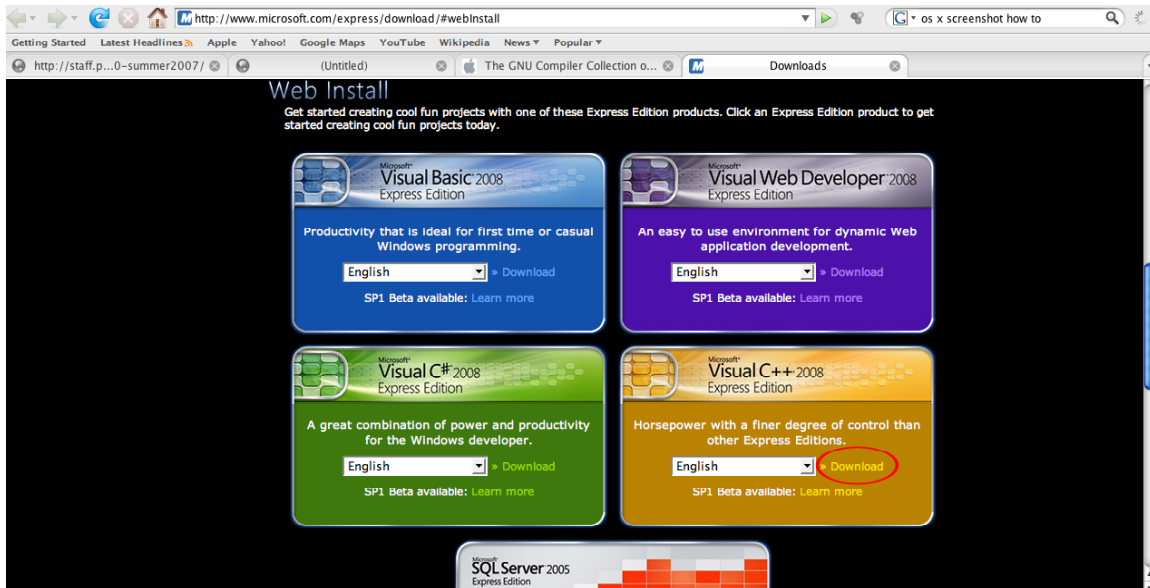


## Using GLUT and OpenGL with Visual Studio.

First go to <http://www.microsoft.com/express/download/#webInstall> and download the Visual C++ Express Edition using the web downloader (click on the download button in the yellow box).



This should take some time to download and install (approx 90 megs), so be patient. YOU SHOULD BE USING VS2008 EXPRESS EDITION OR THE UNIVERSITY OF PITTSBURGH VS2005 INSTALLATION, IF YOU ARE USING AN EARLIER VERSION YOU WILL HAVE TO DOWNLOAD AND INSTALL THE WINDOWS PLATFORM SDK (MICROSOFT WINDOWS SDK) TO OBTAIN THE NECESSARY OPENGL LIBRARIES AND HEADER FILES TO CONTINUE. VS2008 AND THE FULL INSTALLATION OF VS2005 INCLUDES THESE FILES AND OBTAINING THEM IS NOT NECESSARY.

