Applied Research Project – Progress Report 2

Time Log:
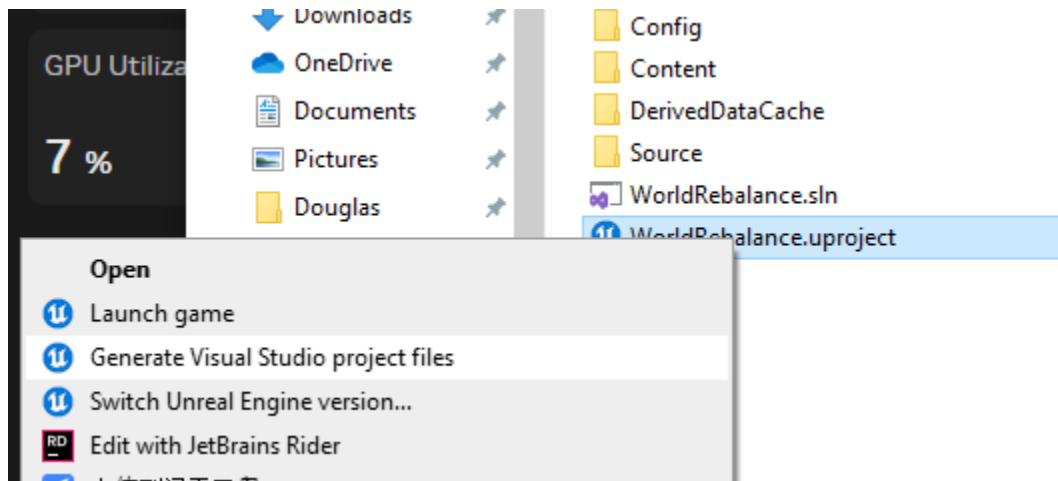
Date	Number of Hours	Description of work done
Sep 27, 2025	4	Player basic movement: walk, jump, couch.
Sep 28, 2025	5	Animation blend and Montage for the camera scrolling up, down, left and right.
Sep 29, 2025	5	Mesh shadowing bug fix: add the same body mesh that has a shadow rendering issue (one for server camera rendering, another one for client with no shadow, but the body with animation does not often match), use only one mesh, move the camera to the suitable position. Movement speed fixed.
Oct 1, 2025	3	Player spawn points function setup. Player could select team and spawn in the correct camp. Login Widget (UI) to let player pick a camp.
Oct 3, 2025	3	Pistol and rifle animations for player animation blueprint (including walk, run, jump and crouch). Weapon Library to find the correct name then to link to its relative asset's path.
Oct 4, 2025	4	Weapon actor setup. Player overlapping a weapon to pickup the weapon entity.
Oct 5, 2025	5	Loot weapon in primary inventory and secondary inventory. A long debug with contact a weapon entity to become a looted weapon, then get the weapon info to trigger the correct player animation. The weapon actor loses physics to find the position of a socket (Player's hand). If primary inventory is not null do not pick. If secondary inventory is null can only pick a pistol.
Oct 6, 2025	4	Drop the equipped weapon. Weapon actor has physic and detaches the socket.
Oct 8, 2025	4	Weapon switch, generate shooing trace line. Figure out the delay for check the array of inventory if it is not the same weapon and primary one or secondary one.
Oct 10, 2025	4	Health and Armor can be damaged from other players, with UI update.
Oct 11, 2025	3	Team management the game scope. In the game, I will focus on the tank combat and output data for other teammates.

Open our game project:

