

Assignment 2

Writing the C code for Frogger game

Due Date: 2024, 17 July.

1 Introduction

In this assignment, we will implement a basic C code for a well-known old game called [Frogger](#). You can play this game online on [here](#). To program this game we need to receive the inputs dynamically from a keyboard.

The given code `keyboard_input_example.c` is an example of how to pass inputs to a program using the keyboard. This code demonstrates how to handle keyboard inputs in a C program using low-level system calls. It continuously checks for specific key presses ('w', 'a', 's', 'd', 'q') and performs actions based on the input. The key components are:

1. **Header Files:** Necessary for system calls and I/O operations.
2. **Main Function:** Contains an infinite loop to continuously check for key presses.
3. `kbhit()` **Function:** Custom function to check if a key has been pressed.

The main function runs an infinite loop to detect and respond to specific key presses. The `kbhit()` function configures the terminal to non-blocking, no-echo mode, checks for a key press, and restores the terminal settings. Depending on the key pressed ('w', 'a', 's', 'd', 'q'), corresponding messages are printed or the program exits when 'q' is followed by 'y'. Try to understand and how to use it but you don't need to go into details.

2 Implementation (8 points)

The given source code `frogger.c` is a simple format of the logic you should complete. Take a look at the following code taken from `frogger.c`.

```
// Game constants
#define WIDTH 64
#define HEIGHT 10

// Game global variables
int frogX, frogY;
```


3 Report (2 points)

Explain how to compile and run your program. Create a section called Appendix and include all the codes you have in this section (Copy and paste all the codes from `frogger.c` into Appendix).

4 Graphical User Interface (+2 point bonus)

For this section, write all your codes in `frogger_GUI.c`. There are libraries that will allow you to create a window, render graphics, and handle user input more effectively than the current terminal-based approach. For game development, SDL2 and SFML are the most recommended due to their performance and extensive features tailored for games. This section can be time consuming.

5 Submission on Avenue to Learn

1. The source code `frogger.c`.
2. Submit `frogger_GUI.c` as well, if you did the bonus part.
3. The Latex format of the report `report.tex` and the generated pdf file `report.pdf`.