Practice 1

Seoul National University
Graphics & Media Lab
Donghoon Han

Class Introduction

- Learn Objected-Oriented Programming
  - Object-Oriented Programming
  - in C++

- Learn how to create graphical program
  - Using external library: OpenGL

- **Use C++ like Korean.**

Class Introduction

- TA (Han Donghoon)
  - dhhan@graphics.snu.ac.kr
  - #210, Building 133
  - 880-8879

- Office hour
  - Make appointment

Class Introduction

- Schedule
  - 10+ short program assignments (at each class)
  - 1 large program (as term project)

- Reference
  - ETL
  - Google
    - But don't copy code for assignment

Assignment Submission

- Send E-mail
  - To pmta@graphics.snu.ac.kr

  - Mail Title :
    - Practice_Week01_Assignment

  - Mail Contents
    - Student ID + Name

  - Attachment
    - One Source code file
    - Write a comment about your student ID and name on the top of the attached file

Until Friday 11:59 PM

Programming Environment

- IDE : Integrated development environment
- Xcode, Eclipse, C++ Builder, etc …
- We will use "Visual Studio 2015"
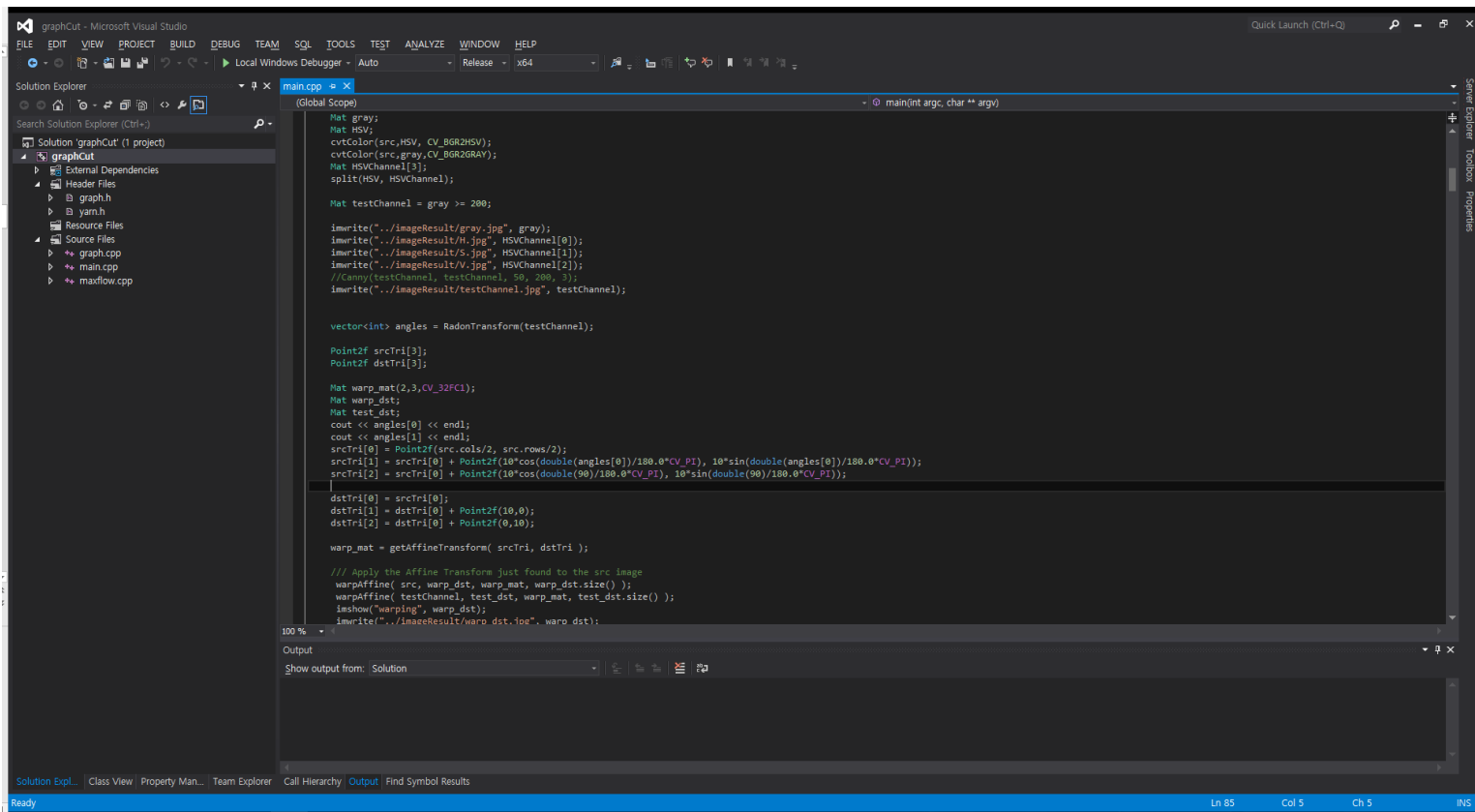
Hello World!

