ASM - Lab Assignment 3

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1. Write an Assembly Language Program to find the smallest number from a series of seven data bytes stored from DS: 0030H. Store the smallest number in DS: 0040H.

Code:

```
.model small
.stack 100h
.data
.code

main proc
mov ax, @data
mov ds, ax

mov cl, 07h
mov al, 00ffh
mov si, 0030h

l1:
cmp al,[si]
jc l2
mov al, [si]
l2: inc si
loop l1

mov si, 0040h
mov [si], al

int 03h
mov ah, 4ch
int 21h

main endp
end main
```

Output:

```
C:\>debug a3q1.exe
-t

AX=076C  BX=0000  CX=001F  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=075A  ES=075A  SS=076C  CS=076A  IP=0003   NV UP EI PL NZ NA PO NC
076A:0003 8ED8          MOV     DS,AX
-e 076c:0030
076C:0030  01.1    00.2    02.3    00.4    03.5    00.6    04.7

-g=0000

AX=0701  BX=0000  CX=0000  DX=0000  SP=0100  BP=0000  SI=0040  DI=0000
DS=076C  ES=075A  SS=076C  CS=076A  IP=001A   NV UP EI PL NZ NA PO CY
076A:001A CC            INT     3
-d 076c:0040,0040
076C:0040  01                                                    .
```

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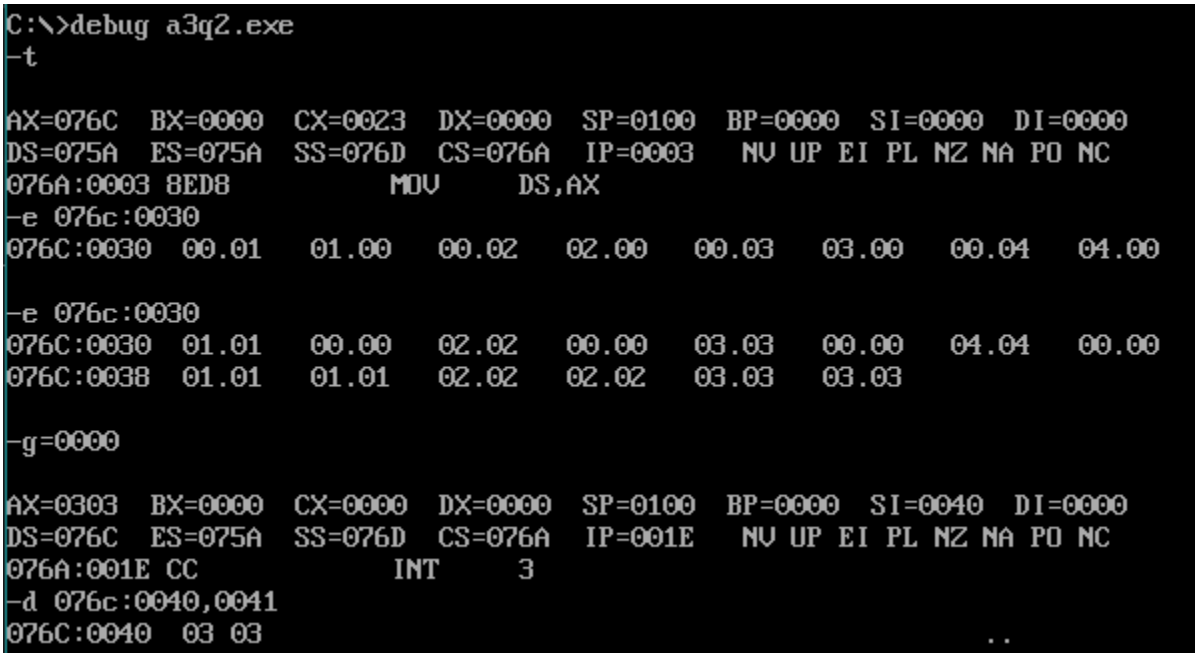
2. Write an Assembly Language Program to find the largest number from a series of 7 sixteen-bit numbers stored from DS: 0030H. Store the largest number in DS: 0040H.

