

Animation Blending and Montages

12th Week, 2021

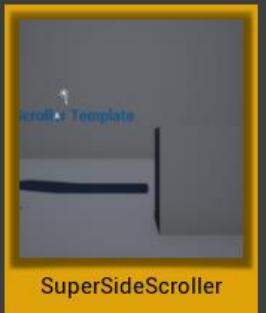


UNREAL
ENGINE



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Recent Projects



SuperSideScroller



Dodgeball



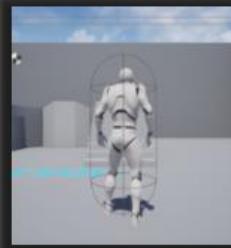
Exercise4_01



Activity_Anim



Exercise3_01



CharAnim



Exercise2_01



Exercise1_01

More

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Animation Blending, Anim Slots, and Animation Montages (1)

› **Animation blending**

- The process of transitioning between multiple animations on a skeletal mesh as seamlessly as possible

› Through the use of an **Anim Slot**,

- You will send the throwing animation to a set of upper body bones, and its children's bones, to allow movement and throwing animations to apply at the same time.

› **Animation Montages**

- A very powerful asset that allows you to combine multiple animations and split these combined animations into what is called **Sections**



Animation Blending, Anim Slots, and Animation Montages (2)

› Animation Montages

- **Sections** can be played back individually, in a specific sequence, or even looped.
 - You can control animations through montages from Blueprints or C++.
 - You can logic, update variables, replicate data, and so on based on the animation section being played, or if any **Notifies** are called within the montage.
- › Animation Montages allow **Notifies** to be triggered along the timeline of a section of an animation, which can then trigger sounds, particle effects, and events.



Animation Blending, Anim Slots, and Animation Montages (3)

- › Animation Montages support what are called **Anim Slots**.
 - **Anim Slots** allow you to categorize an animation, or a set of animations, that can later be referenced in Animation Blueprints to allow unique blending behavior based on the slot.
 - You can define an Anim Slot that can later be used in Animation Blueprints to allow animations using this slot to blend on top of the base movement animations in any way you want.

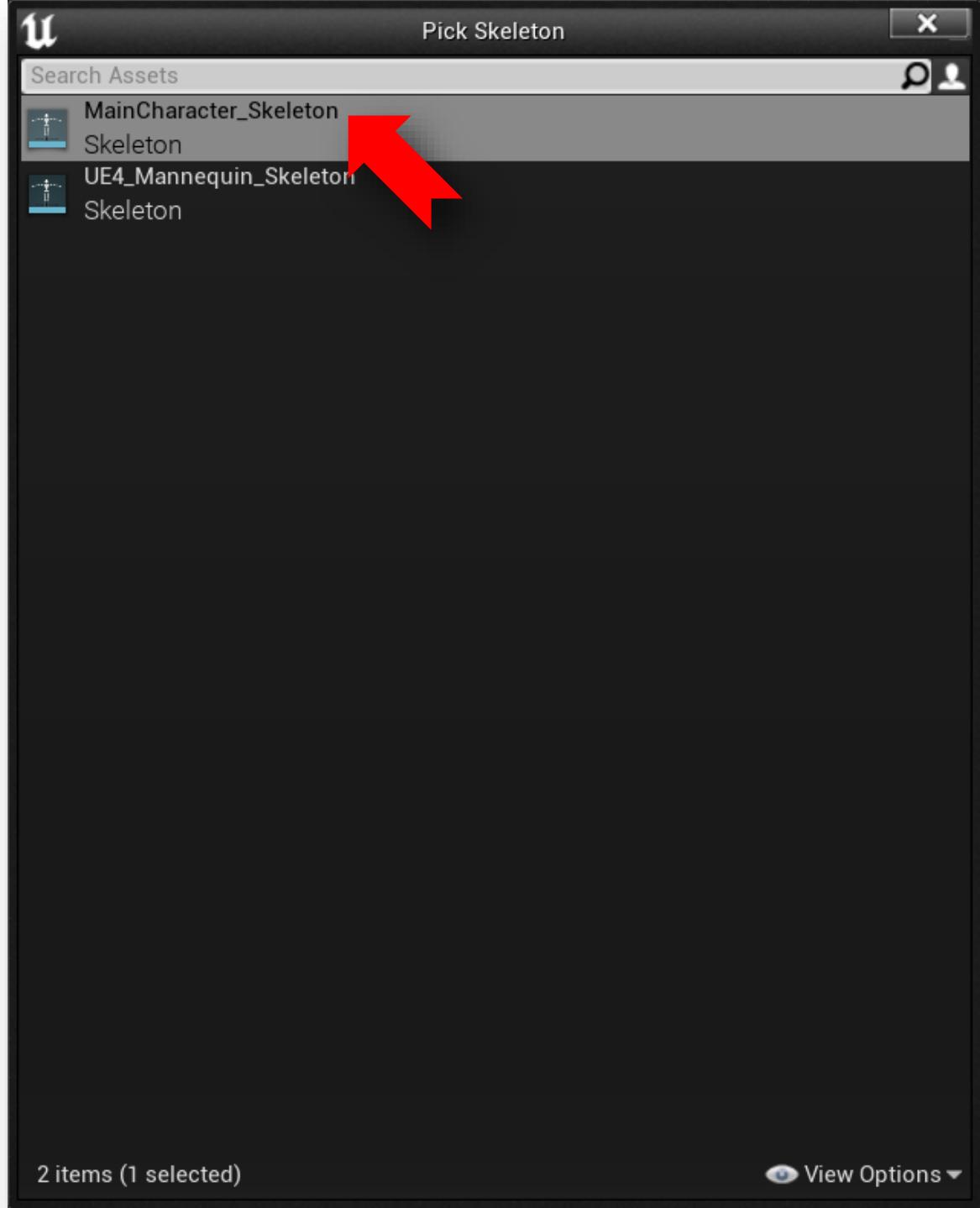
Exercise 12.01: Setting Up The Animation Montage

The screenshot shows the Unreal Engine Content Browser interface. On the left, the Content Browser tree view shows a folder structure with a red box highlighting the 'MainCharacter' folder under 'Content'. Inside 'MainCharacter', there is a folder named 'Animation' which also has a red box around it. The 'Animation' folder contains several sub-items: 'Blueprints', 'Materials', 'Particle Systems', and 'Animation'. The 'Animation' item is currently selected, and a context menu is open over it. The menu items include 'New Folder', 'Import Asset', 'Import to /Game/MainCharacter/Animation...', 'Create Basic Asset', 'Blueprint Class', 'Level', 'Material', 'Particle System', 'Animation Sharing Setup', 'Blend Space', 'Blend Space 1D', 'Bone Compression Settings', 'Camera Animation Sequence', 'Curve Compression Settings', 'Level Sequence', 'Paper Flipbook', 'Pose Asset', and 'Template Sequence'. The 'Animation Montage' option is highlighted with a yellow background. A blue arrow points from the 'Animation' item in the Content Browser tree to the 'Animation Montage' option in the context menu. To the right of the Content Browser, the main workspace shows a 3D scene with a character model and some ledges. The top right corner of the screen displays the Unreal Engine logo and the text 'StaticMeshActor' repeated multiple times. A tooltip window is open over the 'Animation Montage' menu item, containing the following text:

- * Any property you're adding to AnimMontage and parent class has to be considered for Child Asset
- * Child Asset is considered to be only asset mapping feature using everything else in the class
- * For example, you can just use all parent's setting for the montage, but only remap assets
- * This isn't magic bullet unfortunately and it is consistent effort of keeping the data synced with parent
- * If you add new property, please make sure those property has to be copied for children.
- * If it does, please add the copy in the function RefreshParentAssetData