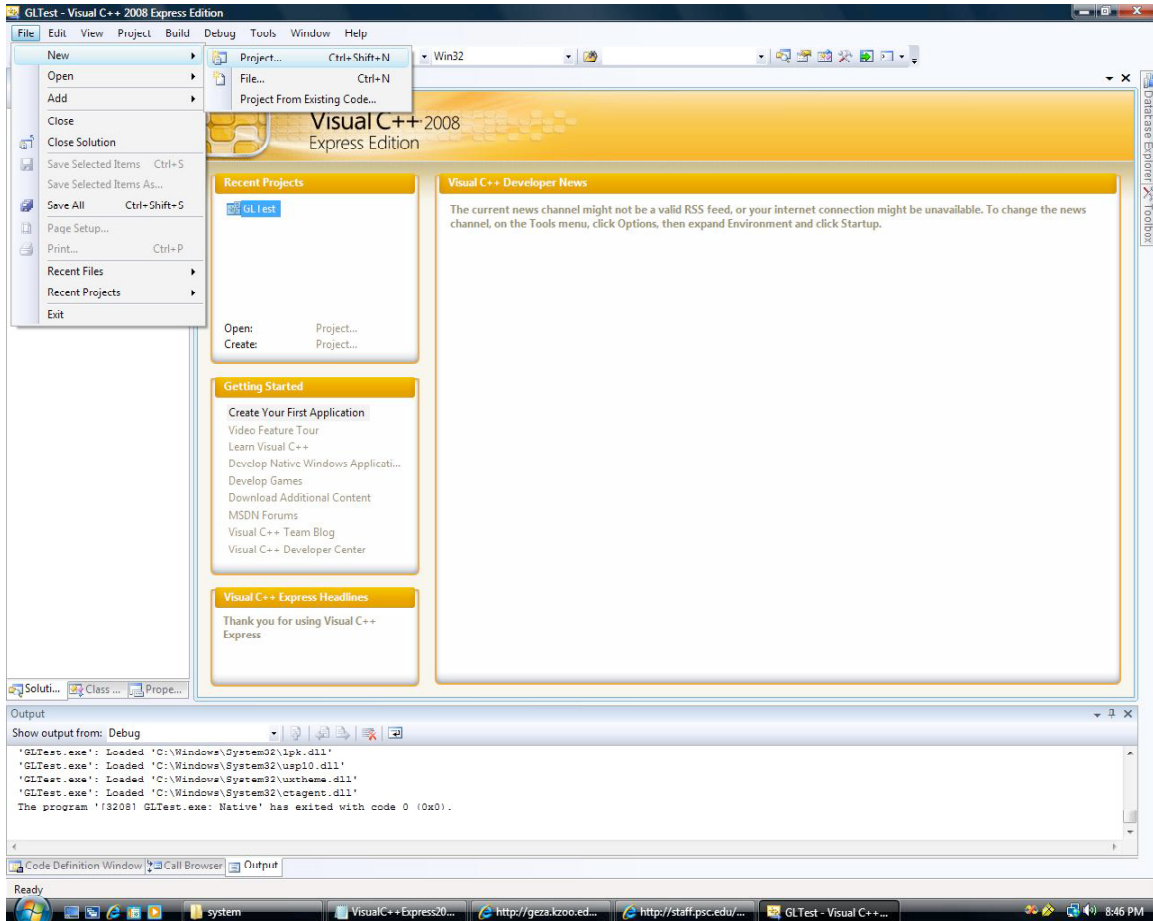
Once visual studio has finished installing, you must either obtain a copy the GLUT binaries or compile GLUT for your own machine. Both the binaries and the source for GLUT can be found at <http://www.xmission.com/~nate/glut.html> . I recommend downloading the binaries for all 32bit installations of windows 2000/XP/Vista. Anyone using a 64 bit version of one of these operating systems will have to compile Glut for their computer (See below for instructions on compiling Glut for your computer). Once you have either downloaded the binaries or compiled the necessary files for your computer, place the files as follows

glut32.dll to "Windows\System"

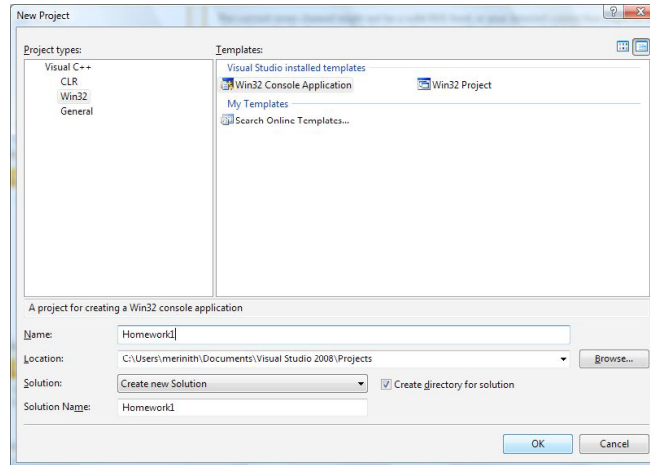
glut32.lib to "Program Files\Microsoft Visual Studio 9.0\VC\lib"

glut.h to "Program Files\Microsoft Visual Studio 9.0\VC\include\GL"  
(note: you will need to create the GL directory)

