

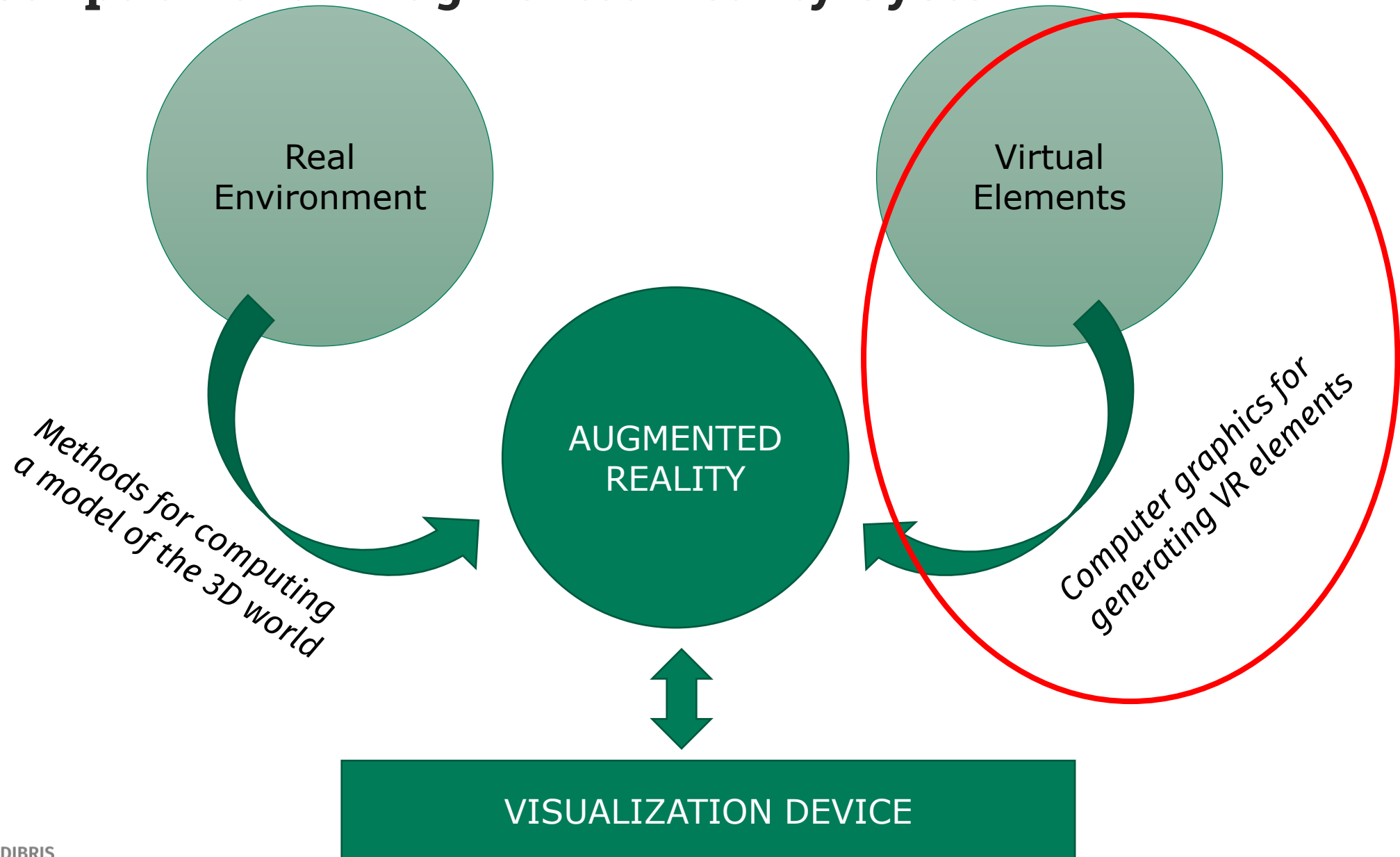
Augmented Reality

Lecture 5 - Introduction to Unity3D

Manuela Chessa – manuela.chessa@unige.it

Fabio Solari – fabio.solari@unige.it

Description of an Augmented Reality System





**Università
di Genova**

DIBRIS DIPARTIMENTO
DI INFORMATICA, BIOINGEGNERIA,
ROBOTICA E INGEGNERIA DEI SISTEMI

Introduction to Unity3D

Unity game engine

– <https://unity.com/>

Plans and pricing

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FS

Projects Installs Learn Community



Install Unity Editor

Official releases Pre-releases Archive

UNITY 6

 Unity 6 (6000.0.11f1) LTS	Installed	Install
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OTHER VERSIONS

