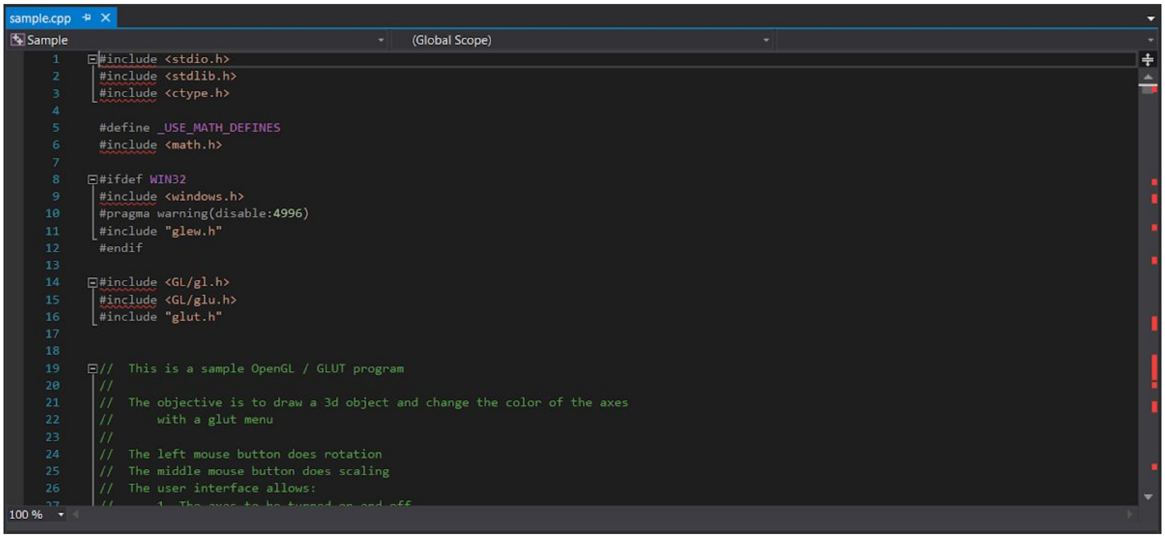
Troubleshooting Common Issues with VS 2017

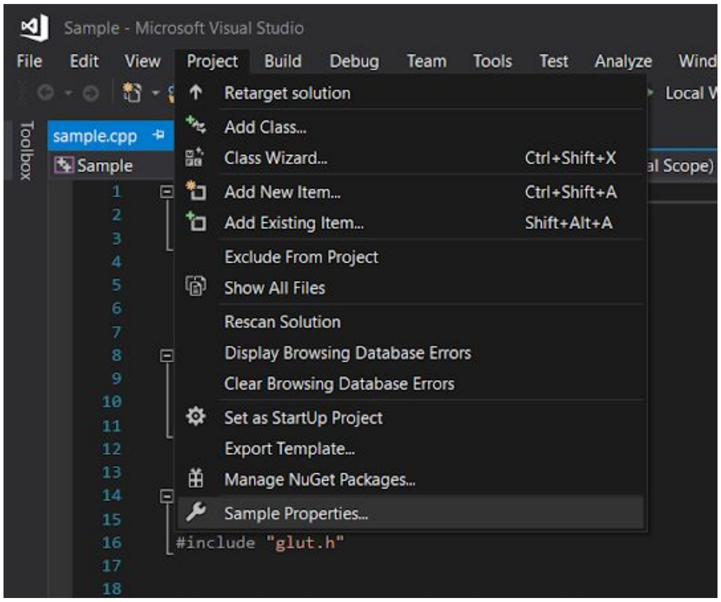
Inclusions not Recognized

When opening Sample2017 up for the first time, you may be confronted by code that has red underlines on inclusions. If you try to build at this point, a whole bunch of inclusion errors will be reported:



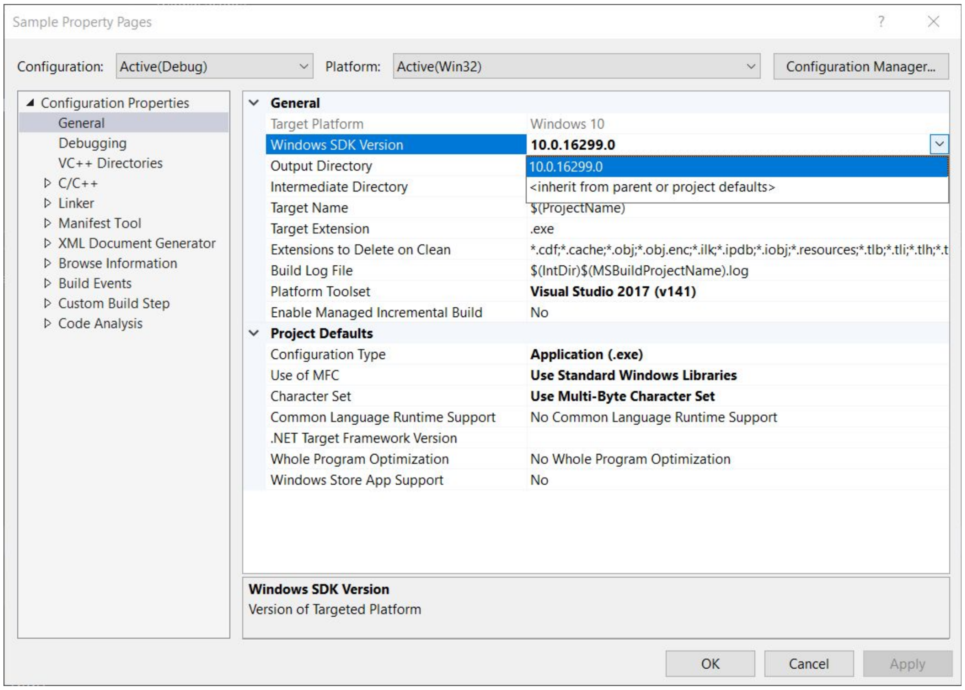
```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>

#define _USE_MATH_DEFINES
#include <math.h>

#ifdef WIN32
#include <windows.h>
#pragma warning(disable:4996)
#include "glew.h"
#endif

#include <GL/gl.h>
#include <GL/glu.h>
#include "glut.h"


//  This is a sample OpenGL / GLUT program
//
//  The objective is to draw a 3d object and change the color of the axes
//      with a glut menu
//
//  The left mouse button does rotation
//  The middle mouse button does scaling
//  The user interface allows:
//      1. The axes to be turned on and off
```

If this is the case, you will want to go to >Project>Sample Preferences in the toolbar:



```
#include "glut.h"
```