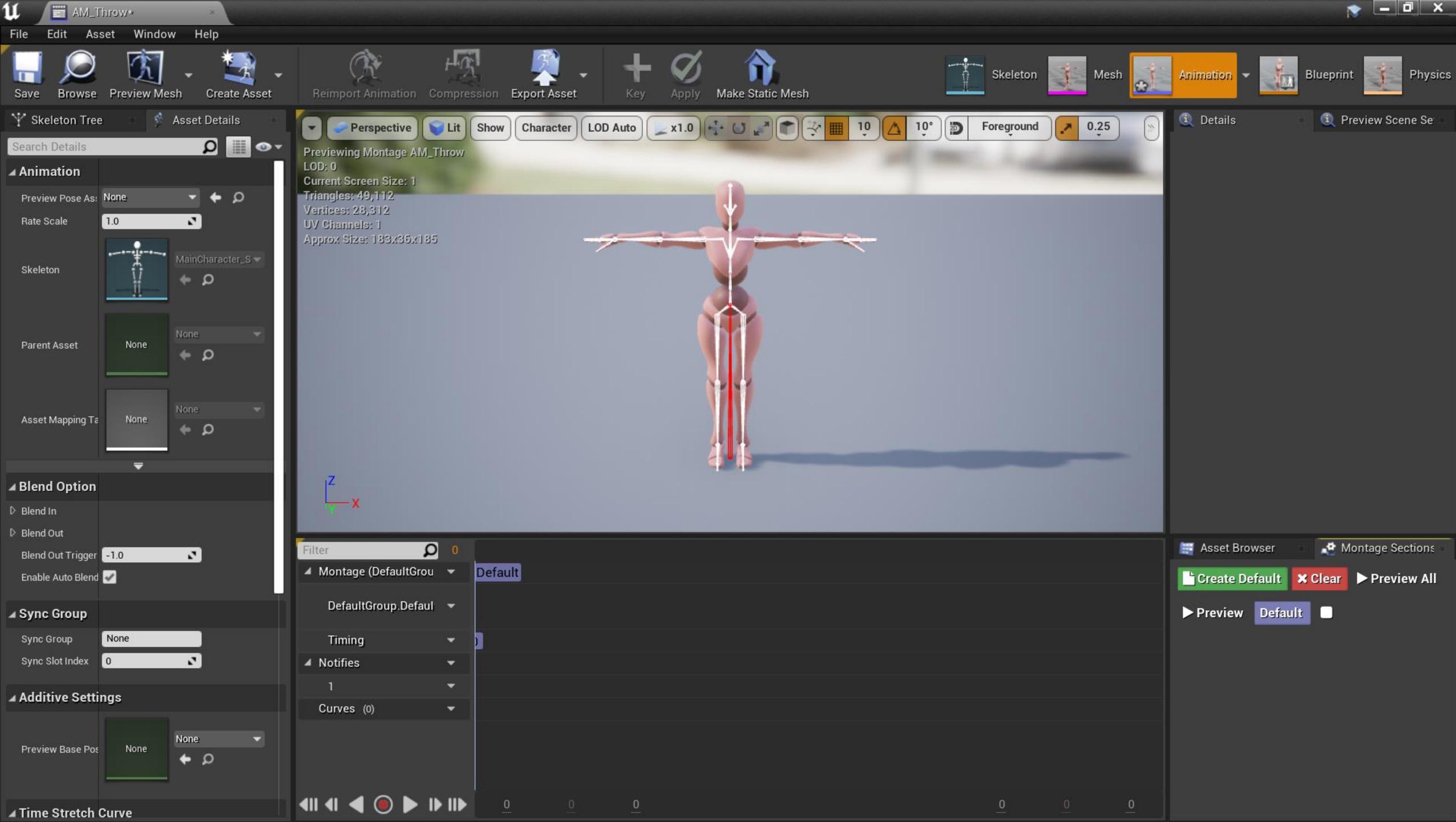
At the bottom of the tooltip, it says "hold (Ctrl + Alt) for more".

At the bottom left of the screen, the text "Right-Click" is displayed in red.





The Content Browser is open to the "Content" section, specifically the "MainCharacter" folder under "Animation". A red arrow points to the thumbnail for the "AM_Throw" animation, which is highlighted with a yellow border. Other thumbnails shown include Idle, JumpEnd, JumpingStart, JumpLoop, Running, SideScroller_IdleRun_1D, Throw, and Walking. The search bar at the top says "Search Animation". The bottom status bar shows "9 items (1 selected)" and "View Options".



Exercise 12.02: Adding the Throw Animation to the Montage

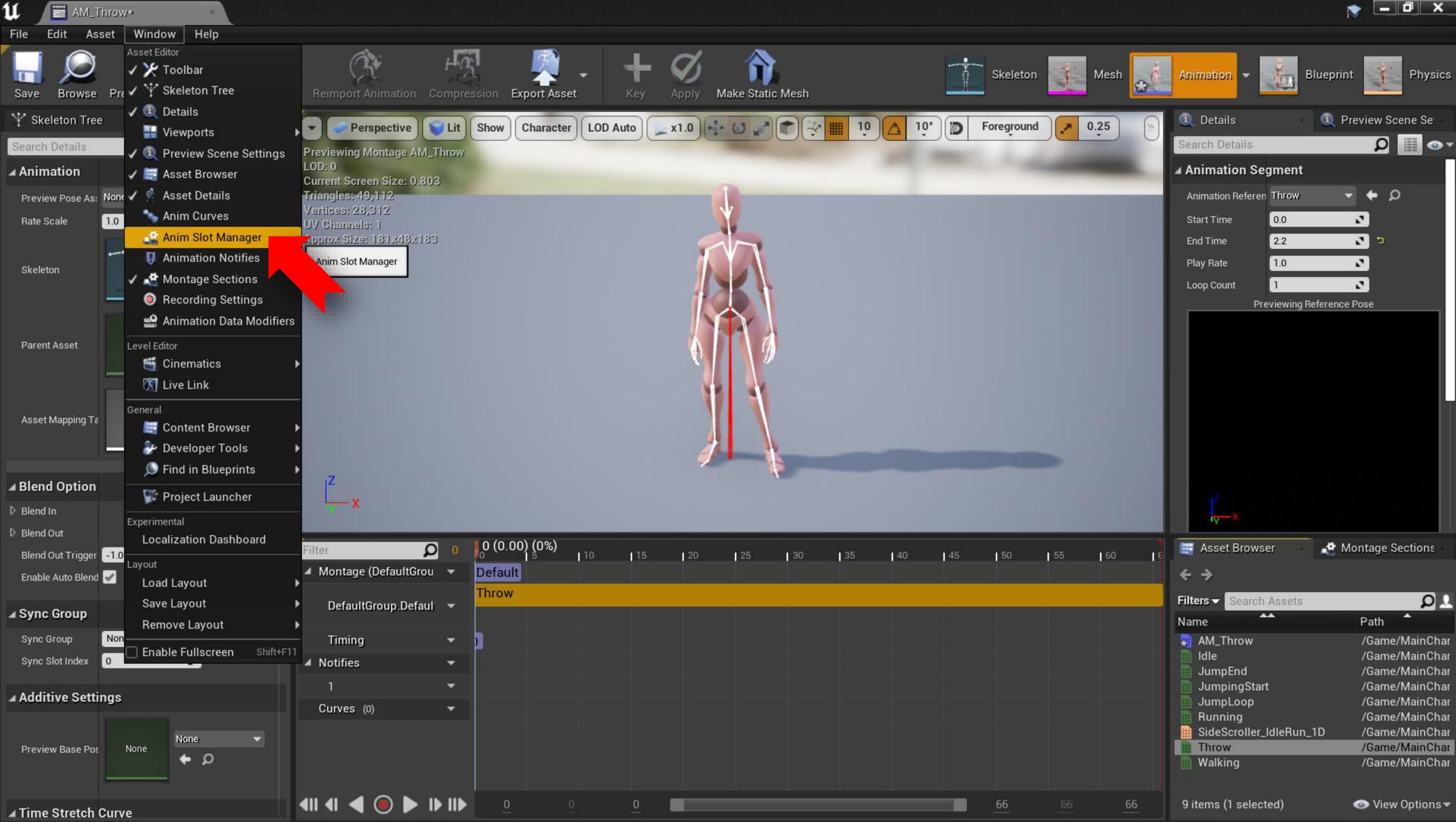
The screenshot shows the Unreal Engine Animation Blueprint Editor interface. On the left, the **Animation** tab is active, displaying settings for Preview Pose As (None), Rate Scale (1.0), Skeleton (MainCharacter_S), Parent Asset (None), and Asset Mapping Table (None). Below these are Blend Option, Sync Group, and Additive Settings sections. At the bottom is a Time Stretch Curve editor with playback controls.

The central area features a 3D view of a character skeleton in a starting pose, with a coordinate system (X, Y, Z) at the bottom left. Above the skeleton, text provides statistics: Current Screen Size: 1, Triangles: 49,112, Vertices: 28,312, UV Channels: 1, and Approx. Size: 183x36x185.

The right side of the interface includes the **Asset Browser** (highlighted with a red box) and **Montage Sections**. The Asset Browser lists items with their names and paths:

Name	Path
AM_Throw	/Game/MainChar
Idle	/Game/MainChar
JumpEnd	/Game/MainChar
JumpingStart	/Game/MainChar
JumpLoop	/Game/MainChar
Running	/Game/MainChar
SideScroller_IdleRun_1D	/Game/MainChar
Throw	/Game/MainChar
Walking	/Game/MainChar

A red arrow points from the **Asset Browser** section towards the **Montage** section, indicating the target for adding the Throw animation.





