**Experiment No : 01**

**Experiment Name: A program to read a character from keyboard and display it on the screen.**

.model small

.stack 100h

.data

msg1 db 'Input: $'

msg2 db 0Dh, 0Ah, 'Output: $'

msg3 db 0Dh, 0Ah, 'this in not character $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 01h

int 21h

mov cl, al

cmp cl,'A'

jl no\_text

cmp cl,'Z'

jle Out\_put

cmp cl,'a'

jl no\_text

cmp cl,'z'

jle Out\_put

Out\_put:

mov ah, 09h

lea dx, msg2

int 21h

mov ah, 02h

mov dl, cl

int 21h

jmp end\_program

no\_text:

mov ah,09h

lea dx,msg3

int 21h

jmp end\_program

end\_Program:

mov ah, 4Ch

int 21h

end main

**Experiment No : 02**

**Experiment Name: A program to display a string on the screen**

.model small

.stack 100h

.data

msg1 db 'This is a string $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 4Ch

int 21h

end main

**Experiment No : 03**

**Experiment Name: A program for the summation of two digits**

.model small

.stack 100h

.data

msg1 db 'Enter first digit: $'

msg2 db 0Dh, 0Ah, 'Enter second digit: $'

msg3 db 0Dh, 0Ah, 'Sum is: $'

result db ?

msg4 db 0Dh, 0Ah, 'this is not valid input try again $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 01h

int 21h

cmp al, '0'

jl check

cmp al, '9'

jg check

sub al, '0'

mov bl, al

mov ah, 09h

lea dx, msg2

int 21h

mov ah, 01h

int 21h

sub al, '0'

add bl, al

mov ah, 09h

lea dx, msg3

int 21h

add bl, '0'

mov ah, 02h

mov dl, bl

int 21h

jmp exit

check:

mov ah, 09h

lea dx, msg4

int 21h

jmp exit

exit:

mov ah, 4Ch

int 21h

end main

**Experiment No : 04**

**Experiment Name: A program for the subtraction of two digits.**

.model small

.stack 100h

.data

msg1 db 'Enter first digit: $'

msg2 db 0Dh, 0Ah, 'Enter second digit: $'

msg3 db 0Dh, 0Ah, 'Result is: $'

result db ?

msg4 db 0Dh, 0Ah, 'This is not valid input. Try again. $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 01h

int 21h

cmp al, '0'

jl invalid\_input

cmp al, '9'

jg invalid\_input

sub al, '0'

mov bl, al

mov ah, 09h

lea dx, msg2

int 21h

mov ah, 01h

int 21h

cmp al, '0'

jl invalid\_input

cmp al, '9'

jg invalid\_input

sub al, '0'

sub bl, al

mov ah, 09h

lea dx, msg3

int 21h

cmp bl, 0

jge positive\_result

mov ah, 02h

mov dl, '-'

int 21h

neg bl

positive\_result:

add bl, '0'

mov ah, 02h

mov dl, bl

int 21h

jmp exit

invalid\_input:

mov ah, 09h

lea dx, msg4

int 21h

exit:

mov ah, 4Ch

int 21h

end main

**Experiment No : 05**

**Experiment Name: Write a program Multiplication of two digits.**

.MODEL SMALL

.STACK 100H

.DATA

A DB "ENTER NUMERATOR : $"

B DB "ENTER NOMINATOR : $"

QUOTIENT DB "QUOTIENT IS : $"

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

LEA DX,A

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL,48

MOV BL,AL

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

LEA DX,B

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL,48

MOV BH,AL

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

MOV AL,BL

MOV AH,0

mul BH

aam

mov bh,ah

add bh,48

mov bl,al

add bl,48

LEA DX,QUOTIENT

MOV AH,9

INT 21H

MOV AH,2

MOV DL,Bh

INT 21H

MOV AH,2

MOV DL,BL

INT 21H

MOV AH,4CH

INT 21H

MAIN ENDP

END MAIN

**Experiment No : 06**

**Experiment Name: Write a program Division of two digits.**

.MODEL SMALL

.STACK 100H

.DATA

A DB "ENTER NUMERATOR : $"

B DB "ENTER NOMINATOR : $"

ERROR DB "SYNTAX ERROR $"

QUOTIENT DB "QUOTIENT IS : $"

REMAINDER DB "REMAINDER IS : $"

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

LEA DX,A

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL,48

MOV BL,AL

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

LEA DX,B

MOV AH,9

INT 21H

MOV AH,1

INT 21H

SUB AL,48

MOV BH,AL

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

CMP BH,0

JE ERR

MOV AL,BL

MOV AH,0

DIV BH

ADD AL,48

MOV BL,AL

ADD AH,48

MOV BH,AH

LEA DX,QUOTIENT

MOV AH,9

INT 21H

MOV AH,2

MOV DL,BL

INT 21H

MOV AH,2

MOV DL,0DH

INT 21H

MOV DL,0AH

INT 21H

LEA DX,REMAINDER

MOV AH,9

INT 21H

MOV AH,2

MOV DL,BH

INT 21H

MOV AH,4CH

INT 21H

ERR:

