Kate Wang and Mieszko Muskala





Game engines are designed for the creation and development of 2D/3D games









Game Engines

CRYENGINE®

Components • Renderer • Physics Engine • Sound • Scripting • Animation o Artificial Intelligence • Networking • Scene Graph





• Free game engine

o Provides all the components of any modern game engine

Cross Platform (PC, Xbox, Tablet, Phone, etc.)

o<u>http://unity3d.com</u>







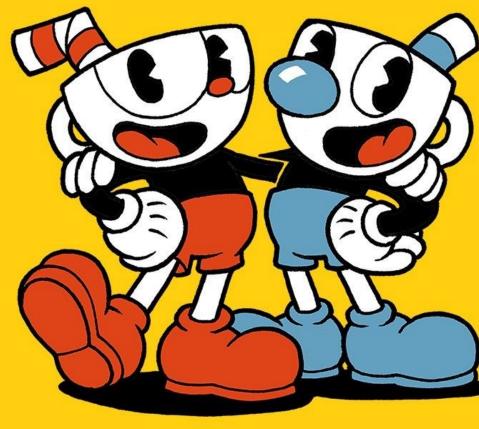
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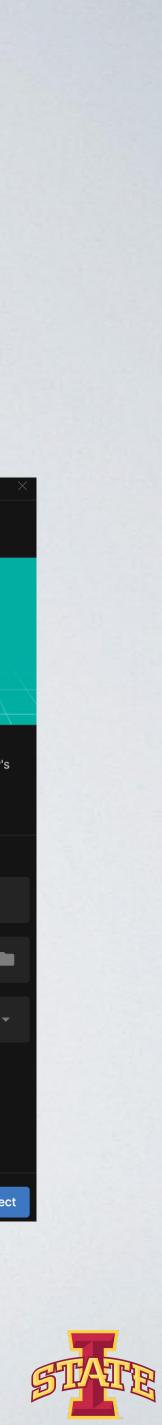


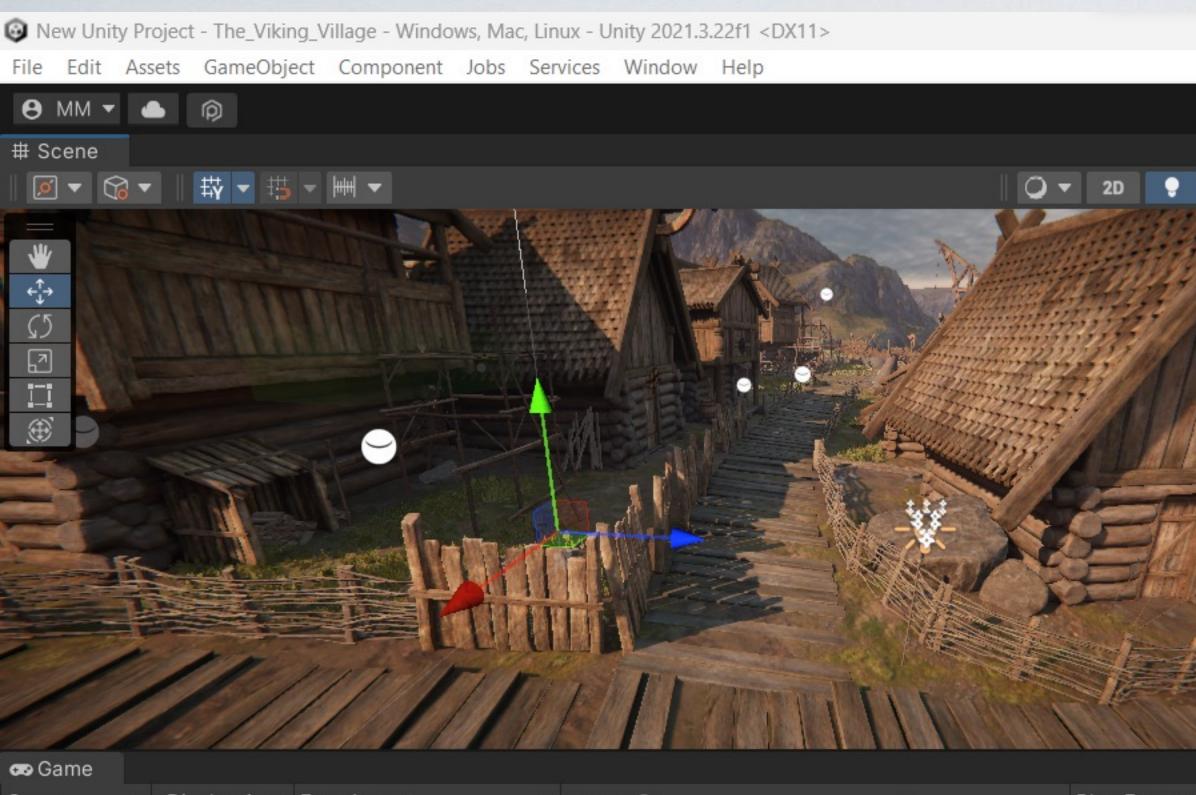
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Create a new Unity Project Version: Unity 2021.3.38fl



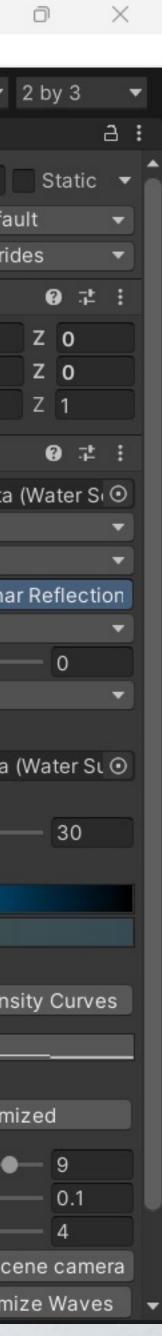
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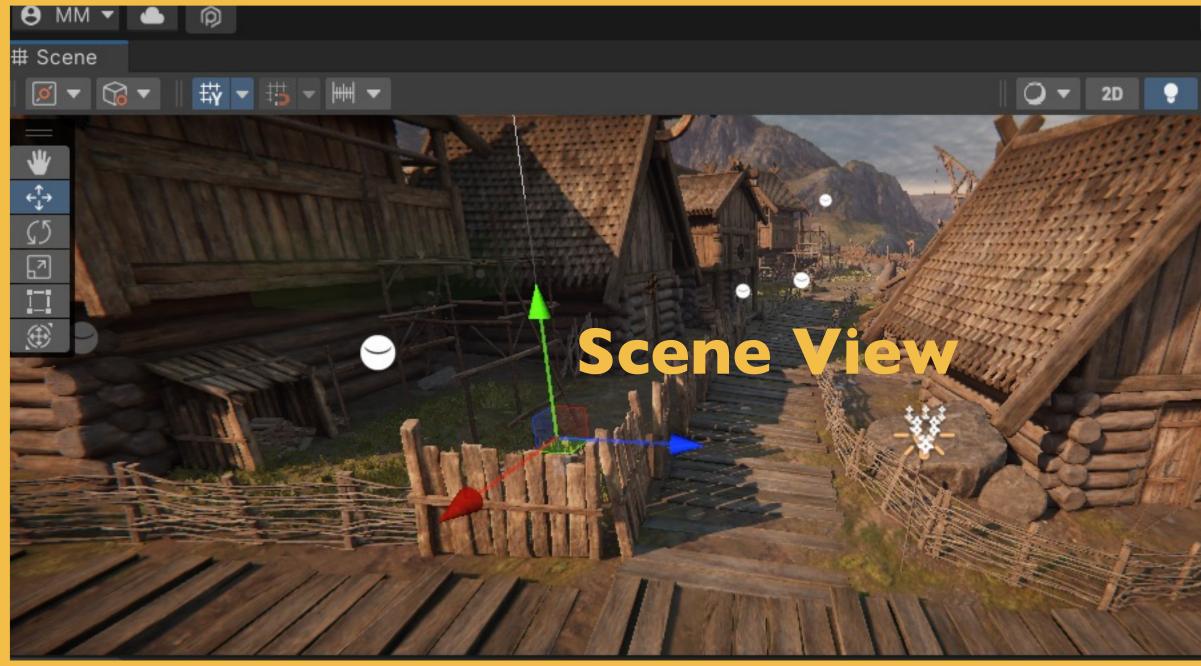
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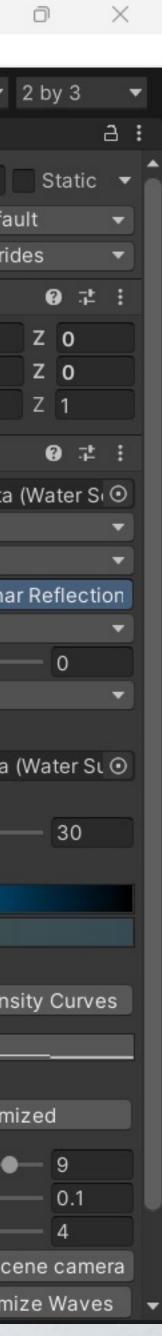
New Unity Project - The_Viking_Village - Windows, Mac, Linux - Unity 2021.3.22f1 <DX11>

