Unity 2.3

Summary

In this lesson, we'll learn how to create more complex shapes using ProBuilder. While primitives serve as a good start in constructing the cityscape, with ProBuilder we can add additional refinements to edges and bevels, or add more organic architectural shapes, like curves.

Part 2 - Installing Probuilder

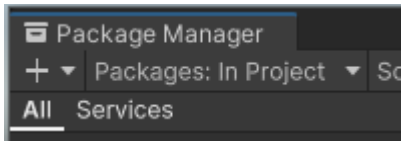
ProBuilder is a world-building tool within Unity that allows you to create geometry and modify faces, edges, and vertices. This further integrates the features and flexibility of a Digital Content Creation (DCC) tool into Unity. For those with experience using 3D modeling tools, many things in this lesson will be familiar to you. If you are new to modeling, take your time going through this lesson. You'll be learning valuable skills.

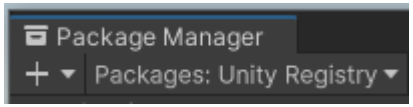
Note: For the time being, ProBuilder will automatically use any pre-existing settings from previous ProBuilder installs. If you had installed ProBuilder previously the settings might look different than they do in the following steps.

We can install the package in a few steps:

1. Navigate to **Window** > **Package Manager**.

2. In the top left, **click on the drop down arrow** by “Packages: In Project” and select **Unity Registry**





3. Search for **ProBuilder** in the search bar and install the package by clicking the **Install** button in the bottom-right corner (**Figure 01**).

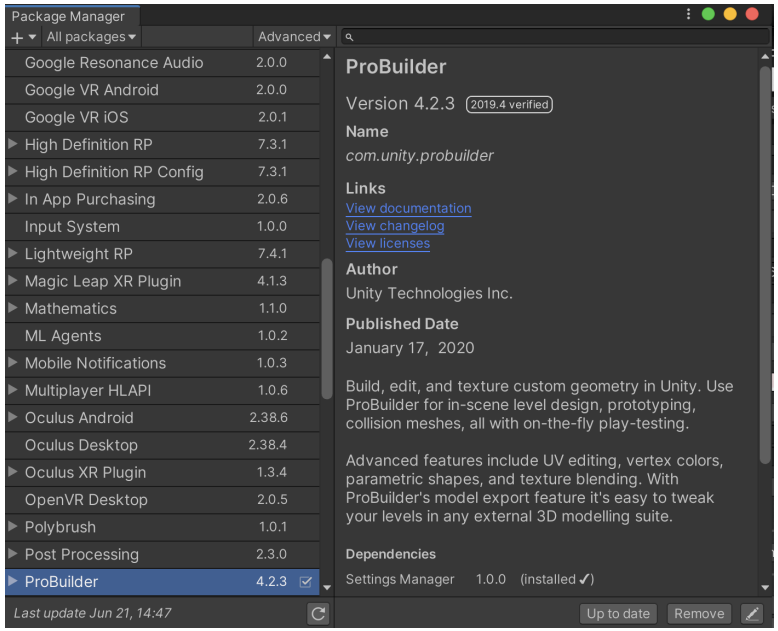


Figure 01: Information about the ProBuilder Package in the Package Manager

4. Once ProBuilder is installed, open it by navigating to **Tools** > **ProBuilder** > **ProBuilder Window** (**Figure 02**).

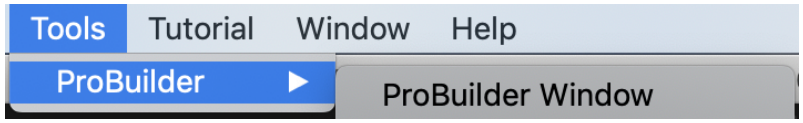


Figure 02: Opening the ProBuilder window

By default, this opens a floating window. Let’s dock it to the right of the Project and Hierarchy windows, then re-save the Layout we created in Lesson 2.1 (**Figure 03**).