- A "Hello world" program is a computer program that prints out "Hello world" on a display device.
  - It is typically one of the simplest programs possible in most programming languages.
  - By tradition, it is often the first program taught in a beginning class on a particular language.
  - It is also used to illustrate the most basic syntax of a programming language.
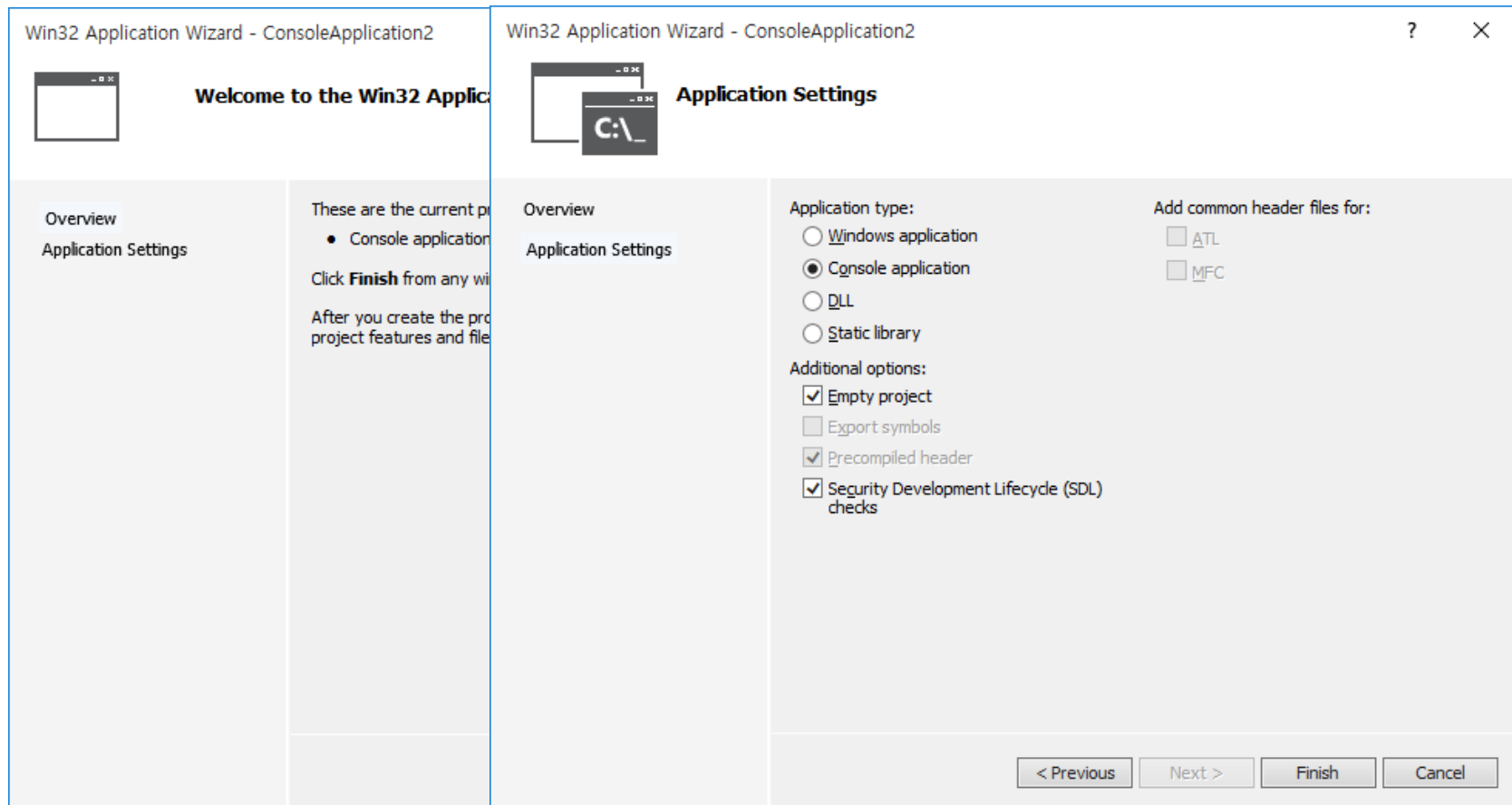
    - From Wikipedia
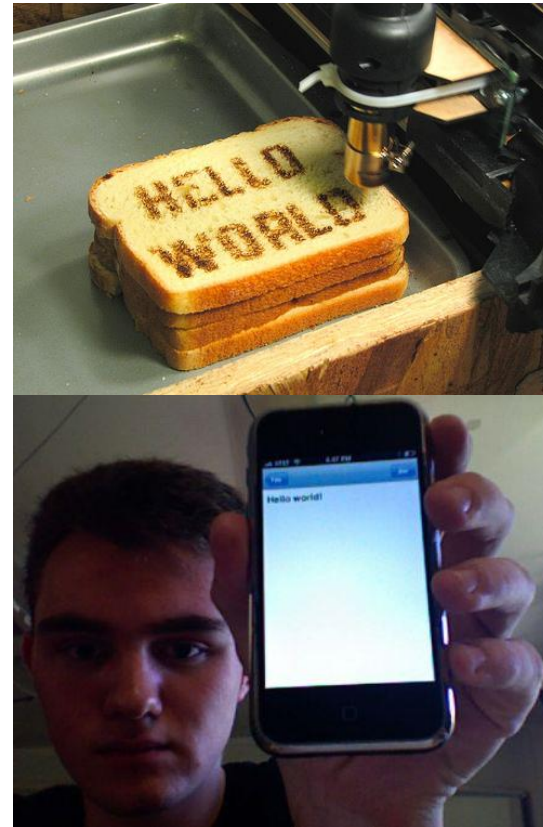
Creating Project