Exercise 12.03: Adding a New Anim Slot

Current Screen Size: 0.803
Triangles: 49,112
Vertices: 28,312
UV Channels: 1
Approx. Size: 181x48x183

Animation Reference: Throw
Start Time: 0.0
End Time: 2.2
Play Rate: 1.0
Loop Count: 1

Previewing Reference Pose

Asset Browser Montage Anim Slot

Add Slot

Slot name filter... Create a new unique Slot name

Slot Name: (Group) DefaultGroup (Slot) DefaultSlot

Montage (DefaultGroup)

Default

Throw

Timing

Notifies

Curves (0)

0 (0.00) (0%)

0 10 15 20 25 30 35 40 45 50 55 60 66

0 0 0 66 66 66

Time Stretch Curve

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Animation

Preview Pose As: None

Rate Scale: 1.0

Skeleton: MainCharacter_S

Parent Asset: None

Asset Mapping Table: None

Blend Option

Blend In

Blend Out

Blend Out Trigger: -1.0

Enable Auto Blend:

Sync Group

Sync Group: None

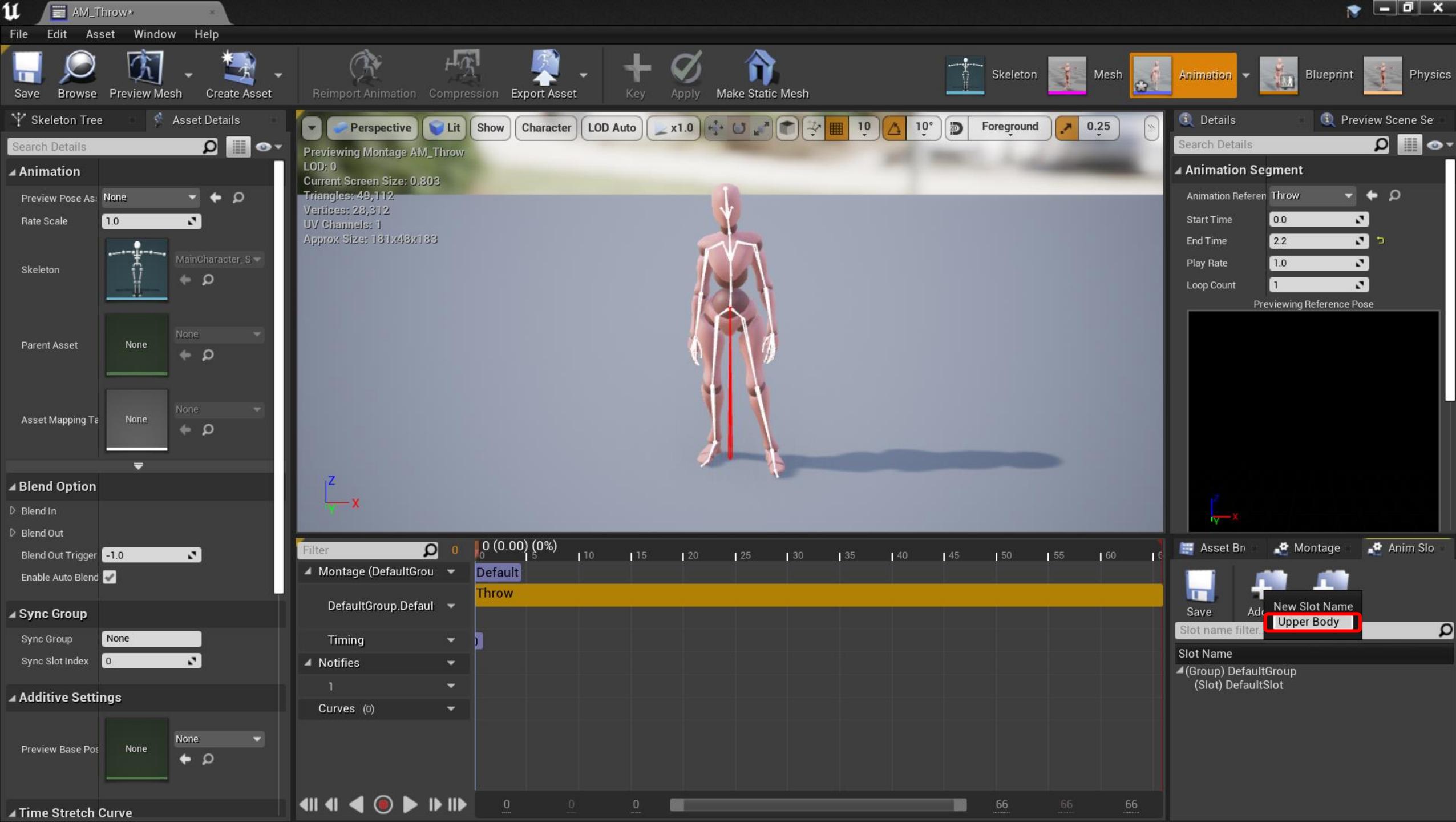
Sync Slot Index: 0

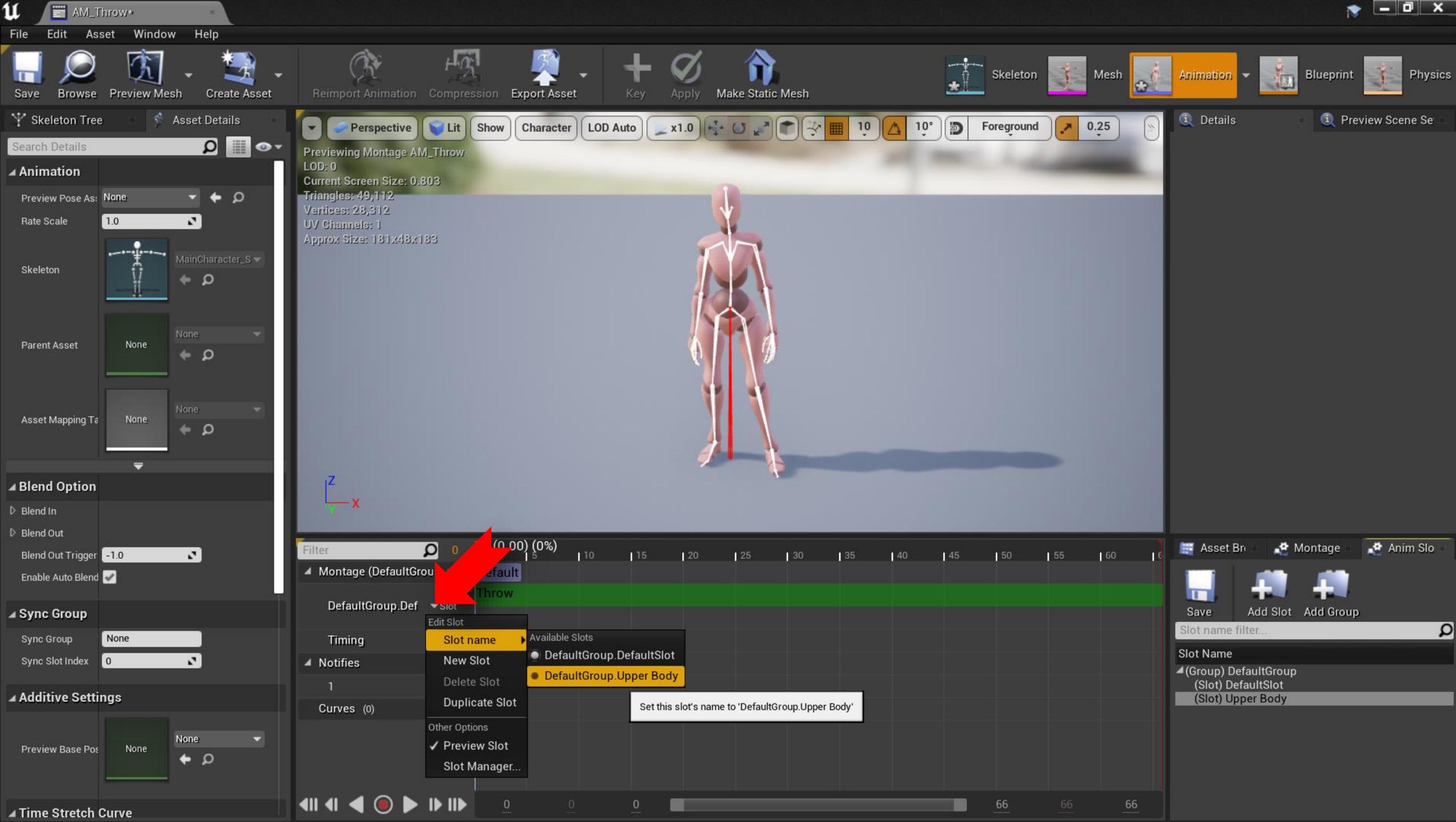
Additive Settings

Preview Base Pose: None

Time Stretch Curve

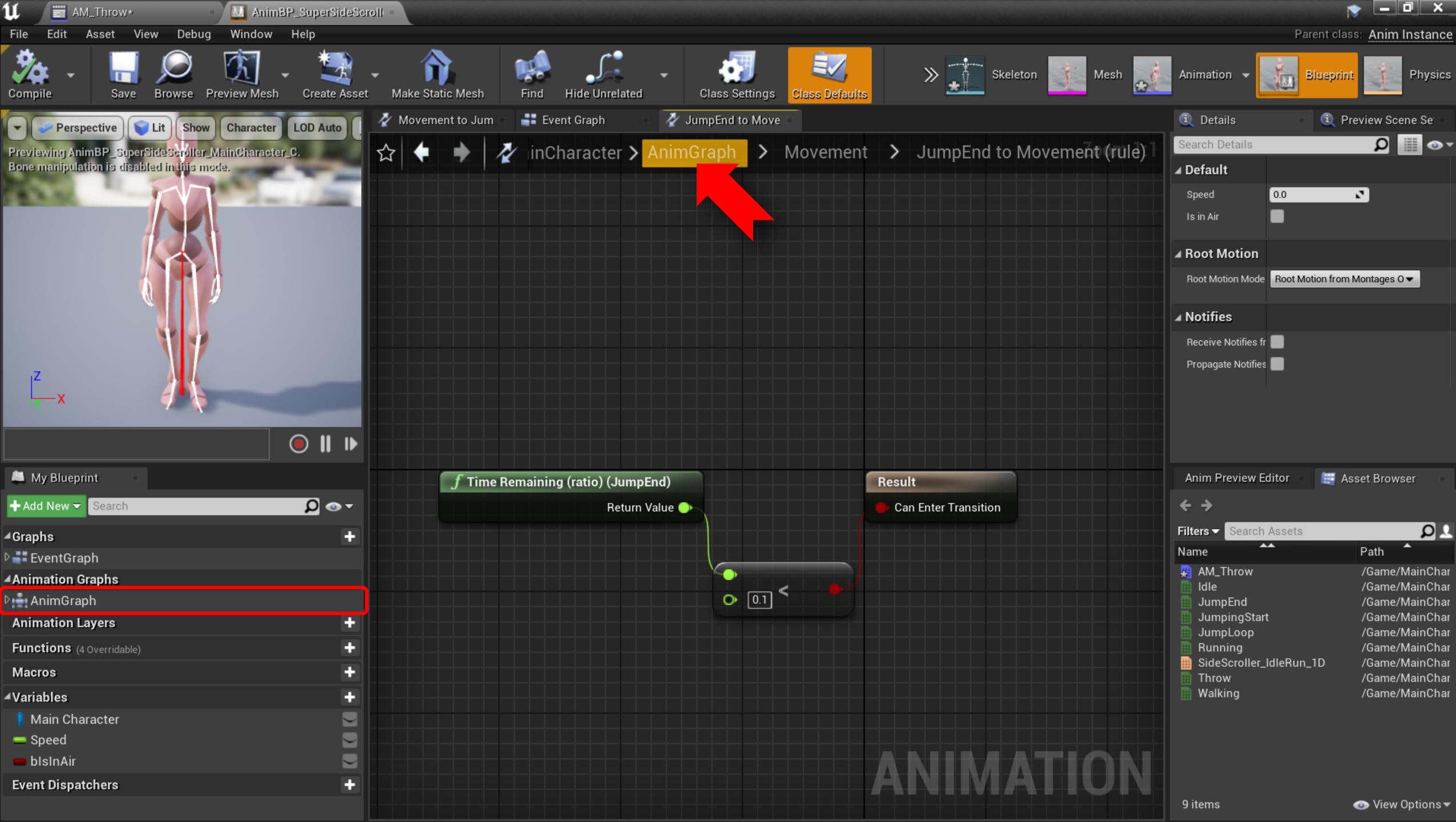
The screenshot shows the Unreal Engine Animation Blueprint Editor interface. The central area displays a 3D character skeleton in a standing pose. Below the character is a timeline with a single segment named 'Throw'. The segment is highlighted in yellow. On the right side of the screen, there is a panel for 'Animation Segment' settings, which includes fields for 'Animation Reference' (set to 'Throw'), 'Start Time' (0.0), 'End Time' (2.2), 'Play Rate' (1.0), and 'Loop Count' (1). At the bottom right of the editor, there is a toolbar with several icons. One icon, labeled 'Anim Slot', is highlighted with a large red arrow pointing towards it. This indicates the specific tool being used to add a new animation slot to the current segment.







