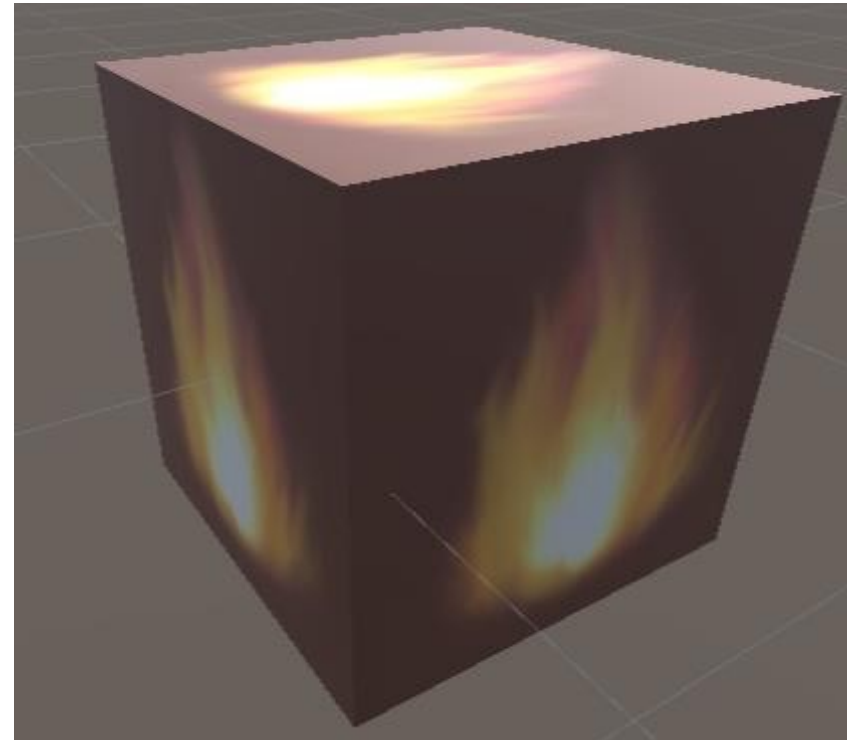
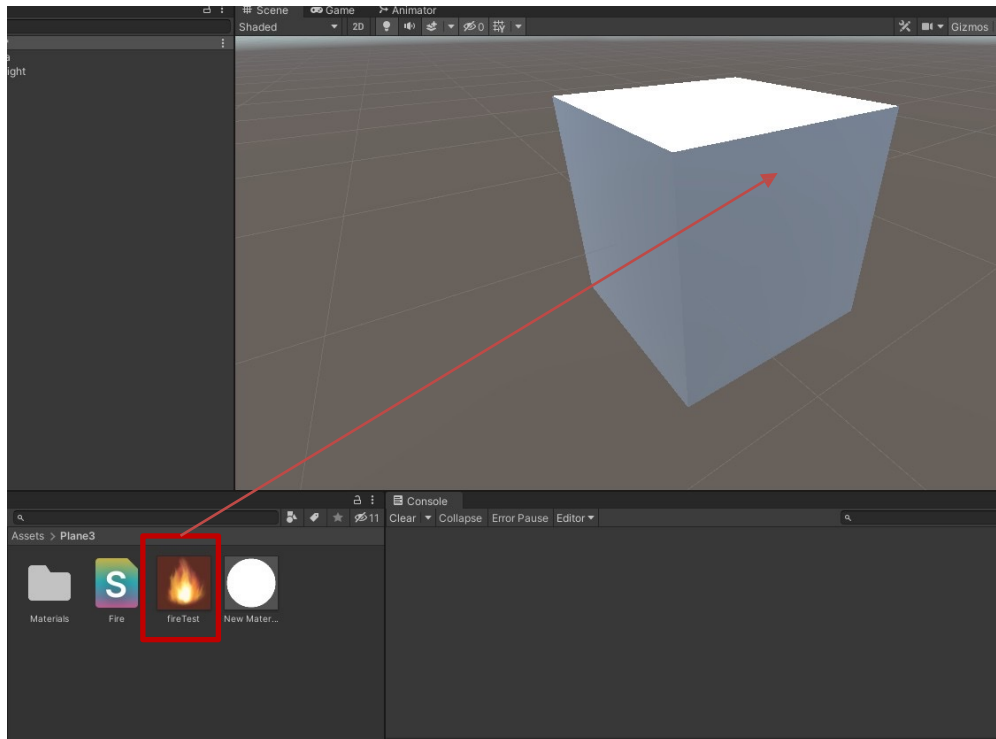


[Unity] UV Texture Mapping

Sung Soo Hwang

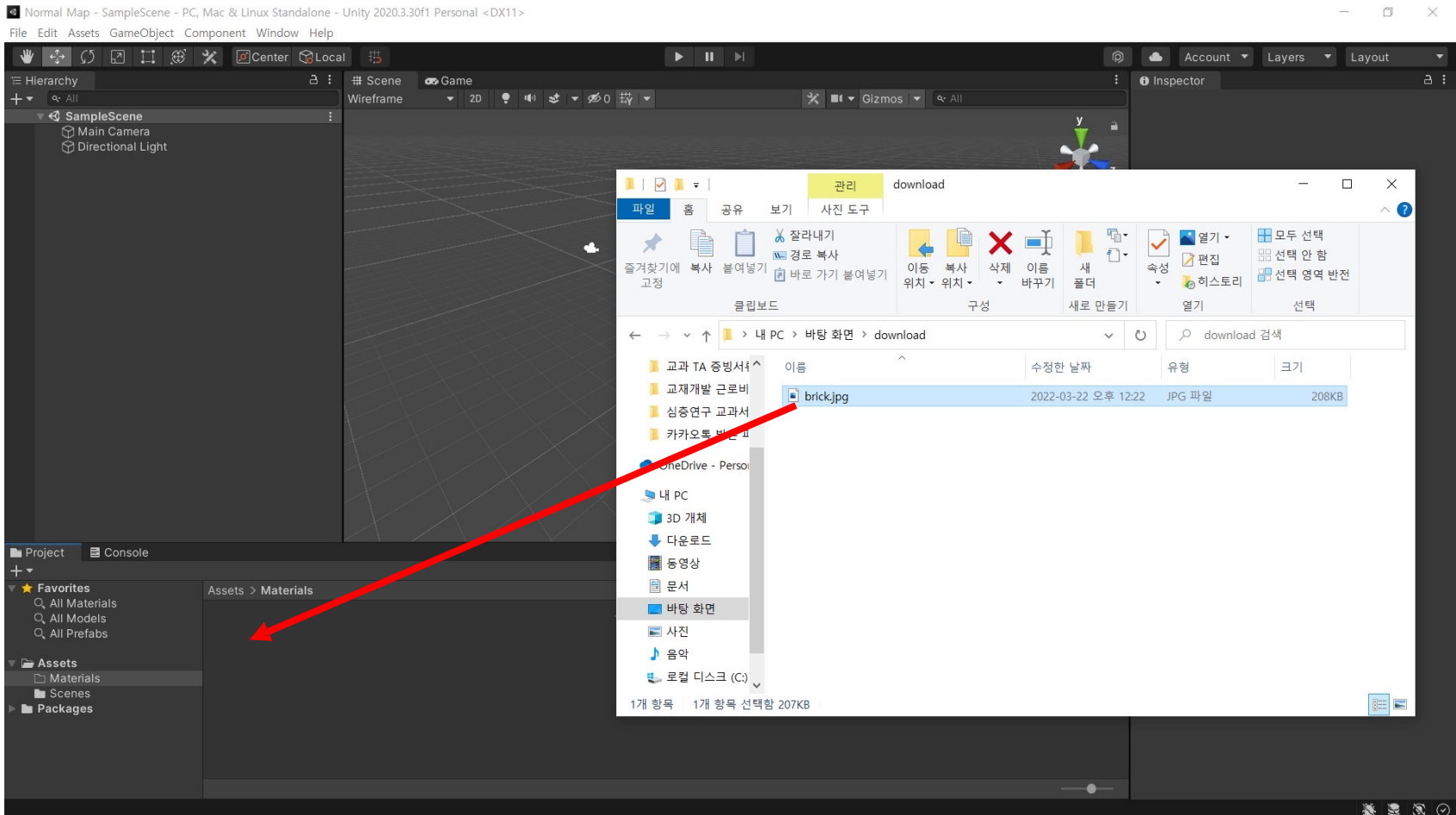
Texture

- Textures create visual effects with images or video files that cover or wrap game objects.
- The simplest way to apply texture to an object in Unity:
 - (1) Create an object
 - (2) Apply a texture to the object. (drag and drop the texture to the object)