- New project
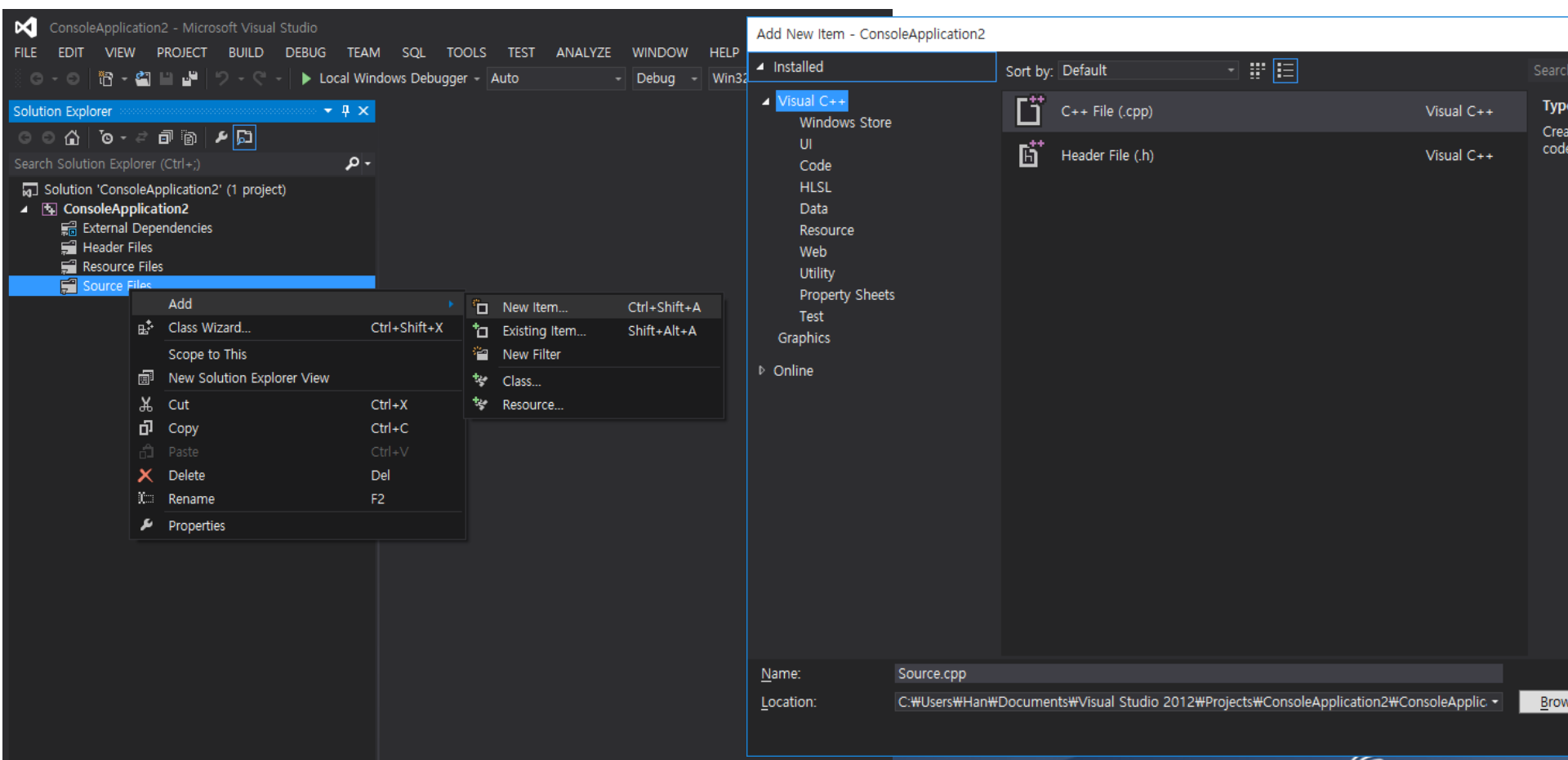 - Win32 Console Application
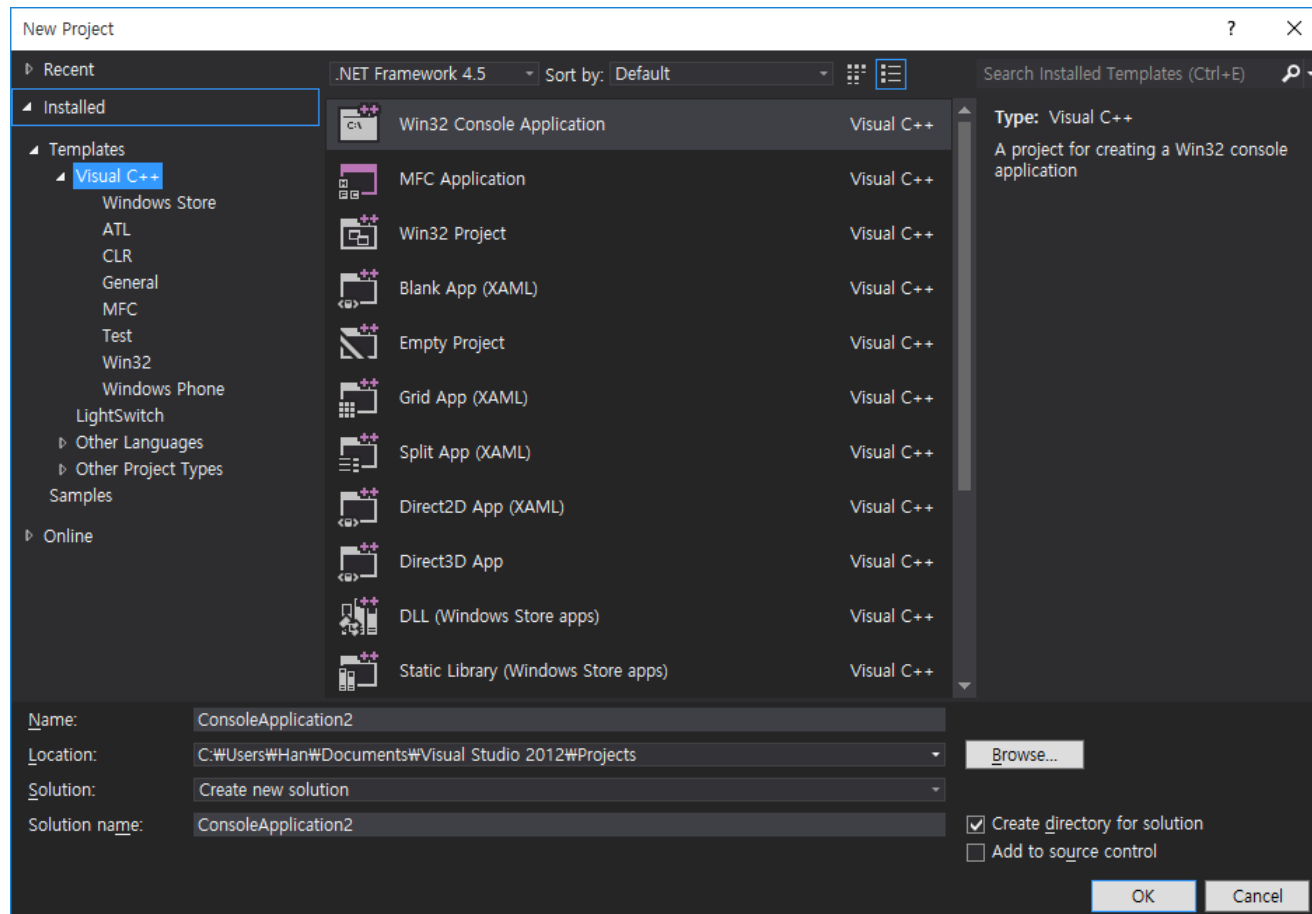
Creating Project

