COAL LAB MANUAL

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**Section:**

Section B

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**COAL Lab 1**

**Basic Input / Output**

**Description**

In this lab we will learn about

* Input from the terminal
* Dos Interrupts
* Conversion into Printable value
* Copying content to and from registers
* Performing Arithmetic Operations
* Display Output on the terminal window

**Syntax**

**org 100h:** Set offset of the segment originated at 100hex

**mov ah,1:** DOS Interrupt for input a character.

**INT 21h:** Call DOS Interrupt handler.

**mov bl, al:** Copy the content from 'al' to 'bl'.

**sub bl, 30h:** Subtract 30hex from 'bl' to convert the internal value to

printable character.

**mov ah, 2:** DOS Interrupt for output a character.

**mov dl, 0Ah:** Move newline character into ‘dl’ register.

**mov dl, 0Dh:** Move carriage return ('\r') into ‘dl’ register to move the

cursor to the beginning of the current row.

**Lab Work**

Write an assembly language program that takes two numbers as input and display their sum as an output. Indent output character one space from the start of line.

**Program**

;Machine code starts from address (offset) 100h in this segment

org 100h

;DOS Interrupt for input a character.

mov ah,1

; Call interrupt handler

INT 21h

; Copy the content from 'al' to 'bl'

mov bl, al

; Subtract 30hex from 'bl'

; to convert the internal value to pritable character

sub bl, 30h

; DOS Interrupt for output a character.

mov ah, 2

; Copy newline character into 'dl' register.

mov dl, 0Ah

INT 21h

; Copy carriage return ('\r') character into 'dl' register.

; to place cursor at the start of line

mov dl, 0Dh

INT 21h

; Input 2nd character

mov ah, 1

INT 21h

mov bh, al

sub bh, 30h

; Perform 'Addition' arithmetic operation

add bl, bh

; Translate into printable value

add bl, 30h

; Newline

mov ah, 2

mov dl, 0Ah

INT 21h

; Display the sum

mov ah, 2

mov dl, bl

INT 21h

; Return control to system

ret