GAME250: Technical Game Development (Spring 2023)

Exercise 08

Objectives

By the end of this exercise, you'll be able to:

- Create user interface elements
- Update the user interface to give the player new information

Background

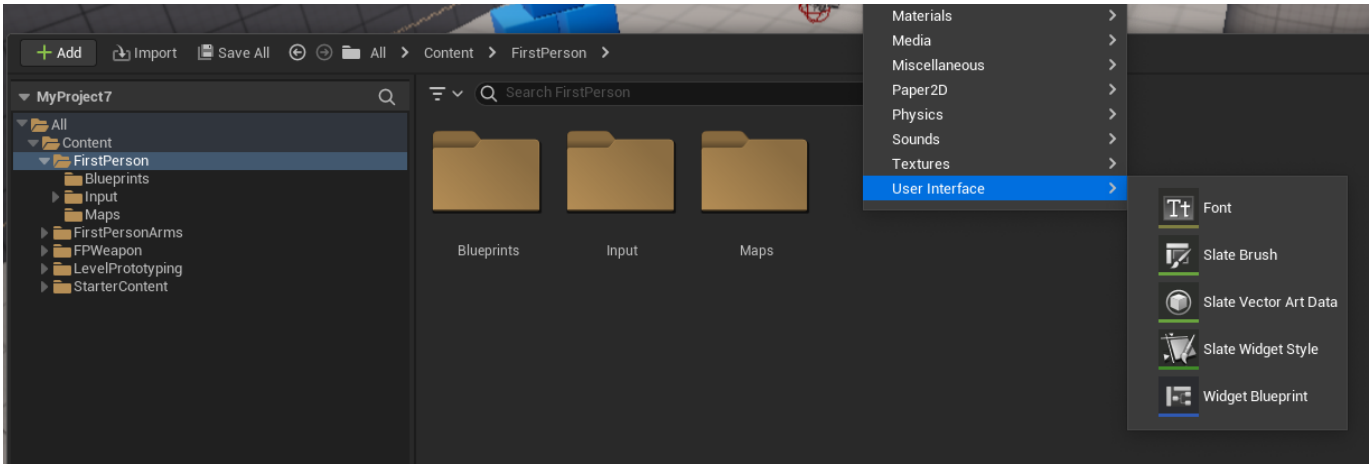
Let's create a simple ammo system for our first person shooter template.

In-Lab Instructions

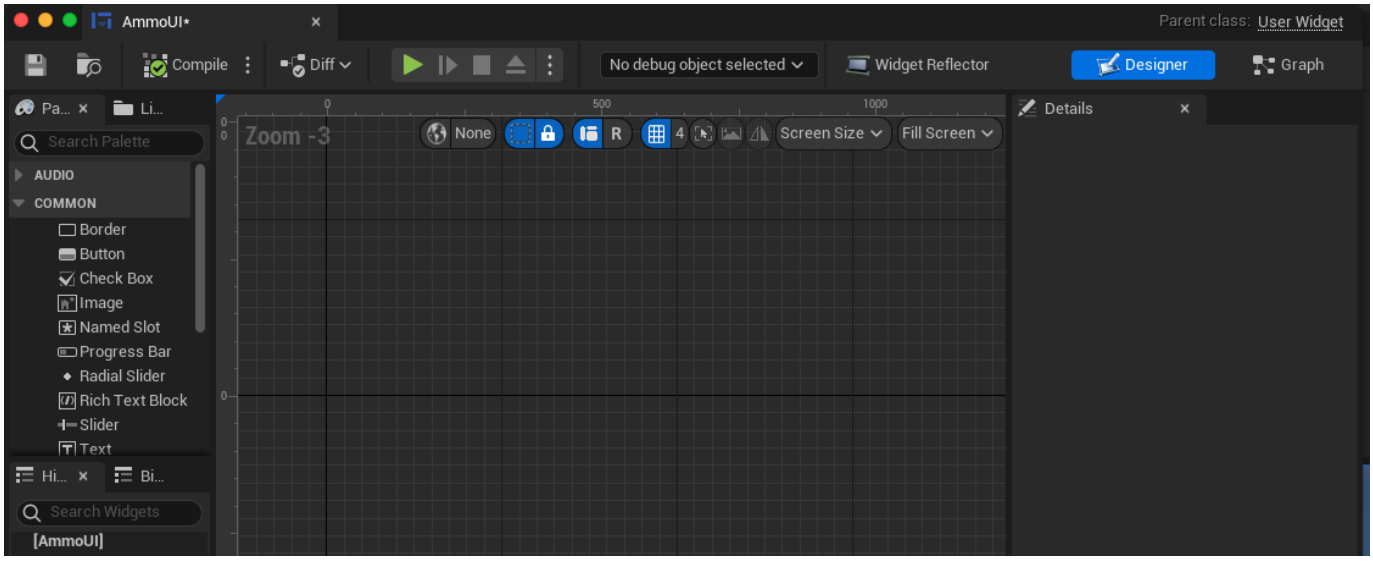
Create a new First Person game without Starter Content.