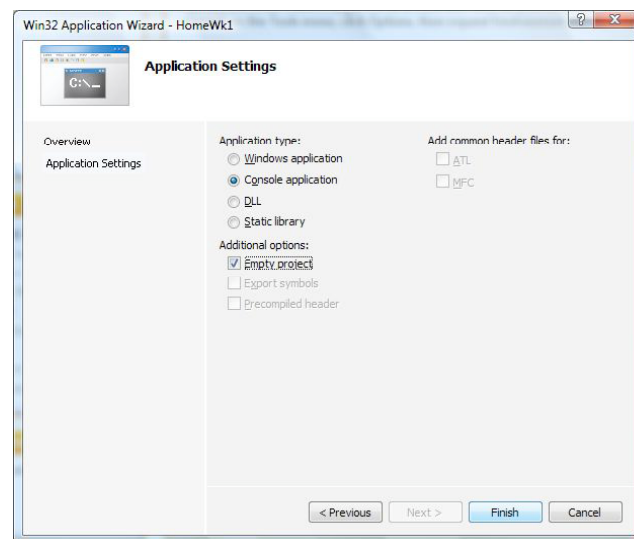
Once this is done, you are ready to start using VS2008 Express to write and compile your OpenGL / Glut programs. Begin by opening Visual C++ 2008 from the Start / Windows menu. Once the interface has opened choose file > new > project from the file menu.



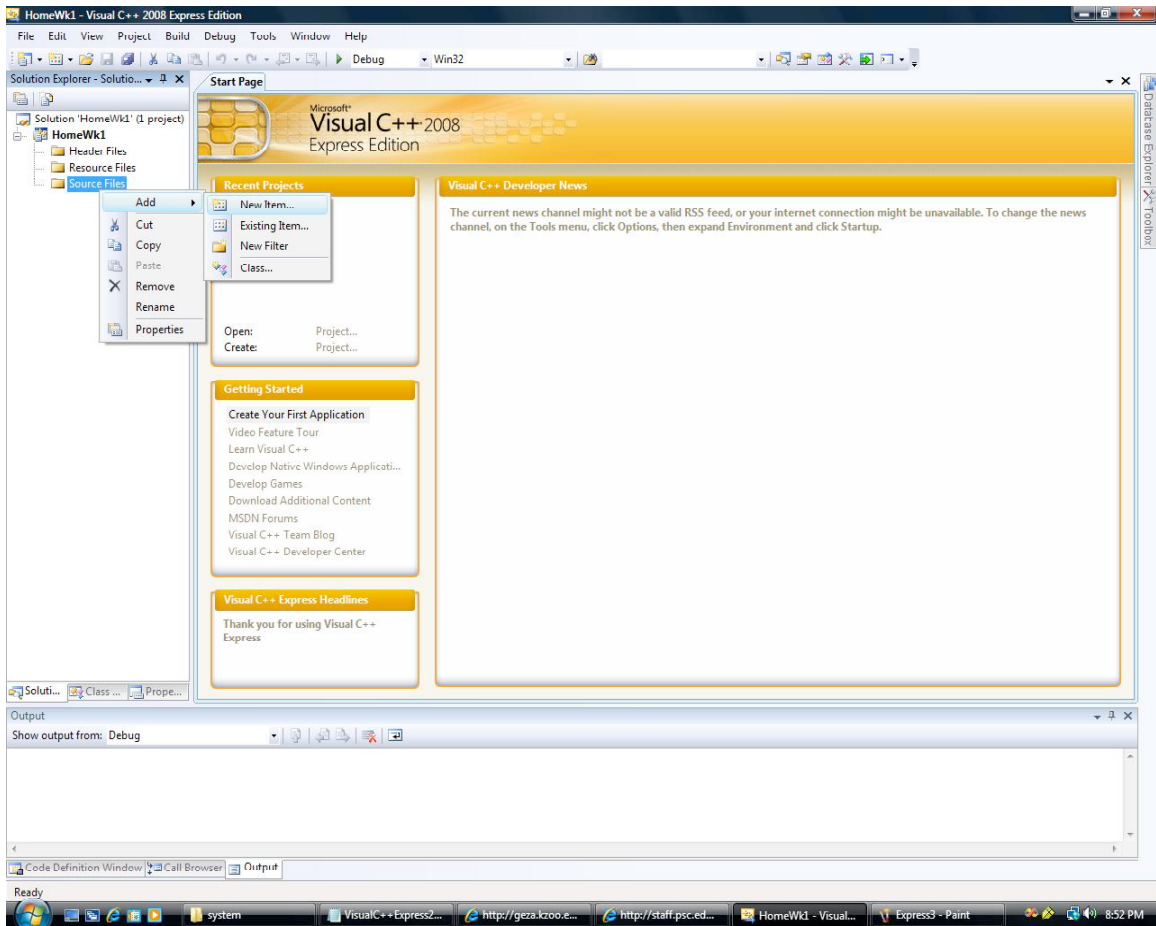
On the new project dialog box, choose to create a Win32 Console Application under the Win32 Selection of the Visual C++ project type. Give your project a name by typing a name in the Enter Name: box. Make sure that "Create new Solution" is Selection in the solution options and hit OK.



