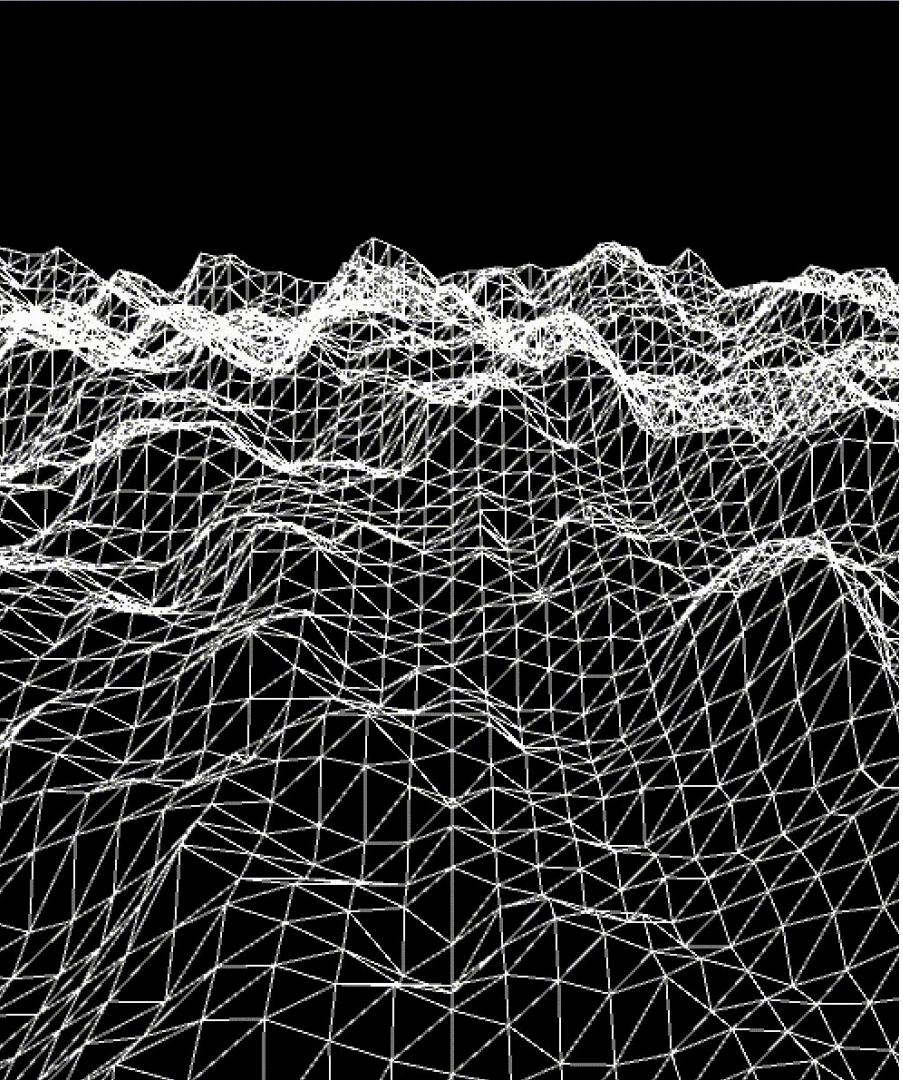


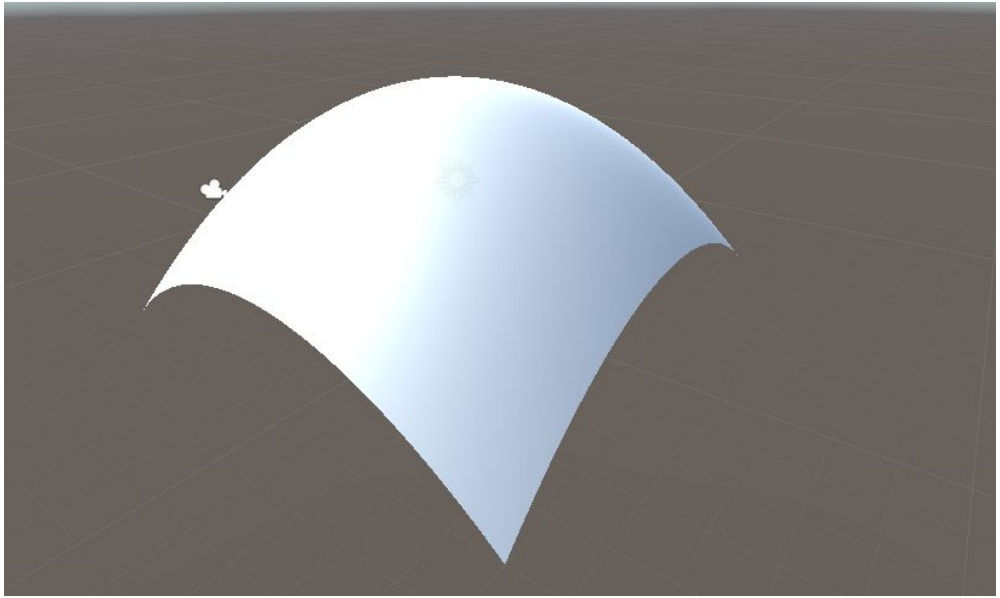
Assignment 02
Terrain generation

https://github.com/CodingTrain/website/tree/master/CodingChallenges/CC_011_PerlinNoiseTerrain