 Unity (2022.3.59f1) LTS		Install
 Unity (2022.2.21f1)		Install

Beta program webpage

Downloads

Unity game engine

- Unity3D is free for Personal use, you can download it here:

<https://store.unity.com/#plans-individual>

- The documentation of Unity3D is quite complete, and you can access it from:

https://docs.unity3d.com/Manual/index.html?_ga=2.198809647.1675259443.1679475753-2044810871.1677599519&_gac=1.48692564.1678706197.Cj0KCQjwk7ugBhDIARIsAGuvGPaGn85GmbFhl1jUIHtzn0X2OZ-qh3gwE4YzF0ADLOrfMlW9DvSfoH0aAtG4EALw_wcB

- The learning resources are here:

<https://learn.unity.com/>

Unity game engine

- **The programming language for Unity 3D is C#**
(*we will consider it in the next lecture*)

- You can find the class documentation for Unity3D here:

<https://docs.unity3d.com/ScriptReference/>

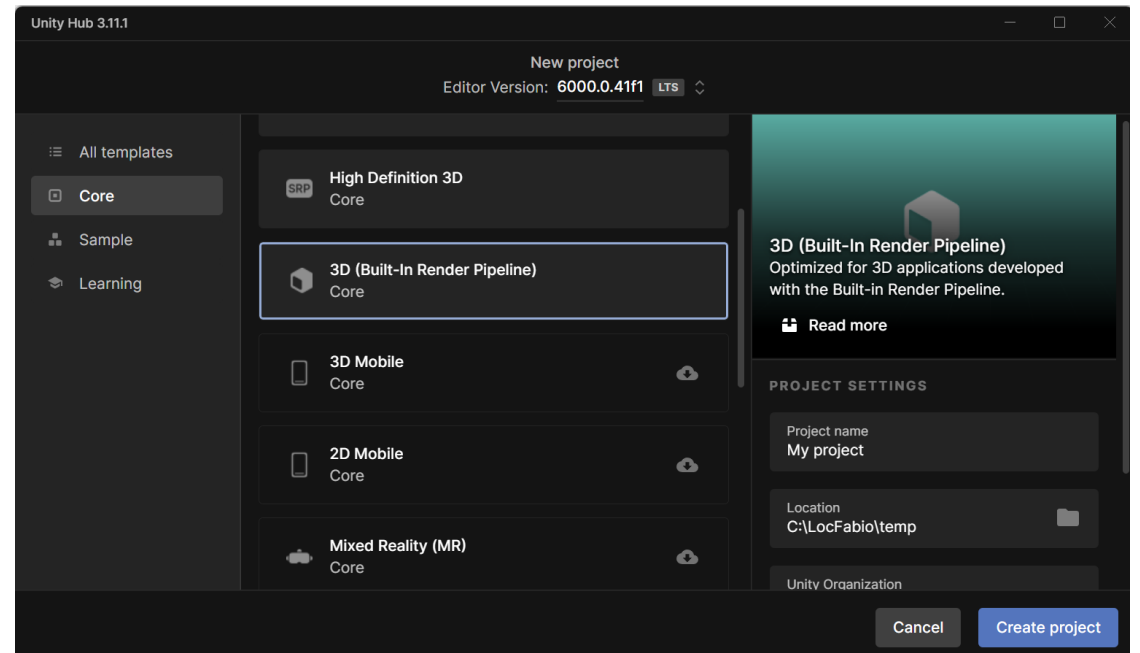
On the left, follow *UnityEngine* -> *classes*

- The Unity3D scripting system and the Unity architecture are explained here:

