Name: **Sahil Dattatray Mohite**

Roll No: **30** Batch: **B2**

PRN: 12010501

Lab Assignment 3

**Write an ALP programming to accept 5 subject marks of the student, find its average and display the grade of the student.: Make use of CALL, DIV, near procedures**

**Arrays in Assembly Language**

There are two ways to define an array in assembly language.

* **Initialized Lists**

An initialized array is defined in the same way as a scalar variable, but with multiple initial values.

* + scores: .word 100, 78, 63, 88, 52, 91, 75
* **Uninitialized** Memory Blocks

Uninitialized arrays are defined using the .space directive.

The .space directive allocates the specified number of bytes. Specifying the desired number of array elements is a common mistake.

* + scores: .space 400

**The DIV Instructions**

* The division operation generates two elements - a quotient and a remainder. In case of multiplication, overflow does not occur because double-length registers are used to keep the product. However, in case of division, overflow may occur. The processor generates an interrupt if overflow occurs.
* The DIV (Divide) instruction is used for unsigned data and the IDIV (Integer Divide) is used for signed data.
* Syntax

The format for the DIV instruction −

DIV/IDIV divisor

The dividend is in an accumulator. Both the instructions can work with 8-bit, 16-bit or 32-bit operands

**Procedures**  
Procedures or subroutines are very important in assembly language, as the assembly language programs tend to be large in size. Procedures are identified by a name. Following this name, the body of the procedure is described which performs a well-defined job. End of the procedure is indicated by a return statement.

Syntax

proc\_name proc near/far:

