

Character Class Components and Blueprint Setup

4th Week, 2021



UNREAL
ENGINE



The Unreal Character Class (1)

- › Inheritance
 - The process whereby a class derives characteristics and behavior from another class
 - A C++ class can be extended to create a new class.
- › A **Character** class
 - A special type of pawn
 - A descendant of the Unreal **Pawn** class
 - Expanding upon the **Pawn** class, the **Character** class has some movement capabilities by default, along with some inputs that add movement to the character.
 - › To walk, run, jump, fly, and swim within the created world



The Unreal Character Class (2)

- › The **Character** class provides the following inherited components:
 - Capsule component: This component can be used for collisions and takes the form of a capsule that logically outlines many character forms (especially humanoid ones).
 - Arrow component: This provide a simple arrow pointing toward the front of the hierarchy.
 - Skeletal Mesh component: This is the form the character will take, can be set up here along with all the relevant variables, including animations, collisions, and so on.
- › Create a C++ class that inherits from the **Character** class, and then extend this class with a Blueprint



Exercise 3.01: Creating and Setting Up a Third-Person Character C++ Class

Unreal Project Browser

Select or Create New Project

Recent Projects

- Activity_Anim
- CharAnim
- Exercise2_01
- Exercise1_01

More

New Project Categories

- Games**
Start your game development journey with one of our key classes, levels, and examples.
- Film, Television, and Live Events**
Choose from templates and examples for nDisplay, VR Scouting, and virtual production workflows.
- Architecture, Engineering, and Construction**
Select a starting point for multi-user design reviews, photorealistic architectural design visualizations, sunlight studies, or stylized renderings.
- Automotive, Product Design, and Manufacturing**
Find templates for multi-user design reviews, photobooth studio environments, and product configurators.

Next > Open Project Cancel





Select Template



Blank



First Person



Flying



Puzzle



Rolling



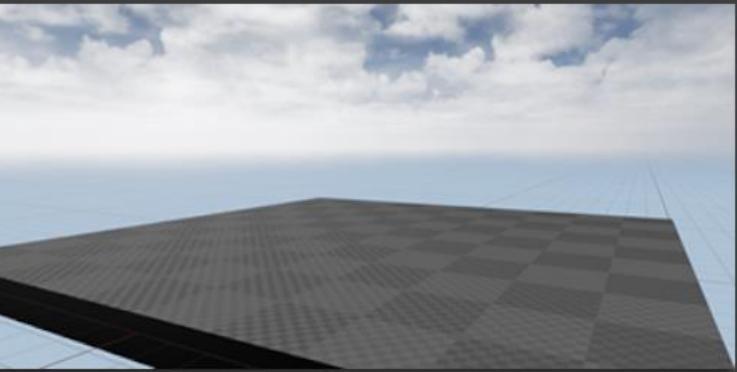
Third Person



Top Down

Twin Stick
ShooterHandheld
ARSide
Scroller2D Side
Scroller

Vehicle

Virtual
RealityVehicle
Advanced

Blank

A clean empty project with no code.



< Back

Next >

Create Project

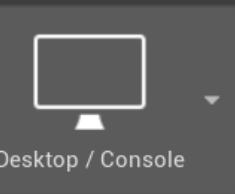
Cancel



Project Settings



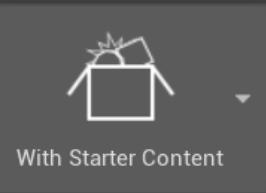
Choose whether to create a Blueprint or C++ project.



Choose the closest equivalent target platform. Don't worry, you can change this later in the **Target Hardware** section of **Project Settings**.



Choose the performance characteristics of your project.



Enable to include an additional content pack containing simple placeable meshes with basic materials and textures. You can also add the **Starter Content** to your project later using **Content Browser**.



Choose if real-time raytracing should be enabled in the new project.

Select a **location** for your project to be stored.

C:\Users\sunje\Desktop\Unreal

...	Exercise3_01
Folder	Name



< Back

Create Project

Cancel





Develop

Win64

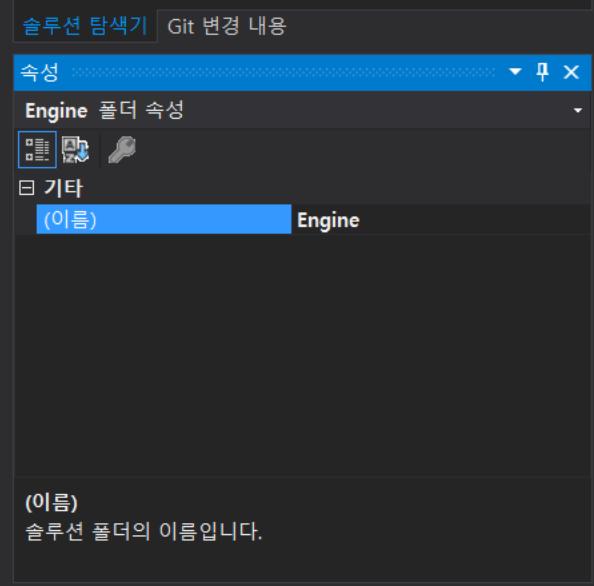
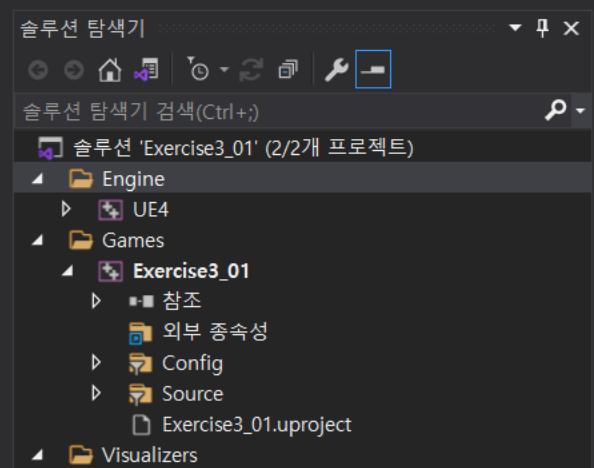
로컬 Windows 디버거

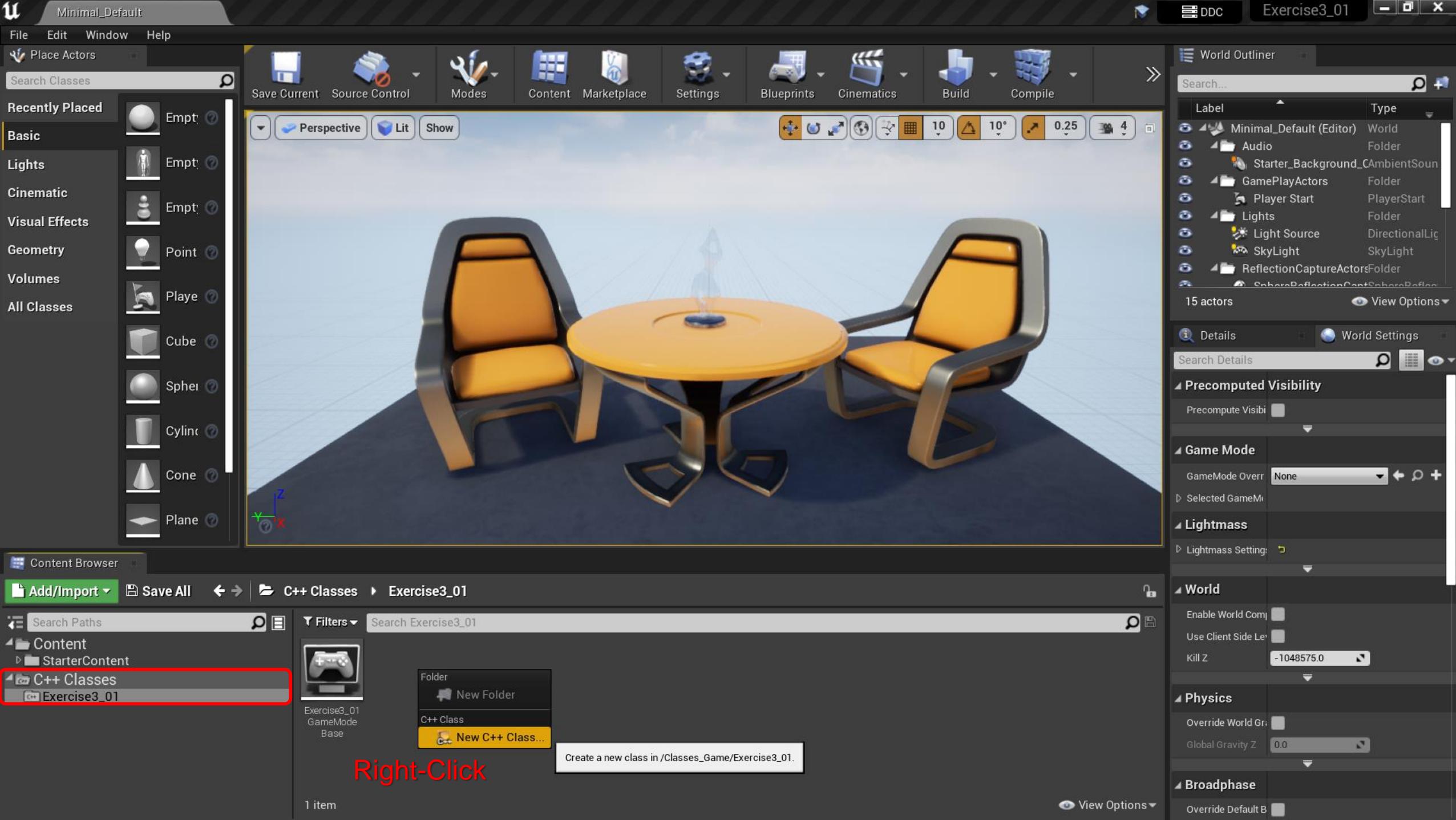


Exercise3_01



Live Share







Choose Parent Class

This will add a C++ header and source code file to your game project.

Show All Classes

None

An empty C++ class with a default constructor and destructor.

Character

A character is a type of Pawn that includes the ability to walk around.

Pawn

A Pawn is an actor that can be 'possessed' and receive input from a controller.

Actor

An Actor is an object that can be placed or spawned in the world.

Actor Component

An ActorComponent is a reusable component that can be added to any actor.

Selected Class

Character

Selected Class Source

Character.h

A large red arrow points to the "Next >" button at the bottom left of the dialog.

Next >

Create Class

Cancel



Name Your New Character

Enter a name for your new class. Class names may only contain alphanumeric characters, and may not contain a space.

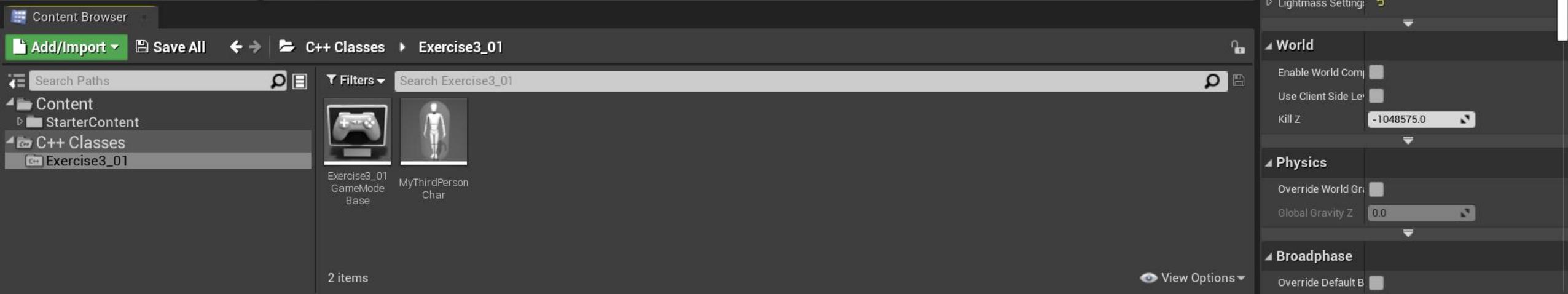
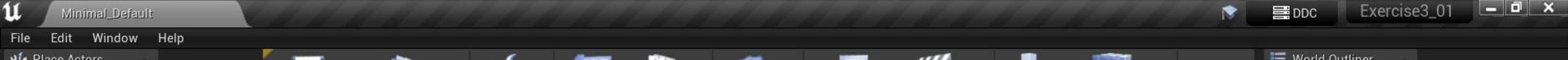
When you click the "Create" button below, a header (.h) file and a source (.cpp) file will be made using this name.

Name	<input type="text" value="MyThirdPersonChar"/>	Exercise3_01 (Runtime) ▾	Public	Private
Path	<input type="text" value="C:/Users/sunje/Desktop/Unreal/Exercise3_01/Source/Exercise3_01/"/> <button>Choose Folder</button>			
Header File	C:/Users/sunje/Desktop/Unreal/Exercise3_01/Source/Exercise3_01/MyThirdPersonChar.h			
Source File	C:/Users/sunje/Desktop/Unreal/Exercise3_01/Source/Exercise3_01/MyThirdPersonChar.cpp			

< Back

Create Class

Cancel



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Exe...3_01 Live Share

MyThirdPersonChar.cpp MyThirdPersonChar.h

```
// Fill out your copyright notice in the Description page of Project Settings.

#include "MyThirdPersonChar.h"

// Sets default values
AMyThirdPersonChar::AMyThirdPersonChar()
{
    // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.
    PrimaryActorTick.bCanEverTick = true;
}

// Called when the game starts or when spawned
void AMyThirdPersonChar::BeginPlay()
{
    Super::BeginPlay();
}

// Called every frame
void AMyThirdPersonChar::Tick(float DeltaTime)
{
    Super::Tick(DeltaTime);
}

// Called to bind functionality to input
void AMyThirdPersonChar::SetupPlayerInputComponent(UInputComponent* PlayerInputComponent)
{
    Super::SetupPlayerInputComponent(PlayerInputComponent);
}
```

100 % 문제가 검색되지 않음 출: 1 문자: 1 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

- 솔루션 'Exercise3_01' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Exercise3_01
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Exercise3_01.uproject
- Visualizers
- UE4.natvis

솔루션 탐색기 Git 변경 내용

속성

준비 ↑ 소스 제어에 추가 ↗

MyThirdPersonChar.cpp MyThirdPersonChar.h

```
// Fill out your copyright notice in the Description page of Project Settings.

#pragma once

#include "CoreMinimal.h"
#include "GameFramework/Character.h"
#include "MyThirdPersonChar.generated.h"

UCLASS()
class EXERCISE3_01_API AMyThirdPersonChar : public ACharacter
{
    GENERATED_BODY()

public:
    // Sets default values for this character's properties
    AMyThirdPersonChar();

protected:
    // Called when the game starts or when spawned
    virtual void BeginPlay() override;

public:
    // Called every frame
    virtual void Tick(float DeltaTime) override;

    // Called to bind functionality to input
    virtual void SetupPlayerInputComponent(class UInputComponent* PlayerInputComponent) override;
};


```

100 % 문제가 검색되지 않음 줄: 1 문자: 1 탭 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

솔루션 탐색기 Git 변경 내용

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파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Exe...3_01 Live Share

MyThirdPersonChar.cpp MyThirdPersonChar.h*

Exercise3_01 AMyThirdPersonChar::UCameraComponent

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #pragma once
4
5 #include "CoreMinimal.h"
6 #include "GameFramework/SpringArmComponent.h"
7 #include "Camera/CameraComponent.h"
8 #include "GameFramework/Character.h"
9 #include "MyThirdPersonChar.generated.h"
10
11 UCLASS()
12 class EXERCISE3_01_API AMyThirdPersonChar : public ACharacter
13 {
14     GENERATED_BODY()
15
16     // Spring arm component which will act as a placeholder for the player camera
17     UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = MyTPS_Cam, meta = (AllowPrivateAccess = "true"))
18     class USpringArmComponent* CameraBoom;
19
20     // Follow camera
21     UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = MyTPS_Cam, meta = (AllowPrivateAccess = "true"))
22     class UCameraComponent* FollowCamera;
23
24     public:
25         // Sets default values for this character's properties
26         AMyThirdPersonChar();
27
28     protected:
29         // Called when the game starts or when spawned
30         virtual void BeginPlay() override;
31
32     public:
33         // Called every frame
34         virtual void Tick(float DeltaTime) override;
35

```

Ctrl+S

100 % 1 0 출: 22 문자: 39 열: 42 탭 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

솔루션 탐색기 'Exercise3_01' (2/2개 프로젝트)

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솔루션 탐색기 Git 변경 내용

속성

준비 ↑ 소스 제어에 추가 ↗

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Exe...3_01 Live Share

MyThirdPersonChar.cpp* MyThirdPersonChar.h

Exercise3_01 → AMyThirdPersonChar AMyThirdPersonChar0

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "MyThirdPersonChar.h"
5 #include "Components/CapsuleComponent.h"
6 #include "GameFramework/CharacterMovementComponent.h"
7
8 // Sets default values
9 AMyThirdPersonChar::AMyThirdPersonChar()
10 {
11     // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.
12     PrimaryActorTick.bCanEverTick = true;
13
14     // Set size for collision capsule
15     GetCapsuleComponent()->InitCapsuleSize(42.0f, 96.0f);
16
17     // Don't rotate when the controller rotates. Let that just affect the camera.
18     bUseControllerRotationPitch = false;
19     bUseControllerRotationYaw = false;
20     bUseControllerRotationRoll = false;
21
22     // Configure character movement
23     GetCharacterMovement()->bOrientRotationToMovement = true;
24
25     // Create a camera boom (pulls in towards the player if there is a collision)
26     CameraBoom = CreateDefaultSubobject<USpringArmComponent>(TEXT("CameraBoom"));
27     CameraBoom->SetupAttachment(RootComponent);
28     CameraBoom->TargetArmLength = 300.0f;
29     CameraBoom->bUsePawnControlRotation = true;
30
31     // Create a camera that will follow the character
32     FollowCamera = CreateDefaultSubobject<UCameraComponent>(TEXT("FollowCamera"));
33     FollowCamera->SetupAttachment(CameraBoom, USpringArmComponent::SocketName);
34     FollowCamera->bUsePawnControlRotation = false;
35 }
```

100 % 문제가 검색되지 않음 줄: 34 문자: 48 열: 51 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

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솔루션 탐색기 Git 변경 내용

속성

Ctrl+S





Exercise 3.02: Extending C++ with Blueprints

The screenshot shows the Unreal Engine's file browser interface. The title bar reads "MixamoAnimPack". The menu bar includes "파일" (File), "홈" (Home), "공유" (Share), and "보기" (View). The toolbar contains various icons for file operations like剪切 (Cut), 复制 (Copy), 粘贴 (Paste), 剪切 (Cut), 复制 (Copy), 粘贴 (Paste), 剪切 (Cut), 复制 (Copy), 粘贴 (Paste), 新建文件夹 (New Folder), and 新建文件 (New File).

The left sidebar lists file types: 즐겨찾기에 고정 (Pin to Favorites), 복사 (Copy), 붙여넣기 (Paste), 잘라내기 (Cut), 경로 복사 (Copy Path), 바로 가기 붙여넣기 (Paste Shortcut), 새 폴더 (New Folder), 속성 (Properties), 모두 선택 (Select All), 선택 안 함 (Deselect All), and 선택 영역 반전 (Invert Selection). The breadcrumb navigation shows the path: << Unreal > MixamoAnimPack.

The main content area displays a table of files:

이름	수정한 날짜	유형
Mixamo_Adam	2021-09-19 오전 11:17	파일 폴더
MixamoCharacter_Master.uasset	2021-01-22 오전 1:04	UASSET 파일

On the left, there is a sidebar with pinned items: 즐겨찾기 (Favorites), 바탕 화면 (Desktop), 다운로드 (Downloads), 문서 (Documents), 사진 (Photos), 동영상 (Videos), and 음악 (Music). The bottom status bar indicates 2개 항목 (2 items).