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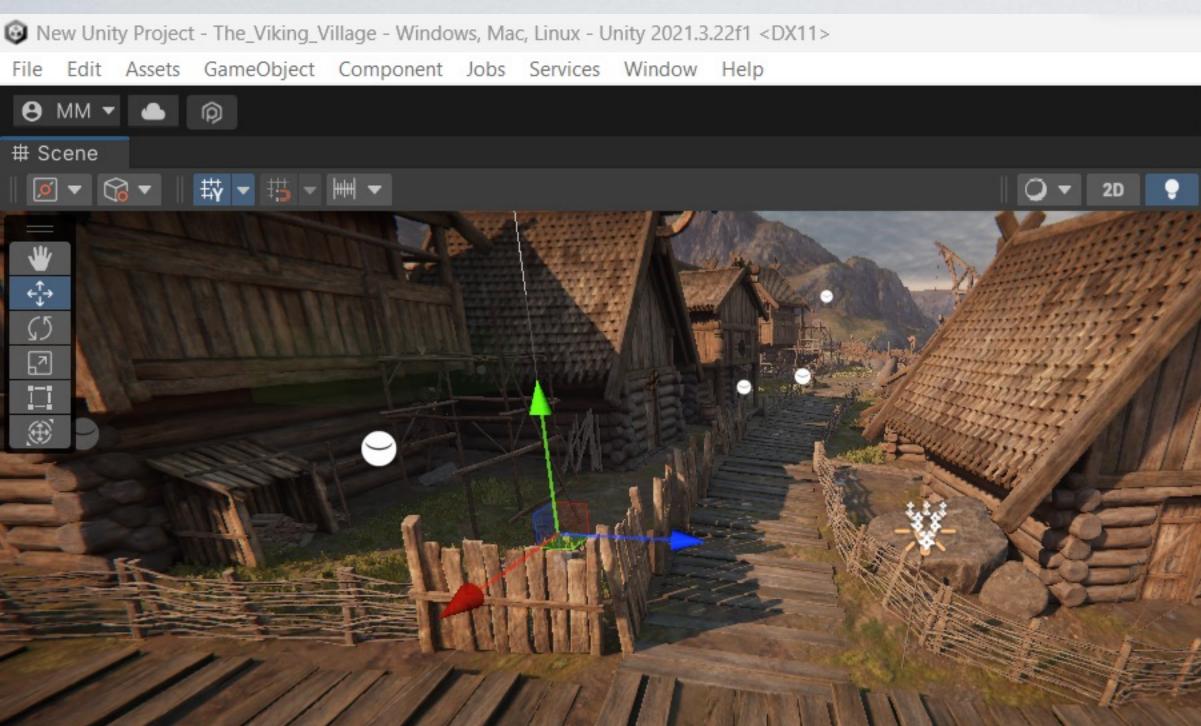


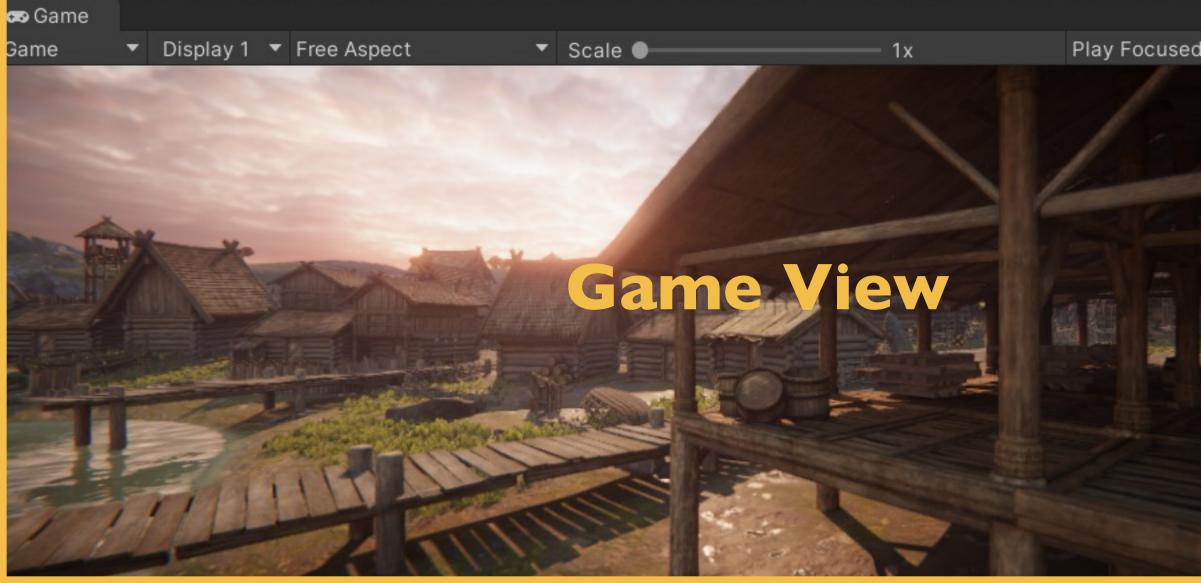


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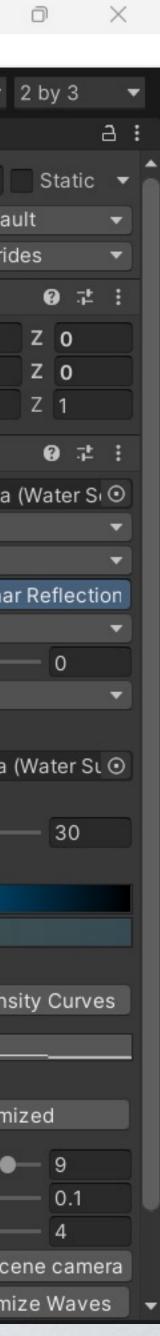