LEA DX,ERROR

MOV AH,9

INT 21H

MOV AH,4CH

INT 21H

MAIN ENDP

END MAIN

**Experiment No : 07**

**Experiment Name: A program for converting a Uppercase character to lower case.**

.model small

.stack 100h

.data

msg1 db 'Enter an uppercase letter: $'

msg2 db 0Dh, 0Ah, 'The lowercase letter is: $'

errorMsg db 0Dh, 0Ah, 'Invalid input. Please enter an uppercase letter. $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 01h

int 21h

cmp al, 'A'

jl invalid

cmp al, 'Z'

jg invalid

mov bl,al

add bl,32

mov ah, 09h

lea dx, msg2

int 21h

mov ah, 02h

mov dl, bl

int 21h

jmp exit

invalid:

mov ah, 09h

lea dx, errorMsg

int 21h

exit:

mov ah, 4Ch

int 21h

end main

**Experiment No : 08**

**Experiment Name: A program for converting a lowercase character to Uppercase**.

.model small

.stack 100h

.data

msg1 db 'Enter an lowercase letter: $'

msg2 db 0Dh, 0Ah, 'The uppercase letter is: $'

errorMsg db 0Dh, 0Ah, 'Invalid input. Please enter an uppercase letter. $'

.code

main:

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg1

int 21h

mov ah, 01h

int 21h

cmp al, 'a'

jl invalid

cmp al, 'z'

jg invalid

mov bl,al

sub bl,32

mov ah, 09h

lea dx, msg2

int 21h

mov ah, 02h

mov dl, bl

int 21h

jmp exit

invalid:

mov ah, 09h

lea dx, errorMsg

int 21h

exit:

mov ah, 4Ch

int 21h

end main

**Experiment No : 09**

**Experiment Name: A program to Find the Smallest Between Two Numbers**

.MODEL SMALL

.STACK 100H

.DATA

MSG1 DB "ENTER FIRST NUMBER: $"

MSG2 DB "ENTER SECOND NUMBER: $"

MSG3 DB "SMALLEST NUMBER IS: $"

MSG4 DB "BOTH ARE EQUAL $"

NUM1 DB 0

NUM2 DB 0

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

LEA DX, MSG1

MOV AH, 9

INT 21H

MOV AH, 1

INT 21H

SUB AL, 30H

MOV NUM1, AL

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG2

MOV AH, 9

INT 21H

MOV AH, 1

INT 21H

SUB AL, 30H

MOV NUM2, AL

MOV AL, NUM1

CMP AL, NUM2

JL DISPLAY\_FIRST

JE EQUAL

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG3

MOV AH, 9

INT 21H

MOV AL, NUM2

ADD AL, 30H

MOV DL, AL

MOV AH, 2

INT 21H

JMP EXIT

DISPLAY\_FIRST:

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG3

MOV AH, 9

INT 21H

MOV AL, NUM1

ADD AL, 30H

MOV DL, AL

MOV AH, 2

INT 21H

JMP EXIT

EQUAL:

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG4

MOV AH, 9

INT 21H

EXIT:

MOV AH, 4CH

INT 21H

MAIN ENDP

END MAIN

**Experiment No : 10**

**Experiment Name: A program to Find the Largest Between Two Numbers.**

.MODEL SMALL

.STACK 100H

.DATA

MSG1 DB "ENTER FIRST NUMBER: $"

MSG2 DB "ENTER SECOND NUMBER: $"

MSG3 DB "LARGEST NUMBER IS: $"

MSG4 DB "BOTH ARE EQUAL $"

NUM1 DB 0

NUM2 DB 0

.CODE

MAIN PROC

MOV AX,@DATA

MOV DS,AX

LEA DX, MSG1

MOV AH, 9

INT 21H

MOV AH, 1

INT 21H

SUB AL, 30H

MOV NUM1, AL

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG2

MOV AH, 9

INT 21H

MOV AH, 1

INT 21H

SUB AL, 30H

MOV NUM2, AL

MOV AL, NUM1

CMP AL, NUM2

JG DISPLAY\_FIRST

JE EQUAL

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG3

MOV AH, 9

INT 21H

MOV AL, NUM2

ADD AL, 30H

MOV DL, AL

MOV AH, 2

INT 21H

JMP EXIT

DISPLAY\_FIRST:

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG3

MOV AH, 9

INT 21H

MOV AL, NUM1

ADD AL, 30H

MOV DL, AL

MOV AH, 2

INT 21H

JMP EXIT

EQUAL:

MOV AH, 2

MOV DL, 0DH

INT 21H

MOV DL, 0AH

INT 21H

LEA DX, MSG4

MOV AH, 9

INT 21H

EXIT:

MOV AH, 4CH

INT 21H

MAIN ENDP

END MAIN