Lab 2 – CPE 471 – Software Rasterizer Stage 2
Due one week from when assigned (aim to finish the lab in one day)
This project is to be worked on in pairs or individually (any pairs you’d like)

Objective: Introduction to rasterization

We will be writing a program to render (draw) an indexed face set (aka polygonal mesh of triangles) as an image via software rasterization.

For today, we will add onto your first lab and only rasterize a single triangle. Your program today is very simple. It must:
- read in three vertices which represent a triangle (from standard in)
- read in (or assign) different color values to each vertex
- compute the bounding box of the triangle
- compute the barycentric coordinates for every pixel in the bounding box
- for any pixel that falls in the triangle, color that pixel, the interpolated color (using the barycentric coordinates to weight the vertex colors)
- write out those pixels as a tga image (base code provided)

Each task is described in more detail here:
1) Use your code from lab 1 to prompt the user for triangle vertices (in window coordinates)
2) Read-in or assign 3 different red, green, blue values to the three different vertices
3) Using your prior code, compute the bounding box of the triangle
4) Rasterize the triangle by iterating through every pixel in the bounding box of the triangle and compute its barycentric coordinates (see: http://facultyfp.salisbury.edu/despickler/personal/Resources/Graphics/Resources/barycentric.pdf for a reference but watch out for typos). Any point within the triangle should be drawn (with colors interpolated via the barycentric coordinates)
5) Write out the pixels and demo your lab for credit.

For example, rasterization should work as follows for a triangle with red, blue and black vertices

![Triangle Rasterization Example](image-url)