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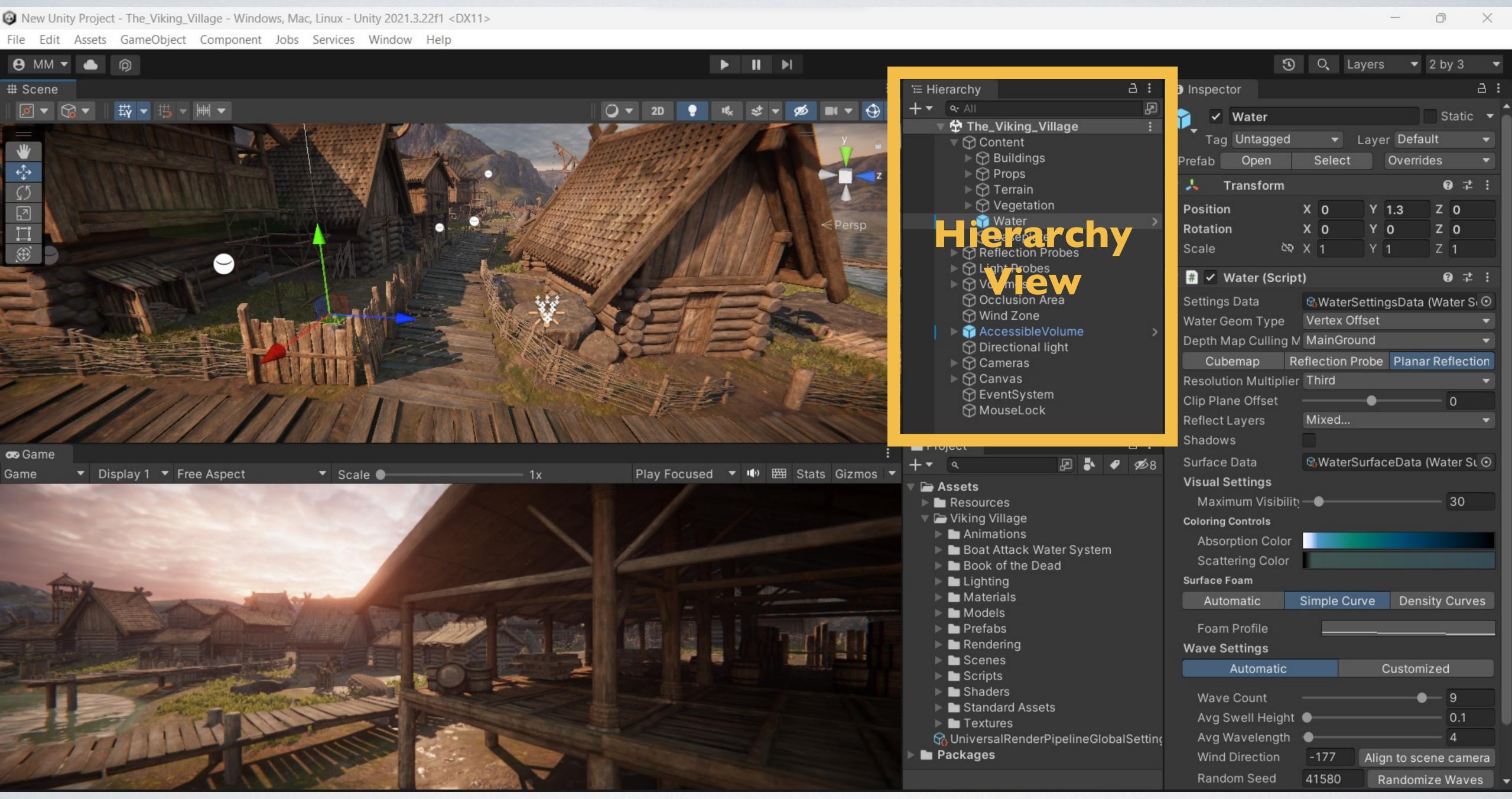