Texture Mapping

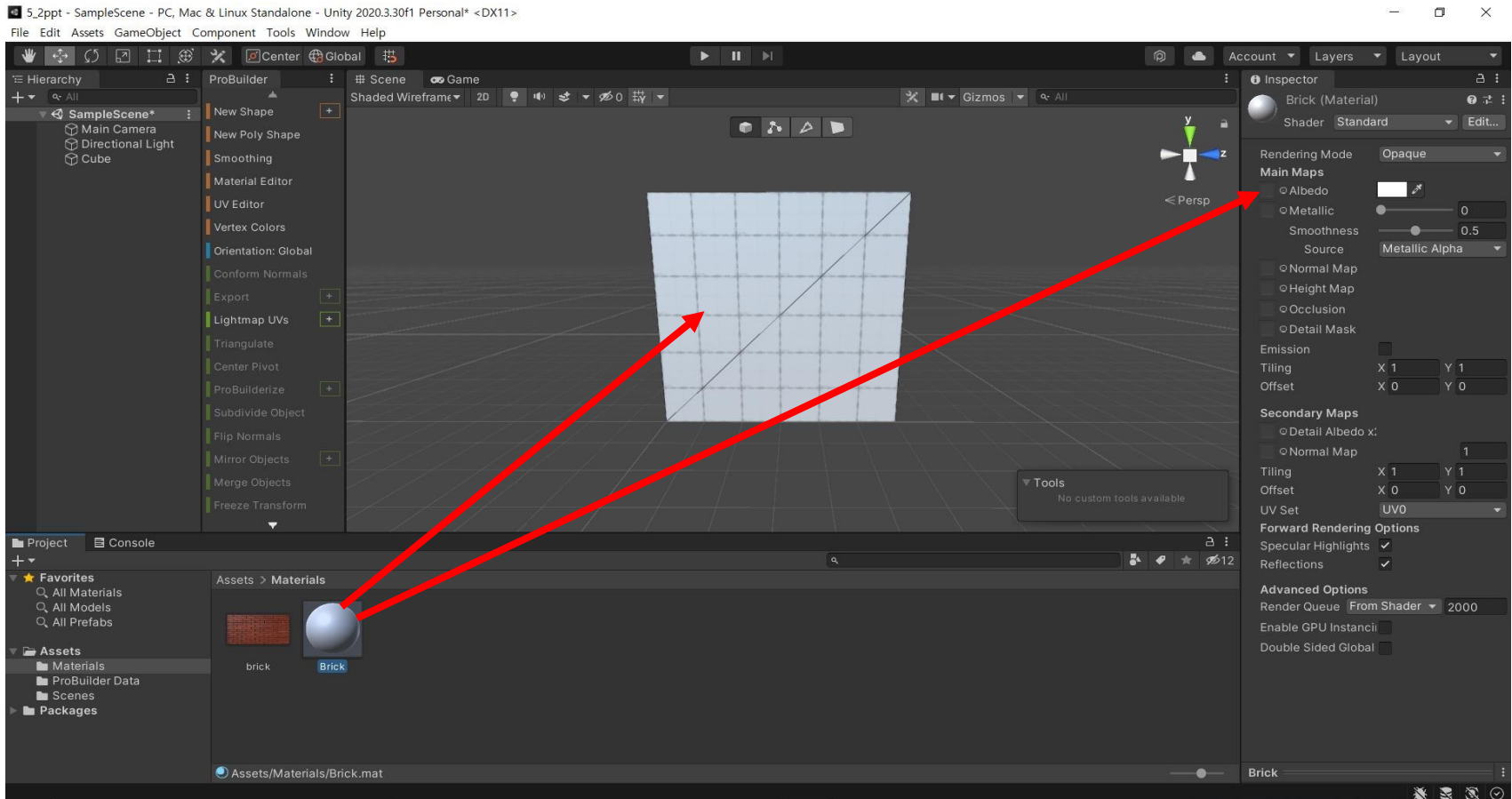
1. Make an object by ProBuilder.
2. Download and import a texture image to unity



Texture Mapping

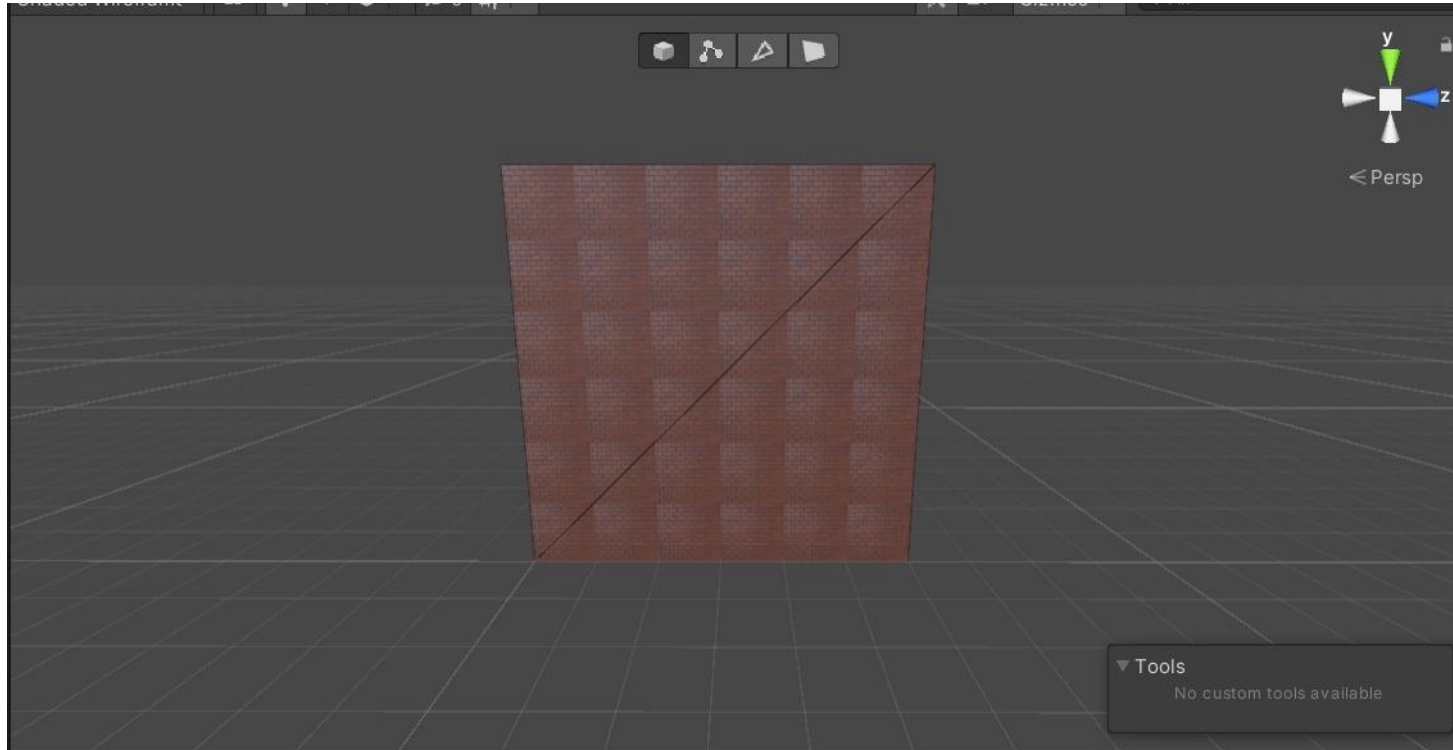
3. To apply a texture, make a material and drag the texture file to Albedo.