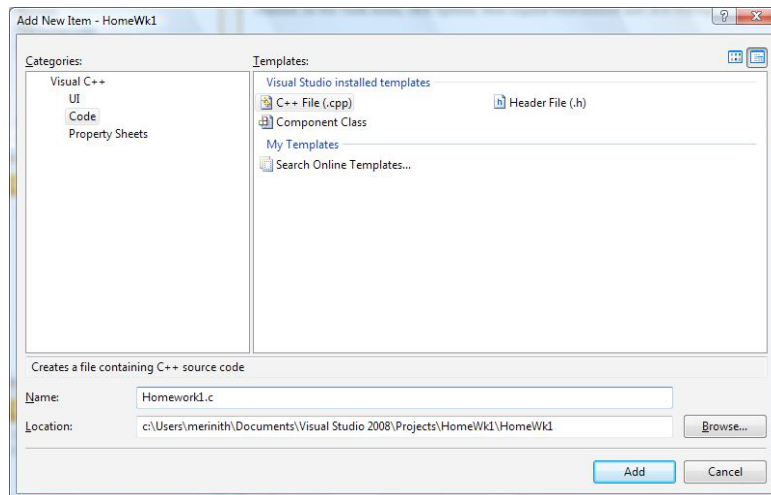
On the next dialog box, click on the "Application Settings" text under the "Overview" text in the panel on the left hand side of the window. Under "Additional Options" on the right hand panel, uncheck "Precompiles Header" and check "Empty Project". Now Hit finish.



Now your project is created. In order to get the assignment code into your new project there are several options you may choose to use. First, you may add a new code file by right clicking on "Source Files" and choosing "Add New Item".



In the "Add New Item" dialog box, choose the "Code" option under Visual C++ on the left and choose C++ File on the right. In the name section at the bottom of the window, name your code file and append a ".c" to the end of your name. Now hit add.



You can now copy and paste the assignment code into this file.

In order to add the existing code file, you should first place the code file into your project directory (N.b. this is mainly to keep your files organized. You can add a file from any location on your local drives although it is recommended that you place it in your project directory first). The default project location is "My Documents\Visual Studio 2008\Project\ProjectName\ProjectName". Copy the assignment code file into this directory.

Now, in the Visual Studio Environment, right click on the source folder and choose "existing document" from the "add" option. The default location of this box is the project directory, so if you moved your file into this directory, click on it and then click add. Otherwise, locate your file first using the file browser and then click on it and choose to add to your project.

**N.B. IN VISUAL STUDIO, MAKE SURE THAT YOUR INCLUDE STATEMENT FOR GLUT.H IS AFTER YOUR INCLUDE STATEMENT FOR STDLIB.H. GLUT.H REDEFINES ONE OF THE CODE SEGMENTS FOUND IN STDLIB.H AND IF GLUT.H IS PLACED FIRST YOU WILL GET AND LINKING ERROR AND BE UNABLE TO COMPILE YOUR PROJECT.**