The screenshot shows the Content Browser interface. The top bar includes Add/Import, Save All, and navigation buttons. The Content Browser tree view shows the project structure: Content > MainCharacter > Animation > Blueprints. Under "Blueprints", two items are listed: "AnimBP_SuperSideScroller_MainCharacter" and "BP_SuperSideScroller_MainCharacter". A red arrow points to the "AnimBP_SuperSideScroller_MainCharacter" item. The bottom status bar indicates "2 items (1 selected)".





Save Cached Pose

- › The **Save Cached Pose** node allows you to cache, or store, a pose that can then be referenced in multiple places at once.
- › You will need to use this to set up the new Anim Slot for the upper body animation.



Exercise 12.04: Save Cached Pose of the Movement State Machine

Right-Click

All Actions for this Blueprint Context Sensitive

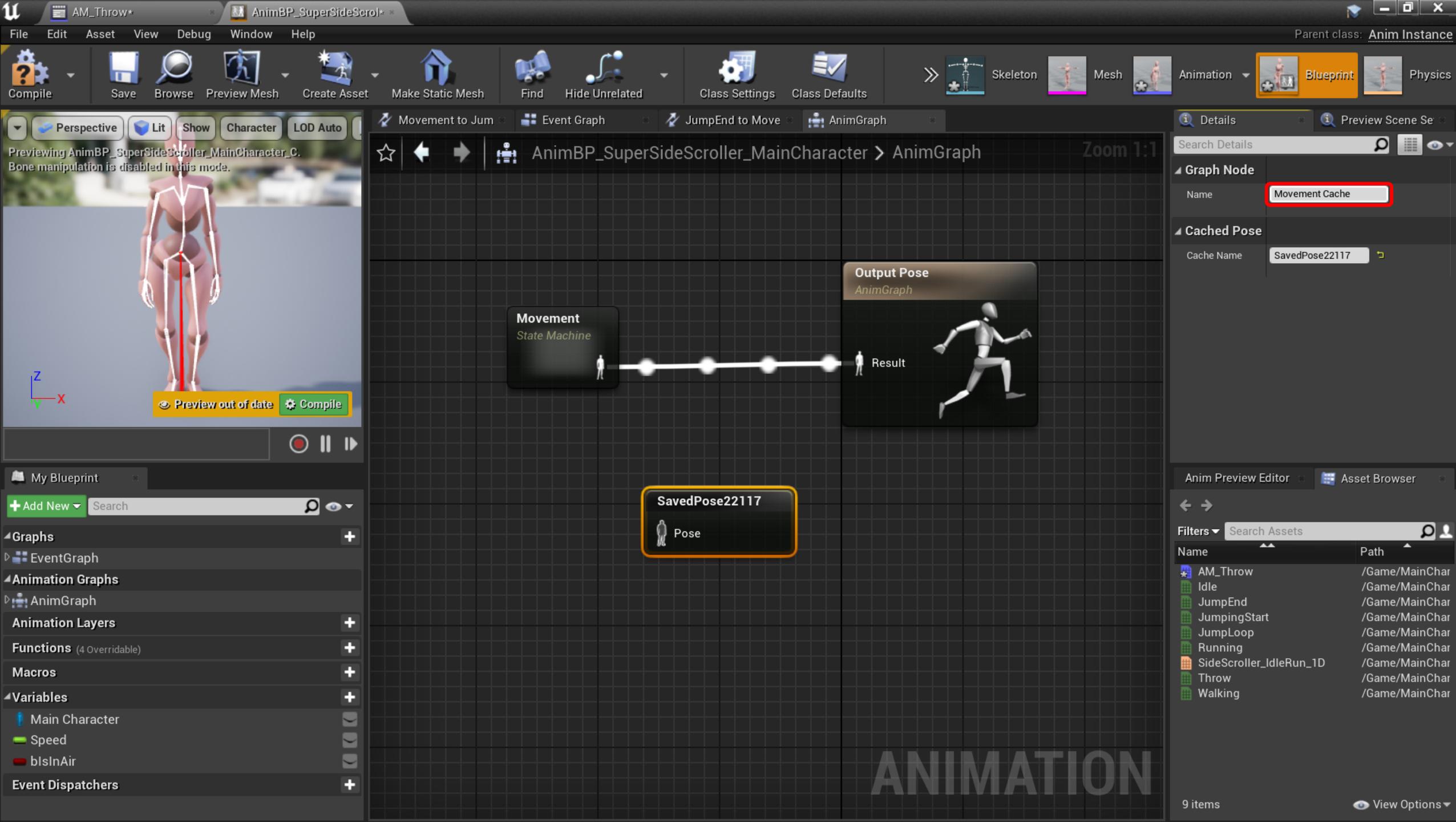
- Blends, Blend List by Enum
 - Blend Poses (EArcGeometryCacheMotionVectorsImp)
- Cached Poses**
 - New Save cached pose...
- Utilities
- Casting
 - Cast To GeometryCache
 - Cast To GeometryCache Class
 - Cast To GeometryCacheActor
 - Cast To GeometryCacheActor Class
 - Cast To GeometryCacheComponent
 - Cast To GeometryCacheComponent Class
 - Cast To GeometryCacheTrack
 - Cast To GeometryCacheTrack Class
 - Cast To GeometryCacheTrackStreamable
 - Cast To GeometryCacheTrackStreamable Class
 - Cast To MovieSceneGeometryCacheSection
 - Cast To MovieSceneGeometryCacheSection Class