Ammo Widget: Design

In your Content Browser > Content > FirstPersonBP > Blueprints, right click the empty space > User Interface > Widget Blueprint. Name the new blueprint Ammo and double click it.



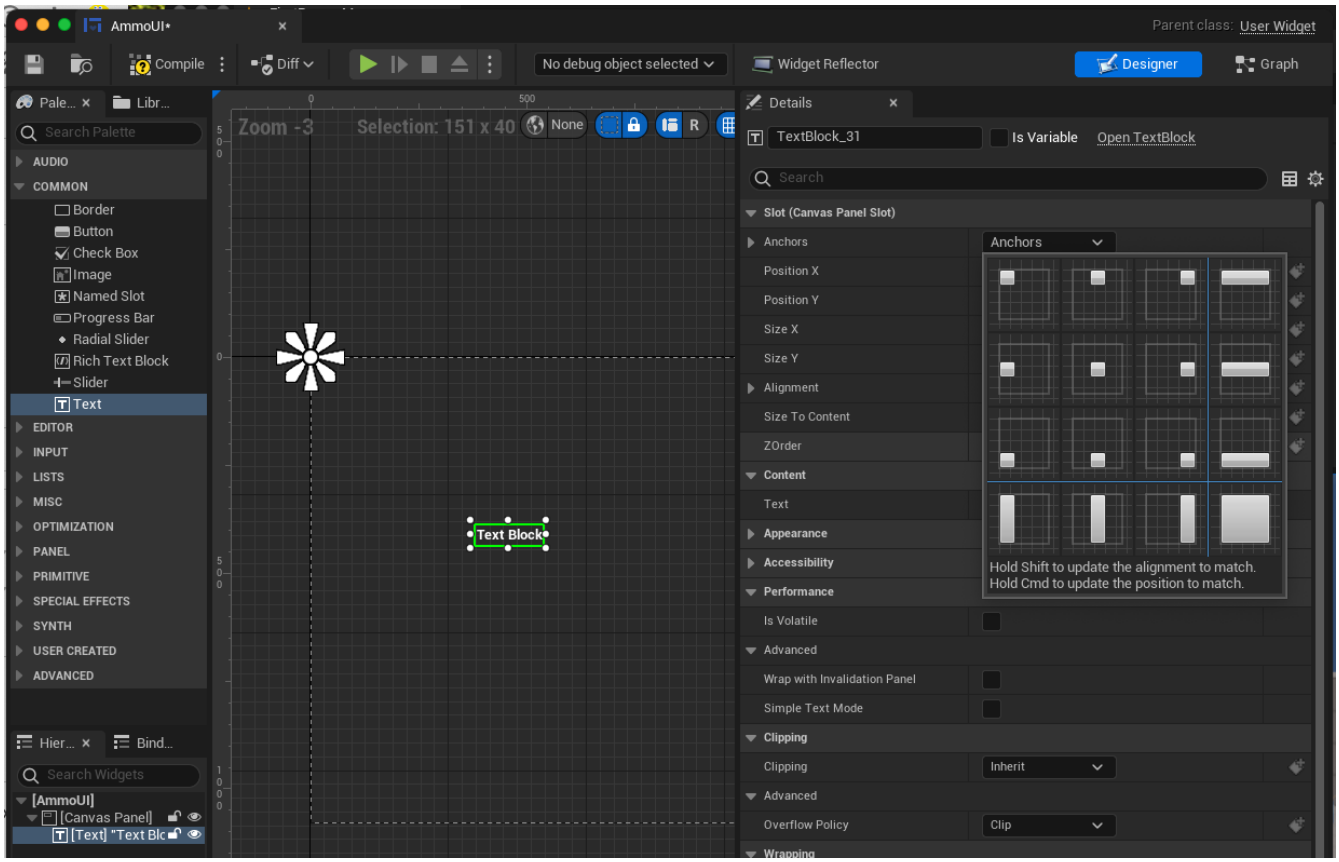
This is your Unreal Motion Graphics UI Designer (UMG).