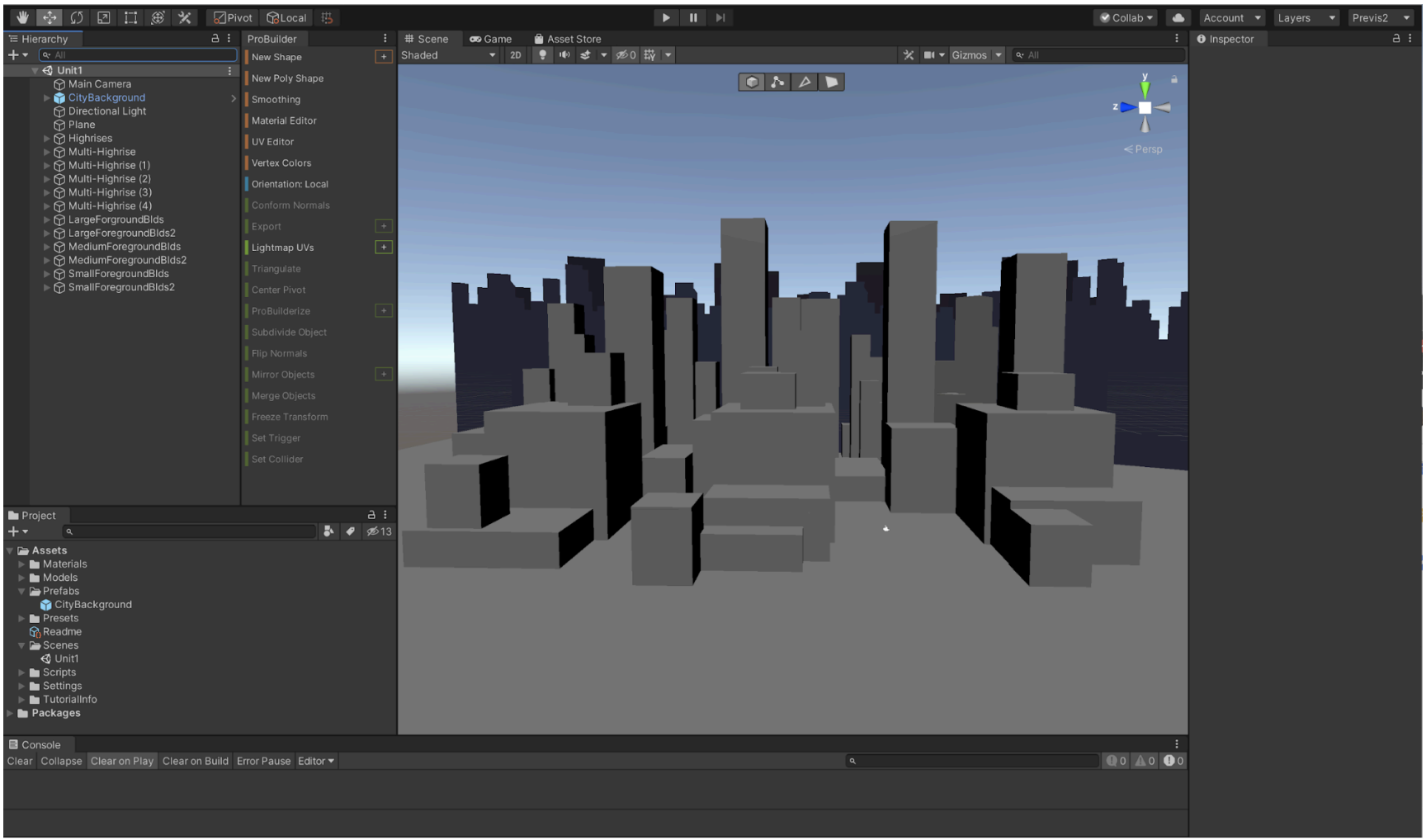


Figure 03: Docking the ProBuilder window to the right of the Hierarchy and above the Project windows.

5. ProBuilder opens up in Text Mode by default. Click the **Context** button (three dots) in the upper-right corner to change it to Icon Mode (**Figure 04**).

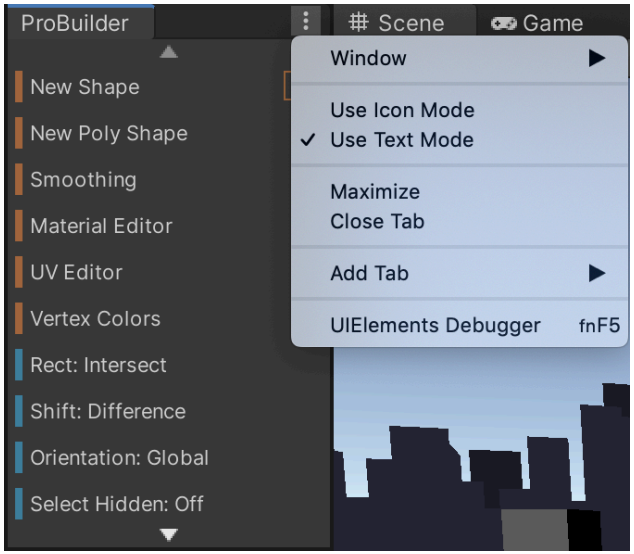


Figure 04: Opening ProBuilder and viewing its many features

Probuilder has a lot of tools (**Figure 05**) — don’t let them overwhelm you! We will walk through a few of them here step by step.

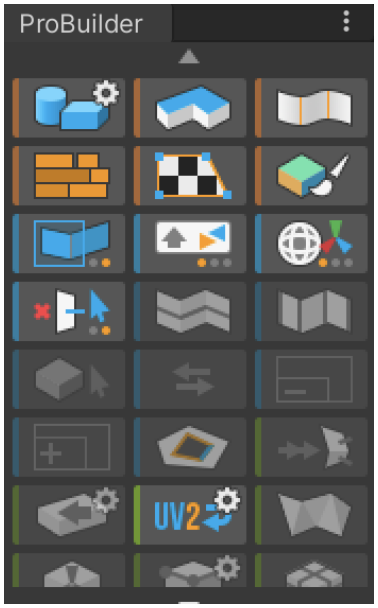


Figure 05: ProBuilder in Icon Mode

We can start modifying our primitives with the ProBuilderize Tool, which is represented by this icon (**Figure 06**). The ProBuilderize tool converts objects in Unity into ProBuilder-editable objects. The icon will appear grayed out if you don't have at least one 3D Object selected.

Figure 06: The ProBuilderize Tool converts Unity's primitives into ProBuilder format.

To begin, let's ProBuilderize all the primitives we created in the last lesson.

6. Shift + left-click each primitive we created in the Scene or Hierarchy to select them all at once, then select the ProBuilderize tool to convert them to ProBuilder shapes.