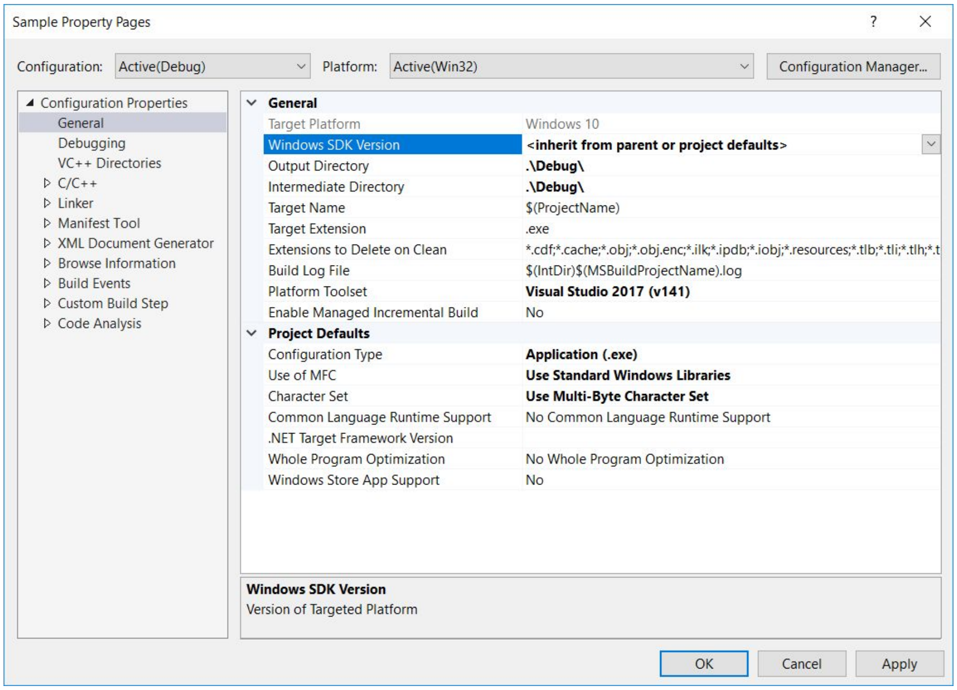
This should cause a window to pop up. In order to fix your issue, you will need to change the Windows SDK Version to inherit from parent or project defaults.



Configuration: Active(Debug) Platform: Active(Win32) Configuration Manager...

General	
Target Platform	Windows 10
Windows SDK Version	**10.0.16299.0**
Output Directory	10.0.16299.0
Intermediate Directory	<inherit from parent or project defaults>
Target Name	$(ProjectName)
Target Extension	.exe
Extensions to Delete on Clean	*.cdf;*.cache;*.obj;*.obj.enc;*.ilk;*.ipdb;*.iobj;*.resources;*.tlb;*.tli;*.tlh;*.t
Build Log File	$(IntDir)$(MSBuildProjectName).log
Platform Toolset	**Visual Studio 2017 (v141)**
Enable Managed Incremental Build	No
Project Defaults	
Configuration Type	**Application (.exe)**
Use of MFC	**Use Standard Windows Libraries**
Character Set	**Use Multi-Byte Character Set**
Common Language Runtime Support	No Common Language Runtime Support
.NET Target Framework Version	
Whole Program Optimization	No Whole Program Optimization
Windows Store App Support	No

Windows SDK Version
Version of Targeted Platform



Configuration: Active(Debug) Platform: Active(Win32) Configuration Manager...

General	
Target Platform	Windows 10
Windows SDK Version	**<inherit from parent or project defaults>**
Output Directory	**.\Debug\**
Intermediate Directory	**.\Debug\**
Target Name	$(ProjectName)
Target Extension	.exe
Extensions to Delete on Clean	*.cdf;*.cache;*.obj;*.obj.enc;*.ilk;*.ipdb;*.iobj;*.resources;*.tlb;*.tli;*.tlh;*.t
Build Log File	$(IntDir)$(MSBuildProjectName).log
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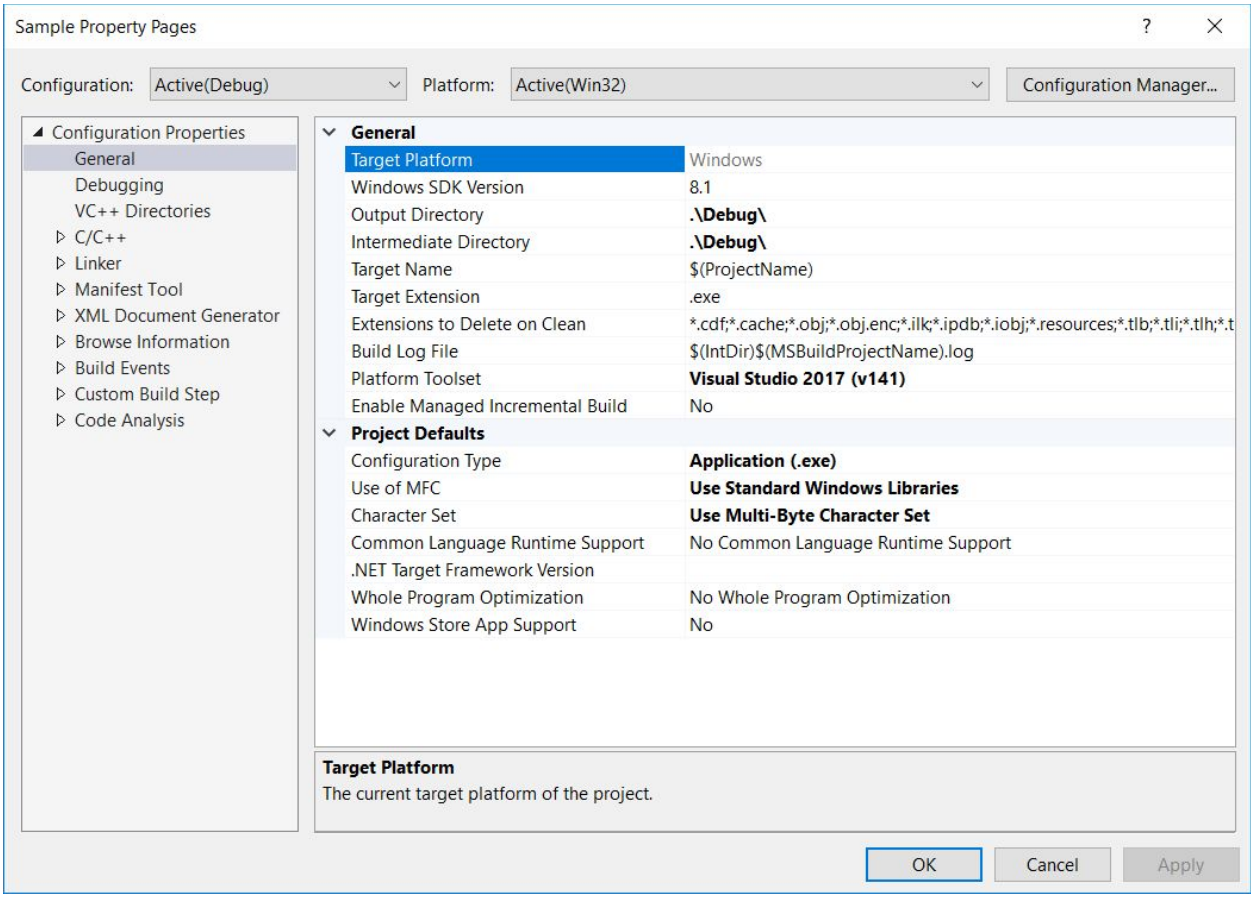
Use of MFC	**Use Standard Windows Libraries**
Character Set	**Use Multi-Byte Character Set**
Common Language Runtime Support	No Common Language Runtime Support
.NET Target Framework Version	
Whole Program Optimization	No Whole Program Optimization
Windows Store App Support	No