- New project
  - Win32 Console Application
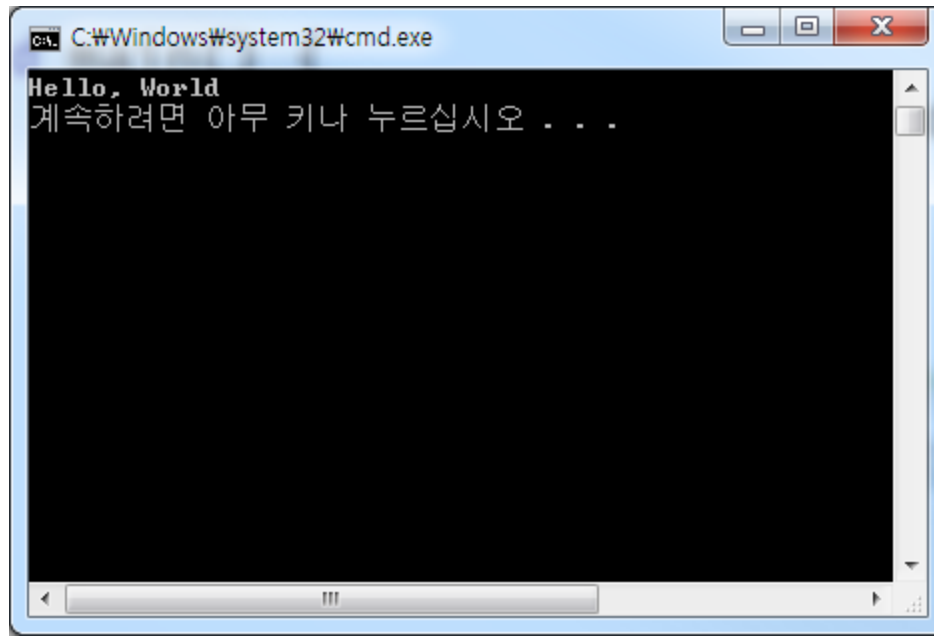 - Empty project

Adding .cpp file

- New project
  - Win32 Console Application
  - Empty project

Hello World!

```cpp
#include <iostream>

void main() {
    std::cout << "Hello, World" << std::endl;
}
```

Hello OpenGL!

