BUBBLE SORT

AIM

To develop an assembly language program to perform bubble sort on 8-bit numbers.

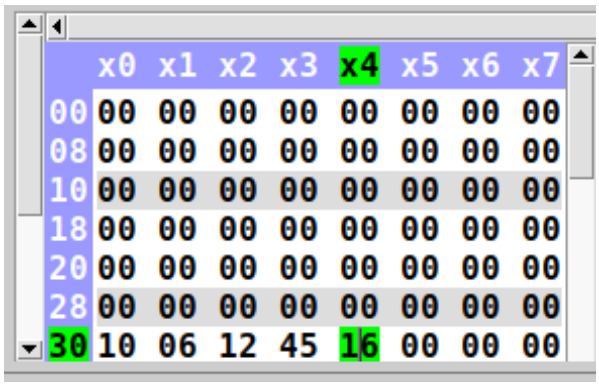
ALGORITHM

```
Algorithm 1 Bubble sort on 8-bit numbers
1: Start
2: Read the array size (n) and the array(arr).
3: for i = 0 to (n−1) do
4:    for j = 1 to (n−i−1) do
5:          if arr[j] < arr[j+ 1] then
6:                Swap arr[j] and arr[j+1]
7:          end if
8:    end for
9: end for
10:Print the sorted array (arr).
11:Stop
```

SOURCE CODE

```
MOV R4,#05H
AGAIN: MOV R3,#04H
MOV R0,#30H
CLR C
UP:MOV A ,@R0
MOV R1 , A
INC R0
MOV A ,@R0
SUBB A , R1
JNC SKIP
MOV A ,@R0
DEC R0
MOV @R0, A
MOV A , R1
INC R0
MOV @R0, A
SKIP:DJNZ R3 ,UP
DJNZ R4 , AGAIN
STOP:SJMP STOP
```

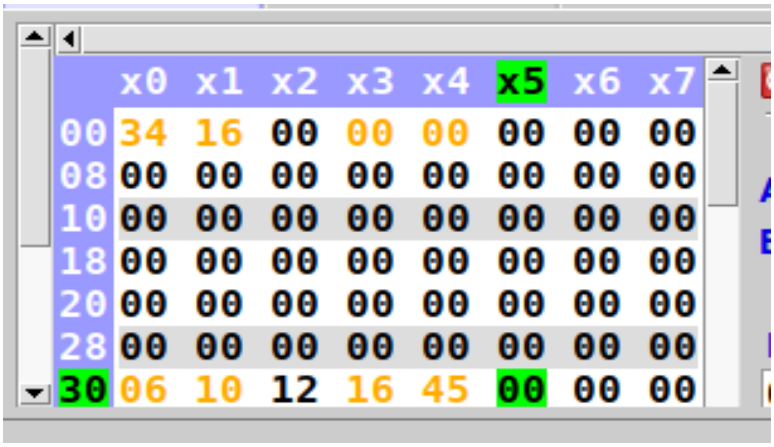
INPUT:



	x0	x1	x2	x3	x4	x5	x6	x7
00	00	00	00	00	00	00	00	00
08	00	00	00	00	00	00	00	00
10	00	00	00	00	00	00	00	00
18	00	00	00	00	00	00	00	00
20	00	00	00	00	00	00	00	00
28	00	00	00	00	00	00	00	00
30	10	06	12	45	16	00	00	00

Input at addresses starting from 0x30

OUTPUT:



	x0	x1	x2	x3	x4	x5	x6	x7
00	34	16	00	00	00	00	00	00
08	00	00	00	00	00	00	00	00
10	00	00	00	00	00	00	00	00
18	00	00	00	00	00	00	00	00
20	00	00	00	00	00	00	00	00
28	00	00	00	00	00	00	00	00
30	06	10	12	16	45	00	00	00

Output at addresses starting from 0x30

RESULT:

Assembly language program to perform bubble sort on 8-bit numbers has been developed and verified using MCU-8051-IDE.

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