7. Save your work. Go to **File** > **Save**.

Part 3 - Creating Slopes

Now that our primitives have been ProBuilderized, we can modify them in interesting ways. Notice that when you installed Probuilder, a new tool menu appeared at the top of the Scene view. The tool menu displays Probuilder's various object editing modes (**Figure 07**).

Figure 07: Editing modes in ProBuilder

Probuilder has four editing modes:

Object: Manipulate the object as a whole, much like how we manipulated the primitives in the previous steps
Vertex: Push and pull the vertices of an object
Edge: Select and move only the edge of an object
Face: Select and move only the face of an object

Let's begin by modifying the edges of one of our SmallForegroundBld Cubes to create a sloped roof.

1. Locate one of the **SmallForegroundBld** Cubes and select it (**Figure 08**).

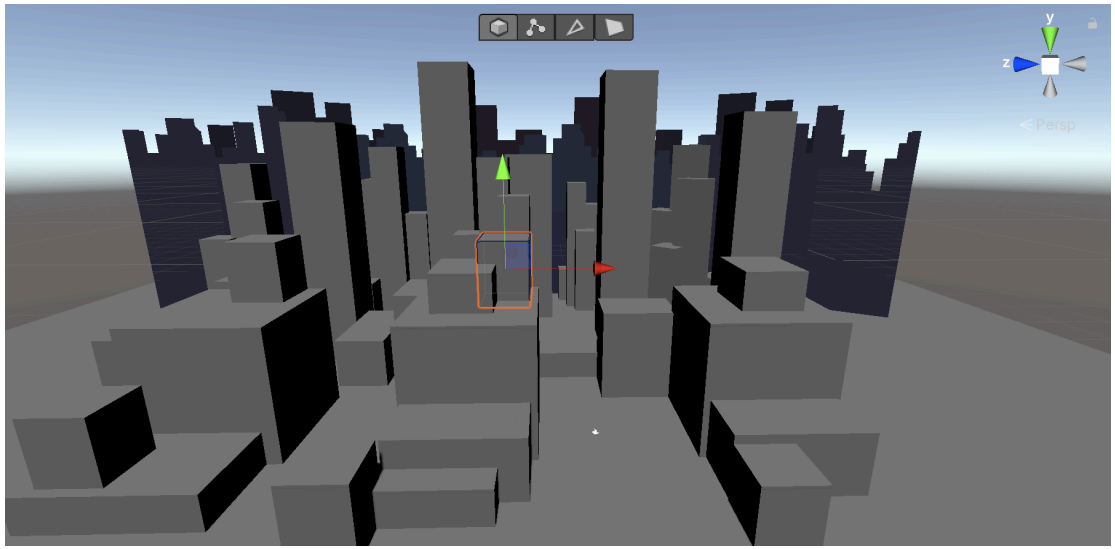
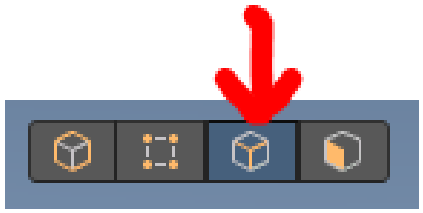


Figure 08: Creating a slope in ProBuilder’s Edge mode

Select ProBuilder’s Edge editing mode (**Figure 09**).



3. In Edge editing mode (third from left), select the front top edge of the Cube. It will highlight yellow (**Figure 10**).

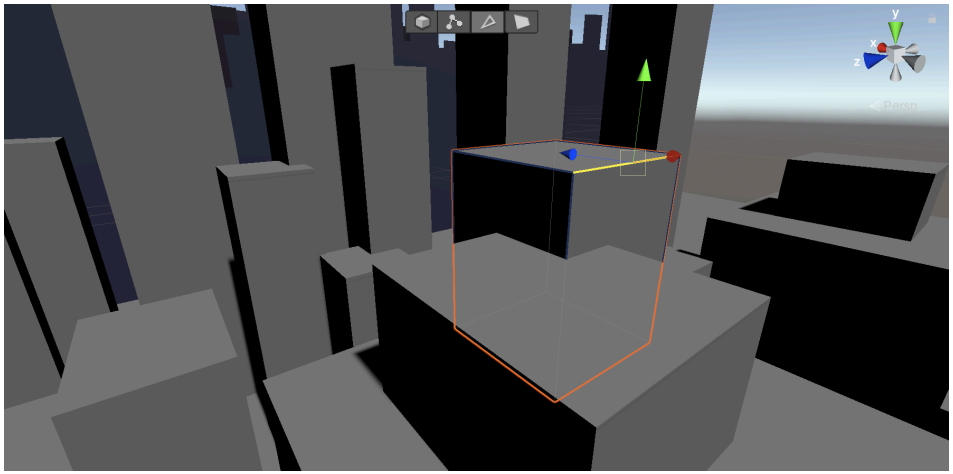


Figure 10: The yellow edge is selected and the editing mode is set to Edge.

