LAB3 BEST CODE

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	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
in0	11	11	11	11	10	00	10	00	00	00	10	00	01	00	01	00	11	11	11	11	10	00	00	00
in1	00	00	10	00	10	00	01	00	11	11	11	11	00	00	10	00	11	11	11	11	00	00	01	00
in2	11	11	11	11	01	00	01	00	00	00	00	00	10	00	00	00	11	11	11	11	10	00	00	00
in3	11	11	11	11	10	00	10	00	11	11	11	11	00	00	10	00	00	00	10	00	01	00	01	00

題目複習: 地圖產生規則

- 8格一個循環
- 前4格有1~3輛火車
- 2,4,6格會有0~4個障礙物

題目複習: 人物移動規則

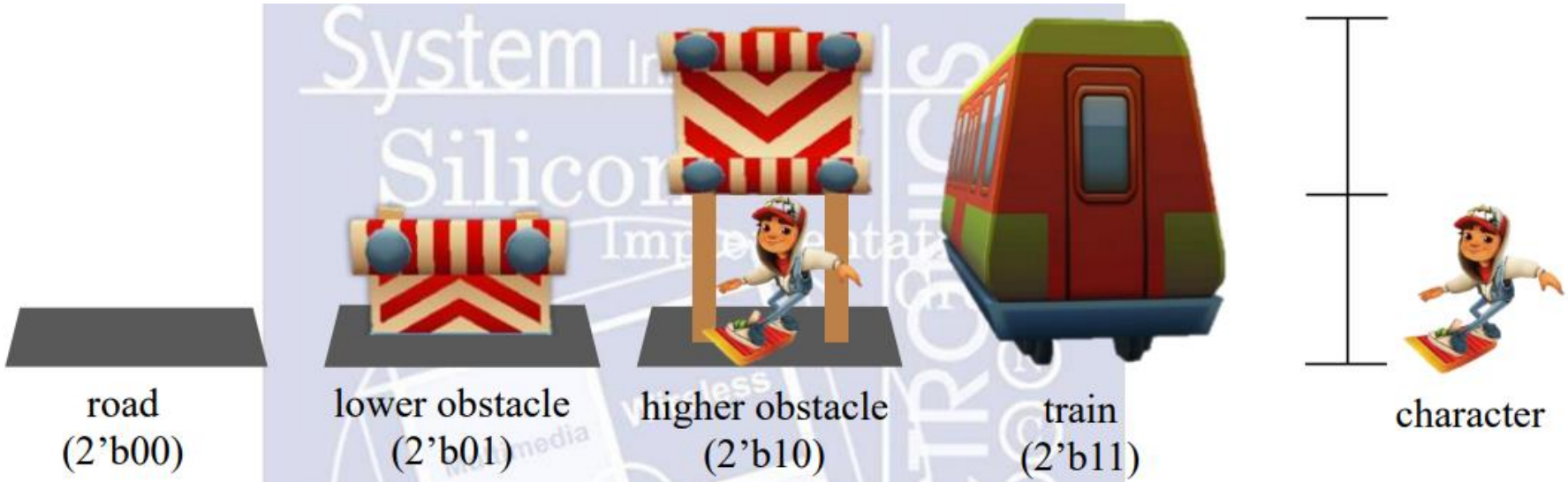


Fig.4 Four types of objects and the height of character

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
in0	11	11	11	11	10	00	10	00	00	00	10	00	01	00	01	00	11	11	11	11	10	00	00	00
in1	00	00	10	00	10	00	01	00	11	11	11	11	00	00	10	00	11	11	11	11	00	00	01	00
in2	11	11	11	11	01	00	01	00	00	00	00	00	10	00	00	00	11	11	11	11	10	00	00	00
in3	11	11	11	11	10	00	10	00	11	11	11	11	00	00	10	00	00	00	10	00	01	00	01	00

設計思路

11	11	11	10	00	10	00	00
00	10	00	10	00	01	00	11
11	11	11	01	00	01	00	00
11	11	11	10	00	10	00	11
1	2	3	4	5	6	7	8