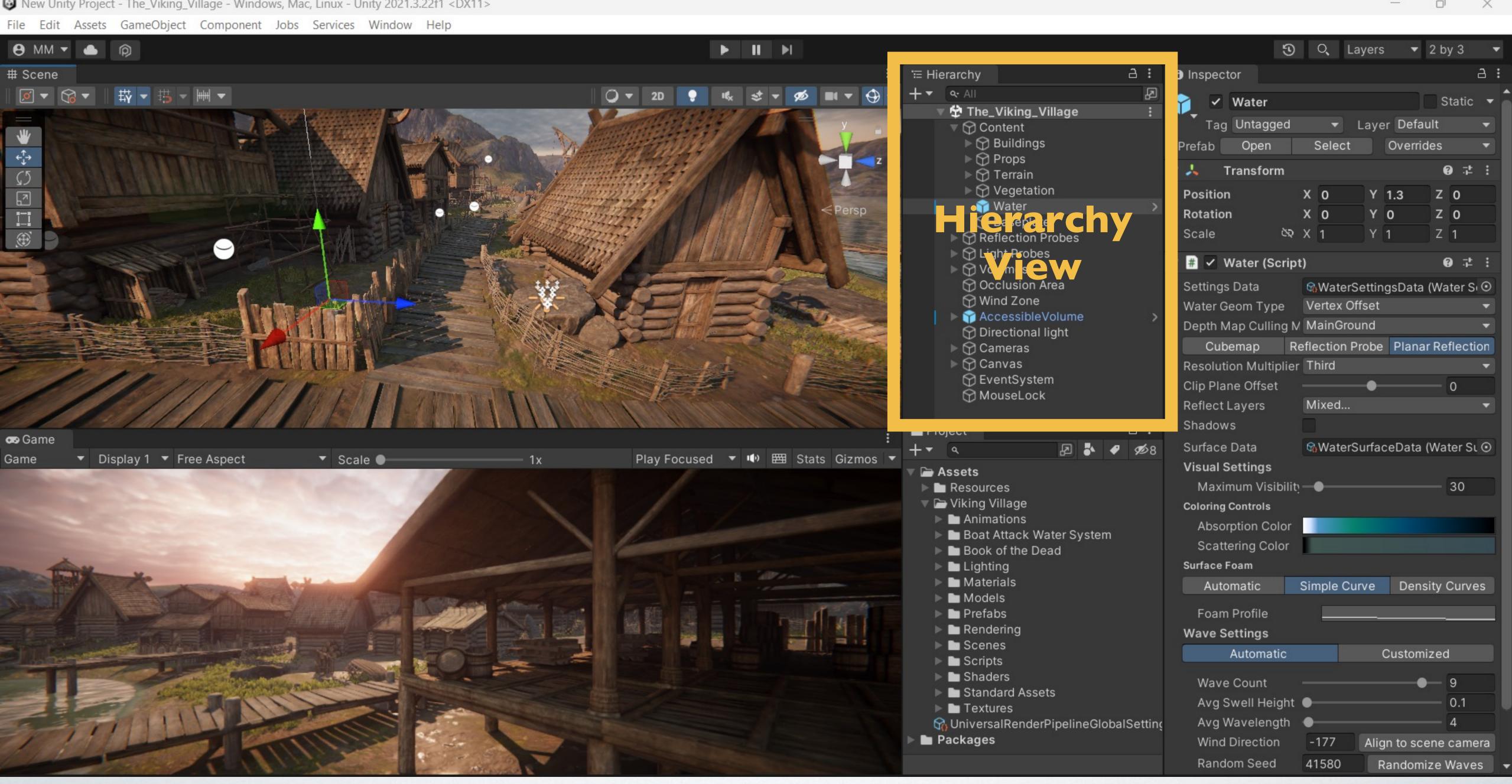


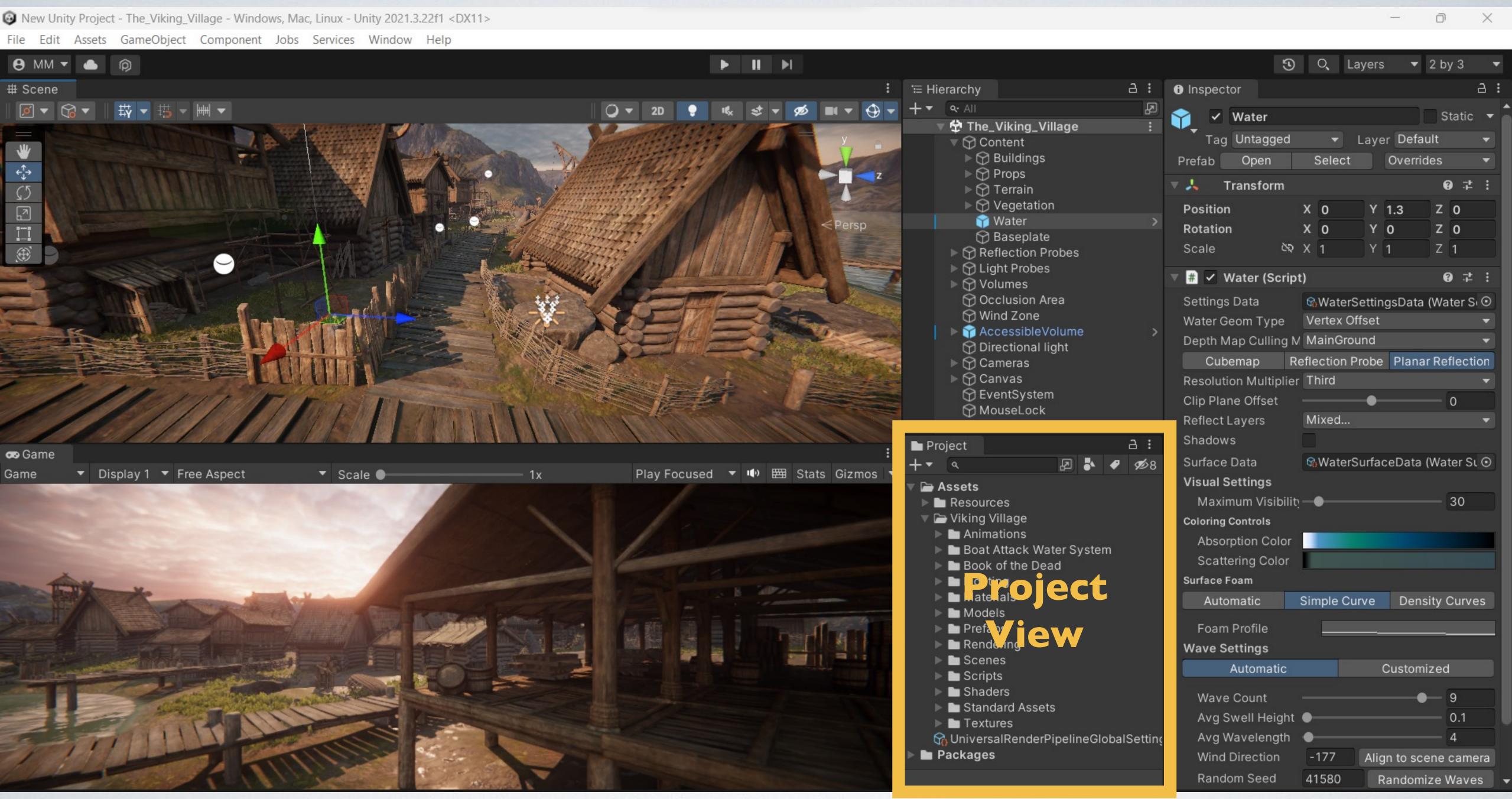
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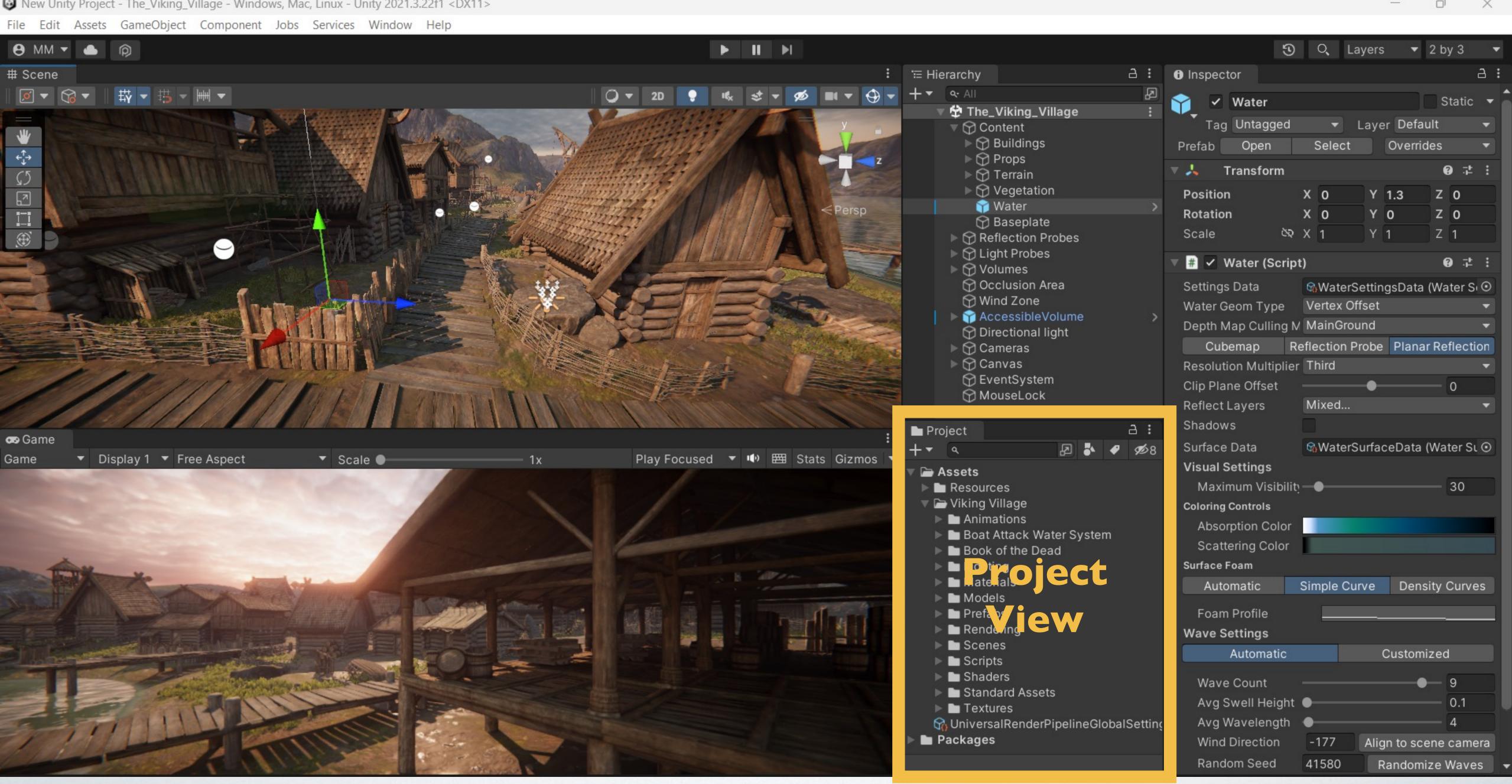


