U19CS076 MIT ASSIGNMENT 11-12

1. Write a Program for data transfer using different addressing modes.

```
dosseg
model small
.8086

.data
n1 dw 03A0h
n2 dw ?

.code
mov ax,@data
mov ds,ax

mov ax,1005h ;immediate addressing
mov bx,n1 ;direct
mov cx,ax ;register
mov ax,[bx] ;register indirect
mov ax,[bx + di] ;base index mode

mov ax,4c00h
int 21h
end
```

```
C:\TASM>debug 11q1.exe
-u
076A:0000 B86B07        MOV     AX,076B
076A:0003 8ED8          MOV     DS,AX
076A:0005 B80510        MOV     AX,1005
076A:0008 8B1E0800      MOV     BX,[0008]
076A:000C 8BC8          MOV     CX,AX
076A:000E 8B07          MOV     AX,[BX]
076A:0010 8B01          MOV     AX,[BX+DI]
076A:0012 B8004C        MOV     AX,4C00
076A:0015 CD21          INT     21
076A:0017 00A00300      ADD     [BX+SI+0003],AH
076A:001B 0000          ADD     [BX+SI],AL
076A:001D 820E000000    OR      BYTE PTR [0000],00
-g

Program terminated normally
```

2. Write Program to move data from source to destination using indirect addressing mode (Block Move without overlap).

```
dosseg
model small
.8086
.data
x db 12h,24h,36h,48h,60h
cnt db 5
ans db ?

.code
mov ax,@data
mov ds,ax
mov cl,cnt
mov ch, 00h
mov si,0000h
next: mov al,x[si]
mov ans[si],al
inc si
loop next
mov ah, 4ch
int 21h
end
```

```
-u
076A:0000 B86B07        MOV     AX,076B
076A:0003 8ED8          MOV     DS,AX
076A:0005 8A0E1300      MOV     CL,[0013]
076A:0009 B500          MOV     CH,00
076A:000B BE0000        MOV     SI,0000
076A:000E 8A840E00      MOV     AL,[SI+000E]
076A:0012 88841400      MOV     [SI+0014],AL
076A:0016 46            INC     SI
076A:0017 E2F5          LOOP    000E
076A:0019 B44C          MOV     AH,4C
076A:001B CD21          INT     21
076A:001D 0012          ADD     [BP+SI],DL
076A:001F 2436          AND     AL,36
-g

Program terminated normally
```

```
-d 076b:0000
076B:0000  0E 00 88 84 14 00 46 E2-F5 B4 4C CD 21 00 12 24   ......F...L.!..$
076B:0010  36 48 60 05 12 24 36 48-60 82 0E 00 00 00 00 83   6H`..$6H`.......
076B:0020  0E FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0030  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0040  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0050  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0060  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0070  FF FF FF 26 00 FF FF FF-FF FF FF FF FF FF FF FF   ...&............
-
```

3. Write a Program to move a block of data from source to destination (With overlap in either direction).

```
dosseg
model small
.8086
.data
y db 3 dup(0)
x db 10h,15h,20h,25h,50h
.code
mov ax, @data
mov ds, ax
lea si, x
lea di, y
mov cx, 0005h
up: mov al,[si]
mov [di], al
inc si
```

inc di
loop up
mov ax, 4c00h
int 21h
end

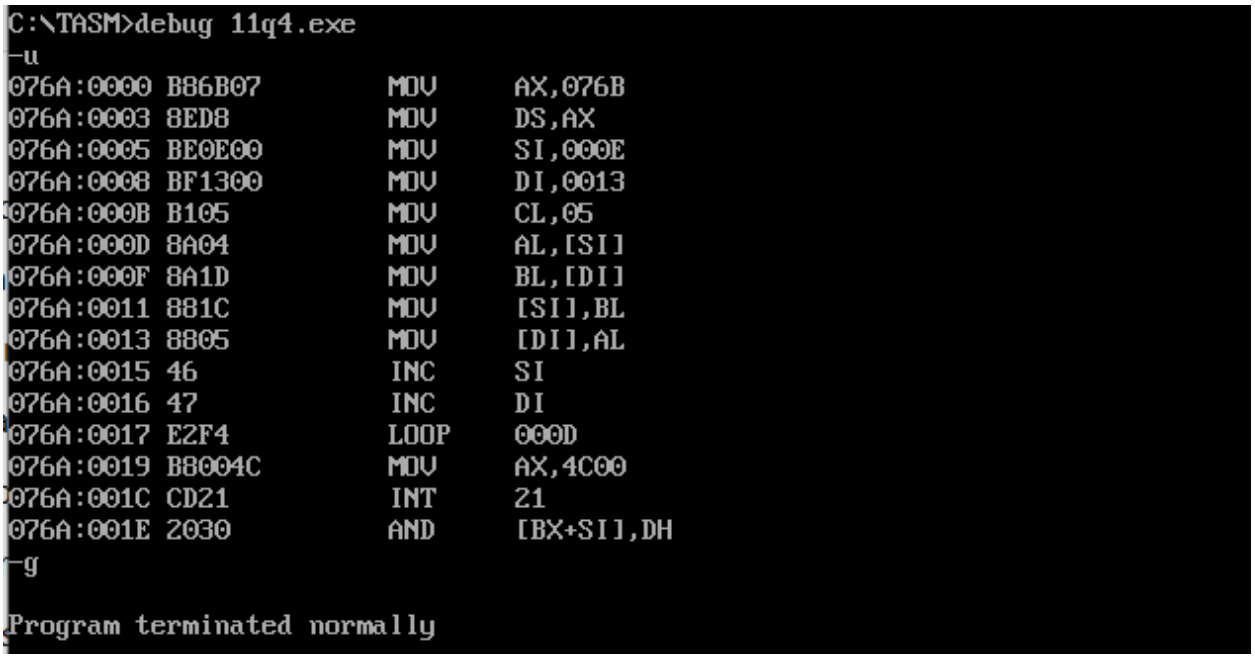
```
C:\TASM>debug 11q3.exe
-u
076A:0000 B86B07        MOV     AX,076B
076A:0003 8ED8          MOV     DS,AX
076A:0005 BE0F00        MOV     SI,000F
076A:0008 BF0C00        MOV     DI,000C
076A:000B B90500        MOV     CX,0005
076A:000E 8A04          MOV     AL,[SI]
076A:0010 8805          MOV     [DI],AL
076A:0012 46            INC     SI
076A:0013 47            INC     DI
076A:0014 E2F8          LOOP    000E
076A:0016 B8004C        MOV     AX,4C00
076A:0019 CD21          INT     21
076A:001B 0000          ADD     [BX+SI],AL
076A:001D 0000          ADD     [BX+SI],AL
076A:001F 1015          ADC     [DI],DL
-g

Program terminated normally
```

```
-d 076b:0000
076B:0000  88 05 46 47 E2 F8 B8 00-4C CD 21 00 10 15 20 25   ..FG....L.!... %
076B:0010  50 20 25 50 0E 10 00 02-00 82 0E 00 00 00 00 83   P %P............
076B:0020  0E FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0030  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0040  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0050  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0060  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076B:0070  FF FF FF 26 00 FF FF FF-FF FF FF FF FF FF FF FF   ...&............
-q
```

