Lab 4 – CSC 572

Due one week from when assigned

This project is to be worked on in pairs or individually (any pairs you’d like)

Objective: Complete the Catmull-Clark Subdivision code given to you

Using the base code provided as a starting point, complete the code to re-position the vertices to the correct position given the Catmull-Clark subdivision rules:

• Subdivision for arbitrary polygon
  – For each face, add a face point
    • Set to centroid of original points
  – For each edge, add an edge point
    • Set to average of 2 neighboring face + 2 original endpoints
  – For each face point, add edges to all new edge points
  – For each original point P
    • F = Average all n faces points touching P
    • R = Average all edge midpoints touching P
    • P’ = (F + 2*R+(n-3)P)/n

The base code currently supports subdividing and drawing quadrilaterals for up to 4 levels of subdivision. Currently the code places the new face points at the correct location, but places edge points at the mid-point of the previous edge and does not move the original vertices. Please modify the code to position the vertices correctly, given the above rules.