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Expermiment 6

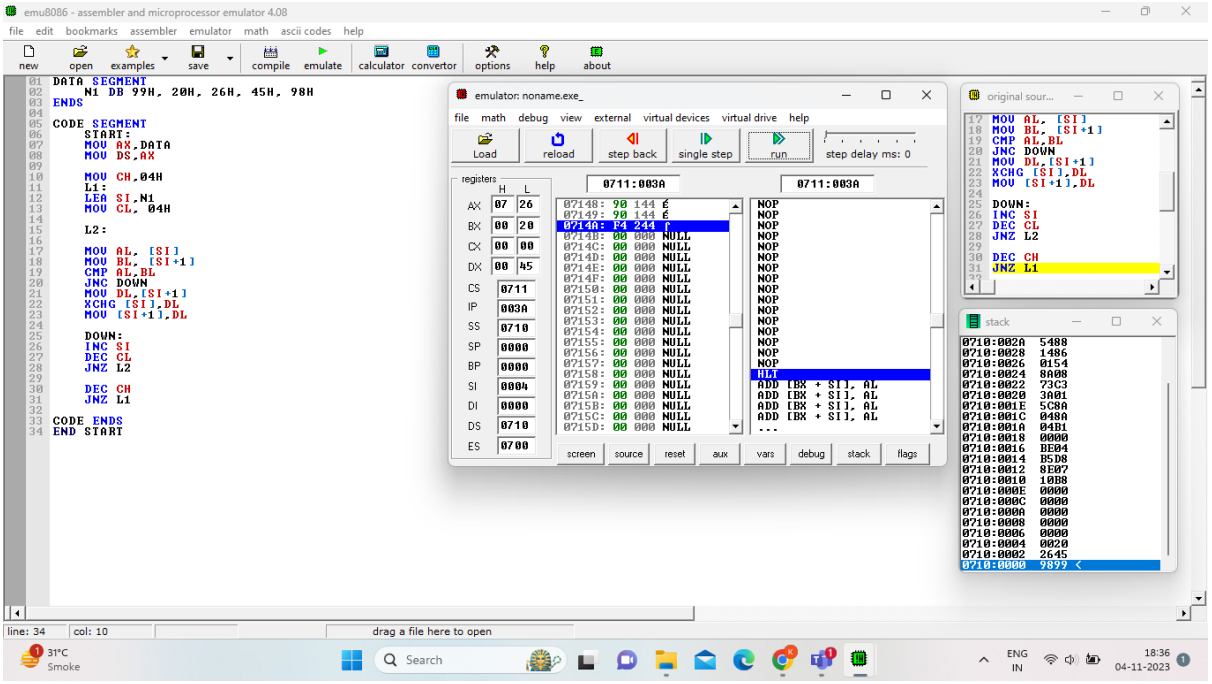
Aim : Assembly program to sort numbers in ascending/ descending Order

Theory : Sorting is a fundamental operation in computer science. In this experiment, we will implement two separate assembly programs to sort a list of numbers.
The ascending order sorting program is based on the Bubble Sort algorithm.
Bubble Sort works by repeatedly comparing and swapping adjacent elements in an array until the entire array is sorted in ascending order.
It has a time complexity of O(n^2) for the worst case, making it suitable for small lists.

Code :

```
DATA SEGMENT
   N1 DB 99H, 20H, 26H, 45H, 98H
ENDS

CODE SEGMENT
   START:
   MOV AX,DATA
   MOV DS,AX

   MOV CH,04H
   L1:
   LEA SI,N1
   MOV CL, 04H

   L2:

   MOV AL, [SI]
   MOV BL, [SI+1]
   CMP AL,BL
   JNC DOWN
   MOV DL,[SI+1]
   XCHG [SI],DL
   MOV [SI+1],DL

   DOWN:
   INC SI
   DEC CL
   JNZ L2

   DEC CH
   JNZ L1

CODE ENDS
END START
```

Screenshots :



Conclusion : In this experiment, we successfully developed two assembly language programs to sort a list of numbers in ascending order using the emu8086 emulator.We implemented the Bubble Sort algorithm, which rearranges the numbers by repeatedly swapping adjacent elements until the list is sorted in ascending order. This program demonstrates the importance of sorting algorithms in organizing data efficiently.