

Fall 2008, CS 112
Programming Assignment 1
Due: October 6, 2008, 11:00 AM PST

1 Lab Grading Policies

Before introducing this lab, let us review the policies which we will be enforcing for all lab assignments this quarter.

You are required to program in C and/or C++ using the GLUT toolkit and the OpenGL API. You may not use Java, C# or any other languages. Environment such as MFC and .NET are not allowed to use. All your assignments will be graded on Microsoft Windows using Visual C++. Since this course is using GLUT and OpenGL, you should be able to complete your lab assignments on any machine that has GLUT and OpenGL installed. You can use any platform you like for all programming assignments. There are 24 Dell machines (tower machines located around Mac machines in ICS364) with graphics acceleration. You can also use your own computer, with platform includes Microsoft Windows, Mac, GNU/Linux, and any other Unix. Claiming to lack access to a computer to complete the lab assignments is not an adequate excuse to gain an extension on the due date of a lab.

Furthermore, all programming assignments will be submitted electronically using the EEE. Do not submit your assignments via email.

As a rule of thumb, if nothing is submitted, you will earn no credit. If something is submitted and it compiles with no warnings or errors, this can earn you up to 50% of the total lab score. Should a submitted assignment exit abnormally, i.e., segmentation fault or bus error, the submitted assignment can earn up to 10% of the total lab score. If something is submitted but it does not compile, this can earn you up to 10% of the total lab score.

It goes without mention that you should test your code, rigorously.

Every file that is submitted must contain a header including your full name, email address, student ID number, and any other pertinent information. Every submitted project must contain a README file in plain text format. The file must be called README. It must also include a header. The information that must be covered in your README are what was completed in this lab, the existence of bugs, any additional features that you added to the project which went above and beyond the scope of the assignment. Also bear in mind as you compose your README that the use of complete sentences is always appreciated.

That last point is very important. If you would like to gain extra credit for figuring out something really cool or doing something quite fantastic, make sure you point it out in your README. This may earn you extra points.

(Of course, cheating/copying/academic dishonesty is not permitted. Please do not volunteer to be an example of what happens when someone is caught committing an unethical act.)

2 Overview

This lab assignment is to familiarize yourself with the programming environment and procedures that you will be using for this course. Your assignment will not involve any programming on your part, but is solely an exercise to ensure that any questions that you may have are answered now rather than the day before an actual lab is due.

This lab can be roughly broken up into four parts.

1. Logging into a Dell graphics machine in ICS364
2. Compiling and running a demonstration program
3. Understanding the program, post a message on the message board
4. Submitting a completed lab

3 Logging In

You are required to complete PA1 on a Dell graphics tower machine in ICS364. They are located around iMac machines. You will need an ICS account for this course. This is different from your NACS EA Unix account. Talk to a lab assistant or send email to helpdesk@ics.uci.edu if you need an account or have problem with your account.

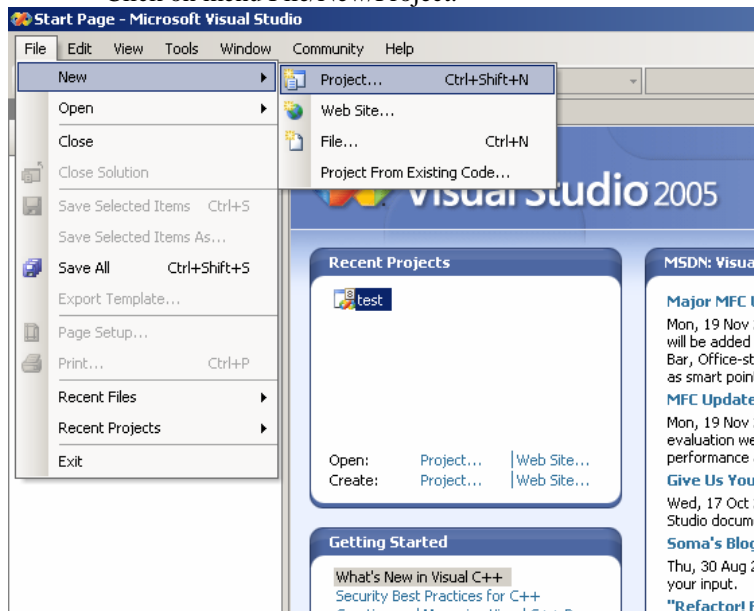
You can work on your own computer in future programming assignments. PA1 is just to get you familiar with our standard environment.

