***MUHAMMAD AHMED***

***SP21-BCS-084-B***

***ASSEMBLY LANGUAGE***

***1. Write a program that displays your name horizontally in the middle of the screen using display memory.  
  
    a. Write a procedure that on each call shifts your string one row downwards.  
    b. Change your program so that the string keeps on shifting downwards , and whenever the string exits the lower boundary of the      screen , it reappears from the top boundary.***

org 100h

.DATA

STR DB 'M M AHMED'

SIZE DW 9

.CODE

MAIN PROC

MOV AH,0

MOV AL,3

INT 10H

MOV AX,0XB800

MOV ES,AX

MOV SI,12\*160 + 36\*2

MOV CX,SIZE

MOV AH,0X07

PRINT:

MOV AL,[STR + BX]

MOV ES:SI,AX

ADD SI,2

INC BX

LOOP PRINT

CALLING:

CALL MOVER

LOOP CALLING

MAIN ENDP

RET

MOVER PROC

MOV CX,SIZE

PRINT2:

SUB SI,2

MOV ES:SI,0X0720

LOOP PRINT2

ADD SI,160

MOV CX,SIZE

MOV BX,0

CMP SI, 4000

JG TOP

PRINT3:

MOV AL,[STR + BX]

MOV ES:SI,AX

INC BX

ADD SI,2

LOOP PRINT3

RET

TOP:

MOV SI, 36\*2

PRINT4:

MOV AL,[STR + BX]

MOV ES:SI,AX

INC BX

ADD SI,2

LOOP PRINT4

MOVER ENDP

Ret

***2. Write a program that displays your name vertically in the middle of the screen using display memory.  
    a. Write a procedure that on each call shifts your string one column to the right.  
    b. Change your program so that the string keeps on shifting right , and whenever the string exits the right boundary of the screen , it reappears from the left boundary***

org 100h

.DATA

STR DB 'M M AHMED'

SIZE DW 9

.CODE

MAIN PROC

MOV AH,0

MOV AL,3

INT 10H

MOV AX,0XB800

MOV ES,AX

MOV SI,8\*160 + 40\*2

MOV CX,SIZE

MOV AH,0X07

PRINT:

MOV AL,[STR + BX]

MOV ES:SI,AX

ADD SI,160

INC BX

LOOP PRINT

CALLING:

CALL MOVER

LOOP CALLING

MAIN ENDP

RET

MOVER PROC

MOV CX,SIZE

PRINT2:

SUB SI,160

MOV ES:SI,0X0720

LOOP PRINT2

ADD SI,2

MOV CX,SIZE

MOV BX,0

CMP SI,4000

JG LEFT

PRINT3:

MOV AL,[STR + BX]

MOV ES:SI,AX

INC BX

ADD SI,160

LOOP PRINT3

RET

LEFT:

MOV SI,8\*160 + 2

PRINT4:

MOV AL,[STR + BX]

MOV ES:SI,AX

INC BX

ADD SI,160

LOOP PRINT4

MOVER ENDP

RET