Architecture & Design Document

Purpose:

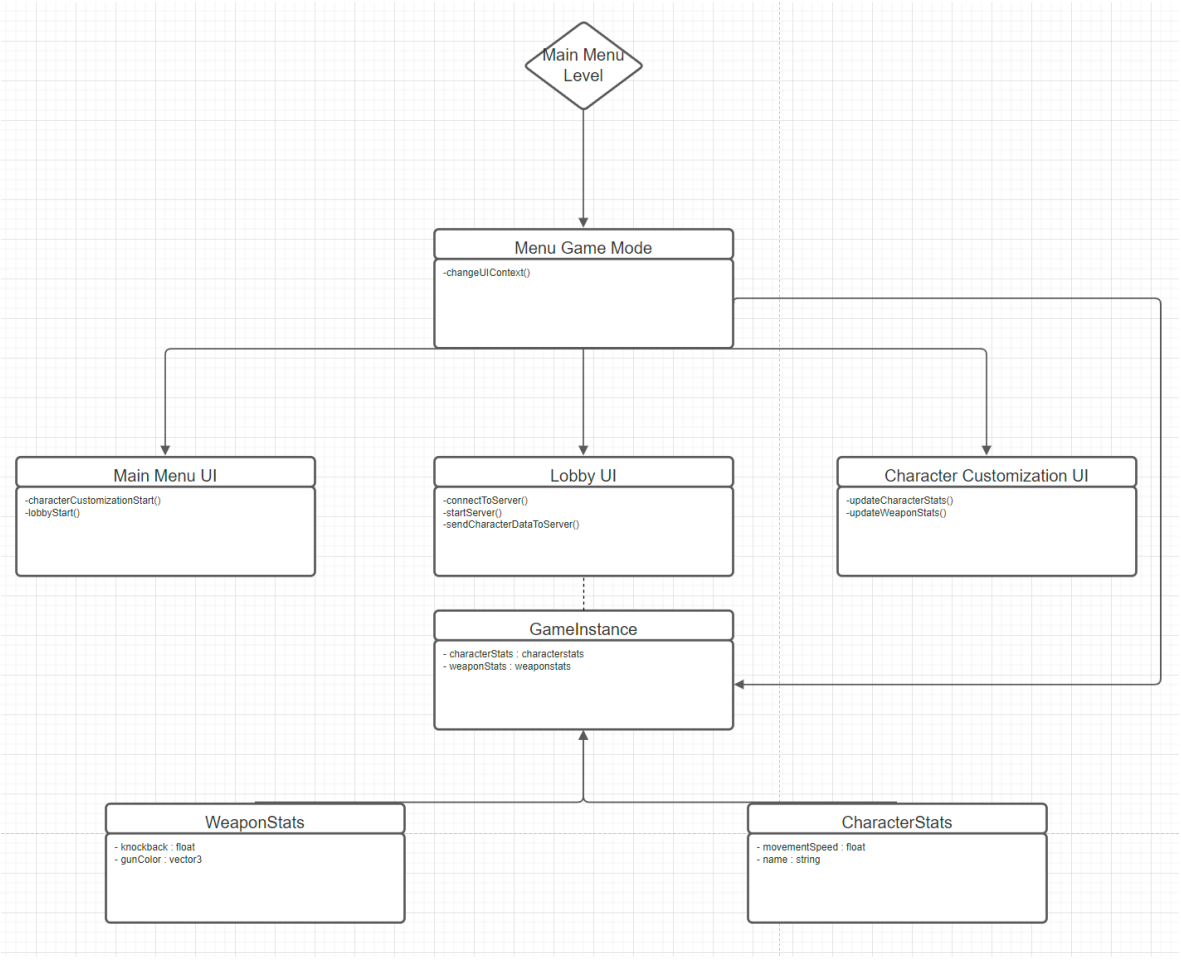
The purpose of this product is to create an Online Multiplayer Combat Shooter game using the Unreal Engine 5 Engine. The game will feature customization of characters and the ability to play with several players across a network on multiple devices.

Design:

The project will consist of two parts. The Main Menu/Staging area where a player can customize their character and then enter a lobby area where they can choose to start hosting a game or connect to another player's server. The other part will be a level where multiple players can connect and can battle against each other.

