**BCD Addition**

**16 Bits**

**\*For subtraction only one command is to be changed, replace ADD with SUB.**

.model small

.386

.data

DATA DW 0000H

msg db 10,13,"Enter the first no.:: $"

msg1 db 10,13,"Enter the second no.:: $"

msg2 db 10,13,"The Resultant sum is :: $"

.code

.startup

MOV AH,09

MOV DX,OFFSET msg

INT 21H

MOV BX,0

MOV CX,4

AGAIN: MOV AH,01 ;1ST NO. ENTERED

INT 21H

CMP AL,'A'

JGE L2

SUB AL,30H

SHL BX,4

ADD BL,AL

LOOP AGAIN

MOV DATA,BX

MOV AH,09

MOV DX,OFFSET msg1

INT 21H

MOV BX,0

MOV CX,4

AGAIN1:MOV AH,01 ;2nd NO. ENTERED

INT 21H

CMP AL,'A'

JGE L2

SUB AL, 30H

SHL BX, 4

ADD BL, AL

LOOP AGAIN1

MOV AX, DATA

MOV CX, 0

ADD AL, BL

DAA

MOV BL, AL

ADC AH, BH

MOV AL, AH

DAA

MOV BH, AL

MOV AH, 09

MOV DX, OFFSET msg2

INT 21H

MOV DX, 0

MOV CX, 4

AGAIN2: ROL BX, 4

MOV DL, BL

AND DL, 0FH

ADD DL, 30H

MOV AH, 02

INT 21H

LOOP AGAIN2

L2: .EXIT

END

**32 Bits**

.model small

.386

.data

num1 DD 00000000H

num2 DD 00000000H

num3 DD 00000000H

msg db 10,13,"Enter the first no.:: $"

msg1 db 10,13,"Enter the second no.:: $"

msg2 db 10,13,"The Resultant sum is :: $"

.code

.startup

MOV AH,09

MOV DX,OFFSET msg

INT 21H

MOV EBX,0

MOV CX,8

AGAIN: MOV AH,01 ;1ST NO. ENTERED

INT 21H

CMP AL,'A'

JGE L2

SUB AL,30H

SHL EBX,4

ADD BL,AL

LOOP AGAIN

MOV num1,EBX

MOV AH,09

MOV DX,OFFSET msg1

INT 21H

MOV EBX,0

MOV CX,8

AGAIN1:MOV AH,01 ;2nd NO. ENTERED

INT 21H

CMP AL,'A'

JGE L2

SUB AL,30H

SHL EBX,4

ADD BL,AL

LOOP AGAIN1

MOV num2, EBX

mov ax, word ptr num1

mov dx, word ptr num2

add al,dl

daa

mov bl,al

mov al,ah

adc al,dh

daa

mov bh,al

mov word ptr num3, bx

mov ax, word ptr num1+2

mov dx, word ptr num2+2

adc al,dl

daa

mov bl,al

mov al,ah

adc al,dh

daa

mov bh,al

mov word ptr num3+2,bx

mov ebx,num3

mov ah, 09h

mov dx, offset msg2

int 21h

jnc l6

mov ah, 02h

mov dl, "1"

int 21h

l6: MOV CX,8

AGAIN2: ROL EBX,4

MOV DL,BL

AND DL,0FH

ADD DL,30H

MOV AH,02

INT 21H

LOOP AGAIN2

L2: .EXIT

END