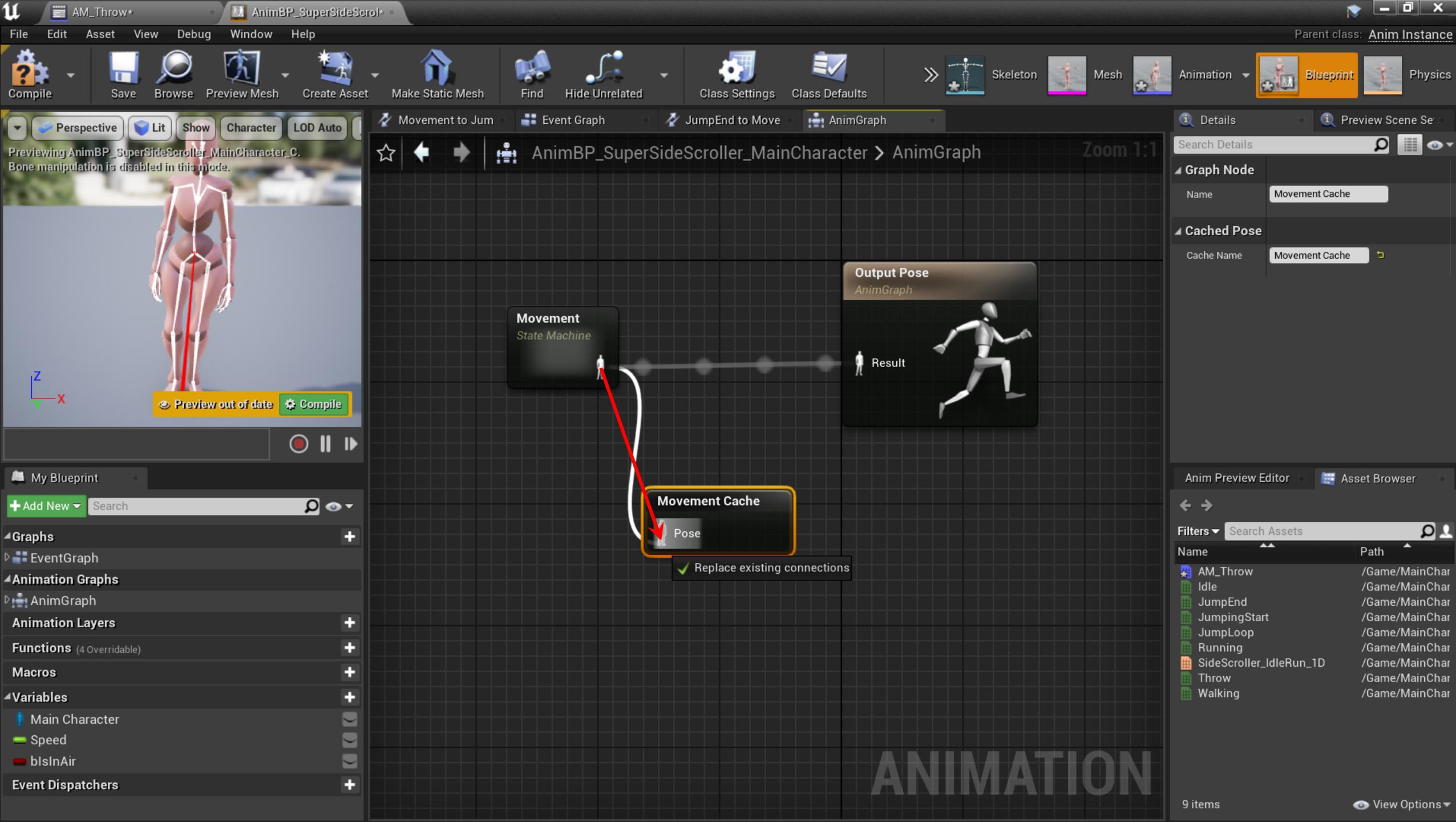
Anim Preview Editor Asset Browser

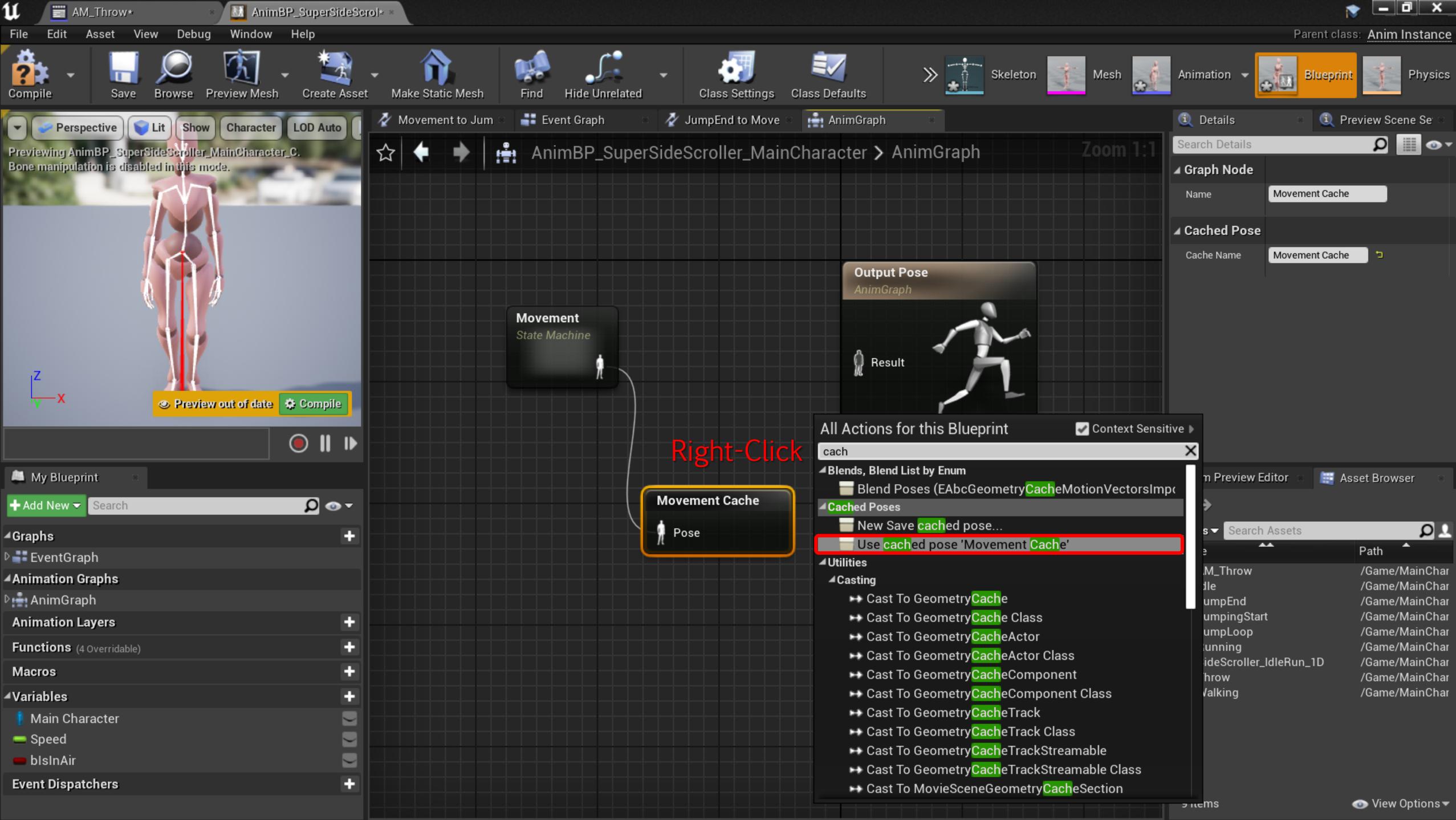
Filters Search Assets

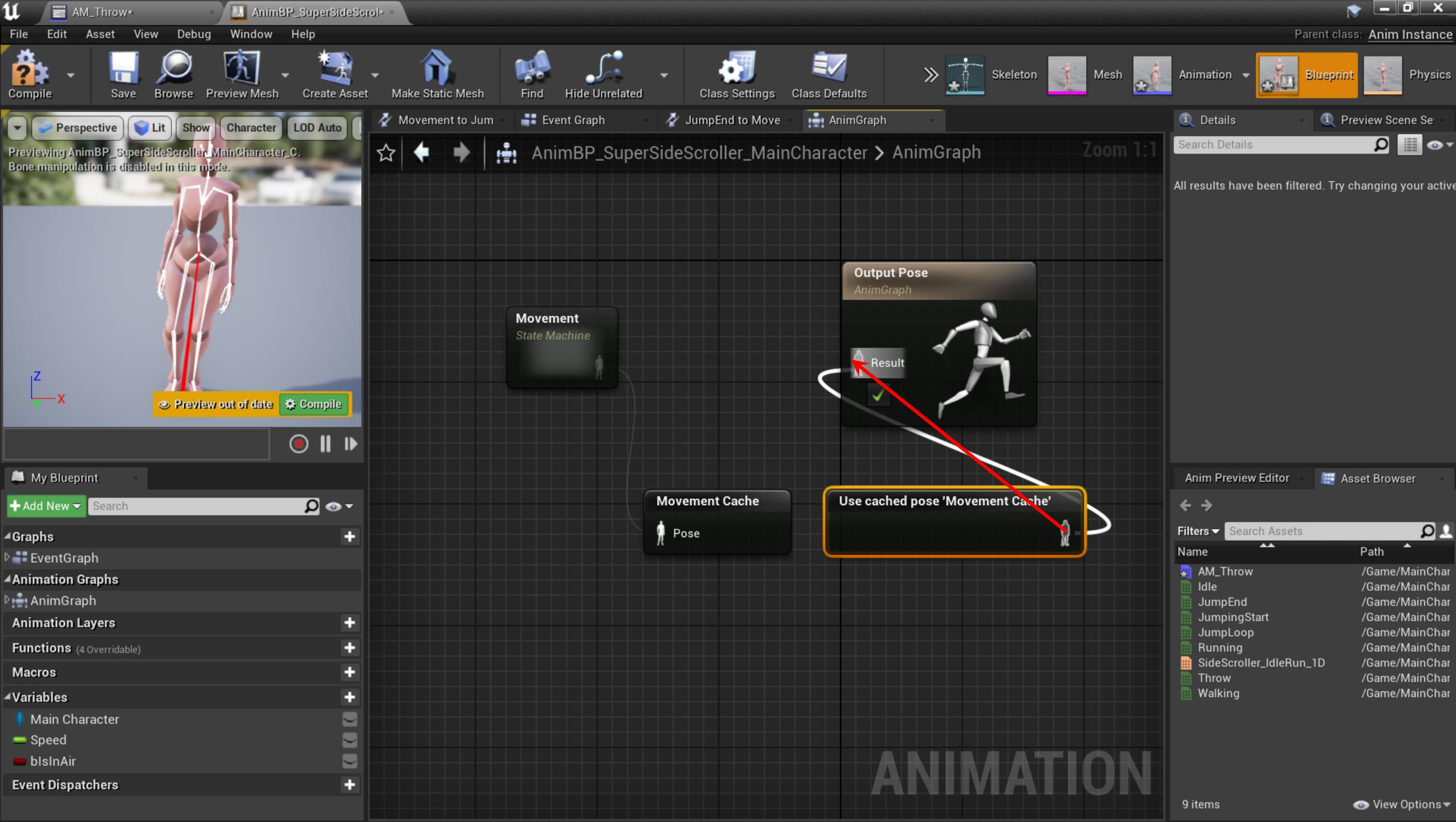
Name	Path
AM_Throw	/Game/MainChar
Idle	/Game/MainChar
JumpEnd	/Game/MainChar
JumpingStart	/Game/MainChar
JumpLoop	/Game/MainChar
Running	/Game/MainChar
SideScroller_IdleRun_1D	/Game/MainChar
Throw	/Game/MainChar
Walking	/Game/MainChar

