

II Engineering Computer Organization  
Expt. No. ....  
 MYSORE UNIVERSITY  
MYSORE - 570 006  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

## MASM SORTING - INPUT THROUGH PROGRAM

Aim:-

To write 8086 program in MASM to sort numbers by input through program

Algorithm:-

Step 1 : Start

Step 2 : set up data segment DS with address of string. set outer loop counter CH to 4

Step 3 : Repeat UP2 until CH is 0

Set CL to 4 and SI to address of string

Step 4 : Repeat UP1 until CL is 0

Load current value from string [SI] and string[SI+1] to AL and BL, swap values

increment SI and decrement CL

Step 5: Decrement CH

Step 6 : Trigger INT 3 to indicate completion

Step 7 : Stop

Result:-

~~Program has been executed and output verified~~

**PROGRAM:**

```
DATA SEGMENT
STRING1 DB 99H,12H,56H,45H,36H
DATA ENDS

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

MOV CH,04H
UP2: MOV CL,04H
LEA SI,STRING1
UPI: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 UP1
DEC CH
JNZ UP2
INT 3
CODE ENDS
END START
```

Expt No 22.001 Date 21/06/11  
 Aim:-  
MASM SORTING - INPUT THROUGH KEYBOARD

Aim:-

To write a MASM program to perform sorting of input taken through keyboard

Algorithm:-

Step1 : start

Step2 : Initialize data in code segment

Step3 : clear all registers

Step4 : Load number of elements from 2000H into BL and decrease BL by 1

Step5 : set CL to BL and SI to 3000H

Step6 : compare adjacent element and swap if necessary using XCHG

Step7 : increment SI, decrement CL, repeat comparison until CL=0

Step8 : Decrement BL, if BL ≠ 0 repeat the process

Step9 : when sorting is done, issue INT 3 to terminate the program and return control to OS

Step10 : code segment ends

Step11 : stop

~~Result :-  
 Program has been executed and output verified.~~

PROGRAM:

```
CODE SEGMENT
ASSUME CS:CODE
START:
    XOR AX,AX
    MOV BL,AL
    MOV CL,AL
    MOV SI,2000H
    MOV BL,[SI]
    DEC BL
L3:
    MOV CL,BL
    MOV SI,3000H
L2:
    MOV AL,[SI]
    CMP AL,[SI+1]
    JGE L1
    XCHG AL,[SI+1]
    MOV [SI],AL
L1:
    INC SI
    LOOP L2
    DEC BL
    JNZ L3
    INT 3
CODE ENDS
END START
```