CS3241 Computer Graphics
Lab 1: Doodles!

Introduction

In this assignment, you will do 2D drawing in OpenGL. You may draw anything you like as long as there is *no violence, racism, and pornography* involved. Use your creativity! (But please limit it to 2D, if you are already playing with all the 3D transformation, please stay at the 2D plane with us in this assignment.) You can run an example program "sampleLab1.exe" by our TA (Shown in the right)

Setting up GLUT library (for Windows Users)

(*For those who have it set up already, you can skip to the next section.*)

Download glutdlls37beta.zip from https://www.opengl.org/resources/libraries/glut/glut_downloads.php#windows. Unzip it and put the files into the corresponding directories. You need to find out which directory is your Visual Studio in, for example, mine is in "`C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC`".

- Put both `glut.dll` and `glut32.dll` into "`C:\windows\system`" and "`C:\windows\system32`"
- Put `glut.h` into "`C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\include`"
- Put both `glut.lib` and `glut32.lib` into "`C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\lib`"

Windows 10 users should also copy `glut.dll` and `glut32.dll` into "`C:\Windows\SysWOW64`".

Instructions

For Windows users, launch "`Lab1.sln`" and for Mac users, launch "`lab1.xcodeproj`". You can start drawing by putting your code into the function `display()` in the file `main.cpp`. Basically you can just put all your drawing routines into this function. However, it is recommended to structure your program and break down your functions for the sake of good programming styles. Please place all your new functions before `display()` and in the same .cpp file for this assignment. Also, please make sure that all the keyboard controls work in your program (Q,E,A,D, etc.).

Submission

1. Write a **readme.txt** file including:
   - Your matric number — What you are drawing
   - Primitives and transformations you have used — Methods you have modified – only display()?
   - Any other things the TA should know? — What is the coolest thing(s) in your drawing
2. Zip your **main.cpp** and **readme.txt**, rename it to your student number + ".zip" and submit it up to IVLE.
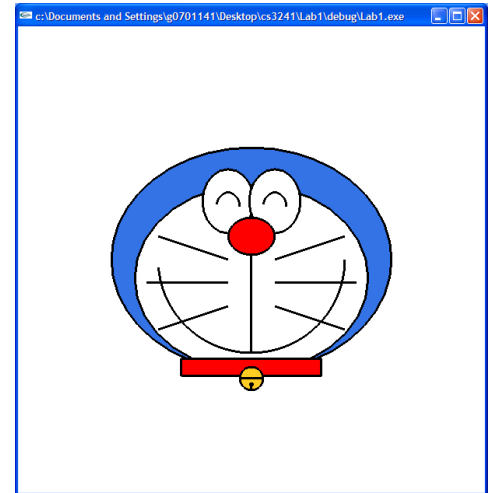
Appendix A – Download glutdlls37beta.zip for Windows
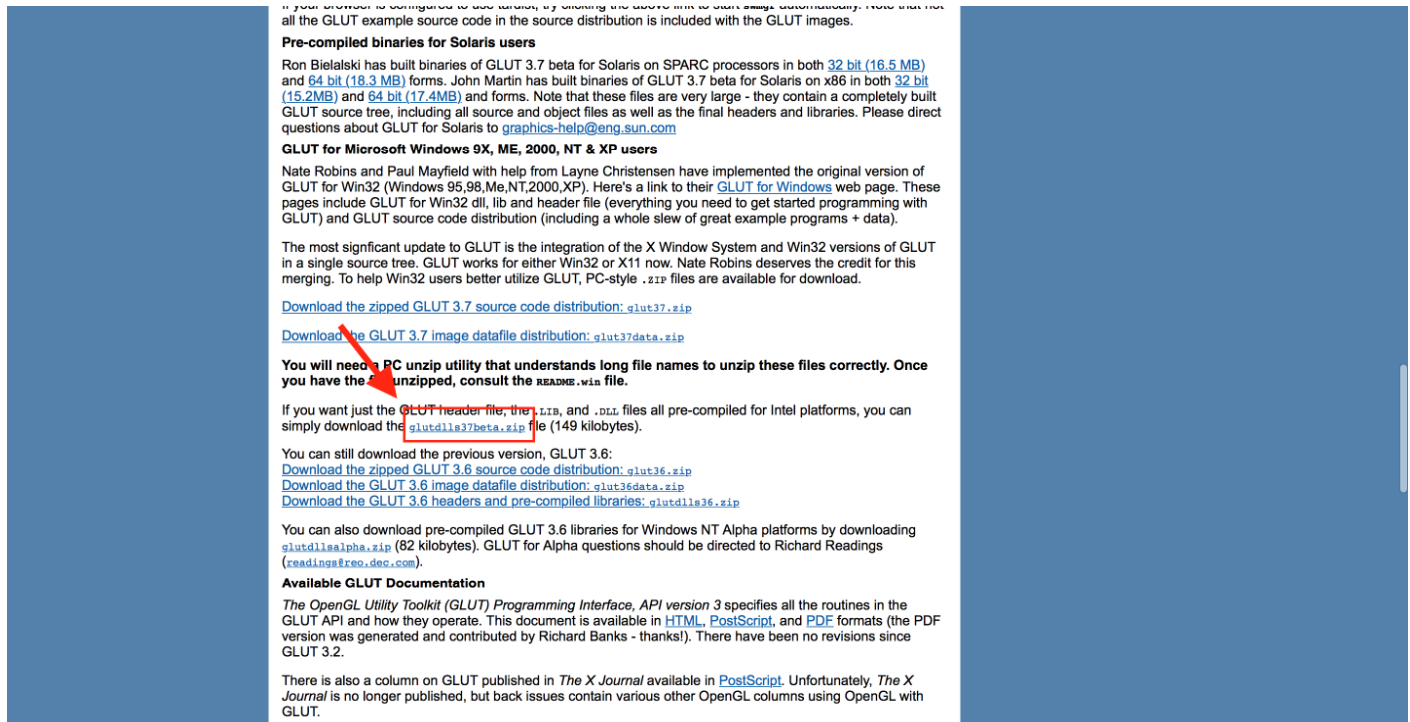
Appendix B – Error lnk2206: module unsafe for safeseh image

If you come across such an error on your first time running your code in Microsoft Visual Studio 2013, do the following steps:

1. Right click on your project **"Lab1"** on the "Solution Explorer" on the right.

2. Select **Properties**.

3. Select **Configuration Properties**.

4. Select **Linker**.

5. Select **Advanced**.

6. Scroll down and change "Image Has Safe Exception Handlers" to **"No (/SAFESEH:NO)".**

Appendix C – Note on the M_PI predefined constant

Xcode users have access to a predefined constant value of PI namely **"M_PI"** but this is not available in Microsoft Visual Studio 2013. However a global variable has been declared in the header for Windows users so you can use **"M_PI"** for your code (if needed). Therefore as standardization for both Windows and Mac, please use **"M_PI"** for PI values.