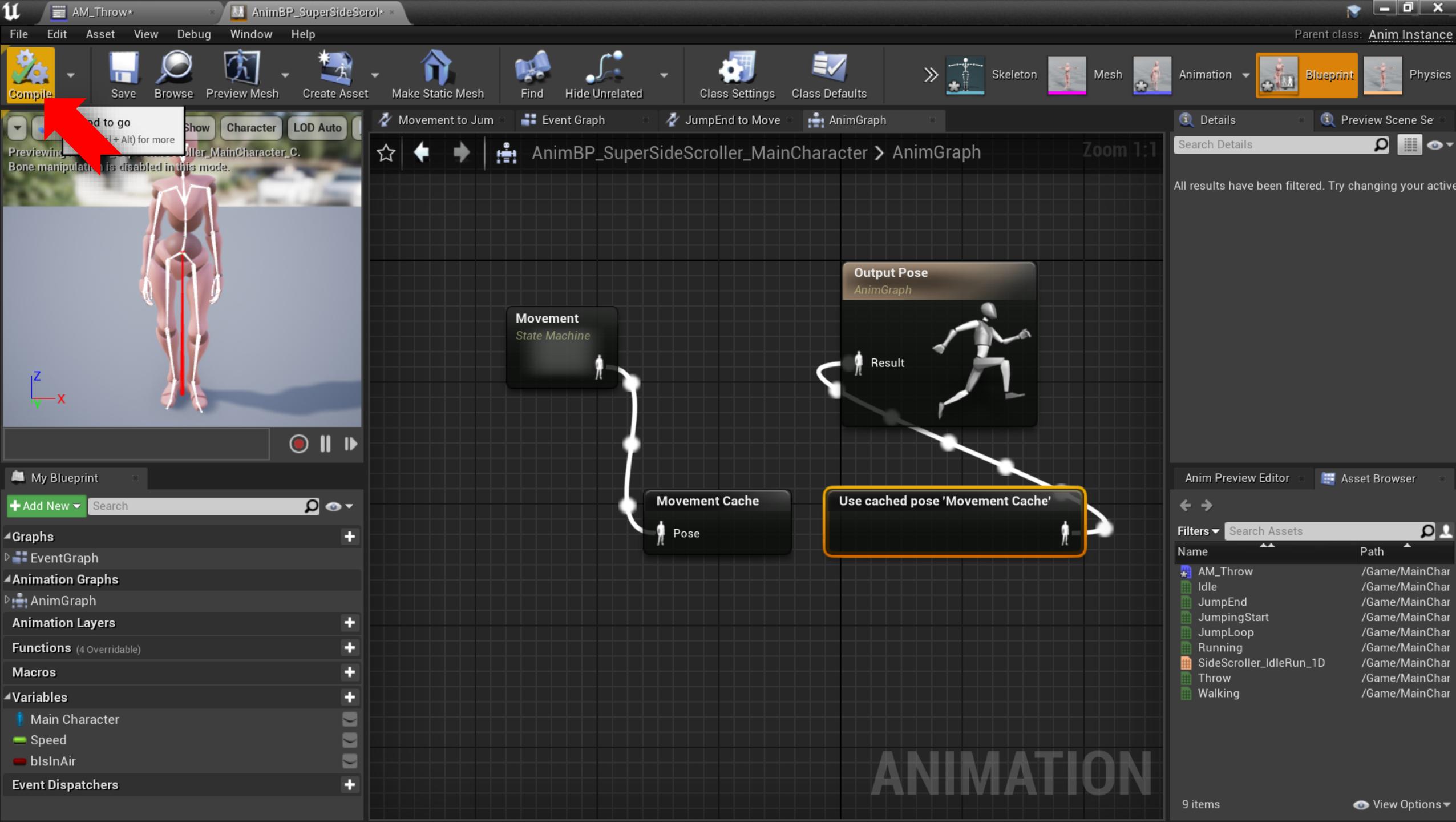
IMATION













Layered Blend Per Bone

- › This node masks out a set of bones on the character skeleton for an animation to ignore those bones.
- › In the case of our player character and **Throw** animation, you will mask out the lower body so that only upper body animates.



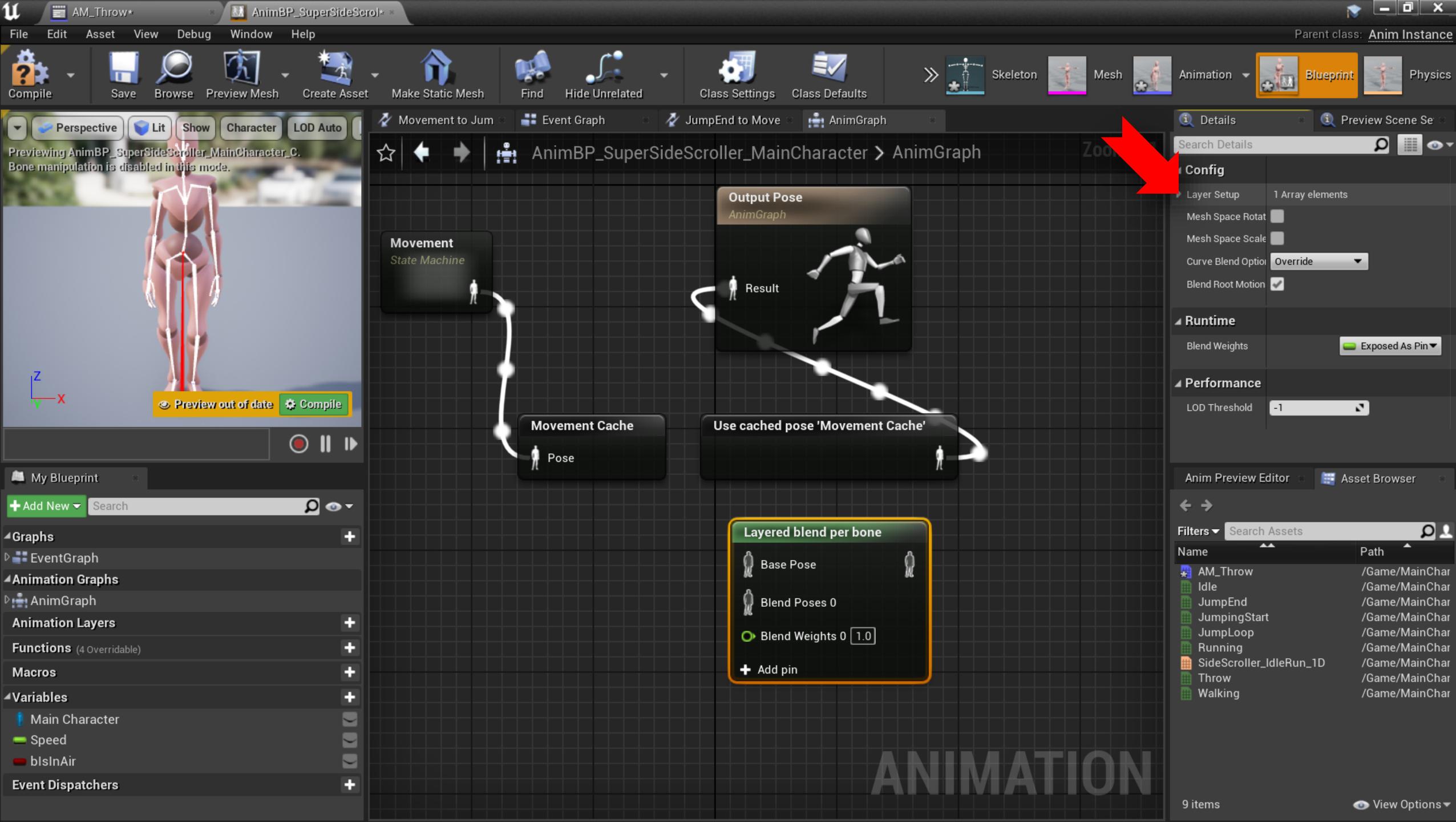
Exercise 12.05: Blending Animation with the Upper Body Anim Slot