Content

파일 홈 공유 보기

클립보드

이동 위치 복사 위치 삭제 이름 바꾸기 새 폴더 속성 열기 히스토리

모두 선택 선택 안 함 선택 영역 반전

← → ▲ ▼ « Exercise3_01 > Content »

Content 검색

이름 수정한 날짜 유형 크기

이름	수정한 날짜	유형	크기
Collections	2021-09-19 오전 8:48	파일 폴더	
Developers	2021-09-19 오전 8:48	파일 폴더	
StarterContent	2021-09-19 오전 8:48	파일 폴더	
MixamoAnimPack	2021-09-19 오전 11:17	파일 폴더	

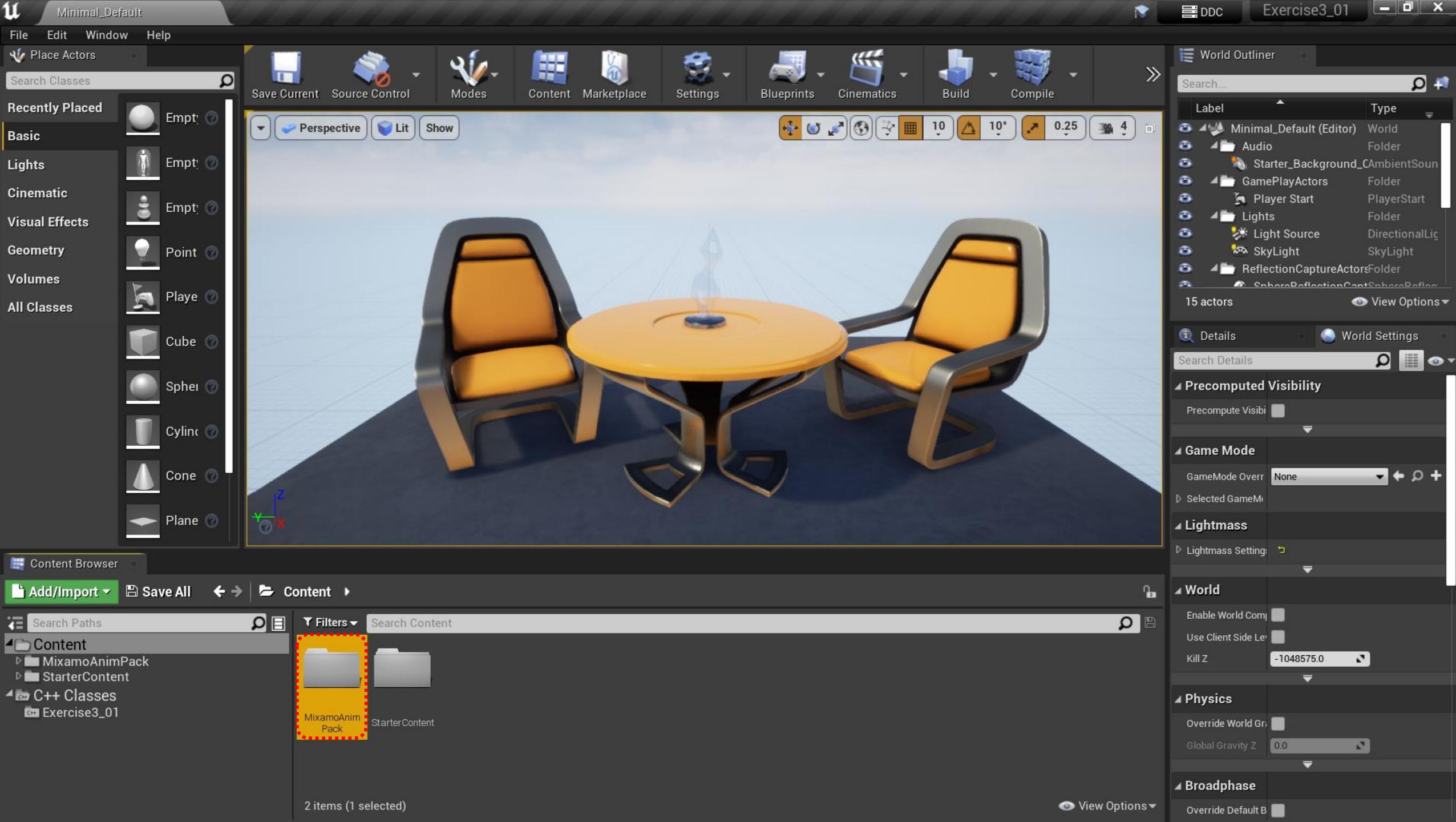
★ 즐겨찾기

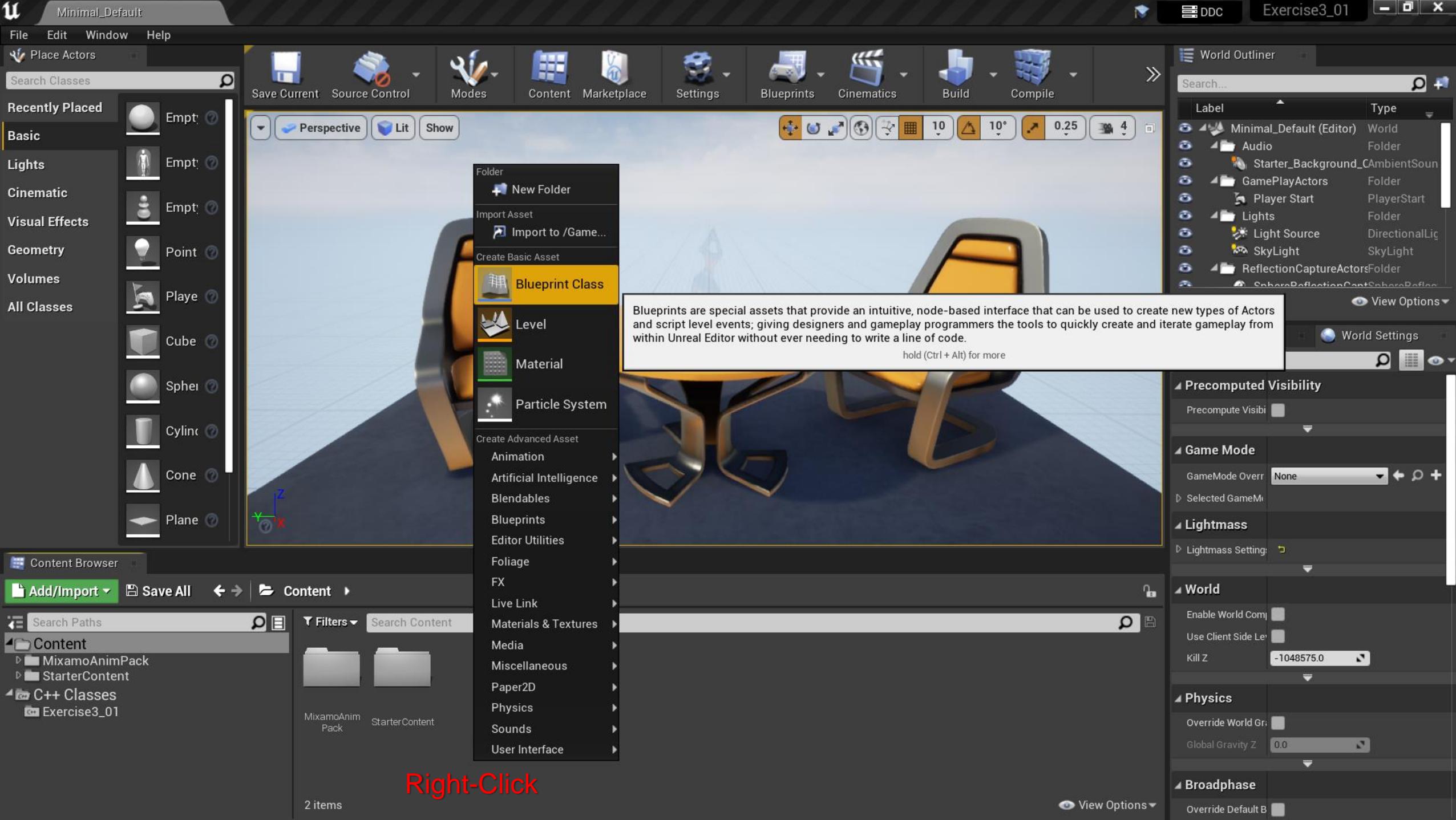
- 바탕 화면
- 다운로드
- 문서
- 사진
- 동영상
- 음악

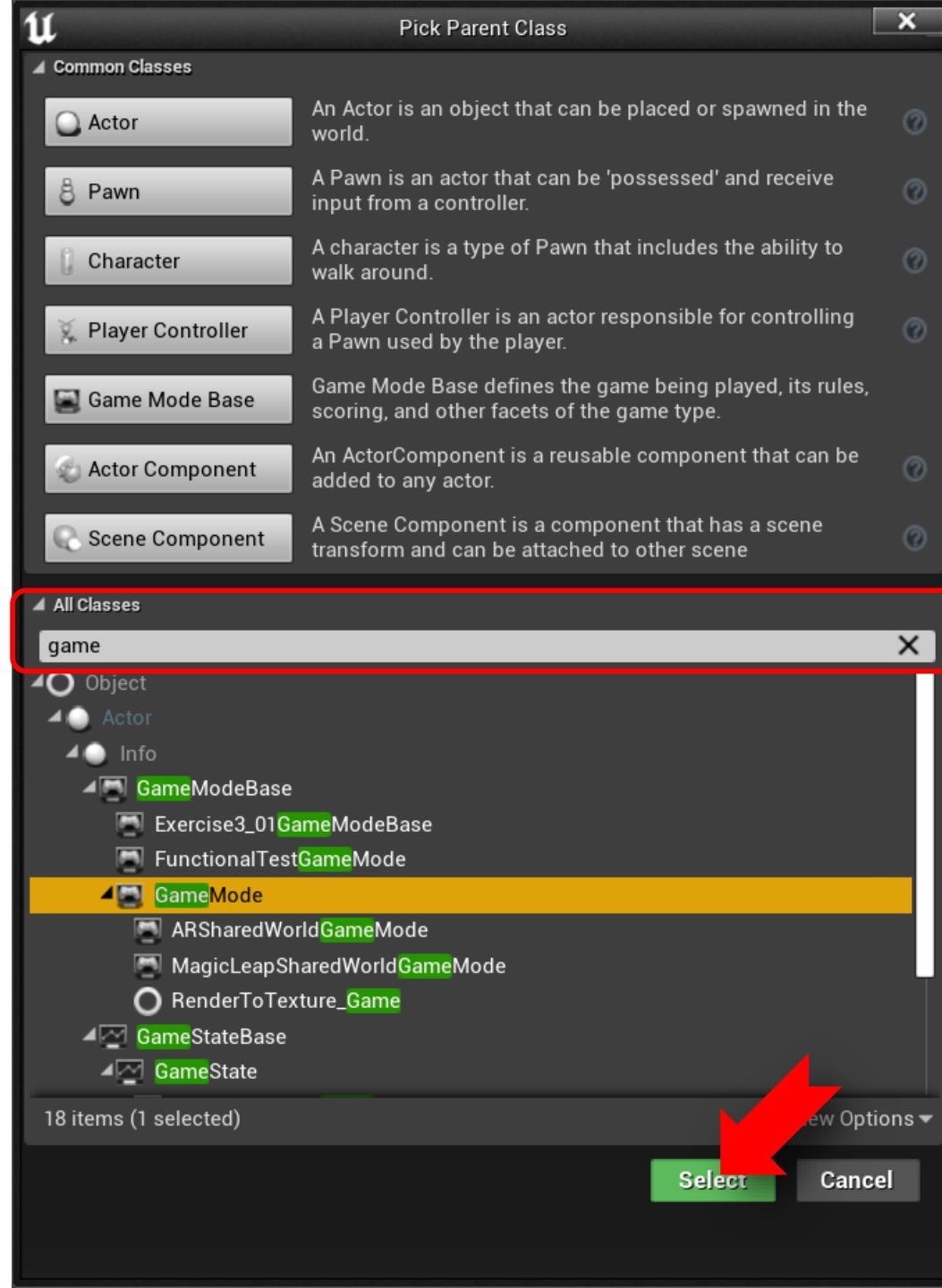
OneDrive

내 PC

4개 항목 | 1개 항목 선택함







File Edit Window Help

Place Actors

Search Classes

Recently Placed

Basic

- Empty
- Empty
- Empty
- Point
- Player
- Cube
- Sphere
- Cylinder
- Cone
- Plane

Content Browser



World Outliner

Search...

Label	Type
Minimal_Default (Editor)	World
Audio	Folder
Starter_Background_CAmbientSound	Sound
GamePlayActors	Folder
Player Start	PlayerStart
Lights	Folder
Light Source	DirectionalLight
SkyLight	SkyLight
ReflectionCaptureActorsFolder	Folder
SphereReflectionCaptureSphereReflection	Object

15 actors

View Options

Details

World Settings

Search Details

Precomputed Visibility

Precompute Visibi

Game Mode

GameMode Overr

Selected GameMo

Lightmass

Lightmass Setting

World

Enable World Comp

Use Client Side Le

Kill Z

-1048575.0

Physics

Override World Gr

Global Gravity Z

0.0

Broadphase

Override Default B

Add/Import Save All Content

Content

MixamoAnimPack

StarterContent

C++ Classes

Exercise3_01

Search Paths

Filters

Search Content

NewBlueprint

3 items (1 selected)

View Options

File Edit Window Help

Place Actors

Search Classes

Recently Placed

- Basic
- Lights
- Cinematic
- Visual Effects
- Geometry
- Volumes
- All Classes

Content Browser



World Outliner

Search...

Label	Type
Minimal_Default (Editor)	World
Audio	Folder
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GamePlayActors	Folder
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Light Source	DirectionalLight
SkyLight	SkyLight
ReflectionCaptureActorsFolder	Folder
SphereReflectionCapturesSphereReflection	Object

15 actors

View Options

Details

World Settings

Search Details

Precomputed Visibility

Game Mode

GameMode Overrider None

Selected GameMode

Lightmass

Lightmass Setting

World

Enable World Comp

Use Client Side Lighting

Kill Z -1048575.0

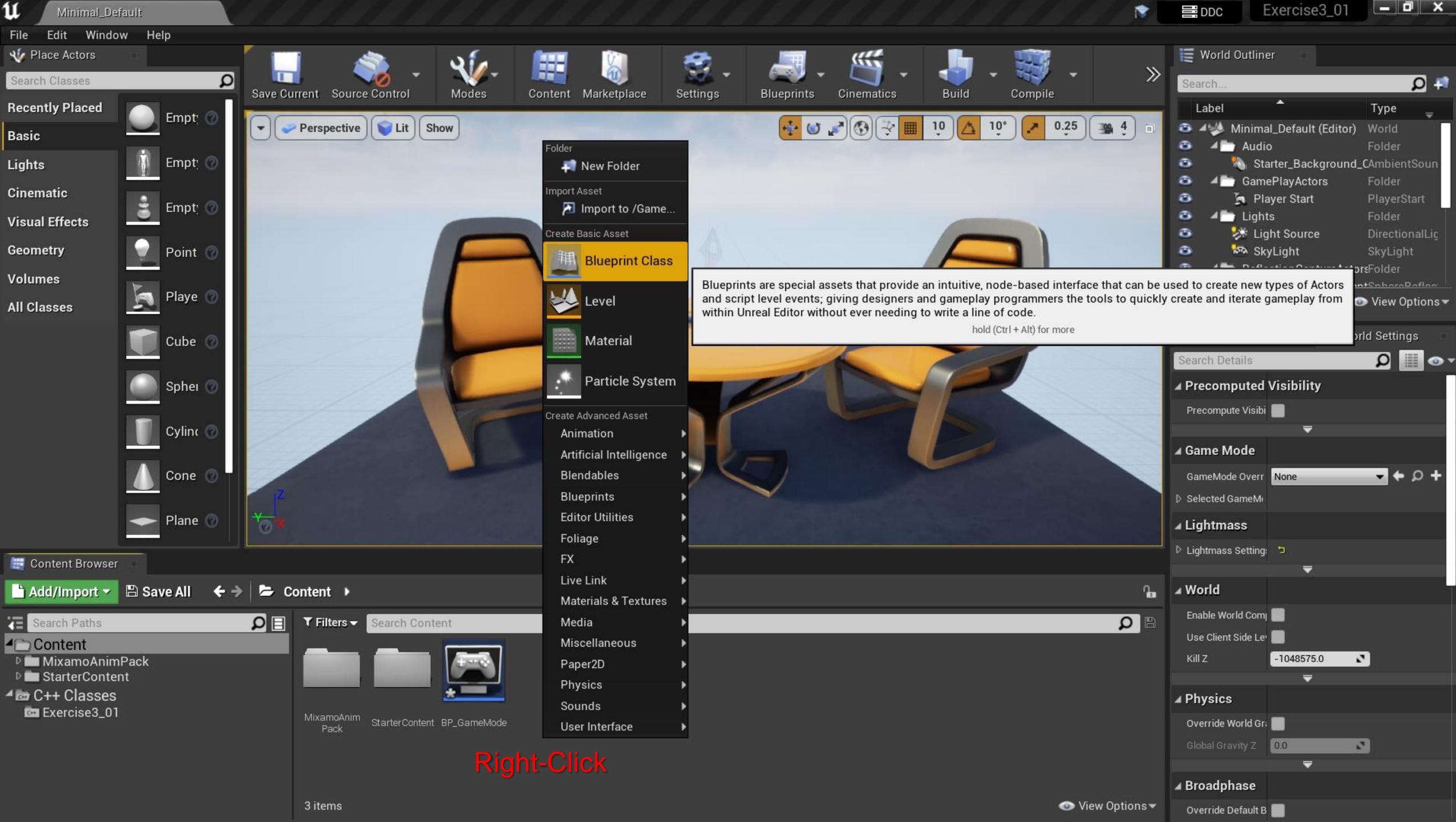
Physics

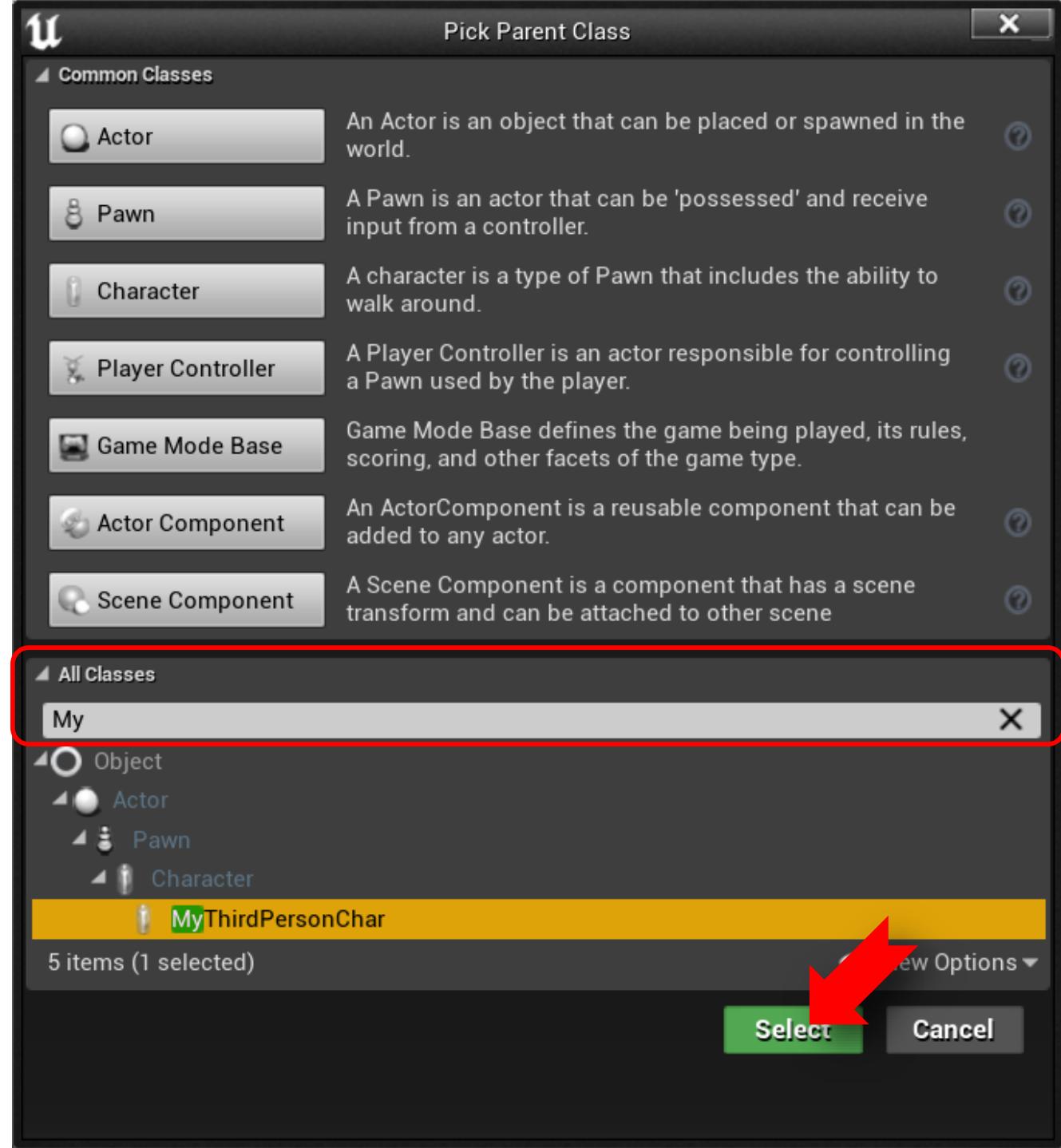
Override World Gravity

Global Gravity Z 0.0

Broadphase

Override Default Broadphase





File Edit Window Help

Place Actors

Search Classes

Recently Placed

- Basic
- Lights
- Cinematic
- Visual Effects
- Geometry
- Volumes
- All Classes

Content Browser



World Outliner

Search...