Note the Design > Graph tabs on the top right, the viewport in the middle, and the Palette on the left.

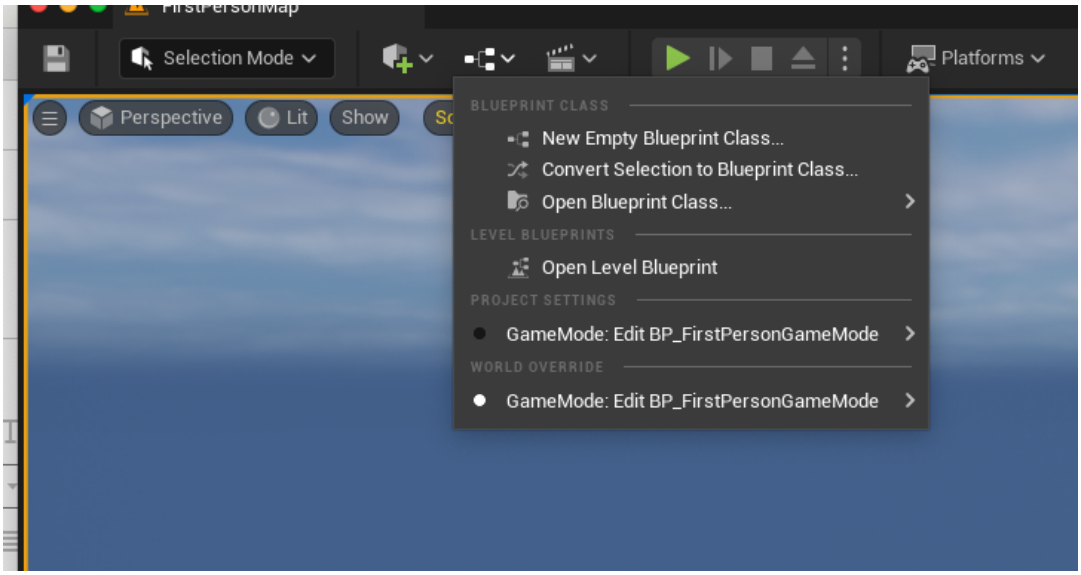
From the Palette > Panel, drag and drop Canvas Panel onto the AmmoUI in the Hierarchy Panel.

From the Palette > Common, drag and drop Text into the viewport in the Canvas Panel. Let's first position the Text by adjusting its anchor to the bottom left.

