Homework IV

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1 Mesh Optimization

In this homework you will implement several mesh operators and will integrate them within our Java applet/Application. Data structures to traverse the connectivity are provided. These data structures are not based on half-edges. Instead, we use our Graph class to represent the graph defined by the vertices and edges of the mesh, and supports the operation

```java
GraphEdge Graph.getEdge(int iV0, int iV1)
```

The GraphEdge data structure supports the following two operations:

```java
int GraphEdge.getIndex()
int GraphEdge.getVertex(int i)
```

**Exercise 1.** You will implement the non-shrinking \(\lambda/\mu\) smoothing algorithm. For this

**Exercise 3.** Implement edge-collapse scheme with hints.

**Exercise 4.** How to deal with edges, singular edges, and ridge edges?

**Exercise 4.** Show that a vertex-collapse scheme can be implemented with an edge-collapse scheme.

2 Dynamic Connectivity

**Exercise 5.** Implement with hints

**Exercise 6.** Give them some scanned meshes and target edge length ranges, ask them to produce meshes at multiple resolutions.

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