Engine Version: make sure to download the same version: Unreal Engine 5.5.4
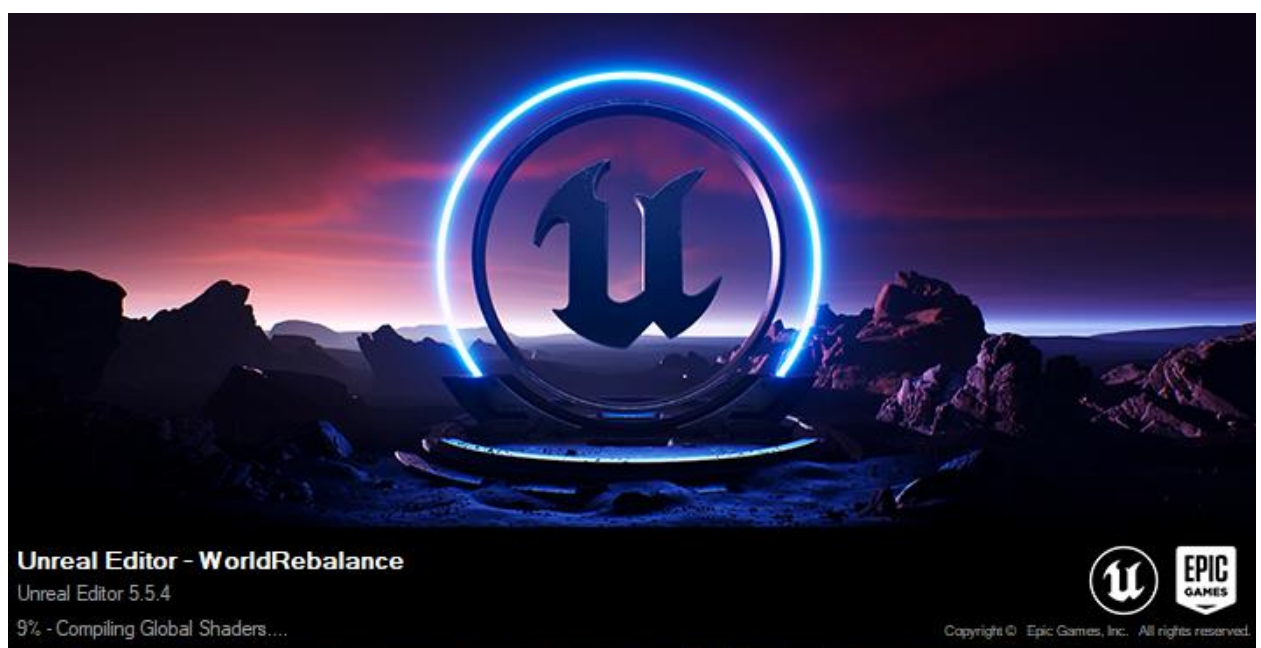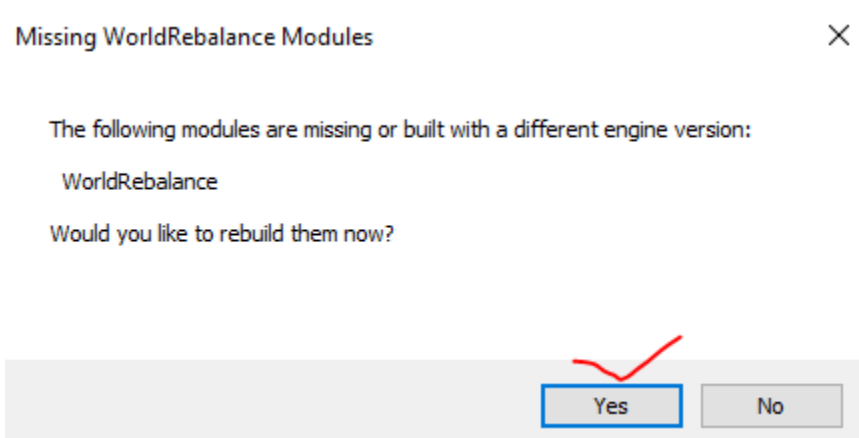
How to open the project: (To see the code)

