.MODEL SMALL

.386

.DATA

ARRAY DB 99 DUP(?)

A1 DB ?

EL DB ?

FLAG DB 0

MSG1 DB 10,13,"ENTER LENGTH OF ARRAY (MAX 9) : $"

MSG2 DB 10,13,"ENTER ARRAY (MAX 2 DIGIT NUMBERS) : $"

MSG3 DB 10,13,"ENTER ARRAY ELEMENT TO LOOK FOR(BINARY SEARCH) : $"

MSG4 DB 10,13,"ENTER ELEMENT $"

MSG5 DB 10,13,"ELEMENT FOUND! $"

MSG6 DB 10,13,"ELEMENT NOT FOUND!$"

MSG7 db 10,13,"THE SORTED ARRAY IS : $"

.CODE

.STARTUP

;LENGTH

MOV DX,OFFSET MSG1

MOV AH,09

INT 21H

MOV DL,10

MOV AH,02

INT 21H

MOV BL,0

MOV CX,2

L1 : SHL BL,4

MOV AH,01

INT 21H

CMP AL,39H

JBE L2

SUB AL,7

L2 : SUB AL,30H

ADD BL,AL

LOOP L1

MOV DL,10

MOV AH,02

INT 21H

MOV A1,BL

;ARRAY1

MOV DX,OFFSET MSG2

MOV AH,09

INT 21H

MOV DL,10

MOV AH,02

INT 21H

MOV SI,OFFSET ARRAY

MOV CX,0

MOV CL,A1

LI1 :

MOV DX,OFFSET MSG4

MOV AH,09

INT 21H

MOV DL,A1

ADD DL,1

SUB DL,CL

ADD DL,30H

MOV AH,02

INT 21H

MOV DL,10

MOV AH,02

INT 21H

MOV AH,01

INT 21H

MOV BX,0

CMP AL,39H

JBE LI1X

SUB AL,7H

LI1X:

SUB AL,30H

ADD BL,AL

SHL BL,4

MOV AH,01

INT 21H

CMP AL,39H

JBE LI1Y

SUB AL,7H

LI1Y:

SUB AL,30H

ADD BL,AL

MOV [SI],BL

INC SI

MOV DL,10

MOV AH,02

INT 21H

LOOP LI1

MOV DL,10

MOV AH,02

INT 21H

;SORTING ARRAY

MOV AL,A1

CMP AL,1

JBE CONT

SORT :

MOV SI,OFFSET ARRAY

MOV FLAG,0

MOV CX,0

MOV CL,A1

SUB CL,1

CC :

MOV BL,[SI]

MOV AL,[SI+1]

CMP BL,AL

JBE LX

MOV [SI],AL

MOV [SI+1],BL

MOV FLAG,1

LX :

INC SI

LOOP CC

CMP FLAG,0

JA SORT

CONT :

;PRINTING SORTED ARRAY

MOV DX,OFFSET MSG7

MOV AH,09

INT 21H

MOV SI,OFFSET ARRAY

MOV BX,0

MOV CL,A1

P:

MOV BL,[SI]

SHR BL,4

CMP BL,9H

JBE LP1

ADD BL,7H

LP1 :

ADD BL,30H

MOV DL,BL

MOV AH,02

INT 21H

MOV BL,[SI]

AND BL,0FH

CMP BL,9H

JBE LP2

ADD BL,7H

LP2 :

ADD BL,30H

MOV DL,BL

MOV AH,02

INT 21H

MOV DL,','

MOV AH,02

INT 21H

MOV DL,' '

MOV AH,02

INT 21H

INC SI

LOOP P

MOV DL,10

MOV AH,02

INT 21H

;SEARCH ELEMENT INPUT

MOV DX,OFFSET MSG3

MOV AH,09

INT 21H

MOV DL,10

MOV AH,02

INT 21H

MOV BX,0

MOV CX,2

L3 : SHL BL,4

MOV AH,01

INT 21H

CMP AL,39H

JBE L4

SUB AL,7

L4 : SUB AL,30H

ADD BL,AL

LOOP L3

MOV DL,10

MOV AH,02

INT 21H

MOV EL,BL

;BINARY SEARCH

MOV BX,OFFSET ARRAY

MOV FLAG,0

MOV DL,EL

MOV AX,0

MOV AL,A1

MOV SI,AX

SHR SI,1

BS :

CMP DL,BYTE PTR[BX+SI]

JNE NL

MOV FLAG,1

JMP FN

NL :

JB B

ADD BX,SI

ADD BX,1

B :

CMP SI,0

JE NF

SHR SI,1

JMP BS

FN :

CMP FLAG,0

JE NF

MOV DX,OFFSET MSG5

MOV AH,09

INT 21H

JMP DONE

NF :

MOV DX,OFFSET MSG6

MOV AH,09

INT 21H

DONE :

.EXIT

END