Label	Type
Minimal_Default (Editor)	World
Audio	Folder
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GamePlayActors	Folder
Player Start	PlayerStart
Lights	Folder
Light Source	DirectionalLight
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ReflectionCaptureActorsFolder	Folder
SphereReflectionCapturesphereReflection	Sound

Details World Settings

Search Details

Precomputed Visibility

Game Mode

GameMode Overrider None

Selected GameMode

Lightmass

Lightmass Setting

World

Enable World Comp

Use Client Side L

Kill Z -1048575.0

Physics

Override World Gr

Global Gravity Z 0.0

Broadphase

Override Default B

Add/Import Save All Content

Search Paths Filters Search Content

Content

- MixamoAnimPack
- StarterContent

C++ Classes

Exercise3_01

NewBlueprint

4 items (1 selected)

View Options

File Edit Window Help

Place Actors

Search Classes

Recently Placed

- Basic
- Lights
- Cinematic
- Visual Effects
- Geometry
- Volumes
- All Classes

Content Browser

Add/Import Save All

Content

- MixamoAnimPack
- StarterContent
- C++ Classes
- Exercise3_01



World Outliner

Search...

Label	Type
Minimal_Default (Editor)	World
Audio	Folder
Starter_Background_CAmbientSound	Sound
GamePlayActors	Folder
Player Start	PlayerStart
Lights	Folder
Light Source	DirectionalLight
SkyLight	SkyLight
ReflectionCaptureActorsFolder	Folder
SphereReflectionCapturesphereReflection	Sound

15 actors View Options

Details World Settings

Search Details

Precomputed Visibility

Game Mode

GameMode Overrider None

Selected GameMode

Lightmass

Lightmass Setting

World

Enable World Comp

Use Client Side Lighting

Kill Z -1048575.0

Physics

Override World Gravity

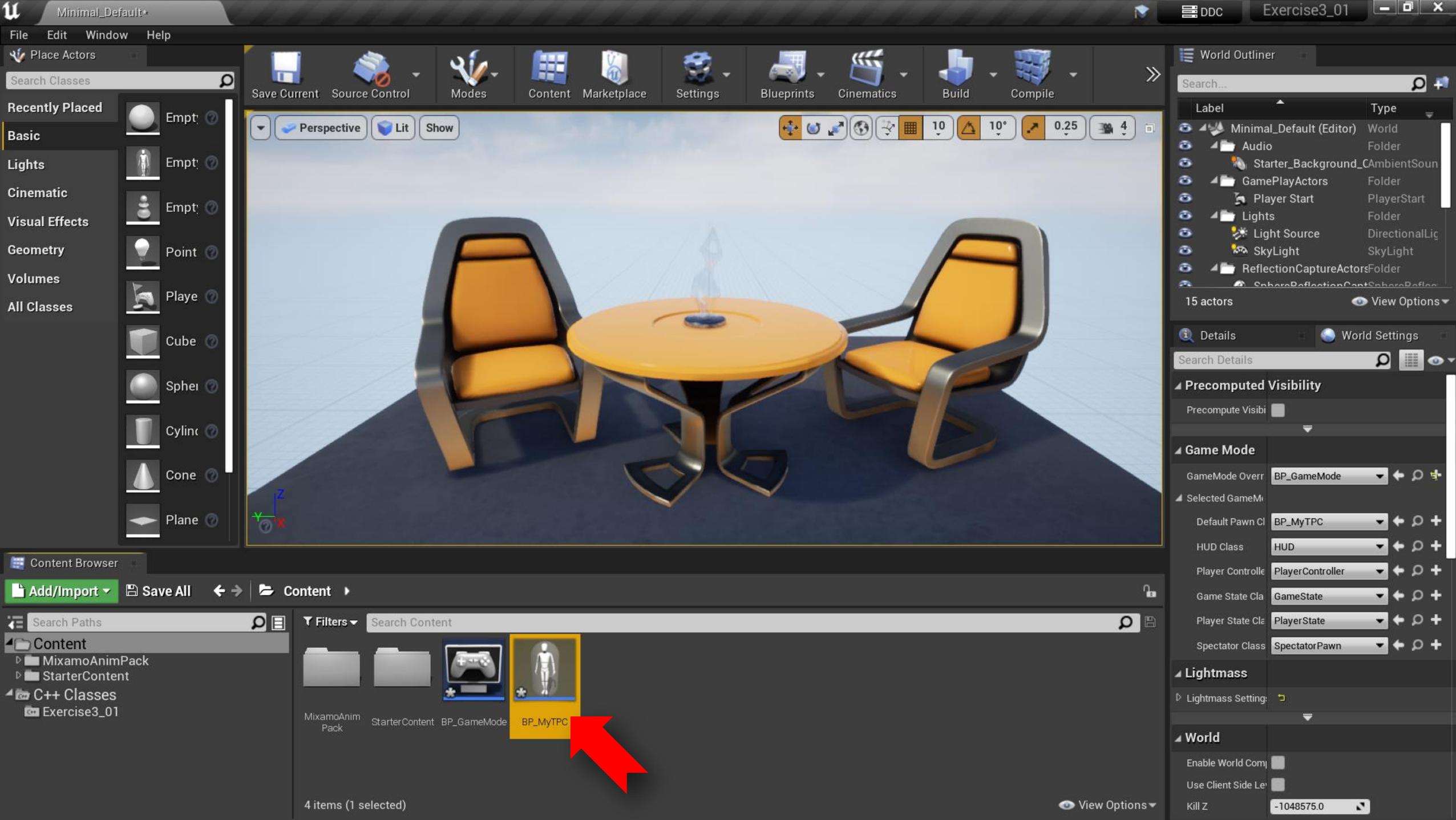
Global Gravity Z 0.0

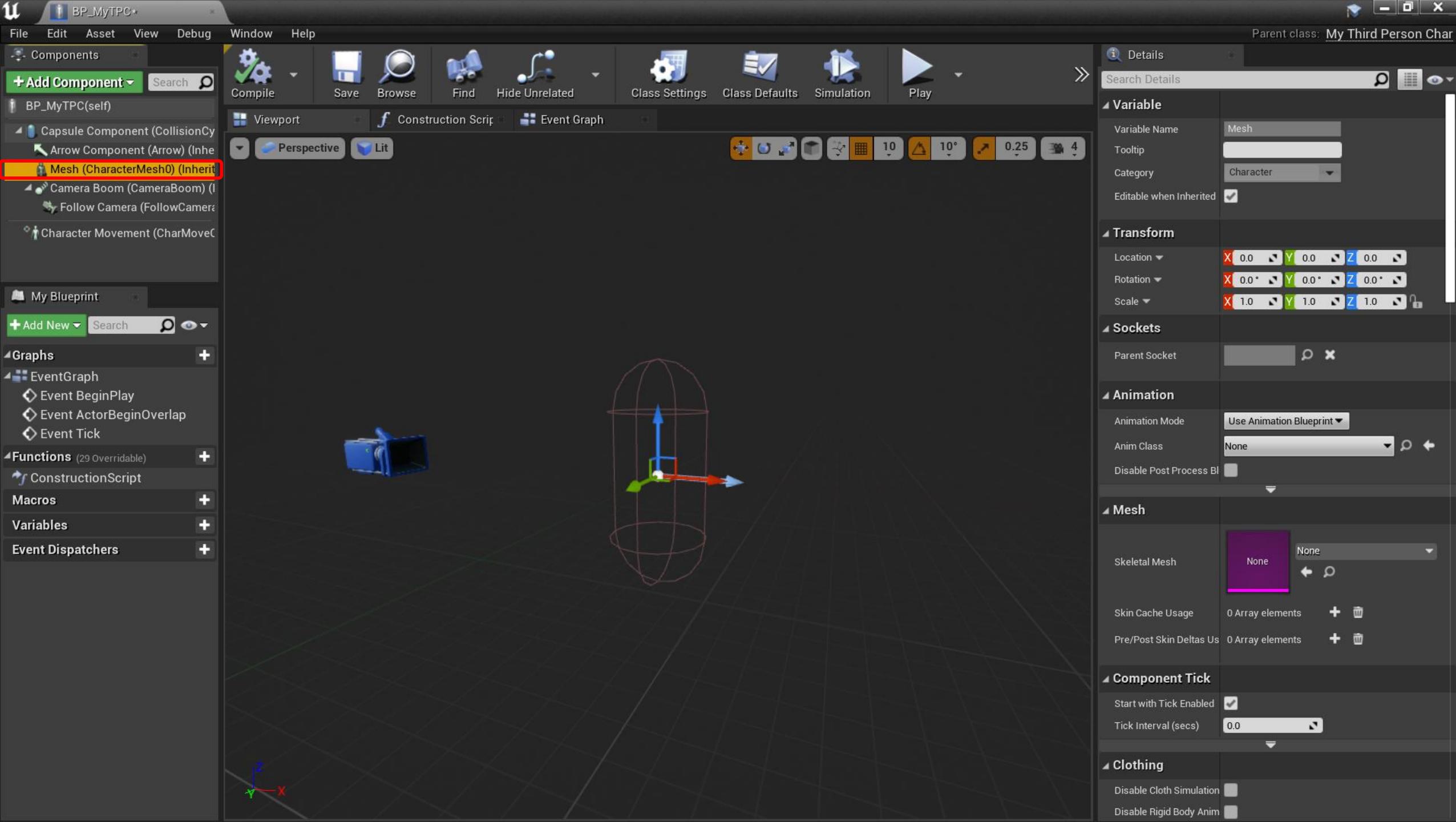
Broadphase

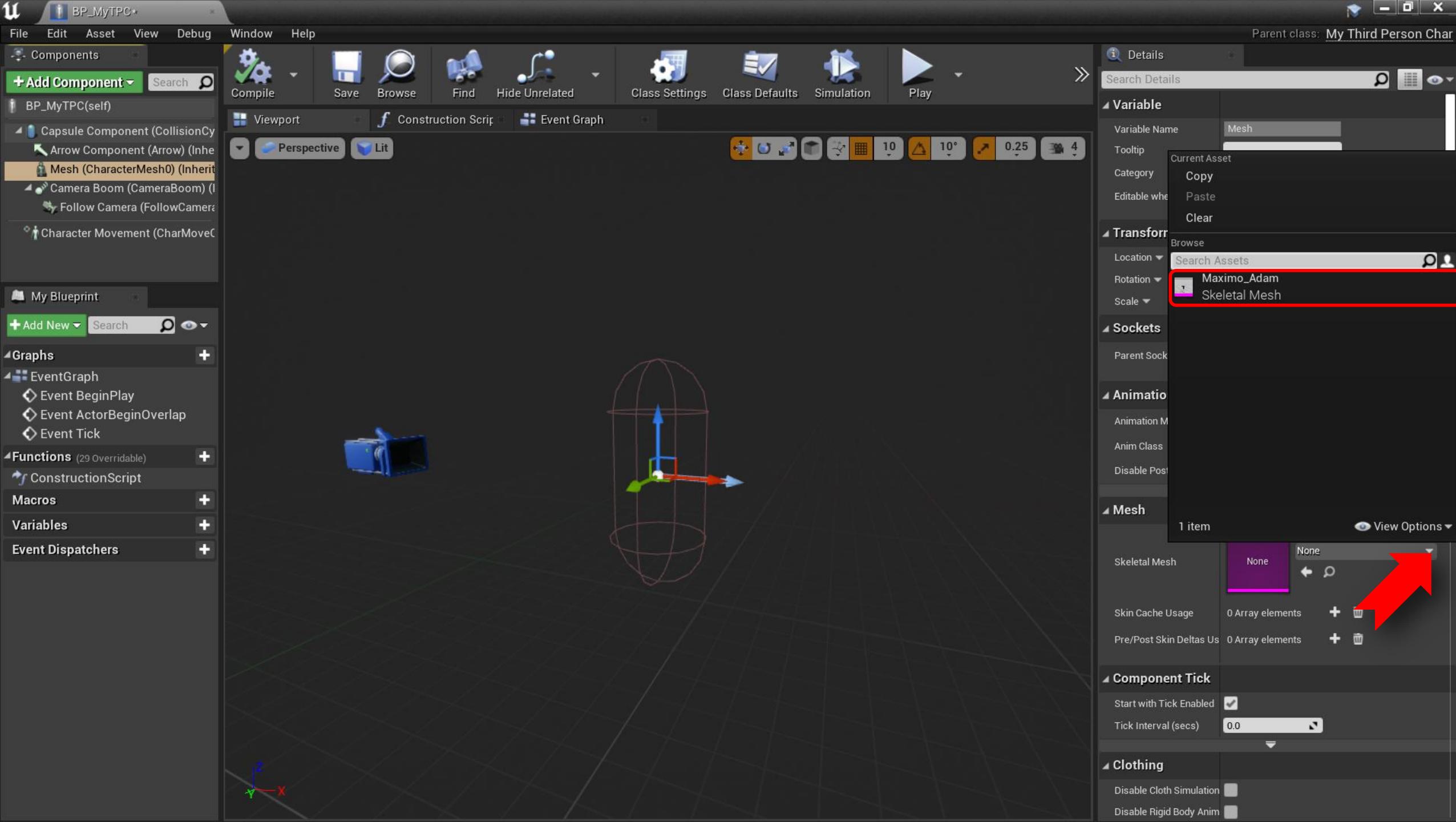
Override Default Broadphase

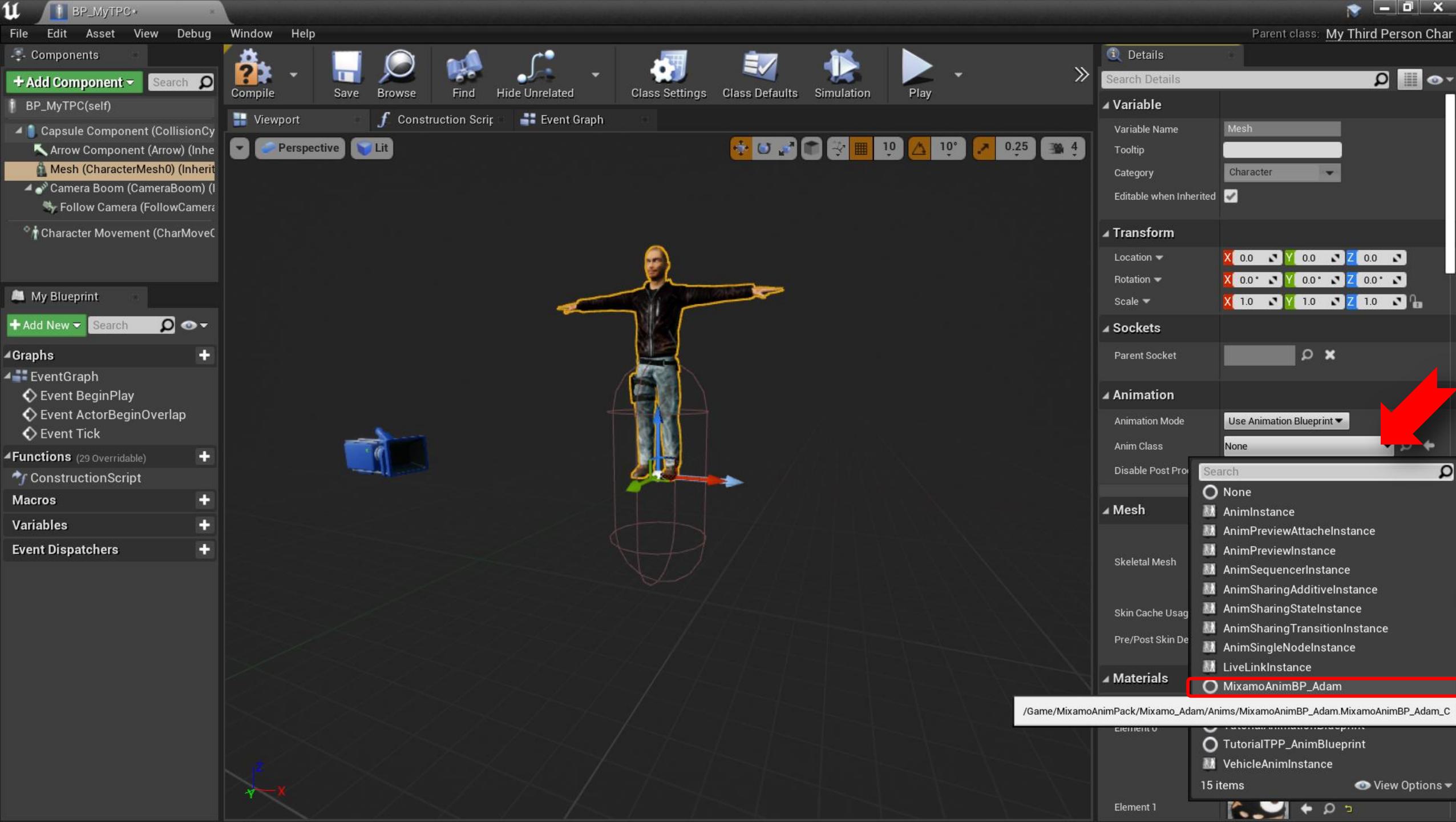


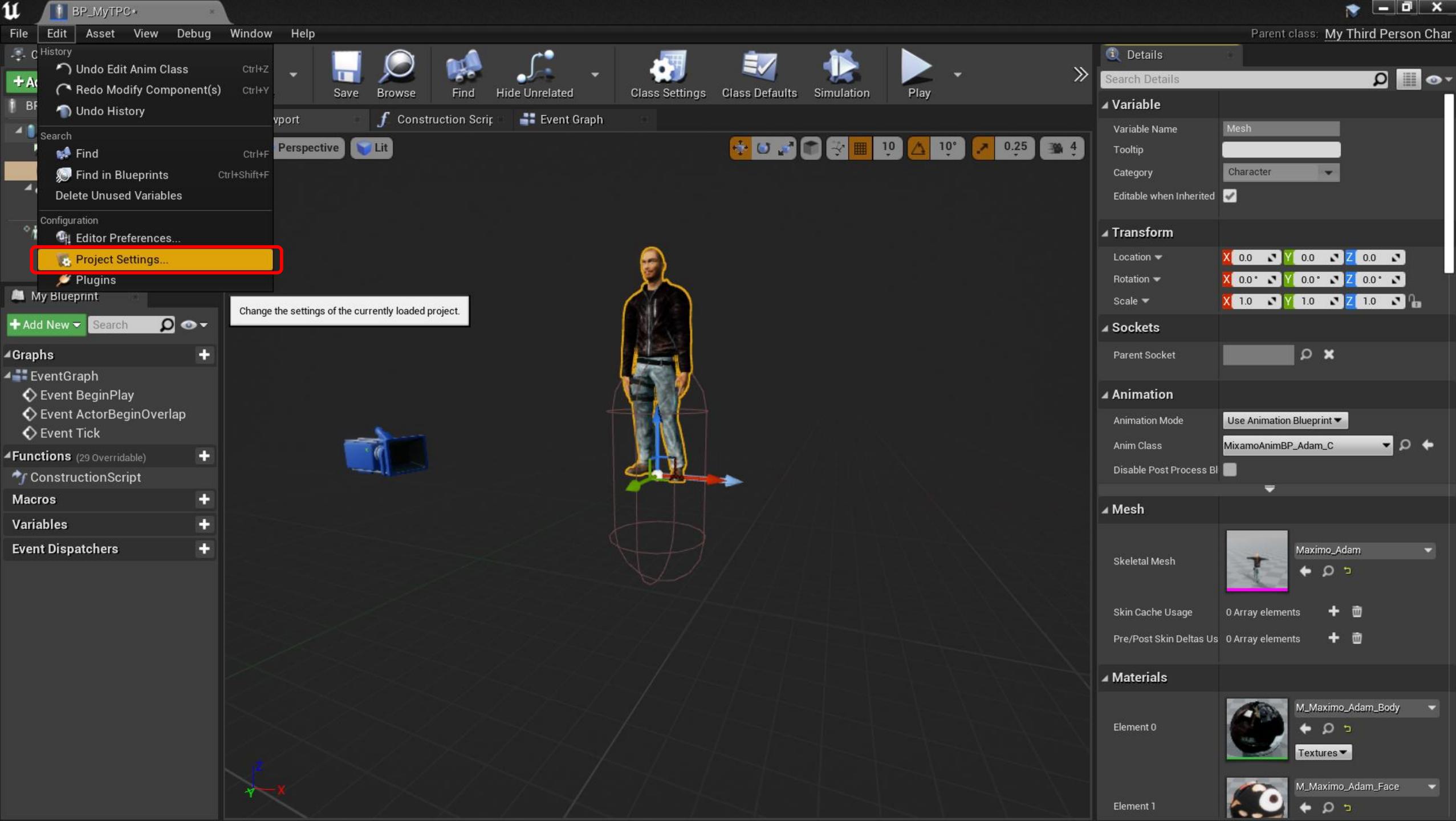














Project Settings

All Settings

Project

Crypto

Description

GameplayTags

Maps & Modes

Movies

Packaging

Supported Platforms

Target Hardware

Game

Asset Manager

Asset Tools

Engine

AI System

Animation

Audio

Search Details



Project - Description

Descriptions and other information about your project.