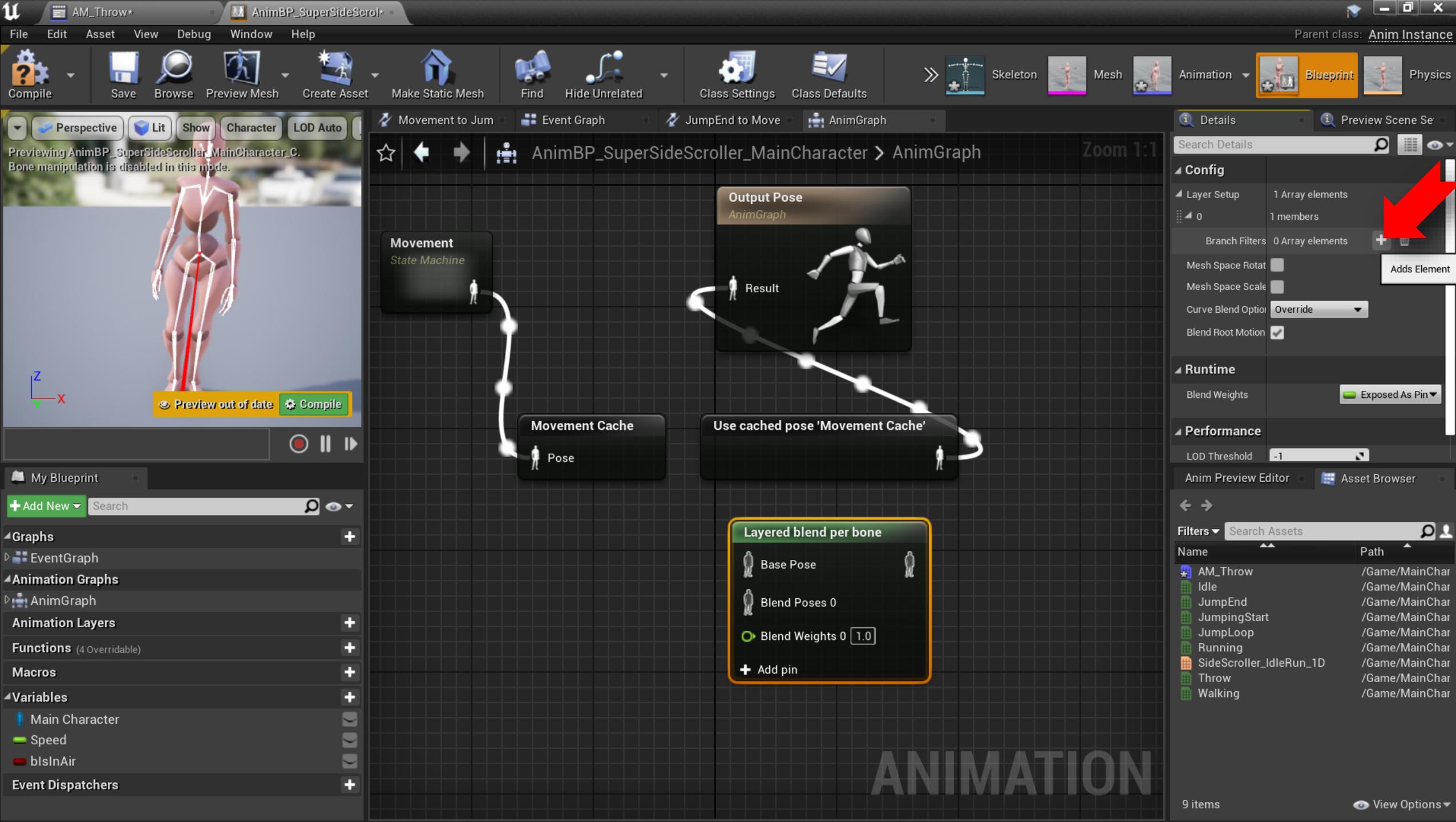
The screenshot shows the Unreal Engine Blueprint Editor interface. On the left, there's a 3D preview window displaying a character model with red and white skeleton overlays. Below it is a toolbar with a play button, a pause button, and a stop button. The bottom left contains a sidebar with categories like My Blueprint, Add New, and Search, along with a list of available nodes: Graphs, EventGraph, Animation Graphs, AnimGraph, Animation Layers, Functions (4 Overridable), Macros, Variables, Main Character, Speed, bIsInAir, and Event Dispatchers.

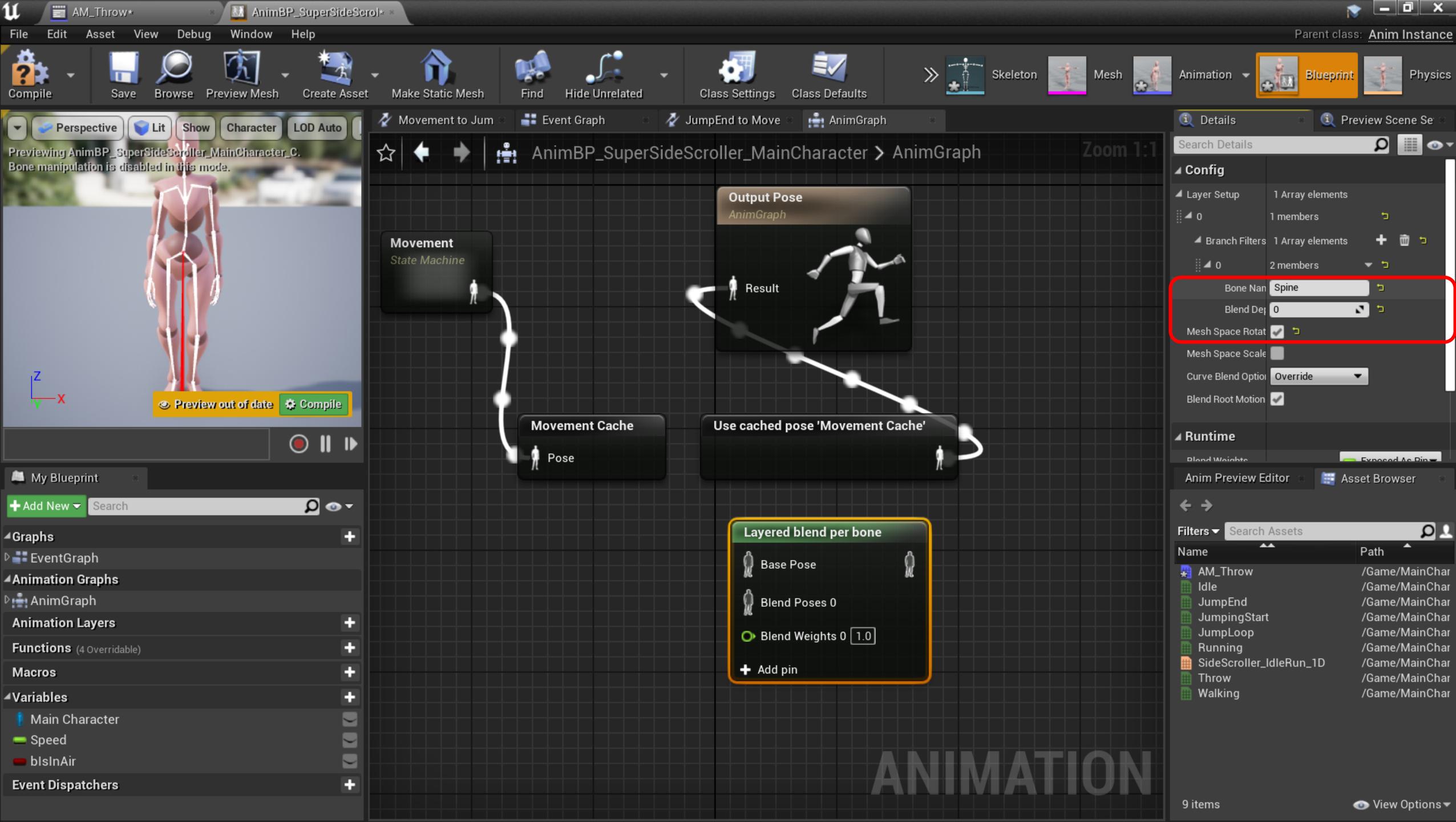
The main workspace displays a Movement State Machine graph. It starts with a "Movement" node, which branches into two parallel paths. The top path leads to a "Movement Cache" node, which then outputs a "Pose". The bottom path leads to an "Output Pose" node, which outputs a "Result". A callout box highlights the "Use cached pose 'Movement Cache'" node with the text "Right-Click".