4. Then drag the material to the object



Texture Mapping

The bricks looks so small...
How can we fix it?

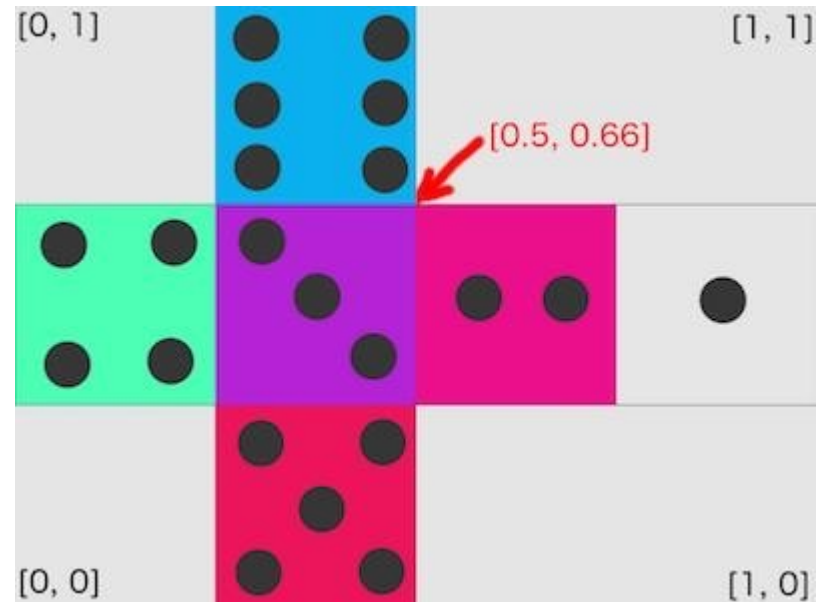
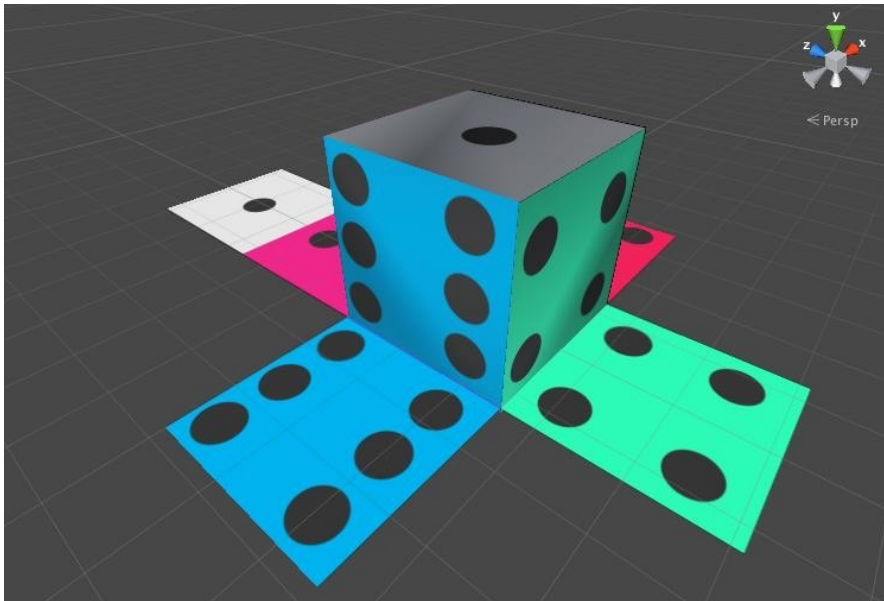


UV Mapping

- UVs are 2D coordinates that are used by 3D applications to map a texture to a model.

U: the horizontal axis of the 2D texture

V: the vertical axis.

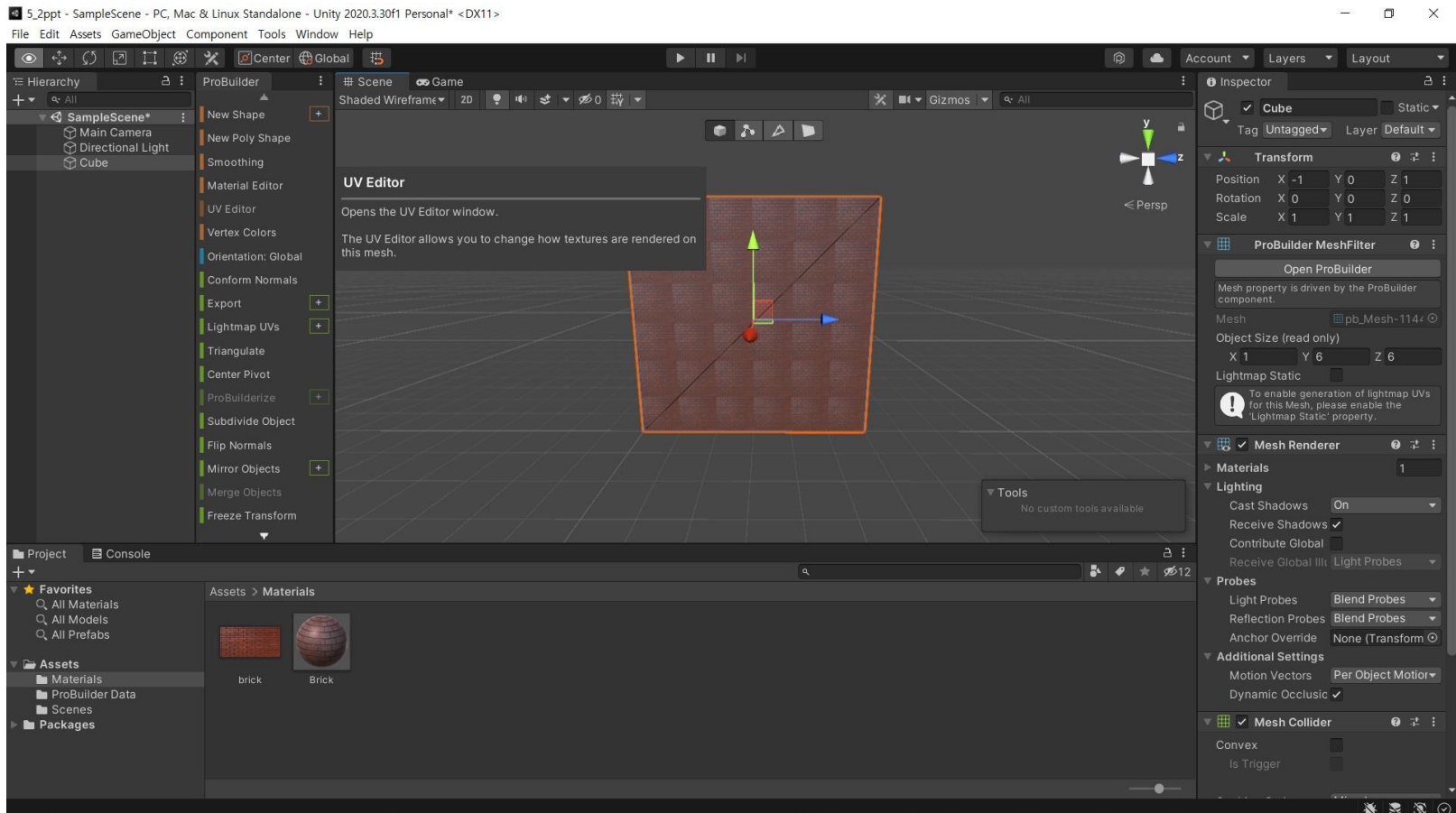


unwrapped image of a dice and the numbers are the UV coordinates

<http://ilkinulas.github.io/development/unity/2016/05/06/uv-mapping.html>

UV Mapping

1. Select the object and click UV Editor.
2. UV editor is a tool to fine-tune the look of the texture on the mesh and adjust its appearance



