Game Engines

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Introduction

In this report I will be focusing on discussing what a game engine is, going into detail as to why it is crucial when creating a game. I will also talk about different game engines, as well as the advantages and disadvantages of each and which will be best for my project. By then end of the report should have a clear idea of what game engine I want to use for my game.

What is a game engine?

A game engine is essentially a framework that provides tools and structure that every game needs in order to work. Developers can use game engines to create games faster rather than coding from scratch each time. The use of game engines makes learning how to make games easier if the user is willing to learn how to use the game engine, that being said, there are a number of game engines that a user can use depending on what type of game they want to make or on what platform.

Godot

Godot was my first choice for a game engine, its main focus is 2D games (I can be used for 3D), it's a relatively light weight engine (around 20mb download and is not resource heavy), cross platform meaning it works on Mac and windows as well as other operating systems as well as begin able to make games for other operating systems like IOS and Android. This makes it extremely useful for me as I intend to make a 2D game for Mac and Windows with the possibility for mobile as well based on the easy to use controls. Godot is also open source meaning I can make changes if there is something I don't like or if there is a bug and I can choose my own solution. Finally, despite it having a smaller community than other game engines, there is plenty documentation meaning learning how to use this engine and its language is much easier than other game engines such as Unreal engine. [1,2]

GameMaker Studio 2

GameMaker Studio 2 was another game engine that I considered using despite never using it before. This game engine was recommended to me as it works different to most other game engines available. This engine allows users to drag and drop rather than code. This makes creating a game much easier for those who struggle with coding. If you chose to code GameMaker has its own language GML. This language is relatively simple to learn but is only used for this engine. The problem with this engine is due to the emphasis on drag and drop

it is fairly limited to what you can do. Although I feel that it would be fine to use for my game, I went against using this engine as I felt that if I wanted to add or change anything about my game, I would have more freedom of choice using a different engine. [3]

Unity

Unity is perhaps the most popular engine available, used to make some of the most popular and critically acclaimed games. The main advantage of Unity has to be its popularity, what this means is that there are endless amounts of tutorials, books, and people with years of exorbitance with Unity, all of which can help you understand and use the game engine to create your game. You can use Unity to make 2D, 2.5D, and 3D games, as well as games on almost every platform. Unity runs everywhere (windows, Mac, etc) on almost everything (PS4, Xbox, Android, etc). Unity also has one of the biggest asset stores, a place where you can buy scripts or models as well as other things. This is useful as it means if there is an area in which you are lacking, for example modelling objects, you could buy and use said models from the store.

That being said, unity is not customisable in the slightest, as of today unity is not open source meaning users do not have access to the source code. This can be a problem as it means users will have to code and create games the way unity sees fit. Unity also has not been known for ground breaking graphics, most AAA games are made using Unreal engine, for my game as well as most indie developers don't mind but it is worth mentioning. Finally, due to the fact that Unity has not had a major UI update in over a decade, it looks rather unappealing to use, this is worth mentioning as it effects users who focus on coding, using this application for hours to make your game can result in some difficulty or frustration. [1]

Conclusion

These 3 engines are just a small choice of what seems to be hundreds of options. In the end Unity is rather overkill for my game. Unity is an all in one that focuses more on 3D games, Godot is much easier to use and is better suited for my project, that being said, Unity is the more popular and well-known option. Choosing Unity as my game engine is to force myself to learn this game engine not just for this project but for any future games I want to learn too.

Bibliography

The first source used for this report was a youtube video that details the pros and cons for Unity, I used this video to help justify my use for Unity as well as using it to give me reasons to research other game engines that may include features or differ from Unity

Youtube.com. (2019). *YouTube*. [online] Available at: https://www.youtube.com/watch?v=aDdzTWtqsQE [Accessed 29 Oct. 2019]. [1]

The second source used was the godot website, this was another engine I considered using and the website gave enough information to help me decide on if this was the right engine for me.

Engine, G. (2019). *Godot Engine - Features*. [online] Godotengine.org. Available at: https://godotengine.org/features [Accessed 29 Oct. 2019]. [2]

The final source used was the GameMaker studio 2 website, this website gave enough information to come to a conclusion on whether I want to use the game engine or not. The detail in which the features are explained is descriptive enough to know what the advantages and disadvantages of this engine are.

Yoyo Games. (2019). *Features | YoYo Games*. [online] Available at: https://www.yoyogames.com/gamemaker/features [Accessed 29 Oct. 2019]. [3]