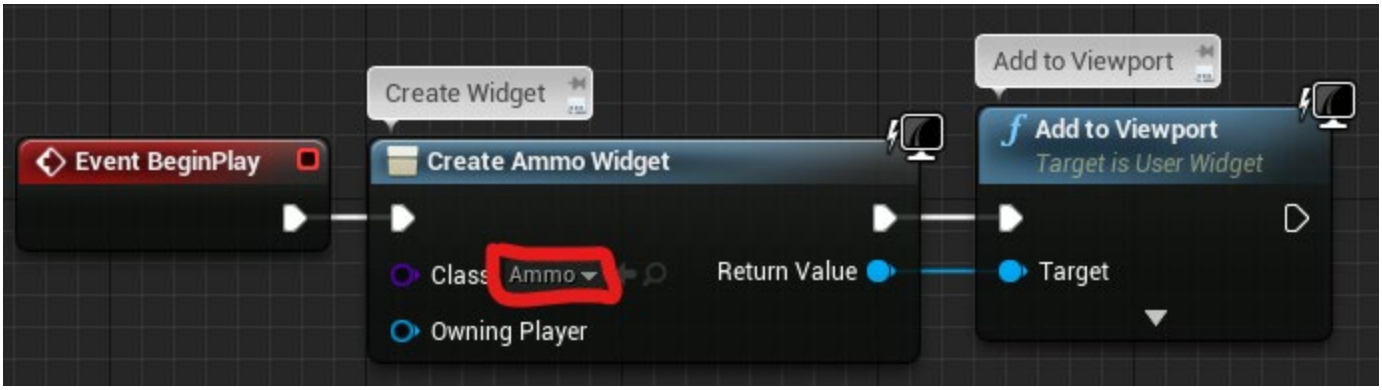


Set its Position X to 100.0 and Position Y to -100.0. These values are relative to the anchor. Set its content to "30 / 30" to indicate 30 out of 30 projectiles remaining.

Let's connect the widget to the level. Back in the main editor's toolbar, go to Blueprints > Open Level Blueprint.



Just like Actors who have their own blueprints, each level has its own as well. In its Event Graph, hook up the widget when the gameplay begins. Make sure to set the Create Widget node's class to Ammo.



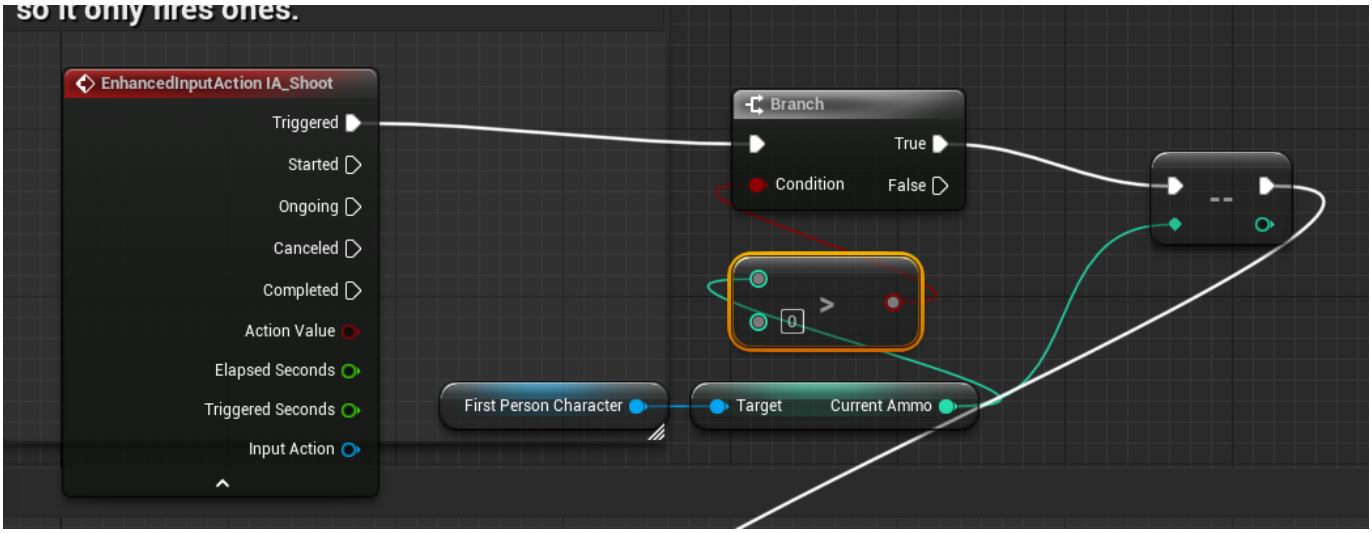
Play the game to confirm that the text is indeed showing up on the screen.

