

1) • model small
• data
n db 5
a db 05, 07, 04, 03, 06

• code

mov ax, @data

mov ds, ax

mov cl, n

dec cl

outloop: mov ch, cl

mov si, 00h

inloop: mov al, a[si]

inc si

cmp al, a[si]

~~Jnc~~ noexch

~~chg~~ al, a[si]

mov a[si-1], al

noexch: dec ch

Jnz inloop

Dec cl

Jnz outloop

mov ah, 4ch

int 21h

end.

source1 CS:IP (ACTIVE)				reg	
52A:002F	0005	ADD	Byte Ptr [DI],AL	AX	= 4C05
52A:0031	050704	ADD	AX,0407	BX	= 0000
52A:0034	03062000	ADD	AX,Word Ptr [0020]	CX	= 0303
52A:0038	E89702	CALL	02D2	DX	= 0000
52A:003B	C706E6012000	MOV	Word Ptr [01E6],0020	SP	= 0000
52A:0041	06	PUSH	ES	BP	= 0000
52A:0042	8E06E401	MOV	ES,Word Ptr [01E4]	SI	= 0001
52A:0046	268B162C00	MOV	DX,Word Ptr ES:[002C]	DI	= 0000
52A:004B	E87B02	CALL	02C9	DS	= 052D
52A:004E	B792	MOV	BH,92	ES	= 051A
52A:0050	B9FF7F	MOV	CX,7FFF	SS	= 0529
52A:0053	B82800	MOV	AX,0028	CS	= 052A
52A:0056	E87902	CALL	02D2	IP	= 002F
52A:0059	07	POP	ES	FL	= 0287
52A:005A	8B16C401	MOV	DX,Word Ptr [01C4]	NU	UP
52A:005E	8B1EC601	MOV	BX,Word Ptr [01C6]	EI	PL
command				NZ	NA
52D:0000	05 05 07 04 03 06 20 00	E8 97 02 C7 06 E6 01 20	PE	CY
52D:0010	00 06 8E 06 E4 01 26 8B-16 2C 00 E8 7B 02 B7 92	DS:0000	
				05	
F8=Trace> <F10=Step> <F5=Go> <F6=Window> <F3=Display>					

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Progra...

local				reg
source1 CS:IP (ACTIVE)				
052A:0000	B82D05	MOV	AX,052D	AX = 0000
052A:0003	8ED8	MOV	DS,AX	BX = 0000
052A:0005	BA0E0000	MOV	CL,Byte Ptr [0000]	CX = 0000
052A:0009	FEC9	DEC	CL	DX = 0000
052A:000B	8AE9	MOV	CH,CL	SP = 0000
052A:000D	BE0000	MOV	SI,0000	BP = 0000
052A:0010	BAB40100	MOV	AL,Byte Ptr [SI+0001]	SI = 0000
052A:0014	46	INC	SI	DI = 0000
052A:0015	3AB40100	CMP	AL,Byte Ptr [SI+0001]	DS = 051A
052A:0019	7208	JB	0023	ES = 051A
052A:001B	B6B40100	XCHG	AL,Byte Ptr [SI+0001]	SS = 0529
052A:001F	88B40000	MOV	Byte Ptr [SI+0000],AL	CS = 052A
052A:0023	FECD	DEC	CH	IP = 0000
052A:0025	73E9	JNB	0010	FL = 0200
052A:0027	FEC9	DEC	CL	
052A:0029	73E0	JNB	000B	

command	
051A:0000	CD 20 FF 9F 00 EA FF FF-AD DE 6C 02 CD 03 32 03
051A:0010	CD 03 4B 0A CD 03 FF 04-01 01 01 00 02 03 FF FF ..K..

