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IBM19CS165
Batch -1

- MODEL SMALL
; MACRO TO DISPLAY THE MESSAGE
  DISPLAY MACRO MSG

  LEA DX, MSG
  MOV AH, 09H
  INT 21H

  ENDM

- DATA
  LIST DM 01H, 05H, 07H, 10H, 12H, 14H
  NUMBER EQU ($-LIST); number here is having the

  Value 6

  KEY DB 10H
  MSG1 DB 0DH, 0AH, " ELEMENT FOUND IN
                        THE LIST... $"

  MSG2 DB 0DH, 0AH, " SEARCH FAILED 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....

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AGAIN: MOV SI, OFFSET LIST ; LEA SI, LIST
        XOR AX, AX ; MOV AX, 00H
        CMP CL, CH ; SUBTRACTION OF CL-CH
        JE NEXT
        JNG 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 mid element


        MOV BL, AL ; BL -> index of mid element
        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 middle -1)


        SMP 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 to
                                    high value)
        JMP AGAIN
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SUCCESS : DISPLAY MSG1
          JMP FINAL

FAILED : DISPLAY MSG2 ; JOB OVER.
                              TERMINATE
                              , , , ,

FINAL : MOV AH, 4CH
         INT 21 H

END  START
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