

CSC3150 Operating System

Assignment Report #2

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1. Design

Some functions:

- (1) createlogs: Generate random logs on map during initialization.
- (2) check: check point(x,y) status, the point is where frog is.
 - ① Return 0 means game continues.
 - ② Return 1 means reach the finish line.
 - ③ Return 2 means lose the game (go over the edge or fall into the river).
 - ④ Return 4 means something wrong.
- (3) Khbit: Check for input
- (4) print_map: Update the map on the screen
- (5) logs_move:
 - ① t=0: log move. The pattern in area 1 to ROW-1 moves left and right regularly. if frog is in this area, the frog needs to update its position. Check whether the frog can continue the game after updating its position
 - ② t=1: check player input and do respond. Responds to W, S, A, D, Q input.

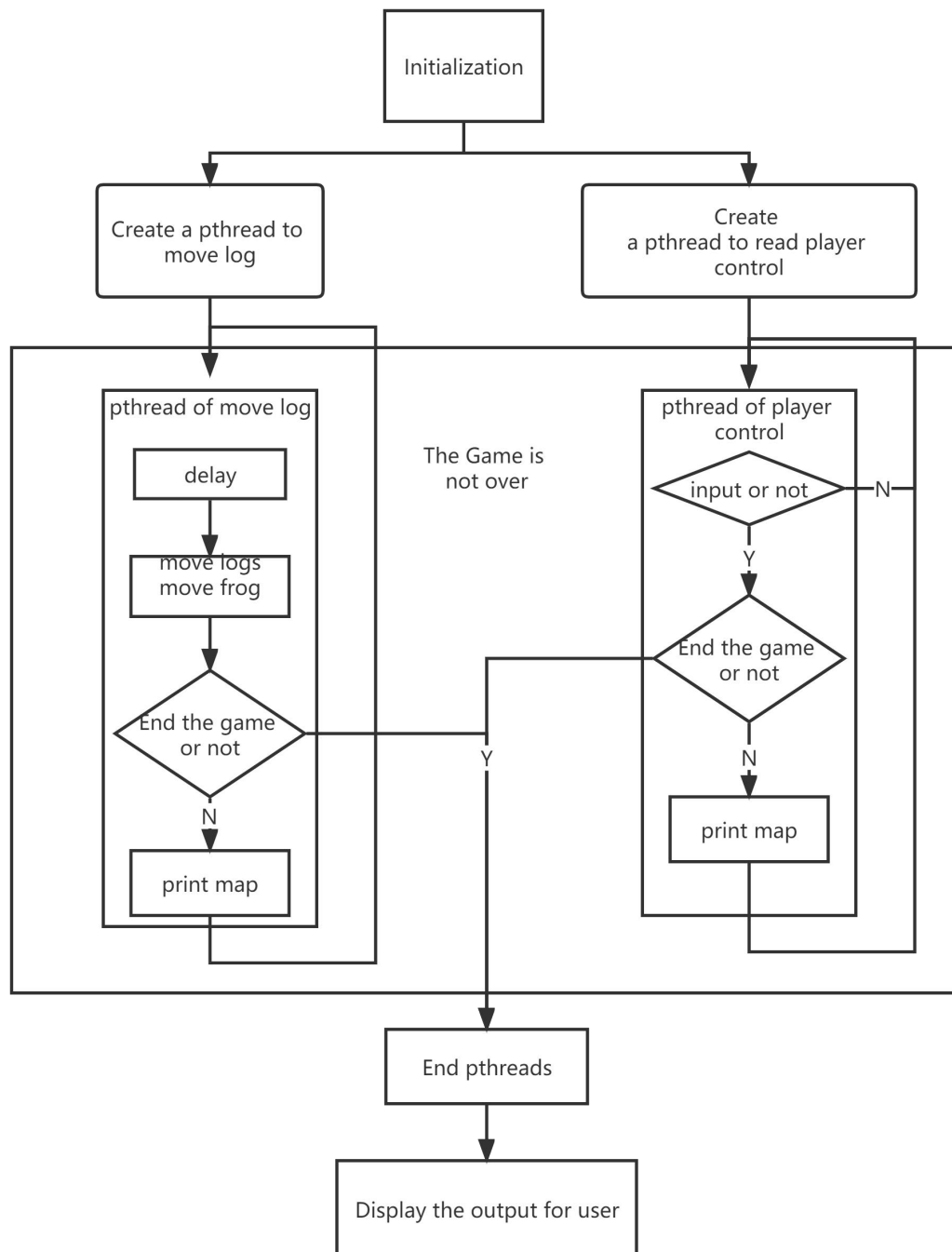
Some variables:

- (6) game_status: Record the state of the game.
0 means play, 1 means win, 2 means lose, 3 means quit, 4 means error
- (7) frog: x,y represents the position of frog.
- (8) map: represent the map
- (9) logs: the ID of pthread to move logs
- (10) player: the ID of pthread to read player input
- (11) mutex: the object for mutex.

