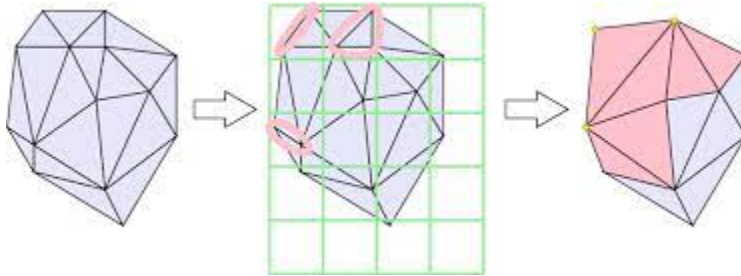


CS 415: Understanding Mesh LOD and UE5 Nanite

1. One method for simplifying a mesh is to spatially cluster vertices using a grid. Let's look at an example in 2D:

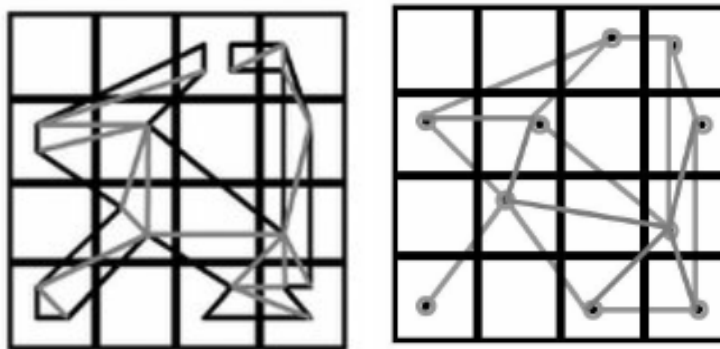


All vertices in a grid cell get merged into one vertex.
Edges between merged vertices disappear...other edges are retained.

Draw the simplified mesh (as best you can).

How many triangles remain after simplifying the above mesh with the grid? **11**

2. Can you suggest 2 different strategies to position a vertex in a grid cell?
Average and median (existing vertex closest to the average).
3. What visual artifact (problem) results from using clustering on the following mesh?



The mesh joins itself in noticeably bad ways

4. Can you suggest another way to remove triangles that does not have this problem?
Hint: How can you use edges in the mesh to help?

Merge vertices connected by edges