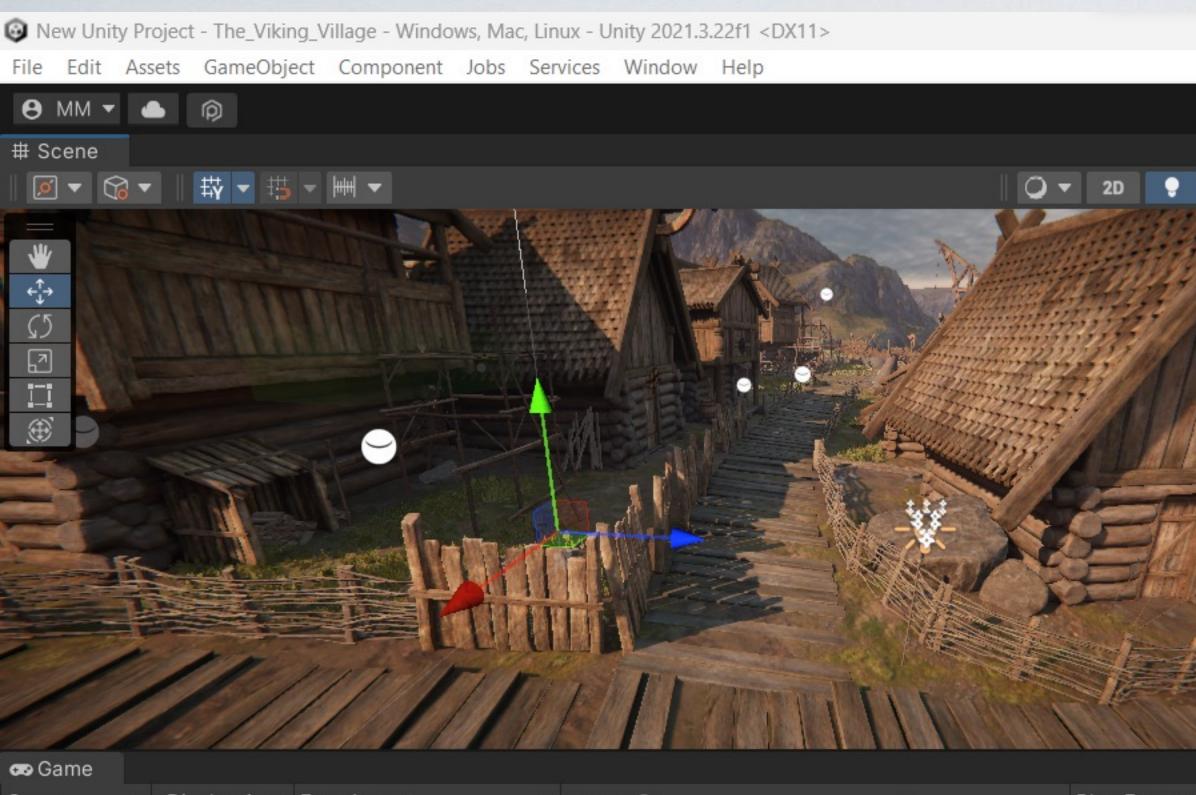
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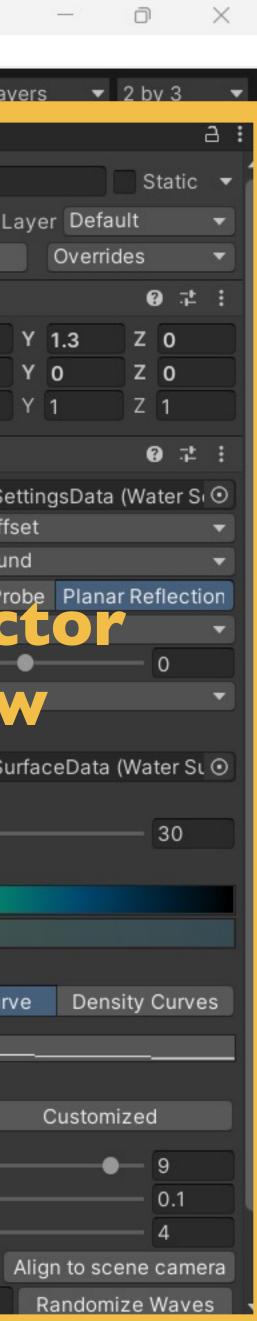