Menu and Customization:

The Menu and Customization will be a self-contained and local area of the game where the player can use UI to create a custom character. The player will be able to customize cosmetic parts of their character as well as stats that will be used to determine the functionality of the player within the Multiplayer mode. The player will also be able to interact with a lobby UI to decide to join a game being hosted by another player or to host their own game.
This section of the game will be defined as a Unreal Engine Level which will contain the Menu Game Mode. The Menu Game Mode will be used as a staging ground for the UI interfaces. The

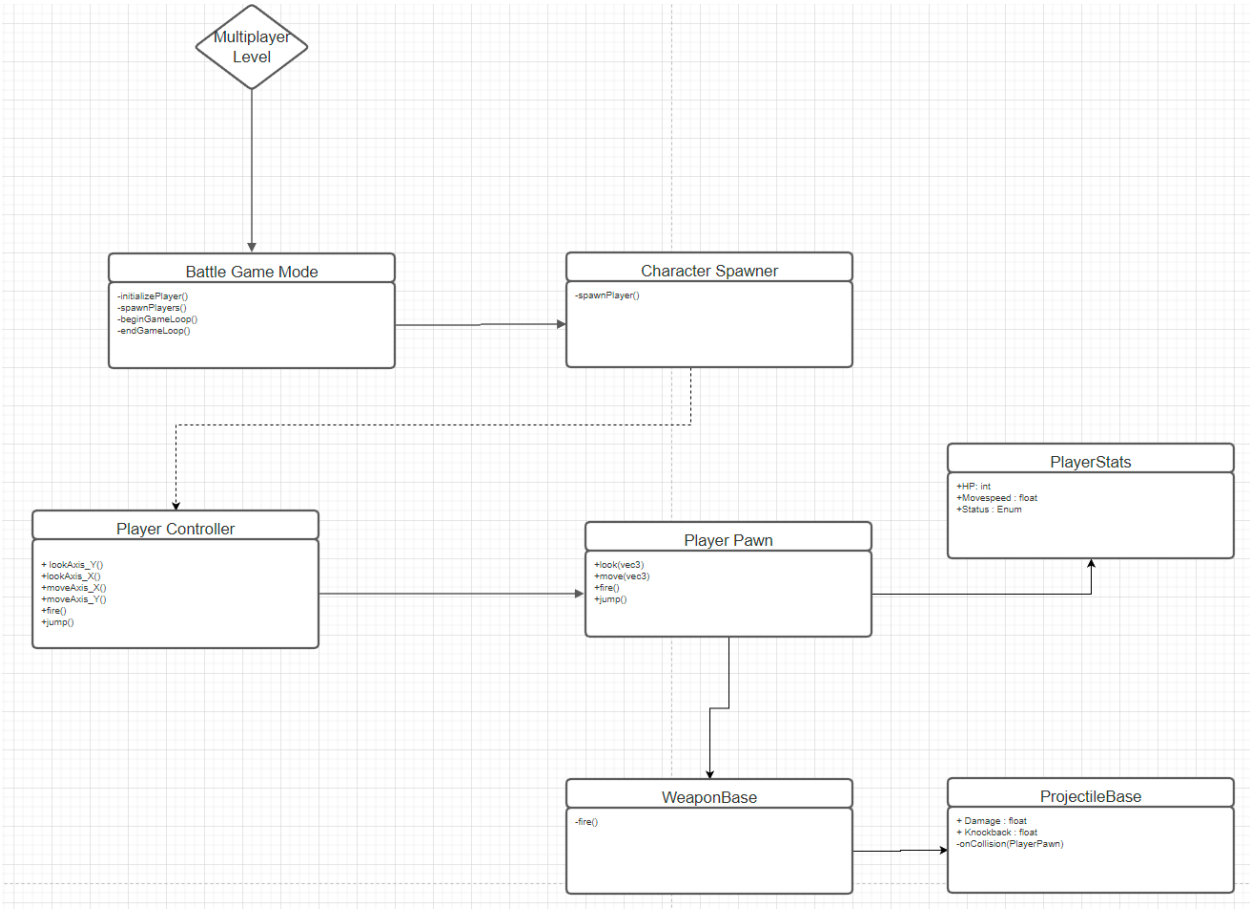


Main Menu UI will allow the player to switch between Lobby and Character Customization. Within the Character Customization the player will be able to tinker with their character's Character Stats and Weapon Stats which will be saved to the player's Game Instance. The player can go to the Lobby to either join a game currently going on to start their own game. Either selection will take them to the Multiplayer Stage.

