安徽大学人工智能学院
实验报告

课程名称：　《计算机组成原理与汇编语言》

专　　业：　　　　人工智能

学　　号：　　　WA2214014

姓　　名：　　　　杨跃浙

指导老师：　　　　杜库

实验项目	实验 10-第十次上机实验			实验次序	10
实验地点	笃行南楼 A104	参与人员	杨跃浙	实验日期	06.12

一、实验目的

汇编语言程序设计

二、实验环境

Windows 2011，DOSBox

三、实验内容

1、比较数组对应位并分大小存放

题目描述

有 2 个数组:

ary1 db 12,-35,0,126,-90,-5,68,120,1,-19

ary2 db 24,25,0,-38,-89,99,68,100,2,-20

比较两个数组的对应位，将大的数放在 ary1 数组中，小的数放在 ary2 中

```
1    data segment
2        ary1 db 12,-35,0,126,-90,-5,68,120,1,-19
3        ary2 db 24,25,0,-38,-89,99,68,100,2,-20
4    data ends
5
6    code segment
7    assume cs:code, ds:data
8
9    start:
10       mov   ax, data
11       mov   ds, ax
12
13       mov   cx, 10
14       mov   si, 0
15       mov   di, 0
16
17   compare:
18       mov   al, ary1[si]
19       mov   bl, ary2[di]
20
21       cmp   al, bl
22       jg    In_ary1
23
24       mov   ary1[si], bl
25       mov   ary2[di], al
26       jmp   next
27
28   In_ary1:
29       mov   ary1[si], al
30       mov   ary2[di], bl
31
32   next:
33       inc   si
34       inc   di
35       loop  compare
36
37       mov   ax, 4C00h
38       int   21h
39
40   code ends
41   end start
42
```

```
076C:0036 ED          IN      AX,DX
076C:0037 00C4        ADD     AH,AL
076C:0039 5E          POP     SI
076C:003A FC          CLD
076C:003B 26          ES:
076C:003C 8A470C      MOV     AL,[BX+0C]
076C:003F 2AE4        SUB     AH,AH
076C:0041 40          INC     AX
076C:0042 50          PUSH    AX
076C:0043 8BC3        MOV     AX,BX
-g 0031

AX=07ED  BX=00EC   CX=0000  DX=0000  SP=0000   BP=0000  SI=000A  DI=000A
DS=076A  ES=075A   SS=0769  CS=076C  IP=0031   NV UP EI PL NZ NA PE NC
076C:0031 B8004C      MOV     AX,4C00
-d 076A:0000
076A:0000  18 19 00 7E A7 63 44 78-02 ED 0C DD 00 DA A6 FB   ...~.cDx........
076A:0010  44 64 01 EC 00 00 00 00-00 00 00 00 00 00 00 00   Dd..............
076A:0020  B8 6A 07 8E D8 B9 0A 00-BE 00 00 BF 00 00 8A 84   .j..............
076A:0030  00 00 8A 9D 0A 00 3A C3-7F 0B 88 9C 00 00 88 85   ......:.........
076A:0040  0A 00 EB 09 90 88 84 00-00 88 9D 0A 00 46 47 E2   .............FG.
076A:0050  DD B8 00 4C CD 21 ED 00-C4 5E FC 26 8A 47 0C 2A   ...L.!...^.&.G.*
076A:0060  E4 40 50 8B C3 8C C2 05-0C 00 52 50 E8 C1 48 83   .@P.......RP..H.
076A:0070  C4 04 50 8D 86 FA FE 50-E8 17 73 83 C4 06 8B B6   ..P....P..s.....
```

2、**题目描述**

在字节数组中找出第一个负数，并将该负数存入 RES 单元中；假设该数组中包含 20 个带符号数，且至少有 1 个负数。

DATA SEGMENT
      RES DB ?
      BUF DB 2,3,9,-4,8,6,0,3,-3,-4,8,7,9,2,3,5,-9,4,5,8
      COUNT EQU 20   ;题目要求 20 个带符号数，直接存诚 20
DATA ENDS
CODE SEGMENT
      ASSUME CS:CODE,DS:DATA

```asm
1  DATA SEGMENT
2      RES DB ?
3      BUF DB 2,3,9,-4,8,6,0,3,-3,-4,8,7,9,2,3,5,-9,4,5,8
4      COUNT EQU 20
5  DATA ENDS
6
7  CODE SEGMENT
8      ASSUME CS:CODE,DS:DATA
9
10 start:
11     mov ax, data
12     mov ds, ax
13     mov cx, count
14     mov si, 0
15
16 negative:
17     mov al, BUF[si]
18     cmp al, 0
19     jl result
20     inc si
21     loop negative
22 result:
23     mov RES, al
24     mov ax, 4C00H
25     int 21H
26
27 CODE ENDS
28 END START
29
```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DEBUG — □ ×

```
LINK : warning L4021: no stack segment

C:\>

C:\>debug 10_2.exe
-u
076C:0000 B86A07        MOV     AX,076A
076C:0003 8ED8          MOV     DS,AX
076C:0005 B91400        MOV     CX,0014
076C:0008 BE0000        MOV     SI,0000
076C:000B 8A840100      MOV     AL,[SI+0001]
076C:000F 3C00          CMP     AL,00
076C:0011 7C03          JL      0016
076C:0013 46            INC     SI
076C:0014 E2F5          LOOP    000B
076C:0016 A20000        MOV     [0000],AL
076C:0019 B8004C        MOV     AX,4C00
076C:001C CD21          INT     21
076C:001E 050C00        ADD     AX,000C
-g 0019

AX=07FC  BX=0000  CX=0011  DX=0000  SP=0000  BP=0000  SI=0003  DI=0000
DS=076A  ES=075A  SS=0769  CS=076C  IP=0019   NV UP EI NG NZ NA PE NC
076C:0019 B8004C        MOV     AX,4C00
-_
```