

COE 205, Term 082

Computer Organization & Assembly Programming

Programming Assignment# 2

Due date: Monday, May 18, 2009

- Q.1.** Write a procedure, **SDISP**, that receives an **(x, y) coordinate** of the **position** of a string to be displayed and a **string address** and displays the string. The procedure will receive the **(x, y) coordinate** and the string address through the stack. Make sure to preserve all registers used inside the procedure.
- Q.2.** Write a procedure, **SQR**, that receives an **(x, y) coordinate** of the **top left corner** of a square and a **square length, l**, and draws a square of dots. The procedure will receive the **(x, y) coordinate** and the square length through the stack. Make sure to preserve all registers used inside the procedure.
- Q.3.** Write a procedure, **RAITR**, that receives an **(x, y) coordinate** of the **bottom left corner** of a right angle isosceles triangle and a **length, l**, and draws a right angle isosceles triangle of dots. The procedure will receive the **(x, y) coordinate** and the length through the stack. Make sure to preserve all registers used inside the procedure.
- Q.4.** Using the procedures developed in Q.1, Q.2 and Q.3, write an assembly program that does the following:
- (i) Ask the user to enter a maximum object length.
 - (ii) Ask the user to enter a string. Assume a maximum string length of 100.
 - (iii) Ask the user to enter the number of objects to be displayed. An object includes a string, a square or a triangle.
 - (iv) Randomly generate a color for an object, an **(x, y) coordinate** within the maximum window size, a length within the maximum size specified by the user (in case of square and triangle). Display the object. Then, wait for 2 s and delete the displayed object. Display a number of objects as selected by the user. Make sure that the randomly generated color is not black (i.e. 0) and that the minimum randomly generated object size is 2. Your program should alternate between displaying the string, squares and triangles.

This assignment is to be done in groups of two. The solution should be well organized and your program should be well documented. Submit a soft copy of your solution in a zip file. Your solution should be submitted in a word file that contains the following items:

- i) *Your names and IDs*
- ii) *Assignment number*
- iii) *Problem statement*
- iv) *Your solution along with the code*
- v) *Discussion of what worked and what did not work in your program. Include snapshots that demonstrate the working parts of your program. If things did not work and you attempted to solve them, mention that and write about the difficulty that you have faced.*

The soft copy should also contain both source code file (i.e. .asm) and the executable file (i.e. .exe).