Department of Computer Science and Engineering

21st Batch

Lab Report 5

Course title : Microprocessor and Assembly Language
Course Code : CSE-334

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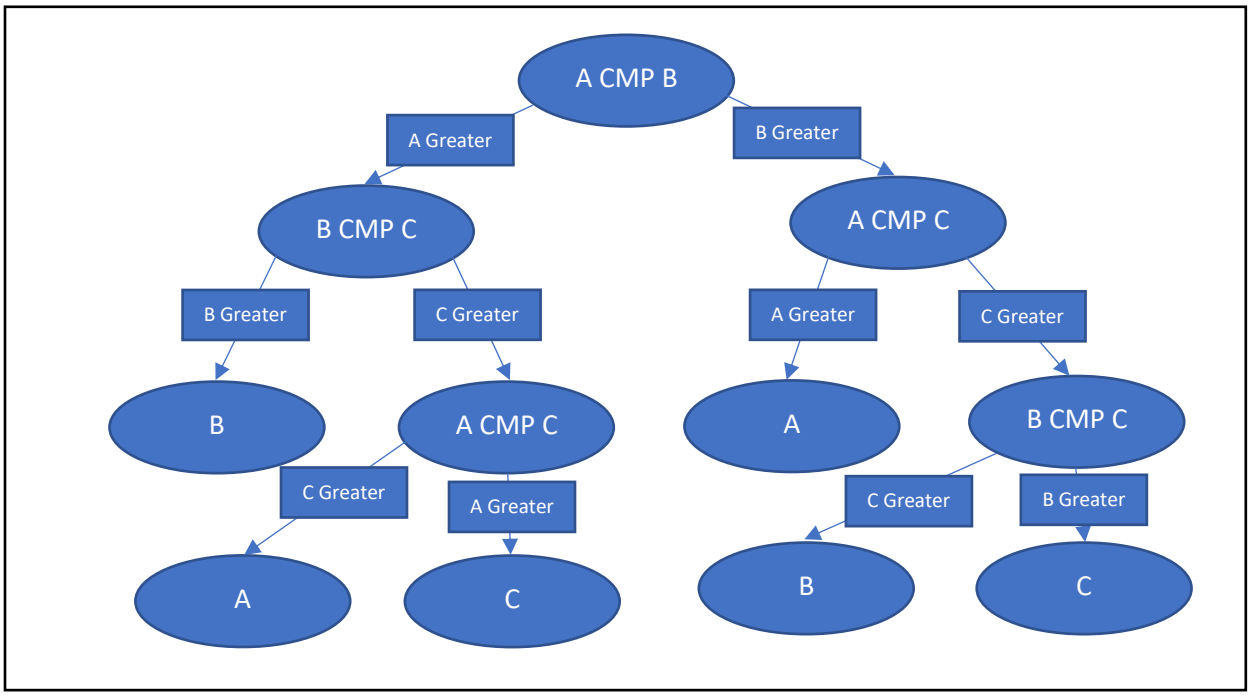
Problem Statement: Write an assembly program that will take three inputs from the user and you will need to calculate the second greatest of the three.

Theory: To Print the Second Largest number firstly we will compare the "**First**" and "**Second**" number then with the **lower** number we will compare the "**Third**" number. Afterward we will compare the if the migrated number from step one is larger than the "**Third**" number then it is the **Second larger** number. But if the "**Third**" number is larger then we will have to compare with the **larger** number of step one and whomever is the lowest will be the **Second larger** number.

Process Diagram:



CODE:

```
.MODEL SMALL
.STACK 100H

.DATA
NL EQU 0AH,0DH
A DB ?
B DB ?
C DB ?
IN_A DB NL,"ENTER FIRST INPUT : $"
IN_B DB NL,"ENTER SECOND INPUT : $"
IN_C DB NL,"ENTER THIRD INPUT : $"
BOTH DB " AND $"
NO DB NL,NL,"THERE IS NO SECOND LARGEST NUMBER $"
SECOND_LRG DB NL,NL,"THE SECOND LARGEST NUMBER IS : $"

.CODE
MAIN PROC
    MOV AX,@DATA
    MOV DS,AX

    MOV AH,9        ; FIRST NUMBER INPUT
    LEA DX,IN_A
    INT 21H
    MOV AH,1
    INT 21H
    MOV A,AL
    MOV BL,A

    MOV AH,9        ; SECOND NUMBER INPUT
    LEA DX,IN_B
    INT 21H
    MOV AH,1
    INT 21H
    MOV B,AL
    MOV BH,B

    MOV AH,9        ; THIRD NUMBER INPUT
    LEA DX,IN_C
    INT 21H
    MOV AH,1
    INT 21H
    MOV C,AL
    MOV CL,C

    CMP BL,BH
    JG  CMP_B_C
```

```
    JL  CMP_A_C
    JE  CMP_AB_C

CMP_A_C:
    CMP BL,CL
    JG  INT_2A
    JL  INT_2BC
    JE  INT_2_A_C
    INT_2BC:
        CMP BH,CL
        JG  INT_2C
        JL  INT_2B
        JE  INT_2A
CMP_B_C:
    CMP BH,CL
    JG  INT_2B
    JL  INT_2AC
    JE  INT_2_B_C
    INT_2AC:
        CMP BL,CL
        JG  INT_2C
        JL  INT_2A
        JE  INT_2B
CMP_AB_C:
    CMP BL,CL
    JG  INT_2C
    JL  INT_2_A_B
    JE  INT_NO

INT_2A:
    MOV AH,9
    LEA DX,SECOND_LRG
    INT 21H
    MOV AH,2
    MOV DL,A
    INT 21H
      JMP NEXT
INT_2B:
    MOV AH,9
    LEA DX,SECOND_LRG
    INT 21H
    MOV AH,2
    MOV DL,B
    INT 21H
      JMP NEXT
INT_2C:
    MOV AH,9
    LEA DX,SECOND_LRG
```

```
    INT 21H
    MOV AH,2
    MOV DL,C
    INT 21H
      JMP NEXT
INT_2_A_C:
    MOV AH,9
    LEA DX,SECOND_LRG
    INT 21H
    MOV AH,2
    MOV DL,A
    INT 21H
    MOV AH,9
    LEA DX,BOTH
    INT 21H
    MOV AH,2
    MOV DL,C
    INT 21H
      JMP NEXT
INT_2_A_B:
    MOV AH,9
    LEA DX,SECOND_LRG
    INT 21H
    MOV AH,2
    MOV DL,A
    INT 21H
    MOV AH,9
    LEA DX,BOTH
    INT 21H
    MOV AH,2
    MOV DL,B
    INT 21H
      JMP NEXT
INT_2_B_C:
    MOV AH,9
    LEA DX,SECOND_LRG
    INT 21H
    MOV AH,2
    MOV DL,B
    INT 21H
    MOV AH,9
    LEA DX,BOTH
    INT 21H
    MOV AH,2
    MOV DL,C
    INT 21H
      JMP NEXT
INT_NO:
```

```
    MOV AH,9
    LEA DX,NO
    INT 21H
      JMP NEXT
NEXT:
    MOV AH,4CH
    INT 21H
MAIN ENDP
   END MAIN
```

Result: