

User Requirements Document

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1. Introduction:

1.1 Purpose and Scope

This project is a video game following the action-platformer, roguelike, and metroidvania video game genres. Our game's purpose is to bring a complex combat system, in-depth storytelling, and a multiplayer experience into a skill based action game which allows for and promotes replayability.

This is the User Requirements Document (URD) for our project. This document will ensure that the development of our project has all defined specifications and correctly implements intended functionalities. This URD describes features so that our project will have all critical components desired by stakeholders and features necessary for a complete video game as expected by users.

1.2 Stakeholders

Mr. Keyur Sanjay Pawaskar is the stakeholder for our project. He is the company representative ensuring the inclusion of expansive player data collection, seamless and secure multiplayer connection, and user accessibility.

2. User Requirements:

2.1. User Interface

The title screen shall have an interface which allows users to play the game, offering a selection between single-player and multiplayer game modes. Within multiplayer, users shall have the choice to select local multiplayer and should have the choice to select online multiplayer. The title screen shall allow users to change the settings of the game which include the ability to change the master volume, music volume, sound effect volume, and button inputs. The title screen should display a global leaderboard of top runs across players based on time and enemy NPCs killed inside of a run. The leaderboard should allow a filtering of players which you have friended.

The gameplay user interface shall allow players to view the amount of currency held, player's health, inputs for character's attacks, and cooldowns for character's skills. An alternate gameplay interface shall allow players in a multiplayer setting to view currency shared between players, both player's health, both character's attacks, and cooldowns for both character's skills.

A pause menu shall be displayed on the screen allowing an interface for viewing upgrades taken in a run. An alternate interface in a multiplayer setting shall allow both players to view their upgrades in a run. The pause menu shall allow players to change game settings, restart the run, and quit to the title screen.

A map menu shall be displayed on the screen allowing players to view a simplified depiction of the current level. A secondary map menu shall allow players to view a diagram depicting pathways between levels.

2.2. Player Controls

Player controls shall include players moving characters in a 2D platformer setting, traversing through in-game levels with horizontal and vertical movement. Players shall run, double jump, evade, climb, and drop down. Players shall interact with enemy NPCs with character unique attacks and skills dealing damage to enemy NPCs when they are hit.

Players shall control playable characters to interact with friendly, non-playable characters (NPCs) and interactable objects within levels to engage in dialogue or text.

2.3. Gameplay Systems

Players shall have health which reduces when players take damage from enemy NPCs or environmental traps. Players shall die when health is reduced to zero. In multiplayer, players shall be able to revive dead players. Players shall have healing items which increase the amount of health.

Players shall obtain currency by defeating enemy NPCs. Player currency shall be used in shops to interact and purchase items. Players shall obtain upgrades by interacting with certain objects in levels.

Players shall obtain character specific upgrades which shall only be obtained when a player is using a specific character. Character specific upgrades shall be unique to each character and add new player action mechanics for the duration of the run. Players shall obtain non-character specific upgrades which shall be obtained when the player is using any character. Non-character specific upgrades shall be numerical status increases to players. When all players die, players shall lose all currency and upgrades.

Enemy NPCs shall have health and be able to be stunned. Enemy NPCs shall die when their health is reduced to zero. Players shall deal damage to enemy NPCs which will decrease their health and stun enemies when enough damage is dealt. Stunned enemy NPCs shall be temporarily immobilized

2.4. Gameplay progression

Levels shall be platforming stages with a defined entrance and exit. The player shall start the game in the first level and after reaching the exit to a level, the system shall transport the player to the entrance of the next level until the final exit is found and the game is completed.

Exploration levels shall be large stages with randomly generated layouts composed of hand-crafted rooms. Rooms shall include combat rooms with enemy NPCs, empty platformer rooms to facilitate room transitions, shop rooms with items players can purchase with currency, upgrade rooms with upgrades players can obtain, story rooms with interactable objects and friendly NPCs with dialogue, and exit rooms to transition to the next level. Each exploration level shall have a different design with unique rooms and different randomly generated layouts. After at least one exploration level, the player shall be transported to a boss level.

Boss levels shall be small, fixed, and hand-crafted platforming stages with a singular boss enemy NPC that must be defeated to allow players to exit the level. Players will have to go through multiple boss levels in a run. The last boss level shall always be the same final boss stage which upon defeating will complete the run. When all players die or the final boss is defeated, they shall be restarted to the entrance of the first level of the game.

Some levels shall have exits to multiple levels. Additional exits to levels should be locked unless certain criteria such as finding and talking to friendly NPCs within levels, finding and interacting with objects within levels, unlocking certain characters, and having certain game progression items. Players should obtain permanent game progression items upon traversing through certain levels and/or defeating the final boss level. Characters should be unlocked after completing certain game progression objectives. The true end of the game shall be unlocked once all the characters are unlocked and all the game progression items are obtained when defeating the final boss.

2.5. Multiplayer

Players shall have the choice to play the game in single-player or multiplayer. Players can select one or two characters among unlocked characters in single-player and multiplayer respectively. In local multiplayer, two players shall play on the same device with two controllers. In online multiplayer, two players should play on two devices each with their own controllers. In online multiplayer, players should either invite other players to join their party or request to join the party of other players requiring the approval of both of the players. Should one player be disconnected or quit the game, the remaining player

shall be transitioned to single-player for the remainder of the game. In single-player, players shall not have the option to transition to multiplayer in the middle of a run. Players shall be able to use their account to friend other player's accounts.

2.6. Database

Storing game information on a database shall be facilitated through Unity Gaming Services. Players shall be able to create accounts using a unique username and password to authenticate users. Players shall be able to switch accounts freely. Accounts shall store friended accounts and save slot information. Each save slot shall contain information about characters unlocked, game progression events unlocked, total play time, and information about attempted runs on that save slot. Run information shall include the accounts of the players, characters used, time of run, enemies defeated, and final level reached on that run.

2.7. Integration

Our project shall support player controls from the keyboard, mouse, and game controller. This project shall support desktop platforms including Windows, Mac, and Linux.

3. Use Cases:

- A player starts from the title screen, selects the option to change settings, changes button controls, and returns back to the title screen.
- Player A starts from the title screen, selects the option to play the game, and selects the local multiplayer option. Player B is now able to join player A starting from the first level of the run with each player controlling their own character.
- A player starts from the first level and kills enemy NPCs which collects currency. The player finds a shop room later in the level and purchases an upgrade with currency. The player finds the exit to the level and transitions to a boss level where the player is hit and takes damage from the boss enemy NPC before dying. The purchased upgrade is lost and the player is placed in the first level.

4. Priorities:

Our immediate priority is the user interface and more specifically, the title screen. Other than user interface, the first step is to create a base foundation of the game including single-player compatibility, local multiplayer compatibility, a singular hand-made exploration or boss level, and two playable characters. This will create the minimum requirements for a functioning game.

The next step will be to create a working demo of the game. At this stage, online multiplayer should be implemented alongside database management of accounts, save files, and runs. A linear sequence of exploration and boss stages should be created (hand-made if necessary) ending with the final boss. A singular run from the first level to the final boss is complete, creating a testable demo.

The final and most expansive step includes the creation of a procedurally generated map algorithm, player leaderboards, more exploration levels, more boss levels, more playable characters, more upgrades, game progression objectives, story dialogue, event computer graphics, and the true end of the game. From this point, the game can be indefinitely expanded on within the scope of the URD allowing for greater user accessibility and player enjoyment.

5. Milestones:

Our milestone for this project is to complete the requirements and demo for the project in 4-6 weeks. The remaining features of the project shall be completed in the remaining time given to complete the project.