4. Write a Program to interchange two blocks of data.

```
dosseg
model small
.8086

.data
src db 20h,30h,10h,40h,50h
dst db 08,09,06,07,0AH
total equ 05
```

```
.code
mov ax, @data
mov ds, ax
lea si,src
lea di,dst
mov cl, total

up: mov al, [si]
    mov bl, [di]
    mov [si], bl
    mov [di], al
    inc si
    inc di
    loop up
    mov ax,4c00h
    int 21h
    end
```



Assignment -12

*For first three programs perform only one operation i.e. ADD or SUB.

1. Write ALP to ADD/SUB ‘n’ 16 bit numbers stored in consecutive memory location

Code:

```
dosseg
model small
.8086

.data
n db 0ah
a dw 1210h,3443h,0ab54h,4337h,5675h,0086h,4209h,0cd2h,12ffh,4500h
ans dw ?
carry db ?

.code
mov ax,@data
mov ds,ax

mov cl,n
mov ch,00h
mov si,offset a
mov ax,0h
mov dl,00

sumation: add ax,[si]
jnc next
```

```
inc dl
next: inc si
inc si
loop sumation

mov ans,ax
mov carry,dl
mov ax,4c00h
int 21h
end
```

```
C:\TASM>debug 12q1.exe
-u
076A:0000 B86C07        MOV     AX,076C
076A:0003 8ED8          MOV     DS,AX
076A:0005 8A0E0A00      MOV     CL,[000A]
076A:0009 B500          MOV     CH,00
076A:000B BE0B00        MOV     SI,000B
076A:000E B80000        MOV     AX,0000
076A:0011 B200          MOV     DL,00
076A:0013 0304          ADD     AX,[SI]
076A:0015 7302          JNB     0019
076A:0017 FEC2          INC     DL
076A:0019 46            INC     SI
076A:001A 46            INC     SI
076A:001B E2F6          LOOP    0013
076A:001D A31F00        MOV     [001F],AX
-g

Program terminated normally

Program terminated normally
-d 076c:0000
076C:0000  88 16 21 00 B8 00 4C CD-21 00 0A 10 12 43 34 54   ..!...L.!....C4T
076C:0010  AB 37 43 75 56 86 00 09-42 D2 0C FF 12 00 45 B3   .7CuV...B.....E.
076C:0020  32 02 FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   2...............
076C:0030  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0040  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0050  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0060  FF FF FF 26 00 FF FF FF-FF FF FF FF FF FF FF FF   ...&............
076C:0070  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
-
```