4. With the **Move** tool selected, use the green “y” arrow to translate the yellow edge downwards (**Figure 11**).

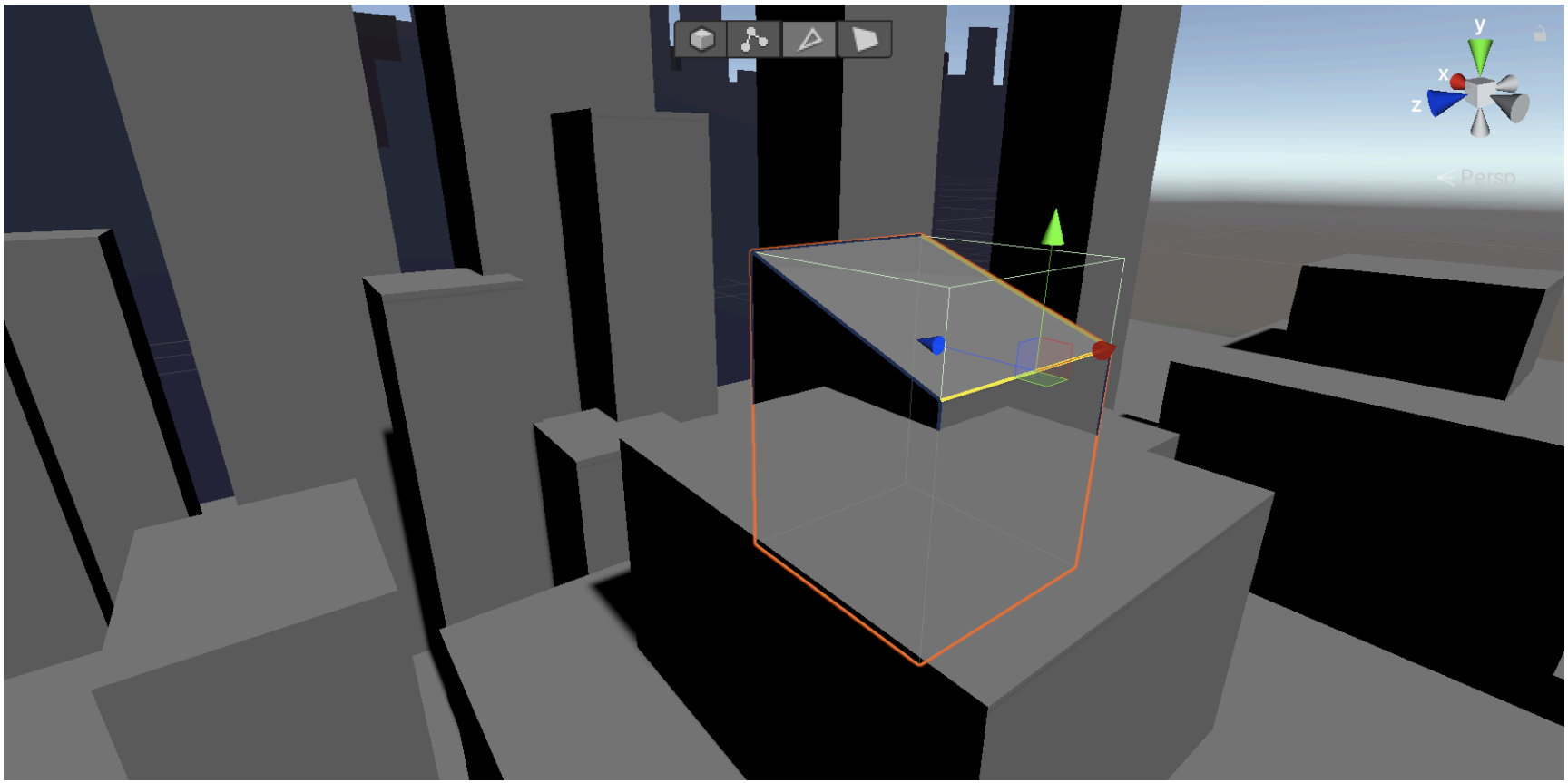


Figure 11: Translating the edge downwards to create a sloped roof.

When you're done, you can click another object to edit the edges or not. Just remember you are still in the Edge editing mode, so you'll only be able to select edges until you switch back to Object editing mode.

Save your work. Go to File > Save

Part 4 - Creating Bevels

You can create rounded corners via a series of bevels. A bevel simply cuts an edge at an angle. Multiple bevels in succession can create more rounded surfaces (**Figure 12**).

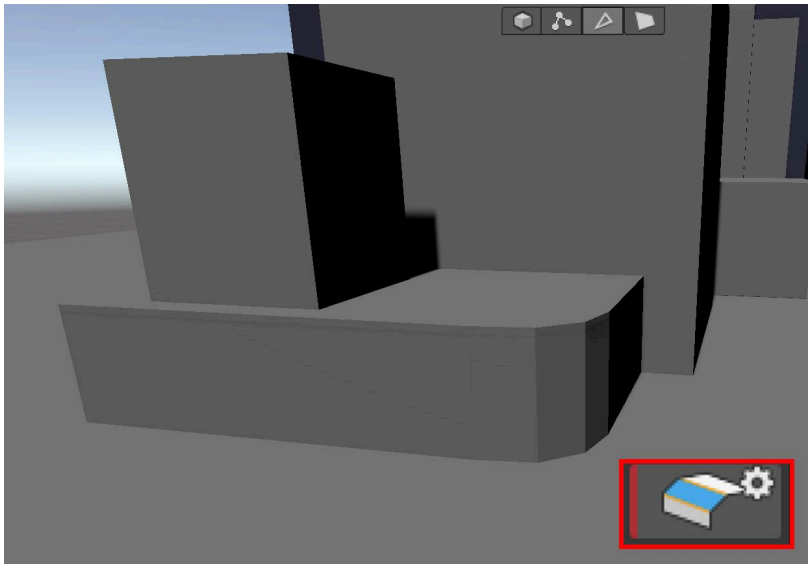


Figure 12: A bevelled edge on the building and the Bevel tool (bottom right).

