CS 551 Write-Up Assignment#2

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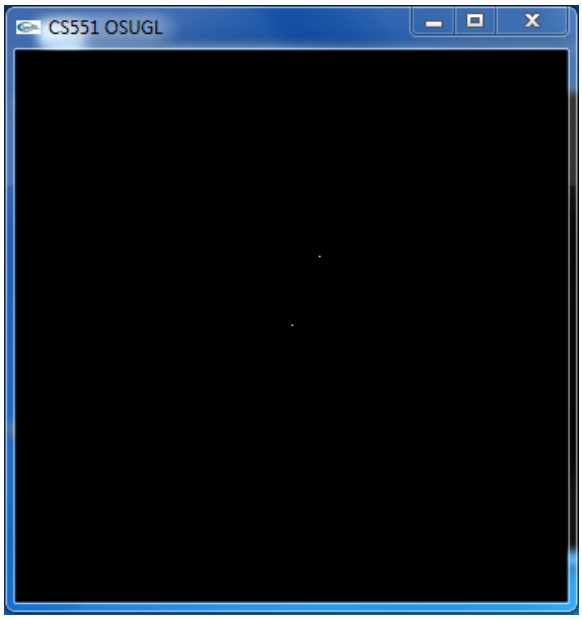
1. A discussion of the difficulties that you have encountered in this assignment.

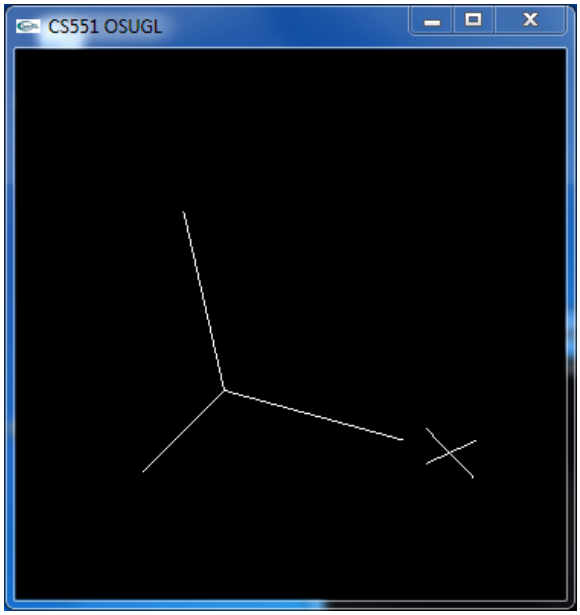
This is the second assignment of this class, and it still makes me struggling. Although teacher gave extra time for this assignment because of the delay of the class, I still cannot get the right whole idea about this assignment until the knowledge is all covered in the class lectures. Even though the knowledge is covered, it still takes me a lot effort to figure out how to implement them in my code. Except the knowledge part, I still have some other difficulties in this assignment.

The very first one is also the compiling. I had the same problem in last assignment, and it also shows up in this too. Because of I am using a Mac instead of a Windows; it is really inconvenient for me to run test on my code. The machines in Kelley Lab are still missing the headfile glut.h, and the graphic lab in Bachelor is sometimes locked and I cannot get in. These problems cause a huge delay on the process of doing my homework. Last time I got the help from TA, and we didn't get a really clear idea about these problems. I also borrowed my classmate's computer to do the homework, so the figures showed in this write-up will be two kinds. At last, I decide to try to solve it by myself, and after a period of time struggling, I finally solved the problem.

The second part of problems is about the debugging. I finish the coding part in a few hours but spend a lot of time in debugging it. The first problem I meet is some error parts in my code. They are not grammar errors but logical parts. Sometimes I copy and paste some code from here to there, but I forget to change the variables. For example, using an "i" in a "j loop", or keep operating the same variable in all time. The second part is about the algorithm. When I am able to solve all the logic problems and make my code able to run, the result turns out so many errors. For example like the pictures showed below, the program should print some lines but only print out two points, or the program only print out some lines but not all of them. Then I realize that the error comes out from the algorithm, so I start to fix it. I have to say, the algorithm for this assignment is kind of hard for me to fully understand, after discuss it with classmate, I finally figure out a way to deal with it, and finally I get them right. At this time, I find that there are so many little problems in my code, including using some wrong operations or using an unnecessary