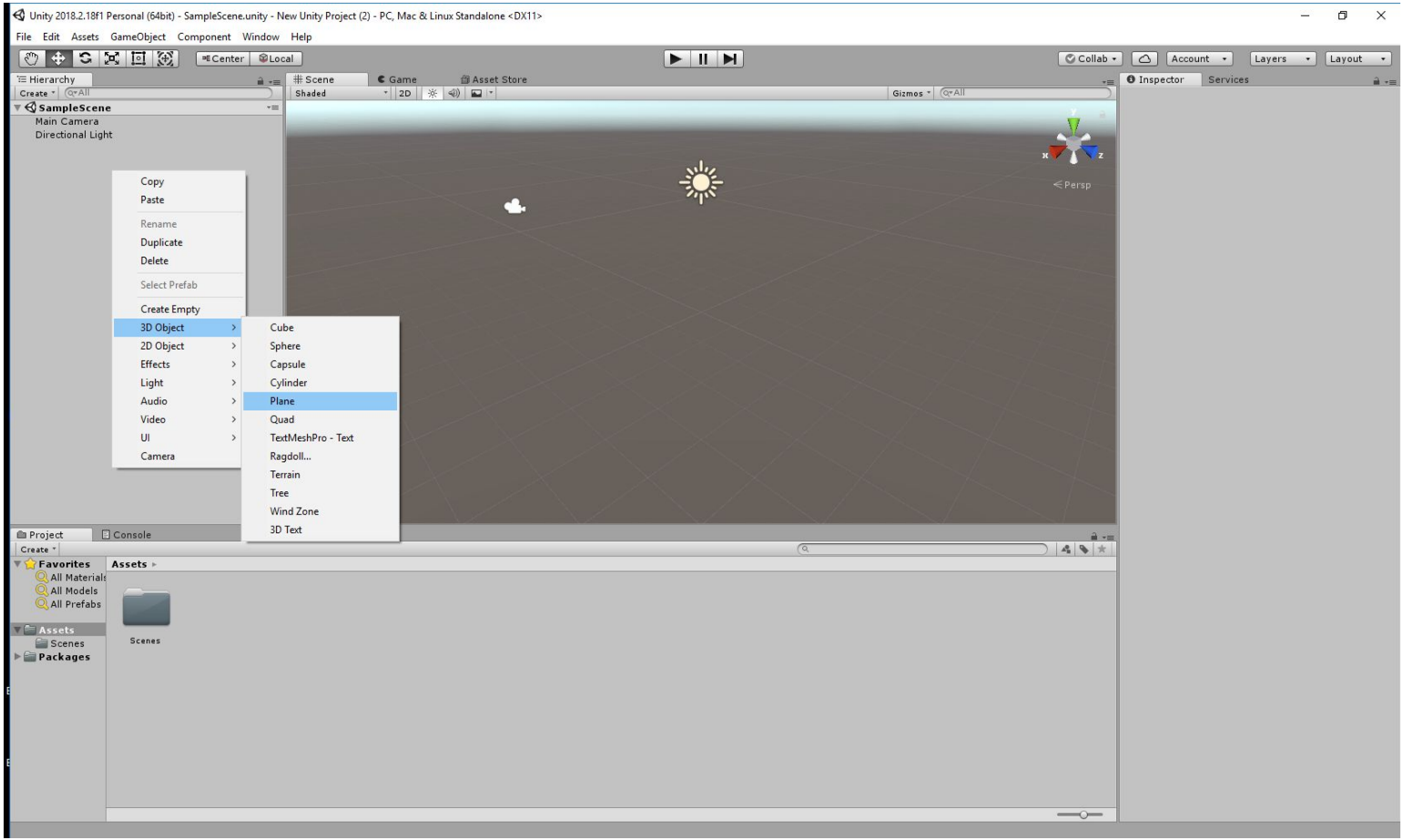
Generate a Parabola surface

Y axis is perpendicular to the ground.

