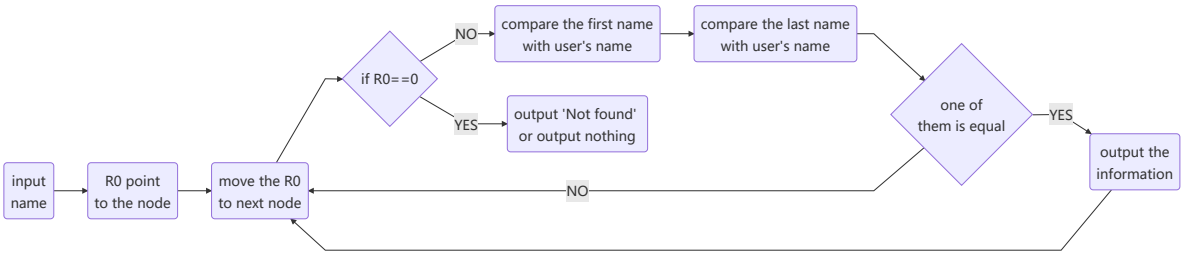
Lab2 Report

Chart



code

```
;this part is to input the name
LOOP1   trap x20  ; get a ascii into R0
        trap x21  ; put the ascii
        STR R0,R1,#0    ;put r0 into the address of users' name
        ADD R1,R1,#1
        LD  R2,Enter
        ADD R2,R0,R2    ;if ascii is x000A , then finish the inputs
        BRz Process
        BRnzp LOOP1
```

```
;; this function is to eliminate the space in front of the name
Process LD R0,Name
        ADD R0,R0,#-1
Del_S   ADD R0,R0,#1
        LDR R2,R0,#0
        LD R1,Space
        ADD R1,R2,R1
        BRz Del_S       ; if the character is " ",then continue to eliminate
        ST R0,Name      ; update the new beginning of the string of users' name
        ADD R0,R0,#0
        BRnzp COMPARE
```

```
;this part is to compare the name
COMPARE LD R0,PTR     ;  r1<-x4000    make r0 equal to the head
LOOP2   LDR R0,R0,#0  ; node of link list   ;make r0 go to the next node
        ADD R0,R0,#0  ; jugde the node whether comes to an end
        BRz Break

        ST  R0,SaveR0  ; store the r0
        LDR R1,R0,#2   ; make r1 point to the first name
        LD  R2,Name    ; make r2 point to the users' name
        BRnzp JUDGE_F

NEXT_0  LD R0,SaveR0
        LDR R1,R0,#3  ; make r1 point to the last name
        LD  R2,Name
        BRnzp JUDGE_L

NEXT_1  LD R0,SaveR0
        ADD R5,R5,#0
        BRp Output    ; if r5 is positive ,then we should output the information
of this guy

NEXT_2  AND R5,R5,#0  ; initialize the flag r5
        BRnzp LOOP2

JUDGE_F LDR R3,R1,#0    ;R3 is the character of the first name
        LDR R4,R2,#0    ;R4 is the character of the users' name

        LD  R0,Space    ;check whether r4 is equal to " "
        ADD R0,R4,R0
        BRz judge_0     ;if r4 is " ",then we should check whether the first
name comes to an end

        LD  R0,Enter
        ADD R0,R4,R0    ;check whether r4 is equal to "\n"
        BRz judge_0     ;if r4 is "\n",then we should check whether the first
name comes to an end

        NOT R3,R3
        ADD R3,R3,#1
        ADD R4,R3,R4
        BRnp NEXT_0     ;check whether r3 equals to r4

        ADD R1,R1,#1    ;move on to next character
        ADD R2,R2,#1
        BRnzp JUDGE_F

JUDGE_L LDR R3,R1,#0
        LDR R4,R2,#0

        LD  R0,Space
        ADD R0,R4,R0
        BRz judge_0

        LD  R0,Enter
        ADD R0,R4,R0
        BRz judge_0

        NOT R3,R3
```

```
        ADD R3,R3,#1
        ADD R4,R3,R4
        BRnp NEXT_1

        ADD R1,R1,#1
        ADD R2,R2,#1
        BRnzp JUDGE_L

judge_0 ADD R3,R3,#0  ;check whether name comes to an end
        BRz change_R5
        BRnzp NEXT_1

change_R5   ADD R5,R5,#1  ; yes,then we make flag r5 equals to 1
            BRnzp NEXT_1
```

```
;this part is to output the information
Output  ST R0,SaveR0   ; output the first name
        LDR R0,R0,#2
        trap x22
        LEA R0,SPACE_OUTPUT
        trap x22
        LD R0,SaveR0

        ST R0,SaveR0  ; output the last name
        LDR R0,R0,#3
        trap x22
        LEA R0,SPACE_OUTPUT
        trap x22
        LD R0,SaveR0

        ST R0,SaveR0   ; output the room number
        LDR R0,R0,#1
        trap x22
        LEA R0,SPACE_OUTPUT
        trap x22
        LD R0,SaveR0

        ST R0,SaveR0   ; output the Enter
        LEA R0,Save_Enter
        trap x22
        LD R0,SaveR0

        AND R1,R1,#0   ;use r1 temporarily to store the information whether
there is corresponded answer
        ADD R1,R1,#1
        ST R1,SaveR1  ;if r1 is 1 ,then there is no need to output "Not Found"

        BRnzp NEXT_2

Break   LD R1,SaveR1
        ADD R1,R1,#0
        BRp EOF

        LEA R0,Not_F   ; if r1 equals to 0 ,then output "Not found"
        trap x22

EOF     Halt
```

Algorithm:

1. use a loop to input the name. if character is Enter ,then end the loop
2. eliminate the Space in front of the name ,for example " Yale"
3. make R0 as the list pointer. compare the two character ,when there isn't same ,then R0 moves to the next node. if the first name is same ,then make flag is 1 and output the information. if the first name isn't same ,then compare the last name.
4. when loop comes to an end ,then we check flag. if flag is 1,then we needn't output "Not found" and if flag is 0, we should output "Not found".

check

- TA: Do you think we can use LEA and LDR to replace LD?

  I: Yes.

  TA: Do you think we can use LEA and LDR to replace LDI?

  I: Yes.