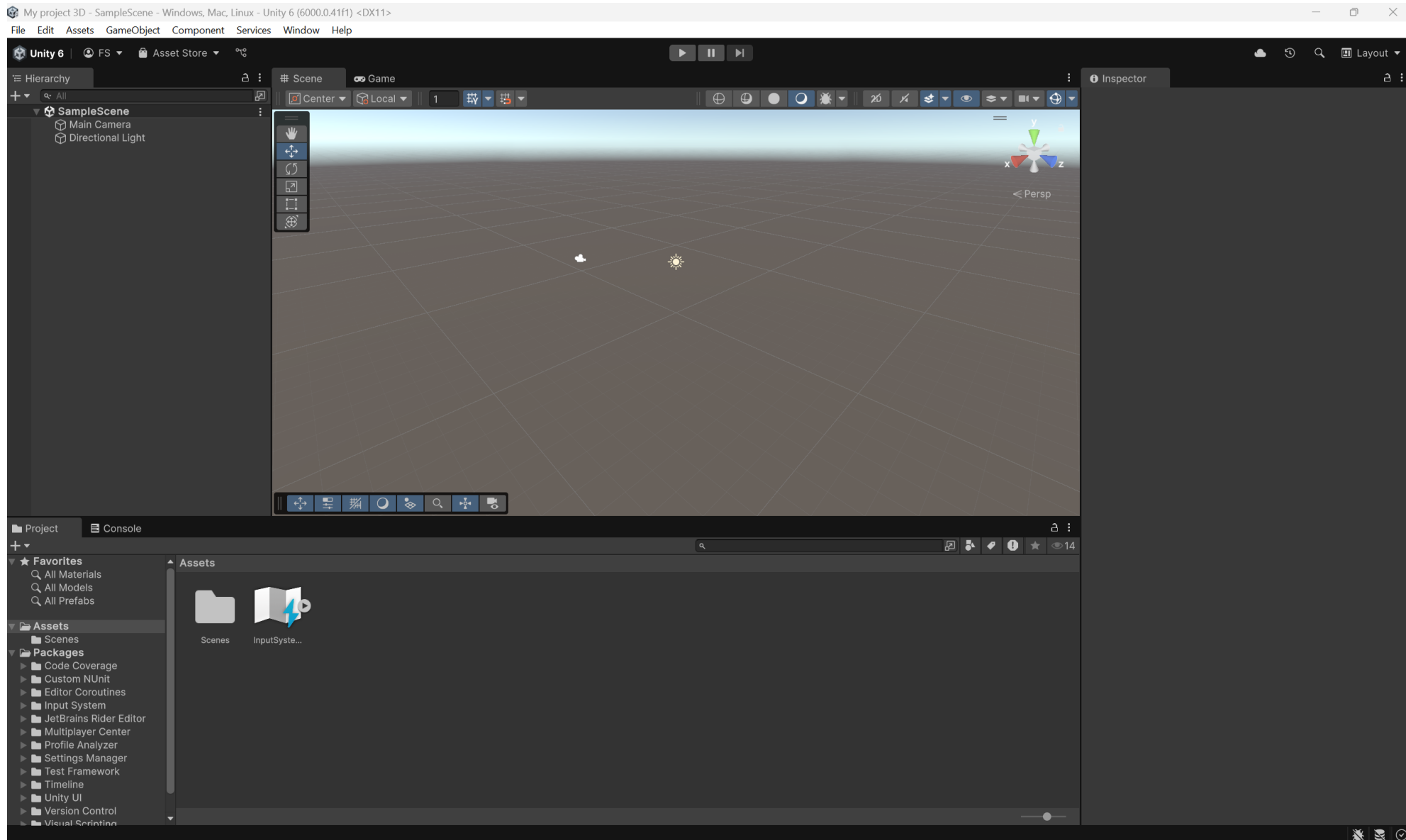
<https://docs.unity3d.com/Manual/ScriptingSection.html>