Export... Import...

These settings are saved in DefaultGame.ini, which is currently writable.

About

Project Thumbnail



...

Description

Project ID

{B7692C9A-4D7B-A51A-E71D-3CAD287226B9}



Project Name

Project Version

1.0.0.0



Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)[Input](#)[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

Search Details



Engine - Input

Input settings, including default input action and axis bindings.

[Export...](#) [Import...](#)

These settings are saved in DefaultInput.ini, which is currently writable.

Bindings

Action and Axis Mappings provide a mechanism to conveniently map keys and axes to input behaviors by inserting a layer of indirection between the input behavior and the keys that invoke it. Action Mappings are for key presses and releases, while Axis Mappings allow for inputs that have a continuous range.

[Action Mappings](#) + [Delete](#)[Axis Mappings](#) + [Delete](#)[Speech Mappings](#) + [Delete](#)0 Array elements + [Delete](#)

Viewport Properties

 Capture Mouse on Launch

Default Viewport Mouse Capture Mode

Capture Permanently Including Initial Mouse Down ▾

Default Viewport Mouse Lock Mode

Lock on Capture ▾

Mobile

Always Show Touch Interface





Engine

- AI System
- Animation
- Audio
- Chaos Solver
- Collision
- Console
- Cooker
- Crowd Manager
- Data Driven CVars
- Debug Camera Controller
- Gameplay Debugger
- Garbage Collection
- General Settings
- Hierarchical LOD
- ▶ Input
- Landscape
- Level Sequence
- Navigation Mesh

Search Details



Engine - Input

Input settings, including default input action and axis bindings.

Export... Import...

These settings are saved in DefaultInput.ini, which is currently writable.

Bindings

Action and Axis Mappings provide a mechanism to conveniently map keys and axes to input behaviors by inserting a layer of indirection between the input behavior and the keys that invoke it. Action Mappings are for key presses and releases, while Axis Mappings allow for inputs that have a continuous range.

Action Mappings + X

Axis Mappings + X

▶ NewAxisMapping_0 + X

Speech Mappings

0 Array elements

+ X

Viewport Properties

Capture Mouse on Launch



Default Viewport Mouse Capture Mode

Capture Permanently Including Initial Mouse Down ▾

Default Viewport Mouse Lock Mode

Lock on Capture ▾

Mobile



Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

Search Details



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[Action Mappings](#) + [Axis Mappings](#) + [MoveForward](#) + 

None

Scale 1.0



Speech Mappings

0 Array elements



Viewport Properties

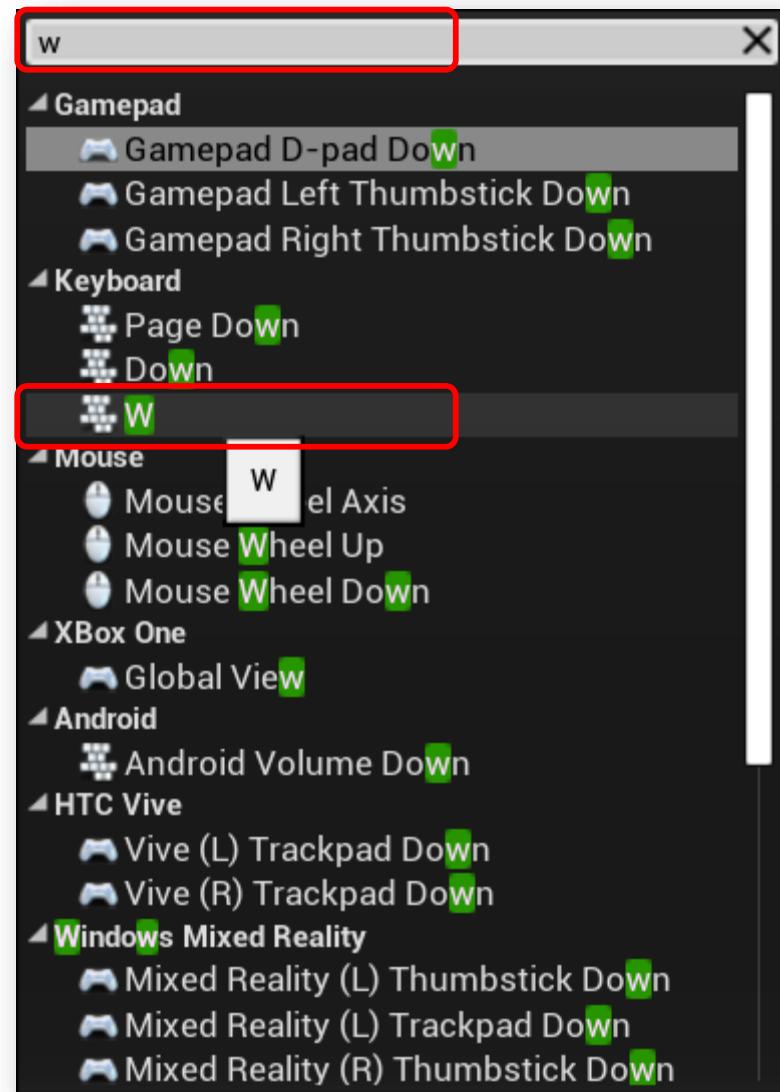
[Capture Mouse on Launch](#)[Default Viewport Mouse Capture Mode](#)

Capture Permanently Including Initial Mouse Down

[Default Viewport Mouse Lock Mode](#)

Lock on Capture







Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

Search Details



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[Action Mappings](#) [Axis Mappings](#) [MoveForward](#)

W



Axis Mapping to Group

Speech Mappings

0 Array elements

▲ Viewport Properties

 Capture Mouse on Launch

Default Viewport Mouse Capture Mode

Capture Permanently Including Initial Mouse Down

Default Viewport Mouse Lock Mode

Lock on Capture





Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

Search Details



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[Action Mappings](#)

▲ Axis Mappings

[MoveForward](#) 

W

▼

Scale 1.0



X



None

▼

Scale 1.0



X

[Speech Mappings](#)

0 Array elements

+

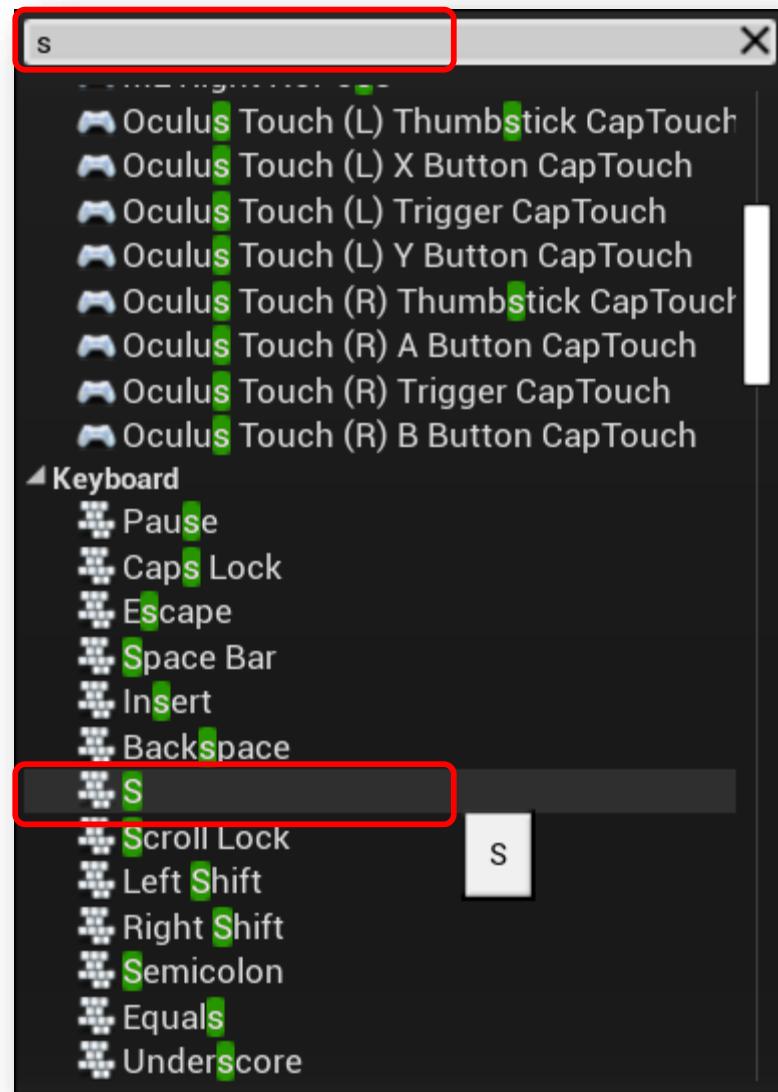


▲ Viewport Properties

 Capture Mouse on Launch

Default Viewport Mouse Capture Mode

 Capture Permanently Including Initial Mouse Down





Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

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[Action Mappings](#) + [Axis Mappings](#) + [MoveForward](#) + 

W

Scale 1.0



S

Scale -1.0

[Speech Mappings](#)

0 Array elements

+

Viewport Properties

 Capture Mouse on Launch

Default Viewport Mouse Capture Mode



Capture Permanently Including Initial Mouse Down



Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

Search Details



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[Action Mappings](#)

▲ Axis Mappings

[MoveForward](#)

W

Scale 1.0



S

Scale -1.0

[Speech Mappings](#)

0 Array elements



▲ Viewport Properties

[Capture Mouse on Launch](#)[Default Viewport Mouse Capture Mode](#)

Capture Permanently Including Initial Mouse Down



Engine

- AI System
- Animation
- Audio
- Chaos Solver
- Collision
- Console
- Cooker
- Crowd Manager
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- Debug Camera Controller
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Action Mappings + X

Axis Mappings + X

MoveForward + X

W Scale 1.0 X

S Scale -1.0 X

MoveRight + X

None Scale 1.0 X

Speech Mappings 0 Array elements + X

Viewport Properties





Engine

[AI System](#)[Animation](#)[Audio](#)[Chaos Solver](#)[Collision](#)[Console](#)[Cooker](#)[Crowd Manager](#)[Data Driven CVars](#)[Debug Camera Controller](#)[Gameplay Debugger](#)[Garbage Collection](#)[General Settings](#)[Hierarchical LOD](#)

▶ Input

[Landscape](#)[Level Sequence](#)[Navigation Mesh](#)

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[Action Mappings](#) + [Axis Mappings](#) + [MoveForward](#) +