4 Compiling & Running

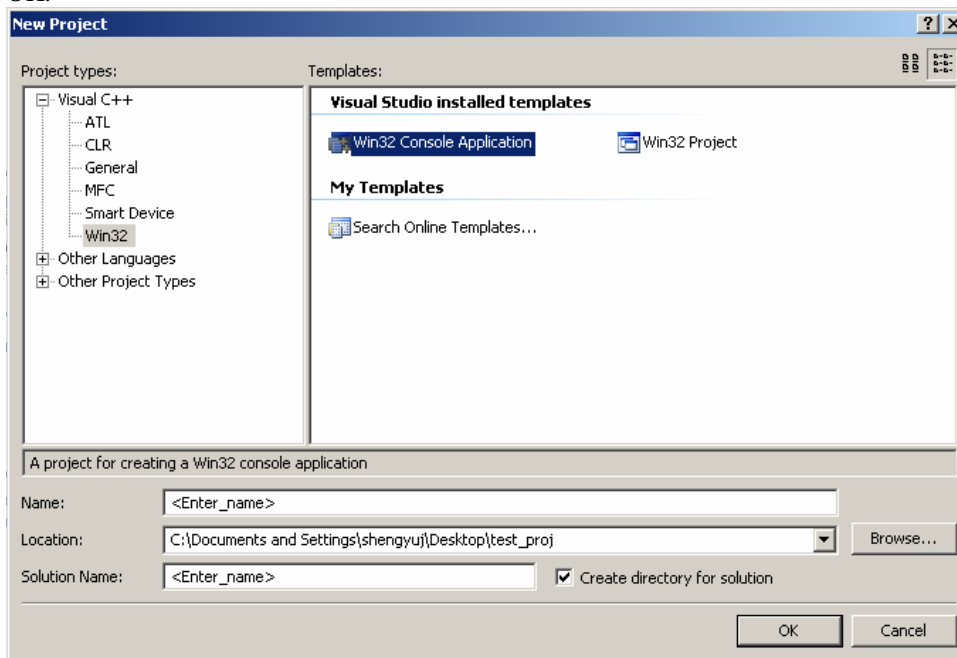
We provide one demonstration program to show you how to compile an OpenGL program and how it works. You will create a project with Microsoft Visual C++, compile it and run it. Also you need to modify the source code according to the instruction before submitting.

1. Download the source code. Login to EEE, go to drop box, CS112_PA1 and then CourseFiles, download arjun_cube.zip
2. Install glut for win32 on your Windows machine
(Skip this step when you are using a Dell graphics machine in ICS 364 lab)
Download from <http://www.xmission.com/~nate/glut.html>
Copy glut32.dll to c:\windows\system32
Copy glut32.lib to C:\Program Files\Microsoft Visual Studio 8\VC\PlatformSDK\Lib
Copy glut.h to C:\Program Files\Microsoft Visual Studio 8\VC\PlatformSDK\Include\gl
3. Create a Visual Studio project and add the source code
Choose Visual C++ environment if it asks (optional).

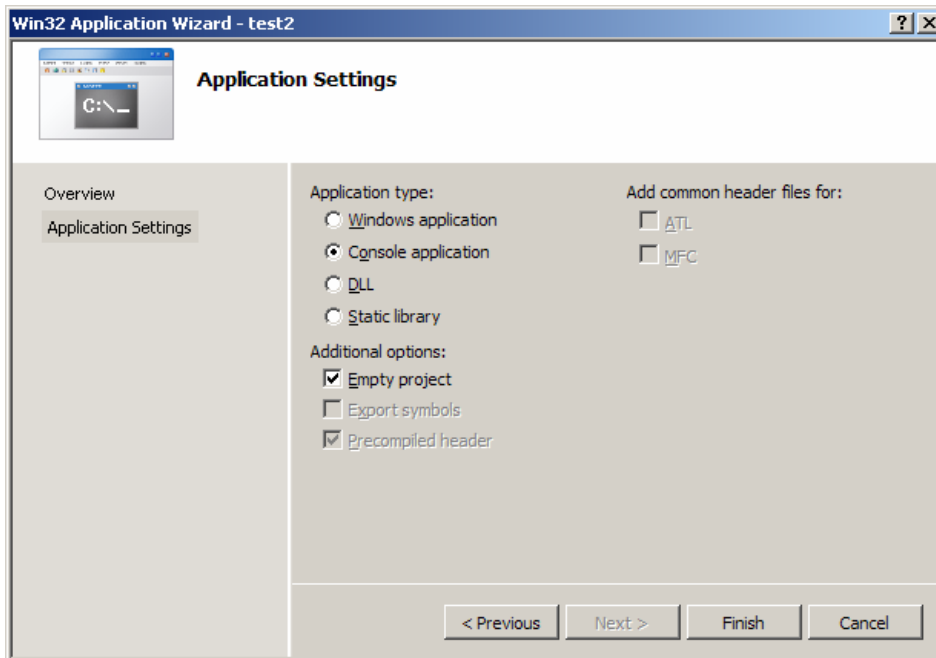
Click on menu File/New/Project.



