# Grid City Project Explanation

(Labture 1 start)

## Grid City

Open the *GridCity* scene and enter playmode. A simple, randomized, grid shaped city is built.

*Task:* Change the parameters in the GridCity component, to change the size and spacing of the buildings.

If you want, you can also open the *GridCity* script and try to change the shape (can you make it less grid like, and more randomized?)

## Building Prefabs

Currently, the grid city uses one building prefab (you can add different, or more prefabs in the inspector).

The prefab that's currently used (*ProceduralSimpleBuilding)* generates a randomized building at runtime, consisting of a stack of "stocks" (floors), topped off with a "roof". These stocks and roofs are concrete prefabs (meaning: no scripts / procedural elements, just meshes and materials) made out of Kenney's building modules.

Open the *Prefabs* scene to have a look at these prefabs: currently there are two roofs, and two stocks, each consisting of 4 or 8 of Kenney's building blocks.

*Task:* In this scene, try to create some more roofs or stocks, using the given building blocks. Make prefabs out of them.

Then, you can add those prefabs in the inspector of the *ProceduralSimpleBuilding* prefab. This will give you more varied buildings.

You can also make variants of the *ProceduralSimpleBuilding* prefab. For instance:

- Can you make a ProceduralSimpleBuilding where every floor has size 3x3 instead of 2x2?
- Can you make a ProceduralSimpleBuilding that's randomized, but always made out of wood?
- If you want, you can create your own modules here

## Materials

The Kenney assets in this project are set up such that you can quickly change the materials for all modules.

*Task:* Go to the KenneyAssets/FantasyTown/Materials folder. Change some of the materials by adding textures (albedo, normal, etc.). This way you can add e.g. a brickwall material or wood material to all elements at the same time. There are many places where you can find tileable textures / materials, such as the Unity asset store.

Note: This project, and its materials, use the standard rendering pipeline. On Blackboard the Kenney assets are also posted separately (as OBJ files), such that you can import them in URP / HDRP projects. Use HDRP if you want to use the Substance Designer plugin for Unity.

## Scripts

Feel free to experiment with the *GridCity* script, for instance:

- Can you alternate between broad and narrow streets?
- Can you give the spawned buildings random rotations?
- Can you spawn higher buildings in the city center?
- Can you place buildings in (concentric) circles instead of a grid? (Challenge!)

The *Shape* and *SimpleBuilding* scripts are a bit more complex, and are related to shape grammars: they will be explained later in the first scripting-oriented labture (engineer labtures, or see the recordings on Blackboard).