Download GLUT and Link the libraries to Visual Studio.
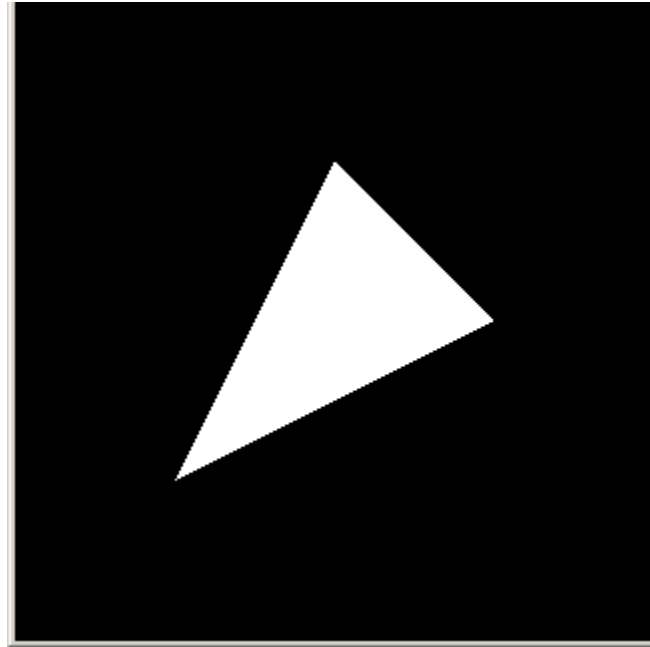Execute Sample Code.

Official site : www.opengl.org
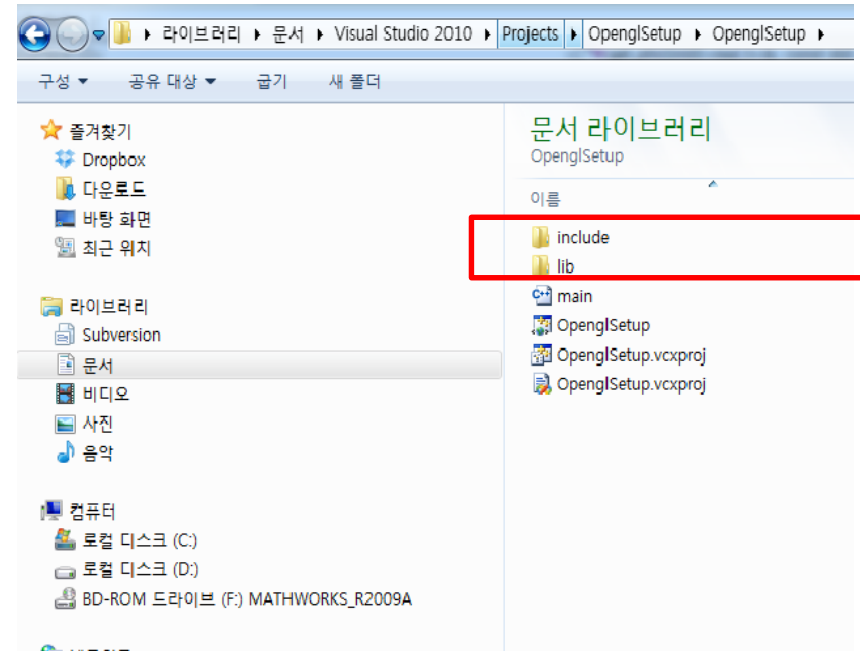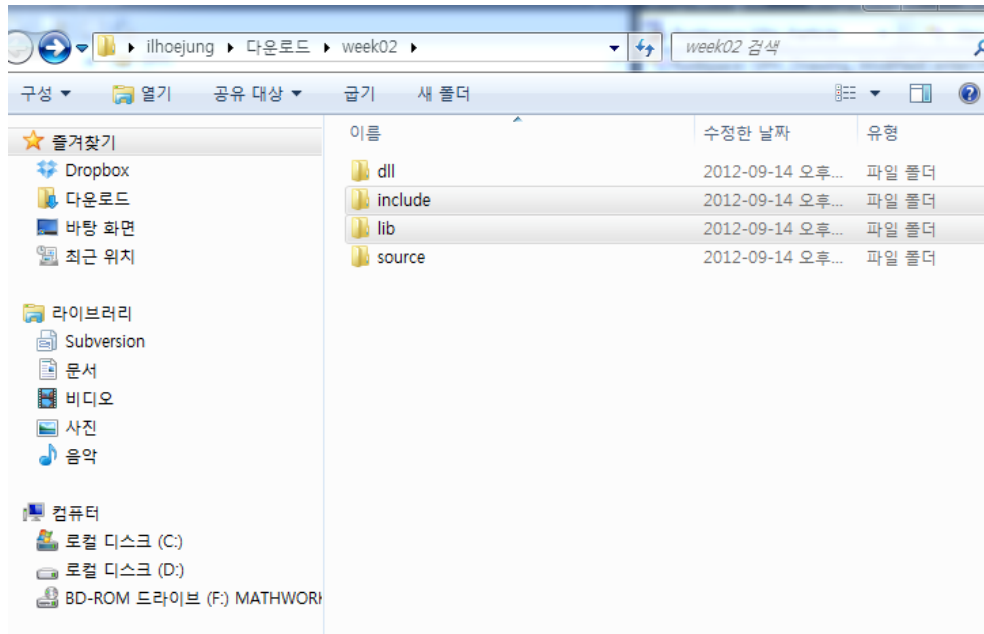
OR.. just use files from TA in ETL.
OR.. http://graphics.snu.ac.kr/class/pm2017/

