Personal Report of Max Oesterle
Project: Doomed

Proposal

The game idea is a 3D-Maze-Escape game. The maze has portals which break the Euclidean space and can bring you to a different part of the maze or create impossible rooms.
The world (the maze) will consist of many cells which are connected only through portals. Therefore, we will be able to arrange and connect them at will. Portals ideally shall support light transport and shadows; they are supposed to look like normal windows (sometimes maybe with some effect on it, e.g. lens or flickering).

M = Max Oesterle, B = Björn Ehrlinspiel (left the project after milestone 1)

Milestone 1: Setup

- setup and open window (M)
- phong shading (M)
- load objects and textures (M)
- wireframe rendering (B)
- imgui menu (B)
- create debug scene (B)

Milestone 2: Basics and Rendering

- camera movement using WASD and Mouse
- game loop
- deferred shading approach
- shadows

Milestone 3: Portals 1

- extend world to include multiple maze nodes
- portals world mechanics and teleportation
- portals rendering 1: render portals as solid objects correctly
- portals rendering 2: render scene behind portals

Milestone 4: Portals 2

- portals rendering 3: render portals which are visible in portals (up to a certain extend)
- create interesting world and extend the builder functionality
- add gameplay, e.g. interact with portals (toggle on/off, change destination)

Optional:

- shadows and light through portals
- portal effects (e.g. lens or flickering)
- texture normal/bump/relief mapping
- HDR, bloom
- dynamic light behavior (e.g. turn on when player passes the first time or adjust intensity according to distance to exit)

Libraries / APIs:

- IMGui
- OpenGL
- glad
- glfw3
- glm
- assimp
- stb
- spdlog

Tutorials

- https://www.glfw.org/docs/3.0/quick.html
- http://www.opengl-tutorial.org/beginners-tutorials/tutorial-1-opening-a-window/ and following
- https://learnopengl.com/ -https://developer-blog.net/professionelles-loggen-unter-c/
- http://ogldev.atspace.co.uk/

Resources

- open source object models and textures