

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 3- 第三次上机实验			实验次序	03
实验地点	笃行南楼 A104	参与人员	杨跃浙	实验日期	4.24

一、实验目的

编程，向内存 0: 200 – 0: 23F 依次传送数据 0 – 63 (3FH) 。

掌握循环语句 LOOP

程序运行一次后，在 debug 中查看 0:200- 0:23F 是否填入了指定数据

Debug

D 0:200 ； 应看到已填入了指定的数据

```

X:\>debug
-d 0:200
0000:0200  00 01 02 03 04 05 06 07-08 09 0A 0B 0C 0D 0E 0F  .....
0000:0210  10 11 12 13 14 15 16 17-18 19 1A 1B 1C 1D 1E 1F  .....
0000:0220  20 21 22 23 24 25 26 27-28 29 2A 2B 2C 2D 2E 2F  !"#$/&'()*+,-./
0000:0230  30 31 32 33 34 35 36 37-38 39 3A 3B 3C 3D 3E 3F  0123456789:;<=>?
0000:0240  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  .....
0000:0250  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  .....
0000:0260  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  .....
0000:0270  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  .....

```

2.编程输出 41H – 5AH ASCII 码所对应的英文字母

本例使用了 21H 中断的 02 号子功能，输出 DL 中 ASCII 码所对应的字符。程序运行后应输出 ABCDE…XYZ 共 26 个大写英文字符

```

X:\>ascii
ABCDEFGHIJKLMN O PQRSTU VWXYZ

```

将上面的程序修改一下，增加输出 30H- 39H , 61H- 7AH 这两个区间所对应的 ASCII 码。

二、实验内容

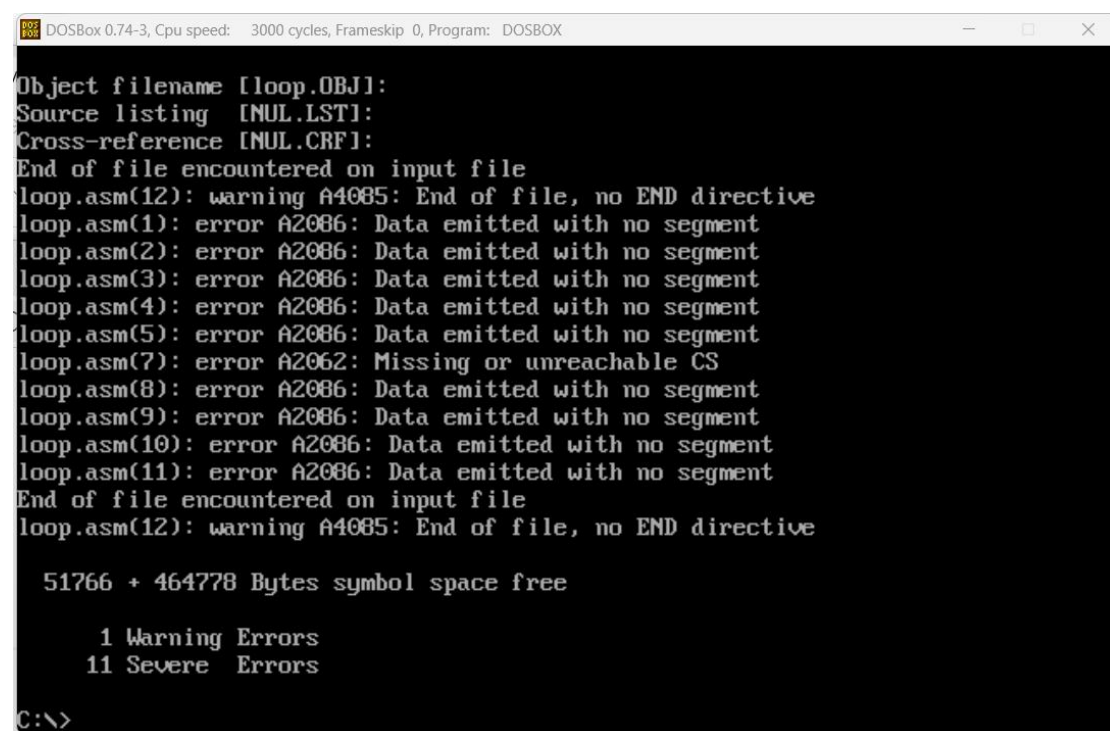
1.编程，向内存 0: 200 – 0: 23F 依次传送数据 0 – 63 (3FH) 。