1. Locate one of the **MediumForegroundBld2** Cubes and select it (**Figure 13**).

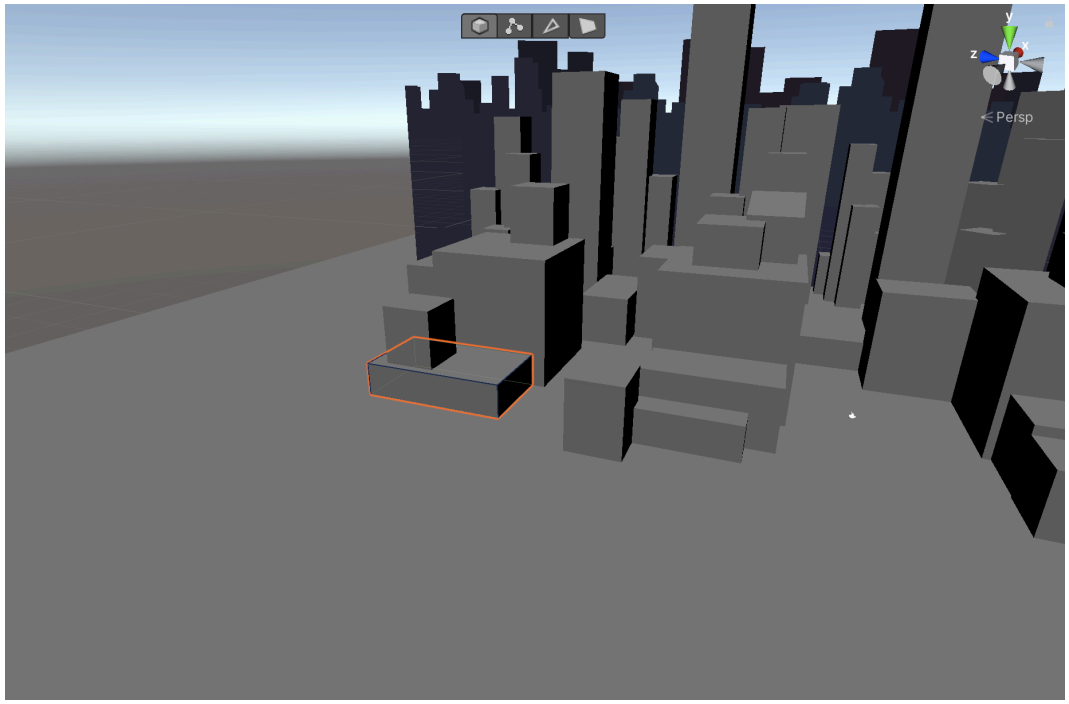


Figure 13: One of our MediumForegroundBld Cubes

2. Again, in Edge editing mode, select the vertical corner edge of the building. It will highlight yellow (**Figure 14**).

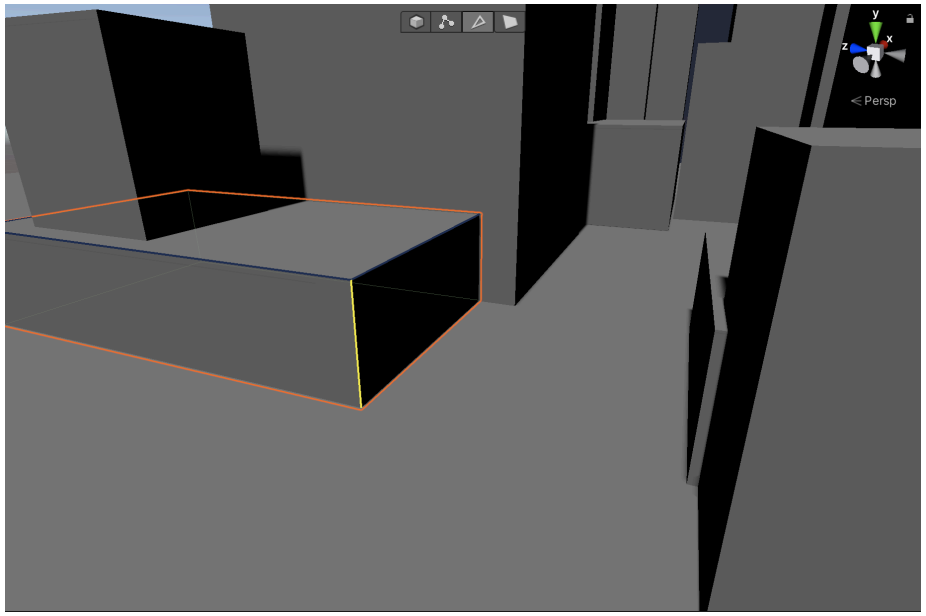


Figure 14: One of our MediumForegroundBld cubes with the corner edge selected.