W Scale 1.0

S Scale -1.0

[MoveRight](#) +

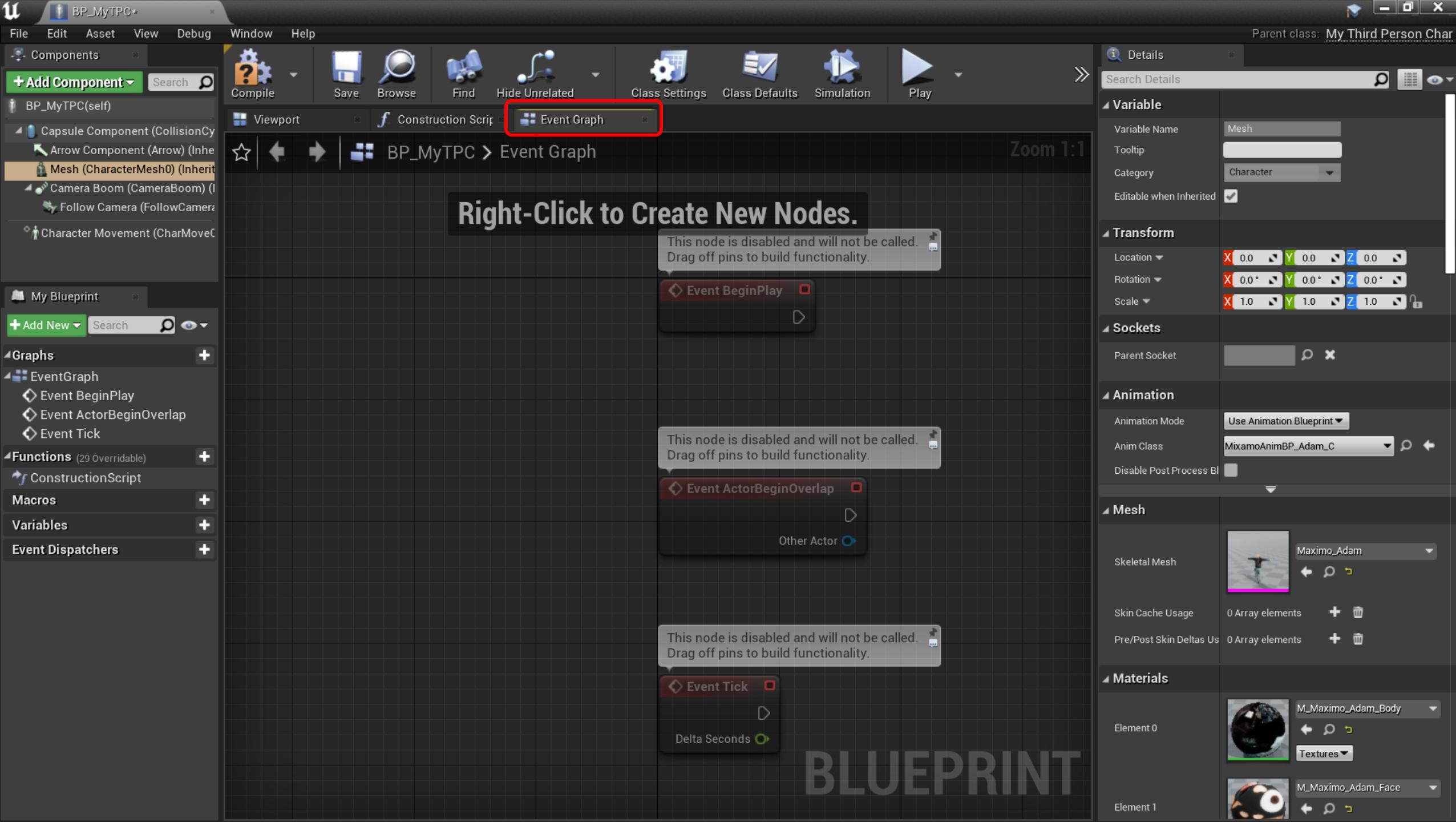
A Scale -1.0

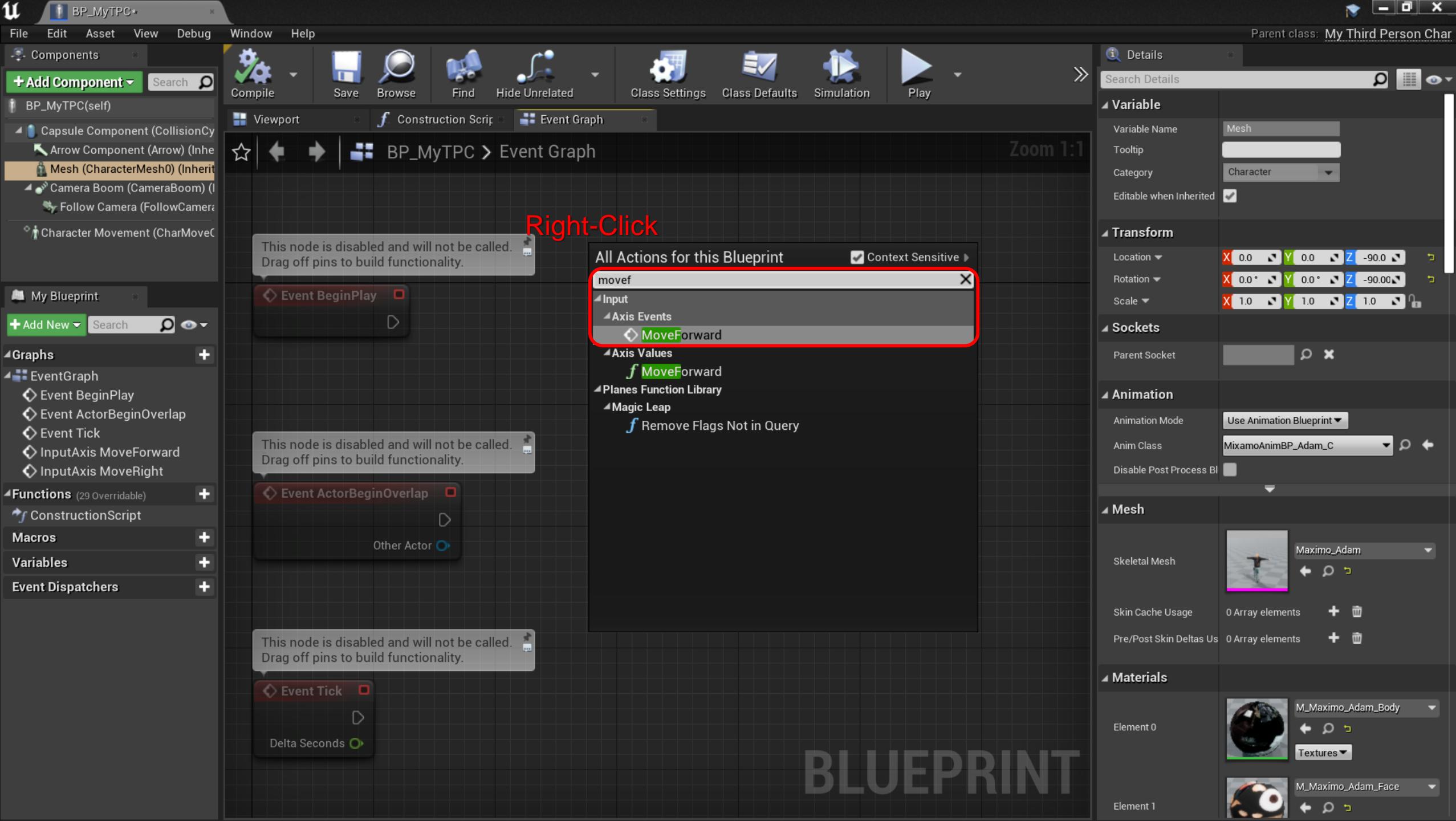
D Scale 1.0

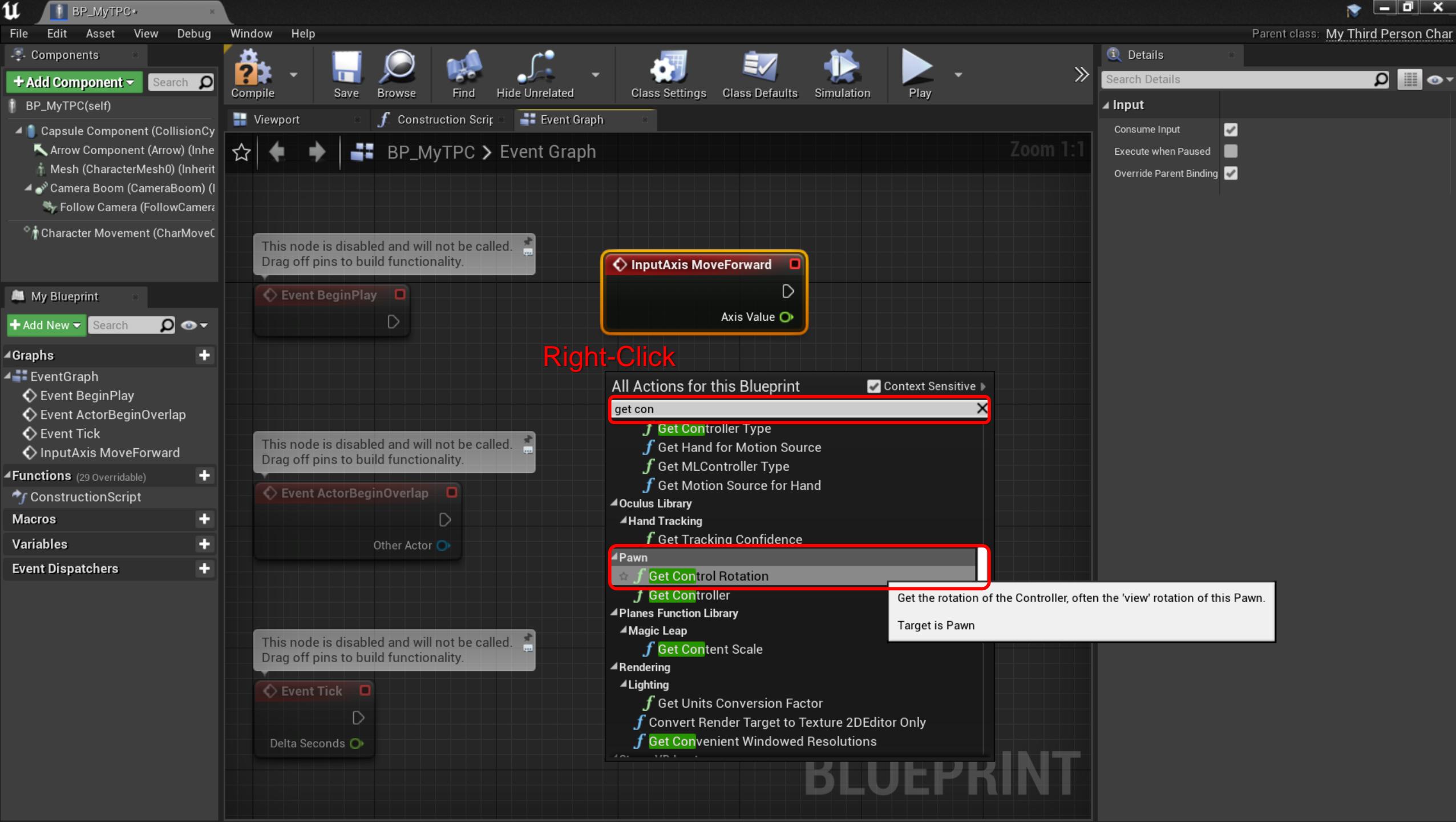
Speech Mappings

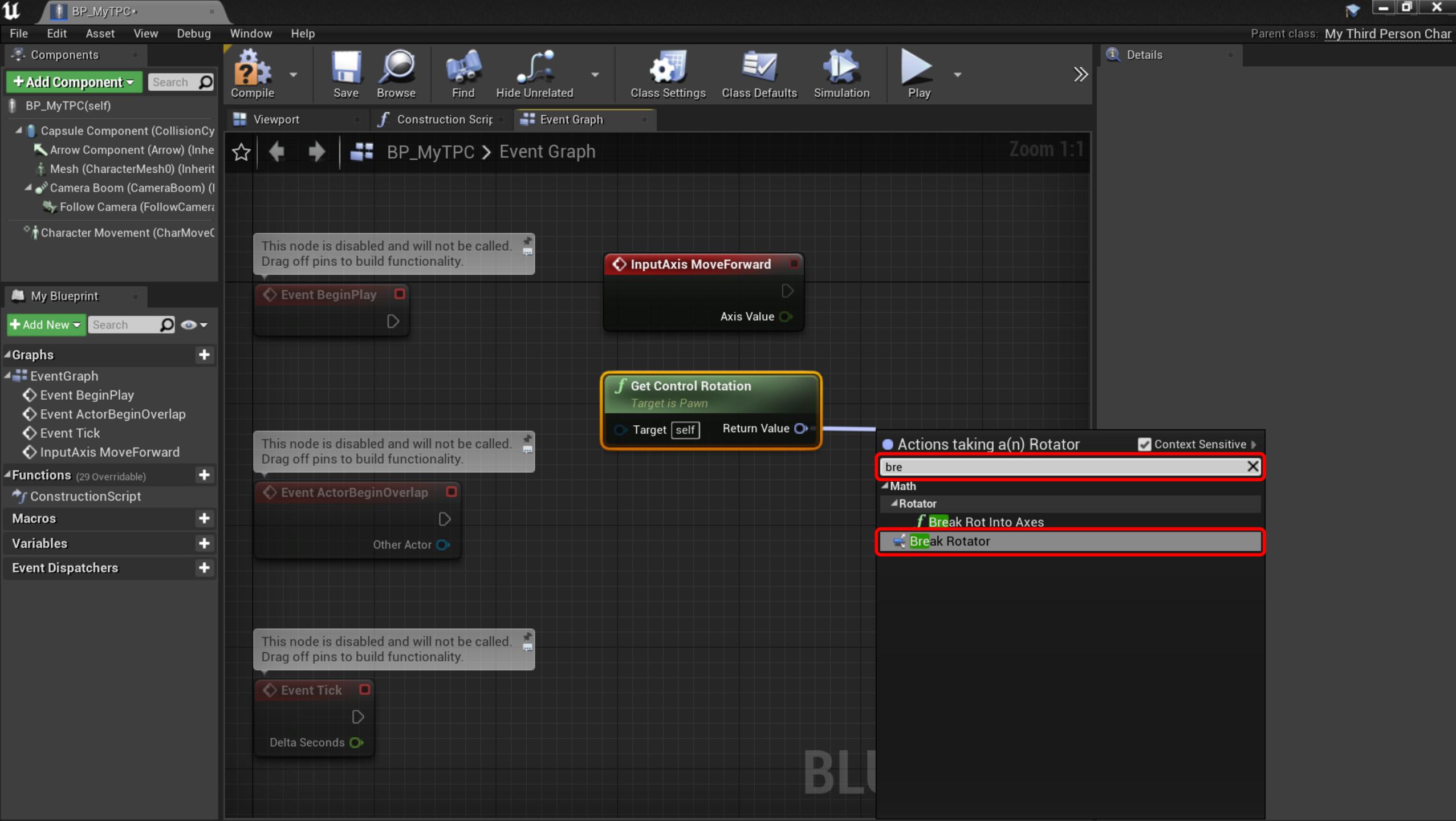
0 Array elements

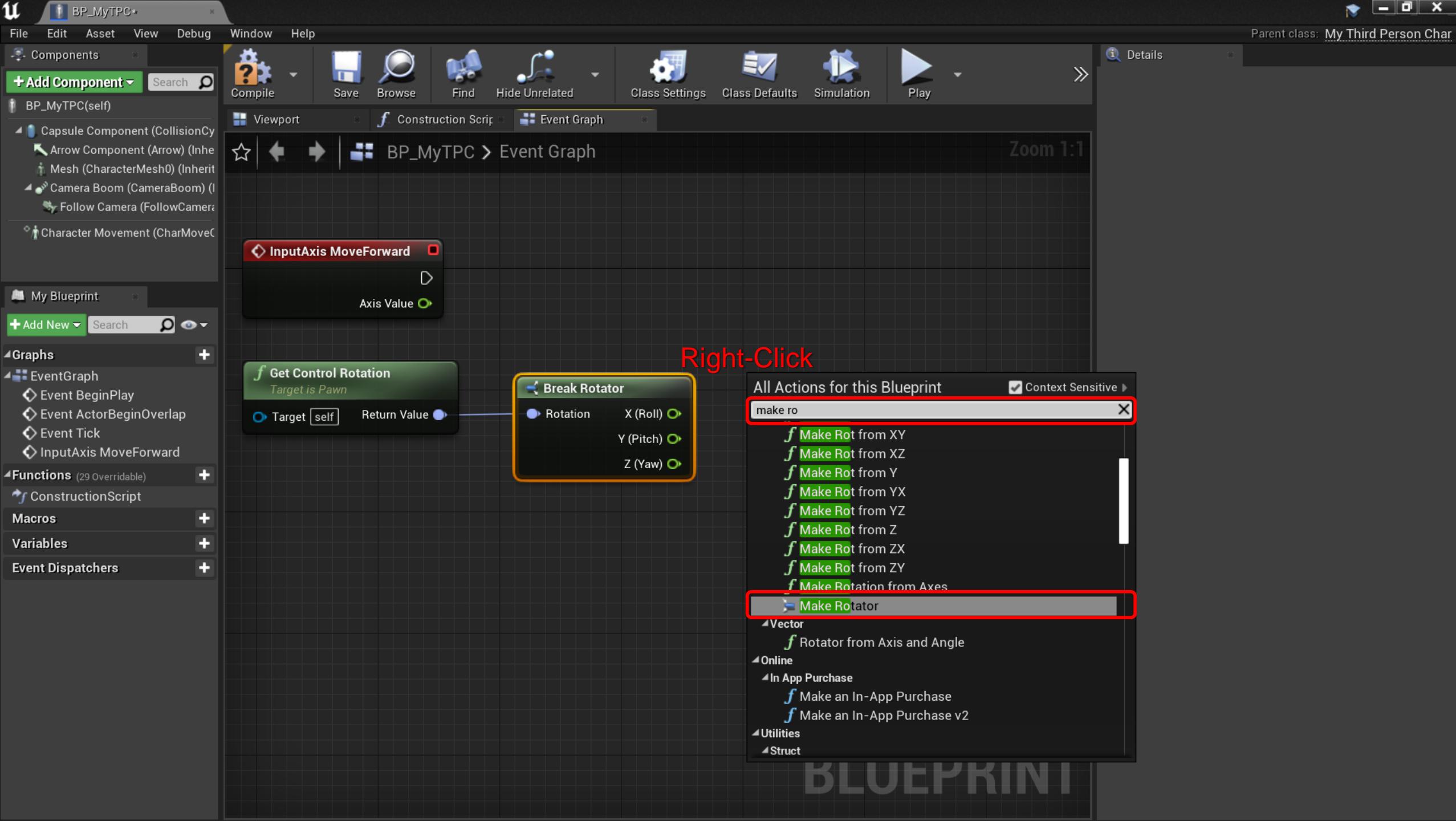


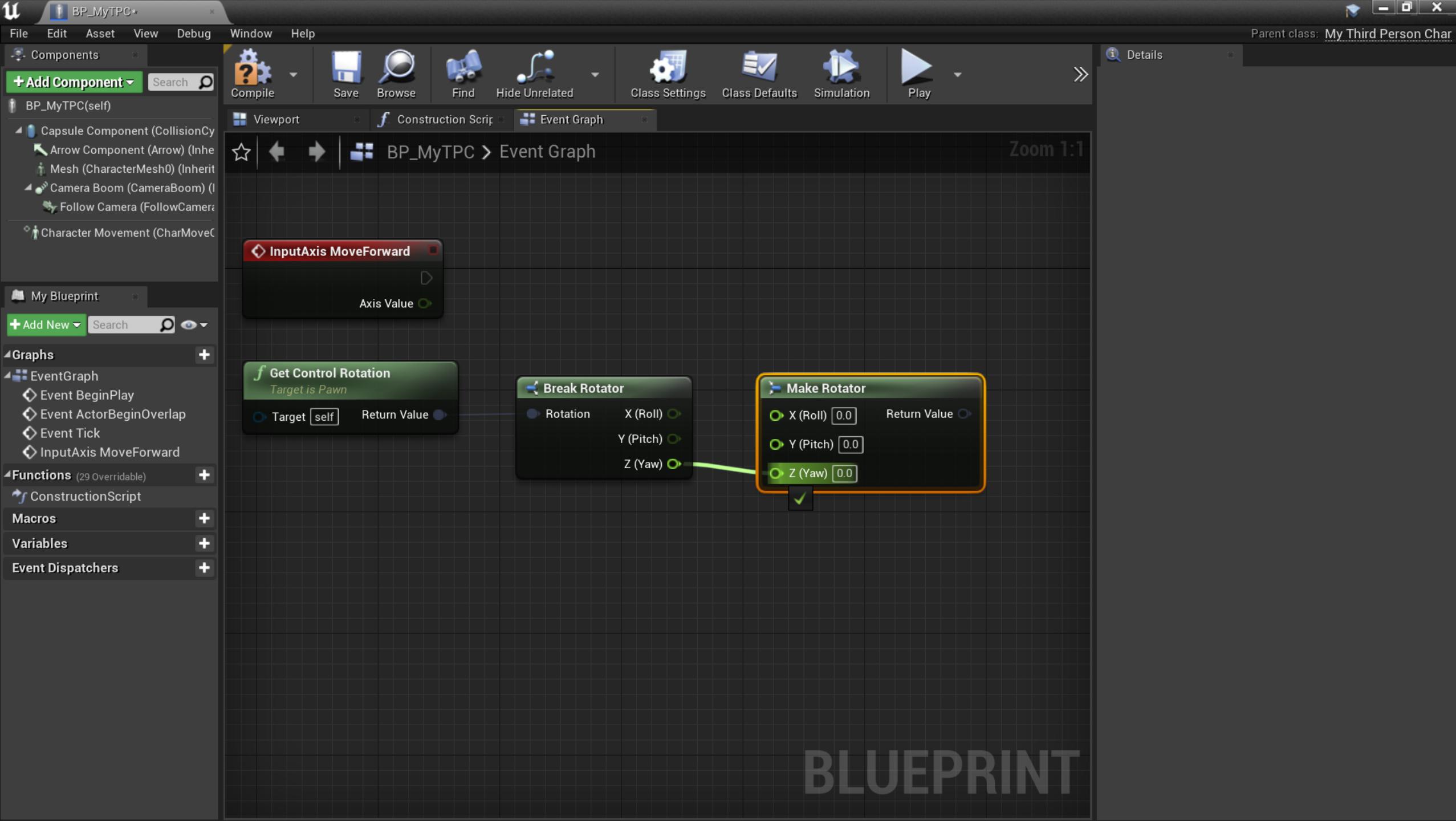


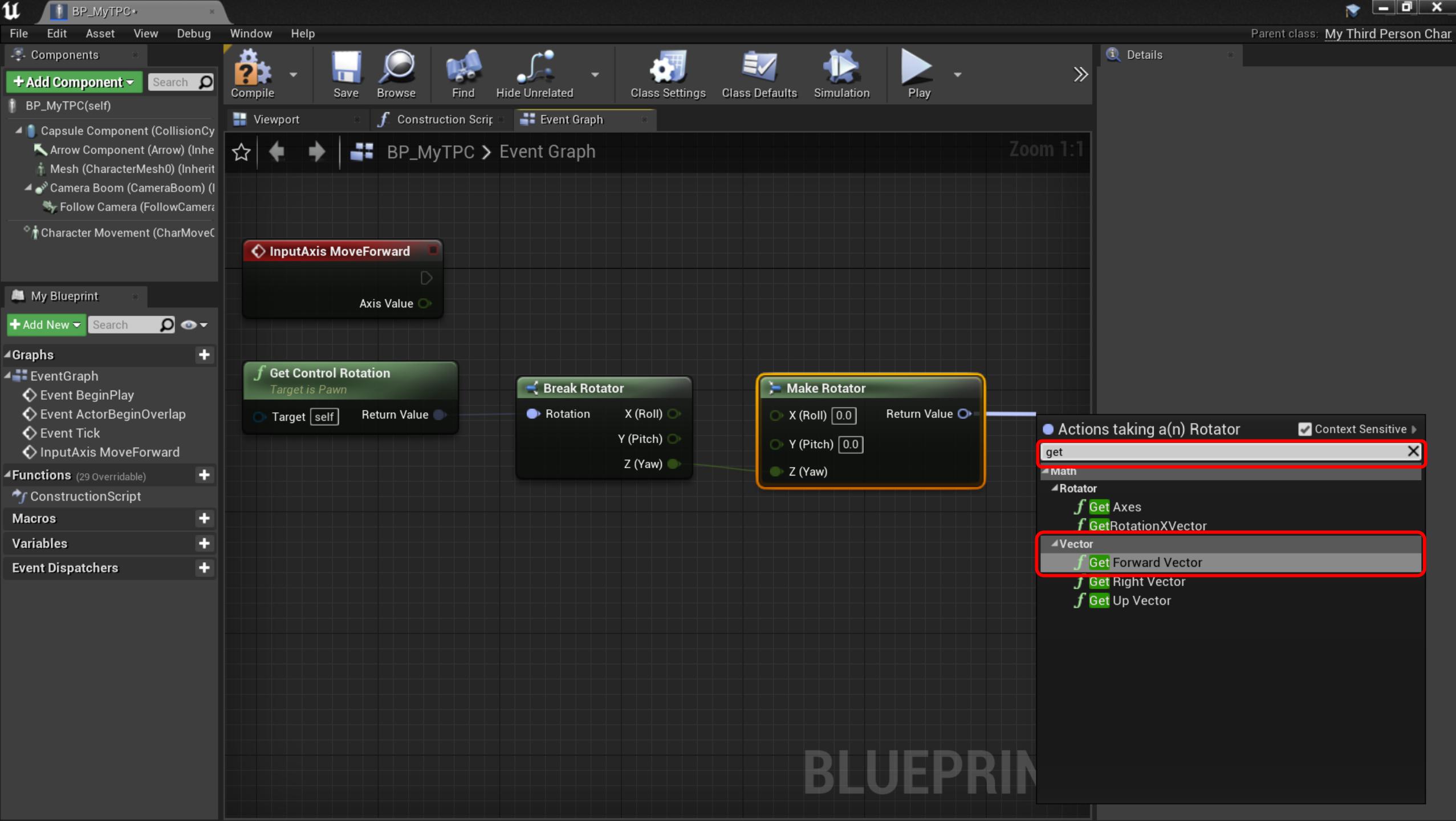


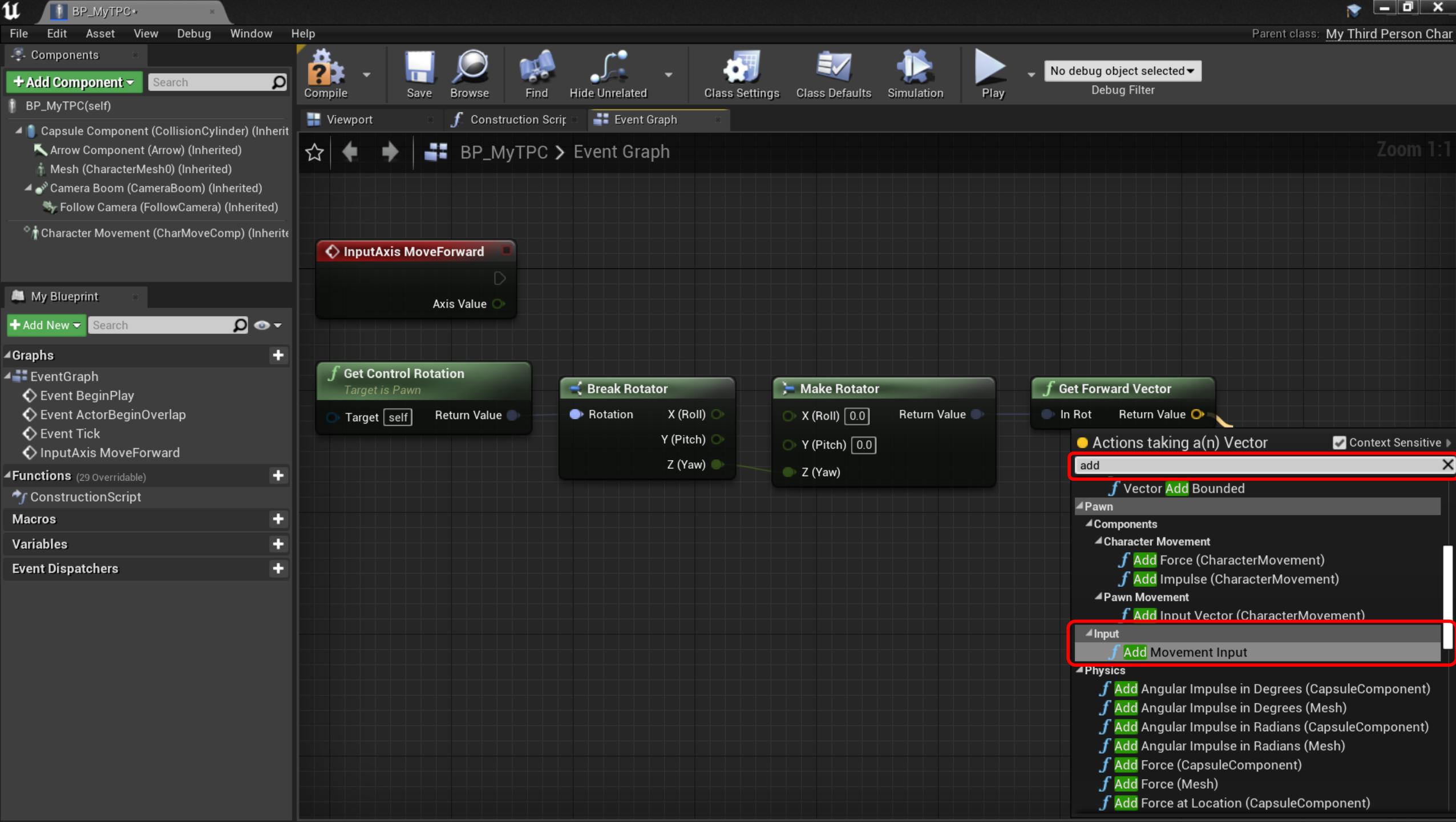


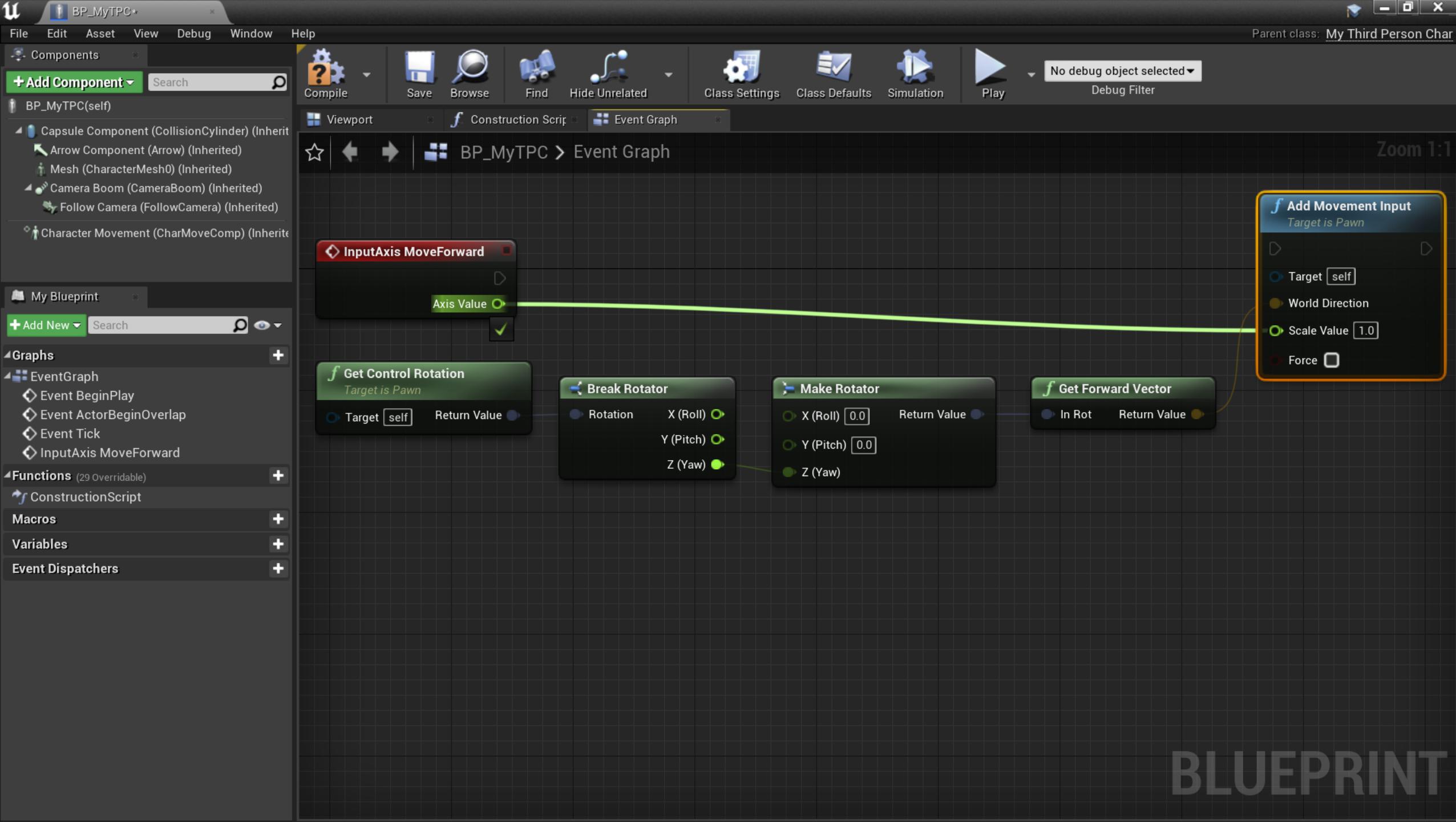


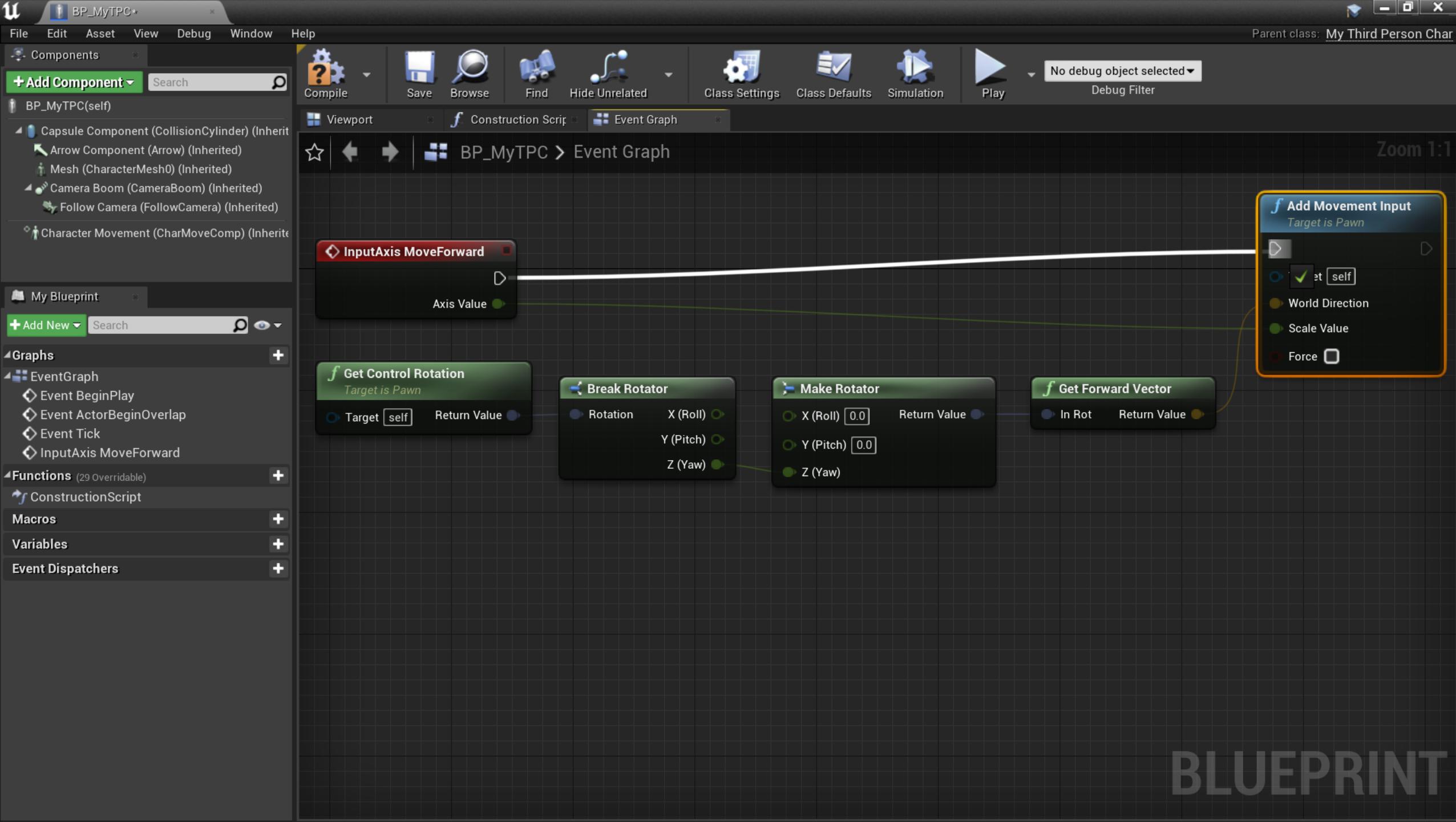


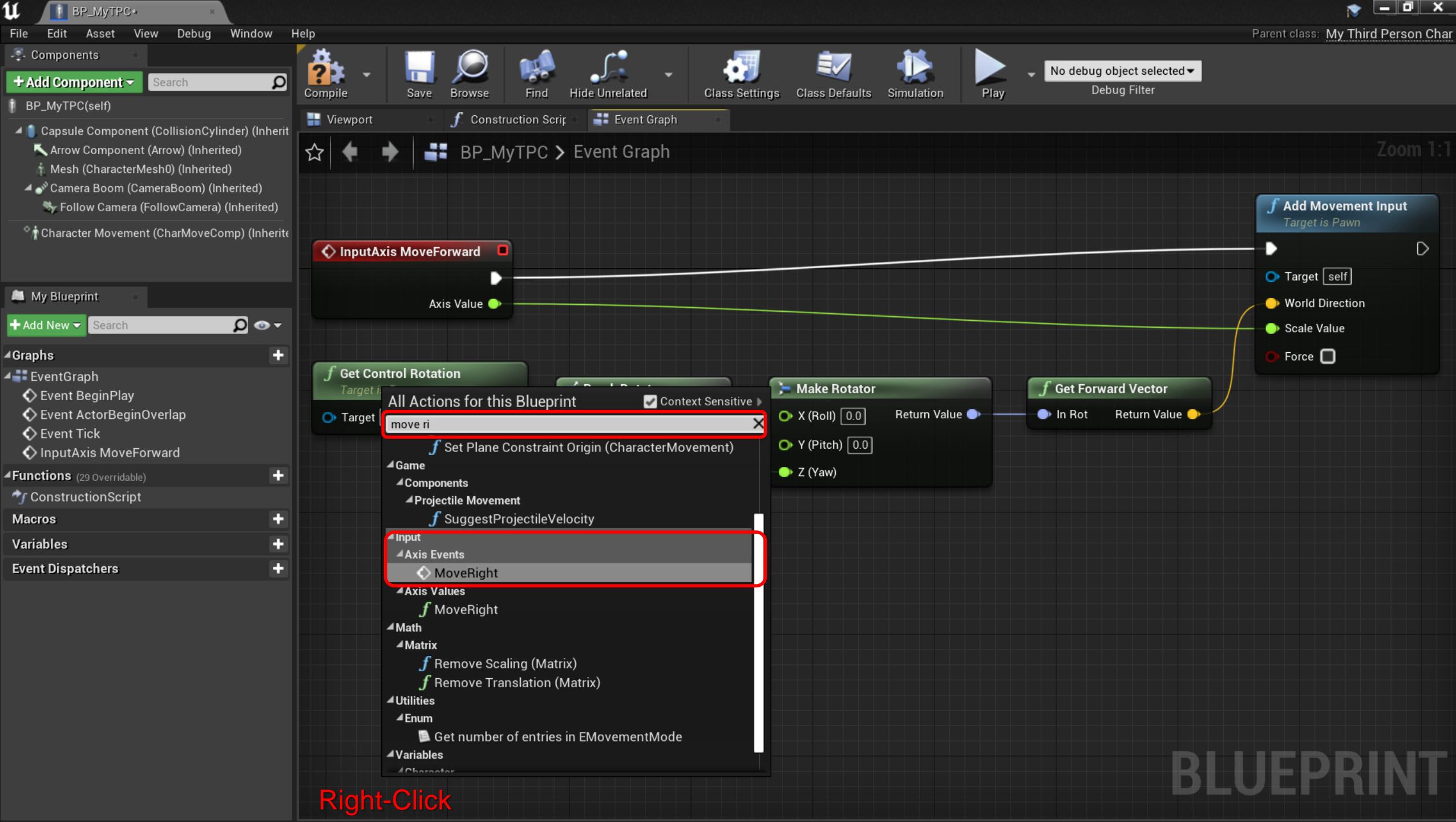




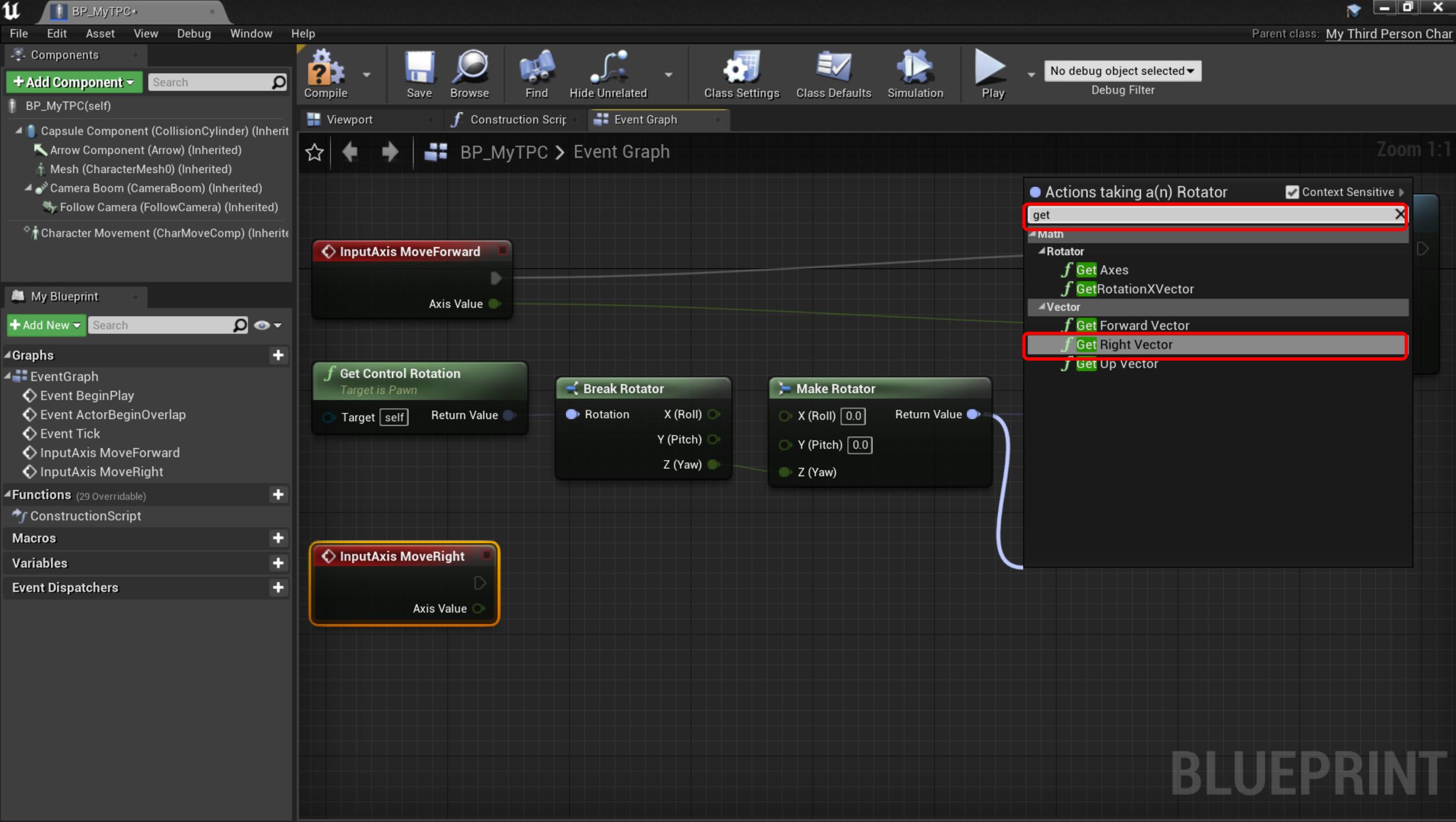


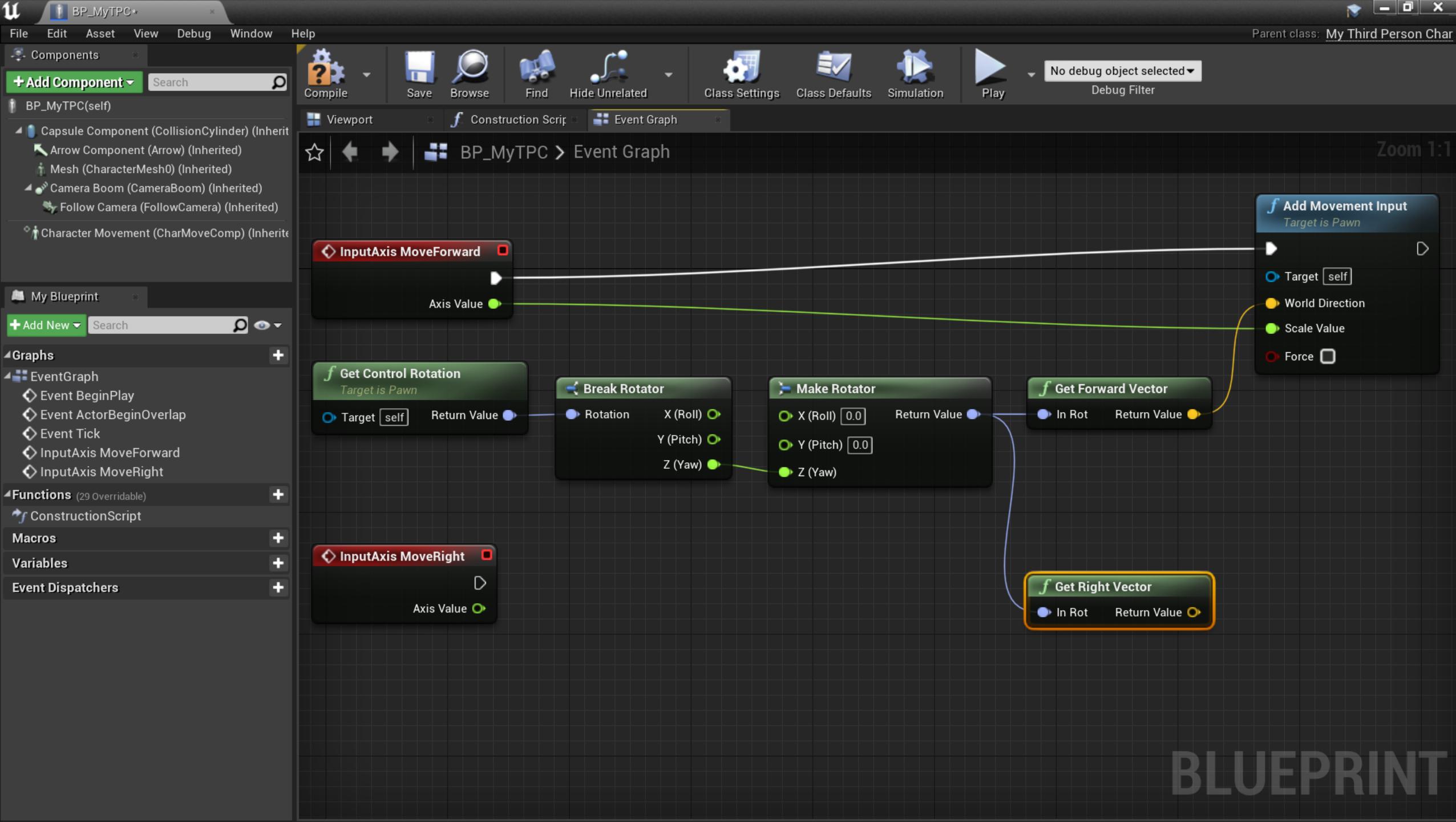


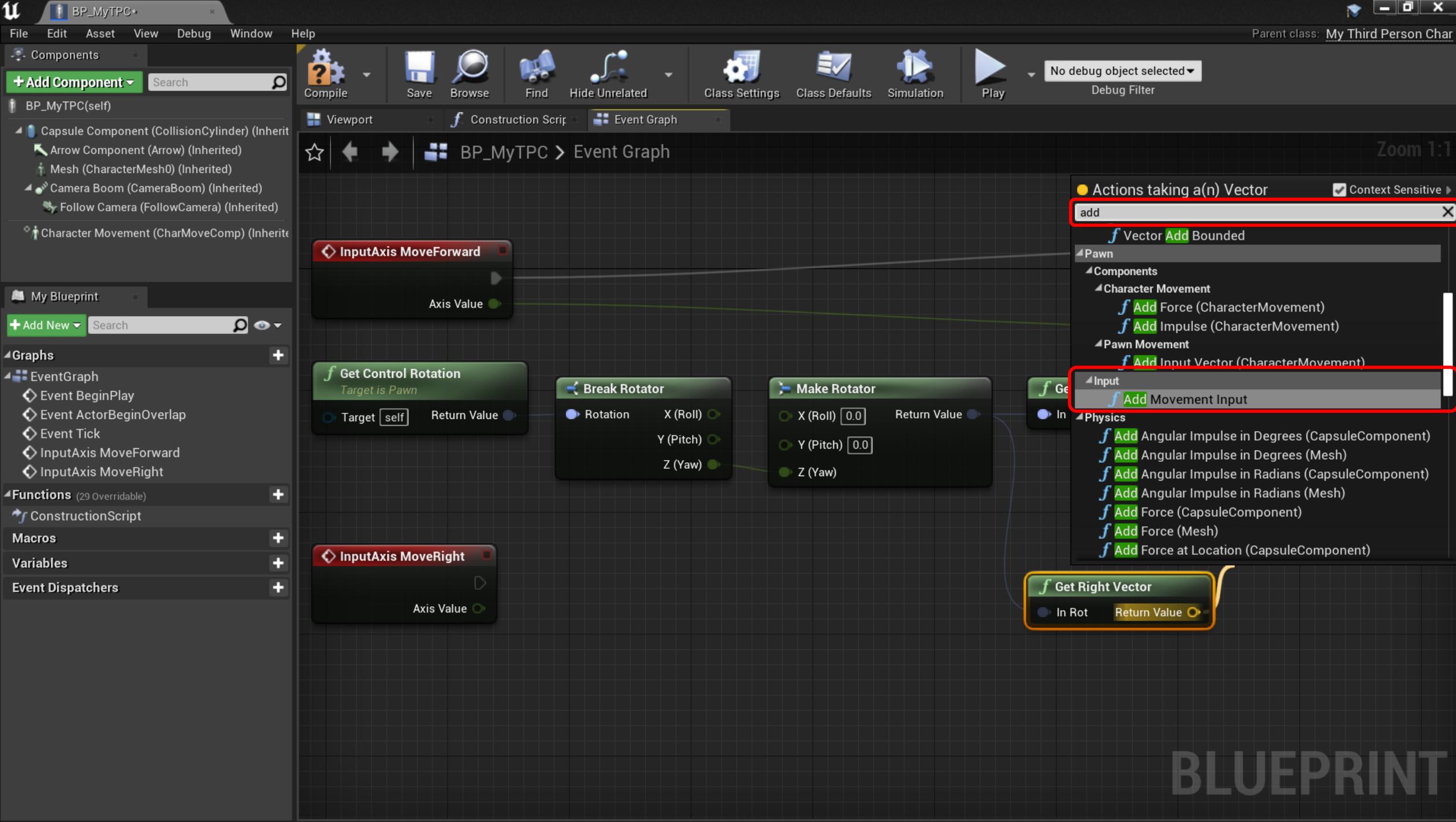


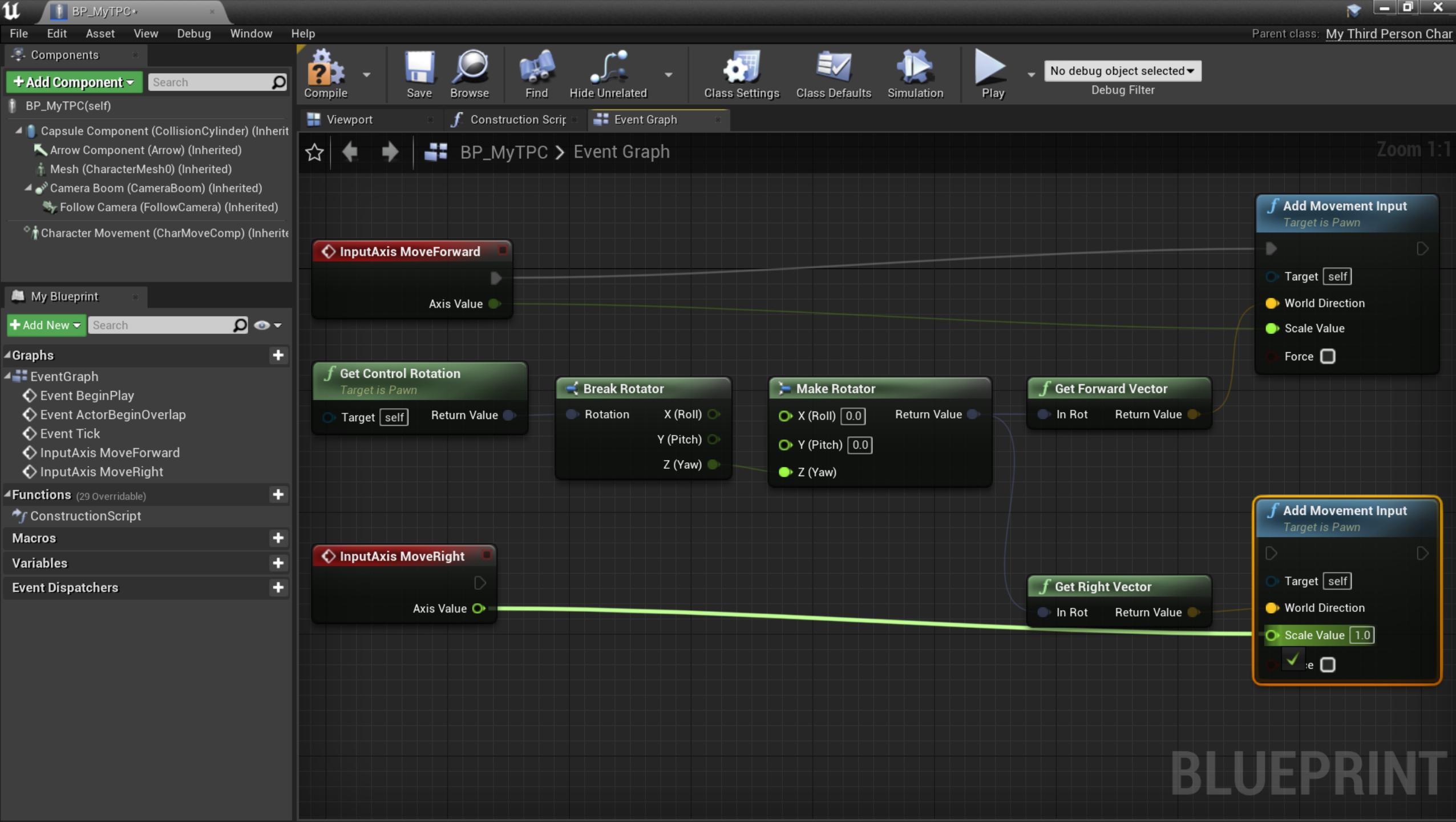


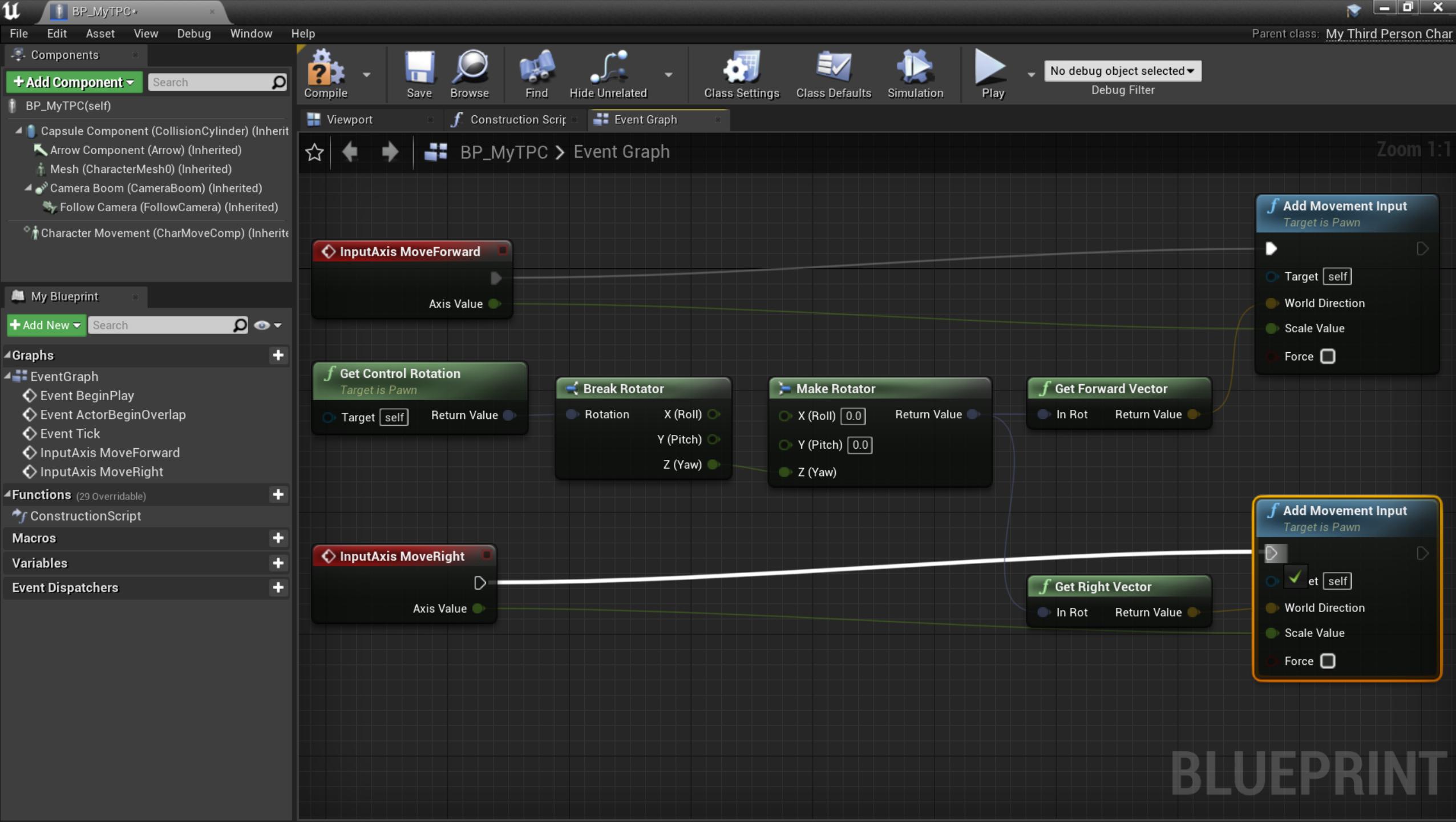
Right-Click

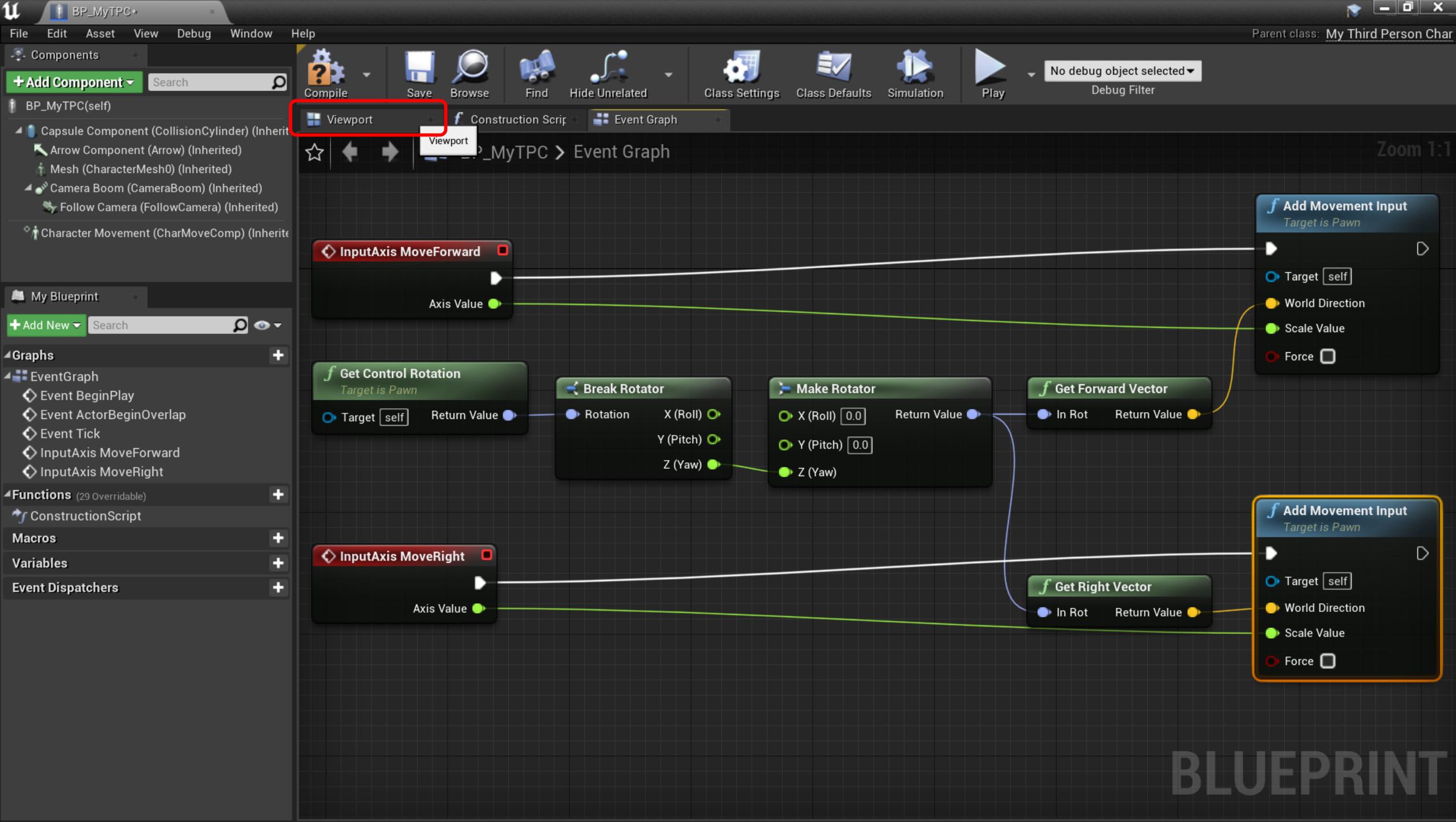


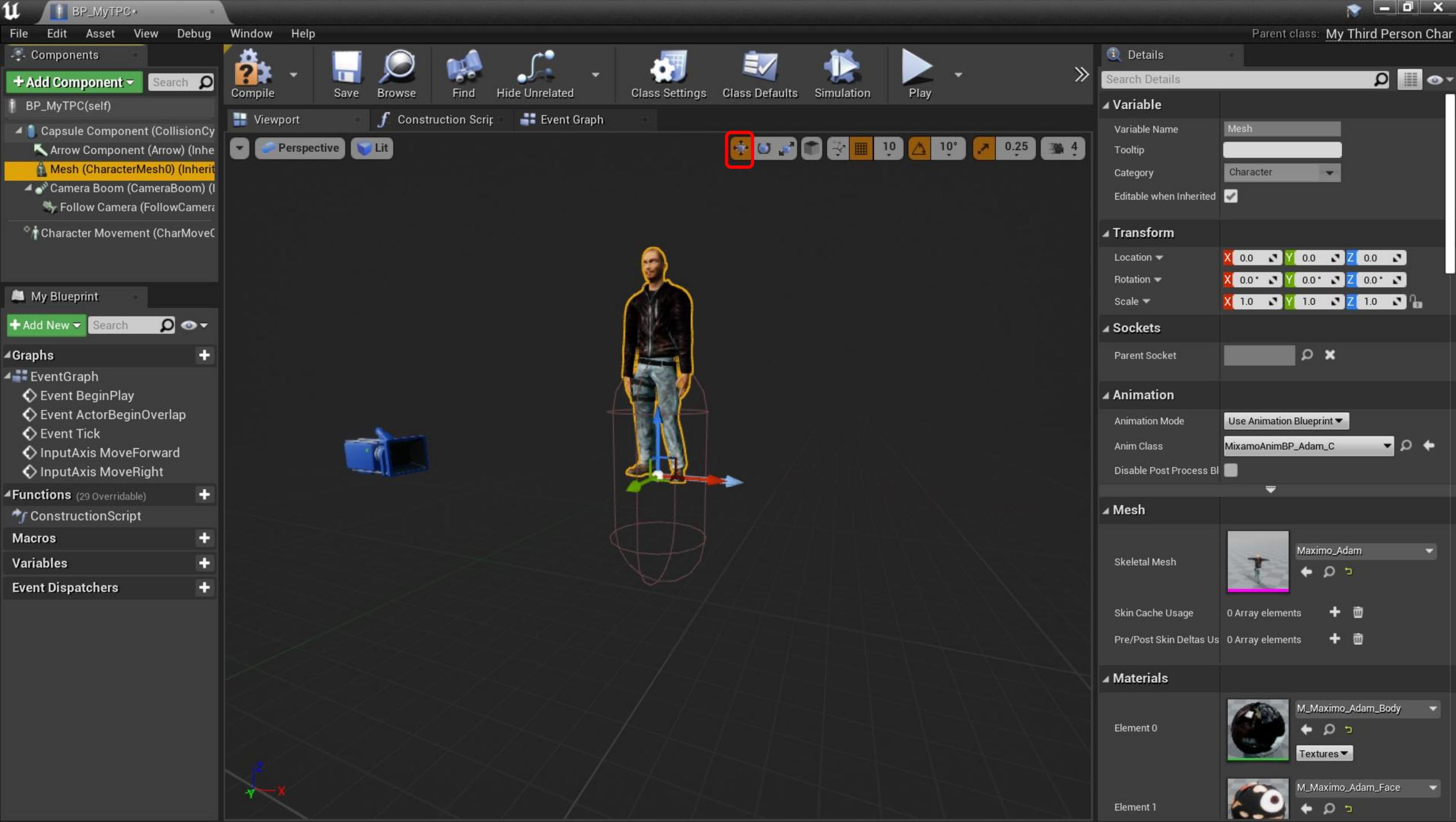


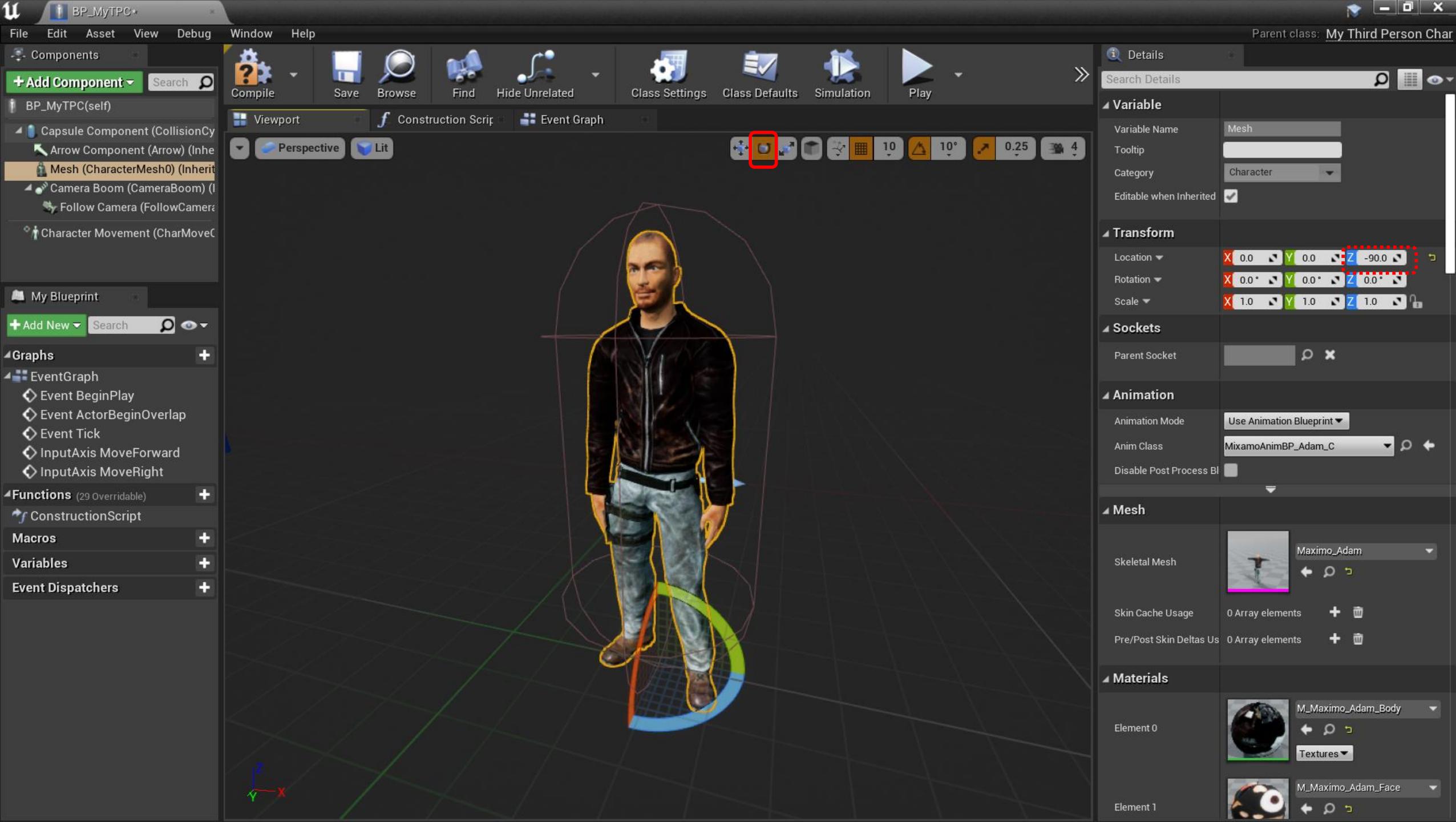


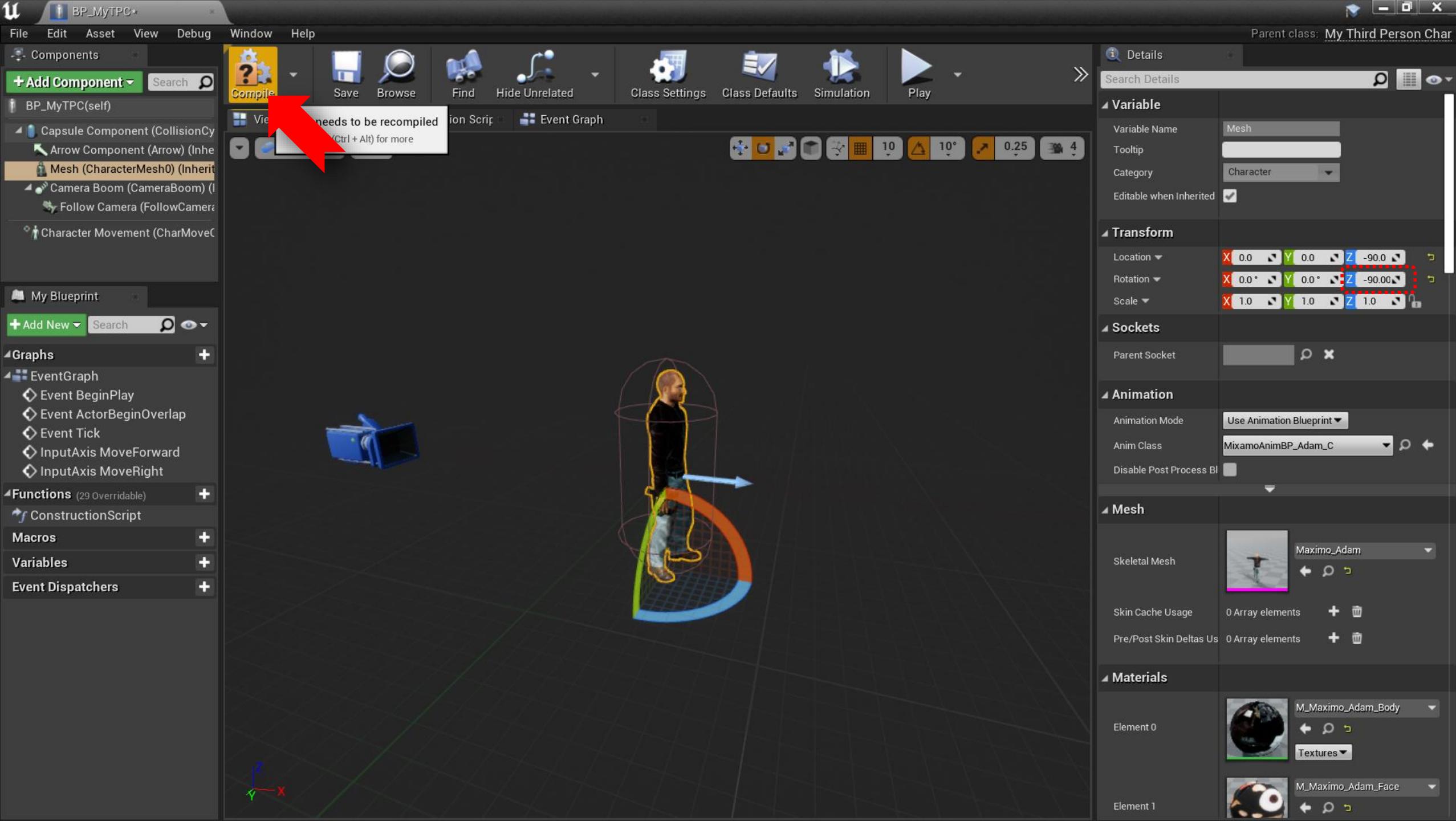


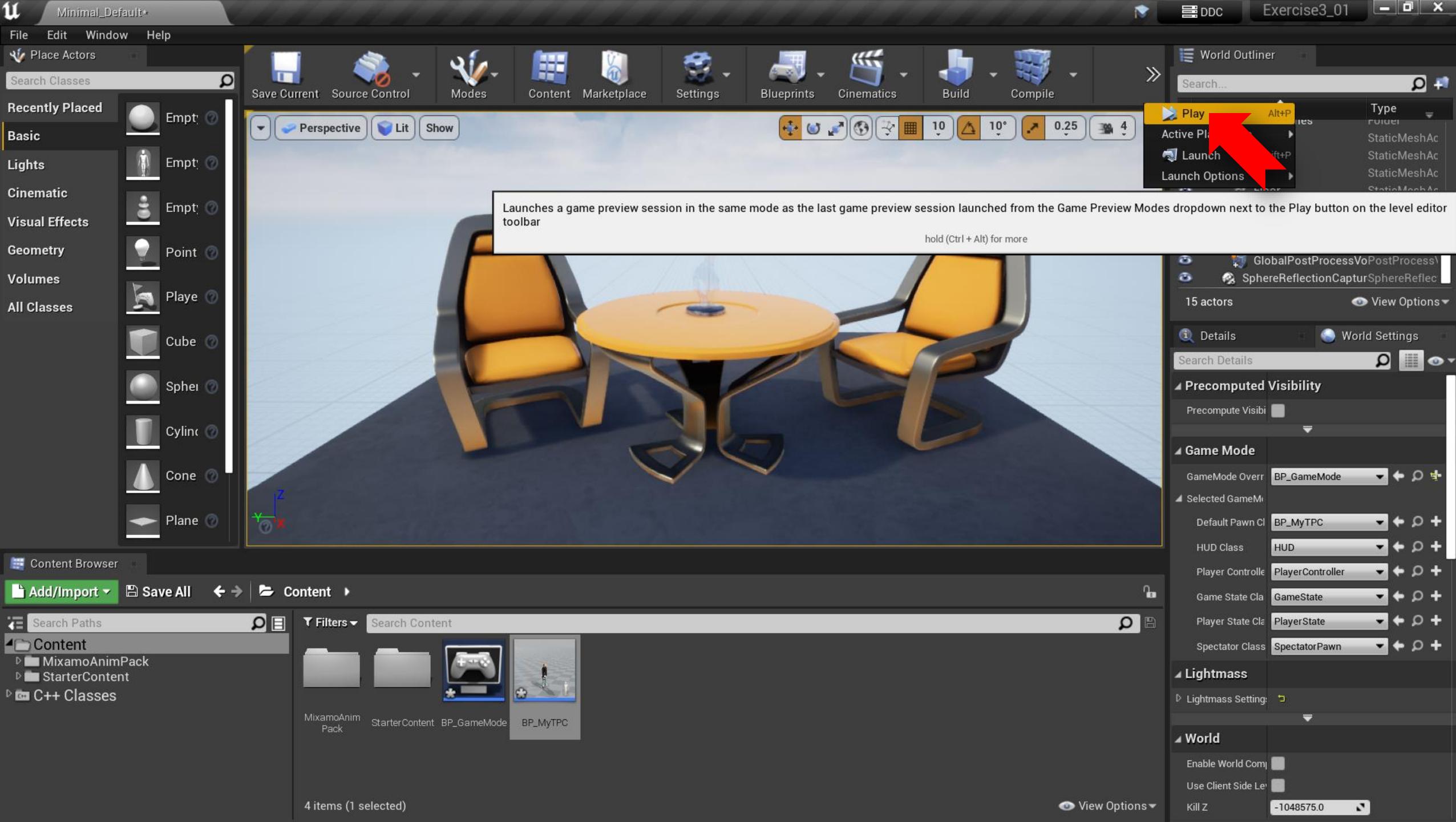




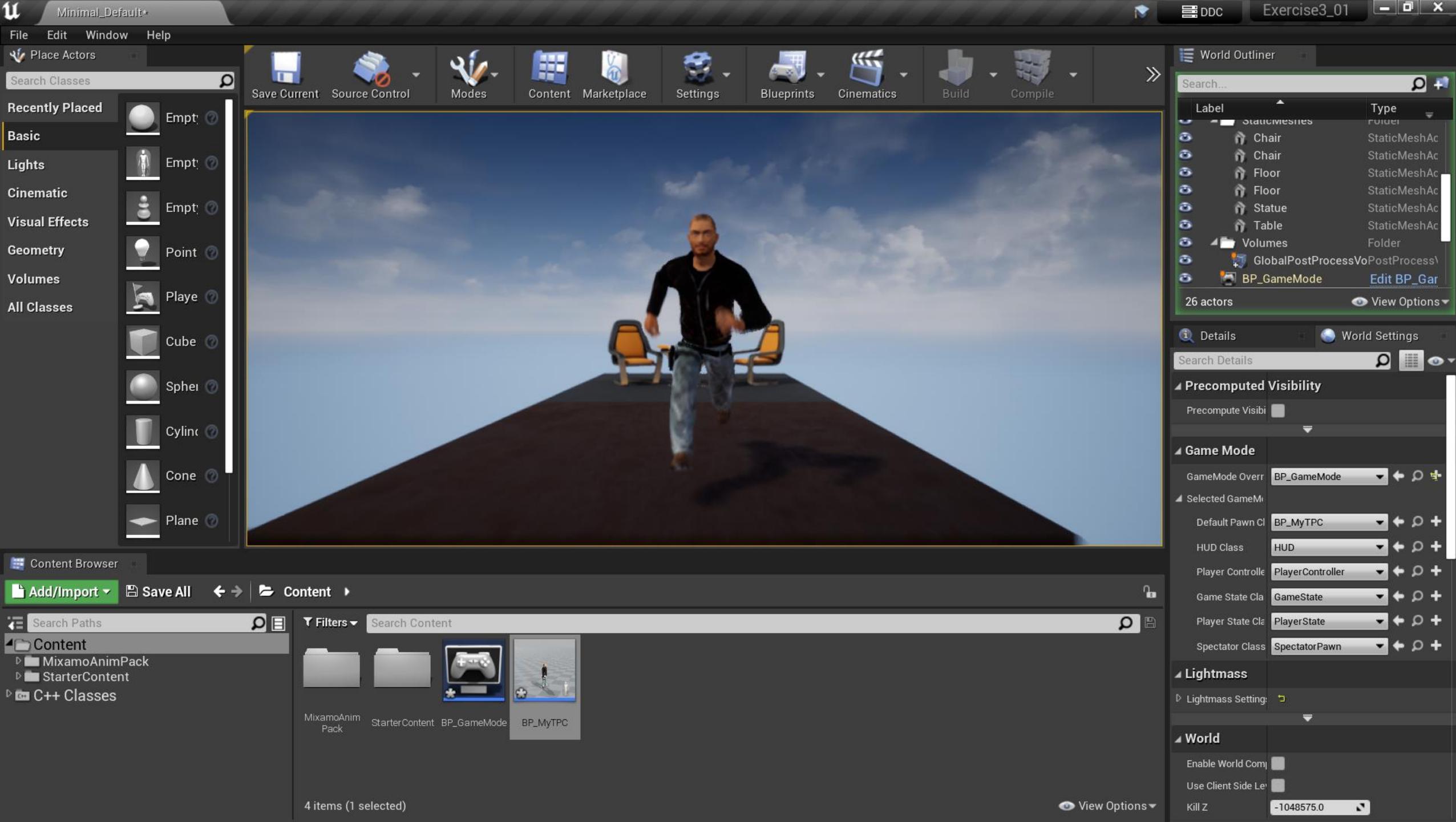














Activity 3.01: Extending the C++ Character Class with Blueprint in the Animation Project

- › 1. Open the project from *Activity 2.01, Mixamo Character Animation*.
- › 2. Create a **Character** class in C++ that will initialize the character variables, including the camera associated with the player.
- › 3. Map the Jump input to the spacebar key in the project settings.
- › 4. Extend the created C++ class with a blueprint to add the associated assets and jump functionality.



< Ganfault jump activity expected output >



Select or Create New Project

Recent Projects



Exercise3_01



Activity_Anim



CharAnim



Exercise2_01



Exercise1_01

[More](#)

New Project Categories

**Games**

Start your game development journey with one of our key classes, levels, and examples.

**Film, Television, and Live Events**

Choose from templates and examples for nDisplay, VR Scouting, and virtual production workflows.

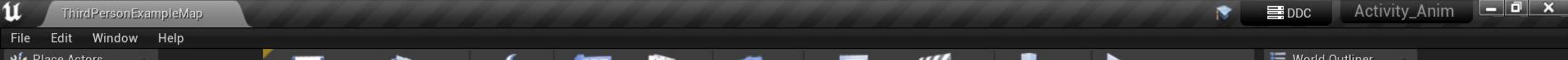
**Architecture, Engineering, and Construction**

Select a starting point for multi-user design reviews, photorealistic architectural design visualizations, sunlight studies, or stylized renderings.

**Automotive, Product Design, and Manufacturing**

Find templates for multi-user design reviews, photobooth studio environments, and product configurators.

[Open Project](#)[Cancel](#)



File Edit Window Help

Place Actors

Search Classes