掌握循环语句 LOOP

程序运行一次后，在 debug 中查看 0:200- 0:23F 是否填入了指定数据

Debug

调试过程:



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX

Object filename [loop.OBJ]:
Source listing [NUL.LST]:
Cross-reference [NUL.CRF]:
End of file encountered on input file
loop.asm(12): warning A4085: End of file, no END directive
loop.asm(1): error A2086: Data emitted with no segment
loop.asm(2): error A2086: Data emitted with no segment
loop.asm(3): error A2086: Data emitted with no segment
loop.asm(4): error A2086: Data emitted with no segment
loop.asm(5): error A2086: Data emitted with no segment
loop.asm(7): error A2062: Missing or unreachable CS
loop.asm(8): error A2086: Data emitted with no segment
loop.asm(9): error A2086: Data emitted with no segment
loop.asm(10): error A2086: Data emitted with no segment
loop.asm(11): error A2086: Data emitted with no segment
End of file encountered on input file
loop.asm(12): warning A4085: End of file, no END directive

51766 + 464778 Bytes symbol space free

1 Warning Errors
11 Severe Errors

C:\>
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: LOOP
C:\>masm loop.asm
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.

Object filename [loop.OBJ]:
Source listing [NUL.LST]:
Cross-reference [NUL.CRF]:

51722 + 464822 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>link loop.obj

Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

Run File [LOOP.EXE]:
List File [NUL.MAP]:
Libraries [.LIB]:
LINK : warning L4021: no stack segment

C:\>loop.exe

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DEBUG
0 Severe Errors

C:\>LINK LOOP.OBJ

Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

Run File [LOOP.EXE]:
List File [NUL.MAP]:
Libraries [.LIB]:
LINK : warning L4021: no stack segment

C:\>LOOP.EXE

C:\>debug
-d 0:200
0000:0200 00 01 02 03 04 05 06 07-08 09 0A 0B 0C 0D 0E 0F .....
0000:0210 10 11 12 13 14 15 16 17-18 19 1A 1B 1C 1D 1E 1F .....
0000:0220 20 21 22 23 24 25 26 27-28 29 2A 2B 2C 2D 2E 2F !"#$%&'()*+,-./
0000:0230 30 31 32 33 34 35 36 37-38 39 3A 3B 3C 3D 3E 3F 0123456789:;<=>?
0000:0240 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 .....
0000:0250 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 .....
0000:0260 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 .....
0000:0270 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 .....
-
```

代码:

```
1 data segment
2 data ends
3 code segment
4 assume cs:code,ds:data
5 start:
6     MOV AX, 0
7     MOV DS, AX
8     MOV BX, 0200H
9     MOV CX, 40H
10    XOR DI, DI
11
12 A:
13    MOV [BX], DI
14    INC DI
15    INC BX
16    LOOP A
17    MOV AH, 4CH
18    INT 21H
19 code ends
20 end start
```

2.编程输出 41H – 5AH ASCII 码所对应的英文字母

本例使用了 21H 中断的 02 号子功能，输出 DL 中 ASCII 码所对应的字符。程序运行后应输出 ABCDE…XYZ 共 26 个大写英文字符
调试过程:

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX

Object filename [ASC.OBJ]:
Source listing [NUL.LST]:
Cross-reference [NUL.CRF]:

51770 + 464774 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>

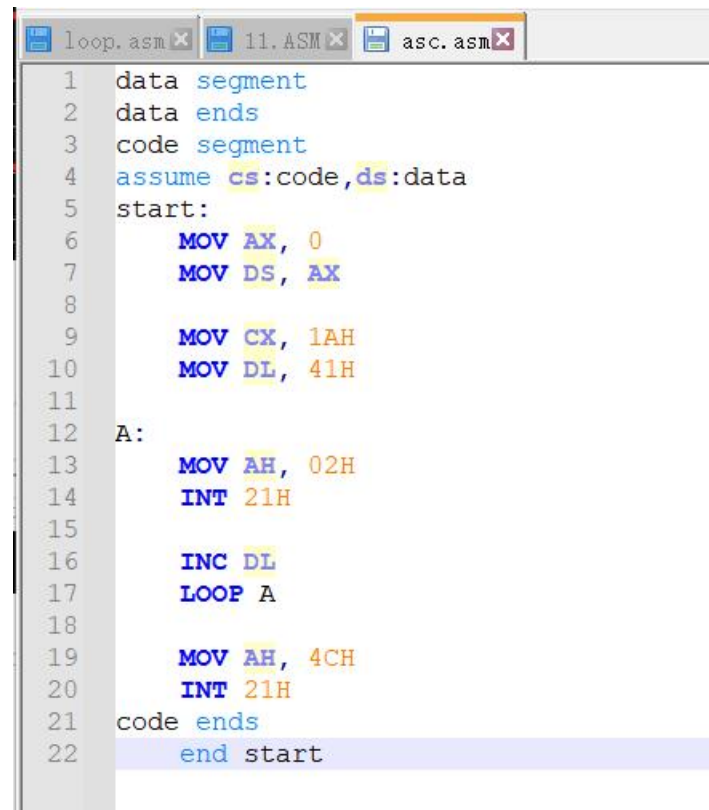
C:\>LINK ASC.OBJ

Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

Run File [ASC.EXE]:
List File [NUL.MAP]:
Libraries [.LIB]:
LINK : warning L4021: no stack segment

C:\>ASC.EXE
ABCDEFGHIJKLMNOPQRSTUVWXYZ
C:\>_
```