設計思路

- 轉彎: 4=>5，6=>7，7=>8
- 其他: 01跳, 00、10直走

11	11	11	10	00	10	00	00
00	10	00	10	00	01	00	11
11	11	11	01	00	01	00	00
11	11	11	10	00	10	00	11
1	2	3	4	5	6	7	8

需要儲存的東西

4*3*1+2=14bit

- 2、4、6障礙物

```
else if(process_counter_FIFO_flag==1 & (process_counter==2|process_counter==4|process_counter==6)) begin
    my_FIFO[0][0] <= in0[0];
    my_FIFO[1][0] <= in1[0];
    my_FIFO[2][0] <= in2[0];
    my_FIFO[3][0] <= in3[0];
    for (j=1; j<3; j=j+1) begin
        my_FIFO[0][j] <= my_FIFO[0][j-1];
        my_FIFO[1][j] <= my_FIFO[1][j-1];
        my_FIFO[2][j] <= my_FIFO[2][j-1];
        my_FIFO[3][j] <= my_FIFO[3][j-1];
    end
end
```

- 出口位置

```
assign m1 = curr_row_num-1;
assign m2 = curr_row_num-2;
assign m3 = curr_row_num-3;
```

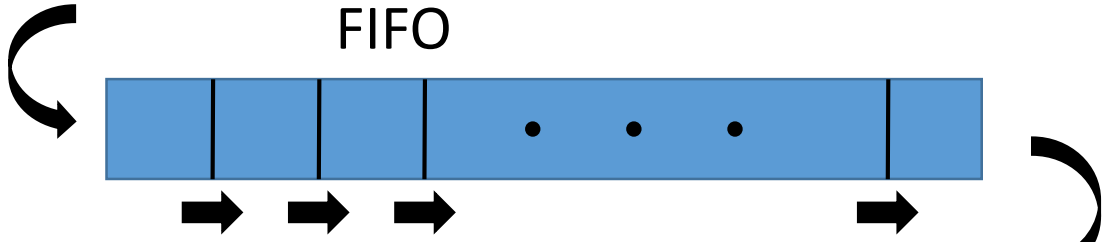
```
else if (process_counter==8 &next_state==STORE_PROCESS) begin
    if(curr_input[curr_row_num]==0)
        end_row_num <= curr_row_num;
    else if(curr_input[m1]==0)
        end_row_num <= m1;
    else if(curr_input[m3]==0)
        end_row_num <= m3;
    else
        end_row_num <= m2;
end
```

11	11	11	10	00	10	00	00
00	10	00	10	00	01	00	11
11	11	11	01	00	01	00	00
11	11	11	10	00	10	00	11
1	2	3	4	5	6	7	8

- 轉彎: 4=>5, 6=>7, 7=>8
- 其他: 01跳, 00、10直走

開始運算


```
assign right_flag = curr_row_num < end_row_num;
assign left_flag = curr_row_num > end_row_num;
```



63-8=55
55*2=110bit


你敢不敢再客家一点

63-8=55
55*2=110bit

21*2=42
21*1=21
42+21=63bit

```
if (process_counter==5 | process_counter==7 | process_counter==8) begin
    for (i=0;i<20;i=i+1)
        movement_array_roads[i] <= movement_array_roads[i+1];
    if(right_flag) begin
        movement_array_roads[20] <= 2'd1;
        curr_row_num <= curr_row_num+1;
    end
    else if (left_flag) begin
        movement_array_roads[20] <= 2'd2;
        curr_row_num <= curr_row_num-1;
    end
    else
        movement_array_roads[20] <= 2'd0;
end
else if (process_counter[0]==0) begin
    for (i=0;i<20;i=i+1)
        movement_array_obstacles[i] <= movement_array_obstacles[i+1];
    if(next_col[curr_row_num]==1)
        movement_array_obstacles[20] <= 1;//jump
    else
        movement_array_obstacles[20] <= 0;
end
```

THE END

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