HOMEWORK – 2

Bounding volumes and culling

In this assignment, I implemented object culling based on the camera frustum and Axis-Aligned Bounding Boxes (AABB). The AABB was calculated in the MeshCPU struct using the position buffer (m_hPositionBufferCPU) and stored in the Mesh struct.

In CameraSceneNode::do_CALCULATE_TRANSFORMATIONS, I generated the six planes of the camera frustum and adjusted the plane equations for debugging purposes. I added code to the DebugRenderer to visually render the bounding boxes and frustum for easier validation. In SH_DRAW.cpp, I checked whether any AABB points intersect the camera frustum.

If all points of the AABB were outside, the object was culled to optimize rendering by skipping unnecessary objects.