

1. Initialize SDL stuff (window, renderer, and texture)
2. Setup()
 - a. Load obj file and its corresponding texture from png (using ung library)
 - b. Set render mode, cull mode, fovy, fovx, aspect ratio, znear, zfar
 - c. Make a perspective matrix
 - d. Initialize camera frustum planes
 - e. Add lighting
3. while(true) // game loop
 - a. process_input()
 - i. zoom in/zoom out, camera pitch and yaw, render mode, shading mode, quit
 - b. update()
 - i. deltaTime = timeSpent since last frame
 - ii. Set rotate/translate/scale MESH in model space
 - iii. get_camera_lookAt_target()
 - iv. create cameraViewMatrix
 - v. Build rotate/translate/scale model to world space matrix
 - vi. for each face in MESH
 1. transform every vertex using modelToWorldMatrix
 2. transform every vertex w.r.t camera using camera view matrix
 3. perform culling if backface culling on
 - a. dotProduct(cameraToVertex, normalToFace) < 0 → no render
 4. Flat shading → based on cameraRay and faceNormal determine color for face
 5. Gouraud Shading → based on cameraRay and vertex normal determine at each vertex
 - a. Later use baycentric coordinates to interpolate pixels between vertex
 6. Create a polygon (3 sided) from the face
 7. Clip polygon against each of the 6 faces
 - a. Take two vertex and one face, if one falls inside and other falls outside → find point of intersection and split into two line segments
 - b. Keep track of interpolated tex coordinates as well
 8. Create triangles from the new polygon
 9. For every triangle do projection using projection matrix [Perspective Divide]
 10. Add triangle to drawCall List
 - vii. Render()
 1. Clear z_buffer and color_buffer
 2. For all triangles in drawCall List
 3. Render every triangle using scanline algorithm
 - a. Using baycentric coordinates and DDA line algorithm
 - b. Draw every pixel with interpolated color and texture
 - c. Call destructors for window and free the memory used for mesh data.