Unity game engine

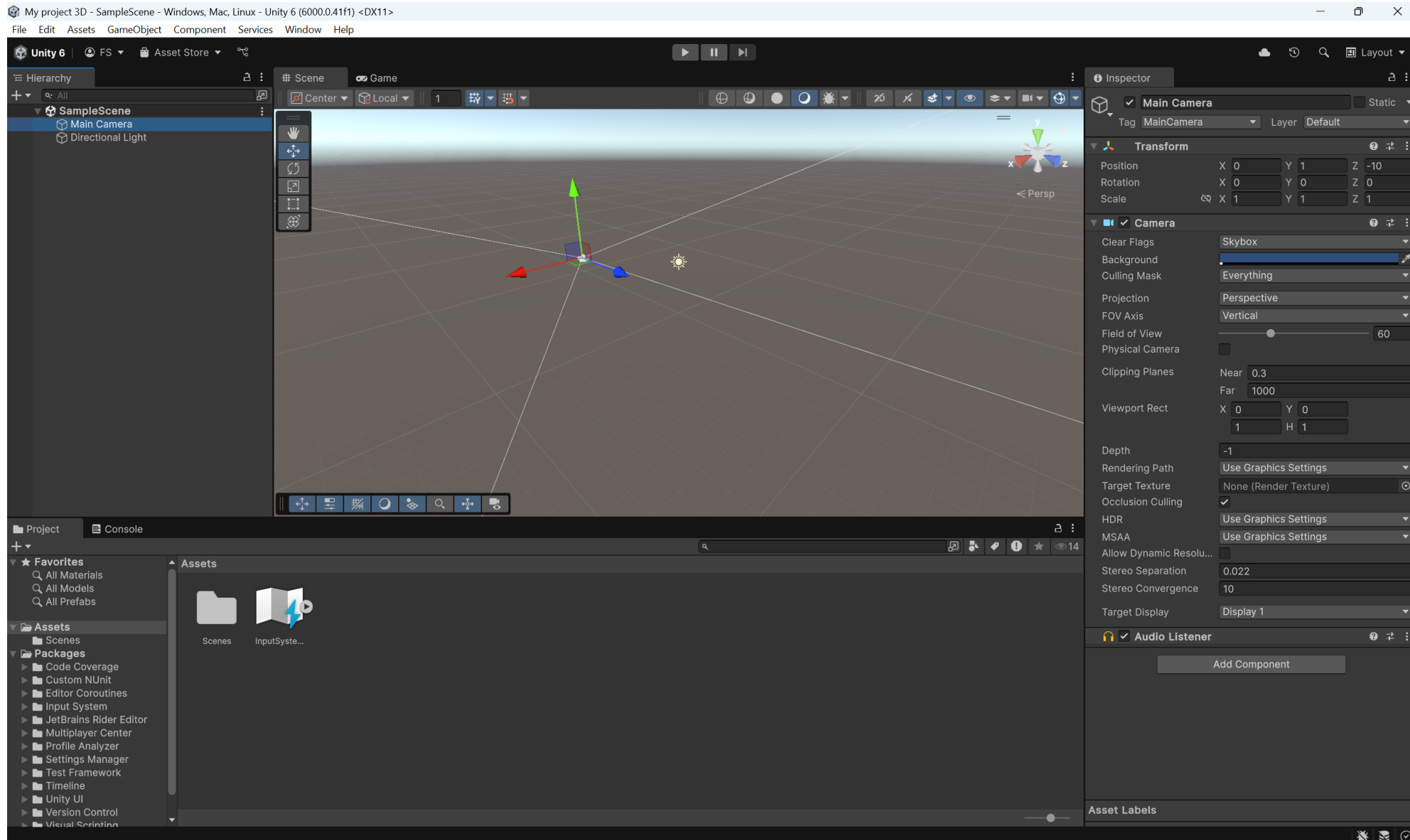
Feature	Universal Render Pipeline (URP)	High Definition Render Pipeline (HDRP)	Built-In Render Pipeline
Target uses	<p>Projects that need rendering scalability across all platforms, especially tile-based deferred rendering (TBDR) platforms, and untethered VR platforms.</p> <p>Projects that need to extend and customize the rendering pipeline.</p> <p>2D and 3D projects.</p>	<p>Projects that need photorealism and high-fidelity rendering on high-end platforms</p> <p>3D projects</p>	<p>Projects that need rendering scalability across all platforms.</p> <p>2D and 3D projects.</p>
Platform support	<p>Supports all Unity-supported platforms</p> <p>Focuses on efficiency on tile-based deferred rendering (TBDR) platforms, and untethered VR platforms</p>	<p>Supports desktop, Xbox and PlayStation platforms</p> <p>Focuses on efficiently using advanced GPU hardware capabilities such as async compute shaders, and ray tracing if the hardware supports it.</p>	<p>Supports all Unity-supported platforms</p>
Source code access	<p>Mostly C#</p> <p>Public access to the URP source code on GitHub. You can also create a custom pipeline using URP as a base</p>	<p>Mostly C#</p> <p>Public access to the HDRP source code on GitHub. You can also create a custom pipeline using HDRP as a</p>	<p>Mostly C++</p> <p>Private access by purchasing source code access</p>



