Lab03

<u>**Sorting**</u>

Background: There are 64 students. Each has a **_unique_** ID, which consists of two integer. Given $ID_1 = (a_1, a_2)$ and $ID_2 = (b_1, b_2)$, then

If $a_1 > b_1$, then $ID_1 > ID_2$;

If $a_1 = b_1$, then:

If $a_2 > b_2$, then $ID_1 > ID_2$;

If $a_2 = b_2$, then $ID_1 = ID_2$;

If $a_2 < b_2$, then $ID_1 < ID_2$;

If $a_1 < b_1$, then $ID_1 < ID_2$.

Your job: Write a program in assembly language to sort student IDs. Your program should start at x3000.

Program input: The unsorted IDs of all 64 students. The numbers in IDs are between -256 and 256, and represented as 16-bit **_signed_** integers. The ID list is stored in 128 consecutive memory locations – two locations per ID -- starting at address x3200. The last ID is at location x327E and x327F. Make no assumptions about the ordering of the IDs. All IDs are unique (no two IDs can be the same).

Program output: The sorted IDs of all 64 students. The IDs must be sorted in **_descending_** order stored in consecutive memory locations -- two locations per ID -- starting at address x4000.

Note: Test your program thoroughly before you submit. Make sure there are no silly mistakes. Please note that there will be NO regrades for this programming lab under any circumstances.

Attention:

1. **Your zip file should contain at least two files:**

   .asm file and report in pdf format.

   As submission format, please refer to the notice on course web page.

2. Your report should contain at least four parts:

   purpose, principles, procedure and result.

   Well written will bring you a high score.