Hello OpenGL!

- Practice OpenGL
  - Create OpenGL project
  - Draw triangle
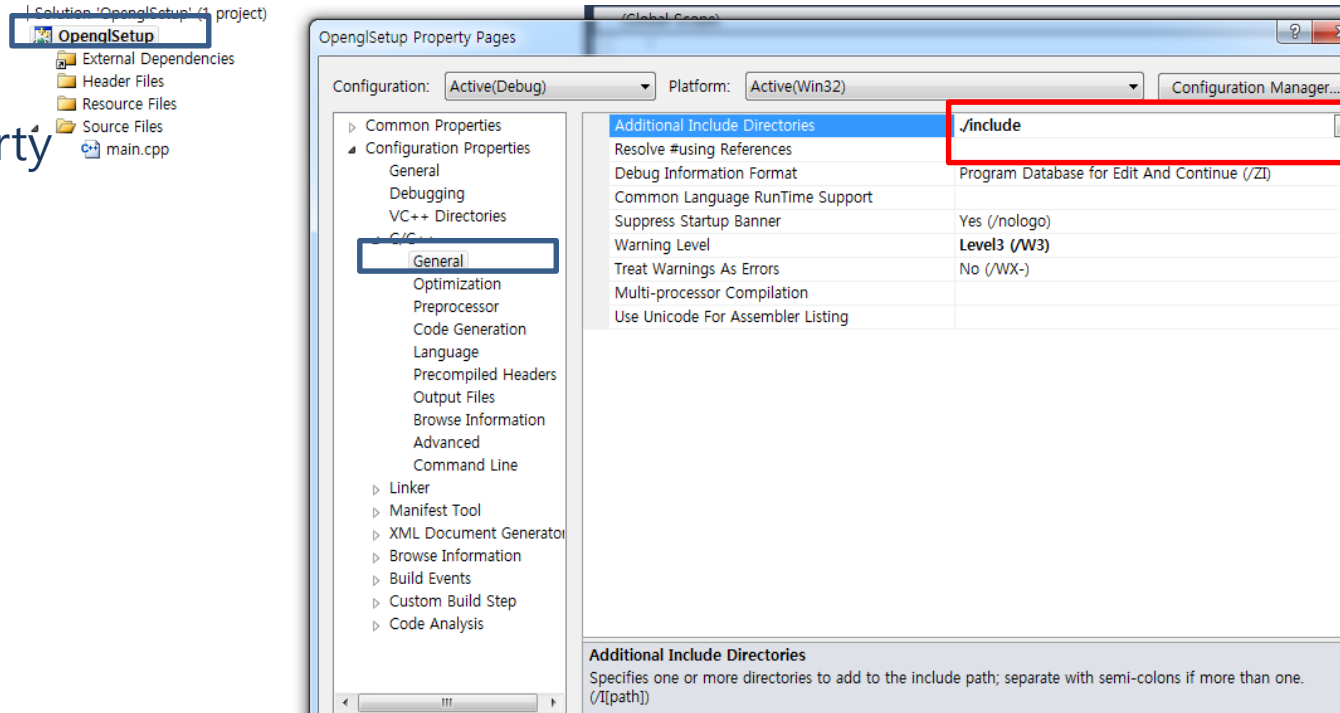
OpenGL project setting

- Copy include and lib folder to your project folder(with main.cpp)