UV Mapping

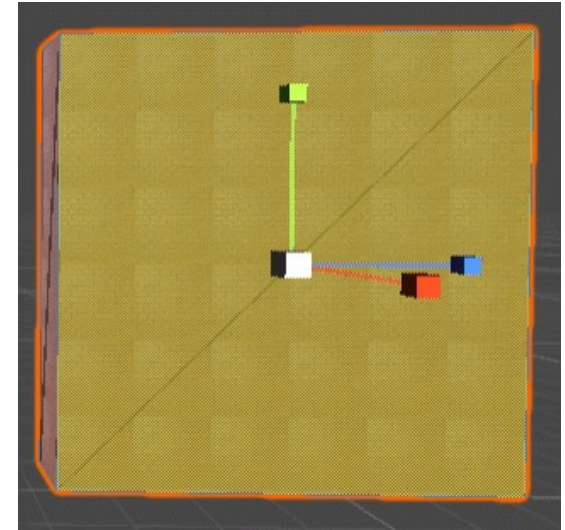
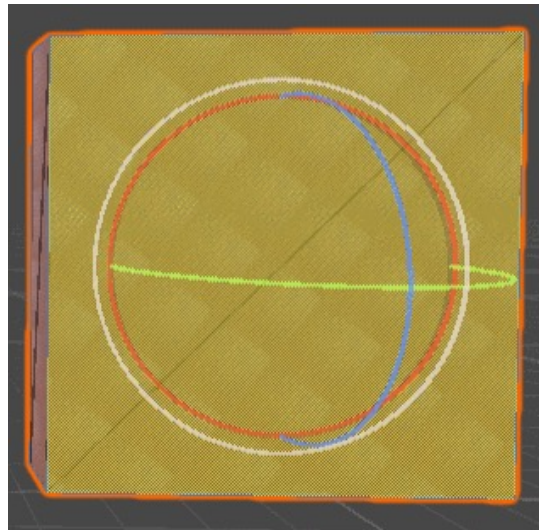
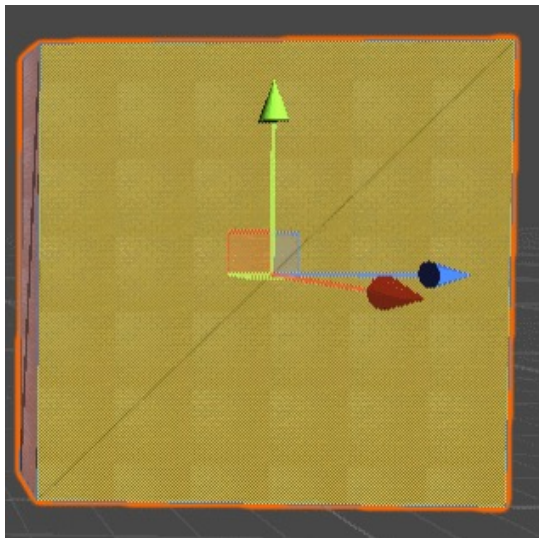
3. You can manipulate elements with the ProBuilder edit modes in the UV Editor by translating, rotating, and scaling