Windows SDK Version
Version of Targeted Platform

Be sure to hit APPLY after changing the SDK version:



Sample Property Pages

Configuration: Active(Debug)

Platform: Active(Win32)

General

Target Platform	Windows
Windows SDK Version	8.1
Output Directory	**.\Debug\**
Intermediate Directory	**.\Debug\**
Target Name	$(ProjectName)
Target Extension	.exe
Extensions to Delete on Clean	*.cdf;*.cache;*.obj;*.obj.enc;*.ilk;*.ipdb;*.iobj;*.resources;*.tlb;*.tli;*.tlh;*.t
Build Log File	$(IntDir)$(MSBuildProjectName).log
Platform Toolset	**Visual Studio 2017 (v141)**
Enable Managed Incremental Build	No

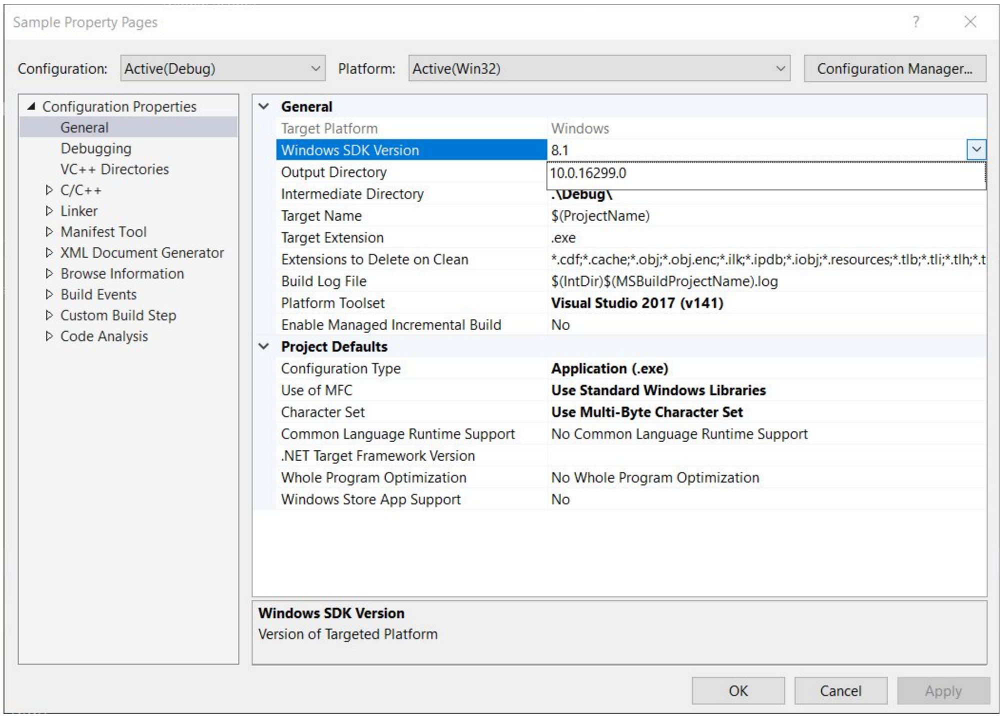
Project Defaults

Configuration Type	**Application (.exe)**
Use of MFC	**Use Standard Windows Libraries**
Character Set	**Use Multi-Byte Character Set**
Common Language Runtime Support	No Common Language Runtime Support
.NET Target Framework Version	
Whole Program Optimization	No Whole Program Optimization
Windows Store App Support	No

Target Platform

The current target platform of the project.

Once this is done, change the SDK Version back again, hitting APPLY:



General	
Target Platform	Windows
Windows SDK Version	8.1 10.0.16299.0
Output Directory	
Intermediate Directory	.\Debug\
Target Name	$(ProjectName)
Target Extension	.exe
Extensions to Delete on Clean	*.cdf;*.cache;*.obj;*.obj.enc;*.ilk;*.ipdb;*.iobj;*.resources;*.tlb;*.tli;*.tlh;*.t
Build Log File	$(IntDir)$(MSBuildProjectName).log
Platform Toolset	**Visual Studio 2017 (v141)**
Enable Managed Incremental Build	No
Project Defaults	
Configuration Type	**Application (.exe)**
Use of MFC	**Use Standard Windows Libraries**
Character Set	**Use Multi-Byte Character Set**
Common Language Runtime Support	No Common Language Runtime Support
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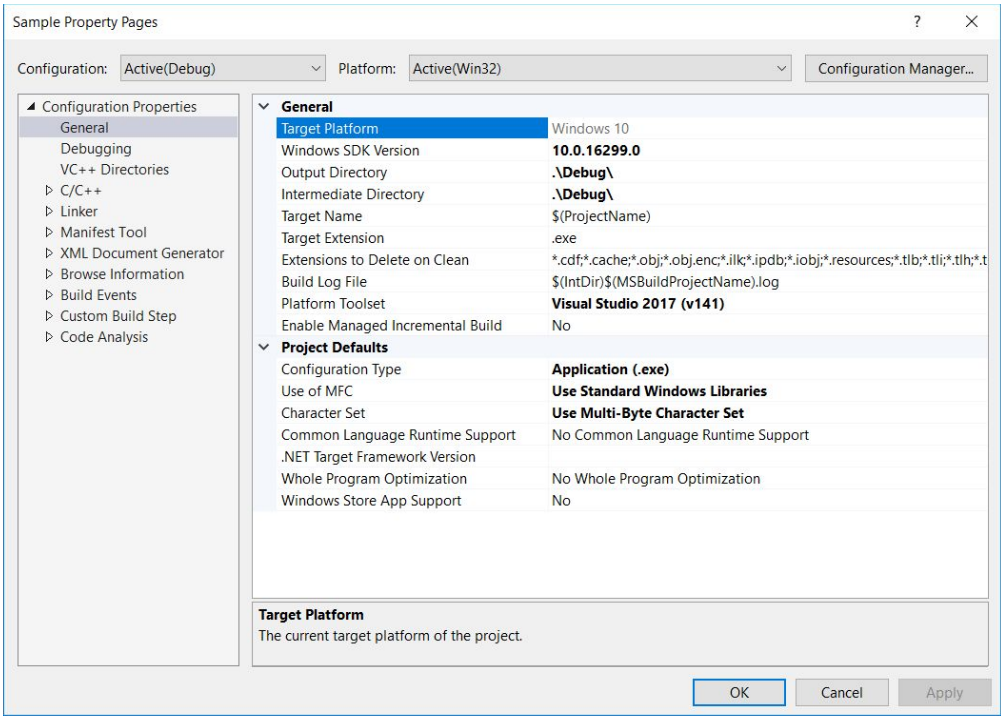
Whole Program Optimization	No Whole Program Optimization
Windows Store App Support	No

