

Lab01

Counting how many 1

Your Job: In this assignment, you are asked to write a program in LC-3 machine language that counts how many 1 are in the lower B bits of a given number A, and stores the output in memory.

For Example:

Here are several examples:

Number	A	Bit	B	Output
13	in(x3100)	3	in(x3101)	x0002 in(x3102)
167	in(x3100)	6	in(x3101)	x0004 in(x3102)
32767	in(x3100)	15	in(x3101)	x000F in(x3102)

Your program should start at memory location **x3000**. The value of the *A* and *B* should be set **manually** in **x3100** and **x3101** respectively (Therefore, you can use LD or other instructions to load *A* and *B* from memory to registers). You may assume that *A* is a positive number ranging from **0x0001** to **0x7FFF**. Your program should store the output in **x3102**.

Attention:

1. Your zip file should contain at least two files:
.bin file and **report in pdf format**.
As for the subject name, please refer to the notice on the course web page.
2. Your report should contain at least four parts:
the purpose, principles, procedure, and result.
Well-written will bring you a high score.