OpenGL project setting

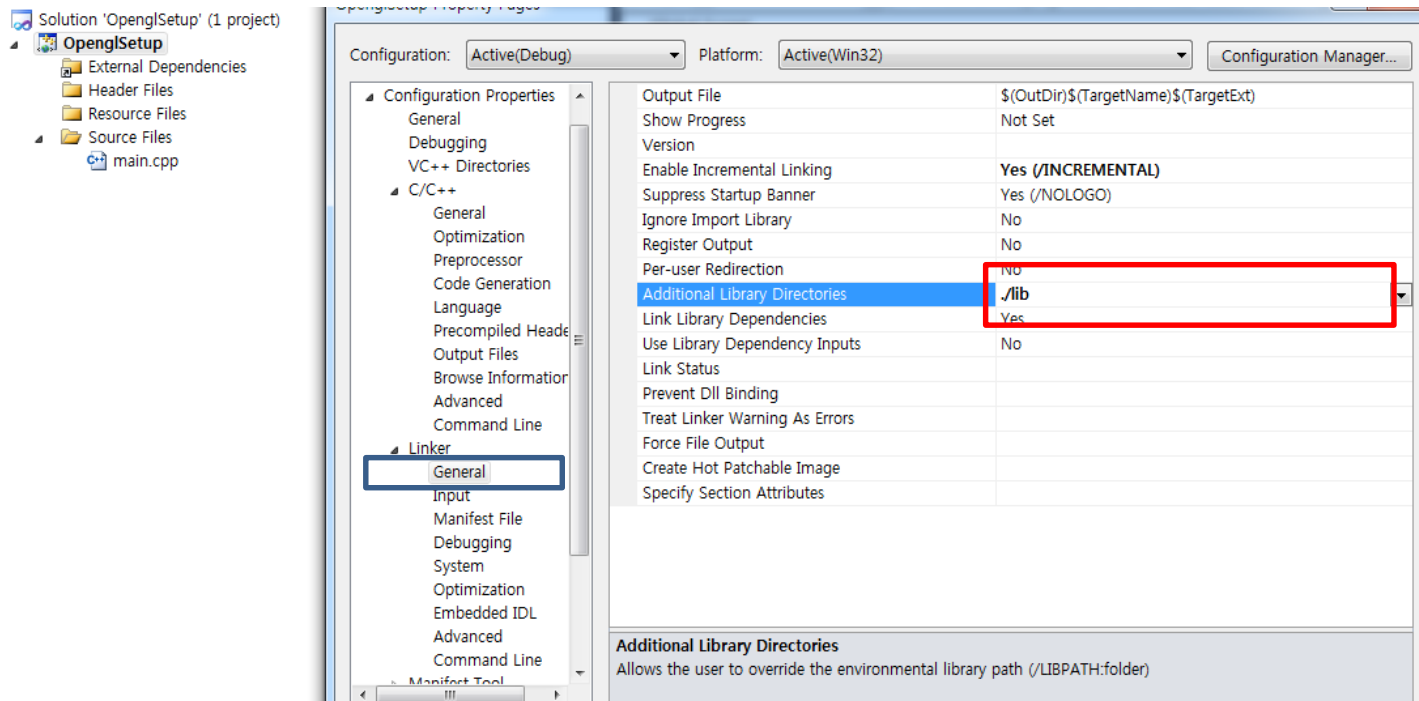- Add "./include" at the additional include directories section in property page.

