CS-224: Object Oriented Programming & Design Methodologies

Assignment 03

Duration: 2 Weeks (Please submit it by 12 October before 1159 pm)

For this assignment, it is recommended that you read through Lazy Foo Tutorials 3, 4, 6 and 8 to get some understanding of what is going on.

I have put in all the necessary DLL files in the folder. All you got to do is configure your project according to the tutorial and you should be able to load the PNG images. These files are however a year old so in case there is an error, just replace them with the latest versions. I tested them out and had no problems.

If you are able to run the code given with the assignment, you will be able to draw filled rectangles with mouse clicking and dragging.

TO DO:

As you create a rectangle, it needs to be stored in a linked list that behaves like a stack. If you view the current code, we create a rectangle and it goes away as soon as we draw a new rectangle. This should not happen because now we will save all the rectangles in the linked list. You will then need to go through the entire linked list and draw every rectangle. It behaves like a stack because the new rectangle will be drawn on top of the previous rectangle. Every time you draw something, it will have a random color.

You should draw the rectangle by default, but if you press 'P' you start drawing a Point on mouse click. If your press 'L' you will start drawing a line. At any time you press the 'Down Arrow' key, your drawn object will move down in the list. Suppose you drew a red rectangle and then drew a white rectangle on top of the red rectangle and then you press the down arrow key, the red rectangle will now be drawn on top of the white rectangle. The process will reverse if I now press the 'Up Arrow' key.

With the left mouse button we finish drawing a rectangle or any other object. With the right mouse button we should be able to undo what we have done so far, but by pressing the middle moose button we will be able to redo what we did in the past. In case you undo a few drawings and start drawing, then you will not be able to redo everything that was undone.

As a further exercise, whatever you draw will go into a layer. Please use an image which says '1' at the bottom right hand side to indicate that layer 1 is being used. All the drawings will go into this layer. Now if a person presses '+' key then layer 2 will be generated and it will say 2 on top of 1 at the bottom right hand side. Now all the drawings will go into layer 2. If you now press '-' key then the entire list containing all the objects will be deleted. You can try to move the layers up and down, just like you did for the different shapes by pressing '[' and ']' keys. You can then try to save your entire linked list in a file as you quit and reload it the next time you start the same program and it repopulates the entire list. This is extra work for practice and is not required to be done for this assignment.

Make sure that you DO NOT create any memory leaks or dangling pointers.

TIPS FOR DOING THE ASSIGNMENT

TIP 1: Start by making classes for Line and Point and try drawing them on screen

TIP 2: Then make them all work from within one linked list to see if everything is being saved, deleted and moved. Also see that if the linked list is deallocated, all the objects in the list are deallocated as well.

TIP 3: You will need to make linked lists inside other linked lists for the extra work. Keep this part at the end. What you can do is try it out with a new project while using simple data. When you are comfortable with your implementation, apply it to your assignment by using Rectangles, Points and Lines.

TIP 4: Start your assignment the day you get it. Waiting will not do you any good.

TIP 5: Understanding the given code completely is critical in doing the assignment. Do not slack about in understanding it.