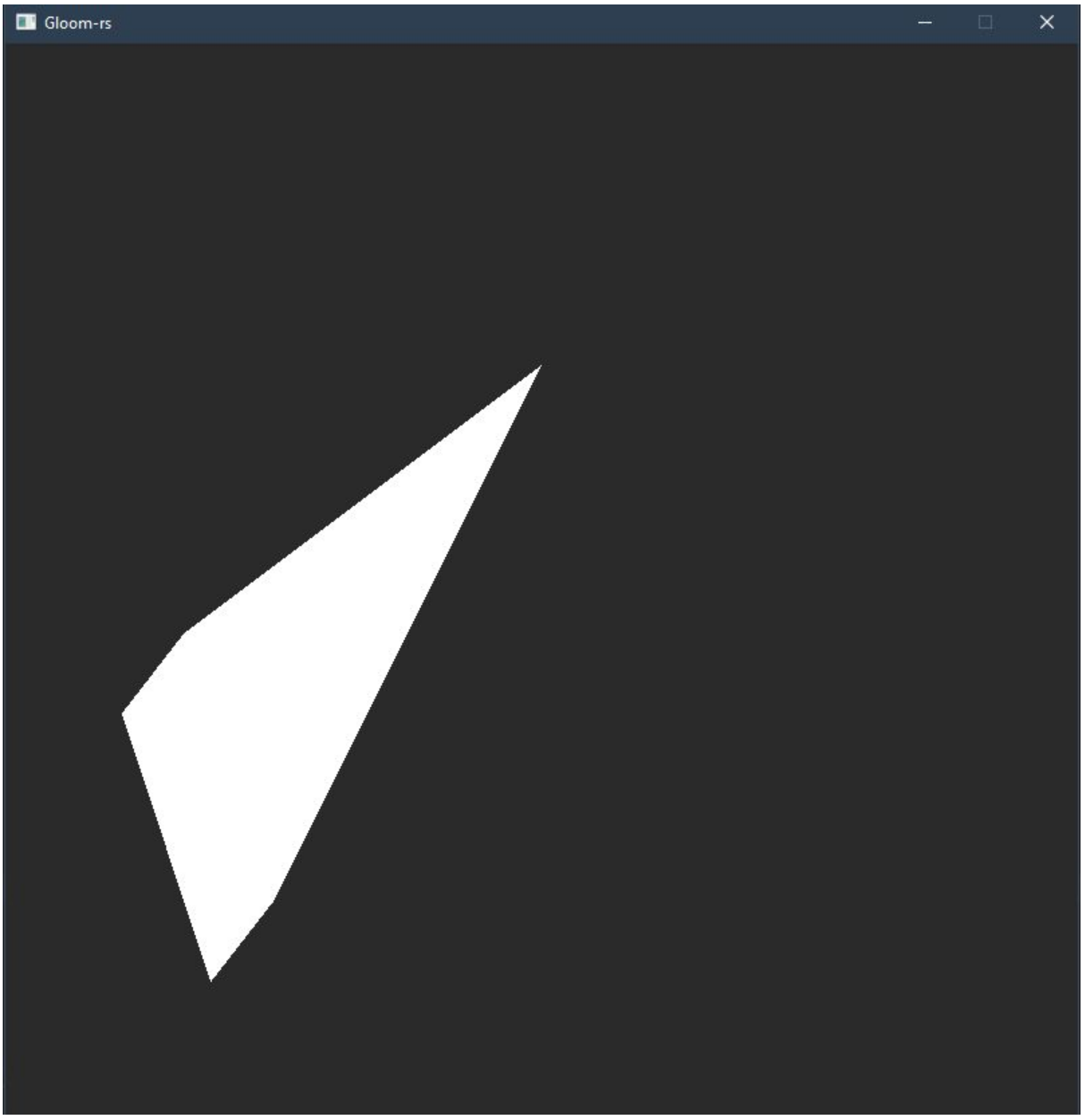
