vimeo

Technical assignment

C++ (Tools) Engineer

Timeframe: **3.5 hours**.

- Write a command line application which implements **Ear Clipping polygon triangulation algorithm**.(https://www.geometrictools.com/Documentation/TriangulationByEarClipping.pdf)
- For the sake of implementation simplicity the following constraints may apply:
    - Convex polygons only.
    - No holes.
    - No self intersecting polygons

- The tool should accept command line argument from user that provides sets of {x,y} 2D (z-position is always zero) locations of at least 4 vertices, in the following format "vx0,vy0,vx1,vy1,vx2,vy2,vx3,vy3...etc" where vx - vertex position along the x axis,vy-vertex position along the y axis. Given that, the application should be capable of handling convex polygons with 4,5,6,8,N, where N > 3 corners.
- The generated vertices of triangles should be written into a text file in wavefront (.obj) format. https://www.fileformat.info/format/wavefrontobj/egff.htm
- Remarks for the wavefront file:
    - Write only vertices and face data. Ignore UVs and normals.(See the link above for simple .obj layout).
- Use Visual Studio extension or any other (.obj) viewer to verify mesh correctness.
- Use C/C++ only. Platform independent(on Windows no WinAPI).
- No external libraries can be used to accomplish the task

Deliverables:

- Source code + executable must be provided in release build, with all the dependencies included to run on Windows or Linux OS.
- Short explanation text of the implementation details should be provided as well.

Good luck.