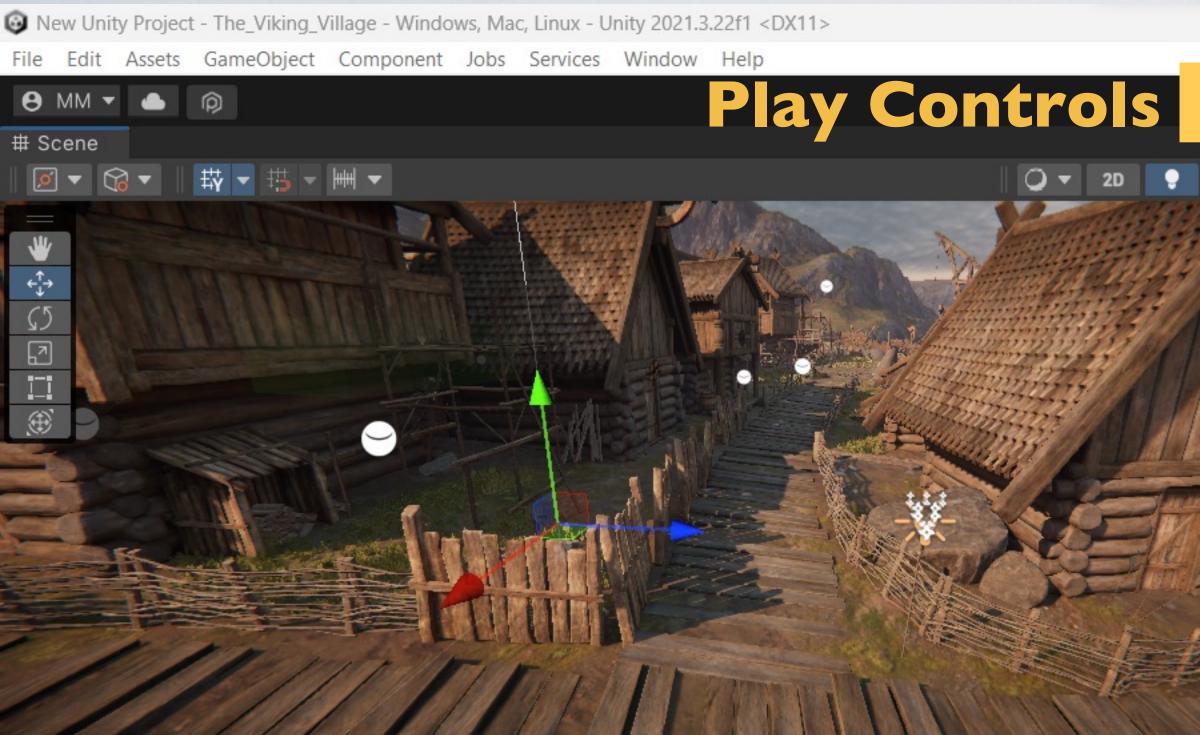


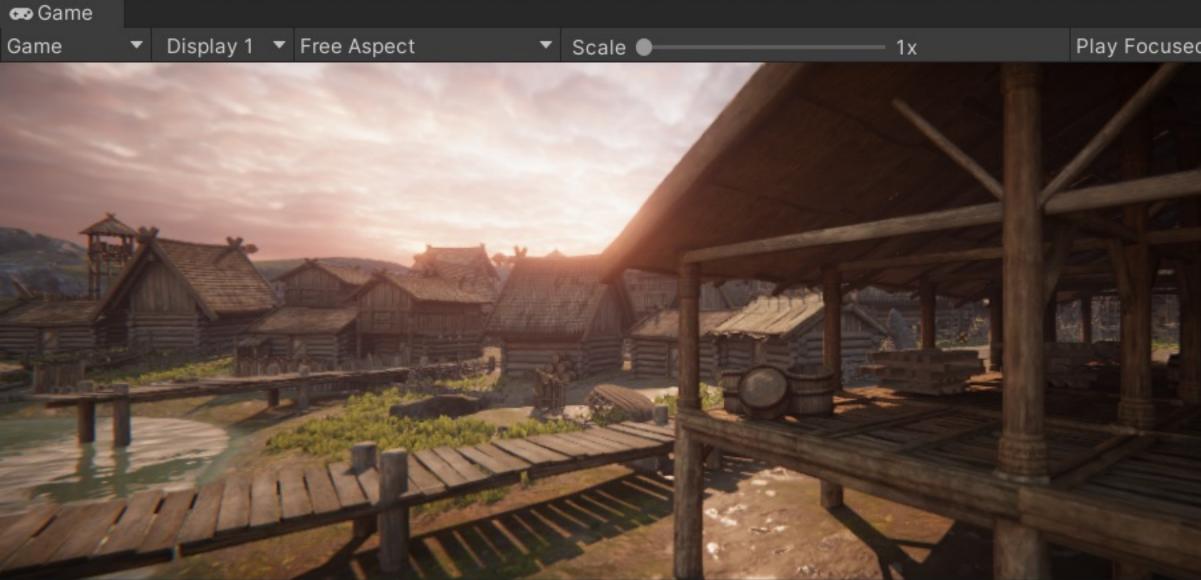




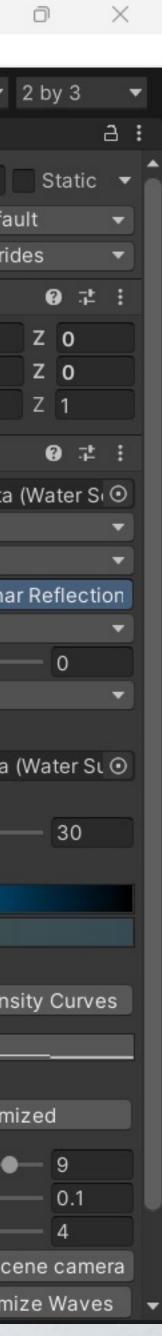
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Scripting Documentation - https://docs.unity3d.com/Manual/index.html Tutorials - <u>https://learn.unity.com/</u> User Forums - <u>https://forum.unity.com/</u>









oGame Objects & Components

oPrefabs

oTags

oLayers





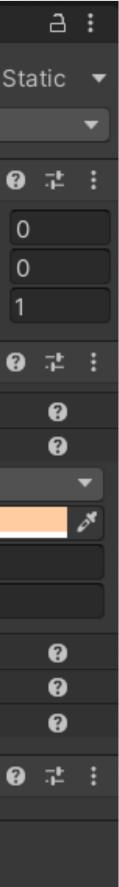
Game Object: Anything within your Unity scene (Hierarchy)

Component: Every Game Object is made up of Components (e.g., Transform)



Game Objects & Components

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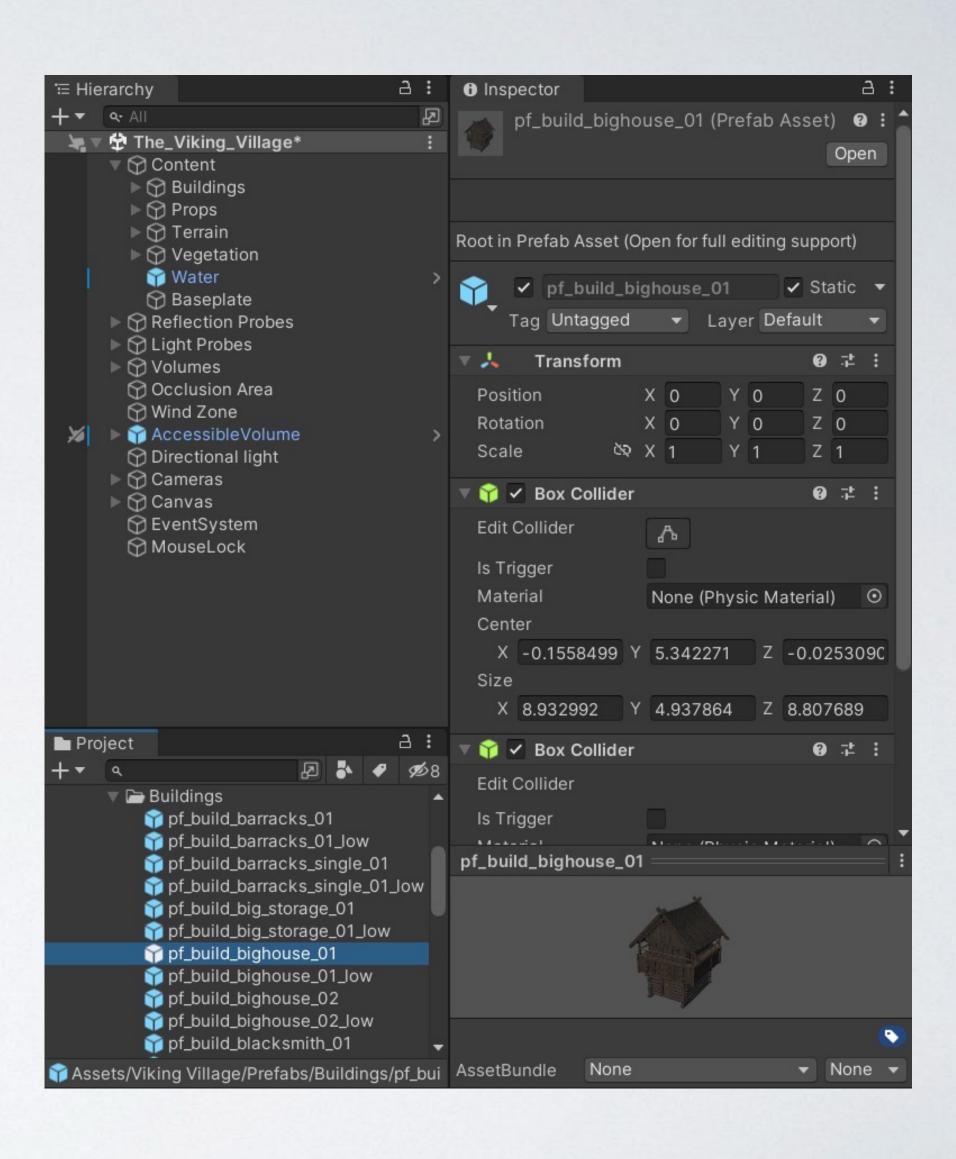
oPrefab = Preconfigured Game Object

oPrefabs are something you wish to use over and over again with minor tweaks, such as buildings, characters, levels, cameras, etc.

 Making changes to a Prefab Game Object allows you to push those changes to all other Game Objects of that type if desired



Prefabs







Allows you to group Game Objects together (e.g., enemy)

Allows you to search for objects in code



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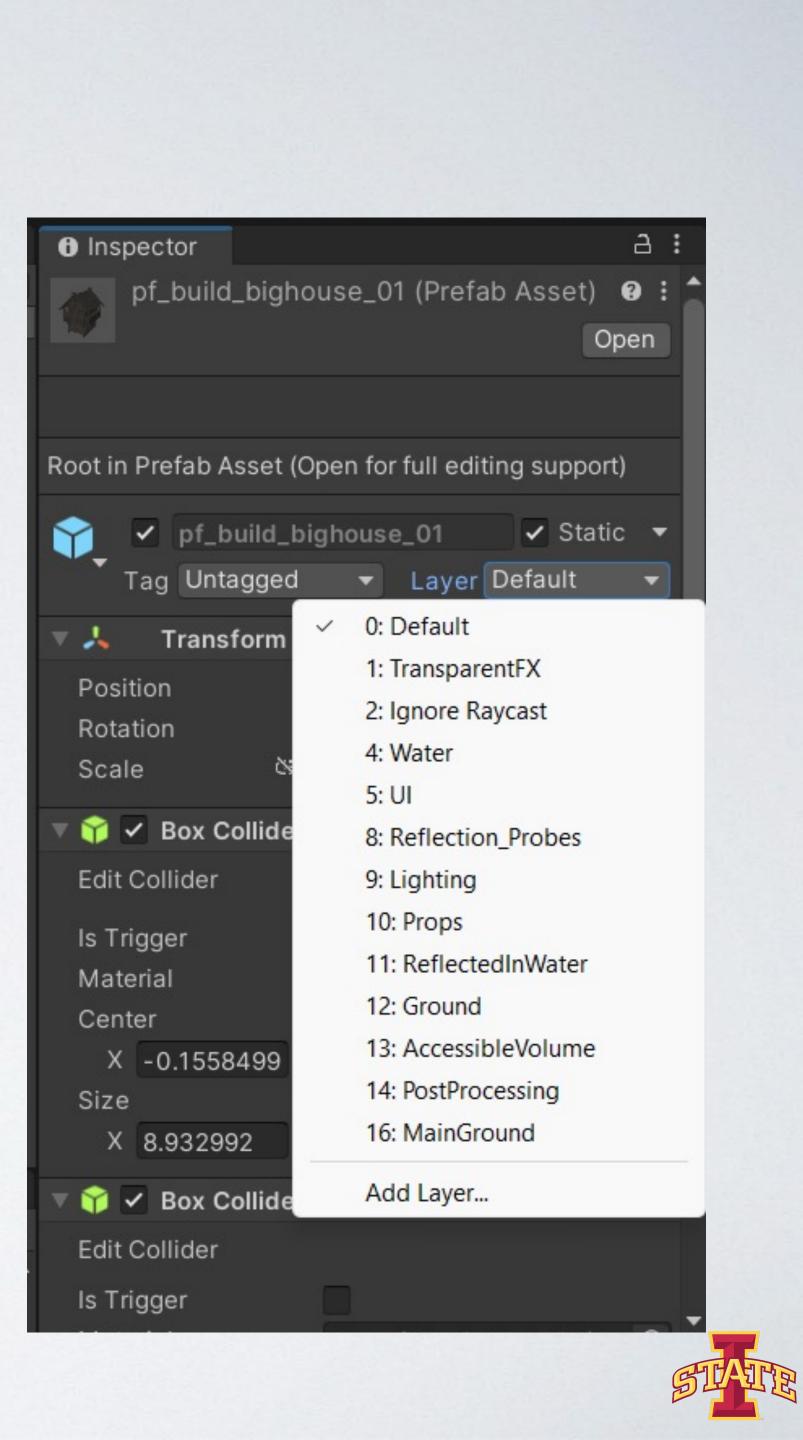