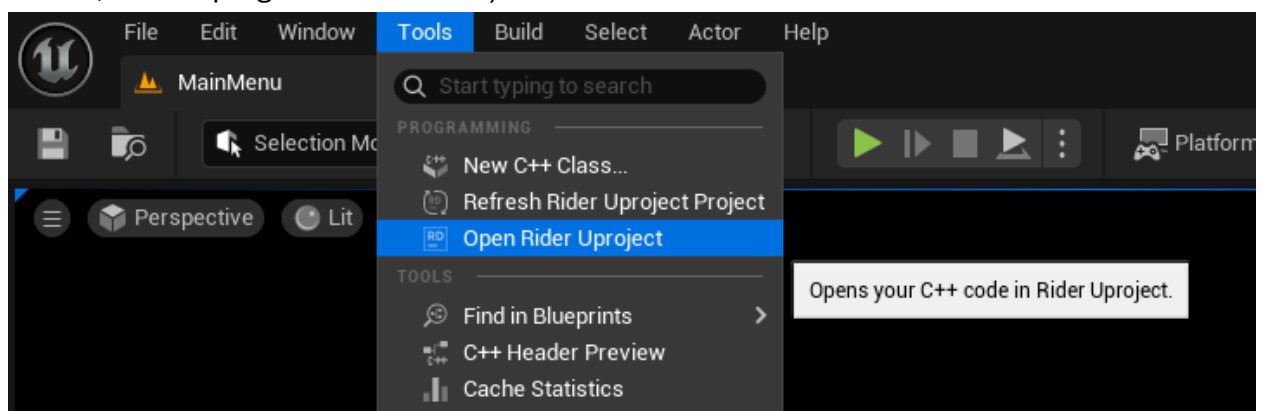1. Right click the .uproject to Generate Visual Studio project files.

2. Rebuild the project.

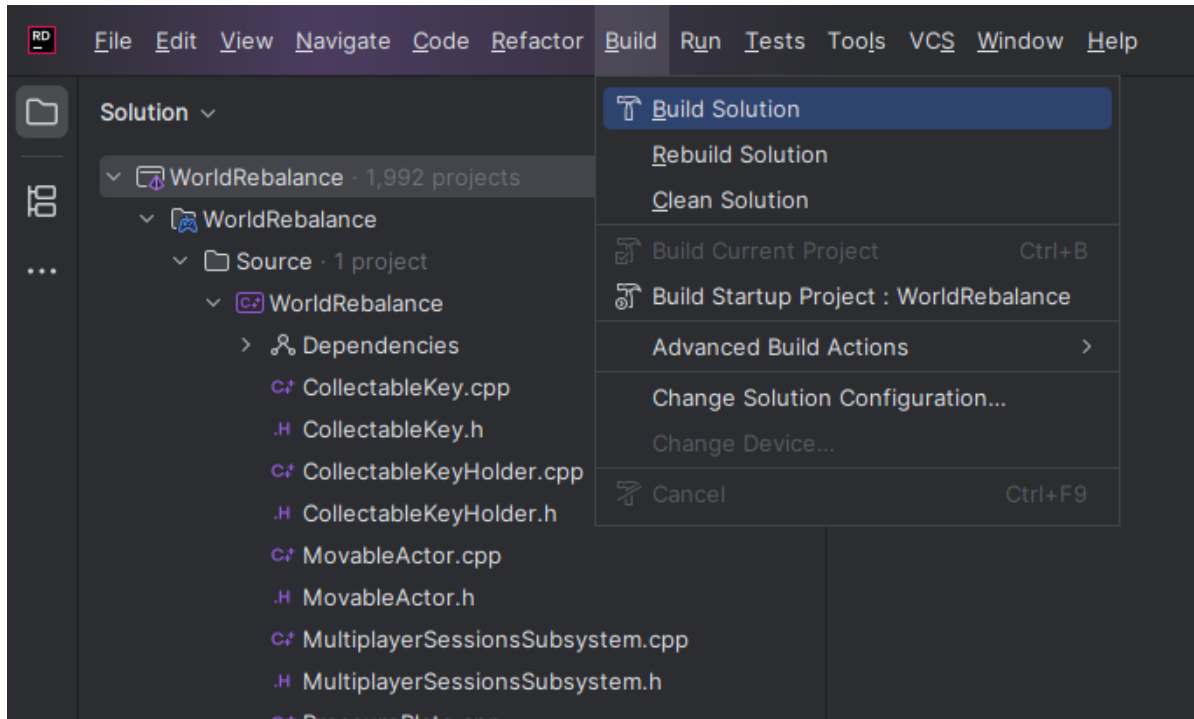**Missing WorldRebalance Modules** ✕

The following modules are missing or built with a different engine version:

WorldRebalance

Would you like to rebuild them now?

