

```
0001 .model small
0002 .stack 100h
0003 .data
0004     prompt db 'Enter a number <1-4>: $'
0005     newline db 0Dh, 0Ah, '$'
0006     input db ?
0007     msg1 db 'a-z:$'
0008     msg2 db 'z-a:$'
0009     msg3 db 'A-Z:$'
0010     msg4 db 'Z-A:$'
0011
0012 .code
0013 main proc
0014     mov ax, @data
0015     mov ds, ax
0016
0017
0018     mov dx, offset prompt
0019     mov ah, 09h
0020     int 21h
0021
0022     mov ah, 01h
0023     int 21h
0024     sub al, '0'
0025     mov input, al
0026
0027
0028     mov dx, offset newline
0029     mov ah, 09h
0030     int 21h
0031
0032
0033     mov al, input
0034     cmp al, 1
0035     je a-z ;a-z
0036     cmp al, 2
0037     je AtoZ ;A-Z
0038     cmp al, 3
0039     je z-a ;z-a
0040     cmp al, 4
0041     je ZtoA ;Z-A
0042     jmp end_program
0043
0044 a-z:
0045     mov dx, offset msg1
0046     mov ah, 09h
0047     int 21h
0048     mov al, 'a'
0049 l1:
0050     mov dl, al
0051     mov ah, 02h
0052     int 21h
0053     inc al
0054     cmp al, 'z' + 1
0055     jne l1
0056     jmp end_program
0057
0058 AtoZ:
0059     mov dx, offset msg3
0060     mov ah, 09h
0061     int 21h
0062     mov al, 'A'
0063     jmp l1
0064
0065 end_program
0066     ret
```



```
041 je ZtoA ;Z-A
042 jmp end_program
043
044 a-z:
045 mov dx, offset msg1
046 mov ah, 09h
047 int 21h
048 mov al, 'a'
049 l1:
050 mov dl, al
051 mov ah, 02h
052 int 21h
053 inc al
054 cmp al, 'z' + 1
055 jne l1
056 jmp end_program
057
```

emulator: lab 5.exe

file math debug view external virtual devices virtual drive help

Load reload step back single step run step delay ms: 0

registers

	H	L
AX	4C	00
BX	00	00
CX	01	C9
DX	00	17
CS	F400	
IP	0204	
SS	0710	
SP	00FA	
BP	0000	
SI	0000	
DI	0000	
DS	0720	
ES	0700	

F400:0204				F400:0204			
F4200:	FF	255	RES	BIOS DI			
F4201:	FF	255	RES	INT 021h			
F4202:	CD	205	=	I RET			
F4203:	21	033	!	ADD [BX + SI], AL			
F4204:	CF	207	!	ADD [BX + SI], AL			
F4205:	00	000	NULL	ADD [BX + SI], AL			
F4206:	00	000	NULL	ADD [BX + SI], AL			
F4207:	00	000	NULL	ADD [BX + SI], AL			
F4208:	00	000	NULL	ADD [BX + SI], AL			
F4209:	00	000	NULL	ADD [BX + SI], AL			
F420A:	00	000	NULL	ADD [BX + SI], AL			
F420B:	00	000	NULL	ADD [BX + SI], AL			
F420C:	00	000	NULL	ADD [BX + SI], AL			
F420D:	00	000	NULL	ADD [BX + SI], AL			
F420E:	00	000	NULL	ADD [BX + SI], AL			
F420F:	00	000	NULL	ADD [BX + SI], AL			
F4210:	00	000	NULL	ADD [BX + SI], AL			
F4211:	00	000	NULL	ADD [BX + SI], AL			
F4212:	00	000	NULL	ADD [BX + SI], AL			
F4213:	00	000	NULL	ADD [BX + SI], AL			
F4214:	00	000	NULL	ADD [BX + SI], AL			
F4215:	00	000	NULL	...			

screen source reset aux vars debug stack flags

```
094 int 21h
095 dec al
096 cmp al, 'A' - 1
097 jne l4
098 jmp end_program
099
```

original source co...

```
088 mov ah, 09h
089 int 21h
090 mov al, 'Z'
091 l4:
092 mov dl, al
093 mov ah, 02h
094 int 21h
095 dec al
096 cmp al, 'A' - 1
097 jne l4
098 jmp end_program
099
100 end_program:
101 mov dx, offset newline
102 mov ah, 09h
103 int 21h
104 mov ax, 4C00h
105 int 21h
```

emulator screen (92x29 chars)

Enter a number (1-4): 1
a-z:abcdefghijklmnopqrstuvwxyz

clear screen

change font

0/16


```
0094         int 21h
0095         dec al
0096         cmp al, 'A' - 1
0097         jne 14
0098         jmp end_program
0099
0100 ;;; program end
```

```

0088 mov ah, 09h
0089 int 21h
0090 mov al, 'Z'
0091 l4:
0092 mov dl, al
0093 mov ah, 02h
0094 int 21h
0095 dec al
0096 cmp al, 'A' - 1
0097 jne l4
0098 jmp end_program
0099
0100 end_program:
0101 mov dx, offset newline
0102 mov ah, 09h
0103 int 21h
0104 mov ax, 4C00h
0105 int 21h

```

clear screen change font 0/16


```

041      je ZtoA ;Z-A
042      jmp end_program
043
044      a-z:
045      mov dx, offset msg1
046      mov ah, 09h
047      int 21h
048      mov al, 'a'
049      l1:
050          mov dl, al
051          mov ah, 02h
052          int 21h
053          inc al
054          cmp al, 'z' + 1
055          jne l1
056      jmp end_program
057

```

```

0088 mov ah, 09h
0089 int 21h
0090 mov al, 'Z'
0091 l4:
0092 mov dl, al
0093 mov ah, 02h
0094 int 21h
0095 dec al
0096 cmp al, 'A' - 1
0097 jne l4
0098 jmp end_program
0099
0100 end_program:
0101 mov dx, offset newline
0102 mov ah, 09h
0103 int 21h
0104 mov ax, 4C00h
0105 int 21h

```

[illegible]

```
094      int 21h
095      dec al
096      cmp al, 'A' - 1
097      jne l4
098      jmp end_program
099
400
```

```
Enter a number (1-4): 3
z-a:zyxwvutsrqponmlkjihgfedcba
```

clear screen change font 0/16

79°F Haze 12:48 AM