2. Environment

- (1) Linux Version: Ubuntu 16.04.7
- (2) Linux Kernel Version: 5.10.146
- (3) GCC Version: 5.4.0

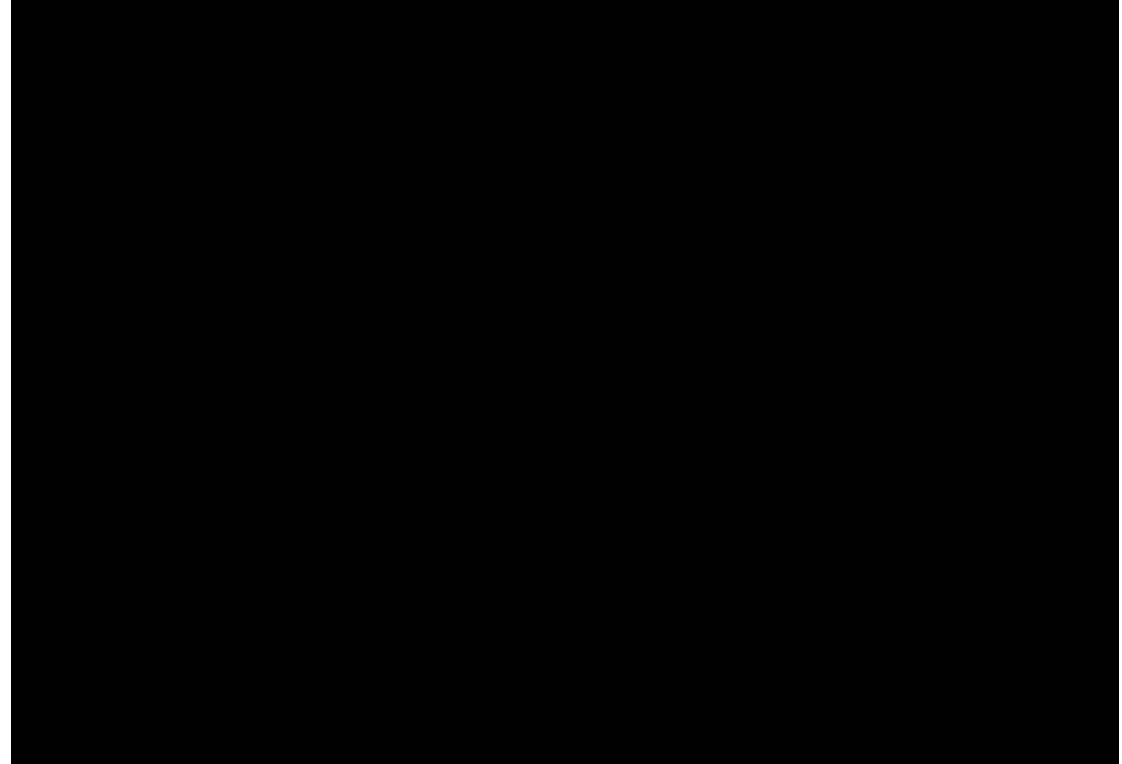
3. Flow chart



Graph 1: flow chart

(3) Win

```
You win the game!!  
vagrant@csc3150:~/csc3150/Assignment_2_120090516/source$ _
```



Graph 4

(4) Lose

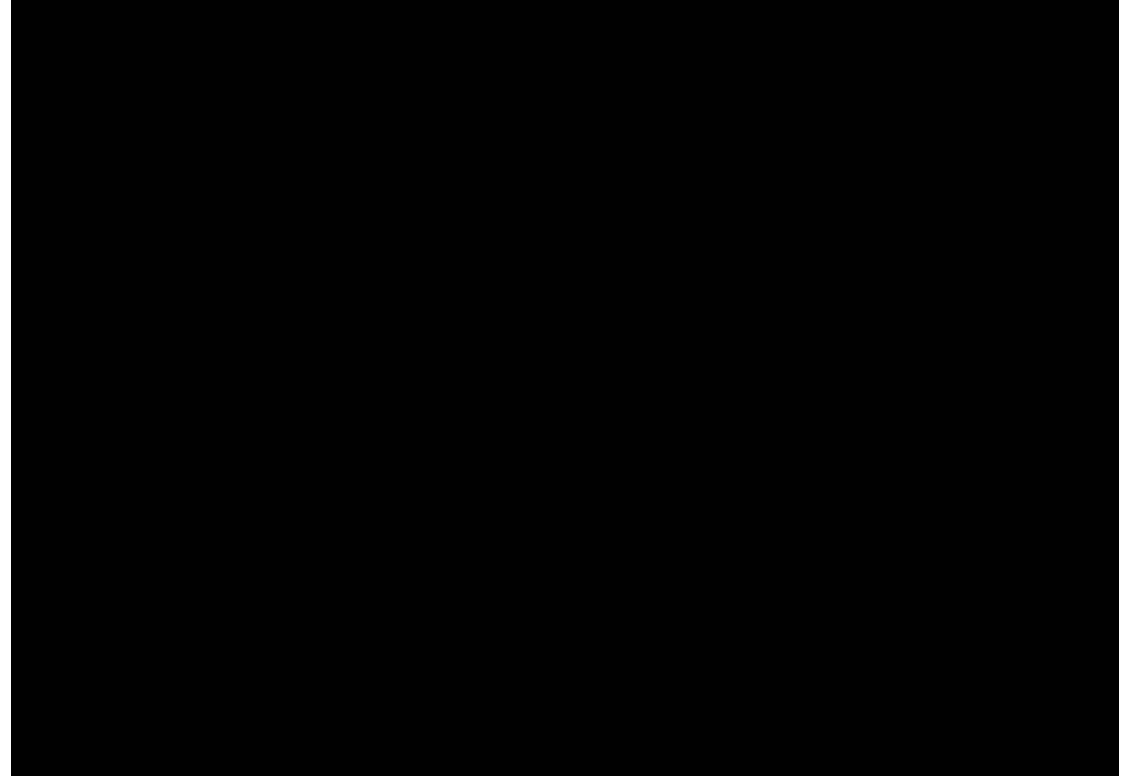
```
You lose the game!!  
vagrant@csc3150:~/csc3150/Assignment_2_120090516/source$
```



Graph 5

(5) Quit

```
You exit the game.  
vagrant@csc3150:~/csc3150/Assignment_2_120090516/source$ _
```



5. Others

I learned to create a process, use mutex, and use usleep for Delay.