Lab4:Flappy

Codes

The interrupt part

```
        .ORIG   x2000

LOOP1   LDI R2,KBSR
        BRzp    LOOP1
        LDI R0,KBDR
        ADD R3,R3,#0
        BRz T0
        ADD R3,R3,#-1
        LD  R4,DOT_n
        ADD R4,R4,R0
        BRz EXIT
        STI R0,ADDR0
        AND R1,R1,#0
        ADD R1,R1,R3
EXIT    RTI
T0      LD  R4,DIV
        ADD R4,R4,R0
        BRnz    NUM
        STI R0,ADDR0
        RTI
NUM     ADD R4,R4,#9
        NOT R4,R4
        ADD R1,R1,R4
        LD  R4,LIM
        ADD R4,R4,R1
        BRp     BACK
        LD  R1,LIM_n
BACK    RTI


        STI R0,ADDR0
        RTI
LIM     .FILL   #18
LIM_n   .FILL   #-18
DIV     .FILL   #-57
DOT_n   .FILL   #-46
KBSR    .FILL   xFE00
KBDR    .FILL   xFE02
ADDR0   .FILL   x3200
        .END
```

Requirements

- Write program with LC-3 assembly language
- Start your User program at x3000
  - Is it the only fragment you need?
- Print 20 chars each line, and use . for air
- Falling to gound (the leftmost side) won't end the game
- Flying too high (right) is not allowed. Just put the bird on the rightmost side if it fly out of the screen
- Input only consists of 1 - 9 and a - z
- It is recommended to put your interrupt routine on x2000(consider why?)
- Delay for a short time (a loop maybe) between two lines so that our eyes can keep up with the output

Algorithm

We simply design a module to judge what has been input to decide what action to be taken next.

Q&A

Q:What's the difference of the TRAP and interrupt?
A:The difference is the process and the postion of the program.

THoughts

The first time to use the interrupt in order to implement the program, many things to learn.