DCL Final Project - Snake Game

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1. Introduction 簡介

簡單的說明你的遊戲。(附圖)

Embark on a nostalgic journey with our final project, a Verilog rendition of the beloved childhood classic: Snake. Grab your FPGA, link up your VGA cable, and immerse yourself in the enchanting world of this classic childhood game. It's time to program, connect, and relive the delight of Snake in a whole new digital dimension!

Figure 1: The snake hits the boundary and dies.

Figure 2: The snake ends up eating itself and dies.

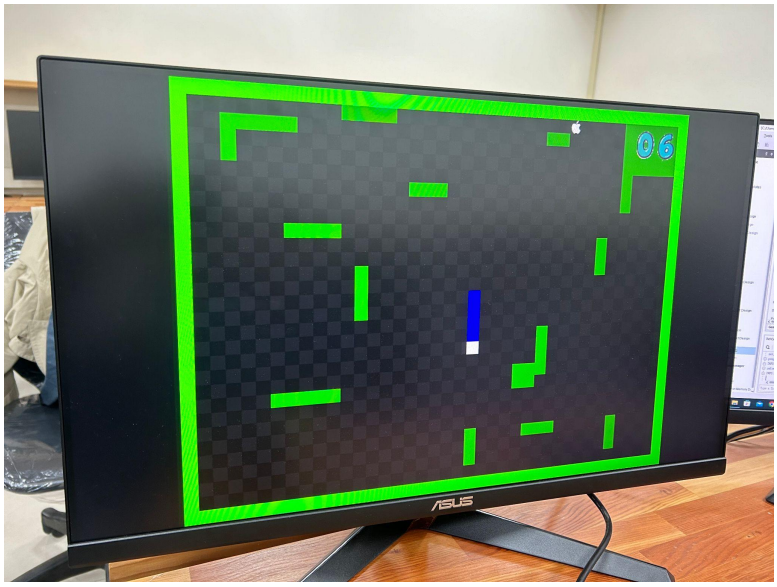

Figure 3: Game overview.

2. Game Instructions 操作說明

遊戲的控制說明。

The snake’ s control mechanism is as follows:

- Button 3 - Up
- Button 2 - Down
- Button 1 - Left
- Button 0 - Right

3. Function Description 功能說明

說明你們有實現的基本功能、進階功能以及你額外設計的功能。

The basic functions that we have implemented are as follows:

1. The snake has a starting length of 5 units.
2. The snake can bend.
3. Apples appear randomly on the screen.
4. Obstacles are generated on the screen.
5. The game floor has a boundary that, if the snake comes in contact with, will kill off the snake. If the snake comes in contact with the obstacles, it will simply reset the snake to its starting position.
6. The snake can eat the apples that appear on the game floor, but does not change its length.
7. Buttons are used to control the interaction between the player and the snake.

8. The game will stop if the snake eats itself.

<u>The advanced functions that we have implemented are as follows:</u>

1. A scoring system.
2. The score will be decreased if the snake hits an obstacle. The game will be over if the score reaches 0. The snake will die if it hits the boundary.
3. More obstacles appear once you reach 5 points.

4. Contribution Percentages 組員的貢獻與貢獻度

(期末專題成績除了整體的專題成品外，還會參考此貢獻描述，請依實際情狀撰寫。)
請列出1)姓名，2) 每位組員的貢獻為何?，3)每位組員的貢獻百分比(總共加起來100%)。

- 111550024 蔡芳慈 - Verilog Developer (25%)
- 11550123 黃芷嫻 - Verilog Developer (25%)
- 111550099 盧珮芸 - Verilog Developer (25%)
- 111550193 劉培錦 - Report Writer (25%)

5. Reflection 報告心得與建議

每人一段或是共同撰寫皆可。

We’ ve decided to meet up for one day during a random Sunday before all of our finals begin. We discovered that the first hour went by very fast as we managed to implement most of the basic tasks. However, as we approached the second and third hour, each minute seemed to crawl by very slowly as we weren’ t making much progress. We were attempting to implement more of the advanced functions. Although they were fairly challenging, it was a great challenge in our teamwork and communication as each of us had different ideas on how we would implement it. This team effort also came in handy when we had to debug our code. Explaining each of our implementations out loud allows other people to point out holes in our logic and leads to better code overall.