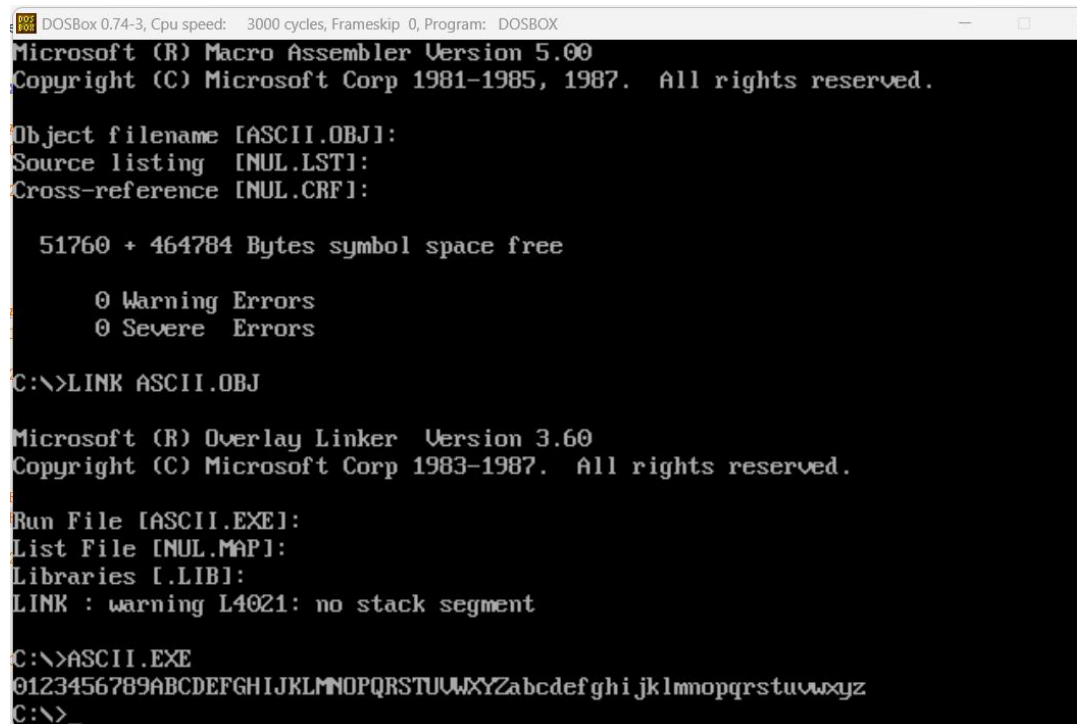
代码:



```
1 data segment
2 data ends
3 code segment
4 assume cs:code,ds:data
5 start:
6     MOV AX, 0
7     MOV DS, AX
8
9     MOV CX, 1AH
10    MOV DL, 41H
11
12 A:
13    MOV AH, 02H
14    INT 21H
15
16    INC DL
17    LOOP A
18
19    MOV AH, 4CH
20    INT 21H
21 code ends
22 end start
```

修改代码: 将上面的程序修改一下, 增加输出 30H- 39H , 61H- 7AH 这两个区间所对应的 ASCII 码。

调试过程:



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.

