A10 – Adding an object

The application contained in `A10.cpp`, is an extension of the application seen in Example `E09`. In the `models` folder, there is an extra model, called `Sphere.gltf`, and a set of required textures has been added in the corresponding directory. In this assignment, you have to modify the initial version of the application, to show also this new mesh. This model will be used to add the planet Earth, rendered with a complex shader. This model has a special vertex format which includes:

```
layout(location = 0) out vec3 fragPos;          // POSITION
layout(location = 1) out vec3 fragNorm;         // NORMAL
layout(location = 2) out vec2 fragUV;           // UV
layout(location = 3) out vec4 fragTan;          // TANGENT
```

It is rendered with the vertex and fragment shaders `NormalMapColor.vert` and `NormalMapColor.frag` contained in the `shaders` folder. It uses the same global uniform block (and its corresponding descriptor set and descriptor set layout) as the starship meshes for the definition of the lights in Set 0. Set 1 instead will contain 2 new Uniform Buffer Objects, to respectively define the transform matrices, and the parameters for the fragment shader. Set 1 will also contain 5 textures used by the shader, to render the earth, using diffuse, specular and normal maps, as well as an emission map used for the night view and a cloud that is added on top of the main color. In particular, the Descriptor Set Layout for Set 1 must include he following:

The Uniform Buffer for the transform matrices must have the following fields:

```
mat4 mvpMat;
mat4 mMat;
mat4 nMat;
```

It must be bound to binding 0.

The Uniform Buffer for the shader parameters must have the following four fields:

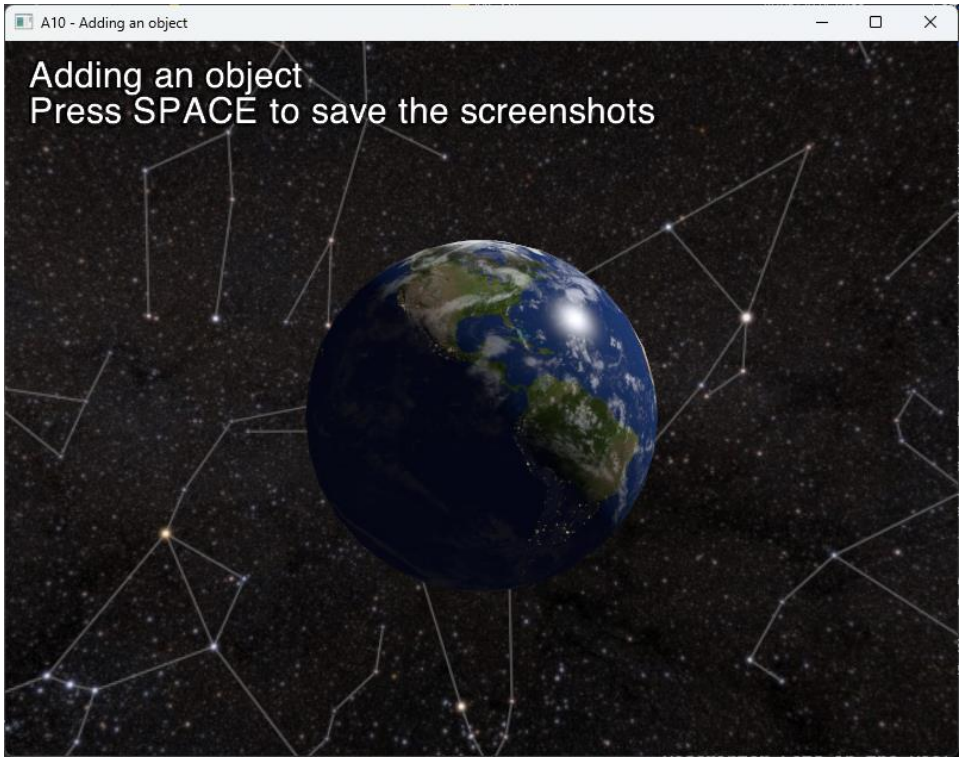
```
float Pow;
float Ang;
float ShowCloud;
float ShowTexture;
```

It must be bound to binding 6.

To complete the assignment, search file for the string:

```
// **A10**
```

and read the related comment, to make all the steps to show the Earth mesh. If everything goes well, you should see something similar to the picture below. Once completed, press space to generate the 4 pictures associated to this assignment.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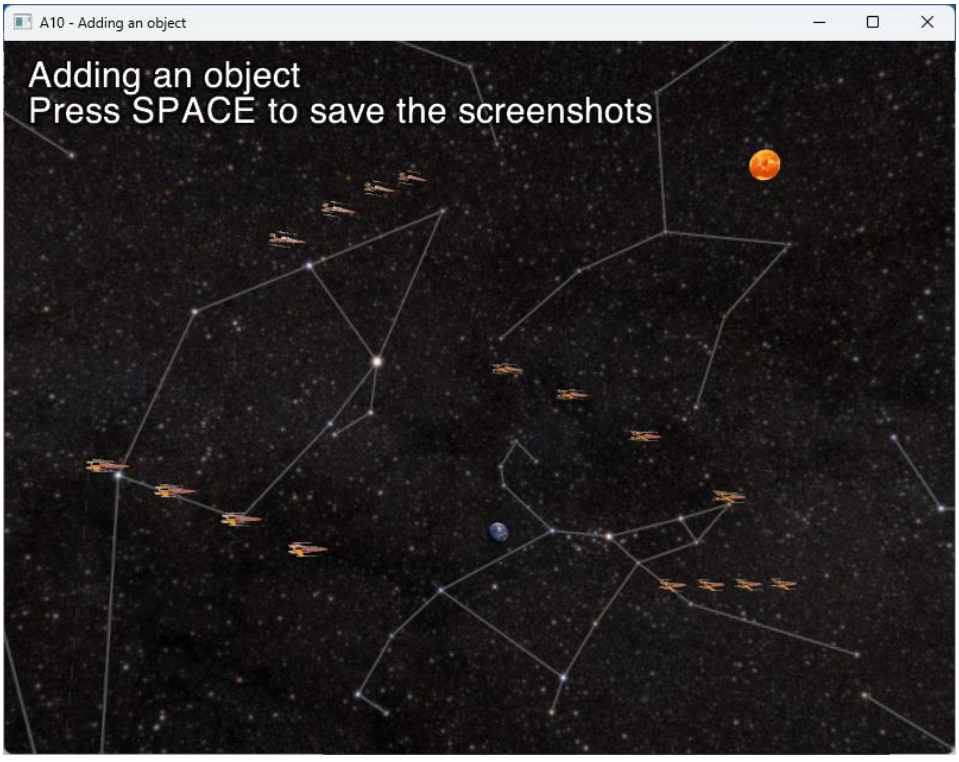
Press SPACE to save the screenshots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