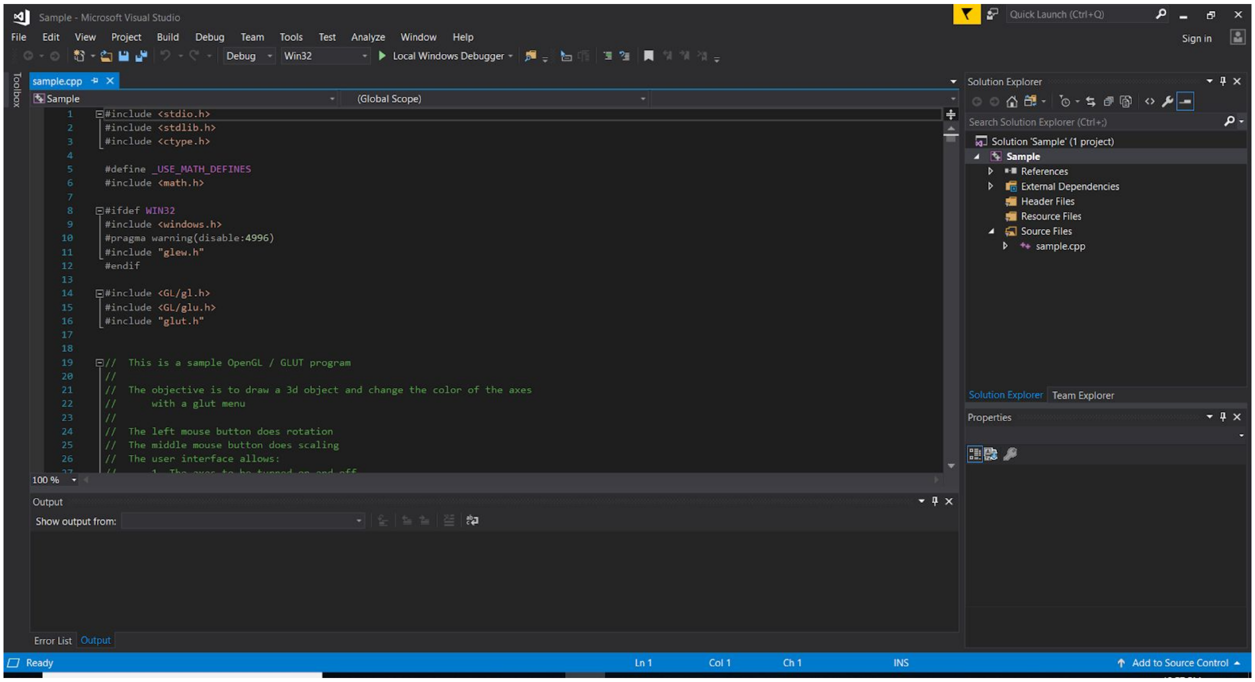
Windows SDK Version
Version of Targeted Platform



General	
Target Platform	Windows 10
Windows SDK Version	**10.0.16299.0**
Output Directory	**.\Debug**
Intermediate Directory	**.\Debug**
Target Name	$(ProjectName)
Target Extension	.exe
Extensions to Delete on Clean	*.cdf;*.cache;*.obj;*.obj.enc;*.ilk;*.ipdb;*.iobj;*.resources;*.tlb;*.tli;*.tlh;*.t
Build Log File	$(IntDir)$(MSBuildProjectName).log
Platform Toolset	**Visual Studio 2017 (v141)**
Enable Managed Incremental Build	No
Project Defaults	
Configuration Type	**Application (.exe)**
Use of MFC	**Use Standard Windows Libraries**
Character Set	**Use Multi-Byte Character Set**
Common Language Runtime Support	No Common Language Runtime Support
.NET Target Framework Version	
Whole Program Optimization	No Whole Program Optimization
Windows Store App Support	No

Target Platform
The current target platform of the project.

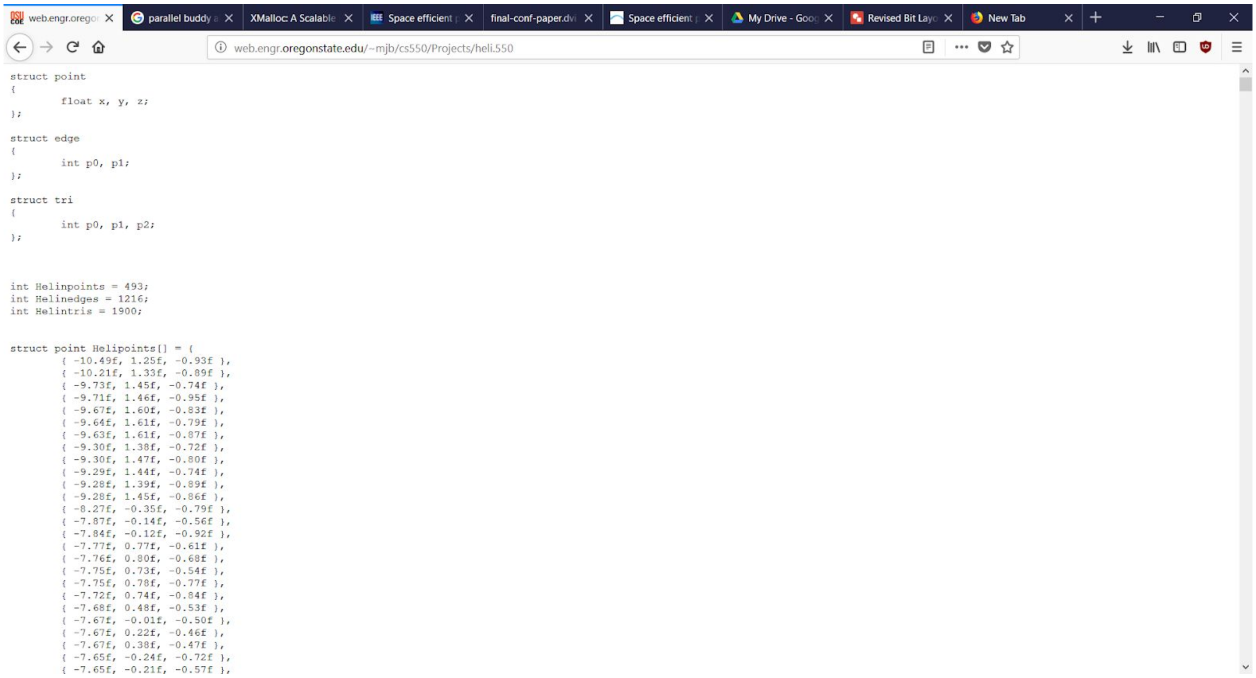
When you exit out of the window, the include lines should no longer have red lines under them, meaning that Visual Studio took the hint and now recognizes the inclusions as valid.



```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>

#define _USE_MATH_DEFINES
#include <math.h>

#ifdef WIN32
#include <windows.h>
#pragma warning(disable:4996)
#include "glew.h"
#endif

#include <GL/gl.h>
#include <GL/glu.h>
#include "glut.h"


//  This is a sample OpenGL / GLUT program
//
//  The objective is to draw a 3d object and change the color of the axes
//      with a glut menu
//
//  The left mouse button does rotation
//  The middle mouse button does scaling
//  The user interface allows:
//      1. The axes to be turned on and off
```