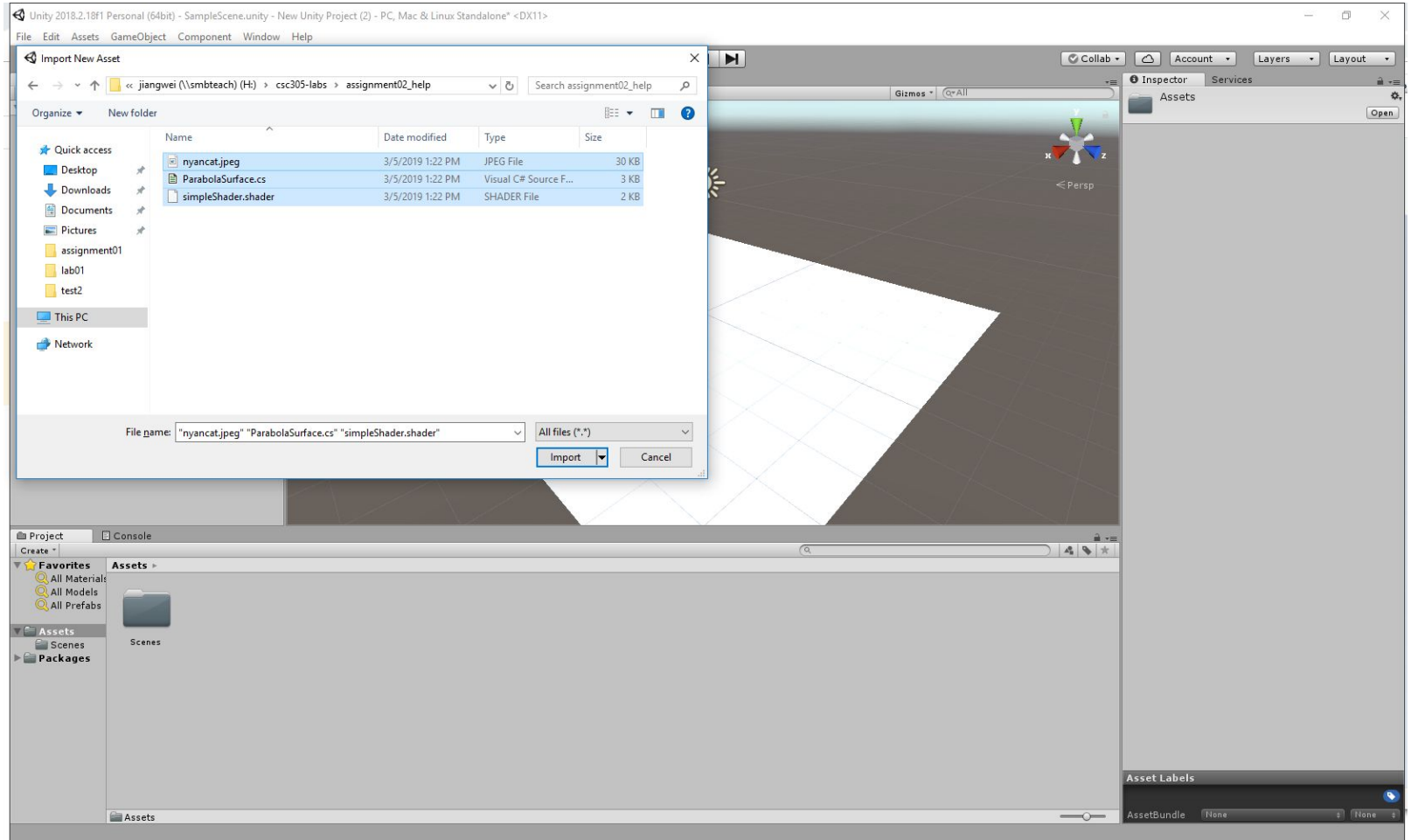
Y = X^2 + Z^2



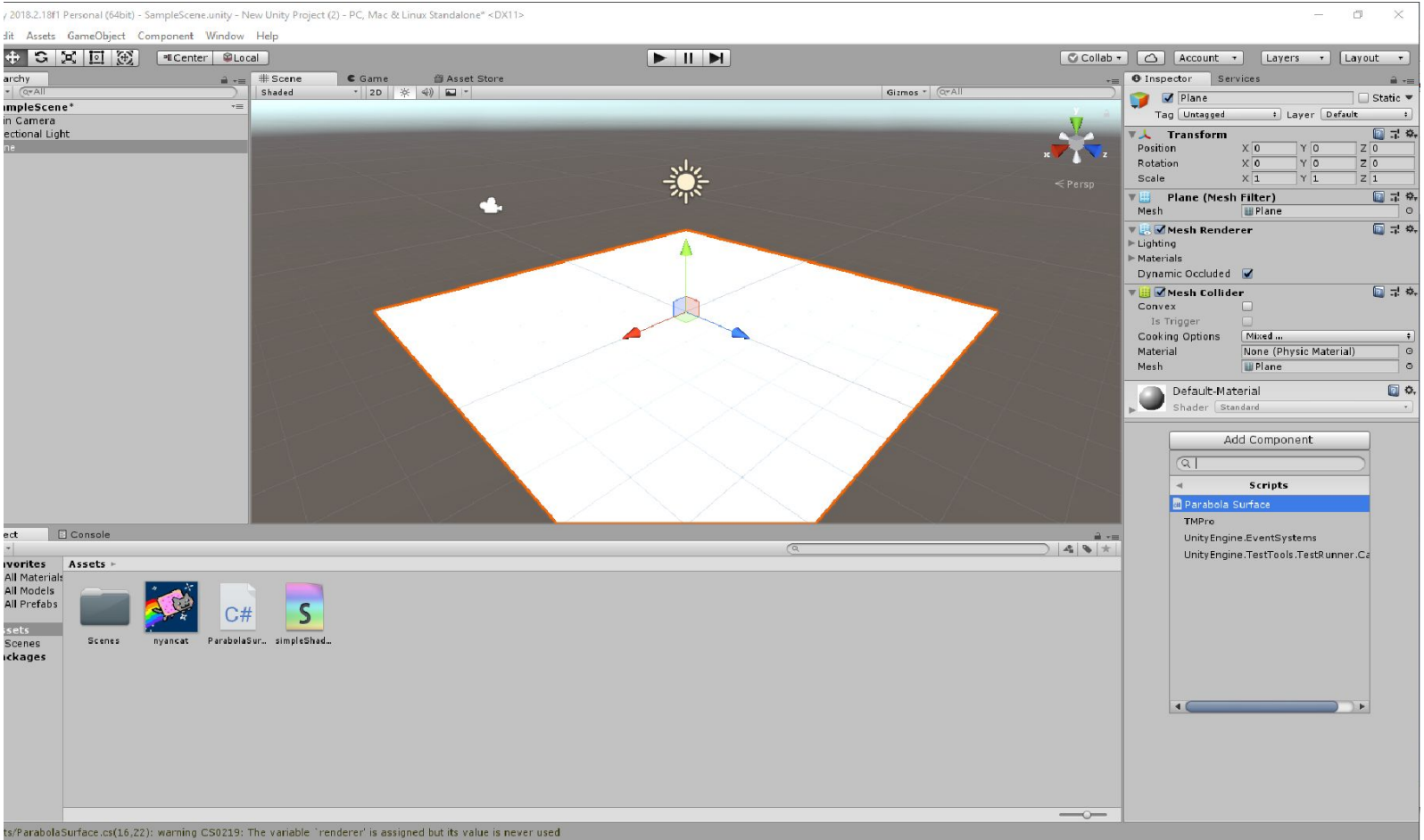