Sum= 02 32 B3 h

2. Write a Program to find smallest/largest number in a given array of 16 bits numbers.

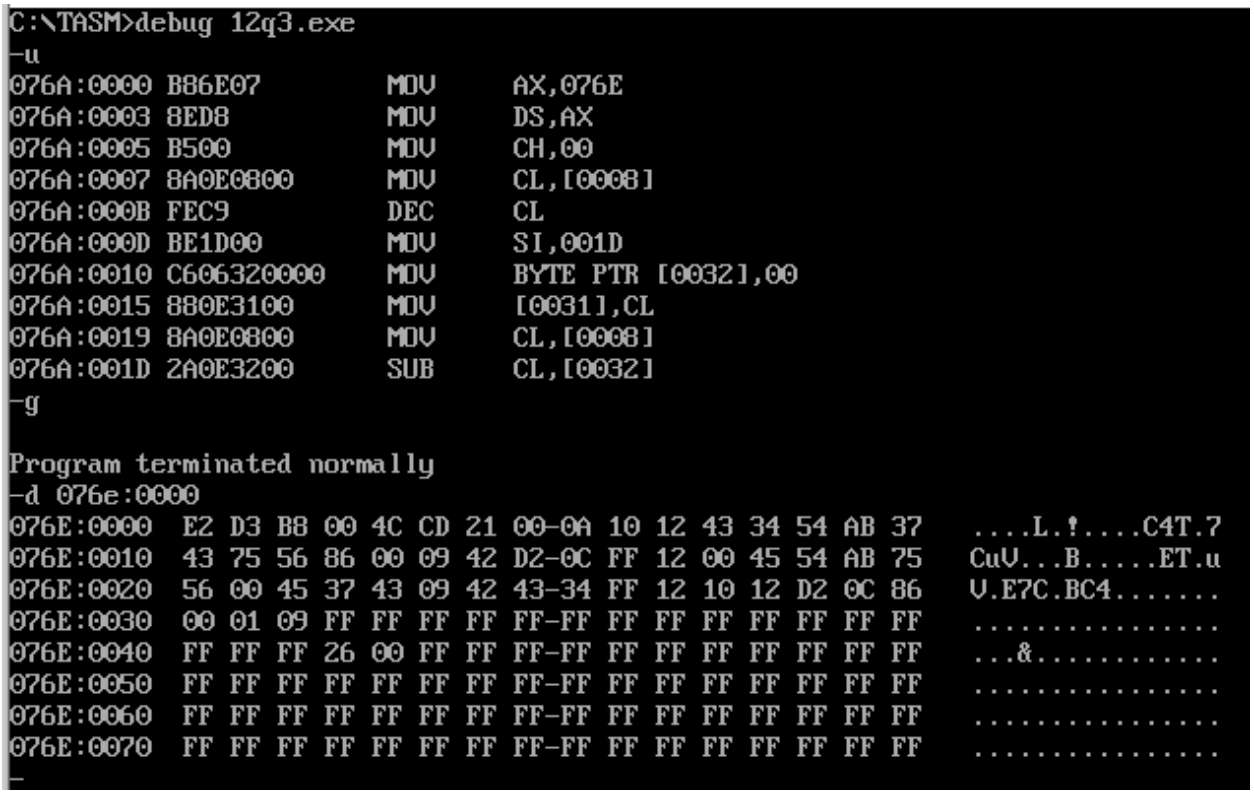
```
dosseg
model small
.8086

.data
n db 0ah
a dw 0111h,0213h,1203h,1404h,5405h,4506h,9007h,6708h,6709h,560Ah
ans dw ?

.code
mov ax,@data
mov ds,ax

mov cl,n
mov ch,00h
mov si,offset a
mov ax,0h
up: cmp ax,[si]
;if ax>[si] jump to next
jnc next
;else store [si] in ax
mov ax,[si]
next: inc si
inc si
loop up
mov ans,ax

mov ax,4c00h
int 21h
end
```

```
076A:0005 8A0E0400      MOV     CL,[0004]
076A:0009 B500          MOV     CH,00
076A:000B BE0500        MOV     SI,0005
076A:000E B80000        MOV     AX,0000
076A:0011 3B04          CMP     AX,[SI]
076A:0013 7302          JNB     0017
076A:0015 8B04          MOV     AX,[SI]
076A:0017 46            INC     SI
076A:0018 46            INC     SI
076A:0019 E2F6          LOOP    0011
076A:001B A31900        MOV     [0019],AX
076A:001E B8004C        MOV     AX,4C00
-g

Program terminated normally
-d 076c:0000
076C:0000  4C CD 21 00 0A 11 01 13-02 03 12 04 14 05 54 06   L.!...........T.
076C:0010  45 07 90 08 67 09 67 0A-56 07 90 FF FF FF FF FF   E...g.g.V.......
076C:0020  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0030  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0040  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0050  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
076C:0060  FF FF FF 26 00 FF FF FF-FF FF FF FF FF FF FF FF   ...&............
076C:0070  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
-_
```

3. Write a Program to sort 16 bits given numbers in ascending /descending order.

```
dosseg
model small
.8086

.data
n db 0AH
b dw 1210h,3443h,0ab54h,4337h,5675h,0086h,4209h,0cd2h,12ffh,4500h
;storing in b for reference
a dw 1210h,3443h,0ab54h,4337h,5675h,0086h,4209h,0cd2h,12ffh,4500h
temp db ?
i db ?

.code
mov ax,@data
mov ds,ax


mov ch,00h
mov cl,n
```

```
dec cl
mov si,offset a
mov i,00h
up1:
mov temp,cl
mov cl,n
sub cl,i
inc i
dec cl
mov bx,0000h
up2:mov ax,[si+bx]
mov dx,[si+bx+2]
cmp ax,dx
jnc next
mov [si+bx],dx
mov [si+bx+2],ax
next: inc bx
inc bx
loop up2

mov cl,temp
loop up1

mov ax,4c00h
int 21h
end
```



initital :- 1210h, 3443h, 0ab54h, 4337h, 5675h, 0086h, 4209h, 0cd2h, 12ffh, 4500h
after Execution-after sorting in reverse order:- AB54 ,5675 ,4500, 4337 , 4209, 3443 ,12FF , 1210 ,0CD2 ,0086

4. Write a Program to find occurrences of a given number in a list of N numbers given through keyboard.

;U19CS066

dosseg

.model small

.8086

.data

n db ?