Recently Placed

- Basic
- Lights
- Cinematic
- Visual Effects
- Geometry
- Volumes
- All Classes

	Name	?
	Empty	
	Empty	
	Empty	
	Point	
	Plane	
	Cube	
	Sphere	
	Cylinder	
	Cone	
	Plane	

Save Current Source Control

Modes

Content

Marketplace

Settings

Blueprints

Cinematics

Build

Play



World Outliner

Search...

Label	Type
ThirdPersonExampleMap (World)	Folder
ArenaGeometry	Folder
Arena	Folder
Floor	StaticMeshActor
Wall7	StaticMeshActor
Wall9	StaticMeshActor
Wall10	StaticMeshActor
Wall11	StaticMeshActor
Walkway	Folder
Runway	StaticMeshActor

22 actors

[View Options](#)

Details

World Settings

Search Details

▲ Precomputed Visibility

Precompute Visibi

▲ Game Mode

GameMode Overr

[None](#)

Selected GameMo

▲ Lightmass

Lightmass Setting:

▲ World

Enable World Comp

Use Client Side Le

Kill Z

-1000.0

▲ Physics

Override World Gr

Global Gravity Z

0.0

▲ Broadphase

Override Default B

Content Browser

Add/Import Save All

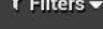


Content

ThirdPersonBP Blueprints



Search Paths



Filters

Search Blueprints



Content



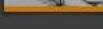
Ganfault



Geometry



Mannequin



ThirdPerson

ThirdPersonBP



Blueprints

Maps



Anim_Ganfault



BP_WalkRun



ThirdPerson



Character



ThirdPerson



GameMode

4 items

[View Options](#)

ThirdPersonExampleMap DDC Activity_Anim

File Edit Window Help

Load and Save

- New Level... Ctrl+N
- Open Level... Ctrl+O
- Save Current Ctrl+S
- Save Current As... Ctrl+Alt+S
- Save All Levels
- Open Asset... Ctrl+P
- Save All Ctrl+Shift+S

Choose Files to Save...

Connect To Source Control...

Project

- New Project...
- Open Project...
- New C++ Class... **Selected**
- Package Project
- Generate Visual Studio Project
- Cook Content for Windows

Python

- Execute Python Script...
- Recent Python Scripts

DataValidation

- Validate Data...

Actors

- Import Into Level...
- Export All...
- Export Selected...

Favorite Levels

- Recent Levels
- Recent Projects

Exit

ThirdPerson

ThirdPersonBP

- Blueprints
- Maps

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Play

Perspective Lit Show

10 10° 0.25 4

World Outliner

Search...

Label Type

- ThirdPersonExampleMap (World) Folder
- ArenaGeometry Folder
 - Arena StaticMeshActor
 - Floor StaticMeshActor
 - Wall7 StaticMeshActor
 - Wall9 StaticMeshActor
 - Wall10 StaticMeshActor
 - Wall11 StaticMeshActor
 - Walkway Folder
 - Runway StaticMesh Actor

22 actors View Options