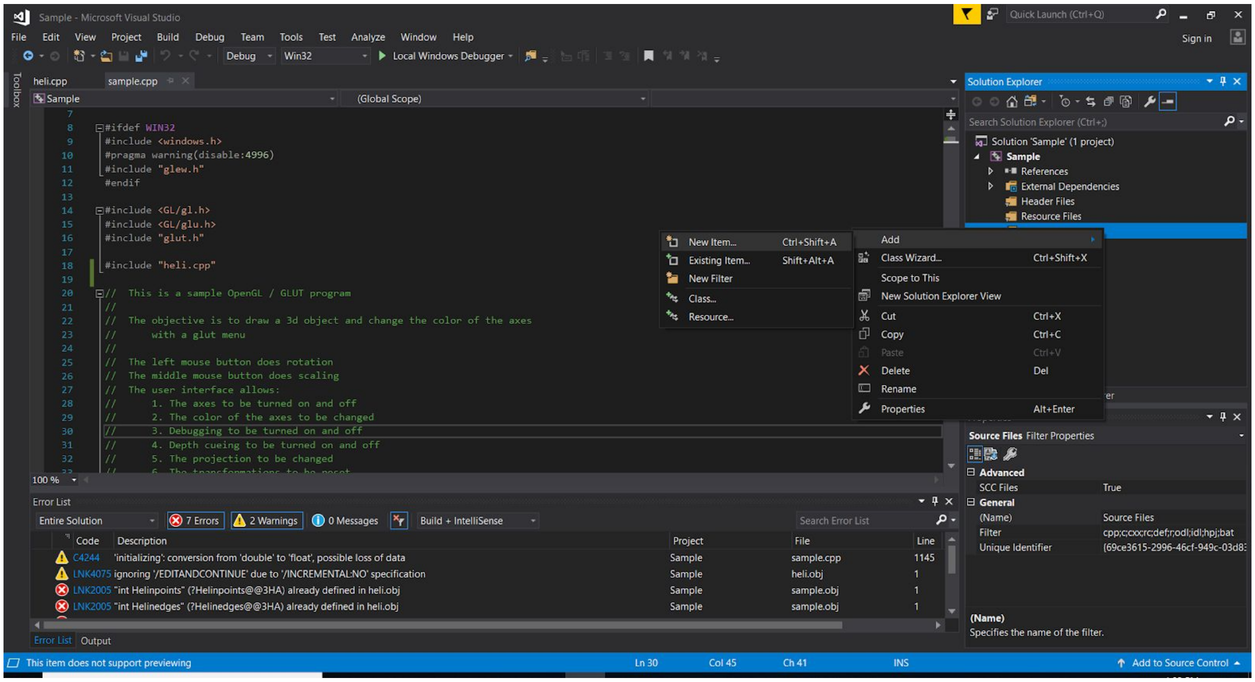
Trouble including heli.550 in your project

If you have not already, it is suggested that you get the contents of heli.550 off of the class website:



```
struct point
{
        float x, y, z;
};

struct edge
{
        int p0, p1;
};

struct tri
{
        int p0, p1, p2;
};



int Helinpoints = 493;
int Helinedges = 1216;
int Helintris = 1900;


struct point Helipoints[] = {
        { -10.49f, 1.25f, -0.93f },
        { -10.21f, 1.33f, -0.89f },
        { -9.73f, 1.45f, -0.74f },
        { -9.71f, 1.46f, -0.95f },
        { -9.67f, 1.60f, -0.83f },
        { -9.64f, 1.61f, -0.79f },
        { -9.63f, 1.61f, -0.87f },
        { -9.30f, 1.38f, -0.72f },
        { -9.30f, 1.47f, -0.80f },
        { -9.29f, 1.44f, -0.74f },
        { -9.28f, 1.39f, -0.89f },
        { -9.28f, 1.45f, -0.86f },
        { -8.27f, -0.35f, -0.79f },
        { -7.87f, -0.14f, -0.56f },
        { -7.84f, -0.12f, -0.92f },
        { -7.77f, 0.77f, -0.61f },
        { -7.76f, 0.80f, -0.68f },
        { -7.75f, 0.73f, -0.54f },
        { -7.75f, 0.78f, -0.77f },
        { -7.72f, 0.74f, -0.84f },
        { -7.68f, 0.48f, -0.53f },
        { -7.67f, -0.01f, -0.50f },
        { -7.67f, 0.22f, -0.46f },
        { -7.67f, 0.38f, -0.47f },
        { -7.65f, -0.24f, -0.72f },
        { -7.65f, -0.21f, -0.57f },
```

You then want to add another file to the sources folder:



```
#ifdef WIN32
#include <windows.h>
#pragma warning(disable:4996)
#include "glew.h"
#endif

#include <GL/gl.h>
#include <GL/glu.h>
#include "glut.h"

#include "heli.cpp"

//  This is a sample OpenGL / GLUT program
//
//  The objective is to draw a 3d object and change the color of the axes
//      with a glut menu
//
//  The left mouse button does rotation
//  The middle mouse button does scaling
//  The user interface allows:
//      1. The axes to be turned on and off
//      2. The color of the axes to be changed
//      3. Debugging to be turned on and off
//      4. Depth cueing to be turned on and off
//      5. The projection to be changed
//      6. The transformations to be reset
```