ans db 00h

```
x db ?
y db "$"
cr equ 0dh
lf equ 0ah
msg1 db "n=$"
msg2 db "Enter Numbers:$"
msg3 db "Enter the number for freq: $"
msg4 db "  $"
p db ?

print macro msg

mov ah,09h
mov dx,offset msg
int 21h
endm

read macro no
mov ah,01h
int 21h
sub al,'0'
mov bl,0ah
mul bl
mov no,al
```

```
mov ah,01h
int 21h
sub al,'0'
add no,al
endm

.code
mov ax,@data
mov ds,ax

print msg1
read n
print msg4
print msg3
read x
print msg4
print msg2
mov ch,00h
mov cl,n

up: read p
  mov al,x
  cmp al,p
  jnz next
```

```
inc ans

next: inc p

print msg4

loop up


mov ax,4c00h

int 21h

end
```

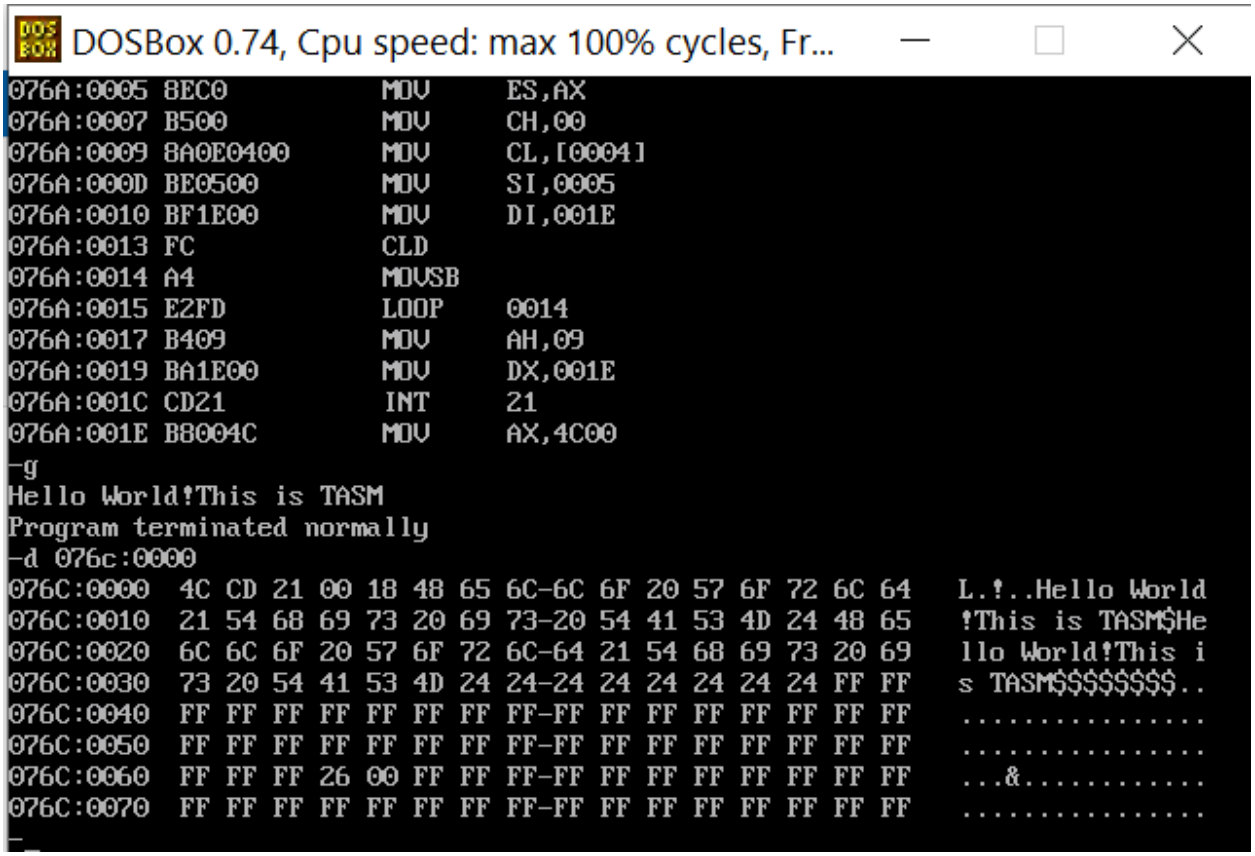
```
076A:000A CD21          INT     21
076A:000C B401          MOV     AH,01
076A:000E CD21          INT     21
076A:0010 2C30          SUB     AL,30
076A:0012 B30A          MOV     BL,0A
076A:0014 F6E3          MUL     BL
076A:0016 A20200        MOV     [0002],AL
076A:0019 B401          MOV     AH,01
076A:001B CD21          INT     21
076A:001D 2C30          SUB     AL,30
076A:001F 00060200      ADD     [0002],AL
-g
n=10  Enter the number for freq: 1   Enter Numbers:2   3   1   3   4   2   1
   3   4
Program terminated normally
-d 0773:0000
0773:0000  CD 21 0A 02 FA 24 6E 3D-24 45 6E 74 65 72 20 4E   .!...$n=$Enter N
0773:0010  75 6D 62 65 72 73 3A 24-45 6E 74 65 72 20 74 68   umbers:$Enter th
0773:0020  65 20 6E 75 6D 62 65 72-20 66 6F 72 20 66 72 65   e number for fre
0773:0030  71 3A 20 24 20 20 24 19-FF FF FF FF FF FF FF FF   q: $  $.........
0773:0040  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
0773:0050  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
0773:0060  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
0773:0070  FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF   ................
-
```

Occurrence of 1= 2

5. Write a Program to move a string from source to destination.

```
dosseg
.model small
.8086

.data
cr equ 0dh
lf equ 0ah
len db 18h
str1 db "Hello World!This is TASM$"
str2 db "$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$"

.code
mov ax,@data
mov ds,ax

mov es,ax
mov ch,00h
mov cl,len
mov si,offset str1
mov di,offset str2
cld

up: movsb
loop up
```

```
mov ah,09h

mov dx,offset str2

int 21h


mov ax,4c00h

int 21h

end
```



