

Feasibility Study Document

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Our project is to make a 2D video game in the roguelike genre with multiplayer features. In our feasibility research, we have analyzed multiple game engines, storage/data management systems, and project management tools used in the industry to learn which software is best suited to our project and the scope our team can take this project. A study has also been conducted to discover if there is an audience interested in our video game as a proof of concept.

To create our game within the two-semester time frame and to have readily available game development systems, our team decided that we would use a pre-built game engine. After examining popular choices such as Unreal Engine, Unity, and Godot, Unity stood out as aligning with our project goals. In comparison to something like Unreal Engine, Unity is better suited for 2D game development with dedicated 2D support such as Sprite editor and animation tools. Unlike the other two, Godot is open source meaning it could better assist the commercial viability of the game when gaining a large audience as Unreal Engine and Unity have annual fees when you make over \$1,000,000 or \$200,000 USD respectively, but our team prioritizes the stability of long term support and the ease of use from the large amount of documentation and tutorials provided from these bigger game engines like Unity.

Other than the front-end development from the game engine, we also have to consider the storage and data management tools available to our development which allow us to implement our desired multiplayer features. Supported by Unity, Unity Gaming Services (UGS) is an end-to-end platform that includes backend, analytics, ads, and multiplayer services. UGS backend services allow for the saving of player data in the cloud, and the management of in-game inventories, and leaderboards. Using UGS in conjunction with the Netcode for GameObjects package, it enables a wide range of multiplayer features including friends, lobbies, matchmaking, and voice/text communication. UGS also enables us to implement multiplayer either with a dedicated server or using peer-to-peer (P2P) networking depending on the scale of our game. UGS analytics and ads would be useful in the long-term commercial aspect of the game. UGS is a fantastic tool that allows for easy implementation of data management and networking while being a free tool with a “pay as you go” model. Other well-known alternative tools include Photon PUN and PlayFab. Photon PUN specializes in real-time multiplayer networking and is more flexible than UGS but requires more setup and integration. PlayFab focuses more on client-server multiplayer and has more player management and analytics features than UGS but like Photon PUN, requires more integration. Without UGS, Netcode for GameObjects also allows free self-managed P2P but UGS is more simplified and reliable, potentially incurring costs. While these alternative methods may be superior in specific aspects over UGS, UGS is more beneficial for this project since we prioritize the ease of use, integration

with Unity, and comprehensive services of both multiplayer networking, player management, and analytics in one bundle.

Delving deeper into our team's vision, we want to make a JRPG-inspired, action, roguelike, platformer with a cast of playable characters enabling multiplayer. We also want to include non-linear, story-based player progression into our game by using metroidvania/visual novel design in the roguelike setting. To see if our vision is one that players could be interested in, we designed a survey that ranged from the general likeness of the roguelike genre and multiplayer to more technical aspects such as the desired nature of procedural map generation, player progression, and combat design. The questions were framed to compare the likeness of our game's design goals compared to a contrasting genre. After conducting the survey and analyzing the results, we found the majority of respondents were interested in the roguelike genre and the concept of multiplayer inside the traditional single-player genre. This shows that at least in the general concept, there is an interested player base that could be interested in buying our product. We also found that an overwhelming majority of survey-takers were interested in the fast-paced and punishing RPG-style combat we envisioned for our gameplay loop. While there were mixed views on the type of procedurally generated map layout and concept of permanent player progression, our team believes the unique attributes of multiplayer and a story-driven, interconnected world will allow players to ease in and welcome our desired hardcore, side-scroller gameplay.

Many of the critically acclaimed and highest-selling roguelike video games have excelled in specific niches such as top-down bullet hells, action hack-and-slashers, and turn-based card battlers while including aspects of story, co-op, and exploration to varying degrees. What our game seeks to fill in this competitive market is a heavy story-driven adventure with designated multiplayer integration into the setting and gameplay. While story, multiplayer, and exploration have been traditionally featured as additional tokens to the existing roguelike gameplay loop, we seek to create a unique story-telling experience with JRPG gameplay mechanics and teamplay not conventionally expressed through the roguelike genre. With the use of Unity and Unity Gaming Services, we have the capability and commitment to implement these features utilizing library documentation, general online resources, and inspiration from existing games and media.