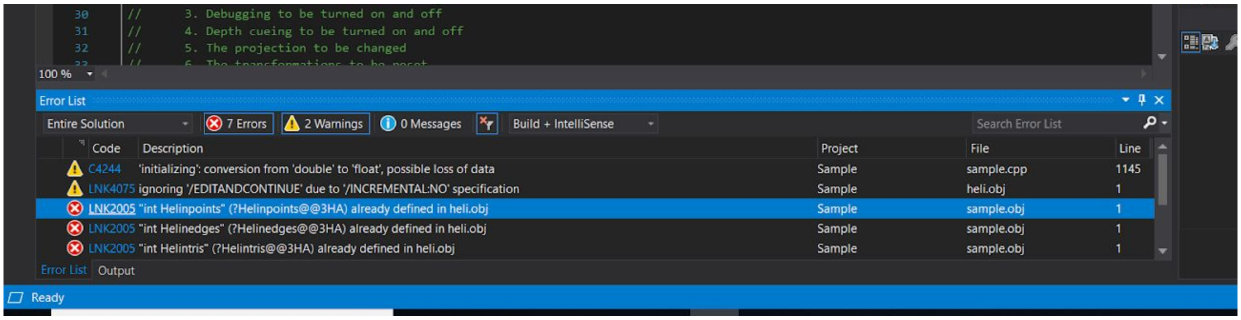
	Code	Description	Project	File	Line
⚠	C4244	'initializing': conversion from 'double' to 'float', possible loss of data	Sample	sample.cpp	1145
⚠	LNK4075	ignoring '/EDITANDCONTINUE' due to '/INCREMENTAL:NO' specification	Sample	heli.obj	1
⊗	LNK2005	"int Helinpoints" (?Helinpoints@@3HA) already defined in heli.obj	Sample	sample.obj	1
⊗	LNK2005	"int Helinedges" (?Helinedges@@3HA) already defined in heli.obj	Sample	sample.obj	1

Source Files Filter Properties

Advanced	
SCC Files	True
General	
(Name)	Source Files
Filter	cpp;c;cxx;rc;def;r;odl;idl;hpj;bat
Unique Identifier	{69ce3615-2996-46cf-949c-03d8

(Name)
Specifies the name of the filter.

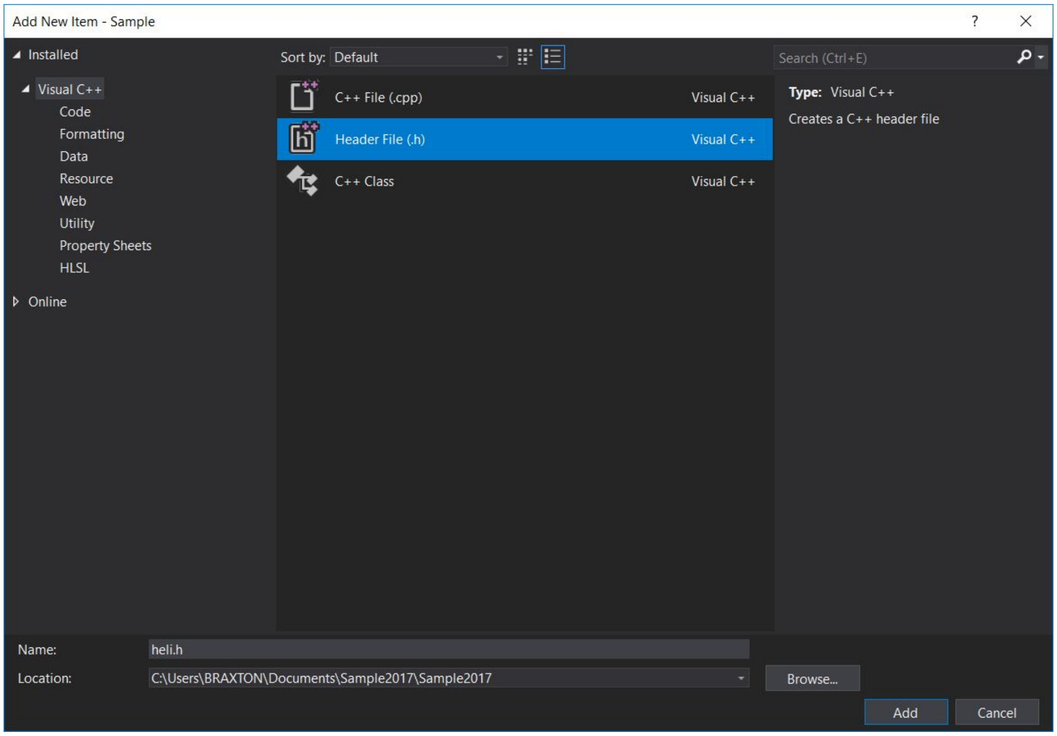
Unfortunately our “heli.cpp” file is not enough. Visual Studio does not generally like the practice of including source files, preferring the much more idiomatic use of header files. So, we end up with a lot of extra inclusions under the hood due to Visual Studio’s linking scheme and the build fails:



```
//      3. Debugging to be turned on and off
//      4. Depth cueing to be turned on and off
//      5. The projection to be changed
//      6. The transformations to be reset
```

Code	Description	Project	File	Line
C4244	'initializing': conversion from 'double' to 'float', possible loss of data	Sample	sample.cpp	1145
LNK4075	ignoring '/EDITANDCONTINUE' due to '/INCREMENTAL:NO' specification	Sample	heli.obj	1
LNK2005	"int Helinpoints" (?Helinpoints@@3HA) already defined in heli.obj	Sample	sample.obj	1
LNK2005	"int Helinedges" (?Helinedges@@3HA) already defined in heli.obj	Sample	sample.obj	1
LNK2005	"int Helintris" (?Helintris@@3HA) already defined in heli.obj	Sample	sample.obj	1

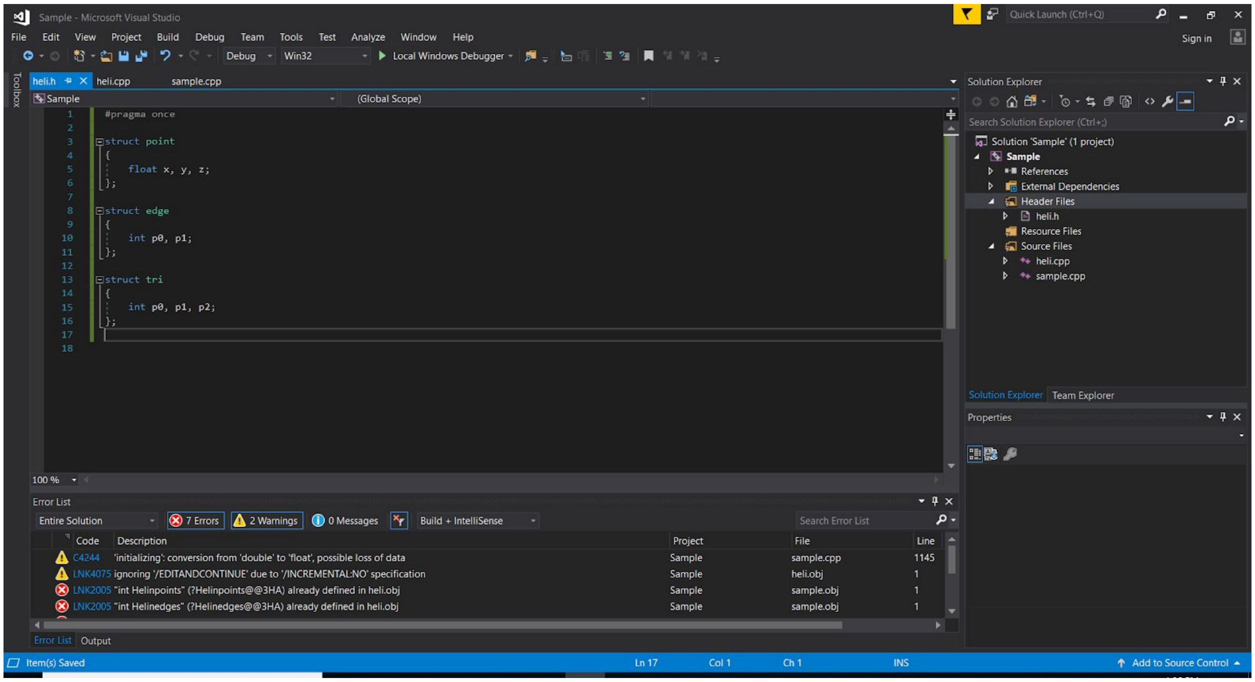
You will need to break your source file into a source file and a header file, for the sake of this example, we’ll just name it “heli.h”:



Type: Visual C++
Creates a C++ header file

Name: heli.h
Location: C:\Users\BRAXTON\Documents\Sample2017\Sample2017

First, you should move the struct declarations out of the source file and into the header file:



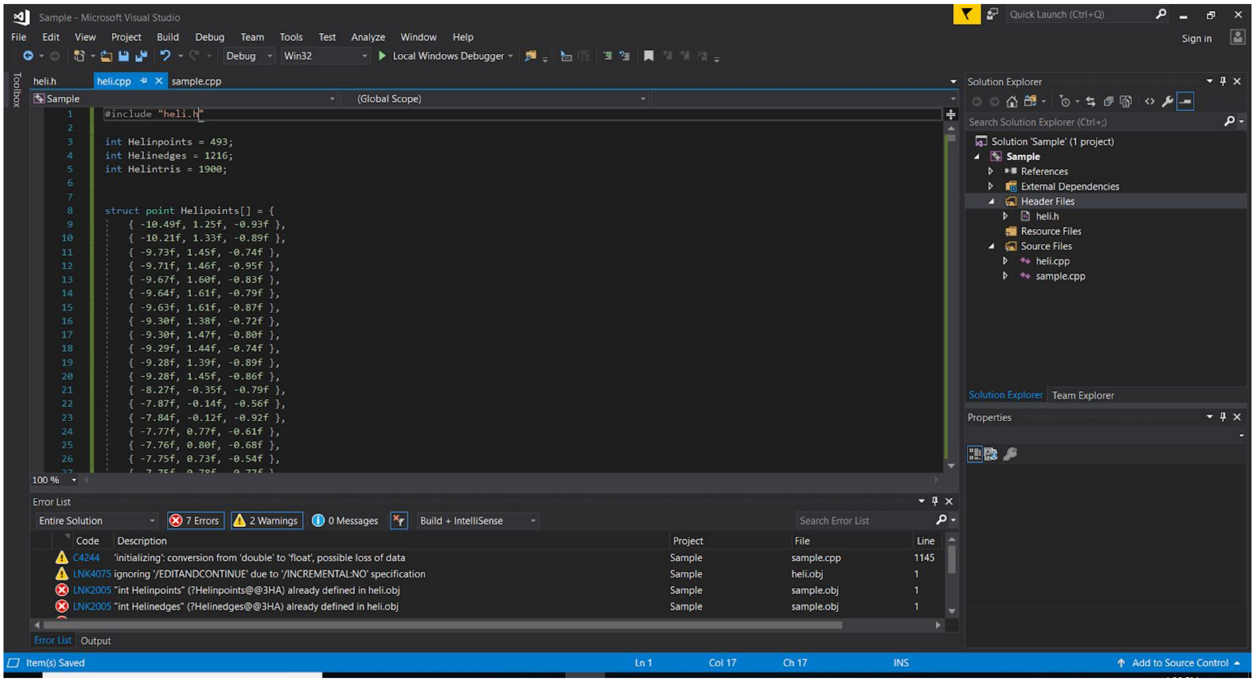
```
#pragma once

struct point
{
	float x, y, z;
};

struct edge
{
	int p0, p1;
};

struct tri
{
	int p0, p1, p2;
};

```

Error List

Entire Solution | 7 Errors | 2 Warnings | 0 Messages | Build + IntelliSense | Search Error List

Code	Description	Project	File	Line
C4244	'initializing': conversion from 'double' to 'float', possible loss of data	Sample	sample.cpp	1145
LNK4075	ignoring '/EDITANDCONTINUE' due to '/INCREMENTAL:NO' specification	Sample	heli.obj	1
LNK2005	"int Helinpoints" (?Helinpoints@@3HA) already defined in heli.obj	Sample	sample.obj	1
LNK2005	"int Helinedges" (?Helinedges@@3HA) already defined in heli.obj	Sample	sample.obj	1

Also, be sure to include the header file in the source file:



```
#include "heli.h"

int Helinpoints = 493;
int Helinedges = 1216;
int Helintris = 1900;


struct point Helipoints[] = {
	{ -10.49f, 1.25f, -0.93f },
	{ -10.21f, 1.33f, -0.89f },
	{ -9.73f, 1.45f, -0.74f },
	{ -9.71f, 1.46f, -0.95f },
	{ -9.67f, 1.60f, -0.83f },
	{ -9.64f, 1.61f, -0.79f },
	{ -9.63f, 1.61f, -0.87f },
	{ -9.30f, 1.38f, -0.72f },
	{ -9.30f, 1.47f, -0.80f },
	{ -9.29f, 1.44f, -0.74f },
	{ -9.28f, 1.39f, -0.89f },
	{ -9.28f, 1.45f, -0.86f },
	{ -8.27f, -0.35f, -0.79f },
	{ -7.87f, -0.14f, -0.56f },
	{ -7.84f, -0.12f, -0.92f },
	{ -7.77f, 0.77f, -0.61f },
	{ -7.76f, 0.80f, -0.68f },
	{ -7.75f, 0.73f, -0.54f },
```