Object filename [ASCII.OBJ]:
Source listing [NUL.LST]:
Cross-reference [NUL.CRF]:

51760 + 464784 Bytes symbol space free

0 Warning Errors
0 Severe Errors

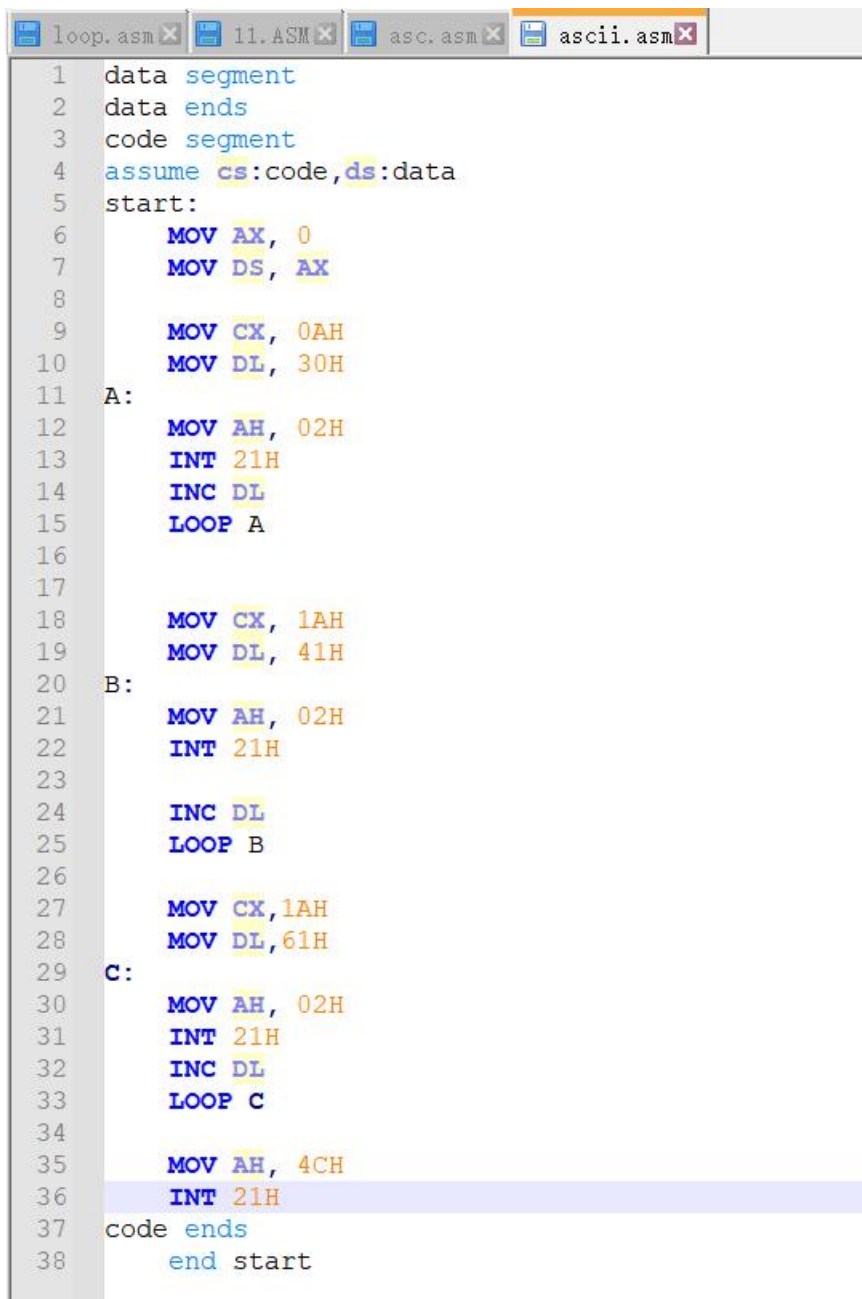
C:\>LINK ASCII.OBJ

Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

Run File [ASCII.EXE]:
List File [NUL.MAP]:
Libraries [.LIB]:
LINK : warning L4021: no stack segment

C:\>ASCII.EXE
0123456789ABCDEFGHIJKLMN0PQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
C:\>_
```

代码:



```
1 data segment
2 data ends
3 code segment
4 assume cs:code,ds:data
5 start:
6     MOV AX, 0
7     MOV DS, AX
8
9     MOV CX, 0AH
10    MOV DL, 30H
11 A:
12    MOV AH, 02H
13    INT 21H
14    INC DL
15    LOOP A
16
17
18    MOV CX, 1AH
19    MOV DL, 41H
20 B:
21    MOV AH, 02H
22    INT 21H
23
24    INC DL
25    LOOP B
26
27    MOV CX, 1AH
28    MOV DL, 61H
29 C:
30    MOV AH, 02H
31    INT 21H
32    INC DL
33    LOOP C
34
35    MOV AH, 4CH
36    INT 21H
37 code ends
38 end start
```