teo
- Physics: Allan