COAL LAB MANUAL

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Section B

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**COAL Lab 3**

**Display two digit number**

**Description**

In this lab we will learn about

* DIV arithmetic assembly instruction.
* Difference between DIV and IDIV.
* Display accumulated sum on terminal as two digit number.

**Syntax**

**DIV:** The DIV (Divide) instruction is used for unsigned data. After division, the

quotient goes to the AL register and the remainder goes to the AH register.

**IDIV:**  IDIV (Integer Divide) is used for signed data.

**Lab Work**  
Write an assembly language program that takes two numbers as input and display their sum as an output. Display two digits if sum is greater than 10. Indent output character one space from the start of line.

**Program**

org 100h

; Get first input character from the terminal window

mov ah,1

INT 21h

mov bl, al

sub bl, 30h

; Place the cursor at the start of newline

mov ah, 2

mov dl, 0Ah

INT 21h

mov dl, 0Dh

INT 21h

; Get second input character from the terminal window

mov ah, 1

INT 21h

mov bh, al

sub bh, 30h

; Add two numbers

add bl, bh

add bl, 30h

; Place cursor at newline

mov ah, 2

mov dl, 0Ah

INT 21h

; Copy Output value from 'bl' to 'dl'

mov dl, bl

sub bl, 30h ; Convert Printable form into value

mov ah, 00h ; Reset / Refresh 'ah' register

mov al, 00h ; Reset / Refresh 'al' register

mov al, bl ; Copy Output value into 'al'

mov bl, 10 ; Copy divisor in 'bl'

div bl ; Divide 'al' by 'bl'

; Quotient is in 'ah' and Remainder in 'al'

mov bl, al ; Copy Remainder into 'bl'

mov bh, ah ; Copy Quotient into 'bh'

mov ah, 2 ; DOS interrupt for Output

add bl, 30h ; Value to Printable form conversion

mov dl, bl ; Copy first digit to print

INT 21h ; Call Interrupt handler

add bh, 30h ; Value to Printable form conversion

mov dl, bh ; Copy second digit to print

INT 21h ; Call Interrupt handler

ret