Assignment 3: Transformation and Projection Deadline: **September 28, 2010 at 23:00**

In this assignment, you will integrate the transformation and projection to your Gz library. With your provided API functions, the main application will read series of triangles form the text file **`Tris.txt`**.

This assignment requires you to read some additional materials about homogenous coordinate, transformation, and projection. Please check the list in the notes section bellow.

All the data you need for this assignment is put in the zip file hw3.zip. Check the file **`handout.pdf`** for some overview of the assignment. Except some files already provided in assignment 2, there are other files are new and some files have been updated, please check them:

File	Description	Type
Gz.h Gz.cpp	Updated to support viewport, transformation and projection. You need to complete the required functions in file Gz.cpp.	Incomplete
GzMatrix.h GzMatrix.cpp	The GzMatrix class supports you to manage and manipulate matrices. Note that you can use the 4x1 matrix to represent 3D vertex with homogenous coordinate. However, you need to complete converter functions toVertex() and fromVertex() to do so.	Incomplete
Tris.txt	An input text file contains the list of triangles. Note that the content of this file has changed, but the format is still the same.	Data files
TeaPot?.bmp	The sample bmp-format results. Note that you are supposed to generate a result looks like this file, but not exact pixel-by-pixel.	

Notes:

1. Some additional materials you may need:
   http://en.wikipedia.org/wiki/Transformation_matrix
   http://en.wikipedia.org/wiki/Homogeneous_coordinates#Use_in_computer_graphics
   http://en.wikipedia.org/wiki/3D_projection
   http://en.wikipedia.org/wiki/Translation_(geometry)
   http://en.wikipedia.org/wiki/Rotation_(geometry)
   http://en.wikipedia.org/wiki/Scaling_(geometry)
   http://www.opengl.org/sdk/docs/man/xhtml/glViewport.xml
   http://www.opengl.org/sdk/docs/man/xhtml/gluLookAt.xml
   http://www.opengl.org/sdk/docs/man/xhtml/glTranslate.xml
   http://www.opengl.org/sdk/docs/man/xhtml/glRotate.xml
   http://www.opengl.org/sdk/docs/man/xhtml/gluPerspective.xml
   http://www.opengl.org/sdk/docs/man/xhtml/glOrtho.xml

2. To complete this assignment, you also need to read comments and hints in the provided source code careful.