Code:

```
.model small
.stack 100h
.data
.code

main proc
mov ax, @data
mov ds, ax

mov cx, 0007h
mov ax, 0000h
mov si, 0030h

l1: cmp ax, [si]
jnc l2
mov ax, [si]
l2: add si, 02h
loop l1

mov si, 0040h
mov [si], ax

int 03h
mov ah, 4ch
int 21h
```

main endp
end main

Output:



3. Write an Assembly Language Program to arrange a series of 7 data bytes stored from DS: 0030H in ascending order.

Code:

```
.model small
.stack 100h
.data
.code

main proc
mov ax, @data
mov ds, ax

mov si, 0030h

mov bl, 06h

l3:
mov si, 0030h
```

```
mov cl, 06h

l1:
mov al, [si]
inc si
cmp al, [si]
jc l2
mov dl, [si]
mov [si], al
dec si
mov [si], dl
inc si
l2: loop l1
dec bl
cmp bl, 00h
jnz l3

int 03h
mov ah, 4ch
int 21h

main endp
end main
```

Output:

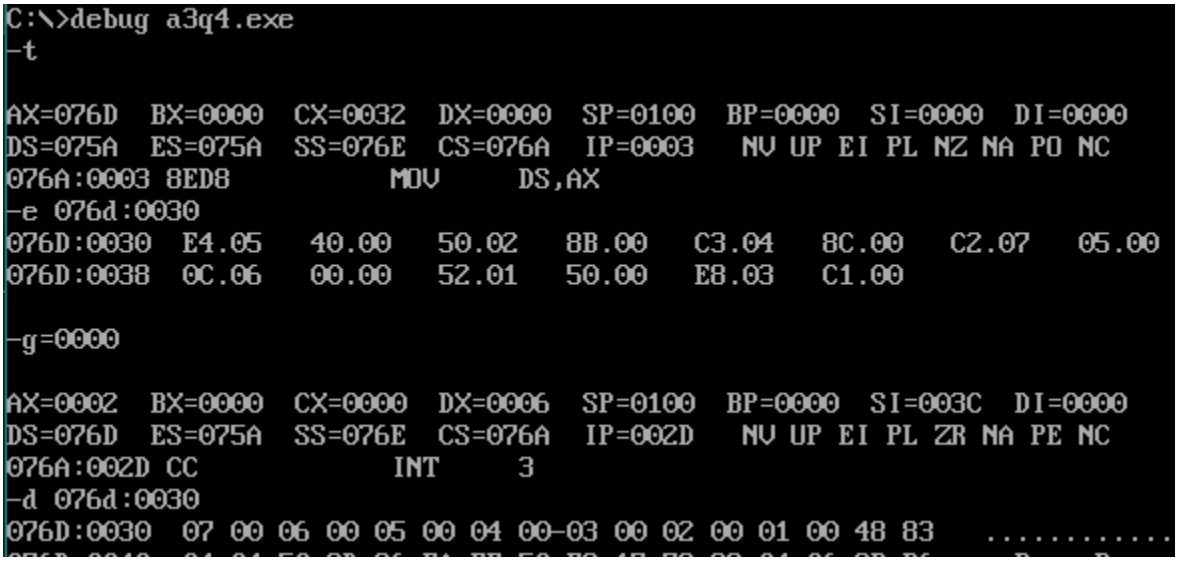
```
C:\>debug bubblesort.exe
-t

AX=076C  BX=0000  CX=0028  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=075A  ES=075A  SS=076D  CS=076A  IP=0003   NV UP EI PL NZ NA PO NC
076A:0003 8ED8          MOV     DS,AX
-e 076c:0030
076C:0030  3D.02   FF.05   FF.01   74.03   03.06   E9.04   ED.07

-g=0000

AX=0706  BX=0000  CX=0000  DX=0000  SP=0100  BP=0000  SI=0036  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0023   NV UP EI PL ZR NA PE NC
076A:0023 CC            INT     3
-d 076c:0030,0036
076C:0030  01 02 03 04 05 06 07                                .......
```

4. Write an Assembly Language Program to arrange a series of 7 sixteen-bits data stored from DS: 0030H in descending order.

Code:

```
.model small
.stack 100h
.data
.code

main proc
mov ax, @data
mov ds, ax

mov si, 0030h
mov bl, 06h

l3:
mov si, 0030h
mov cl, 06h

l1:
mov ax, [si]
add si, 02h
cmp ax, [si]
jnc l2
mov dx, [si]
mov [si], ax
sub si, 02h
mov [si], dx
add si, 02h

l2: loop l1
dec bl
cmp bl, 00h
jnz l3

int 03h
mov ah, 4ch
int 21h

main endp
end main
```

Output:



5. Write an Assembly Language program to find the square of a number stored in DS: 0030H using LOOK-UP table. Assume that the LOOK-UP table is stored from DS: 0040H that contains the square of the numbers 0 to 9. Store the square value in DS: 0050H.

Code:

```
.model small
.stack 100h
.data
.code

main proc

mov ax, @data
mov ds, ax

mov si, 0030h

;mov bl, [si]
;mov bh, 01h
;mov al, [bx]

mov al, [si]
mov bx, 0100h
xlat
```

```
mov si, 0040h
mov [si], al

int 03h
mov ah, 4ch
int 21h

main endp
end main
```

Output: