National University of Computer and Emerging Sciences

Lab Manual

Computer Organization and Assembly Language

Lab 06

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Note for all questions: You can make as many memory variables, subroutines as you need. Must read all the manuals before starting.

ACTIVITY 1:

Write a program to print three different characters on three different locations on the screen**.**

Play with changing background color, foreground color and blinking foreground.

ACTIVITY 2:

Write a function **drawrect** that takes four parameters via the stack. The parameters are X1, X2, Y1 and Y2 in this order. These are two coordinates for the opposing corners of a rectangle. The function should display a rectangle on the screen using the character '+'.

ACTIVITY 3:

Write a function **MovingStar** that moves an asterisk '*' **by one cell** following these rules:

- If the current location of the star is i^{th} row and j^{th} column, next location will be i^{th} row and $(j+1)^{th}$ column i.e. the star will be moved rightward by one cell.
- CurrentRow and CurrentCol (global variables) will be (1,0) initially i.e. 2^{nd} row and 1^{st} Column. Global variable Direction will be 'R' (Rightward) initially.
- Call your subroutine **MovingStar** from main 80 times (with delay), it should show the star moving in 1^{st} row. Call the clrscr function (available in book) before testing MovingStar function. You are not required to pass any parameter to MovingStar or return anything. Your subroutine will update the global variables as required.

Modify the **MovingStar** function with following rules:

- If '*' is at the rightmost column then next location will be j^{th} column and $(i+1)^{th}$ row, i.e. if star is in the last column it should move downward **by one cell** (Direction 'D').
- Call your function **MovingStar** from main (80+24) times (with delay), it should start '*' from top-left cell, show it moving through the first row then traversing the last column.

Use your function to make the star traverse all the way to the right edge of the screen, and to the bottom edge, along the right edge.

REFERENCES

- http://www.dosbox.com/download.php?main=1
- http://sourceforge.net/projects/nasm
- http://www.nasm.us/
- http://www.programmersheaven.com/download/21643/download.aspx (AFD)