procedure body

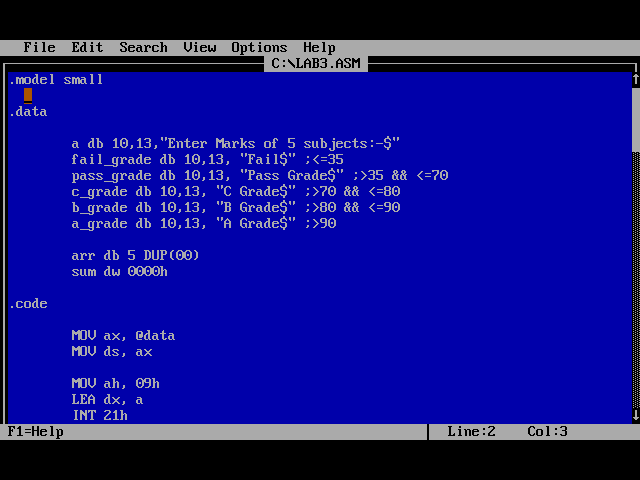
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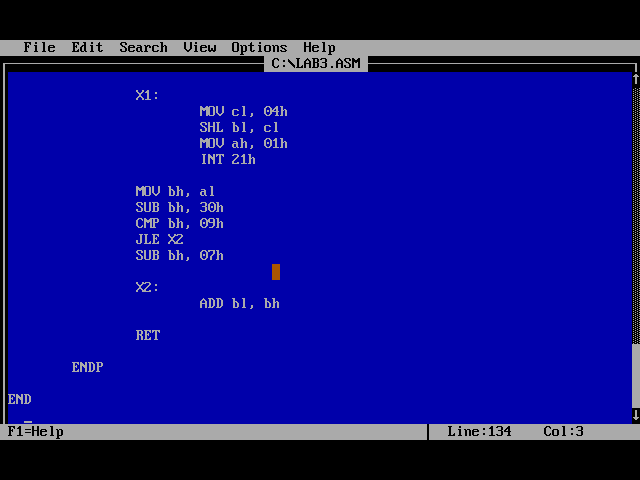
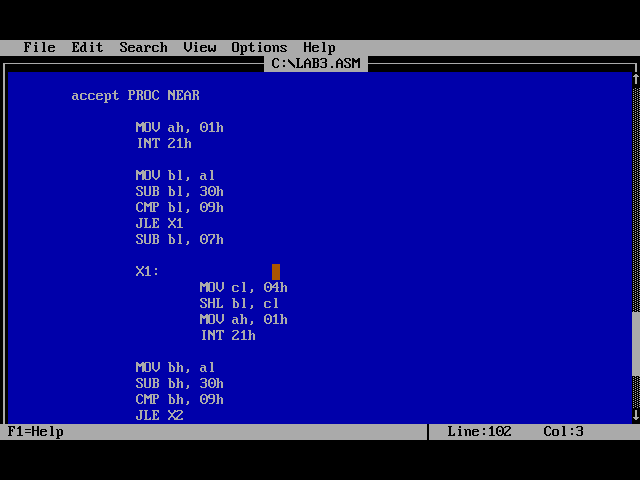
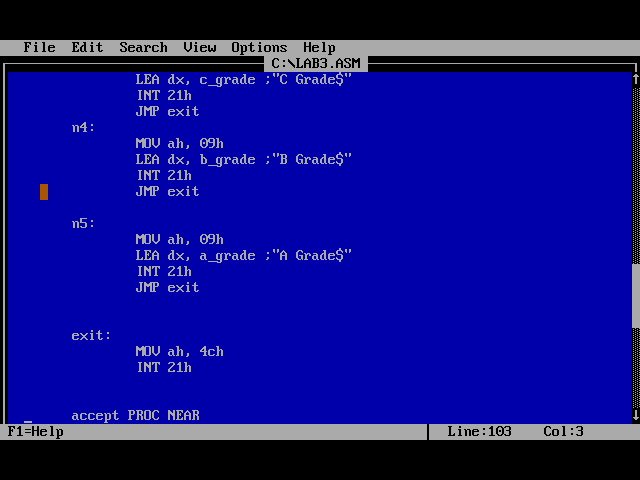
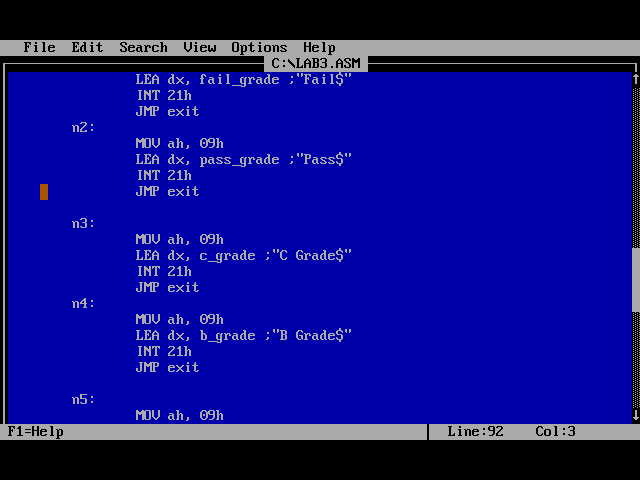
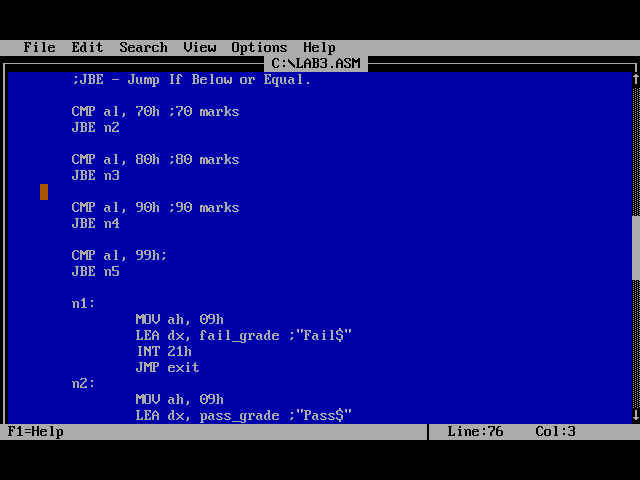
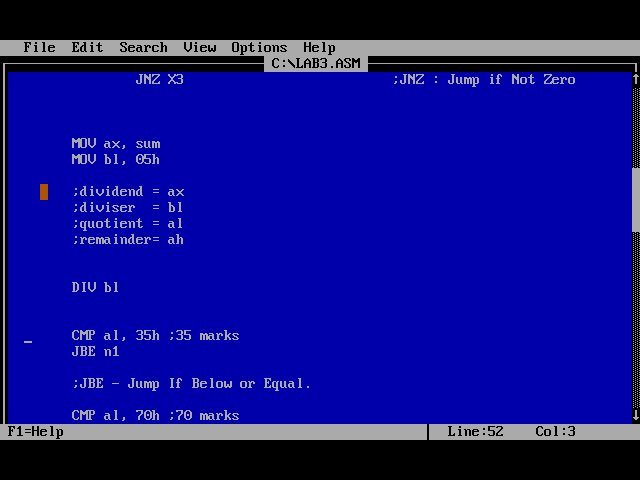
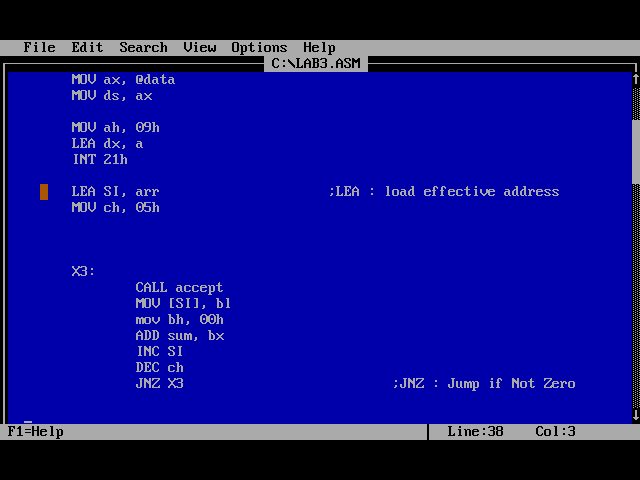
Ret

Endp

The procedure is called from another function by using the CALL instruction. The CALL instruction should have the name of the called procedure as an argument as shown below −

CALL proc\_name



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