6. Write a Program to reverse a given string.

```
dosseg

model small

.8086
```

```
.data
cr equ 0dh
lf equ 0ah
len dw 0015h
str1 db " string reverse$"
str2 db "$$$$$$$$$$$$$$$$$$$$"

.code
mov ax,@data
mov ds,ax

mov es,ax
mov cx,len
mov si,offset str1
add si,len
mov di,offset str2
cld

up: mov al,[si]
mov [di],al
inc di
dec si
loop up
```

mov ah,09h

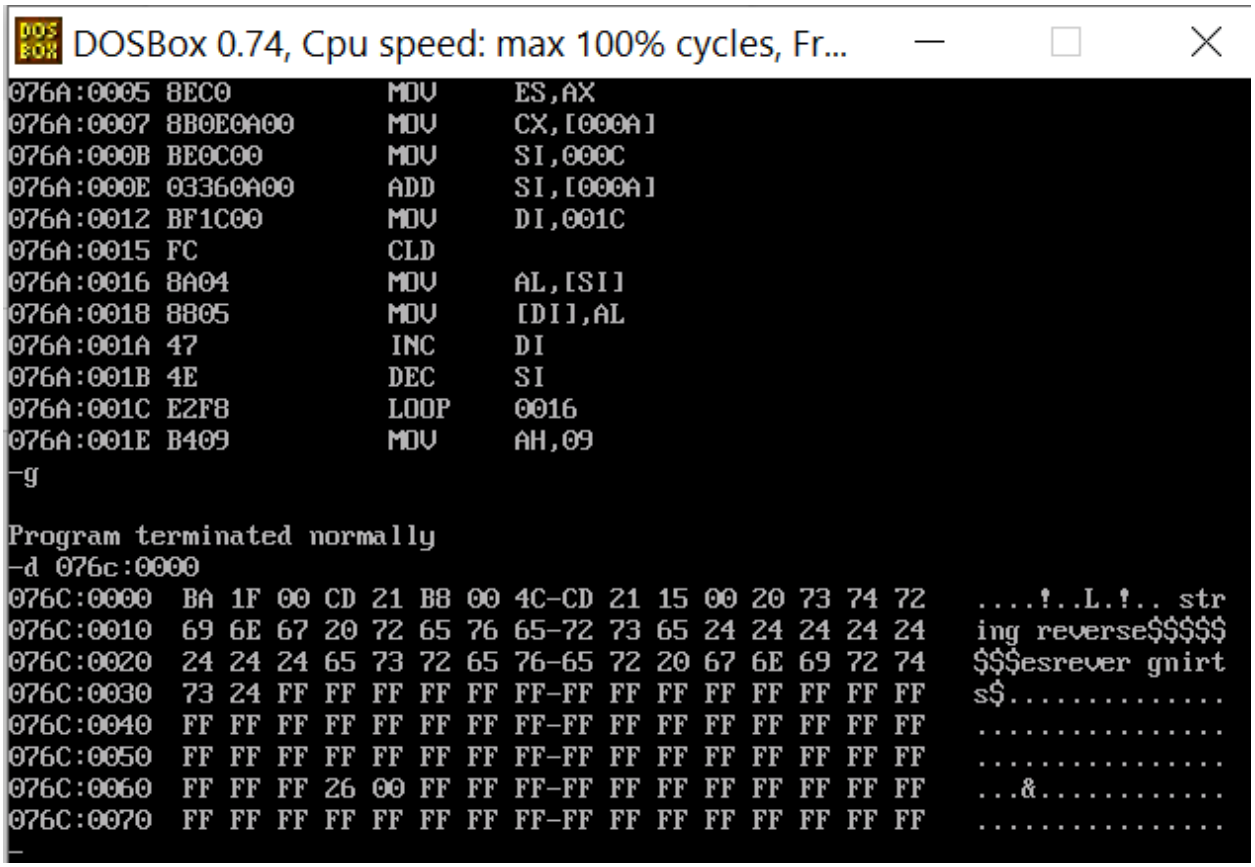
mov dx,offset str2+3

int 21h

mov ax,4c00h

int 21h

end

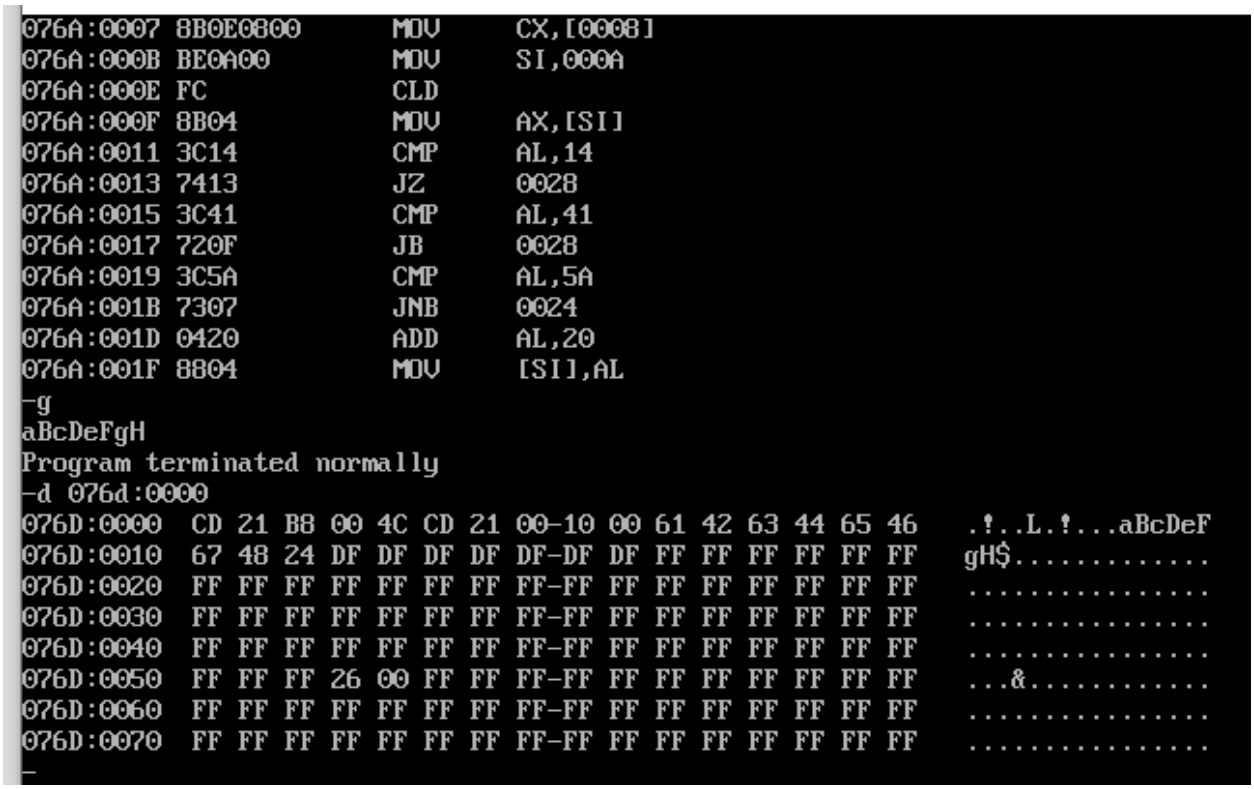


7. Write a Program to perform case conversion (U to L/ L to U) for a given string

dosseg
model small
.8086

.data

```
cr equ 0dh
lf equ 0ah
len dw 010h
str1 db "AbCdEfGh$"

.code
mov ax,@data
mov ds,ax

mov es,ax
mov cx,len
mov si,offset str1
cld
up: mov ax,[si]
cmp al,20
jz next
cmp al,41h
jc next
cmp al,5ah
jnc smalla
add al,20h
mov [si],al
jmp next

smalla: sub al,20h
mov [si],al

next: inc si
loop up
mov ah,09h
mov dx,offset str1
int 21h

mov ax,4c00h
int 21h
end
```



8. Write a Program to merge two strings entered through keyboard

```
;Assigment 12 Q8 concat 2 strings
dosseg
model small
.8086
.data
cr equ 0dh
lf equ 0ah
len1 db ?
len2 db ?
str1 db "$$$$$$$$$$$$$$$$$$$$"
str2 db "$$$$$$$$$$$$$$$$$$$$"
final db "$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$"
msg1 db "Enter String : $"
msg3 db "final string : $"
msg4 db "enter length : $"
msg5 db " $"
```

```
print macro msg
mov ah,09h
mov dx,offset msg
int 21h
endm
;;;;;;;;;;;;;;;;;;;;;
read macro str
print msg4
mov ah,01h
int 21h
sub al,'0'
mov len2,al
mov cl,al
mov ch,00h
