Lab02

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1. PURPOSE

This lab let us use `ASSEMBLE` language to write programs. Through this experience, I can have a deep understanding of the ISA and use assemble language more proficiently.

Assemble language is interesting and more brief,friendly than machine language. I am willing to use assemble language to build programs.

2. PRINCEPLE

Iinstructions I used are as follows

- LD
- LDR
- STR
- ADD
- AND
- BR
- JSR
- RET

and `persudo-op`
.FILL

Some key points in this lab and solutions

key points	solution
control structure	if else if else
mul	add
compare	add,BR

Since there has no instrucitons for multiplication,SO I write a subroutine to calculate it. To achieve this ,I use addition. For example, to calculate a*b, you can add a for b times or add b for aa times.

3. PROCEDURE

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

Iuse R0 to store the result of R0*R1 , and I add R0 for R1 times. It's wrong ,since R0 has a value, I should add it for (`R1-1`) times.

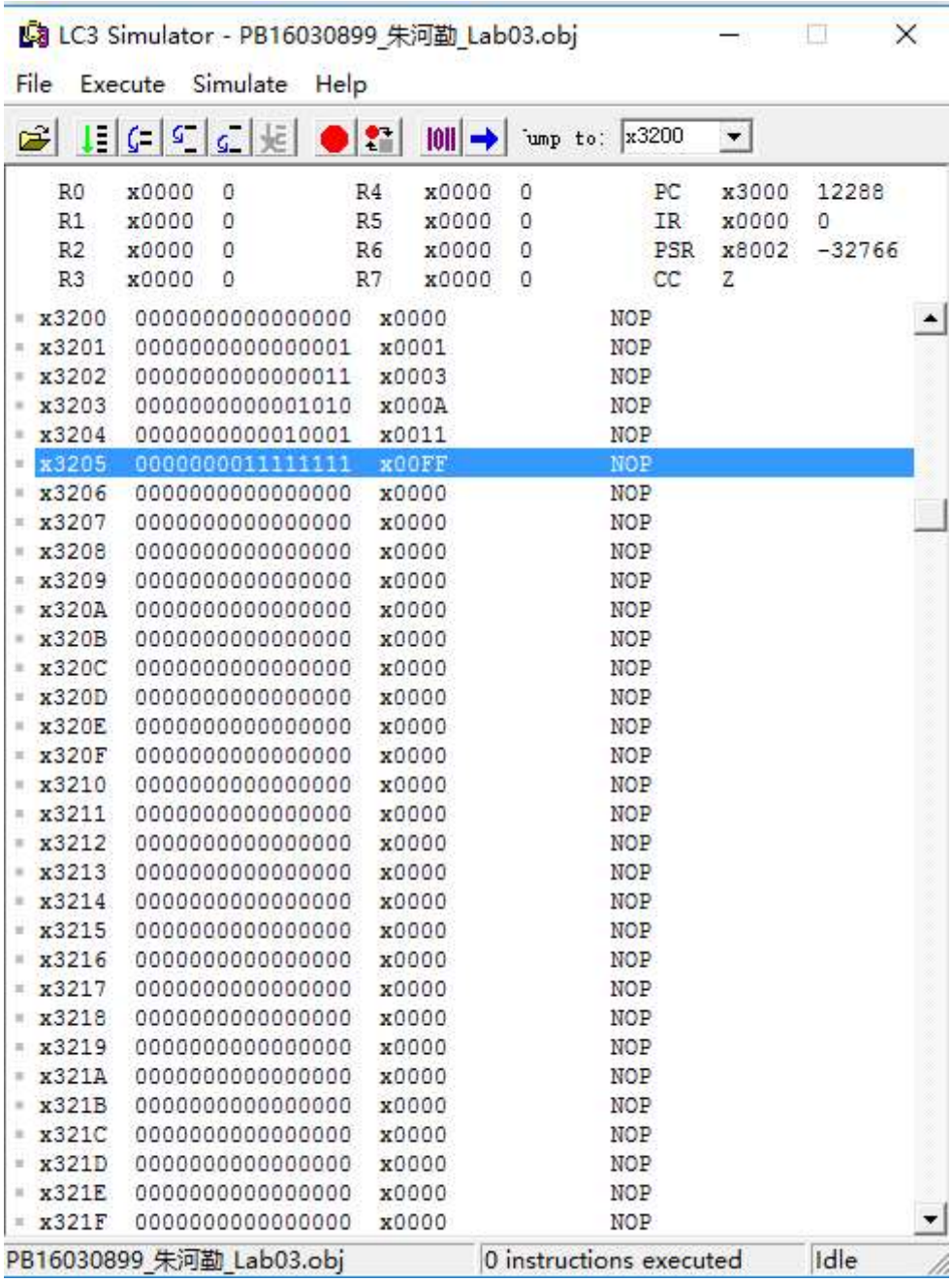
Another problem is the branch condition , it must be precise and correct.