3. Alt + left-Click the **Bevel** tool  to access its settings. Set the **Distance** to **0.1** (**Figure 15**).

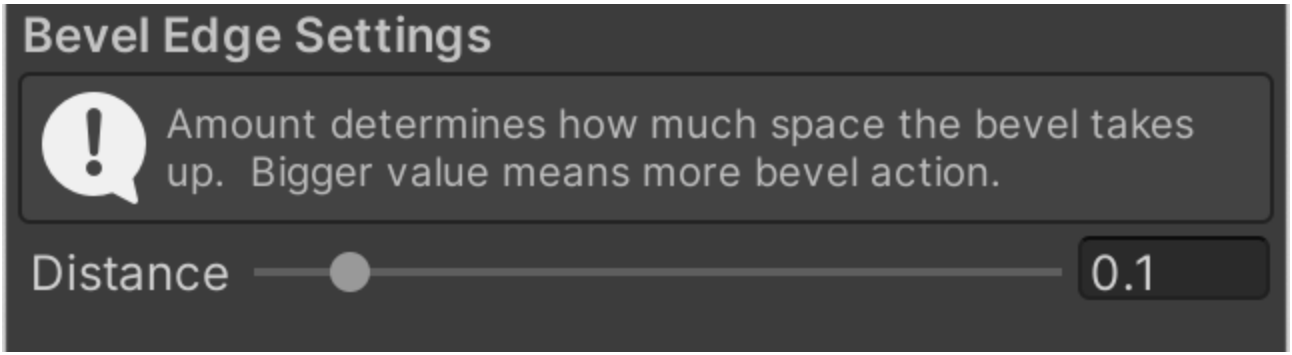


Figure 15: The Bevel tool settings

4. Click the **Bevel** tool directly (without the Alt) once more and your Cube's edge will bevel at **0.1** (**Figure 16**).

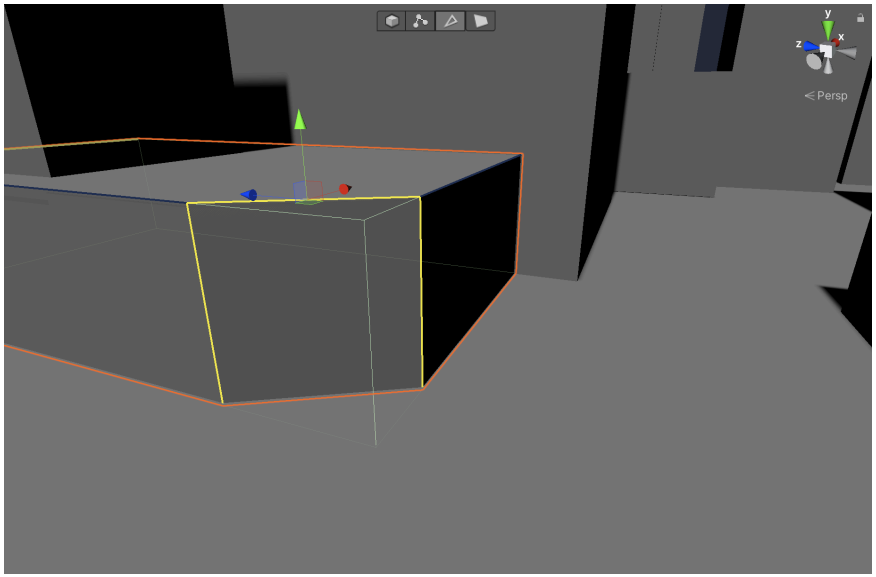


Figure 16: The new beveled edge

Notice how the Bevel created a new face, with the new edges highlighted in yellow.