Error List

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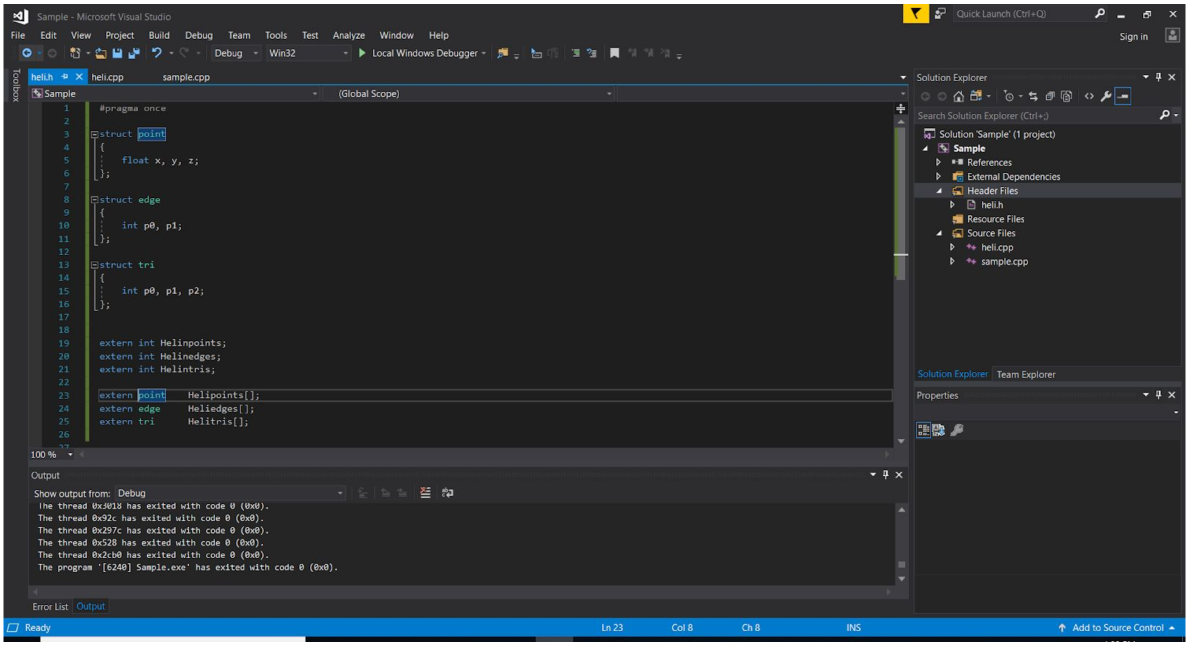
Code	Description	Project	File	Line
C4244	'initializing': conversion from 'double' to 'float', possible loss of data	Sample	sample.cpp	1145
LNK4075	ignoring '/EDITANDCONTINUE' due to '/INCREMENTAL:NO' specification	Sample	heli.obj	1
LNK2005	"int Helinpoints" (?Helinpoints@@3HA) already defined in heli.obj	Sample	sample.obj	1
LNK2005	"int Helinedges" (?Helinedges@@3HA) already defined in heli.obj	Sample	sample.obj	1

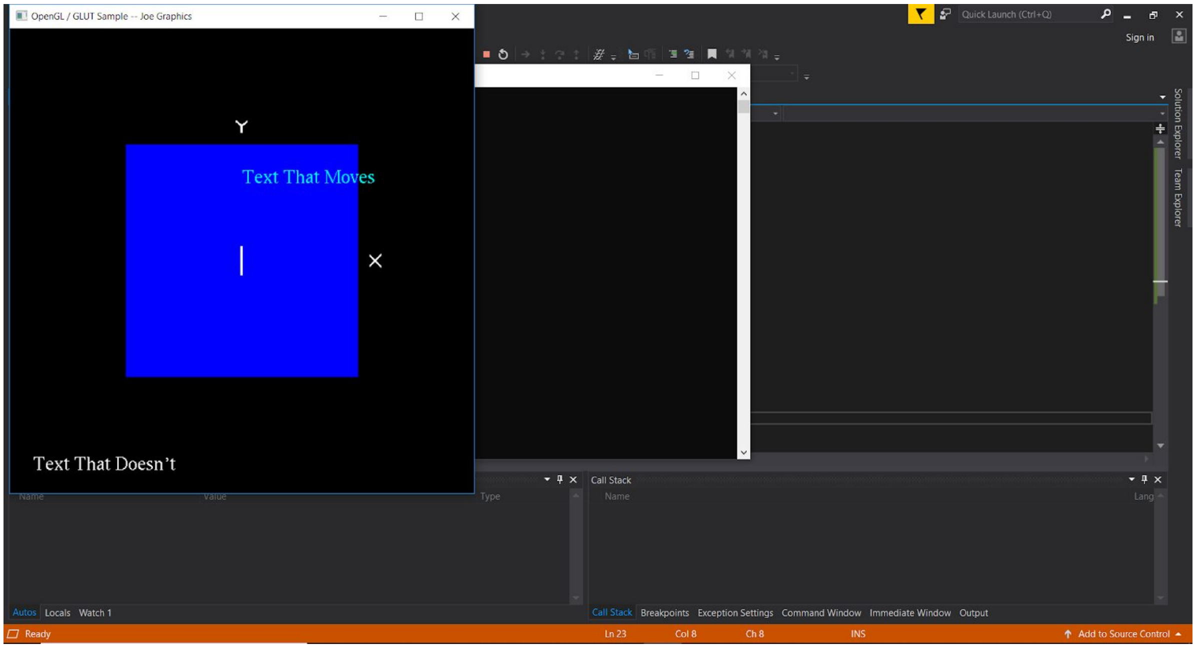
Lastly, you will need to declare the variables in the source file in the header file. Be sure to give them the “extern” descriptor:


Sample - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Test Analyze Window Help
Debug Win32 Local Windows Debugger
heli.h heli.cpp sample.cpp
Sample (Global Scope)
Solution Explorer
Solution 'Sample' (1 project)
Sample
References
External Dependencies
Header Files
heli.h
Resource Files
Source Files
heli.cpp
sample.cpp
Properties
Output
Show output from: Debug
Error List Output
Ready Ln 23 Col 8 Ch 8 INS Add to Source Control

```cpp
#pragma once

struct point
{
    float x, y, z;
};

struct edge
{
    int p0, p1;
};

struct tri
{
    int p0, p1, p2;
};


extern int Helinpoints;
extern int Helinedges;
extern int Helintris;

extern point    Helipoints[];
extern edge     Heliedges[];
extern tri      Helitris[];

```

```
The thread 0x3018 has exited with code 0 (0x0).
The thread 0x92c has exited with code 0 (0x0).
The thread 0x297c has exited with code 0 (0x0).
The thread 0x528 has exited with code 0 (0x0).
The thread 0x2cb0 has exited with code 0 (0x0).
The program '[6240] Sample.exe' has exited with code 0 (0x0).
```

Once this is done, verify that you are including the header file in both source files and no source files in any of the files, then try to build again. So long as there are no unrelated errors in the project, it should build successfully:


OpenGL / GLUT Sample -- Joe Graphics
Y
Text That Moves
X
Text That Doesn’t
Quick Launch (Ctrl+Q)
Sign in
Solution Explorer Team Explorer
Name Value Type
Autos Locals Watch 1
Call Stack
Name Lang
Call Stack Breakpoints Exception Settings Command Window Immediate Window Output
Ready Ln 23 Col 8 Ch 8 INS Add to Source Control