Create a Plane(3D Object) in Unity



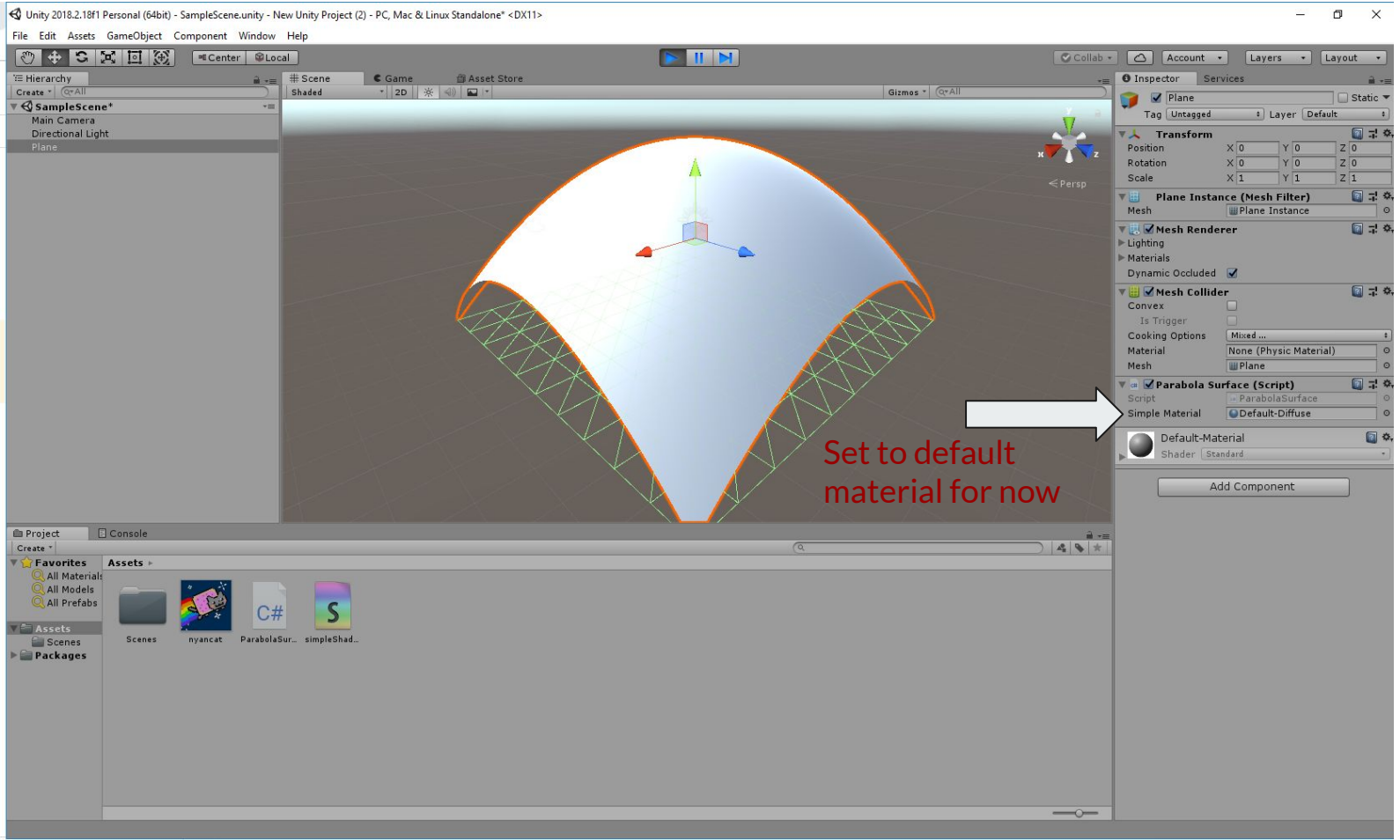
Import assets from Github repo