Another way of grouping things You can show or hide layers in the Scene View Often used to control rendering objects differently



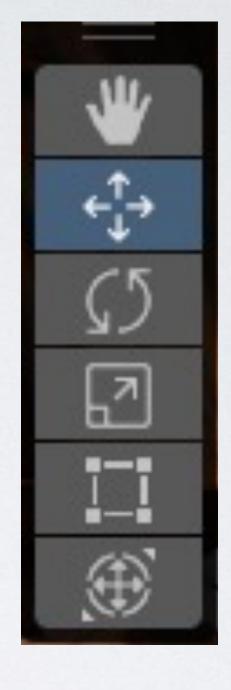






Pan: Left Mouse Button Zoom: Right Mouse Button + Alt / Scroll Wheel Rotate: Left Mouse Button + Alt / Right Mouse Move: Right Mouse Button + WASD Keys









oUsed to render the scene •Must have one camera but can have more oEvery camera has a View Frustum shown by the pyramid Orthographic/Perspective Projection







Ounity models how light behaves in the real world •You can add as many lights as you want oDirectional/Area/Spot oRealtime/Baked lighting









Oreate a cube and an empty GameObject •Make the cube as a child of the empty GameObject oTurn the entire GameObject into a prefab Familiarize yourself with Unity's interface and functionalities



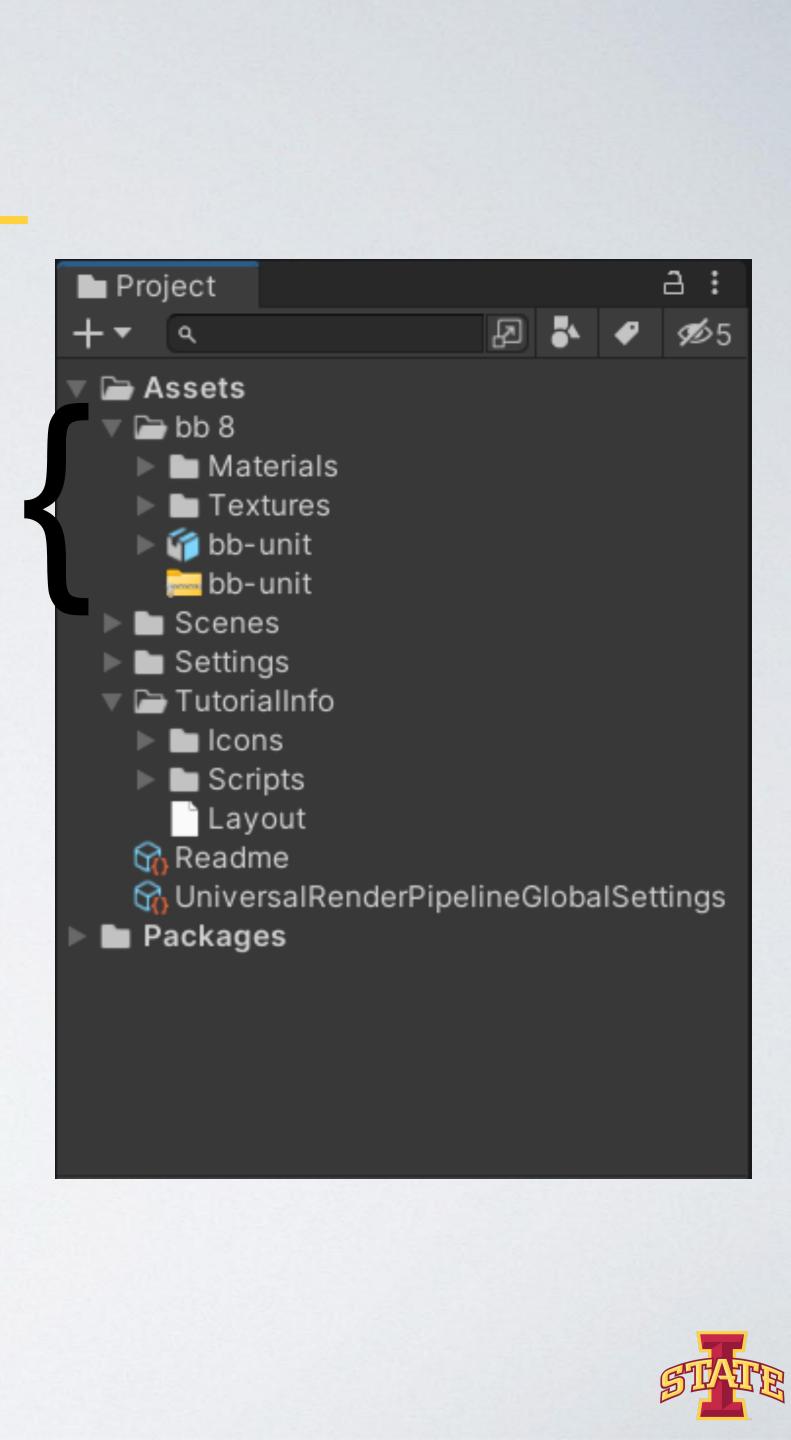


Importing Models

oUnity can read

.fbx, .dae (collada), .dxf, .obj, and .skp files - Orag and drop model files into Assets folder oMake sure the geometry, materials, textures are dragged and dropped together into Unity project





