**Multiplication**

**4 Bits**

.model small

.stack 100H

.data

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 AH, 01

INT 21H

SUB AL,30H

MOV BL, AL

MOV AH,09

MOV DX,OFFSET msg1

INT 21H

MOV AH, 01

INT 21H

SUB AL,30H

MUL BL

MOV AH,09

MOV DX,OFFSET msg2

INT 21H

MOV DL,AL

CMP DL, 09

JG L6

ADD DL,30H

JMP L7

L6: ADD DL, 37H

L7: MOV AH,02

INT 21H

MOV AH, 4CH

INT 21H

.exit

end

**16 Bits**

.386

.data

DATA1 dw 0000H

DATA2 dw 0000H

PROD1 dw ?

PROD2 dw ?

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

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

msg2 db 10,13,"The product(in hexadecimal) 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 L5

SUB AL,30H

JMP L6

L5: SUB AL,37H

L6: SHL BX,4

ADD BL,AL

LOOP AGAIN

MOV DATA1, 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 L7

SUB AL,30H

JMP L8

L7: SUB AL,37H

L8: SHL BX,4

ADD BL ,AL

LOOP AGAIN1

MOV DATA2, BX

MOV BX,0

MOV DX,0

MOV AX,0

MOV AX,DATA1

MOV BX,DATA2

MUL BX

MOV PROD1,DX

MOV PROD2,AX

MOV AH,09

MOV DX,OFFSET msg2

INT 21H

MOV BX, PROD1

MOV CX, 4

AGAIN2: ROL BX, 4

MOV DL, BL

AND DL, 0FH ; to o/p the result

CMP DL, 9

JBE L1

ADD DL, 37H

MOV AH, 02

INT 21H

JMP L2

L1: ADD DL,30H

MOV AH,02

INT 21H

L2: LOOP AGAIN2

MOV BX, PROD2

MOV CX, 4

AGAIN3: ROL BX, 4

MOV DL, BL

AND DL, 0FH ; to o/p the result

CMP DL,9

JBE L3

ADD DL,37H

MOV AH,02

INT 21H

JMP L4

L3: ADD DL,30H

MOV AH,02

INT 21H

L4: LOOP AGAIN3

.EXIT

END

**32 Bits**

.model small

.386

.data

DATA1 dd 00000000H

DATA2 dd 00000000H

PROD1 dd ?

PROD2 dd ?

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

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

msg2 db 10,13,"The product(in hexadecimal) 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 L5

SUB AL,30H

JMP L6

L5: SUB AL,37H

L6: SHL EBX,4

ADD BL,AL

LOOP AGAIN

MOV DATA1,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 L7

SUB AL,30H

JMP L8

L7: SUB AL,37H

L8: SHL EBX,4

ADD BL,AL

LOOP AGAIN1

MOV DATA2,EBX

MOV EBX,0

MOV EDX,0

MOV EAX,0

MOV EAX,DATA1

MOV EBX,DATA2

MUL EBX

MOV PROD1,EDX

MOV PROD2,EAX

MOV AH,09

MOV DX,OFFSET msg2

INT 21H

MOV EBX,PROD1

MOV CX,8

AGAIN2: ROL EBX,4

MOV DL,BL

AND DL,0FH ; to o/p the result

CMP DL,9

JBE L1

ADD DL,37H

MOV AH,02

INT 21H

JMP L2

L1: ADD DL,30H

MOV AH,02

INT 21H

L2: LOOP AGAIN2

MOV EBX,PROD2

MOV CX,8

AGAIN3: ROL EBX,4

MOV DL,BL

AND DL,0FH ; to o/p the result

CMP DL,9

JBE L3

ADD DL,37H

MOV AH,02

INT 21H

JMP L4

L3: ADD DL,30H

MOV AH,02

INT 21H

L4: LOOP AGAIN3

.EXIT

END