5. Select the left-most vertical edge of the new bevel (**Figure 17**).

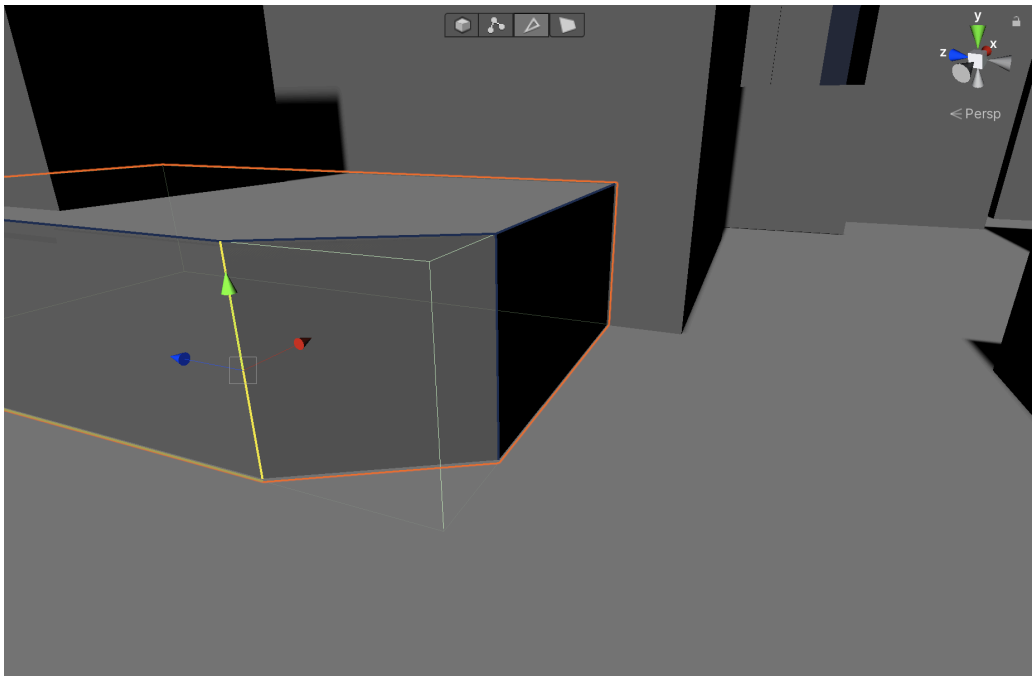


Figure 17: The left-most edge highlighted

6. Now click the **Bevel** tool once more and your Cube's edge will bevel at **0.1** (**Figure 18**).

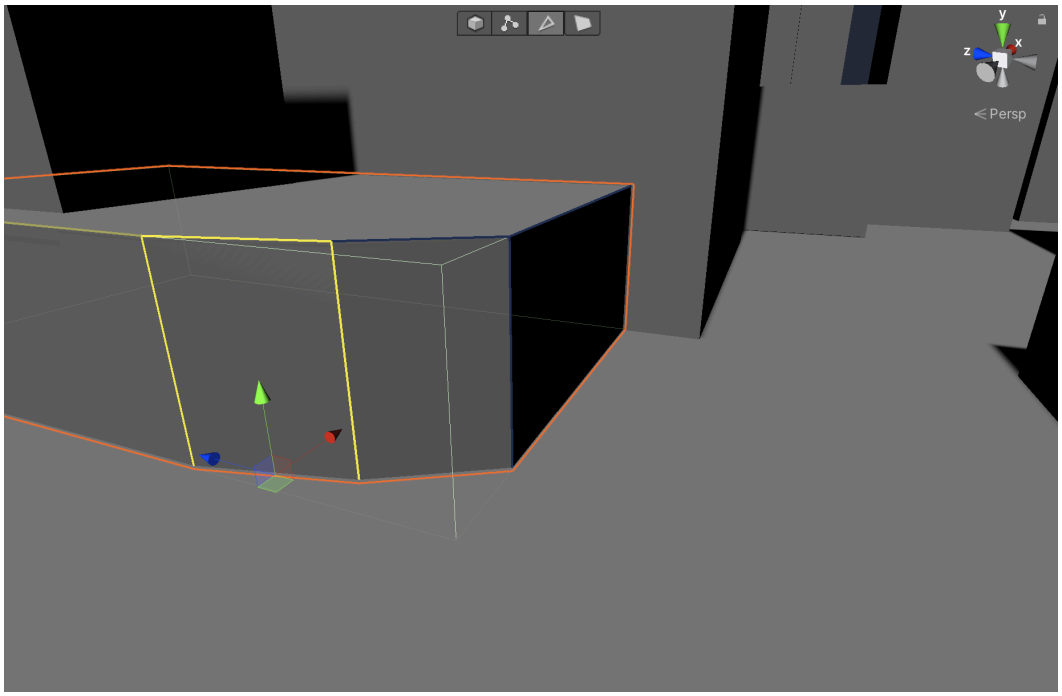


Figure 18: Another bevel appears.

If yours isn't looking like the images, THAT'S OK!

Just try clicking on an edge afterward and move them to see how they can be adjusted. The intent is to explore and learn!