[Yes]   [No]

Unreal Editor – WorldRebalance
Unreal Editor 5.5.4
9% - Compiling Global Shaders....
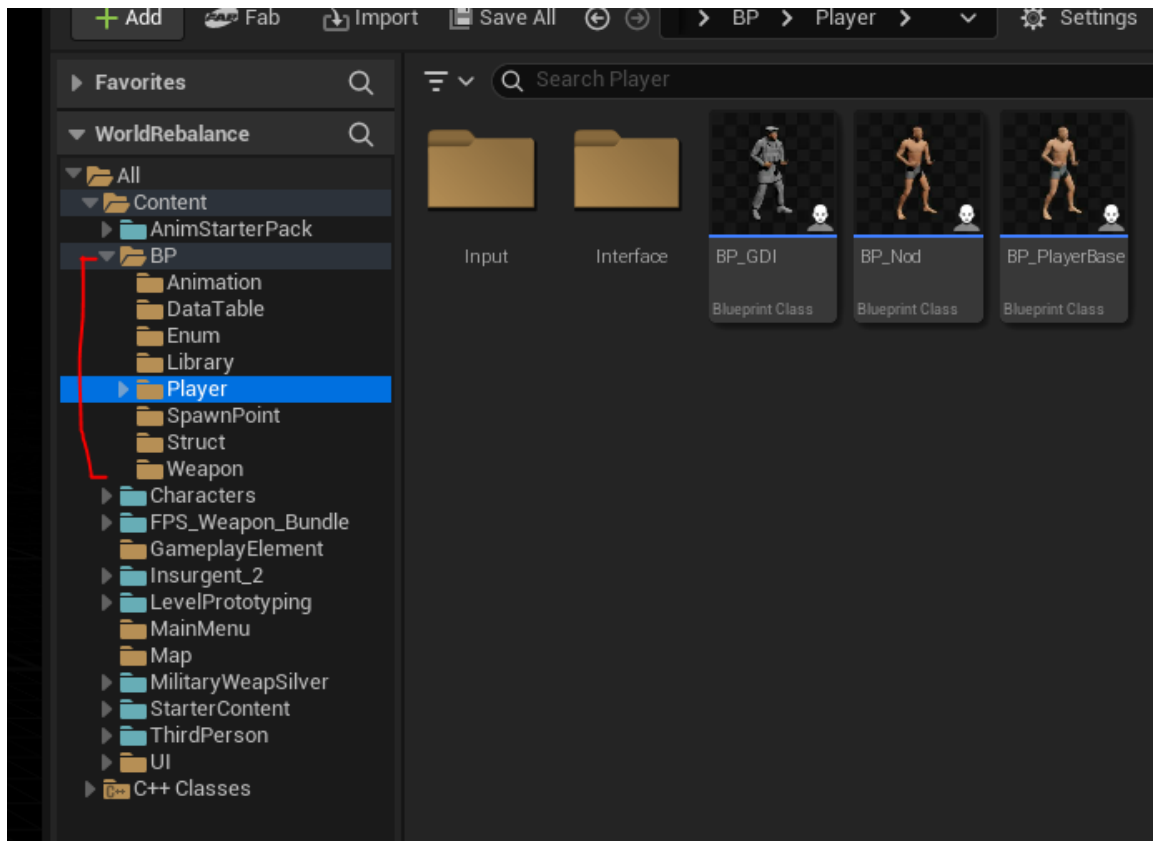
Copyright © Epic Games, Inc. All rights reserved.

3. Once the window opens, need to build the C++ in Rider. (It is hard to build in Visual Studio, a lot of plugin errors there...)

File   Edit   Window   **Tools**   Build   Select   Actor   Help

▲ MainMenu

Selection Mo...

🔍 Start typing to search

PROGRAMMING
    New C++ Class...
    Refresh Rider Uproject Project
    Open Rider Uproject