Add “Parabola Surface” script to plane object



Parabola surface in Scene

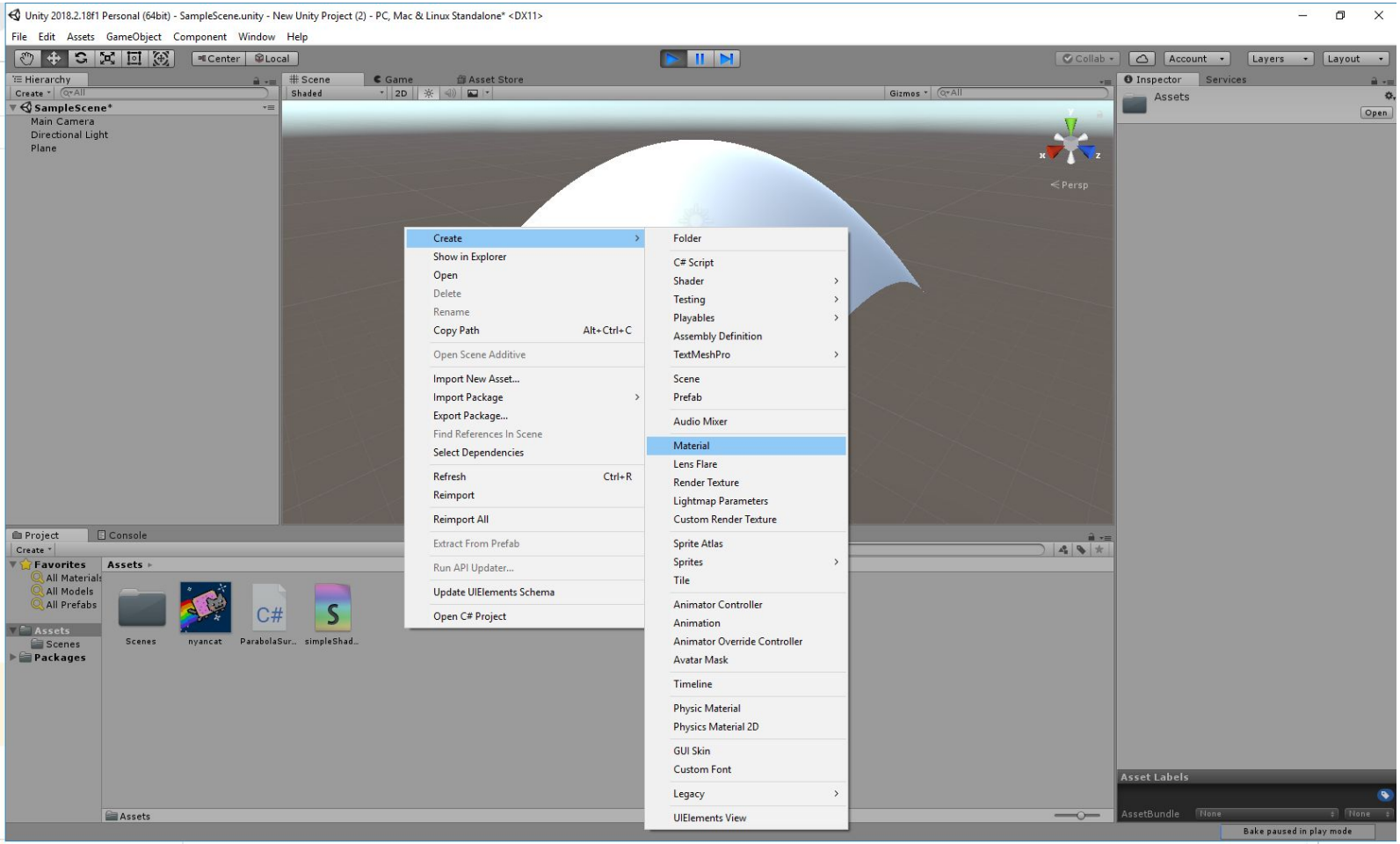