<F8=Trace> <F10=Step> <F5=Go> <F6=Window> <F3=Display>

Bubble sort program

Page No.	
Date	

ex/

• Model Small

DISPLAY macro msg

LEA PX, msg

mov AH, 09H

int 21H

ENDM

• DATA

LIST DB 02H, 0FH, 34H, 0F4H, 09H, 05H

number Equ \$-LIST

MSG1 DB 0DH, 0AH, "1 >>> SORT in ascending order

MSG2 DB 0DH, 0AH, "2 >>> SORT in descending order

MSG3 DB 0DH, 0AH, "3 >>> exit"

MSG4 DB 0DH, 0AH, "Enter your choice" :> \$

MSG5 DB 0DH, 0AH, "INVALID choice entered :> \$

• CODE

START: mov AX, @data

mov DS, AX

mov CH, number-1

DISPLAY msg1

Display msg2

Display msg3

Display msg4

mov AH, 01H

Int 21h

sub AL, 30H

cmp AL, 01H

JE ASCSORT

cmp AL, 02H

JE DESSERT

cmp AL, 0BH

JE FINAL

DISPLAY MSGS

jmp FINAL

ASCORT: mov BL, 00H

AGAIN: mov SI, OFFSET LIST

mov CL, 00H

mov BH, CH

SUB BH, BL

NPASS: cmp CL, BH

JNC NEXT

mov AL, [SI]

mov BP, 01H

cmp AL, DS:[BP][SI]

JC NOPE

xchg AL, [SI+1]

xchg [SI], AL

NOPE: INC CL

INC SI

jmp NPASS

NEXT: INC BL

cmp BL, CH

JC AGAIN

jmp FINAL

DESSERT: mov BL, 00H

AGAIN: mov SI, OFFSET LIST

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    MOV CL, 00H
    MOV BH, CH
    SUB BH, BL
NPASS1: CMP CL, BH
        JNC NEXT
        MOV BP, 01H
        CMP AL, DS[B*P][SI]
        JNC _NOPE1
        XCHG AL, [SI+1]
        XCHG [SI], AL
_NOPE1: INC CL
        INC SI
        JMP NPASS1
NEXT: INC BL
      CMP BL, CH
      JC AGAIN1
FINAL: MOV AH, 4CH
      INT 21H
END

```


DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Progra...

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local				reg
source1 CS:IP (ACTIVE)				
052A:00A3	0001	ADD	Byte Ptr [BX+DI],AL	AX = 4C01
052A:00A5	0234	ADD	DH,Byte Ptr [SI]	BX = 0105
052A:00A7	F4	HLT		CX = 0501
052A:00A8	0905	OR	Word Ptr [DI],AX	DX = 004D
052A:00AA	0D0A3E	OR	AX,3E0A	SP = 0000
052A:00AD	3E53	PUSH	BX	BP = 0001
052A:00AF	4F	DEC	DI	SI = 0004
052A:00B0	52	PUSH	DX	DI = 0000
052A:00B1	54	PUSH	SP	DS = 0534
052A:00B2	20494E	AND	Byte Ptr [BX+DI+4E],CL	ES = 051A
052A:00B5	204153	AND	Byte Ptr [BX+DI+53],AL	SS = 0529
052A:00B8	43	INC	BX	CS = 052A
052A:00B9	45	INC	BP	IP = 00A3
052A:00BA	4E	DEC	SI	FL = 0246
052A:00BB	44	INC	SP	NU UP EI PL
052A:00BC	49	DEC	CX	ZR NA FE NC

command	
0534:0000	4C CD 21 00 01 02 34 F4-09 05 0D 0A 3E 3E 53 4F L.!.!
0534:0010	52 54 20 49 4E 20 41 53-43 45 4E 44 49 4E 47 20 RT IN

>

<F8=Trace> <F10=Step> <F5=Go> <F6=Window> <F3=Display>

```
>>SORT IN ASCENDING ORDERS  
2>>SORT IN DESCENDING ORDRES  
3>>EXIT  
ENTER YOUR CHOICE ::  
2>>SORT IN DESCENDING ORDRES  
3>>EXIT  
ENTER YOUR CHOICE ::  
3>>EXIT  
ENTER YOUR CHOICE ::  
ENTER YOUR CHOICE ::1  
C:\MASM>_
```