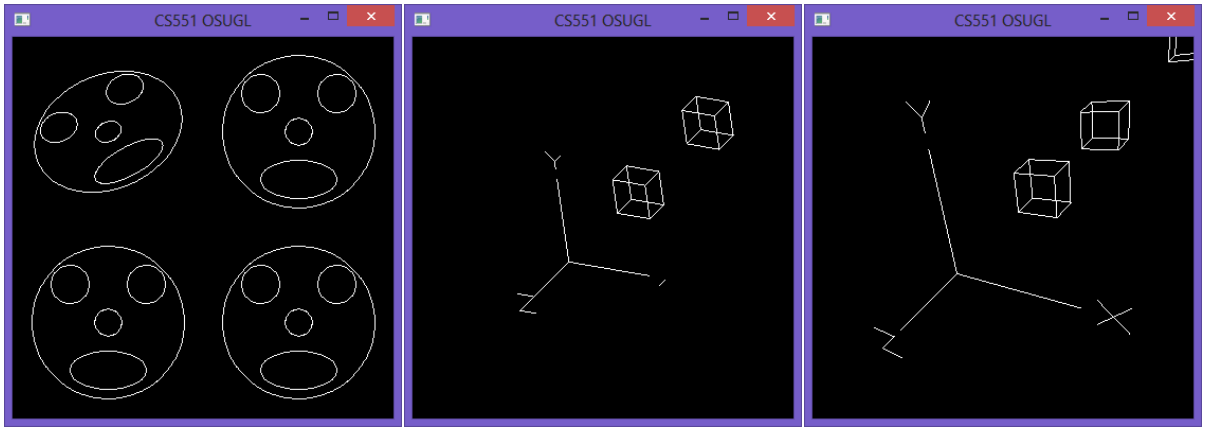
negative symbol. After fixing all these little problems, my code becomes better and can provide several correct results.





2. A discussion of possible enhancement of your program.

There do exist some progress can be done in my code. The biggest part will be fixing the left problems. As shown in the following pictures, the results for case 4, case 9, and case 10 are not quite right. The face on the top left corner should be the same size as other three faces, and the coordinators in case 9 and 10 have the correct form but not correct size. Also, the "X" symbol in case 9 doesn't show up like it suppose to.



Since other results are correct, and these three cases are all use "rotate" function, I think the problem might exist in my rotate function. However, when I look into my rotate function, I can find nothing wrong there. I don't really know how to fix this problem so I choose just left it in the code, and this is definitely the biggest part that should be improved in my code.

Besides the problem mentioned above, there are also some other things that can be improved in my code. For example I didn't check if the stack is empty or full, and improve this part would make the code more robust. Also there are some complicated but not really meaningful parts in my code. These parts may affect the inefficiency of the code but won't affect the correctness. If I had some more time I will rewrite them, but I don't. Due to the time issue, I left so many things that can be improved in my code.

3. Summary

I'd like to right a short summary for this assignment. This is the second time I work with OpenGL and graphic things. Some compiling issue keep showing up when I was doing the programming and debugging. However, after I fix them by myself this time, I think I get the right way to run the code on school's machines. The time I spent on each part is really hard to count. I will say I spent several days on getting the general idea of the assignment and figuring out how to deal with the problems, this part took the longest time. I spent a few hours in real coding, but the short time left so many little problems. Then I spent two whole days in debugging my code, and unfortunately, I still cannot work all of my problems out. Next time I will do harder on the assignment and hope to get a better result.

4. Describe the topic of your final term project

I'd like to choose the topic: Cartoon Looking Rendering of 3D Scenes.
This topic is mainly about an algorithm that produces images with the appearance of a traditional cartoon from a 3D description of the scene. The algorithm includes the methods that outline the profiles and edges of objects in black, uniformly color the surface inside the outlines, and render shadows due to light sources.
There is a paper for downloading in this webpage:
http://www.antisphere.com/Research/RR-2919.php
The author is Philippe Decaudin, and it is published in 1996.