Color the 3D object using shaders

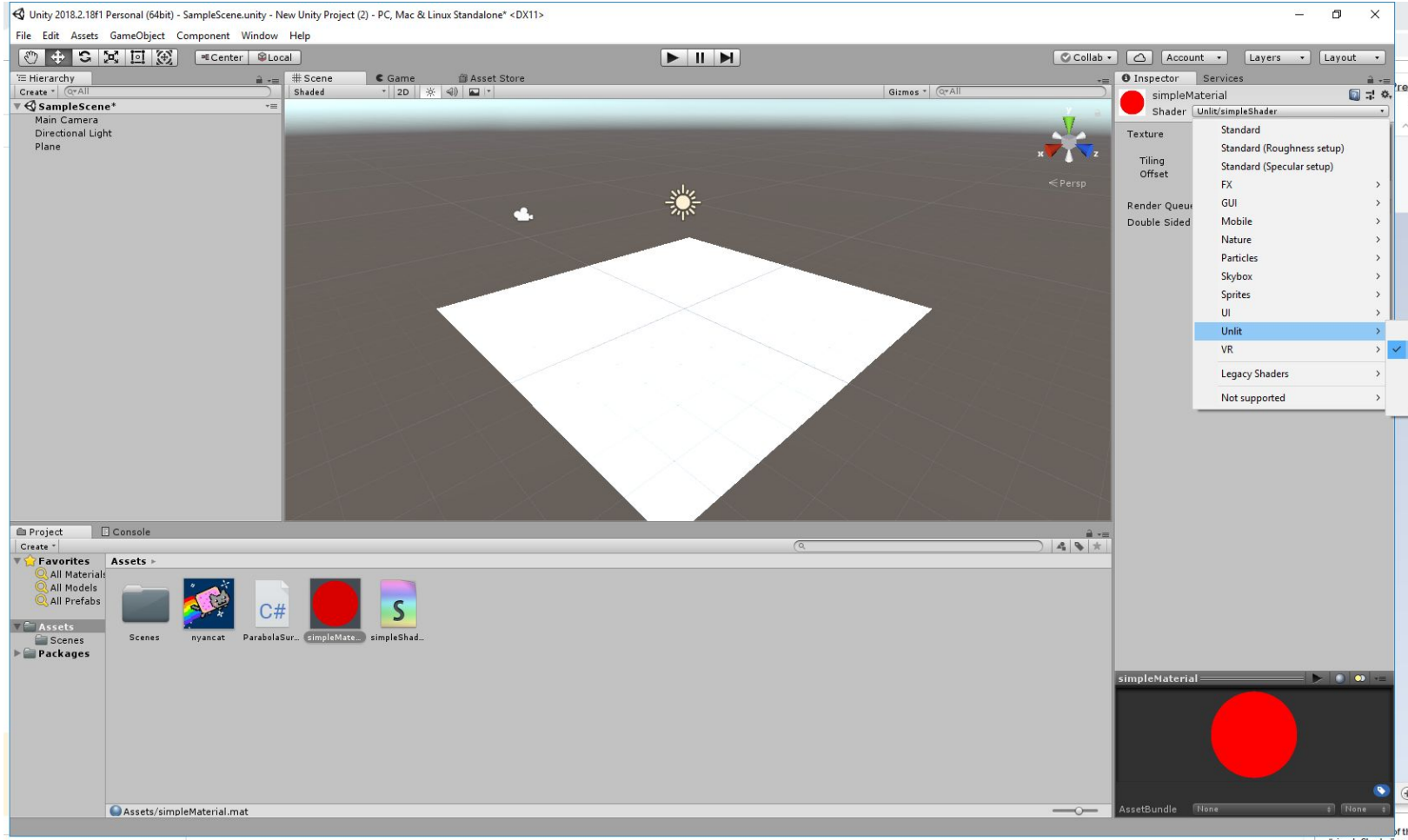
Vertex shader

Fragment shader

