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IBM19CS189

MP LAB

Binary search

```
.MODEL SMALL
; Macro to display arrays

DISPLAY MICRO MSG
        LEA DX, MSG
        MOV AH, 09H
        INT 21H
ENDM

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

KEY DB 10H
MSG1 DB, 0DH, 0AH, "Element found in this list ---$"
MSG2 DB 0DH, 0AH, " search failed - Element
                    not found $"

.CODE
START: MOV, AX, @DATA
       MOV DS, AX
       MOV CH, NUMBER-1 ; high value 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.
```

```
NEXT :  MOV AL, CL ;    AL = 00H
        ADD AL, CH ;    AL = 00 + 05 = 05
        SHR AL, 01H

        MOV BL, AL
        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  INC LOW
        MOV CH, BL
        DEC CH ;        CH will have index of
                                middle-1 element
        JMP AGAIN

INC LOW : MOV CL, BL ;  If KEY A[I] shift low
          INC CL ;      CL will have index of
                                middle+1 element.
          JMP AGAIN

SUCCESS :   DISPLAY MSG1.
            JMP FINAL.
FAILED  :   DISPLAY MSG2.
FINAL   :   MOV AH, 4CH
            INT 21H
END START.
```