

Lab 6

CSE 379 LLB - Introduction to Microprocessors

Partner Name: Yicheng Luo, Xudong Liu

Partner Username: yluo25, xliu243

Lab Section: R4

Date: 03/016/2024

Division of Work

Yicheng Luo (yluo25):

Writing initialization, get_current_input, Timer_Handler, documentation.

Xiudong (xliu243):

Writing update_map, print_map, Timer_Handler, documentation.

Program Overview

Program Overview:

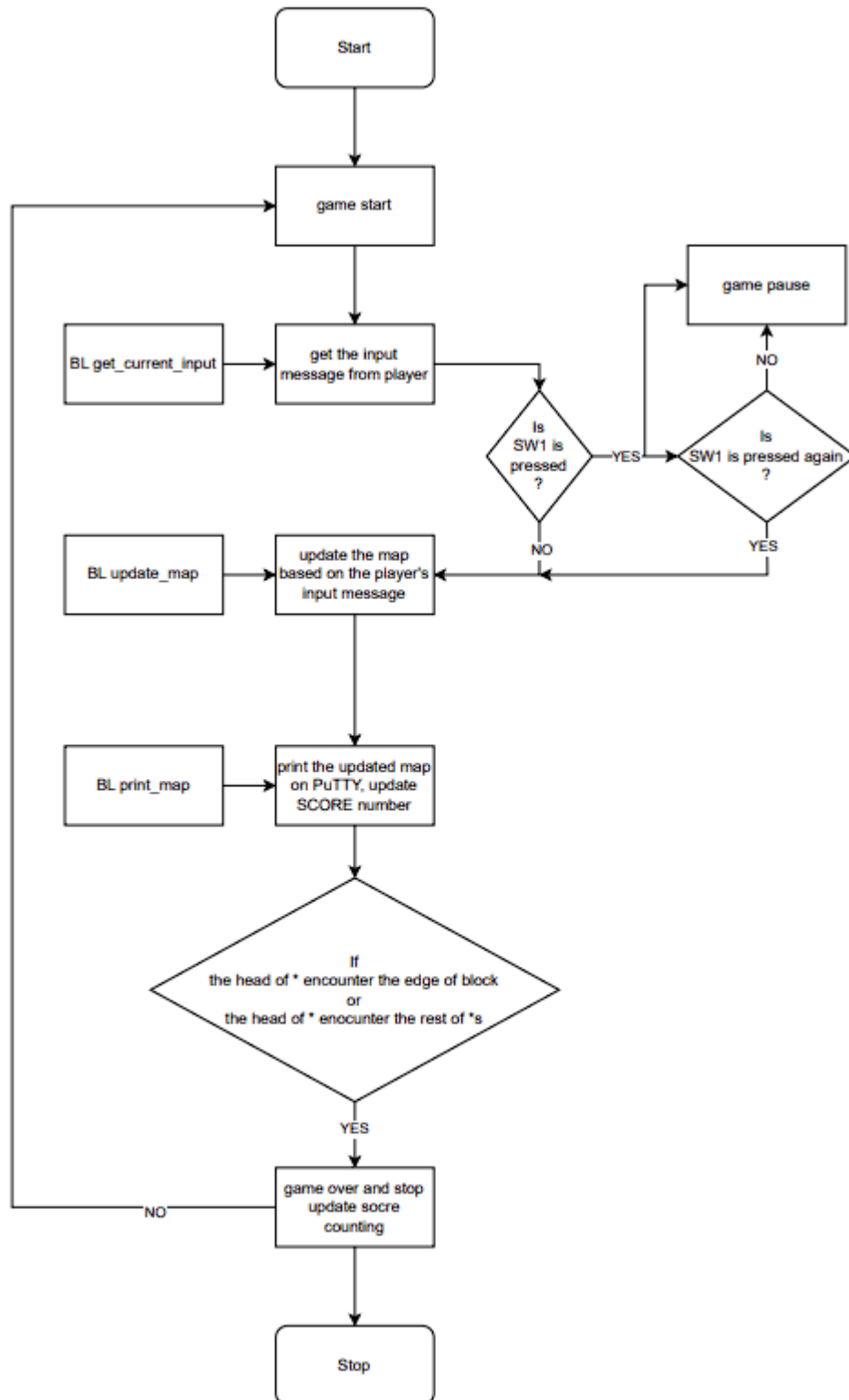
1. Start running the program.
2. Open PuTTY.
3. Press w, a, s, d on the keyboard to change the *'s direction shown in block on PuTTY.
4. Press the SW1 button on the Tiva-C board one time to disrupt the game.
5. Press the SW1 button on the Tiva-C board again to continue the game.
6. If the * encounter the edge of block or it encounter it's own body(which is the rest of the *), game over and the score on the top of the block stops counting.

Program Summary:

In this lab, we utilize the sw1 button on the Tiva-C board and W, A, S, D key on the keyboard to build a simple drawing game. We use interrupts in Lab5 and implement Timer_Handler to read input in every specific period of time from the Keyboard and from the Tiva-C board and show it by updating a specific character in that specific period of time.

NOTICE! : Please do not press or hold any keys on keyboard when the game is paused. This will cause the interrupt to be confused and make the direction keys invalid after you end the pause. You can use the keyboard normally after ending the pause by press SW1 on Tiva board

High Level Flowchart:



Subroutine Descriptions

Describe Each Subroutine

Timer_Handler

What does it do: updating *’s position in every 0.5 second at a specific size of block

Arguments: SW1 Pin, W, A, S, D on the Keyboard

Return Values: *’s current position

get_current_input

What does it do: get the input message from the Tiva-C board and the Keyboard and store it.

Arguments: SW1 Pin, W, A, S, D on the Keyboard

Return Values: the input direction(W, A, S, D)

update_map:

What does it do: update “map” based on the input message get from the Tiva-C board and the Keyboard.

Arguments: *’s current location address

Return Values: *’s updated location address

print_map

What does it do: print out the updated map which is updated by the updated *’s location.

Arguments: *’s updated location address

Return Values: the updated map.

Subroutine Flowcharts