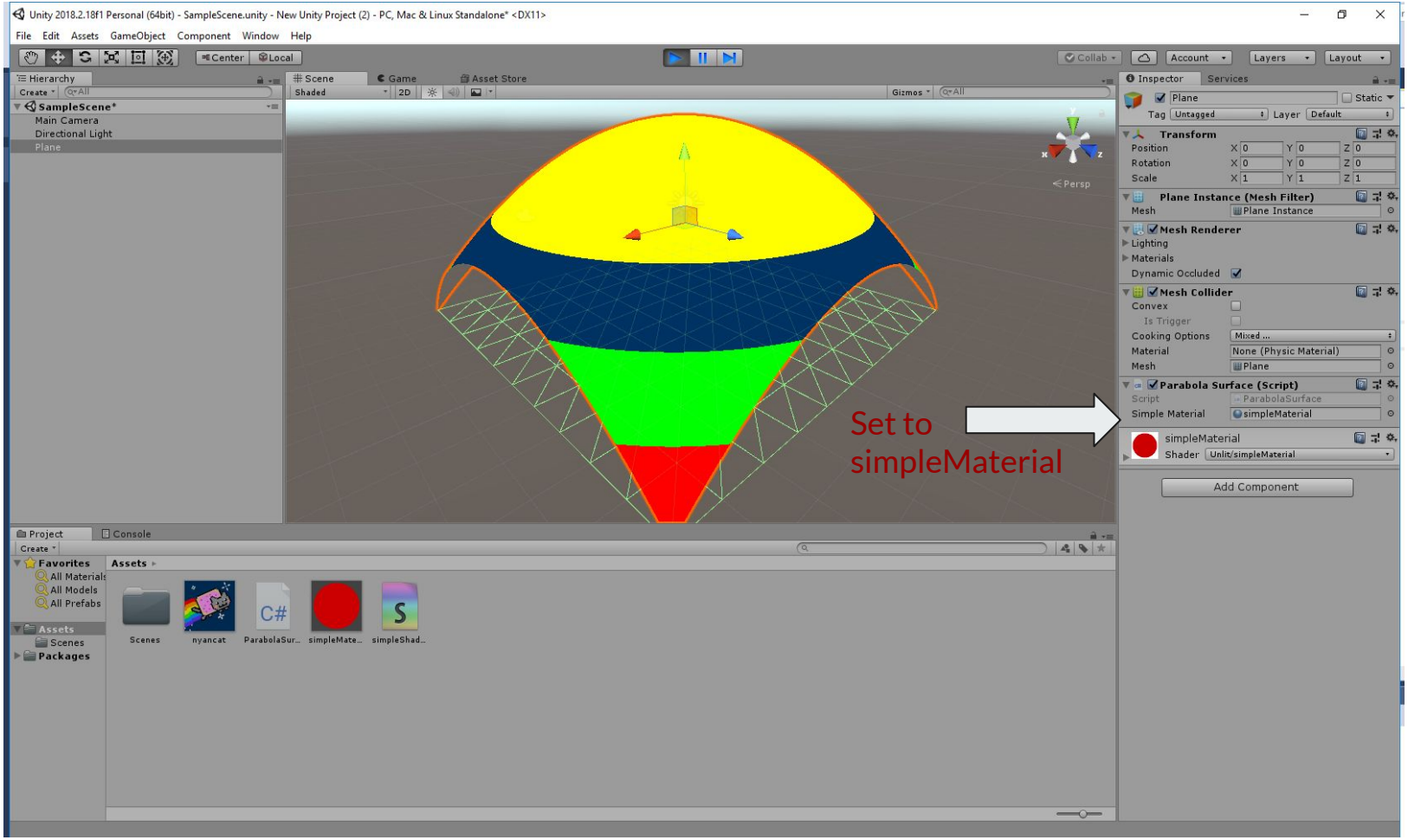
Create a new material



Set the shader of the material to “simpleShader”