TOOLS
    Find in Blueprints   >
    C++ Header Preview
    Cache Statistics

▶ ▶ ■ ▶ ⋮   Platform

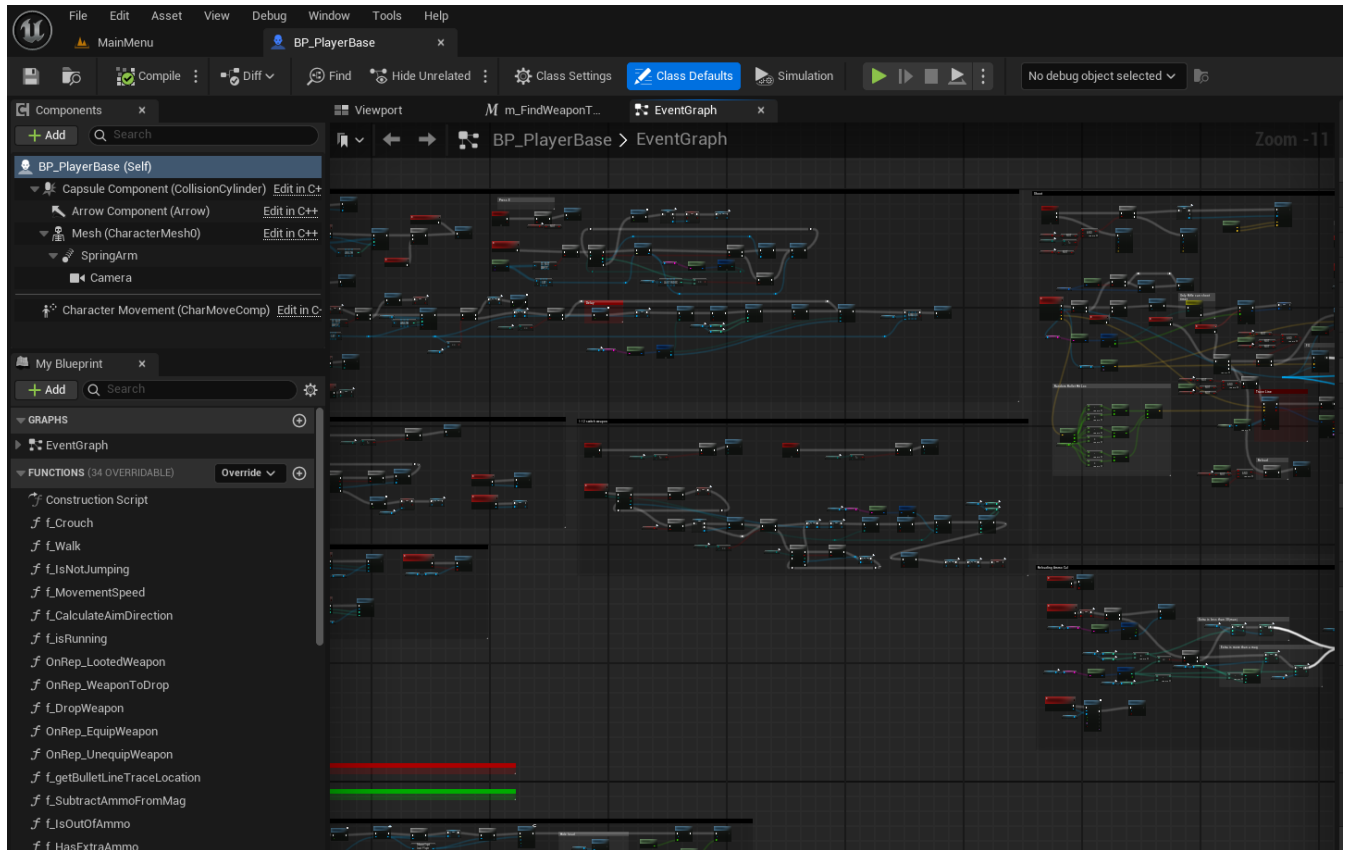Opens your C++ code in Rider Uproject.

