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Unity versus Unreal Engine

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When learning game development, people often wonder about what the best game engine is. In terms of versatility, power, popularity, and use in the industry – there are two that most people talk about though: Unity game engine and the Unreal Engine.

Answering which one is better is a difficult matter. Some will argue Unreal is better simply for the fact it is a top choice for AAA studios. Others, however, will cite the fact that Unity is more well-rounded and, for indie developers, is often a better entry into the industry [1].

Comparing both engines, it's worth starting with their history. Announced and released in 2005 at Apple Inc's WDC, Unity is a cross-platform game engine developed by Unity Technologies. The game engine supports more than 25 platforms including Windows, MacOS, and also consoles and virtual reality platforms like PlayStation VR Xbox One, Oculus Rift, Daydream & many more. Unity game engine is adopted by many users as it gives the ability to create games & experience them in 2D, 3D as well as in virtual reality. Outside of the game industry, it is also used by other industries such as film, automotive, architecture, engineering, and construction.

Tim Seveeny, the founder of Epic Games developed the first generation of Unreal Engine (UE) and it was first showcased in the first-person shooter game in 1998. The Unreal game engine features a high degree of portability, supporting a wide range of platforms. The gaming engine

proves to be a great foundation for creating next-generation physics and graphics and has become an industry-standard winning ton of awards from various gaming publications. [2].

Speaking about mobile applications, it should be noted that Unity was built with mobile apps in mind, so development for these devices is very streamlined, both for 2D and 3D titles. Most of the optimizations are meant for small and indie games with limited processing requirements. On the other hand, using the powerful graphic capabilities of UE is overkill for most mobile apps, yet the UE optimization for high-processing apps makes it more suitable for AAA titles and those geared toward high-end devices.

In graphics, Unity provides a few impressive graphical features from the onset (e.g. global illumination and physical-based rendering), but achieving better visuals often involves plenty of editing. But UE, in addition to the impressive default graphic features provided by its counterpart, assets often look polished right out of the box thanks to a wide range of presets.

When starting out with a game engine, choosing a language can be a determining factor. In Unity, code is written using the C# language, while C++ is used in Unreal. Generally, C++ is considered a more difficult language to learn, although Unreal has its own integrated visual scripter called Blueprints. Visual scripting is a great alternative to coding as it allows to do the same things – yet with no coding required. Just create nodes and connect them together in order to develop logic for game.

Discussing the cost of each engine, on Unity the most basic plan (Personal) is free to use, but more expensive and business-oriented plans cost \$399 annually per account or more. The Unreal Engine is free to use, but engages a royalty system that kicks in as soon as an app is monetized, bringing the company (Epic Games) 5% of earnings. [3].

The asset store on the company website of Unity is massive and filled to the brim with 3D assets, with some smaller yet notable collections of 2D assets, templates, and VFX. Learning materials are galore on the platform website. While UE's asset marketplace is smaller, it also offers a decent variety, mostly focused on game elements. Developers are supported with countless manuals and forums.

Rendering is good and quick in Unreal Engine. This makes the post-processing even faster. Unreal engine's particle editor is way better than Unity's Shuriken system. Rendering in Unity is relatively slow. Therefore, the project processing is also slow and takes some time to develop.

Game development would be hard to imagine without these two-game development tools. Both engines have their own advantages and disadvantages so it depends on the requirement of the project to make the right choice. Unity is renowned for its huge user base & its' user performance development support and for making 2D and 3D simulations. The Unreal Engine, on the other hand, is preferred for building large games as it offers beautiful graphics. Finally, what you choose for your project must be user-friendly and the choice of the engine depends on your preferences. [2].

References:

1. Unity vs. Unreal – Choosing a Game Engine [Electronic resource] – Mode of access: <https://gamedevacademy.org> – Date of access: 19.11.2021.
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