지주대가 있는 잇몸을 제외한 전체 잇몸과 지주대의 자료로부터 시작

먼저 binary로 저장된 stl파일은 ascii로 저장

ascii로 저장된 stl파일을 읽어 코드 수행

Mesh의 개수: 267845개

Normal vector와 node들의 좌표 값 읽고 저장

저장된 데이터로부터 cycle찾기

단순히 모든 점을 돌아가면서 cycle에 포함된 점과 연결되는 모서리가 있으면 cycle에 추가하는 방식으로 반복하면 너무 오래 걸리므로 다른 방법이 필요하다.

Read mesh file...

Finish! // Shape: (3, 31833, 3)

Convert mesh file to Edges...

Finish! // Shape: (31833, 3, 2, 3)

Find Cycle 1...

Size of Cycle1: 175 // Num of Edges in Cycle1: 71 // Time: 17.46sec

Size of Cycle1: 455 // Num of Edges in Cycle1: 137 // Time: 58.16sec

Size of Cycle1: 1103 // Num of Edges in Cycle1: 269 // Time: 146.16sec

Size of Cycle1: 2169 // Num of Edges in Cycle1: 477 // Time: 290.77sec

Size of Cycle1: 3415 // Num of Edges in Cycle1: 515 // Time: 464.85sec

Size of Cycle1: 4485 // Num of Edges in Cycle1: 633 // Time: 660.21sec

Size of Cycle1: 5638 // Num of Edges in Cycle1: 740 // Time: 909.63sec

Size of Cycle1: 7116 // Num of Edges in Cycle1: 904 // Time: 1206.08sec

Size of Cycle1: 8742 // Num of Edges in Cycle1: 1080 // Time: 1534.55sec

Size of Cycle1: 10157 // Num of Edges in Cycle1: 1193 // Time: 1845.65sec

Size of Cycle1: 11441 // Num of Edges in Cycle1: 1299 // Time: 2160.63sec

Size of Cycle1: 12678 // Num of Edges in Cycle1: 1484 // Time: 2497.12sec

Size of Cycle1: 13685 // Num of Edges in Cycle1: 1613 // Time: 2847.57sec

Size of Cycle1: 14731 // Num of Edges in Cycle1: 1749 // Time: 3207.40sec

Size of Cycle1: 15702 // Num of Edges in Cycle1: 1894 // Time: 3576.19sec

Size of Cycle1: 16958 // Num of Edges in Cycle1: 2080 // Time: 3964.21sec

Size of Cycle1: 18231 // Num of Edges in Cycle1: 2241 // Time: 4356.50sec

Size of Cycle1: 19559 // Num of Edges in Cycle1: 2355 // Time: 4732.11sec

Size of Cycle1: 20597 // Num of Edges in Cycle1: 2467 // Time: 5080.22sec

Size of Cycle1: 21480 // Num of Edges in Cycle1: 2542 // Time: 5412.31sec

Size of Cycle1: 22300 // Num of Edges in Cycle1: 2656 // Time: 5732.45sec

Size of Cycle1: 23143 // Num of Edges in Cycle1: 2841 // Time: 6041.01sec

Size of Cycle1: 23835 // Num of Edges in Cycle1: 3013 // Time: 6341.05sec

Size of Cycle1: 24445 // Num of Edges in Cycle1: 3129 // Time: 6632.34sec

Size of Cycle1: 24924 // Num of Edges in Cycle1: 3216 // Time: 6911.13sec

Size of Cycle1: 25361 // Num of Edges in Cycle1: 3323 // Time: 7179.15sec

Size of Cycle1: 25851 // Num of Edges in Cycle1: 3413 // Time: 7438.29sec

Size of Cycle1: 26223 // Num of Edges in Cycle1: 3475 // Time: 7682.38sec

Size of Cycle1: 26576 // Num of Edges in Cycle1: 3494 // Time: 7914.81sec

Size of Cycle1: 26960 // Num of Edges in Cycle1: 3538 // Time: 8134.11sec

Size of Cycle1: 27327 // Num of Edges in Cycle1: 3565 // Time: 8340.05sec

Size of Cycle1: 27670 // Num of Edges in Cycle1: 3624 // Time: 8532.32sec

Size of Cycle1: 28005 // Num of Edges in Cycle1: 3673 // Time: 8712.70sec

Size of Cycle1: 28302 // Num of Edges in Cycle1: 3702 // Time: 8880.38sec

Size of Cycle1: 28574 // Num of Edges in Cycle1: 3732 // Time: 9036.26sec