Perspective   Lit

4. Build C++ in Rider. Must close the Unreal Engine before Build.
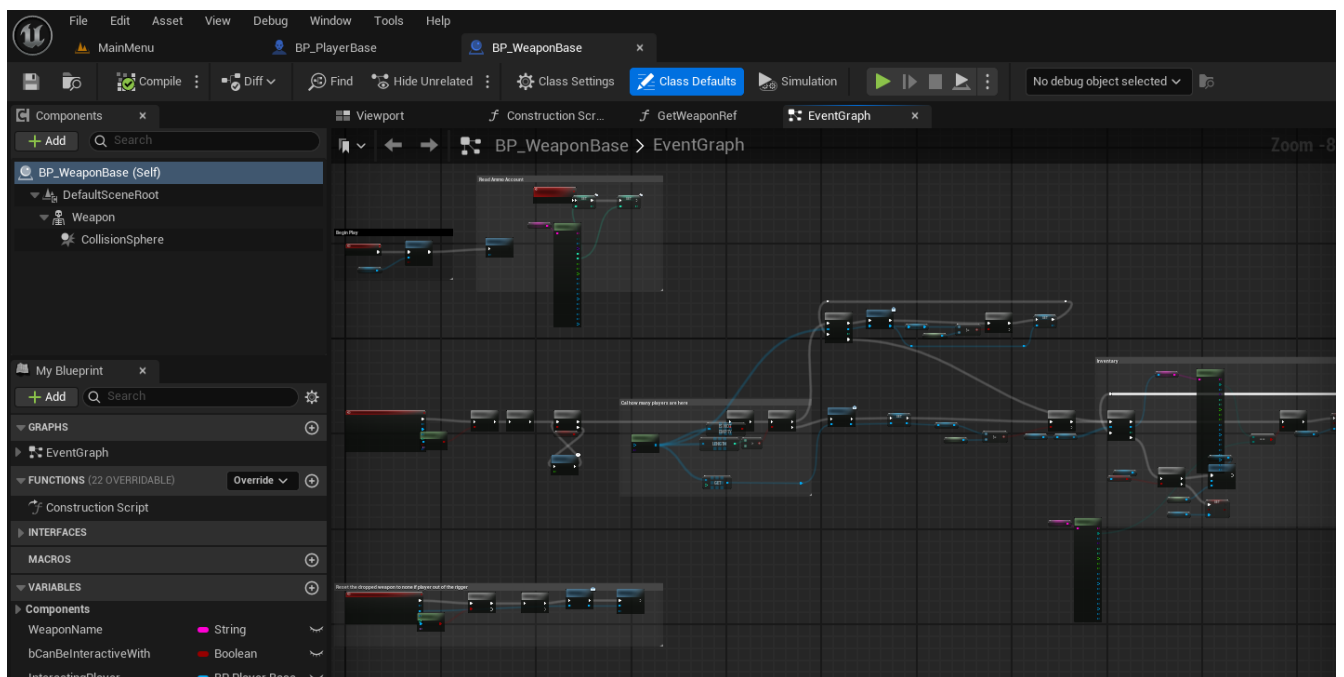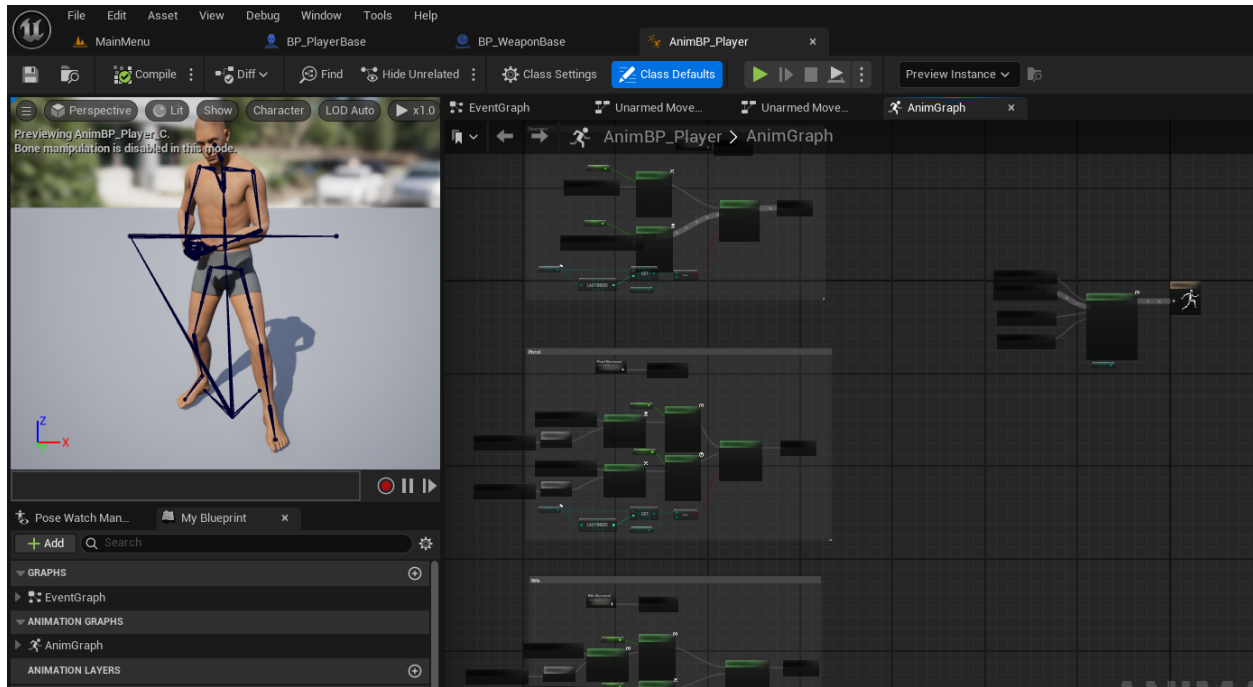