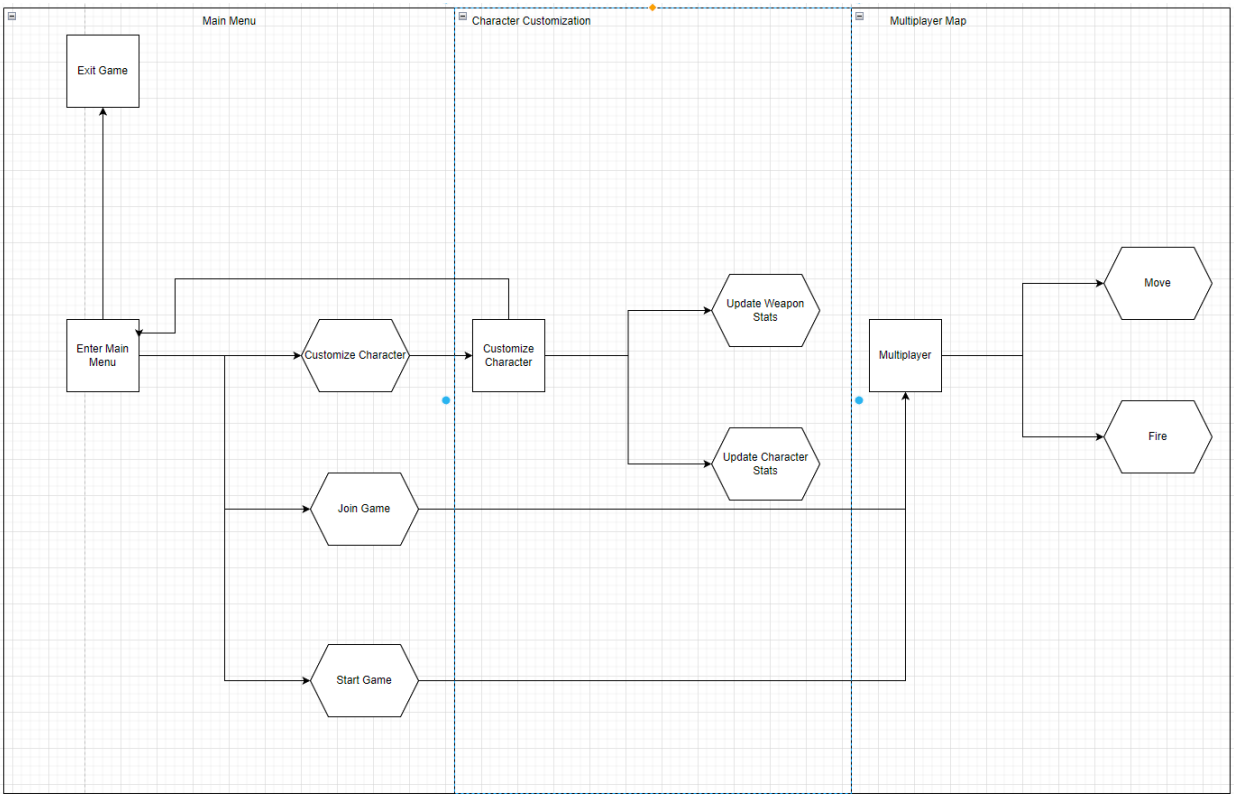
Multiplayer Stage:

The Multiplayer Stage will consist of a game being hosted by a player on their local machine which will act as a server for other players. The game itself will include the ability for players to interact with the environment and other players through shooting projectiles at each other. We will use the built-in replication system provided by UE5 and the built-in Client-Server in order to host games and communicate among players. The Multiplayer stage of the game will be hosted as an Unreal Engine Level which will include Replication of the game mode, the character spawner, the player controller and their pawn, the weapon, projectiles, and characters stats. All of these items will use the Unreal Engine replication system in order to communicate across the network.

The Battle Game Mode will grab a character's stats and weapon stats from the Game Instance and will use that in spawning the characters into the game itself.



User Flow


Main Menu
Character Customization
Multiplayer Map
Exit Game
Enter Main Menu
Customize Character
Customize Character
Update Weapon Stats
Update Character Stats
Join Game
Start Game
Multiplayer
Move
Fire