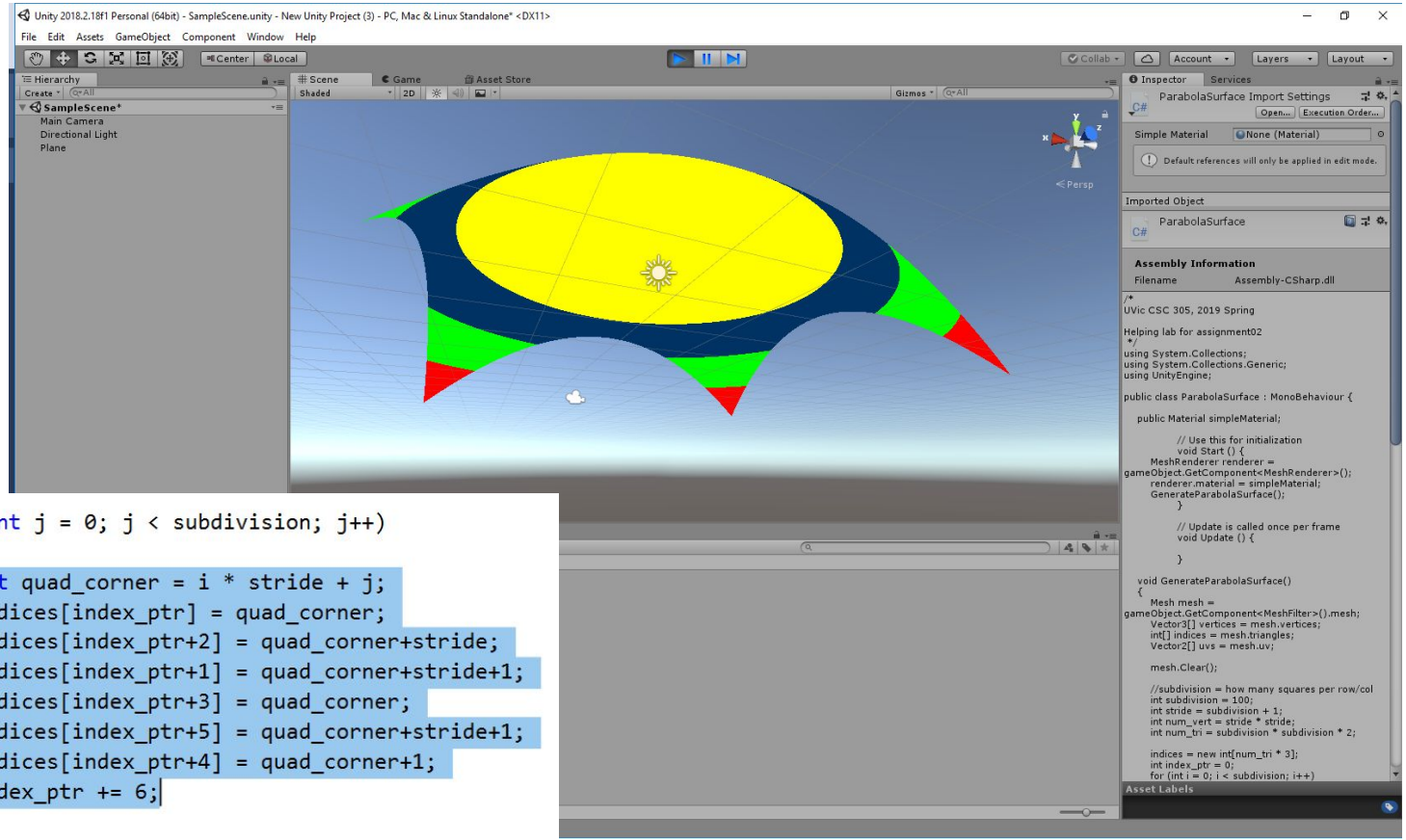


Set material of Plane to simpleMaterial



Show back faces

Make the triangle vertex order in CCW, then you'll see the front faces are gone, and the back faces are shaded.




```
45          for (int j = 0; j < subdivision; j++)
46          {
47              int quad_corner = i * stride + j;
48              indices[index_ptr] = quad_corner;
49              indices[index_ptr+2] = quad_corner+stride;
50              indices[index_ptr+1] = quad_corner+stride+1;
51              indices[index_ptr+3] = quad_corner;
52              indices[index_ptr+5] = quad_corner+stride+1;
53              indices[index_ptr+4] = quad_corner+1;
54              index_ptr += 6;
55          }
56      }
```

Perlin noise

Noise and Turbulence

In 1997 I received a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences for work I had done on procedural texture. For example, the NYU Torch on the right is made entirely from procedural textures (except for the text along the bottom). The flame, background, and metal and marble handle are not actually 3D models - they are all entirely faked with textures. A hi-res image of a marble vase I made using this technique can be found here. A bunch of other texture images I created can be found here.

I then improved it, and wrote a paper about that. You can play with interactive demos of the improved version here.

You can play with designing noise-based textures yourself with a really nice interactive Java Applet created by Justin Legakis. Also, the interactive fractal planet demo on my home page is made using these techniques.

It seems that my techniques found their way into the various software packages, such as Autodesk *Maya, SoftImage, 3D Studio Max, Dynamation, RenderMan,* etc., that folks use to make the effects for feature films, which is way cool. Movies look better now, and I guess that makes me a good American.

https://mrl.nyu.edu/~perlin/doc/oscar.html