Open property pages

Type "./include"
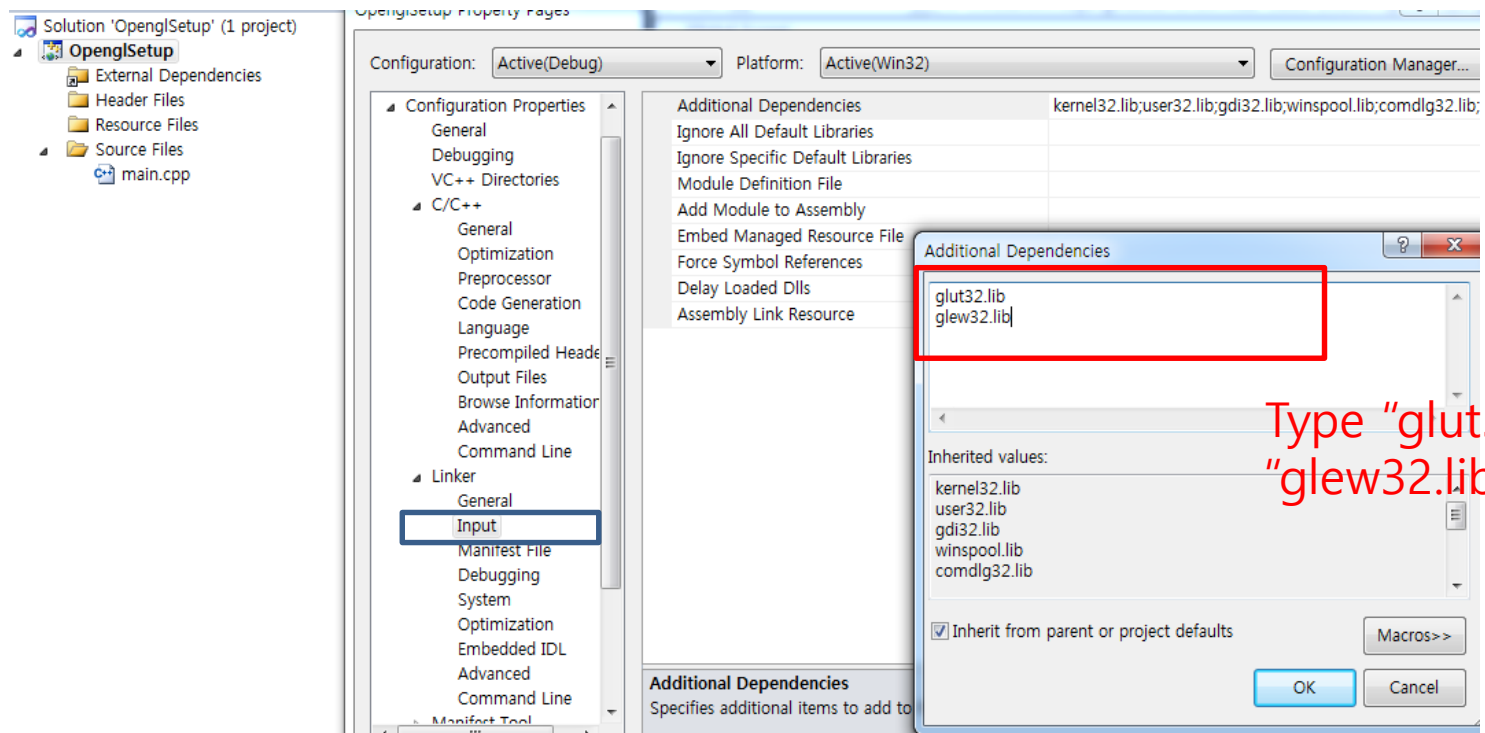
OpenGL project setting

- Add "./lib" at the additional library directories section in property page.
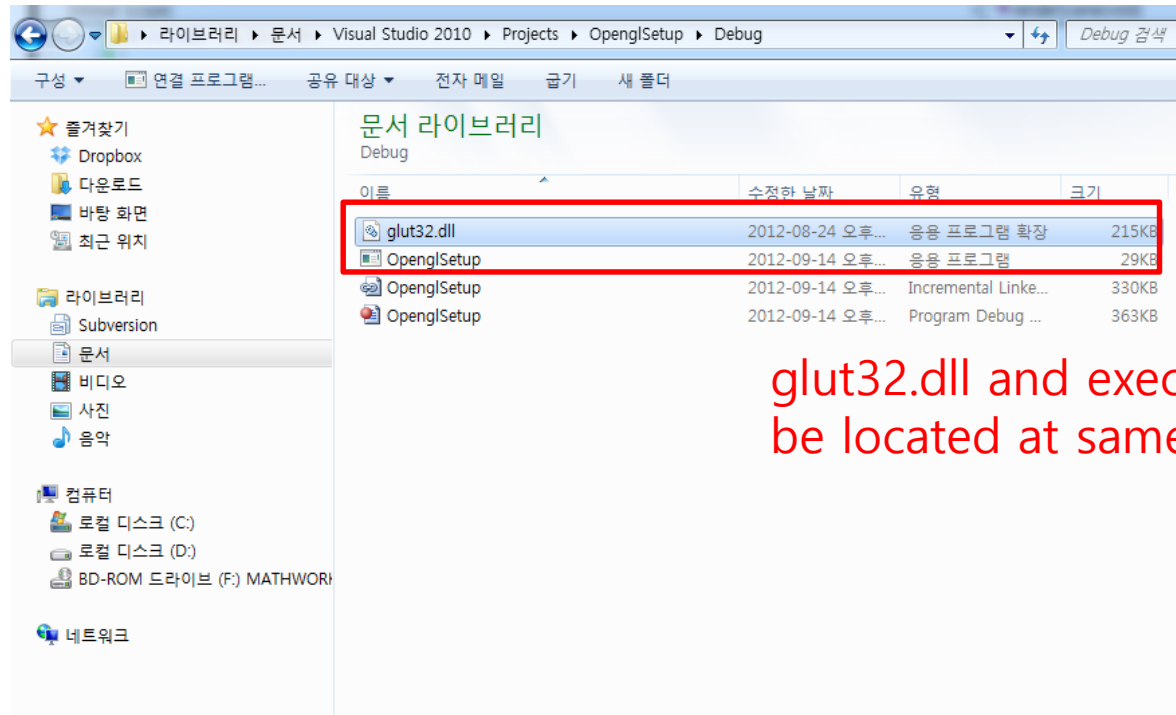

Type "./lib"

OpenGL project setting

- Add "glut32.lib","glew32.lib" at additional dependencies in property page.

OpenGL project setting

- Copy glut32.dll to exe folder

glut32.dll and executable file must be located at same folder.

OpenGL sample 01

```c
#include <GL/glut.h>

void renderScene(void) {

        glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);

        glBegin(GL_TRIANGLES);
                glVertex3f(-0.5,-0.5,0.0);
                glVertex3f(0.5,0.0,0.0);
                glVertex3f(0.0,0.5,0.0);
        glEnd();

        glutSwapBuffers();
}

void main(int argc, char **argv) {

        // init GLUT and create Window
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_DEPTH | GLUT_DOUBLE | GLUT_RGBA);
        glutInitWindowPosition(100,100);
        glutInitWindowSize(320,320);
        glutCreateWindow("Hello OpenGL!");

        // register callbacks
        glutDisplayFunc(renderScene);

        // enter GLUT event processing cycle
        glutMainLoop();
}
```

Hello OpenGL!