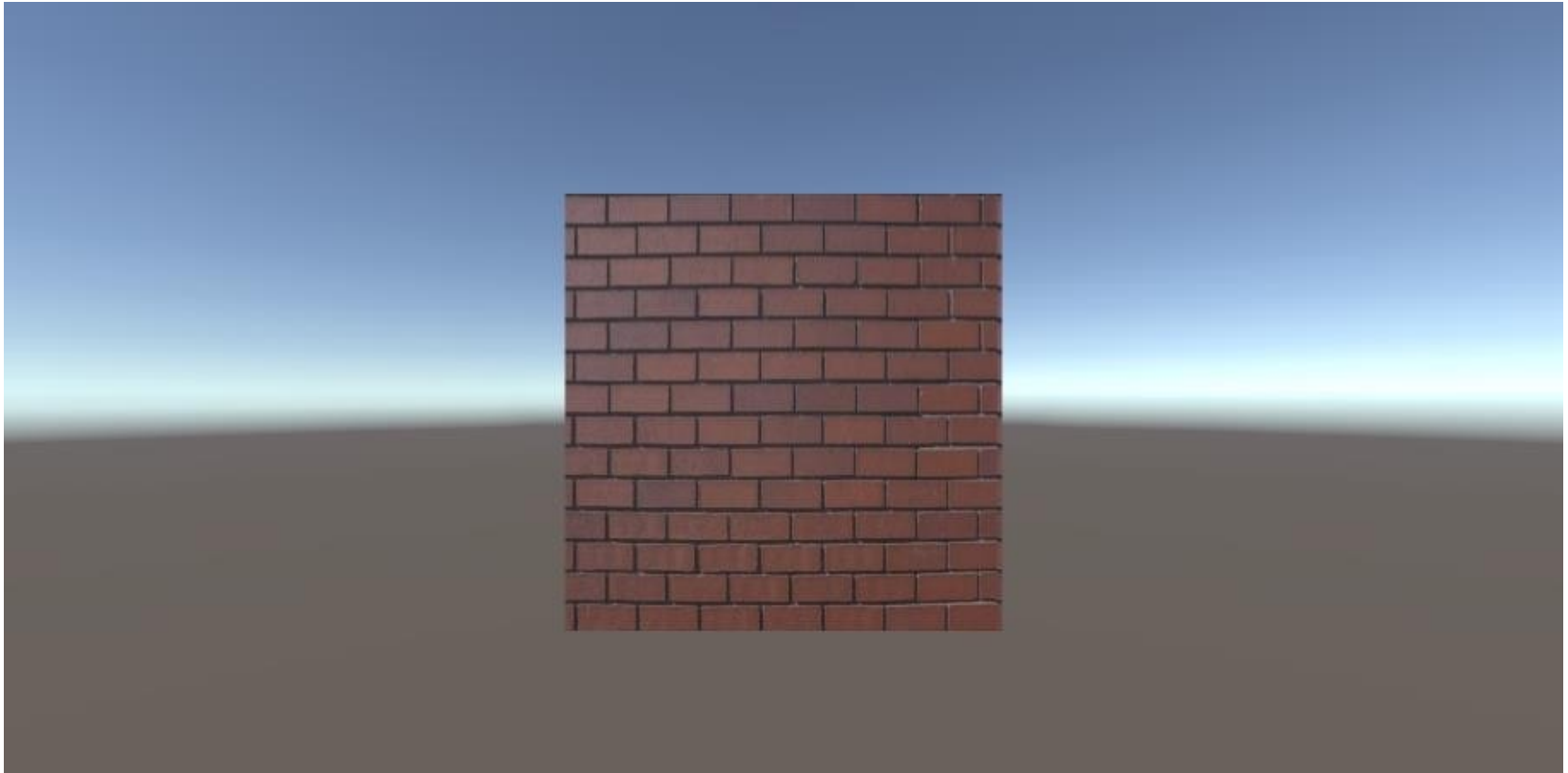
Moving geometry



Moving UVs



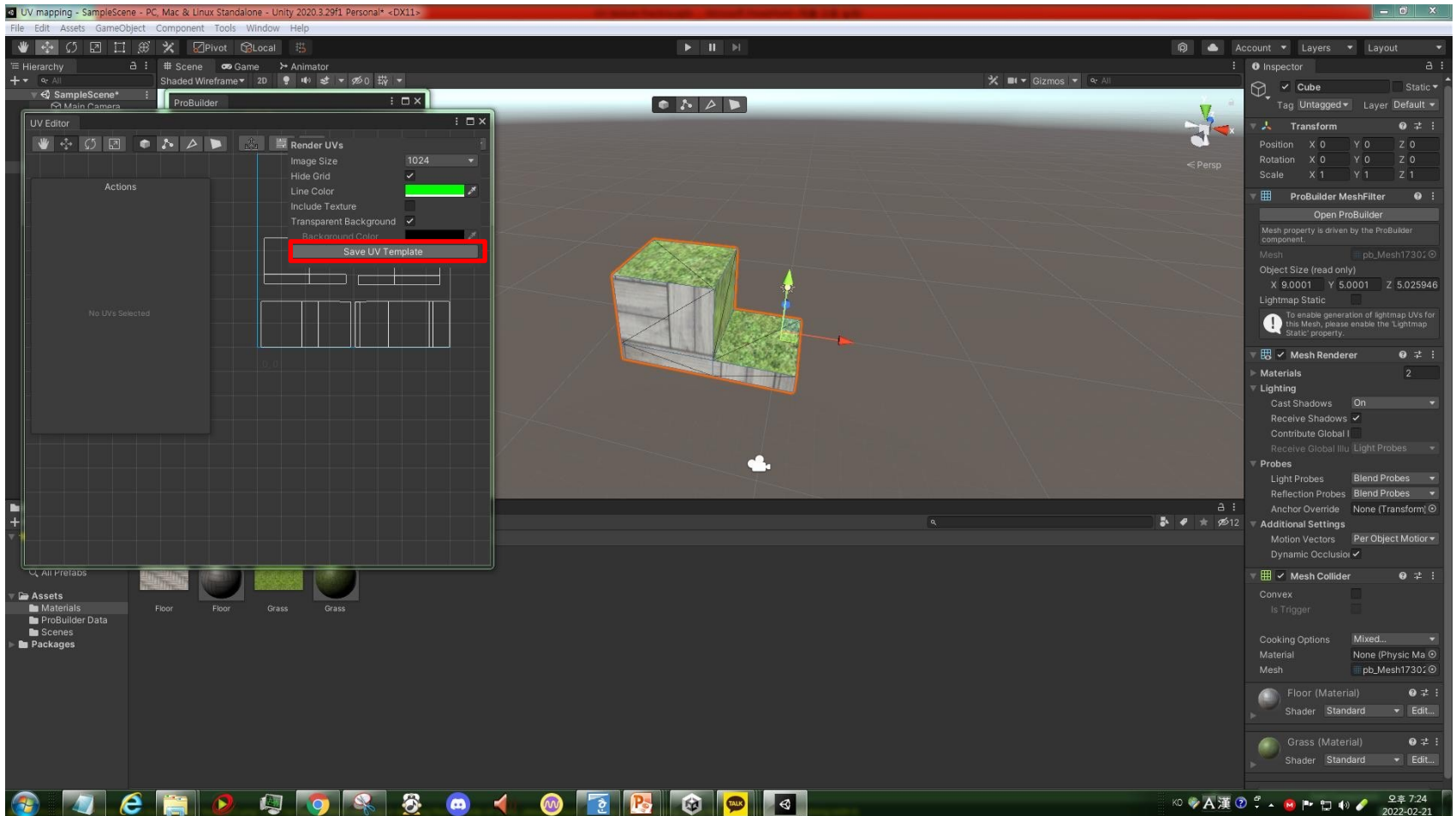
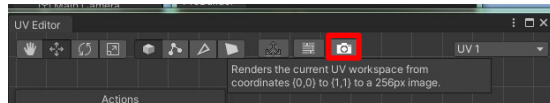
Translating, rotating, scaling of the texture by moving UVs



Result

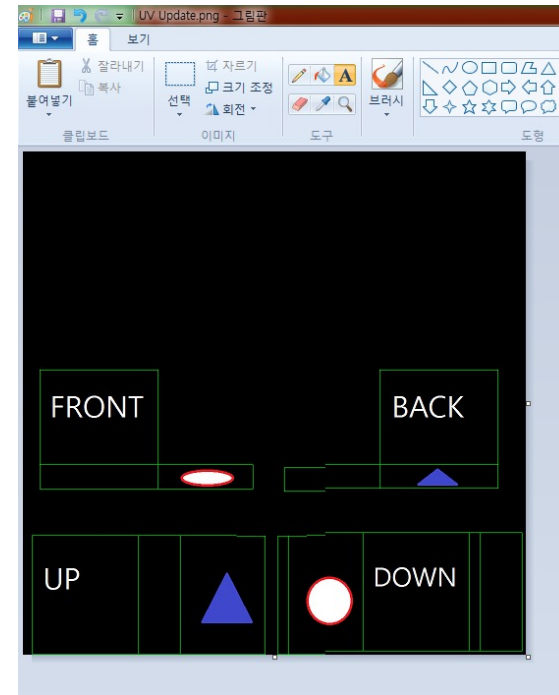
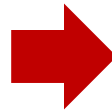
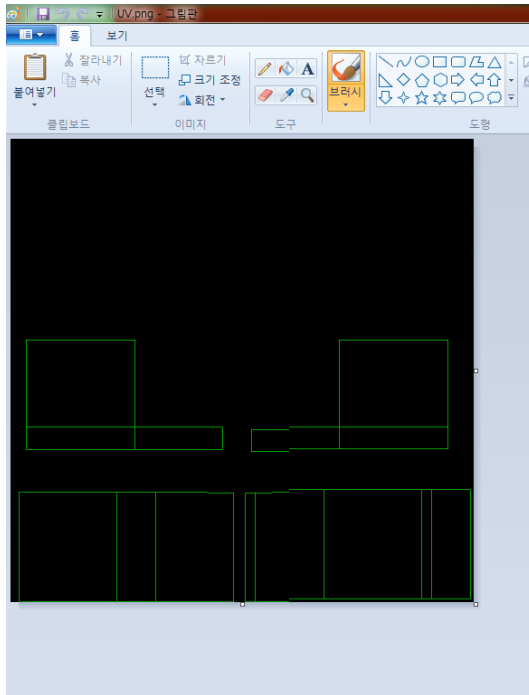
Export / Import UV

- ProBuilder also provides a function to export UV templates.



