TASMIYA FATHIMA

1BM 19CS172

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COMPASS

Date :

→ Binary Search

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.MODEL SMALL
; MACRO TO DISPLAY THE MESSAGE ....
DISPLAY  MACRO MSG
         LEA DX, MSG
         MOV AH, 09H
         INT 21 H
ENDM

.DATA
LIST DB 01H, 05H, 07H, 10H, 12H, 14H
NUMBER EQU ($-LIST) ; number here is having the
                      Value 6
KEY DB 10H

MSG1 DB ODH, OAH, "Element Found in the List ...$"
MSG2 DB ODH, OAH, "Search Failed !! Element
                   not found in list $"

.CODE
START: MOV AX, @DATA
       MOV DS, AX

       MOV CH, NUMBER-1 ; High value .... Here
                          Value is 6-1=5
       MOV CL, 00H ; Low value ....

AGAIN: MOV SI, OFFSET LIST ; LEA SI, LIST
       XOR AX, AX ; MOV AX, 00H
       CMP CL, CH ; Subtraction of CL-CH
       JE NEXT
       JNC FAILED
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NEXT :  MOV  AL, CL     ; AL = 00H
        ADD  AL, CH     ; AL = 00 + 05 = 05
        SHR  AL, 01H    ;   Divide by 2 →
                            AL will have the index of
                            middle element

        MOV  BL, AL     ; BL → index of middle element
        XOR  AH, AH     ; Clear AH
        MOV  BP, AX
        MOV  AL, DS : [BP][SI]
        CMP  AL, KEY    ; Compare KEY AND A[I]
        JE   SUCCESS    ; If equal, Display success message
        JC   INCLOW
        MOV  CH, BL     ; If key>A[I] Shift High
        DEC  CH ;       CH will have index of
                        middle -1 element (Search from
                        low to midde)
        JMP  AGAIN
INCLOW : MOV CL, BL
         INC CL         ; CL will have index of middle+1
                          element ( search mid+1 to

         JMP AGAIN
SUCCESS : DISPLAY MSG 1
          JMP FINAL
FAILED :  DISPLAY MSG2
FINAL :   MOV AH, 4CH
          INT 21H
END  START
```