GEOMETRY PROCESSING

BONUS ASSIGNMENT 1 - SURFACE CURVATURES

In this bonus assignment you will compute the various types of discrete curvatures on surfaces.

Mean curvature. Implement the function `mean_curvature` using the Laplacian. use the function `igl::cotmatrix` to compute the Laplacian itself.

Gaussian curvature. Implement the function `angle_defect`, which is also a definition for the discrete Gaussian curvature. To implement this function you will need to compute the angles of each triangle. To do so, implement the function `internal_angles` which, given the triangle squared edge lengths, computes the angles. You can use `igl::squared_edge_lengths`.

Principal Curvatures. Using the Mean and Gaussian Curvatures, implement the function `principal_curvatures`.

Principal Directions. (extra) find how to compute the principal directions too.

Required output for the report:

- Screenshots of different meshes displaying the different curvatures