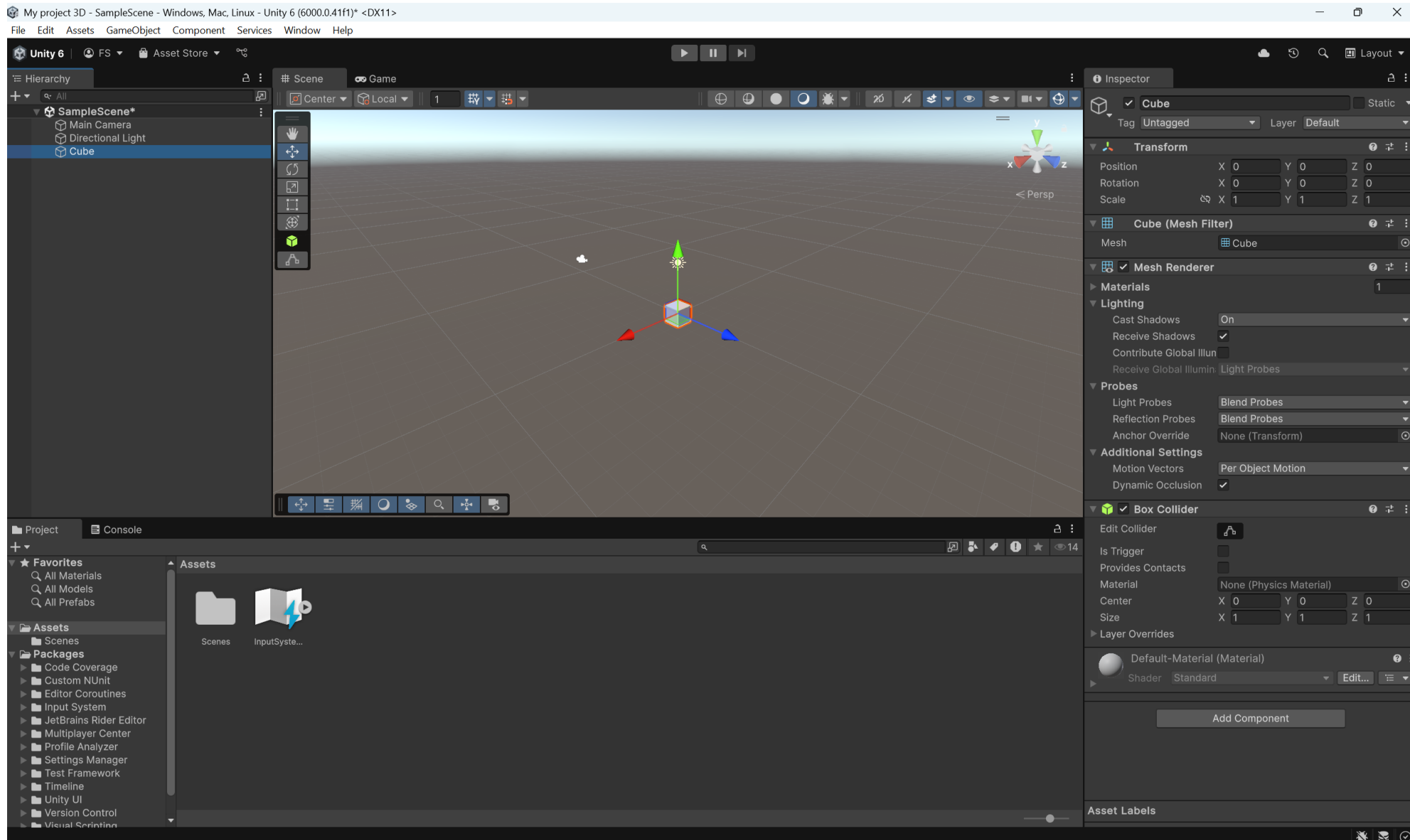
Unity game engine



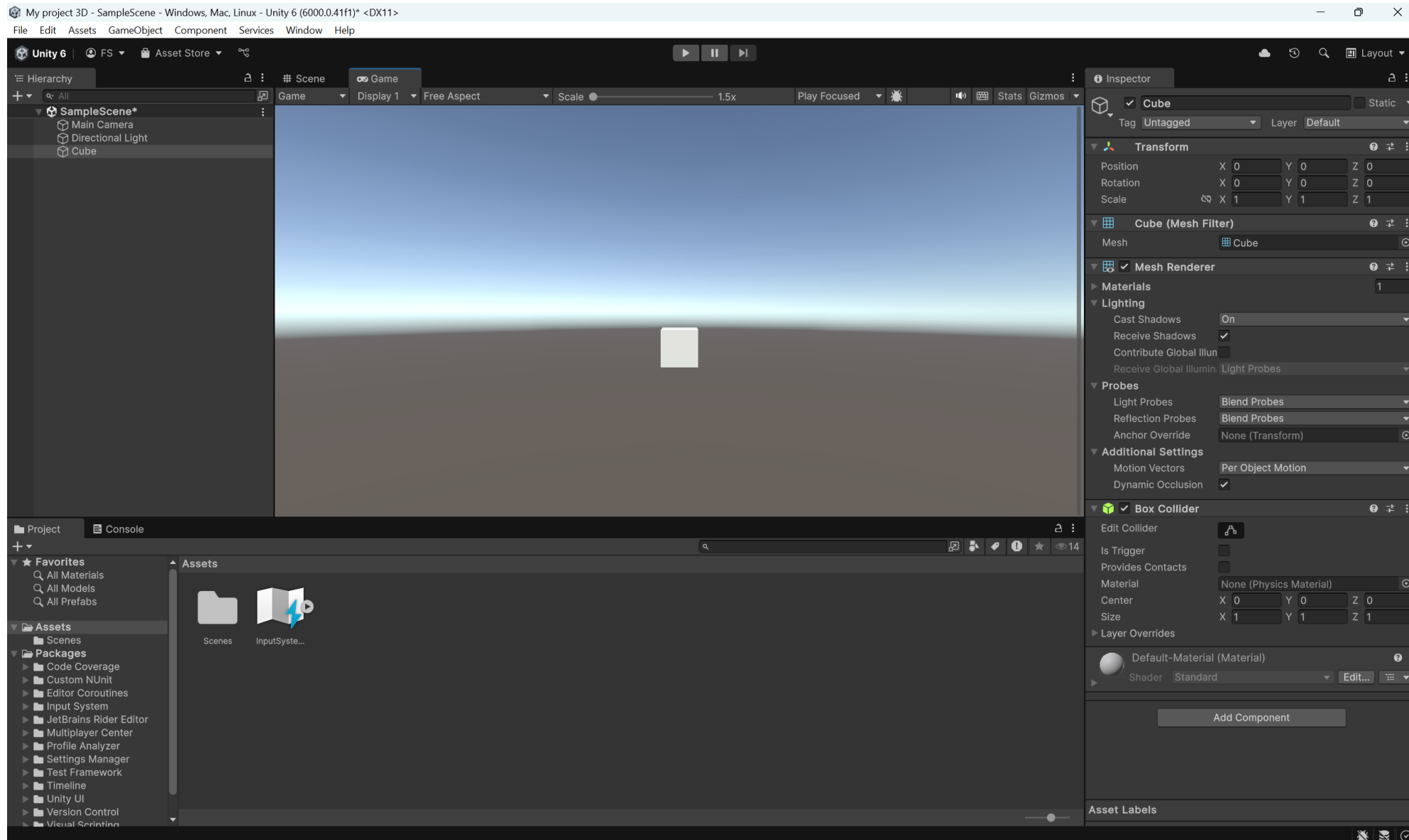
Unity game engine



Unity game engine



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Examples

- Camera
- Light
- 3D objects
- Material
- Prefabs
- Rigid body
- Transform
- Hierarchy