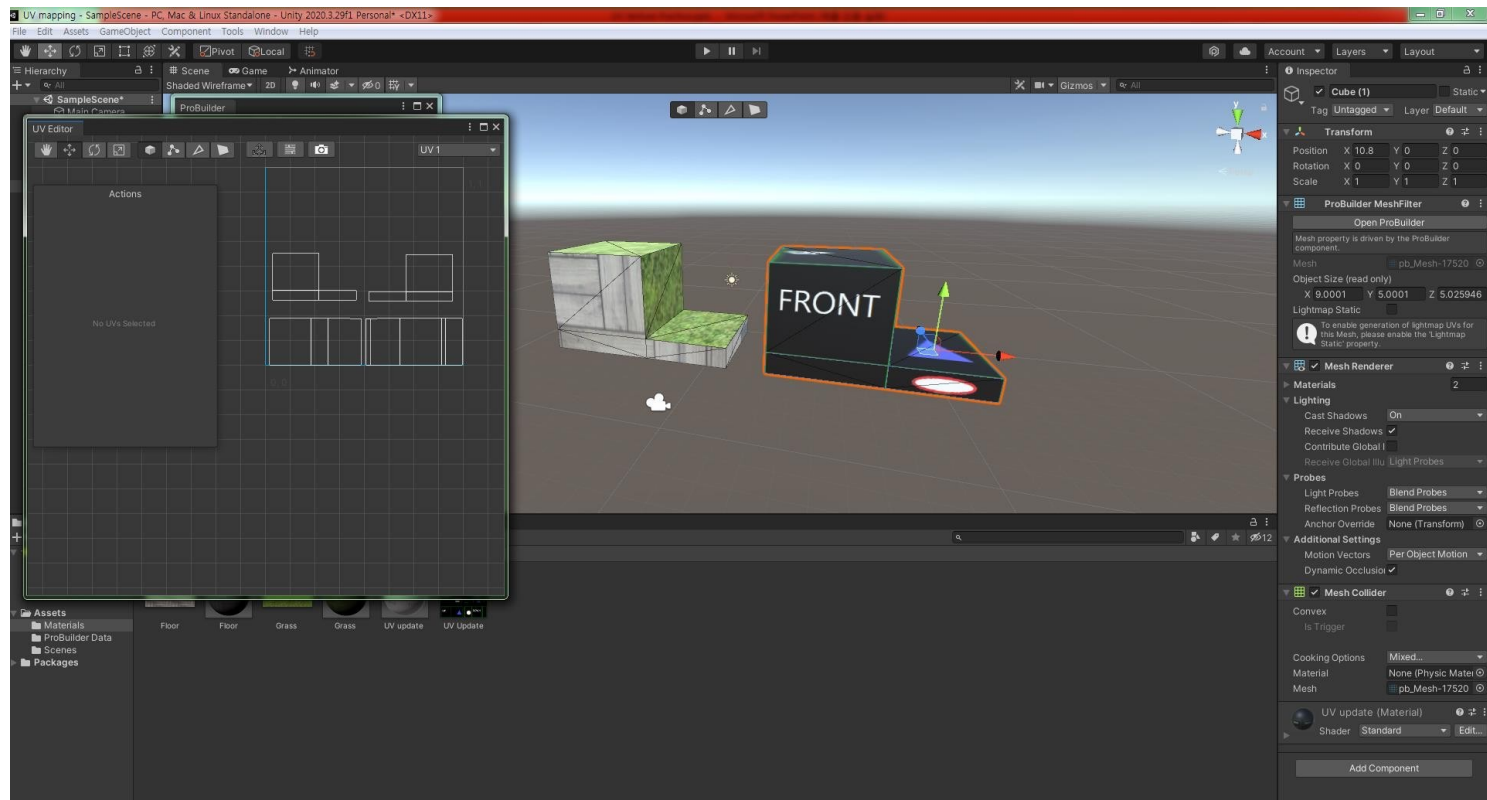
Export / Import UV

- Users can modify the UV template with various graphic software like Photoshop, and Affinity, and import it to Unity as a texture.



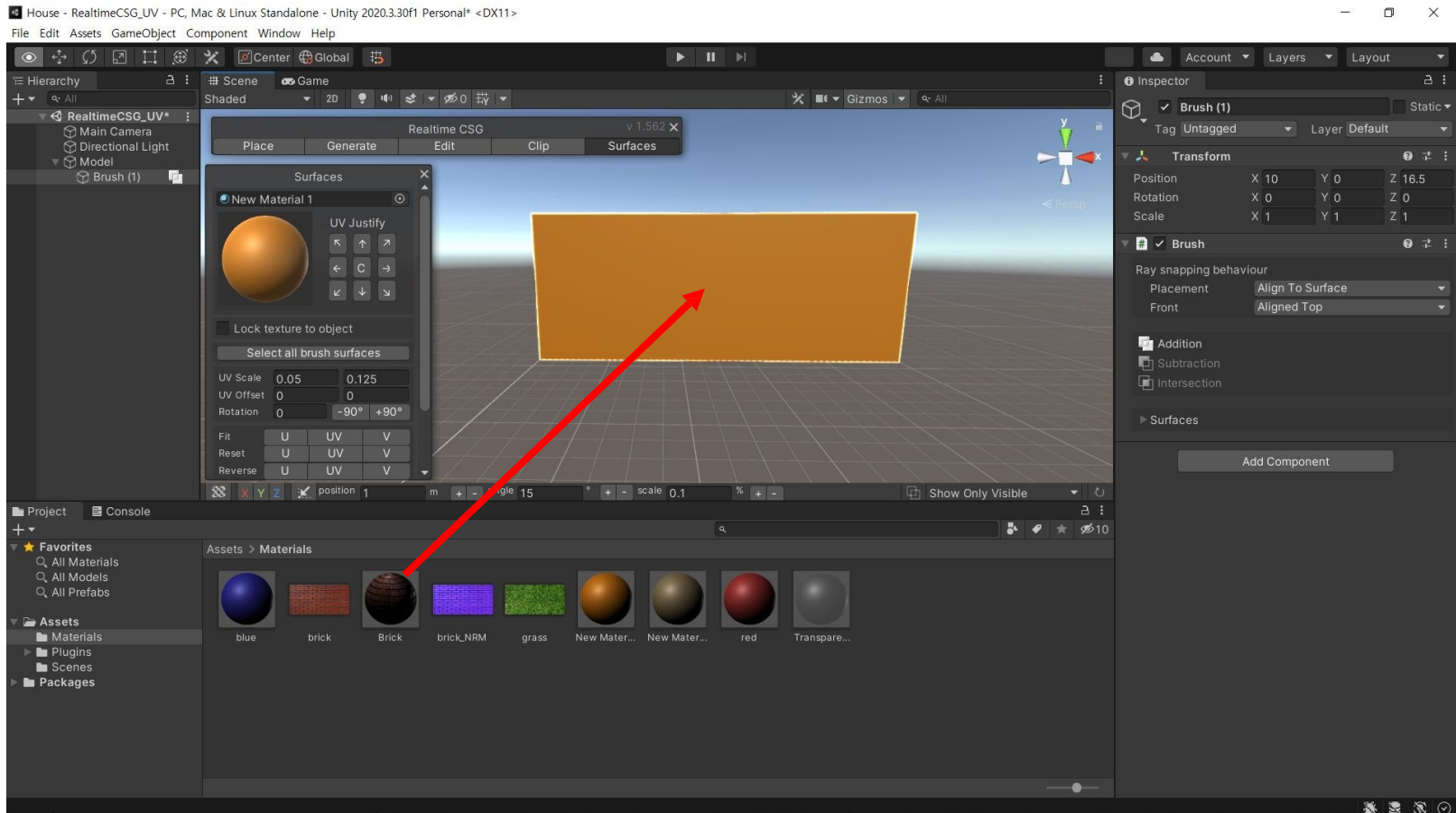
Export / Import UV

1. Import the decorated UV file.
2. Make a Material.
3. Apply the UV to the Material and apply the Material to a duplicated object.