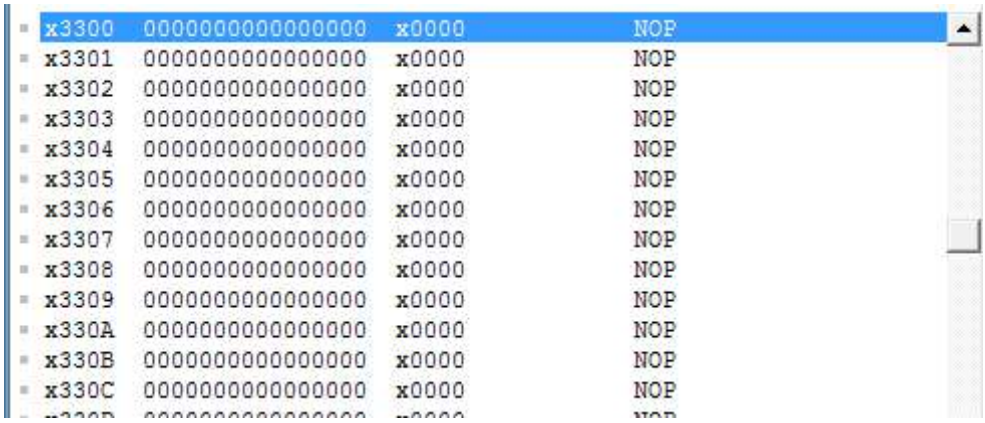
One annoying point is that the LC-editor doesn't display the line number , so it's troublesome to locate the line which has errors.

Also, the `o` and `0` are too similar inshape. You caneasily recognize one of them as another.

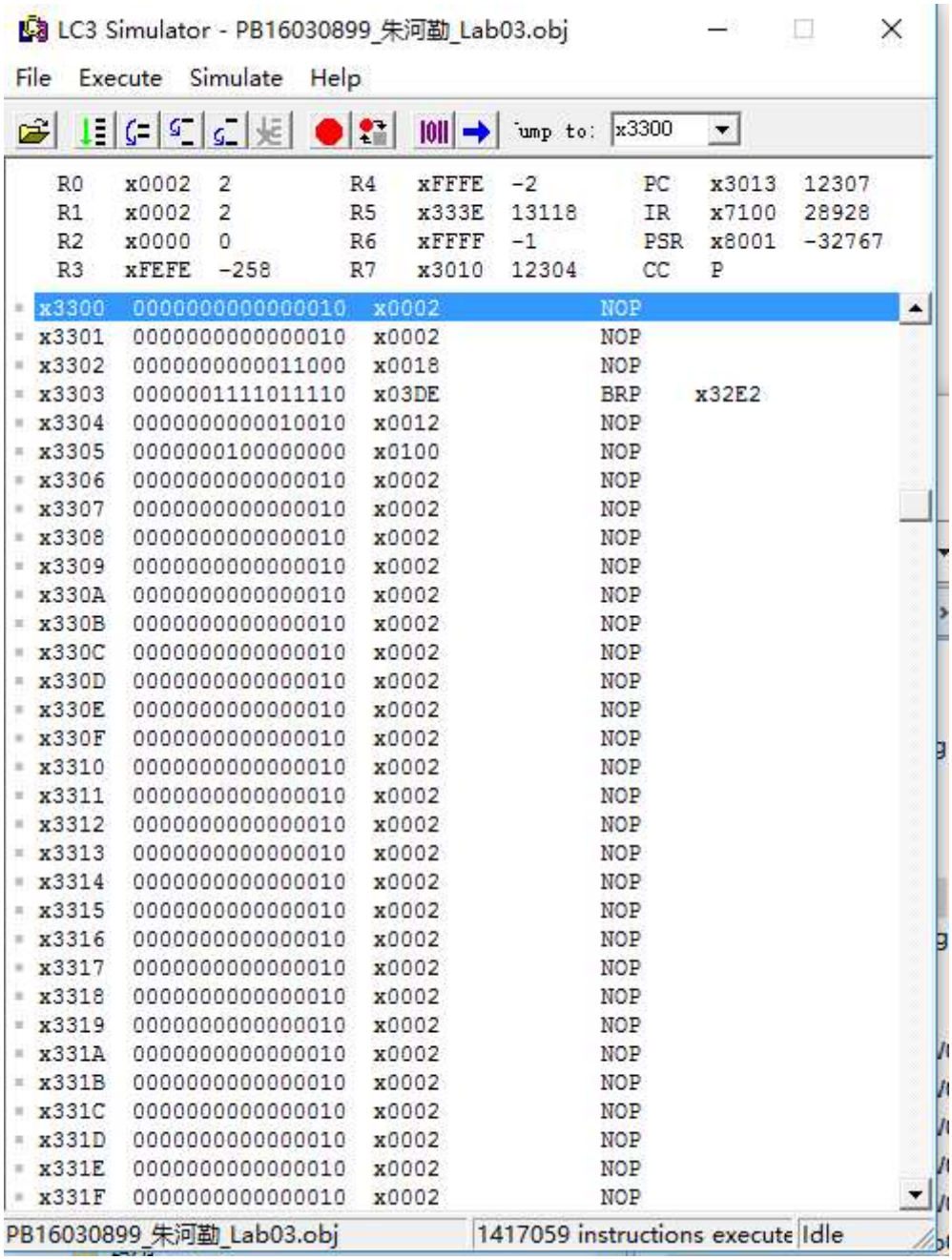
4. RESULT

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.