# Lab #2

## CSE581 (Spring 2010): Interactive Computer Graphics

Your scene is defined in a text file. Here is the format of the file:

| | |
|---|---|
| **# vertices** | *<integer>*, total number of vertices in the scene |
| **Vertex List** | List of all vertices in the scene as (x, y) coordinate pairs, one pair per line |
| **# polygons** | *<integer>*, total number of polygons in the scene |
| **# vertices** | *<integer>*, the rest of the entries represent a single polygon. There will be "# polygons" of them. |
| **Vertex Index List** | List of integer indices into the "Vertex List" all on a single line. |
| **Color List** | List of RGB triples per vertex. Each color channel value is between [0 … 1]. Each triple appears on its own line. |
| **# transformations** | *<integer>*, number of affine transformations to place the polygon into world space |
| **Transform args** | This is a list of affine transforms of size "# transformations". The transforms can be applied to the MODELVIEW matrix in this order. Transform is either "t", "s", or "r" for translation, scale, or rotation, respectively. args is tx ty for "t", sx sy for "s", and angle for "r" in degrees. |
| **Fill Polygon {line width}** | "y"/"n", Specify if the polygon is drawn as filled or unfilled. If "n" is specified, then the optional "line width" value (<float>) will be defined as the width of the edges. If "y" is specified then no line width value will appear. |
| **Scale animation** | "y"/"n", Specify if the grow/shrink animation is turned on or off, respectively. |
| **Local rotate** | 0/1/2, 0 = No local rotate, 1 = rotate clockwise, 2 = counter-clockwise |
| **Global rotate** | 0/1/2, 0 = No global rotate, 1 = rotate clockwise, 2 = counter-clockwise |

The following example scene file defines two polygons. The first polygon is a blue quad that is translated towards the upper right, rotated by 45 degrees, and doubles in size. It is drawn as a filled polygon and has no animations associated with it. The second polygon is a red triangle that is translated to the upper left, drawn as unfilled (just the edges), and grows and shrinks.

```
4
-.5 -.5
.5 -.5
.5 .5
-.5 .5
2
4
0 1 2 3
0. 0. 1.
0. 0. 1.
0. 0. 1.
0. 0. 1.
3
t 1.5 1.5
r 45
s 2. 2.
y
n
0
0
3
0 1 3
1. 0. 0.
1. 0. 0.
1. 0. 0.
1
t -1. 1.
n 2.0
y
0
0
```