Lab03　2017/11/13

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PURPOSE

This lab let us use ASSEMBLE language to write a program that can sort the data stored in two locations. To some degree ,it's a bit hard . Through this lab, so fluently of coding and deep understanding of the assemble language that I've gained.

Also, I feel a sense of achievement aftering the correct result appeared . THough it took me about two hour to accompilish this lab.

PRINCEPLE

Iinstructions I used are as follows

- LD
- LD
- LDR
- STR
- ADD
- NOT
- AND
- BR
- JSR
- RET

and **persudo-op**

- .FILL
- .ORIG
- .END

There are some beautiful subroutines I wrote to cooperate the programn to solve the problem.

- CMP:CMP MEM[R0],MEM[R1], SAVE RST IN R6
- EQBGN:CMP IF THE CONTENT OF R0 IF THE SRCEND,AND STORE THE RST IN R6

- WRITE:WRITE MEM[R1] TO MEM[R4] ,TWO LOCATION,AND MOVE THE HIGNEST SRC DATA (R5) TO THE POSITION OF MAX (R1)

PROCEDURE

Firstly ,I write a small programm to set the test case so that I won't waste too much time to set data mannually.

Then I wrote the programm with some subroutines concentrately .

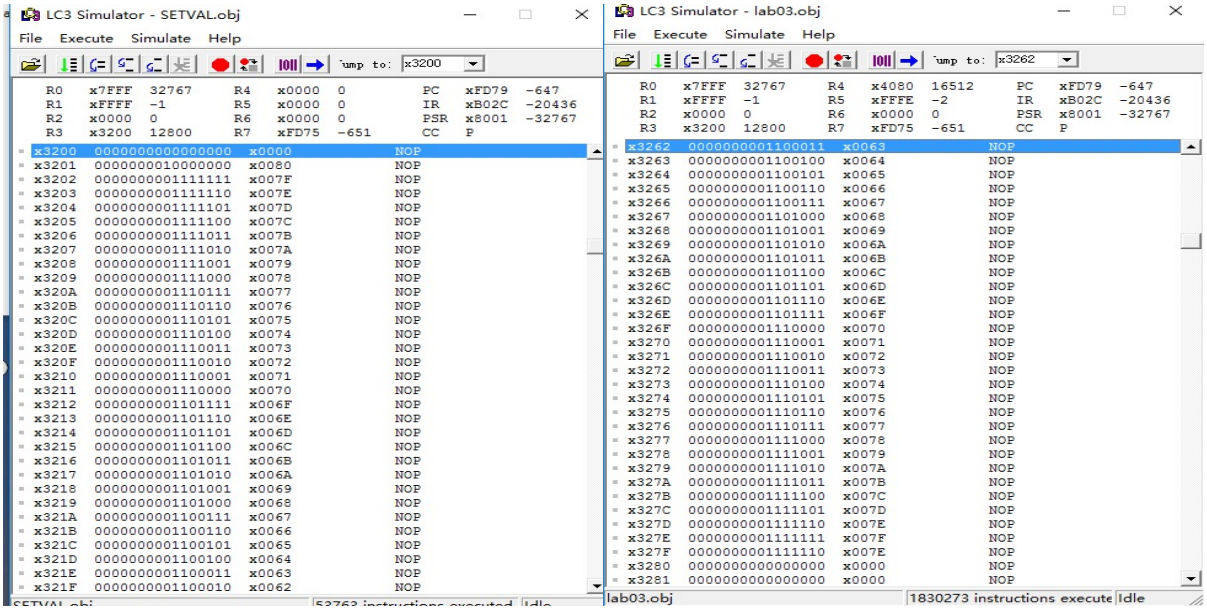
I learned the asemble language for some time. Then I quickly write the program . Three has been some problems when debugging.

I got some experience:

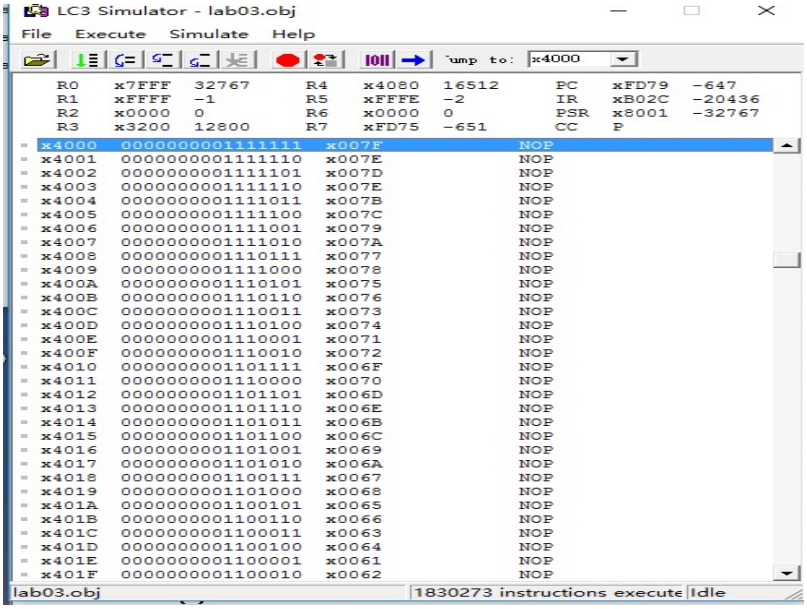
- Behind the persudo-op .ORIG ,threr must be a memory address
- Whatever the instruction is. it will be invalid when it 's after the persudo-op .END
- make full use of .STRINGZ

RESULT

Before executing the program:



After executing the program:



It works well. Through this lab , I learned a lot. Assemble language is so brief and useful.

ATTACHMENT

This is the small program to set the test data.

```
        .ORIG X3000
        LD R5,NUM
        LD R3,SRCBGN
        LD R1,NUM

TESTVAL ADD R0,R5,R3
        ADD R1,R1,#-1
        STR R1,R0,#0
        ADD R5,R5,#-1
        BRp TESTVAL


NUM     .FILL #127
SRCBGN  .FILL x3200

        HALT
        .END
```