Details World Settings

Search Details

Precomputed Visibility

Precompute Visibi

Game Mode

GameMode Overr None

Selected GameMode

Lightmass

Lightmass Setting

World

Enable World Comp

Use Client Side Le

Kill Z -1000.0

Physics

Override World Gr

Global Gravity Z 0.0

Broadphase

Override Default B

Adds C++ code to the project. The code can only be compiled if you have Visual Studio installed.

Content > ThirdPersonBP > Blueprints

Filters Search Blueprints

Anim_Ganfault BP_WalkRun ThirdPerson Character ThirdPerson GameMode

4 items View Options



Choose Parent Class

This will add a C++ header and source code file to your game project.

Show All Classes

None

An empty C++ class with a default constructor and destructor.

Character

A character is a type of Pawn that includes the ability to walk around.

Pawn

A Pawn is an actor that can be 'possessed' and receive input from a controller.

Actor

An Actor is an object that can be placed or spawned in the world.

Actor Component

An ActorComponent is a reusable component that can be added to any actor.

Selected Class

Character

Selected Class Source

Character.h

A large red arrow points to the "Next >" button at the bottom left of the dialog.

Next >

Create Class

Cancel

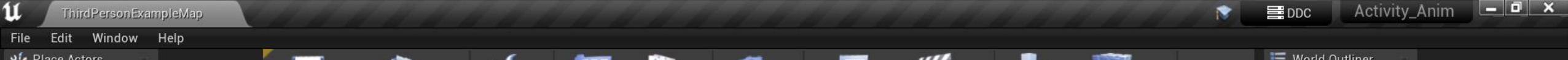


Name Your New Character

Enter a name for your new class. Class names may only contain alphanumeric characters, and may not contain a space.

When you click the "Create" button below, a header (.h) file and a source (.cpp) file will be made using this name.

Name	<input type="text" value="MyThirdPersonChar"/>	Activity_Anim (Runtime) ▾	Public	Private
Path	<input type="text" value="C:/Users/sunje/Desktop/Unreal/Activity2_01/Source/Activity_Anim/"/> <input type="button" value="Choose Folder"/>			
Header File	C:/Users/sunje/Desktop/Unreal/Activity2_01/Source/Activity_Anim/MyThirdPersonChar.h			
Source File	C:/Users/sunje/Desktop/Unreal/Activity2_01/Source/Activity_Anim/MyThirdPersonChar.cpp			



File Edit Window Help

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- Lights
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- Visual Effects
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- Volumes
- All Classes

	Name	?
	Empty	
	Empty	
	Empty	
	Point	
	Playe	
	Cube	
	Spher	
	Cylind	
	Cone	
	Plane	

Save Current Source Control

Modes

Content Marketplace

Settings

Blueprints

Cinematics

Build

Compile

World Outliner

Search...



