MP LAB Programme - 1

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

.DATA
LIST DB 01H, 05H, 0FH, 10H, 12H, 14H
NUMBER EQU ($-LIST); number here is having the value 6
KEY DB 10H
MSG1 0DH, 0AH, " ELEMENT FOUND IN THE LIST... $"
MSG2 0DH, 0AH, " Search failed! Element not found in the 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

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 elem
       Mov BX, AL  ; BL -> index of middle element
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        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 mid-1)
        JMP AGAIN
INCLOW: MOV CL, BL      ; If key < A[I] shift low
        INC CL          ; CL will have index of middle +1 element (Search from mid+1)
        JMP AGAIN
SUCCESS: DISPLAY MSG1
        JMP FINAL
FAILED : DISPLAY MSG2
FINAL : MOV AH, 4CH     ; JOB OVER- TERMINATE....
        INT 21H
END START
```