Game engine research

This document is being written to present my findings for which game engine would be most suitable for a deck building RPG game. While it is no question that both engines can create the game we require, there are clear pros & cons into each engine. I will do my best to break down both engines and give my opinion on which of the two we should proceed with going forward.

Unity

Pros

One of the main perks with Unity which would really benefit our team is its support it provides with creating 2D games, there are constant updates which makes the engine more intuitive and easier to grasp for our purposes and is more suited for a small team of dev’s to reach the result they desire.

To add further to this, popular 2D games such as Pokemon Go, HearthStone, AngryBirds are all developed in Unity along with the rest of these games which can be found on icth.io

<https://itch.io/games/made-with-unity/tag-card-game>

For our programmers opting down the route of Unity may provide them an easier time due to Unity being mainly focused in C# and is generally seen as the easier and more intuitive choice to learn for those who may be placed on the team in the future who may not have a lot of knowledge with either Unity or Unreal.

Graphical capabilities are good, of course they can’t beat the power of the unreal engine which is widely used by a lot of AAA publishers, but this does not it is impossible to make a nice looking game with Unity as shown with my examples above but it will take more work to achieve.

Cons

Of course there are some cons with Unity as no engine is by any means perfect. For example, some developers have reported performance issues with Unity’s built in support for the PhysX physics engine, they need to some important functionalities in the PhysX engine so dev’s are able to produce higher quality games. This may mean we may need to do a bit more research into what these functionalities are if we wish to try and push our game to be on the higher end of the graphics department.

When comparing Unity’s animation system to Unreal there have been reports of having more flexibility issues and more errors being created than Unreal’s animation system. This may prove to be an issue with us depending how we wish for the cards to interact with other objects during gameplay.

Unity Games can take up a lot of memory when in development, which can bring up out of memory and debugging issues.

Unreal

Probably the biggest pro of using Unreal is the blueprint scripting system that comes ready with the engine. This enables the developers to create games without having an in depth knowledge in coding, of course this can only take you so far as more serious tasks will require you to be able to code in C++.

Unreal in regards to graphics and visuals is the clear winner, as they offer features that produce high quality assets straight out the box.

Unreal has a better rendering system in place which makes post processing really fast and the engines particle editor is regarded higher than Unity’s shuriken system. This feature may be highly valued depending on how you’d like the particle effects to be in your game and depending on how difficult Unity’s shuriken system is to operate.

Unity is making progress with making the interface more user friendly and more comfortable to use, so if it’s a massive step backwards from Unity if you decide to go with Unreal but Unity does still top this category even if Unreal is making progress.

Cons

The biggest con to using Unreal is you will be forced to use C++ when you are not able to reach the desired result you wish for with blueprints, this is an issue due to students in our year may not be familiar with C++ as they might be with C#.

Unreal is primarily used for building high budget AAA games with a long timetable ahead of them and is not really fit for a small team of dev’s.

Unreal is lacking in the 2D department compared to Unity. Unreal uses a sprite based system called Paper2D for 2D related projects and it has been reported that there hasn’t been much support for it in a long time making it clunky and difficult to use compared to what Unity has to offer.

Summary

If I had to throw my opinion into the hat I believe Unity would be a better choice for us moving forward. My reasoning for this is because we have Kyle on our team who already has experience with making a card game in unity so this will give us a much needed head start and I believe we are all more proficient with C# than C++.

Unity is also the Engine which popular game hearthstone was made in and if you see the link above there are plenty of other deck building related games being made in Unreal, if you do the same search for Unreal you will find there aren’t many games available.

<https://itch.io/games/made-with-unreal-engine/tag-card-game>

While Unity does lack blueprint scripting, there is a program available for purchase which does bring this functionality into Unity, link can be found underneath. There is an upfront cost but it is an excellent program for now and any future projects you may work on.

<https://assetstore.unity.com/packages/tools/visual-scripting/playmaker-368>

Unity is also a better program that fits our team size, as mentioned above you will usually find Unreal to be used with larger projects and with more time available to them where we have less than a year to learn & actually develop our game.

I know a huge perk for the unreal engine is the graphical capabilities that are possible with this engine, I don’t believe this is a good enough reason to push unreal because I don’t believe we are going to be creating a game that will make full use of the graphics options available to us, I think Unity provides us with enough recourses to achieve what we need.

Finally, I believe unity is the ideal engine for us is because it has better support for 2D based games where as Unreal is lacking in this department which is the style we are heading for with it being a deck builder game, correct me if I’m wrong here please.

From everything that I have listed above, there are more pros & cons for each engine but I believe the ones I have mentioned directly relate to our current situation, for more information I will link the sources at the end of the document.

Sources:

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