Blueprint is here:

/Script/Engine.Blueprint'/Game/BP/Player/BP_PlayerBase.BP_PlayerBase'

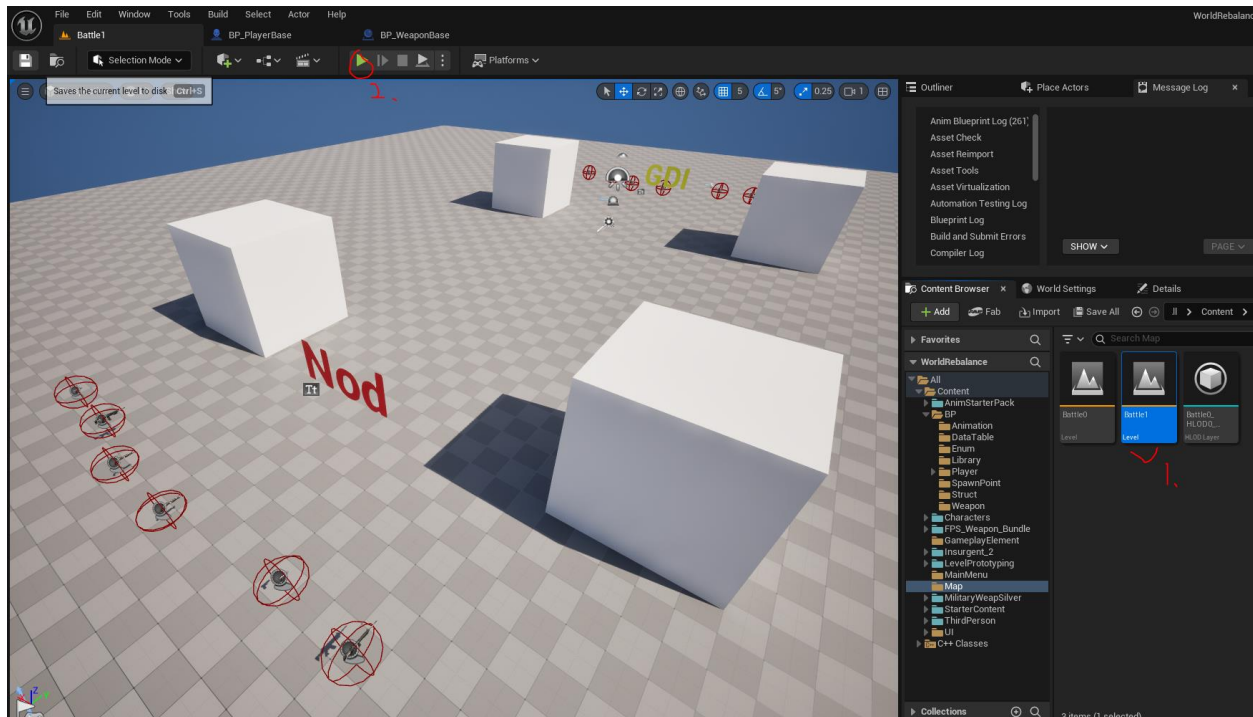/Script/Engine.Blueprint'/Game/BP/Weapon/BP_WeaponBase.BP_WeaponBase'

/Script/Engine.AnimBlueprint'/Game/BP/Animation/AnimBP_Player.AnimBP_Player'

Play in the Editor:

/Script/Engine.World'/Game/Map/Battle1.Battle1'