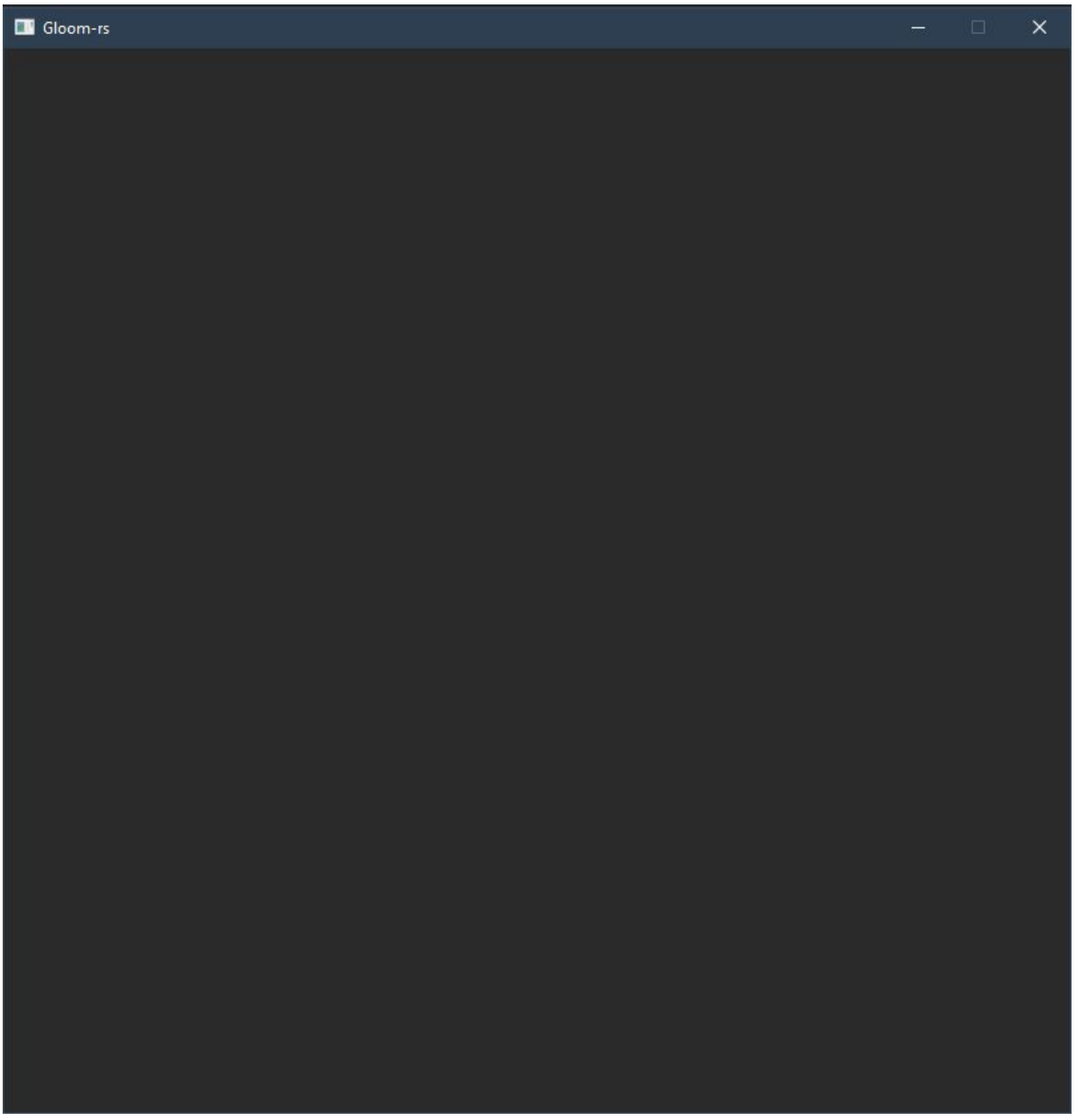
Oppgave 1.c)

