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   012H
MSG1   DB   0DH, 0AH, " ELEMENT FOUND IN THE LIST... $ "
                zero!
MSG2   DB   0DH, 0AH, "SEARCH FAILED!! ELEMENT NOT FOUND
                              IN THE LIST   $ "

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

         MOV   CH, NUMBER-1    ; HIGH VALUE ...

         MOV   CL, 00H         ; LOW VALUE
                    zero zero

  AGAIN: MOV   SI , OFFSET LIST
         XOR   AX, AX
         CMP   CL, CH          cl<ch    or   cl>ch or cl=ch
         JE    NEXT            cf=1          cf≠0      zf=1
         JNC   FAILED
```

```
NEXT:   MOV   AL, CL        ⎫  mid = low + high
        ADD   AL, CH        ⎬           ─────────
        SHR   AL, 0H        ⎭              2    ; DIVIDE BY 2

        MOV   BL, AL

        XOR   AH, AH              ; CLEAR AH
              base pointer
        MOV   BP, AX

        MOV   AL, DS:[BP][SI]
                   ──────────  → a[mid]
        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
        JMP   AGAIN

INCLOW: MOV   CL, BL            ; IF KEY < A[I] SHIFT LOW

        INC   CL
        JMP   AGAIN

SUCCESS: DISPLAY MSG 1
         JMP   FINAL

FAILED : DISPLAY MSG 2          ; JOB OVER. TERMINATE....

FINAL :  MOV  AH, 4CH

             INT 21H

END   START
```

```
C:\MASM>masm binsea;;
Microsoft (R) Macro Assembler Version 5.60
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


   51468 + 465076 Bytes symbol space free


      0 Warning Errors
      0 Severe  Errors

C:\MASM>link binsea;;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.

LINK : warning L4021: no stack segment

C:\MASM>binsea;;
Illegal command: binsea;;.

C:\MASM>binsea

Element found in the list
C:\MASM>
```