Lab Session 02

Introduction to Assembly Language Programming

Recall the previous basic things…

#Program1: Write a program that will read a character from the keyboard and display it at the beginning of the next line.

```
.modelsmall
.stack 100h
.data
.code
main proc
 ;display prompt

        mov ah,2
        mov dl,'?'
        int 21h

 ;input a character

        mov ah,1
        int 21h
        mov bl,al

 ;new line

        mov ah, 2
        mov dl,0dh
        int 21h
```

```
        mov dl, 0ah
        int 21h

;display character

        mov dl,bl
        int 21h

;return to DOS

        mov ah,4ch
        int 21h

main endp
end main
```

#Program2: Write a program to print a string.

```
.modelsmall
.stack 100h
.data
        msg         db          'hey! Smile $ '
.code
main proc

;initialize DS

        mov ax, @data
        mov ds,ax                   ; initialize ds

;display message
```

```
        lea dx, msg                ; get message
        mov ah,9                   ; display string function
        int 21h                    ; display message

; return to DOS

        Mov ah,4ch
        int 21h                    ;DOS exit

Main endp
End main
```

Exercise 1: print the text …. I love to smile ☺

#Program3: write a program to add two numbers.

```
.modelsmall
.stack 100h
.data
.code
main proc

        mov ah,5
        mov bh,1
        add ah,bh

        mov dl,ah
        mov ah,2
        int 21h

main endp
end main
```

#Program4: Write a program to add two numbers from the user.

```
.model small
.stack 100h
.data
        msg         db    'Enter the first value:  $'
        msg2        db    0ah,0dh,'enter the second value: $'
        msg3        db    0ah,0dh,'The result is:  '
        sum         db    ?,'$'
.code
main proc
;initialize DS
        mov ax,@data
        mov ds,ax

;print the user prompt

        lea dx,msg
        mov ah,9
        int 21h

;taking first input
        mov ah,1
        int 21h
        mov bh,al

;print the user prompt

        lea dx,msg2
        mov ah,9
        int 21h

;taking first input
        mov ah,1
```

```
        int 21h
        mov ah,al

;adding two value

        add ah,bh
        sub ah,30h
        mov sum,ah

;print the user prompt

        lea dx,msg3
        mov ah,9
        int 21h

;return to DOS

        mov ah,4ch
        int 21h

main endp
end main
```

Exercise 2: write a case conversion program.

```
Enter a Upper case letter: A
In lower case letter: a
```

#Program 5: Print double integer answer in a summation.

```
.model small
.stack 100h
.data
        a               db              0
        b               db              0
        newline     db              0ah,0dh,'sum is $'
.code
 main proc
          mov ah,1
          int 21h
;input save in 'al'
        mov a,al
        mov ah,1
        int 21h
        mov b,al

        add al,a            ; adding a and b in a
        mov ah,0            ; ax = ah, al
        aaa                 ;adjust after addition

        mov bx,ax           ;bx = bh, bl
        add bh,30h
        add bl,30h

;initialize DS
        mov ax,@data
        mov ds,ax
;dsiaplay newline
         lea dx,newline
        mov ah,9
         int 21h
```

```
;showing sum
        mov ah,2
         mov dl,bh
        int 21h
        mov ah,2
        mov dl,bl
        int 21h
;DOS exit
        mov ah,4ch
        int 21h
main endp
        end main
```

Good luck ☺