National University of Computer and Emerging Sciences



Laboratory Manual

for

Computer Organization and Assembly Language Programming

(EL 213)

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| Section | L |
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## Objectives

After performing this lab, students shall be able to:

* Use DIV and MUL instructions
* Utilize video memory

**Exercise 1:**Write an assembly program (using subroutines) which will receive a **decimal** number and reverse its digits. You are required to use DIV and MUL instructions for this program

For Example:

Num=1234 (0x04D2)

After the execution of subroutine,

Num=4321 (0x10E1)

**Exercise 2:**Write an assembly subroutine that moves an asterisk over the boundaries of screen. The asterisk should start its movement from top left corner, go towards right, then move downwards, then towards left and lastly moves upwards. Only 1 asterisk should be visible on the screen at a given time.

You might need to write a delay subroutine so that the movement of star is visible.

**Exercise 3:**Write an assembly subroutine that will receive an array’s address, its size and a key to search. If the key is found in the array, print ‘found’ on Screen in blinking green font. Else print ‘failed’ on screen in red font (no blinking).