Ammo Widget: Graph

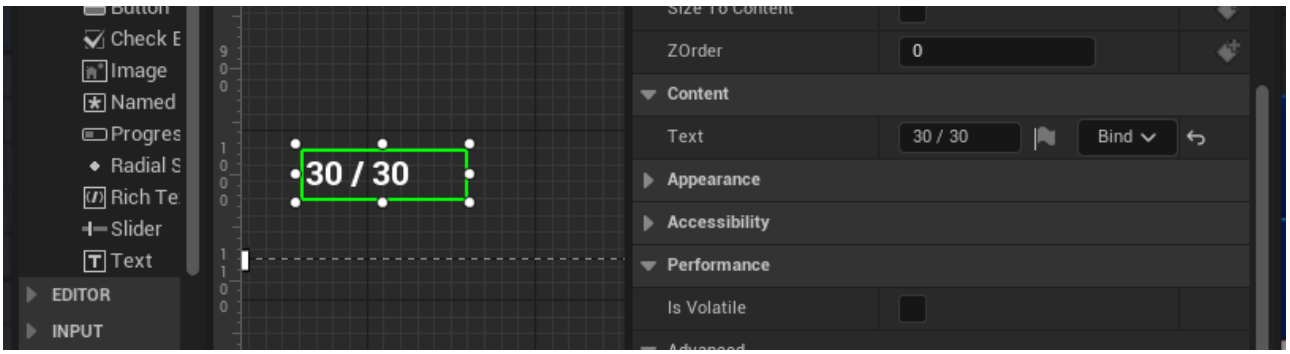
Obviously, the widget doesn't do anything, even if you fire the gun. To do that, we need to program it.

But first, let's program the ammo counting in our First Person Character blueprint. Create two integer variables, named CurrentAmmo and MaxAmmo, each set to 30.

In the BP_Weapon_Component blueprint, find the EnhancedInputAction IA_Shoot node, which represents left click to fire projectile. Add a little code to check and update Current Ammo to make sure there are projectiles left to fire. Make sure not to disturb the rest of the Spawn projectile nodes!

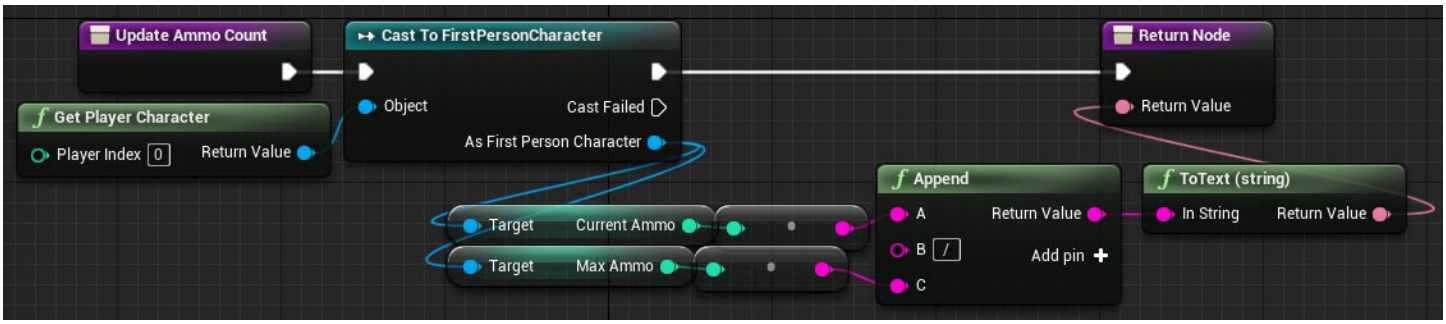


Back to the Ammo Widget blueprint! In the Text's Details tab, find its content Text and the Bind button at the far right. Click Bind > Create Binding.



This will take you to a brand new function that will update the widget's Text as needed. Notice the top right, we have switched from Designer mode to Graph mode.

Rename the function to Update Ammo Count. Add the code to properly update the ammo count.



Play the game to confirm that shooting a projectile updates the ammo widget updates properly and that when you run out of projectiles, you cannot fire anymore.

Now It's Your Turn!

Right now, the player cannot reload their gun when it runs out of projectiles. In the First Person Character blueprint, add some code to allow the user to press R to reload its weapon to its Max Ammo count.

Here are some optional features you can add to the reload mechanic to make it more realistic.

- Reloading the gun takes a little time to complete.
- While reloading, the gun cannot be fired.
- While reloading, change the character model so that the player sees that they are reloading.
- If Current Ammo is full, do not reload.
- When Current Ammo is down to 10, change the Text color to orange.
- When Current Ammo is empty, change the Text color to red.

Lab Submission

Take a screenshot of any nodes you've added in the Now It's Your Turn! section.

Submit the screenshot to Canvas before the deadline.