Oppgave 2.a)



This phenomenon is called clipping. It occurs when one or more vertex have coordinates outside the clipping box (f.ex |x| > 1). The purpose is to avoid rendering objects outside the frame and objects that are behind the observer.

Oppgave 2.b)



When the indexes are flipped to (f.ex 0,2,1) the triangle disappears. This is because we see the back side of the triangle, which does not have any colour. Most objects are “waterproof” and therefore only one side is ever shown. Resources are saved by not drawing triangles facing the wrong way. This happens every time the vertexes are defined in a clockwise order on the screen.

Oppgave 2.c)

i)If we don’t reset the buffer, the depth value from the previous frame till be used for each fragment.

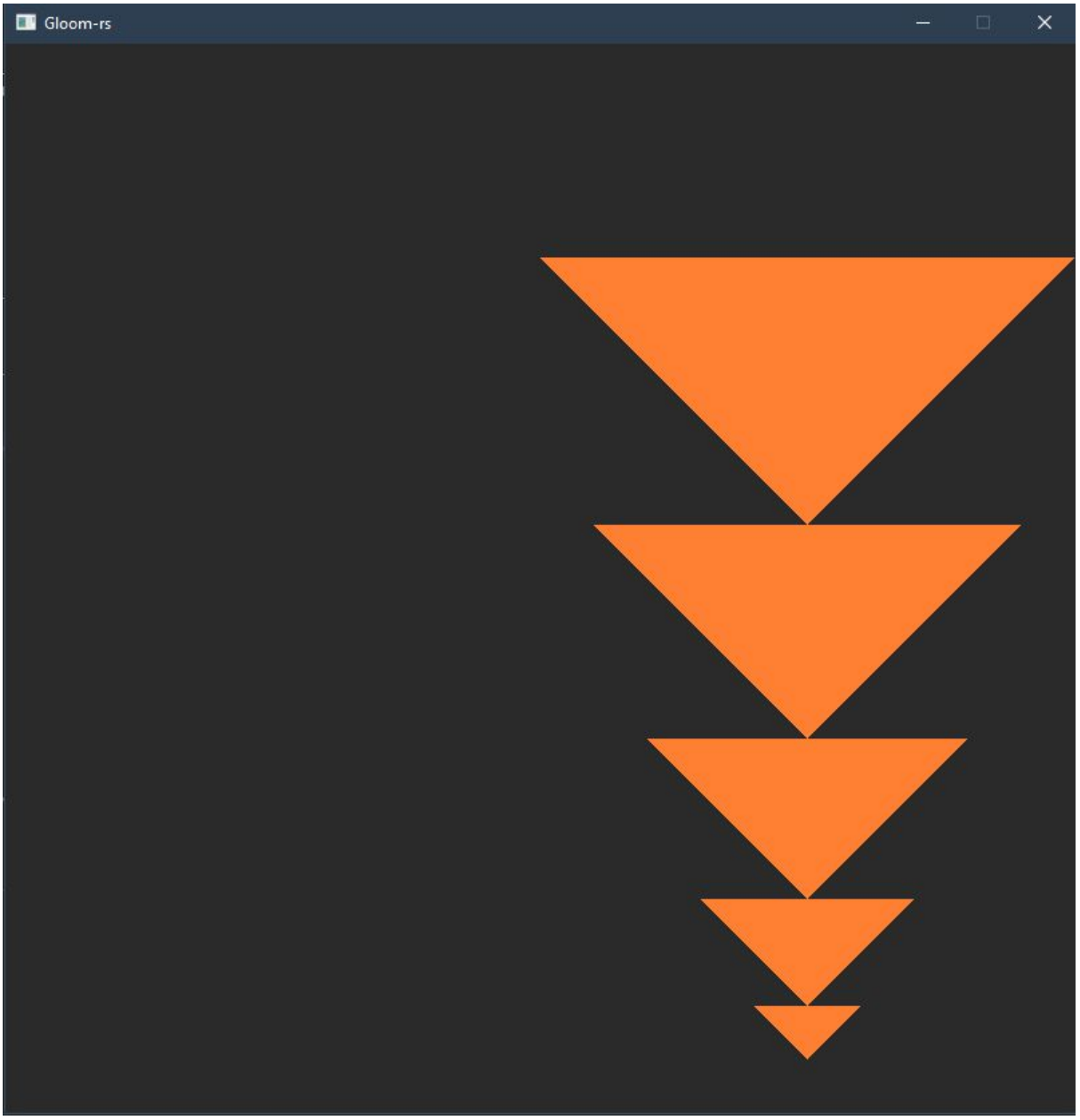
ii)The fragment shader can be executed multiple times for the same pixel if there are several elements with different depth in the pixel.

iii)The two most common shaders are vertex shader, used to move the vertices around, and fragment shader, used to draw the elements.

iv) Index buffers are used because the same vertex is often used in multiple primitives. Use of index buffers is more memory efficient.