Importing Models

Proprietary application support

3D Studio Max, Maya, Blender, Cinema4D, etc

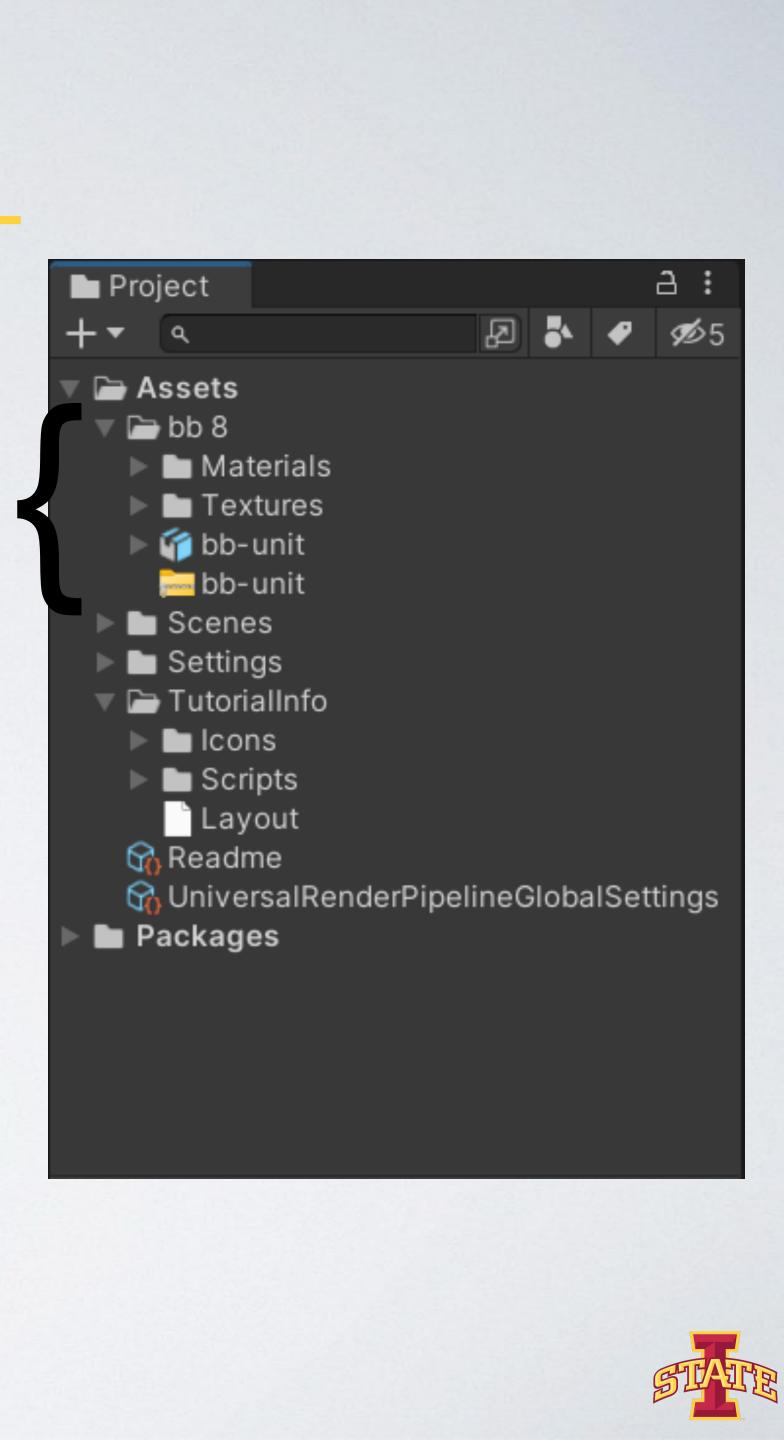
Ounity converts proprietary files into .fbx during import

oUser exported .fbx preferred

ohttps://docs.unity3d.com/Manual/3D-formats.html



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oSketchfab.com

oturbosquid.com

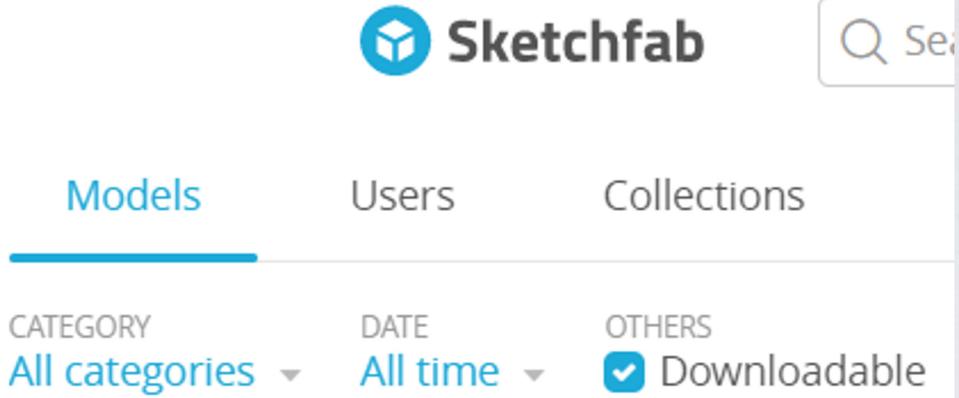
owww.cgtrader.com

ohttps://3dwarehouse.sketchup.com

• Dozens of others



Places to Find Models









oModels

oPrefabs

oScripts

oTextures

oProjects

https://assetstore.unity.com/

Unity Asset Store					Q Search for		
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Popular assets

On sale Top selling Top new Top

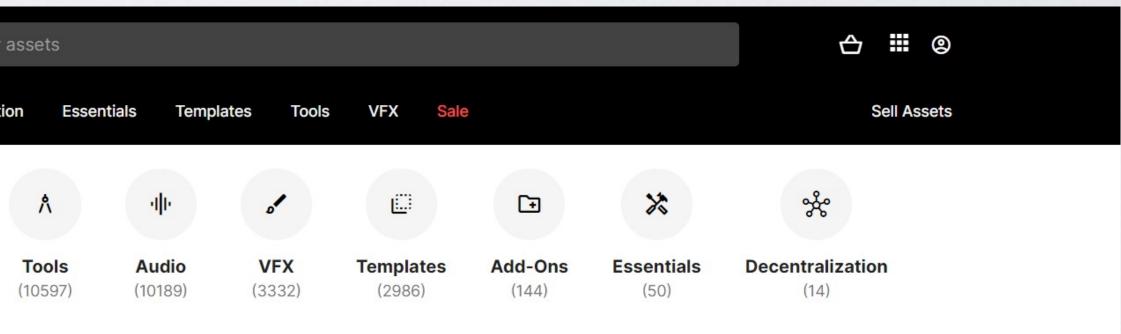




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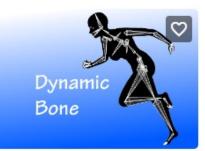
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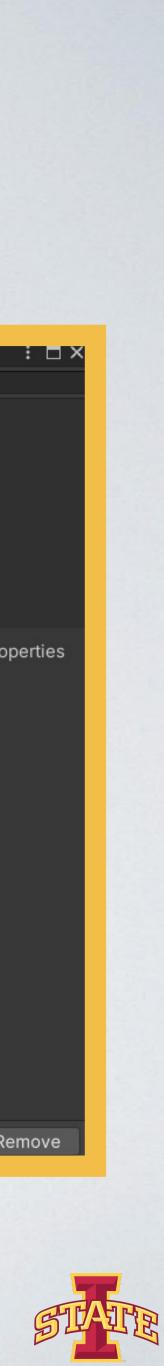


View Unity Store Assets

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2D Tilemap Editor	1.0.0 🗸	Unity Technologies Version 1.0.0 - March 21, 2023
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▶ Burst	1.8.2 🗸	com.unity.2d.sprite
In App Purchasing	4.7.0 🗸	View documentation • View changelog • View licenses
JetBrains Rider Editor	3.0.18 🕜	Use Unity Sprite Editor Window to create and edit Sprite asset prop
Test Framework	1.1.31 🕤	like pivot, borders and Physics shape
TextMeshPro	3.0.6 🗸	
▶ Timeline	1.6.4 🕤	
▶ Unity UI	1.0.0 🗸	
Universal RP	12.1.10 🗸	
Version Control	2.0.1 🕤	
Visual Scripting	1.8.0 🗸	
Visual Studio Code Editor	1.2.5 🗸	
Visual Studio Editor	2.0.17 🕥	
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Add solidworks / blender models to your projectHave fun and explore!

- Add new models
- Add new functionality
- Break things
- etc.