Game Build Output: (to play the game) Extract the zip on Desktop.
(C:\Users\300380547\Desktop\Windows\Windows)

main ▾   F2025_4495_071_YLi547 / Misc / build / Link.txt   🔍 Go to file

YaolongLiu link update   1af2

1 lines (1 loc) · 82 Bytes

Code   Blame   Raw

1   https://drive.google.com/file/d/18YcfgCk3osrBn8HUkIMM8X81EBleDAWa/view?usp=sharing

Misc/build/Link.txt

https://drive.google.com/file/d/18YcfgCk3osrBn8HUkIMM8X8lEBleDAWa/view?usp=sharing

If in campus lab:

server.bat: Misc/build/server.bat

main ▾   F2025_4495_071_YLi547 / Misc / build / server.bat   🔍 Go to file

YaolongLiu link update   1a

5 lines (5 loc) · 223 Bytes

Code   Blame   Raw

```
1    @echo off
2    cd /d "C:\Users\300380547\Desktop\Windows\Windows\WorldRebalance\Binaries\Win64"
3    echo Starting Unreal Engine Server on 140.161.81.40:7777 ...
4    WorldRebalance.exe MainMenu?listen -log -multihome=140.161.81.40
5    pause
```

Need to add *server.bat* in the root folder and make sure the IP is the local IP.

Name	Date modified	Type	Size
📁 Engine	2025-10-11 10:11 AM	File folder	
📁 FileOpenOrder	2025-10-11 9:33 AM	File folder	
📁 WorldRebalance	2025-10-11 10:11 AM	File folder	
📄 Manifest_DebugFiles_Win64	2025-10-10 11:07 PM	Text Document	1 KB
📄 Manifest_NonUFSFiles_Win64	2025-10-10 11:07 PM	Text Document	4 KB
📄 Manifest_UFSFiles_Win64	2025-10-10 11:07 PM	Text Document	313 KB
🗒 server	2025-10-11 9:32 AM	Windows Batch File	1 KB
🎮 WorldRebalance	2025-10-10 11:07 PM	Application	165 KB

client.bat: Misc/build/client.bat

🐙   🔀 main ▾   **F2025_4495_071_YLi547** / Misc / build / **client.bat** 🗇   🔍 Go to file

👤 **YaolongLiu** link update

7 lines (6 loc) · 271 Bytes

Code	Blame		Raw

```
1    @echo off
2    set HOST_IP=140.161.83.22
3
4    cd /d "C:\Users\300380547\Desktop\Windows\Windows\WorldRebalance\Binaries\Win64"
5    echo Starting Unreal Client and connecting to %HOST_IP%:7777 ...
6    WorldRebalance.exe -log -WINDOWED -ResX=1280 -ResY=720 -ExecCmds="open %HOST_IP%"
7    pause
```

Need to add *client.bat* in the root folder and make sure the same IP as the server's.

Name	Date modified	Type	Size
📁 Engine	2025-10-11 10:11 AM	File folder	
📁 FileOpenOrder	2025-10-11 9:33 AM	File folder	
📁 WorldRebalance	2025-10-11 10:11 AM	File folder	
🗔 client	2025-10-11 9:32 AM	Windows Batch File	1 KB
📄 Manifest_DebugFiles_Win64	2025-10-10 11:07 PM	Text Document	1 KB
📄 Manifest_NonUFSFiles_Win64	2025-10-10 11:07 PM	Text Document	4 KB
📄 Manifest_UFSFiles_Win64	2025-10-10 11:07 PM	Text Document	313 KB
⚙ WorldRebalance	2025-10-10 11:07 PM	Application	165 KB

Description:

In the past two weeks, I made two separate teams for players to select. Made the basic movement functions. Blended (Montage) the animations for actions.

Weapon system with primary weapon (Rifle) and secondary weapon (Pistol). Players can loot the weapon, switch the weapon and drop the weapon.

Shoot function with traceLine.

Made the weapon library for BP_WeaponBase to load the info to calculate the distance damage and ammo.

Player damage for calculating the Health bar and Armor bar.

Implementation/GameTestVideo

Go to file   t

YaolongLiu Game Video show 10-11   773f040 ·

Name	Last commit message
..	
GameTest20250924_LANLabConnection.mp4	Create GameTest20250924_LANLabConnection.mp4
GameTest20251011_GroupWeaponDamage....	Game Video show 10-11