print msg5
print msg1
mov si,offset str
nextc: mov ah,01h
int 21h
mov [si],al
inc si
loop nextc
endm
;---------------------------------
listen macro str
print msg4
mov ah,01h
int 21h
sub al,'0'
mov len2,al
mov cl,al
mov ch,00h
print msg5
print msg1
mov si,offset str
next: mov ah,01h
int 21h
mov [si],al
```

```
inc si
loop next
endm
;----------------------------


.code
mov ax,@data
mov ds,ax

mov es,ax
read str1
mov al,len2
mov len1,al
print msg5

listen str2

print msg5

cld
mov si,offset str1
mov di,offset final
mov ch,00h
mov cl,len1
rep movsb

dec di
mov si,offset str2
mov cl,len2
rep movsb

print msg3
print msg5
print final

mov ax,4c00h
int 21h
```

end

```
C:\TASM>debug 12q8.exe
-u
076A:0000 B87407        MOV     AX,0774
076A:0003 8ED8          MOV     DS,AX
076A:0005 8EC0          MOV     ES,AX
076A:0007 B409          MOV     AH,09
076A:0009 BA7D00        MOV     DX,007D
076A:000C CD21          INT     21
076A:000E B401          MOV     AH,01
076A:0010 CD21          INT     21
076A:0012 2C30          SUB     AL,30
076A:0014 A20B00        MOV     [000B],AL
076A:0017 8AC8          MOV     CL,AL
076A:0019 B500          MOV     CH,00
076A:001B B409          MOV     AH,09
076A:001D BA8D00        MOV     DX,008D
-g
enter length : 8 Enter String : helllowo enter length : 3 Enter String : bye fin
al string :  helllowbye
Program terminated normally
-_
```

9. Write a Program to search a character in a given string.

;Assigment 12 Q8 concat 2 strings

dosseg

model small

.8086

.data

cr equ 0dh

lf equ 0ah

len1 db ?

char db ?

ans dw ?