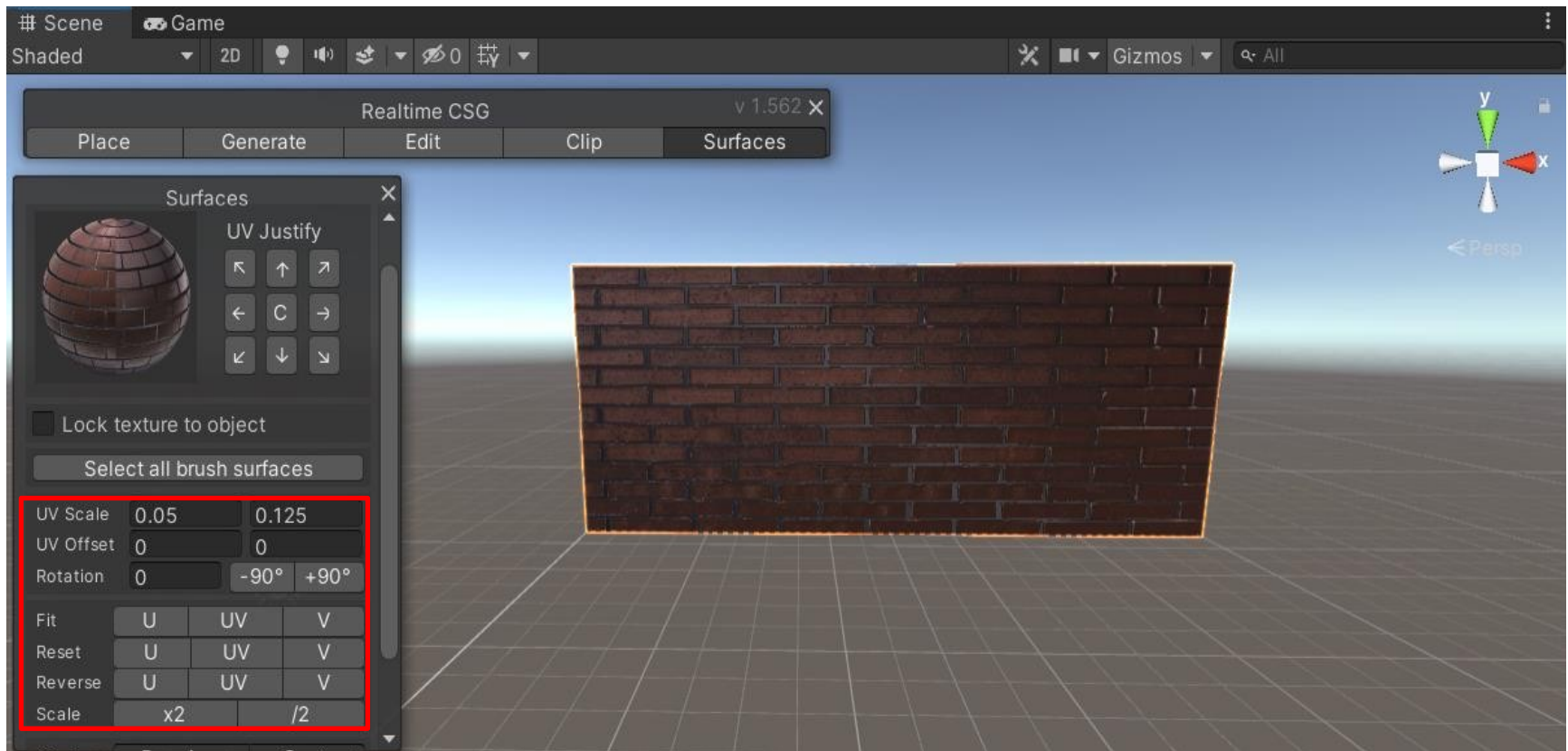
Appendix) UV mapping in Realtime CSG

- Simple UV mapping is also available in Realtime CSG.



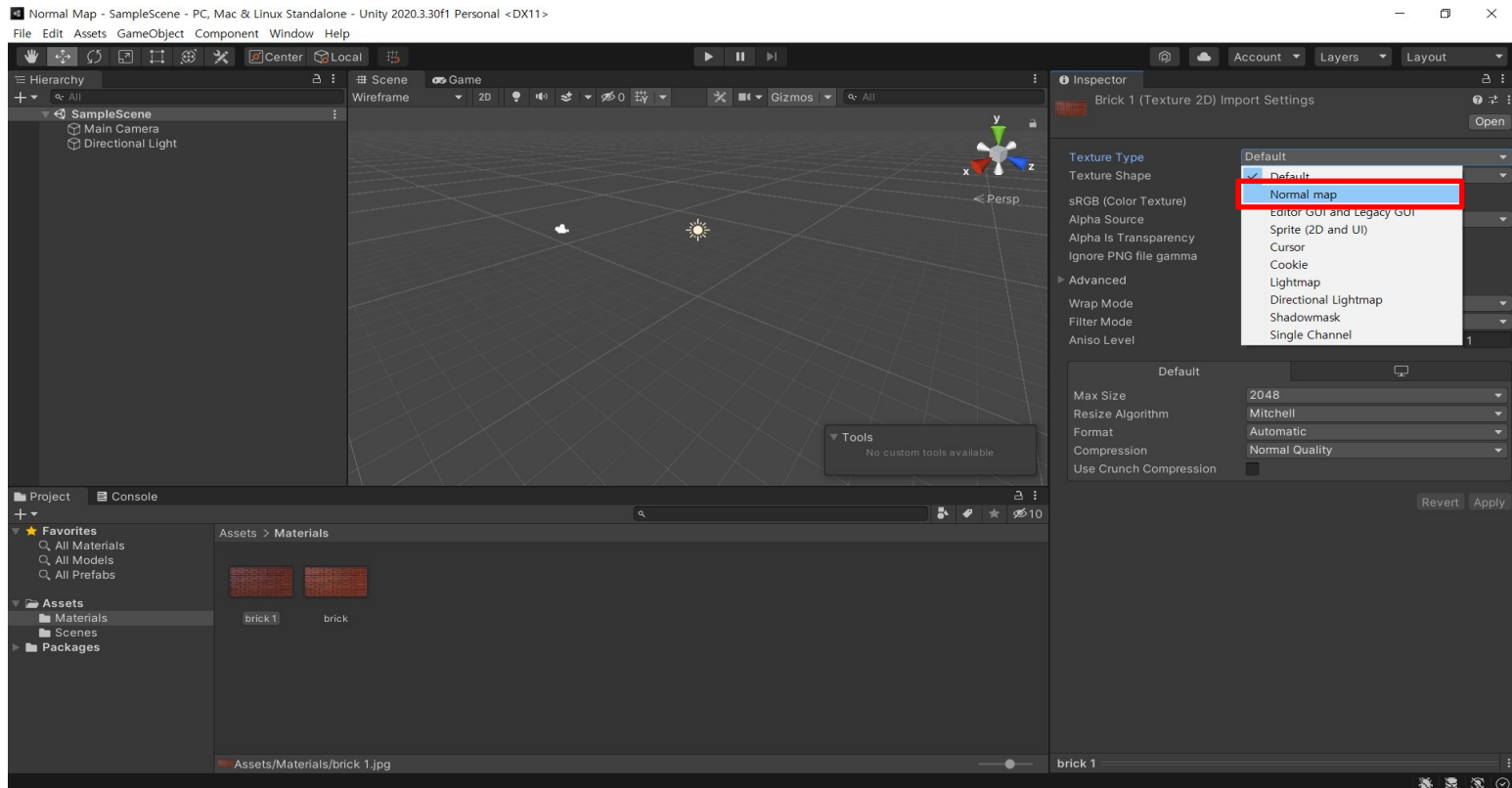
Appendix) UV mapping in Realtime CSG

- You can adjust the appearance of the texture by modifying the options of the red box. Usually, the Fit of UV works well.