7. Select the right-most vertical edge of the new bevel (**Figure 19**).

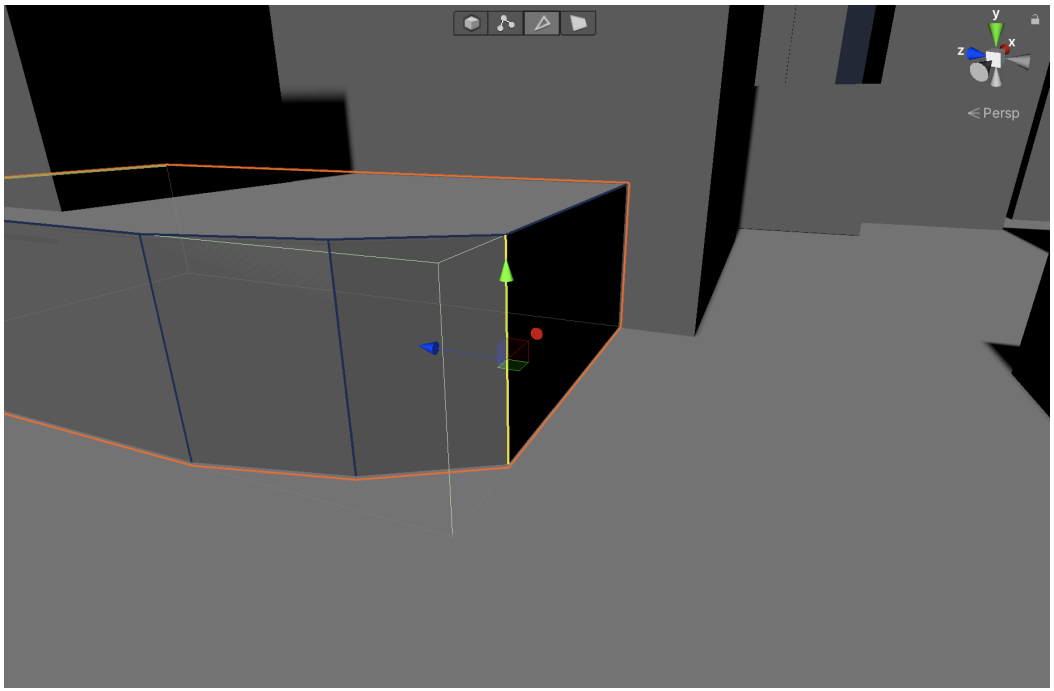


Figure 19: The right-most vertical edge highlighted

8. Click the **Bevel** tool once more. Your Cube's edge will bevel at **0.1** (**Figure 20**).

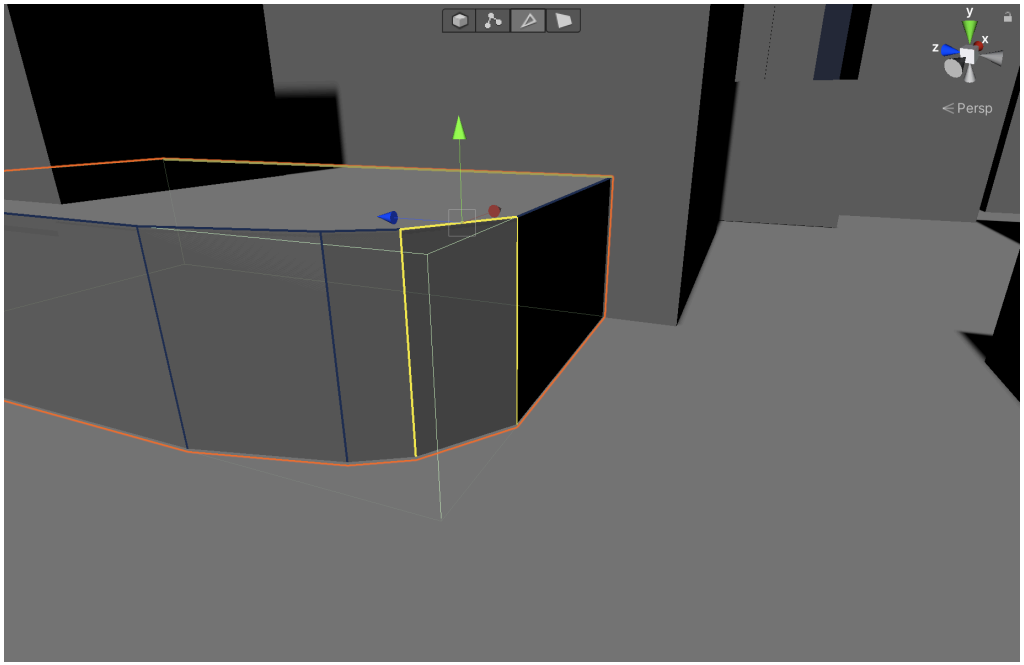


Figure 20: A new bevel from the right edge

9. If you choose, select the edges of the bevel as needed and carefully adjust their positioning with the **Move** tool. The bevel edges may need slight adjustment based on the size of your object.

Congratulations! You now have the power to slope and bevel edges! Try out your new skills on the other foreground buildings (**Figure 21**).

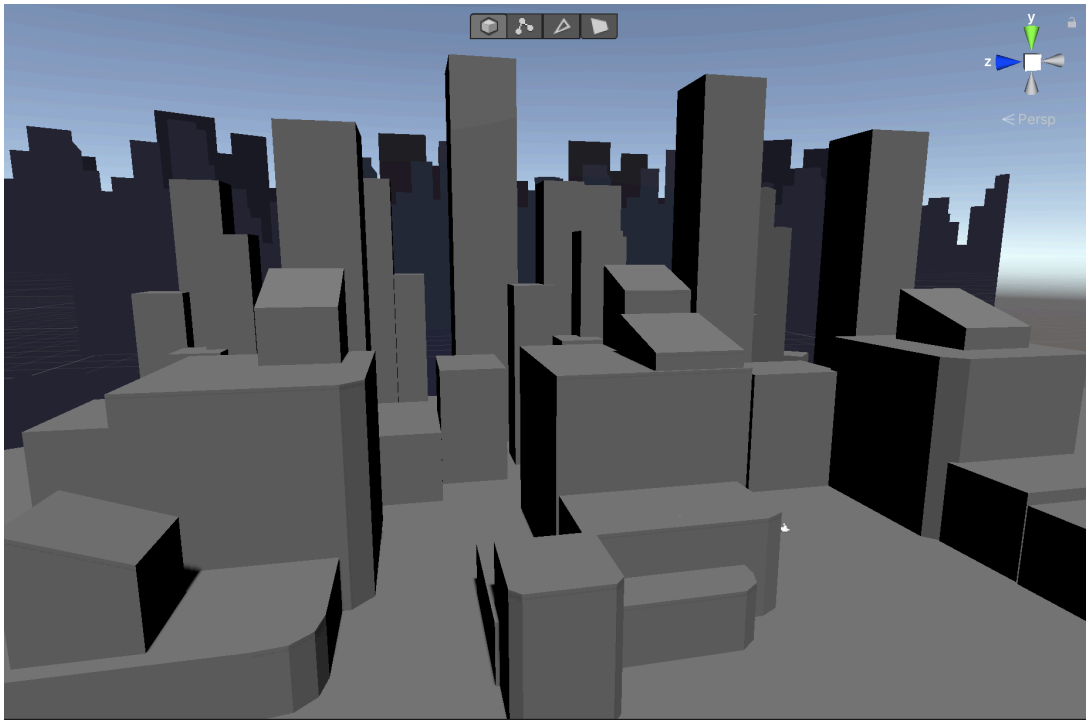


Figure 21: Slopes and bevels applied to several foreground buildings

Save your work. Go to File > Save

Move on to 2.3 - Parts 5 - 7