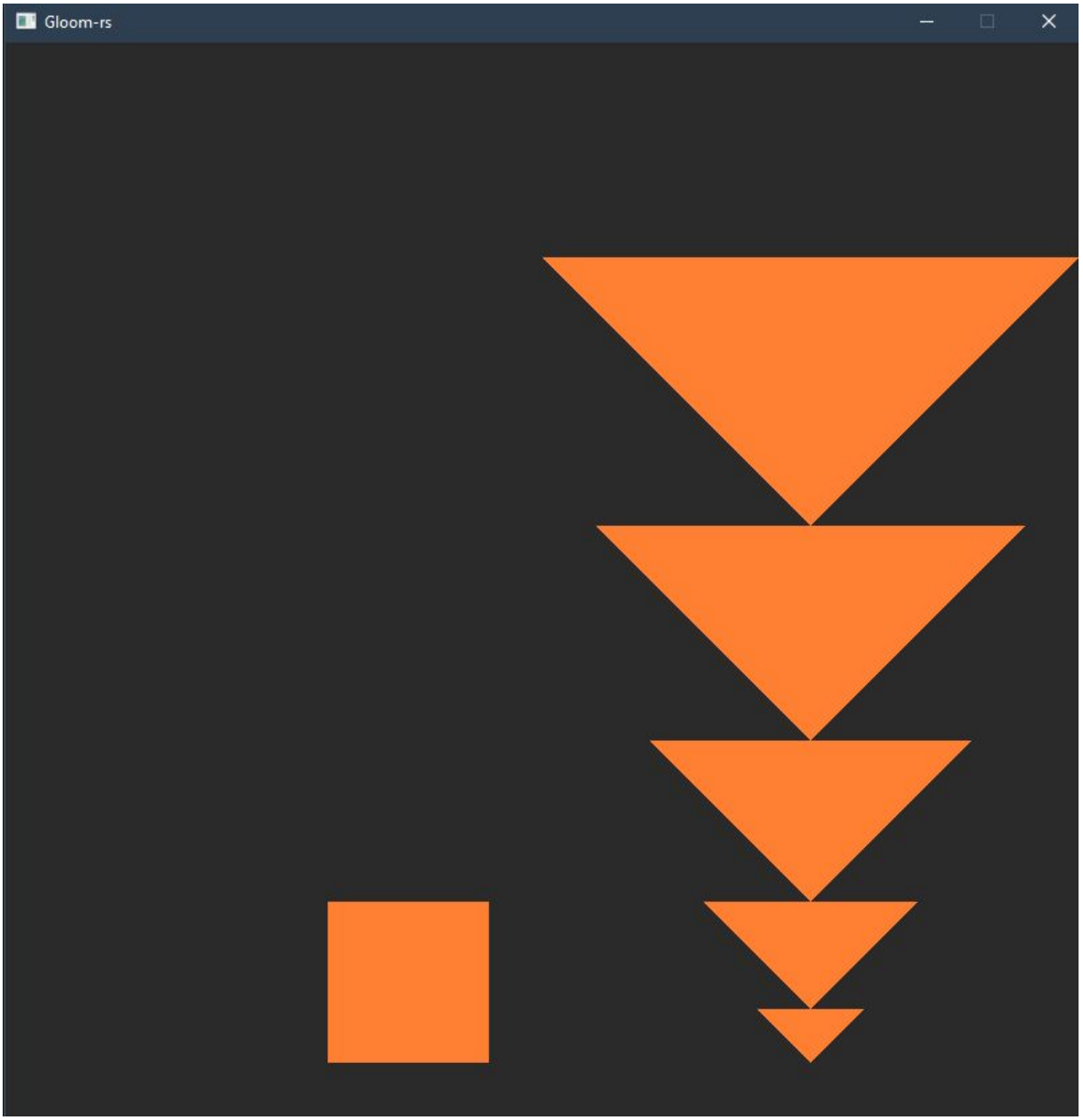
v) An offset is sometimes passed to VertexAttribPointer, when extra data is stored for every vertex, like colour or normal vector.

Oppgave 2.d)



To mirror the scene, You can use the vertex shader and set x=-x and y=-y. To change the color I used the fragment shader.

Oppgave 3)


Gloom-rs