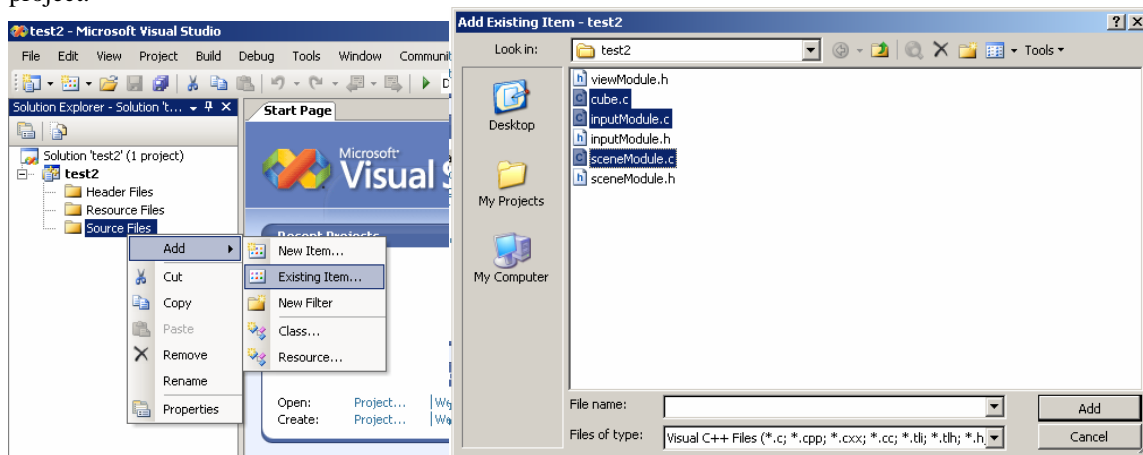
Under Visual C++ projects, select Win32 Console project, enter project name and location. Click OK.



On the Win32 application Wizard window, select Console application and check empty project. Click Finish.



Copy all source files to the project folder (the one with the .vcproj file). Add all .c files to the project.



Compile and run. Click on the tool bar button shown below.



4. Modify the program

Locate in cube.c the line where the window title is set, change it to your login name, compile and run it again.

5 Where to Get Help – Understanding the program

TA will talk about the program in discussion. Besides that, you are strongly encouraged to search online and discuss with other students to go through the program yourself.

There are lots of OpenGL of tutorials, guides and references online. You will also find them extremely useful in future projects. Here are some examples:

The red book: The Official Guide to Learning OpenGL <http://glprogramming.com/red/>

The blue book: OpenGL Reference Manual <http://www.glprogramming.com/blue/>

Perhaps you mutter to yourself ‘*heaven help me - what is all this madness!*’ It is better to say this right at the beginning rather than three weeks into the course. If you are in this situation there is a course message board where you can post questions of a general nature on EEE. Here you can get help from the TA and your peers. It is best to keep up to date with the discussions on the message board since many of your questions will be answered even before you know about the question.

As a part of this lab, post a message on the message board. The message should be generally related to this course, including but not limited to PA1.

6 Submitting a Completed Lab

The next step is to package up your project and submit. Please create a zip file for all your files and submit it to EEE. Do not submit individual files one by one.

7 Conclusions

After reading all this and doing all the exercises listed here you should be well prepared for the next nine weeks. Please be sure that you have completed the following:

1. You can use the graphic machines in ICS 364
2. You have changed the window title of the OpenGL demo program
3. You have posted and read a message on the message board
4. You have submitted the project to EEE