str1 db "$$$$$$$$$$$$$$$$$$$$$$$$$$"

```
msg1 db "Enter String : $"
msg4 db "enter length : $"
msg2 db "enter the character to find :$"
msg5 db " $"
msg3 db "character found at :$"
;--------------------------------
print macro msg
mov ah,09h
mov dx,offset msg
int 21h
endm
;--------------------------------
read macro str
print msg4
mov ah,01h
int 21h
sub al,'0'
mov len1,al
mov cl,al
mov ch,00h
print msg5
print msg1
mov si,offset str
nextc: mov ah,01h
```

```
int 21h
mov [si],al
inc si
loop nextc
endm
;-----------------------------------

.code
mov ax,@data
mov ds,ax

mov es,ax
print msg2
mov ah,01h
int 21h
mov char,al

read str1
print msg5



mov di,offset str1

mov cl,len1
```

mov ch,00h

mov al,char

repnz scasb

mov ans,di

sub ans,offset str1

mov ax,4c00h

int 21h

end

```
076A:0005 8EC0          MOV     ES,AX
076A:0007 B409          MOV     AH,09
076A:0009 BA4600        MOV     DX,0046
076A:000C CD21          INT     21
076A:000E B401          MOV     AH,01
076A:0010 CD21          INT     21
076A:0012 A20900        MOV     [0009],AL
076A:0015 B409          MOV     AH,09
076A:0017 BA3600        MOV     DX,0036
076A:001A CD21          INT     21
076A:001C B401          MOV     AH,01
076A:001E CD21          INT     21
-g
enter the character to find :wenter length : 8 Enter String : worldres
Program terminated normally
-d 0770:000
0770:0000  0C 00 B8 00 4C CD 21 00-08 77 01 00 77 6F 72 6C   ....L.!..w..worl
0770:0010  64 72 65 73 24 24 24 24-24 24 24 24 24 24 24 24   dres$$$$$$$$$$$$
0770:0020  24 24 24 24 24 24 45 6E-74 65 72 20 53 74 72 69   $$$$$$Enter Stri
0770:0030  6E 67 20 3A 20 24 65 6E-74 65 72 20 6C 65 6E 67   ng : $enter leng
0770:0040  74 68 20 3A 20 24 65 6E-74 65 72 20 74 68 65 20   th : $enter the
0770:0050  63 68 61 72 61 63 74 65-72 20 74 6F 20 66 69 6E   character to fin
0770:0060  64 20 3A 24 20 24 63 68-61 72 61 63 74 65 72 20   d :$ $character
0770:0070  66 6F 75 6E 64 20 61 74-20 3A 24 FF FF FF FF FF   found at :$.....
-
```

10. Write a Program to find occurrences of a given character in a given string through keyboard.

;Assigment 12 Q10 find occurence

dosseg

```
model small

.8086

.data

cr equ 0dh

lf equ 0ah

len1 db ?

char db ?

ans db 00h

str1 db "$$$$$$$$$$$$$$$$$$$$$$$$$"

msg1 db "Enter String : $"

msg4 db "enter length : $"

msg2 db "enter the character to find :$"

msg5 db " $"

;---------------------------------

print macro msg

mov ah,09h

mov dx,offset msg

int 21h

endm

;-------------------------------

read macro str

print msg4

mov ah,01h

int 21h
```

```
sub al,'0'
mov len1,al
mov cl,al
mov ch,00h
print msg5
print msg1
mov si,offset str
nextc: mov ah,01h
int 21h
mov [si],al
inc si
loop nextc
endm
;-----------------------------------


.code
mov ax,@data
mov ds,ax

mov es,ax
print msg2
mov ah,01h
int 21h
mov char,al
```

```
read str1
print msg5


mov di,offset str1

mov cl,len1
mov ch,00h
mov al,char
up: repnz scasb
jnz skip
inc ans
skip: inc di
loop up

mov ax,4c00h
int 21h
end
```

```
076A:0005 8EC0          MOV     ES,AX
076A:0007 B409          MOV     AH,09
076A:0009 BA4300        MOV     DX,0043
076A:000C CD21          INT     21
076A:000E B401          MOV     AH,01
076A:0010 CD21          INT     21
076A:0012 A20700        MOV     [0007],AL
076A:0015 B409          MOV     AH,09
076A:0017 BA3300        MOV     DX,0033
076A:001A CD21          INT     21
076A:001C B401          MOV     AH,01
076A:001E CD21          INT     21
-g
enter the character to find :aenter length : 9 Enter String : namastean
Program terminated normally
-d 0770:0000
0770:0000  F5 B8 00 4C CD 21 09 61-03 6E 61 6D 61 73 74 65   ...L.!.a.namaste
0770:0010  61 6E 24 24 24 24 24 24-24 24 24 24 24 24 24 24   an$$$$$$$$$$$$$$
0770:0020  24 24 24 45 6E 74 65 72-20 53 74 72 69 6E 67 20   $$$Enter String
0770:0030  3A 20 24 65 6E 74 65 72-20 6C 65 6E 67 74 68 20   : $enter length
0770:0040  3A 20 24 65 6E 74 65 72-20 74 68 65 20 63 68 61   : $enter the cha
0770:0050  72 61 63 74 65 72 20 74-6F 20 66 69 6E 64 20 3A   racter to find :
0770:0060  24 20 24 E8 06 F8 C3 8B-C1 F6 06 B9 6D 01 74 12   $ $.........m.t.
0770:0070  3B 06 9C 74 74 23 3B 06-9E 74 74 2C 3B 06 A0 74   ;..tt#;..tt,;..t
```

