ASSIGNMENT#2

***Computer Organization & Assembly Language***

***WAQAS ASHIQ***

***BCS-F11-201***

***SECTION C***

***SUBMITTED TO: Sir Khaqan Zaheer***

**Question:**

**Code for Program that read first, middle, and last initials of a person's name and display them down the left margin in Assembly Language.**

.MODEL SMALL

.STACK 100H

.DATA

MSG\_1 EQU 'Enter three initials : $'

MSG\_2 EQU 0DH,0AH,'The initials are :',0DH,0AH,'$'

MSG\_3 EQU 0DH,0AH,'$'

PROMPT\_1 DB MSG\_1

PROMPT\_2 DB MSG\_2

NEWLINE DB MSG\_3

.CODE

MAIN PROC

MOV AX, @DATA ; initialize DS

MOV DS, AX

LEA DX, PROMPT\_1 ; load and display PROMPT\_1

MOV AH, 9

INT 21H

MOV AH, 1 ; read first initial

INT 21H

MOV BL, AL ; save the first initial into BL

MOV AH, 1 ; read second initial

INT 21H

MOV BH, AL ; save the second initial into BH

MOV AH, 1 ; read third initial

INT 21H

MOV CL, AL ; save the third initial into CL

LEA DX, PROMPT\_2 ; load and display PROMPT\_2

MOV AH, 9

INT 21H

MOV AH, 2 ; display the first initial

MOV DL, BL

INT 21H

LEA DX, NEWLINE ; display new line

MOV AH, 9

INT 21H

MOV AH, 2 ; display the second initial

MOV DL, BH

INT 21H

LEA DX, NEWLINE ; display new line

MOV AH, 9

INT 21H

MOV AH, 2 ; display the third initial

MOV DL, CL

INT 21H

MOV AH, 4CH ; return control to DOS

INT 21H

MAIN ENDP

END MAIN

**Question:**

**Add two digits and show their sum**

.model small

.stack 100h

.data

msg1 db "Enter First Decimal Number : $";

msg2 db ,0dh,0ah,"Enter Second Decimal : $";

msg3 db ,0dh,0ah,"SUM of Entered Numbers = $";

num1 db ?;

num2 db ?,;

ans db ?,"$";

.code

main proc

mov ax,@data;

mov ds,ax;

mov dx,offset msg1;

mov ah,9;

int 21h;

mov ah,1h;

int 21h;

sub al,30h

mov num1,al;

mov dx,offset msg2;

mov ah,9;

int 21h;

mov ah,1h;

int 21h;

sub al,30h;

mov num2,al;

mov dx,offset msg3;

mov ah,9;

int 21h;

mov al,num1;

add al,num2;

add al,30h;

mov ans,al;

mov dx,offset ans;

mov ah,9;

int 21h;

mov ax, 4c00h;

int 21h ;

main endp

end main

**Question:**

**Code for Program to display "?", read three initials, display them in the middle of an 11\*11 box of asterisks, beep the computer in Assembly Language**

.MODEL SMALL

.STACK 100H

.DATA

PROMPT DB 0DH,0AH,'Enter three initials : $'

ASTERISKS DB '\*\*\*\*\*\*\*\*\*\*\*',0DH,0AH,'$'

NEXT\_LINE DB 0DH,0AH,"$"

.CODE

MAIN PROC

MOV AX, @DATA ; initialize DS

MOV DS, AX

MOV AH, 2 ; display "?"

MOV DL, "?"

INT 21H

LEA DX, PROMPT ; load and display the string PROMPT

MOV AH, 9

INT 21H

MOV AH, 1 ; read first initial

INT 21H

MOV BL, AL ; save first initial in BL

INT 21H ; read second initial

MOV BH, AL ; save second initial in BH

INT 21H ; read third initial

MOV CL, AL ; save third initial in CL

LEA DX, NEXT\_LINE ; load and display the string NEXT\_LINE

MOV AH, 9

INT 21H

INT 21H

LEA DX, ASTERISKS ; load the string ASTERISKS

MOV AH, 9

INT 21H ; display the string ASTERISKS 5 times

INT 21H

INT 21H

INT 21H

INT 21H

MOV ASTERISKS+4, BL ; place the three initials in the position

MOV ASTERISKS+5, BH ; of middle asterisks i.e. 4,5,6.

MOV ASTERISKS+6, CL

INT 21H ; display the modified string ASTERISKS

MOV ASTERISKS+4, "\*" ; place the "\*" back in their original

MOV ASTERISKS+5, "\*" ; position

MOV ASTERISKS+6, "\*"

INT 21H ; print the string ASTERISKS 5 times

INT 21H

INT 21H

INT 21H

INT 21H

MOV AH, 2 ; Beep the computer

MOV DL, 7H

INT 21H

MOV AH, 4CH ; return control to DOS

INT 21H

MAIN ENDP

END MAIN

**Question:**

**Code for Program to display a 10\*10 solid box of asterisks with INT 21H and function 9H in Assembly Language**

.MODEL SMALL

.STACK 100H

.DATA

SQUARE DB '\*\*\*\*\*\*\*\*\*\*',0DH,0AH,'$'

.CODE

MAIN PROC

MOV AX, @DATA ; initialize DS

MOV DS, AX

LEA DX, SQUARE ; load the string

MOV AH, 9

INT 21H

INT 21H ; display the string 10 times

INT 21H

INT 21H

INT 21H

INT 21H

INT 21H

INT 21H

INT 21H

INT 21H

MOV AH, 4CH ; return control to DOS

INT 21H

MAIN ENDP

END MAIN

**Question:**

**Code for Program to read one of the hex digits A-F, and display it on the next line in decimal in Assembly Language**

.MODEL SMALL

.STACK 100H

.DATA

MSG\_1 EQU 'Enter the Hex digit (A-F) : $'

MSG\_2 EQU 0DH,0AH,'The corresponding Decimal dgit is : $'

PROMPT\_1 DB MSG\_1

PROMPT\_2 DB MSG\_2

.CODE

MAIN PROC

MOV AX, @DATA ; initialize DS

MOV DS, AX

LEA DX, PROMPT\_1 ; load and display PROMPT\_1

MOV AH, 9

INT 21H

MOV AH, 1 ; read the hex digit

INT 21H

MOV BL, AL ; save the hex digit into BL

LEA DX, PROMPT\_2 ; load and display PROMPT\_2

MOV AH, 9

INT 21H

MOV AH, 2 ; display the first decimal digit i.e. 1

MOV DL, 31H

INT 21H

SUB BL, 11H ; convert the character into second digit

MOV DL, BL ; display the second digit

INT 21H

MOV AH, 4CH ; return control to DOS

INT 21H

MAIN ENDP

END MAIN