MOHAMMED ABDUL HAMID 3-D
1BM19CS202

Lab 1

Binary Search

```
.MODEL SMALL
; MACRO TO DISPLAY THE MESSAGE .....
DISPLAY MACRO MSG
        LEA DX, MSG   // Loading effective Add of Msg
        MOV AH, 09H
        INT 21H
        ENDM

.DATA
LIST DB 01H, 03H, 07H, 0DH, 12H, 14H
NUMBER EQU ($-LIST) ; number here is having value 6
KEY DB 10H
MSG1 DB 0DH, 0AH, " Element Found in LIST ... $"
MSG2 DB 0DH, 0AH, "SEARCH FAILED!! Element NOT FOUND $"
.CODE
START: MOV AX, @DATA
       MOV DS, AX
       MOV CH, NUMBER-1   ; Highvalue ... highvalue 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 CH-CH
       JE NEXT
       JNC FAILED   // JNC - Jump no carry
```

```
NEXT :  MOV AL,CL      ;AL=00H
        ADD AL,CH      ;AL=00+05=05
        SHR AL,01H     ; Divide by 2 -> AL will have index of middle
        MOV BL,AL      ; BL-> index of middle elemnt
        XOR AH,AH      ; clears AH
        MOV BP,AX
        MOV AL,DS:[BP][SI]
        CMP AL,KEY     ; COMPARE KEY and AL]
        JE SUCCES      ; if equal display success msg
        JC INCLOW
        MOV CH,BL      ; IF key>AL] SHIFT HIGH
        DEC CH ;       ch will have index of middle elemnt
        JMP AGAIN
INCLOW: MOV CL,BL      ;IF KEY<AL] SHIFT LOW
        INC CL         ; CL will have index of middle+1 elem
        JMP AGAIN
SUCCESS : DISPLAY MSG1
        JMP FINAL
FAILED : DISPLAY MSG2
FINAL : MOV AH,4CH
        INT 21H
    END START
```

Fantastic