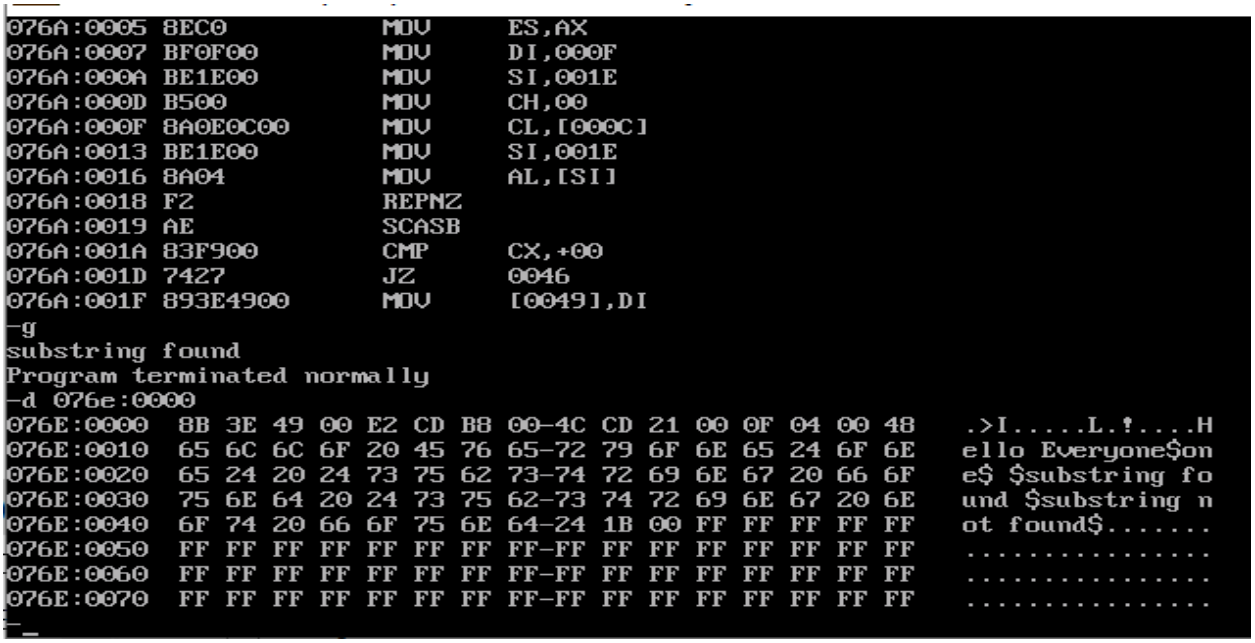
11. Program to check whether given substring exist in a main string or not?

```
model small

.8086


.data

 cr equ 0dh

 lf equ 0ah

 msg db "Enter String: $"

 msg1 db cr,lf,"Enter Substring: $"

 msg2 db cr,lf,"Found!$"

 msg3 db cr,lf,"Not Found$"

 st1 db 80 dup('$')

 st2 db 80 dup('$')
```

```
print macro msg
  mov ah,09h
  mov dx,offset msg
  int 21h
endm

.code
  mov ax,@data
  mov ds,ax
  print msg
  mov si,offset st1
  mov cx,0000h
  up:
  mov ah,01h
  int 21h
  cmp al,0dh
  je stp
  mov [si],al
  inc si
  inc cx
  jmp up
  stp:
  print msg1
```

```
mov si,offset st2
mov bx,0000h
u:
mov ah,01h
int 21h
cmp al,0dh
je stop
mov [si],al
inc si
inc bx
jmp u
stop:
mov si,offset st1
mov di,offset st2
cmp cx,bx
jc down
mov dx,0000h
go:
mov al,[si]
cmp al,[di]
je me
mov dx,0000h
mov di,offset st2
inc si
```

```
  loop go
  jmp en
  me:
  inc dx
  inc si
  inc di
  cmp dx,bx
  jnz go
  en:
  cmp dx,bx
  jnz down
  print msg2
  jmp e
  down:
  print msg3
  e: mov ah,4ch
  int 21h
end
```


076A:0005 8EC0 MOV ES,AX
076A:0007 BF0F00 MOV DI,000F
076A:000A BE1E00 MOV SI,001E
076A:000D B500 MOV CH,00
076A:000F 8A0E0C00 MOV CL,[000C]
076A:0013 BE1E00 MOV SI,001E
076A:0016 8A04 MOV AL,[SI]
076A:0018 F2 REPNZ
076A:0019 AE SCASB
076A:001A 83F900 CMP CX,+00
076A:001D 7427 JZ 0046
076A:001F 893E4900 MOV [0049],DI
-g
substring found
Program terminated normally
-d 076e:0000
076E:0000 8B 3E 49 00 E2 CD B8 00-4C CD 21 00 0F 04 00 48 .>I.....L.!....H
076E:0010 65 6C 6C 6F 20 45 76 65-72 79 6F 6E 65 24 6F 6E ello Everyone$on
076E:0020 65 24 20 24 73 75 62 73-74 72 69 6E 67 20 66 6F e$ $substring fo
076E:0030 75 6E 64 20 24 73 75 62-73 74 72 69 6E 67 20 6E und $substring n
076E:0040 6F 74 20 66 6F 75 6E 64-24 1B 00 FF FF FF FF FF ot found$.....
076E:0050 FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF ....
076E:0060 FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF ....
076E:0070 FF FF FF FF FF FF FF FF-FF FF FF FF FF FF FF FF ....
-_