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Arena	Folder
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Wall10	StaticMeshActor
Wall11	StaticMeshActor
Walkway	Folder
Runn	StaticMeshActor

22 actors

Details World Settings

Search Details



▲ Precomputed Visibility

Precompute Visibi

▲ Game Mode

GameMode Overr



Selected GameMo

▲ Lightmass

Lightmass Setting

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Enable World Comp

Use Client Side Le

Kill Z



▲ Physics

Override World Gr

Global Gravity Z



▲ Broadphase

Override Default B



Content Browser

Add/Import Save All



Content

ThirdPersonBP Blueprints



Search Paths



Filters Search Blueprints



Content



Ganfault



Geometry



Mannequin



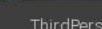
ThirdPerson



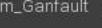
ThirdPersonBP



Blueprints



Maps



C++ Classes

4 items

View Options

The screenshot shows the Unreal Engine 4 Editor interface. The main window displays the source code for `MyThirdPersonChar.cpp`. The code implements a character class with methods for `BeginPlay()`, `Tick()`, and `SetupPlayerInputComponent()`. The `Activity_Anim` project structure is visible in the Solution Taskbar on the right.

```
// Fill out your copyright notice in the Description page of Project Settings.

#include "MyThirdPersonChar.h"

// Sets default values
AMyThirdPersonChar::AMyThirdPersonChar()
{
    // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.
    PrimaryActorTick.bCanEverTick = true;
}

// Called when the game starts or when spawned
void AMyThirdPersonChar::BeginPlay()
{
    Super::BeginPlay();
}

// Called every frame
void AMyThirdPersonChar::Tick(float DeltaTime)
{
    Super::Tick(DeltaTime);
}

// Called to bind functionality to input
void AMyThirdPersonChar::SetupPlayerInputComponent(UInputComponent* PlayerInputComponent)
{
    Super::SetupPlayerInputComponent(PlayerInputComponent);
}
```

Bottom status bar: 100% 문제가 검색되지 않음 출: 1 문자: 1 혼합 CRLF

Right sidebar:

- 솔루션 탐색기
- 솔루션 탐색기 검색(Ctrl+Shift+F)
- 솔루션 탐색기 'Activity_Anim' (2/2개 프로젝트)
 - Engine
 - Games
 - Activity_Anim
 - 참조
 - 외부 종속성
 - Config
 - Source
- Visualizers
- 속성

Bottom right corner: 소스 제어에 추가



연습 과제

- › Activity 3.01을 완성하시오.
 - Character 클래스를 C++로 생성
 - C++ 클래스를 blueprint로 확장
 - Event Graph에서 jump에 대한 코드 완성
- › 제출 방법: “프로젝트 폴더” 전체 압축
 - 압축 파일 내에서 다음 “3개 폴더” 삭제
 - 1) Content 폴더 안 StarterContent 폴더
 - 2) Intermediate 폴더
 - 3) Saved 폴더
 - 압축파일 업로드