Apply Normal Map in Unity

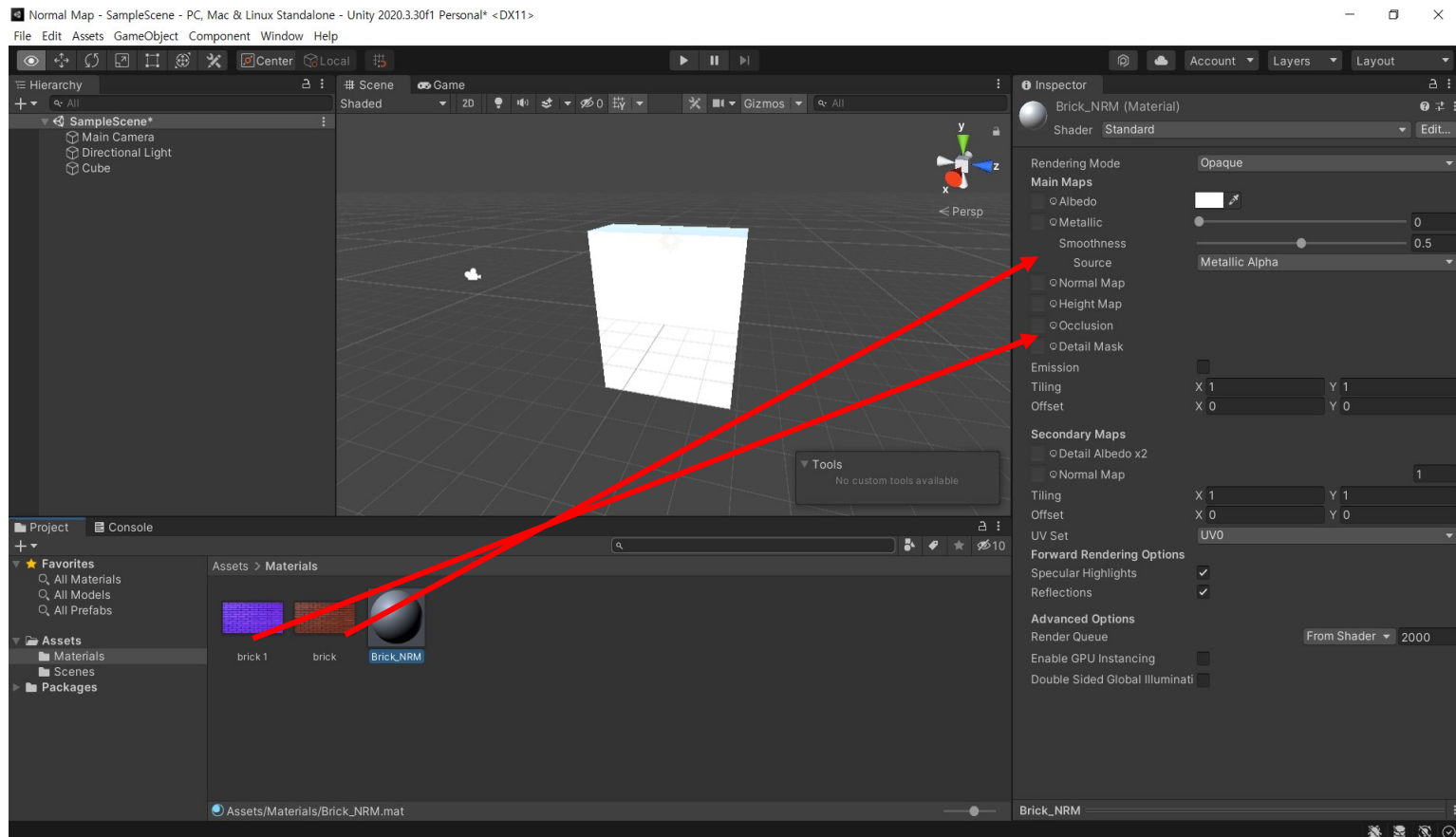
- How to make and apply a normal map in unity?
1. Download and import a texture image to unity
 2. Duplicate the texture image and change its texture type to "normal map" then click apply.



Apply Normal Map in Unity

3. Make material and an object.

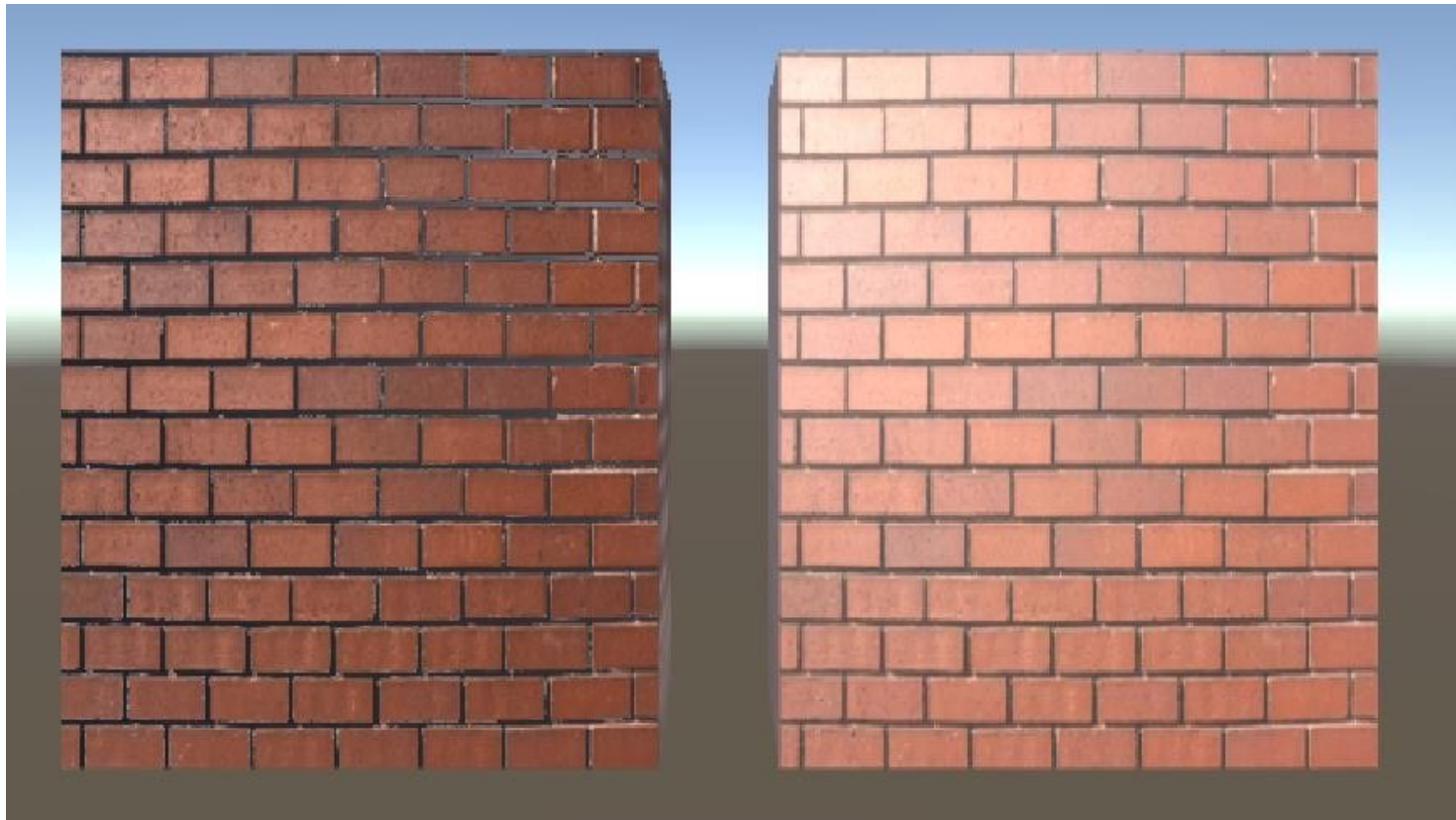
4. Place the original texture file into Albedo, and the normal map into Normal Map



Apply Normal Map in Unity

5. Then apply the material to the object.

6. Now you can see the result.



Left: the original texture and normal map are applied
Right: only the original texture