

17/10/2020

classmate

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SORT A GIVEN SET OF 'N' numbers in  
Ascending & Descending order using  
Bubble Sort Algorithm.

• Model SMALL

```
DISPLAY MACRO MSG  
    LEA DX, MSG  
    MOV AH, 09H  
    INT 21H
```

ENDM

• DATA

```
LIST DB 02H, 01H, 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 :$"
```

• CODE

```
START: MOV AX, @DATA  
        MOV DS, AX  
        LEA SI, LIST  
        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 DESSORT
CMP AL, 03H
JE FINAL
DISPLAY MSG5
JMP FINAL
```

```
ASC SORT: 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+]
XCHG [SI], AL
```

```
-NOPE: INC CL
```

```
INC SI
```

```
JMP NPASS
```

```
NEXT: INC BL
```

```
CMP BL, CH
```

```
JC AGAIN
```

```
JMP FINAL
```

```
DESSORT: MOV BL, 00H
```

```
AGAIN: MOV SI, OFFSET LIST
MOV CL, 00H
MOV BH, CH
SUB BH, BL
```



```
NPASS1:  CMP CL, BH
          JNC NEXT1
          MOV AL, [ESI]
          MOV BP, 01H
          CMP AL, DS:[BP][ESI]
          JNC _NOPE1
          XCHG AL, [ESI+1]
          XCHG [ESI], AL
```

```
_NOPE1:  INC CL
          INC SI
          JMP NPASS1
```

```
NEXT1:  INC BL
          CMP BL, CH
          JC AGAIN1
```

```
FINAL:  MOV AH, 4CH
          INT 21H
```

```
END START
```