Size of Cycle1: 28835 // Num of Edges in Cycle1: 3771 // Time: 9181.37sec

Size of Cycle1: 29010 // Num of Edges in Cycle1: 3800 // Time: 9316.23sec

Size of Cycle1: 29211 // Num of Edges in Cycle1: 3851 // Time: 9444.40sec

Size of Cycle1: 29385 // Num of Edges in Cycle1: 3871 // Time: 9564.72sec

Size of Cycle1: 29557 // Num of Edges in Cycle1: 3911 // Time: 9677.90sec

Size of Cycle1: 29724 // Num of Edges in Cycle1: 3938 // Time: 9784.48sec

Size of Cycle1: 29884 // Num of Edges in Cycle1: 3966 // Time: 9883.52sec

Size of Cycle1: 30037 // Num of Edges in Cycle1: 3999 // Time: 9975.67sec

Size of Cycle1: 30185 // Num of Edges in Cycle1: 4025 // Time: 10061.45sec

Size of Cycle1: 30324 // Num of Edges in Cycle1: 4062 // Time: 10140.58sec

Size of Cycle1: 30473 // Num of Edges in Cycle1: 4079 // Time: 10213.46sec

Size of Cycle1: 30628 // Num of Edges in Cycle1: 4100 // Time: 10279.56sec

Size of Cycle1: 30751 // Num of Edges in Cycle1: 4117 // Time: 10338.48sec

Size of Cycle1: 30856 // Num of Edges in Cycle1: 4128 // Time: 10391.50sec

Size of Cycle1: 30952 // Num of Edges in Cycle1: 4140 // Time: 10440.28sec

Size of Cycle1: 31063 // Num of Edges in Cycle1: 4167 // Time: 10485.46sec

Size of Cycle1: 31153 // Num of Edges in Cycle1: 4177 // Time: 10524.54sec

Size of Cycle1: 31231 // Num of Edges in Cycle1: 4205 // Time: 10558.79sec

Size of Cycle1: 31301 // Num of Edges in Cycle1: 4219 // Time: 10589.31sec

Size of Cycle1: 31356 // Num of Edges in Cycle1: 4244 // Time: 10616.60sec

Size of Cycle1: 31410 // Num of Edges in Cycle1: 4252 // Time: 10641.04sec

Size of Cycle1: 31461 // Num of Edges in Cycle1: 4273 // Time: 10662.78sec

Size of Cycle1: 31503 // Num of Edges in Cycle1: 4281 // Time: 10682.01sec

Size of Cycle1: 31527 // Num of Edges in Cycle1: 4283 // Time: 10699.13sec

Size of Cycle1: 31552 // Num of Edges in Cycle1: 4288 // Time: 10714.99sec

Size of Cycle1: 31573 // Num of Edges in Cycle1: 4295 // Time: 10729.45sec

Size of Cycle1: 31609 // Num of Edges in Cycle1: 4303 // Time: 10743.00sec

Size of Cycle1: 31641 // Num of Edges in Cycle1: 4305 // Time: 10754.64sec

Size of Cycle1: 31680 // Num of Edges in Cycle1: 4316 // Time: 10764.60sec

Size of Cycle1: 31709 // Num of Edges in Cycle1: 4325 // Time: 10772.52sec

Size of Cycle1: 31741 // Num of Edges in Cycle1: 4331 // Time: 10778.93sec

Size of Cycle1: 31767 // Num of Edges in Cycle1: 4337 // Time: 10783.70sec

Size of Cycle1: 31785 // Num of Edges in Cycle1: 4339 // Time: 10787.16sec

Size of Cycle1: 31800 // Num of Edges in Cycle1: 4340 // Time: 10789.73sec

Size of Cycle1: 31817 // Num of Edges in Cycle1: 4347 // Time: 10791.45sec

Size of Cycle1: 31826 // Num of Edges in Cycle1: 4352 // Time: 10792.33sec

Size of Cycle1: 31830 // Num of Edges in Cycle1: 4356 // Time: 10792.70sec

Size of Cycle1: 31832 // Num of Edges in Cycle1: 4358 // Time: 10792.87sec

Size of Cycle1: 31833 // Num of Edges in Cycle1: 4359 // Time: 10792.93sec

Size of Cycle1: 31833 // Num of Edges in Cycle1: 4359 // Time: 10792.94sec

Finish!