MP&MC

LAB PROG ①

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(1) Binary Search.

```
.model small
;macro to display the message ...
display macro msg
lea dx, msg
mov ah, 09H
int 21h
endm

.data
list db 01H, 05H, 07H, 10H, 12H, 14H
number equ ($-list)
key db 011H
msg1 db 0DH, 0AH, "Element found in list ... $"
msg2 db 0DH, 0AH, "search failed !! Element not found in list"

.code
start: mov ax,@data
       mov ds, ax
       mov ch, number1 ;  high value
       mov cl, 00H     ;  low value
again: mov si, offset list
       xor al, ax
       cmp cl, ch
       je next
       jne failed
```

```
next: mov al, cl
      add al, ch
      shr al, 01H          ; divide by 2
      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
      jc indow             ; if key > A[i] shift high
      mov ch, bl
      dec ch
      jmp again

indow: mov cl, bl          ; if key < A[i] shift low
       inc cl
       jmp again

success: display msg1
         jmp final
failed : display msg2       ; terminate
final : mov ah, 4ch
        int 21h

end start.
```