

# IGR202 Practical Assignment

## Loop Subdivision

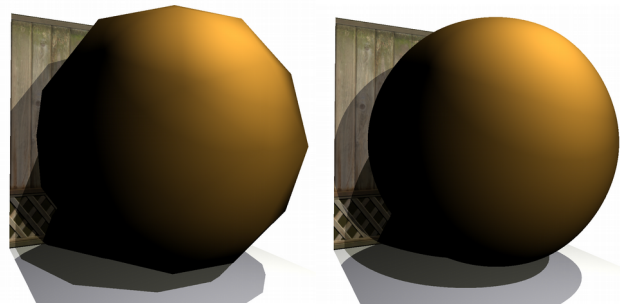
Build upon the work that you have done during the Rendering assignment. Refer to the previous assignment for help in compiling / executing your code.

The files that you have to replace are:

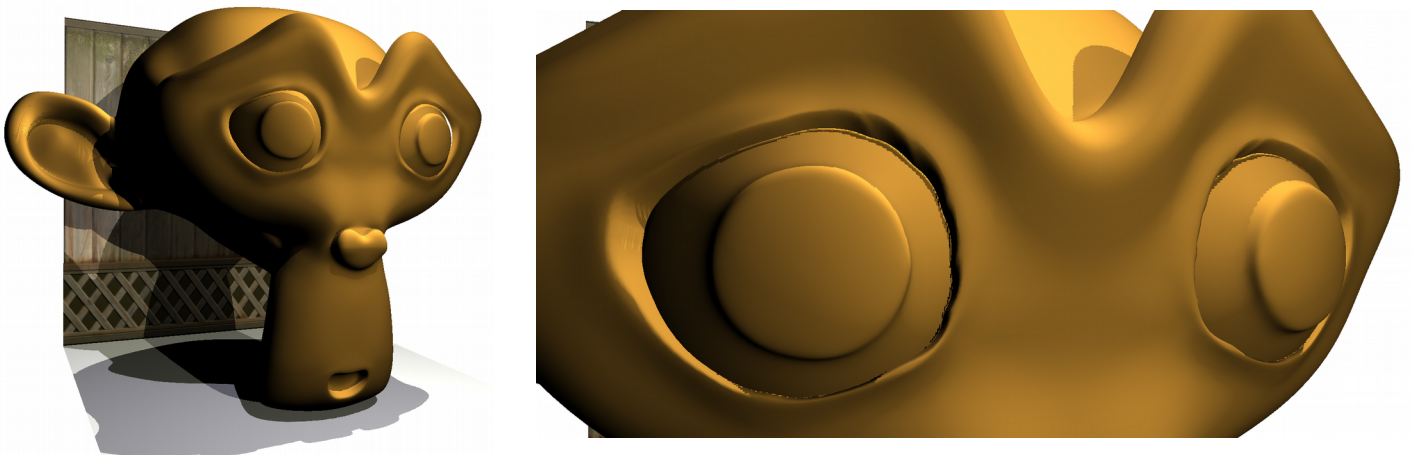
- main.cpp :
  - the center mesh is subdivided when the 'L' key is pressed.
  - the filename for the center mesh has changed, it is no longer 'rhino.off'
- Mesh.h :
  - a function **subdivideLinear()** has been added
  - a function **subdivideLoop()** has been added, that calls **subdivideLinear()** for now. Your task is to write the correct code for the Loop subdivision scheme in this function instead of simply using **subdivideLinear()** in there. There are recommendations in the code, make sure to read them completely before starting your code!

### Tips:

1) To test if your subdivision is functional, try to compute several subdivision steps on the sphere model: if you obtain a non-smooth surface (e.g., containing suspicious "spikes") or introduce fake boundaries, your implementation contains bugs. You should obtain this result if your implementation is correct: (left is input, right is after three subdivision steps).



2) If you want to implement the correct treatment for boundaries, make sure that you identify which edges are boundary edges, and which even vertices are boundary vertices. The image on the left shows the correct result, whereas the image on the right shows errors near the boundaries (see around the eyes).



Finally: **Good luck, and DO NOT HESITATE ASKING QUESTIONS!**