CS 3370 – Computer Graphics

Fall 2009
Lab # 2
Due electronically before 11:59 p.m., September 18, 2009

The goal of this lab is to gain experience with 2D transformations, polygon display functions, and interfacing with input devices.

Write a program that will prompt the user to input the vertices of a polygon using the mouse. After reading the polygon vertices, your program should run a loop, redrawing the polygon every time its configuration changes. Using the keyboard, allow the user to perform the following operations:

- Translate the polygon up, down, left or right
- Scale the polygon in the x or y direction (make sure the scaling occurs with respect to the current polygon position)
- Toggle between displaying a filled polygon and edges only
- Rotate the polygon clockwise or counterclockwise with respect to
  - The origin
  - The polygon’s “center” (assume the center is the average (x,y) position of its vertices)
  - A user specified (via mouse) pivot point
- Toggle between position mode and velocity mode for rotation and translation commands.
- Quit the program

For extra credit, consider adding more functionality to your program, including detecting collisions with the display window’s boundary, having different fill area styles, multiple polygons, etc.

**Deliverables**

1. A report following the guidelines stated in the syllabus.
2. Your program source code.