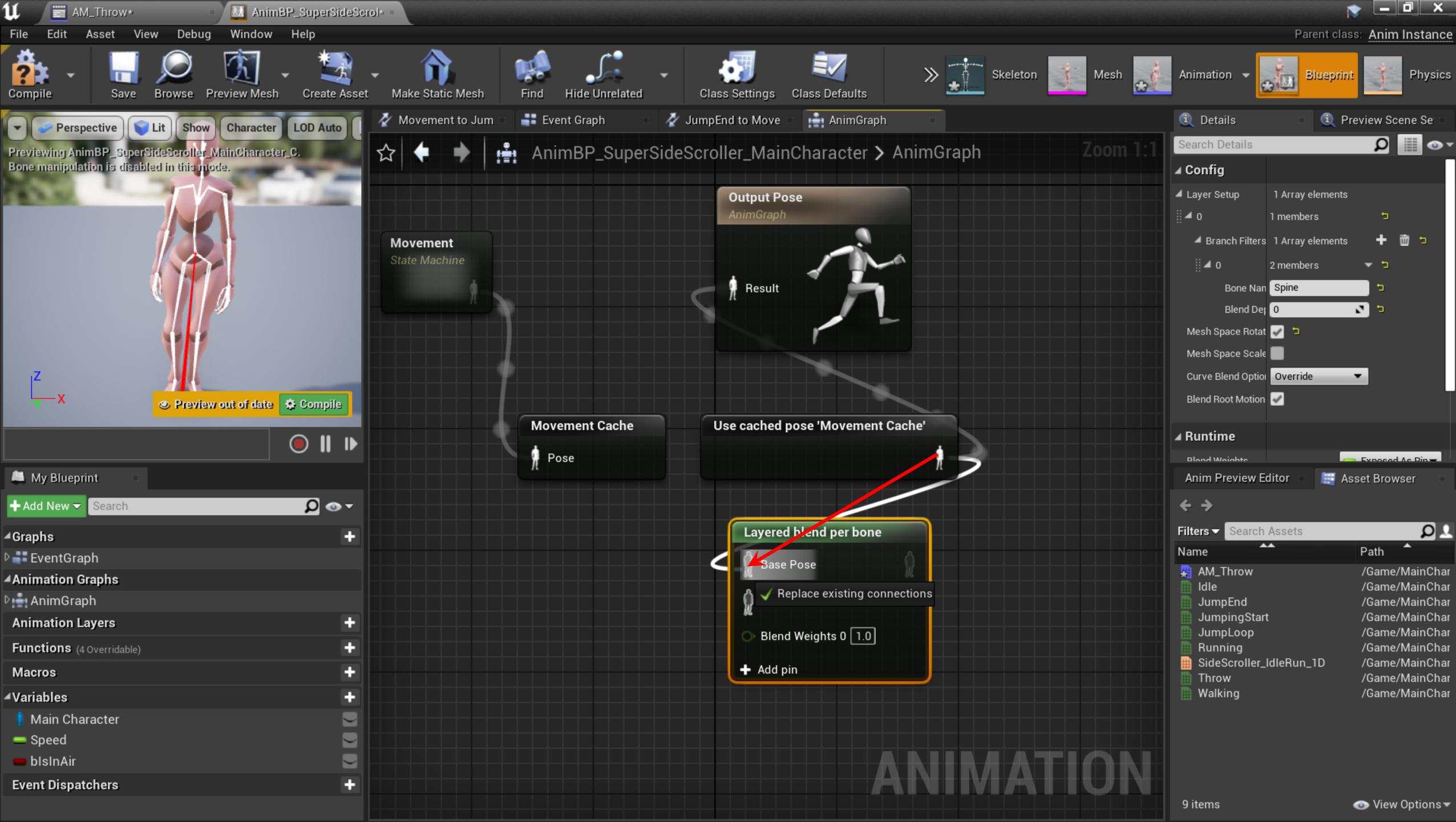
To the right of the graph, a context menu is open with the title "All Actions for this Blueprint". It includes a checkbox for "Context Sensitive" and a search bar containing "layered". The menu lists several actions under the "Blends" category, with "Layered blend per bone" highlighted by a red rectangle. Other listed actions include Cast To MediaPlayerEditorMediaContext and Cast To MediaPlayerEditorMediaContext Class.

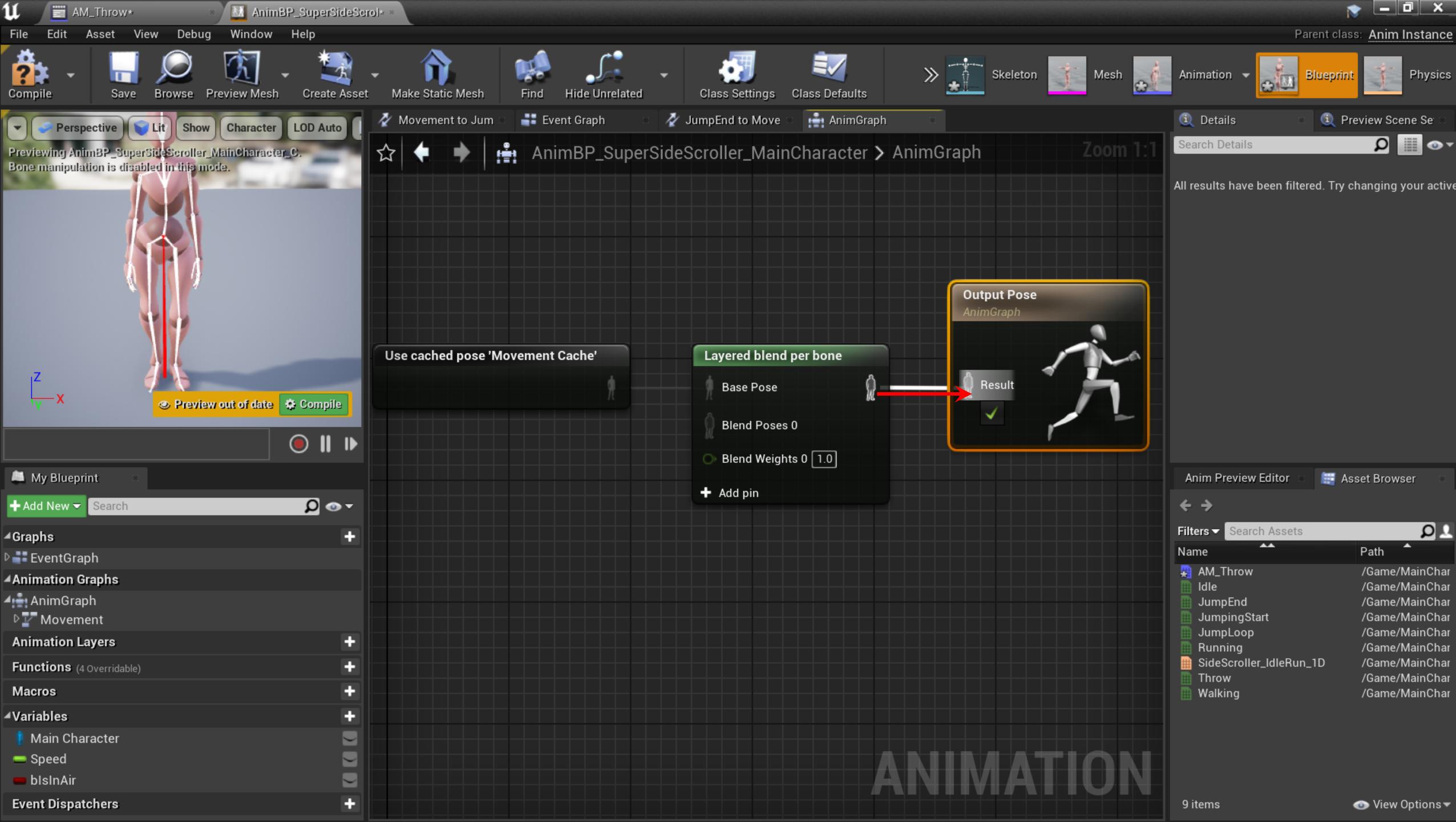
A large watermark "ANIMATION" is visible at the bottom of the screen, and the bottom right corner shows "9 items" and "View Options".

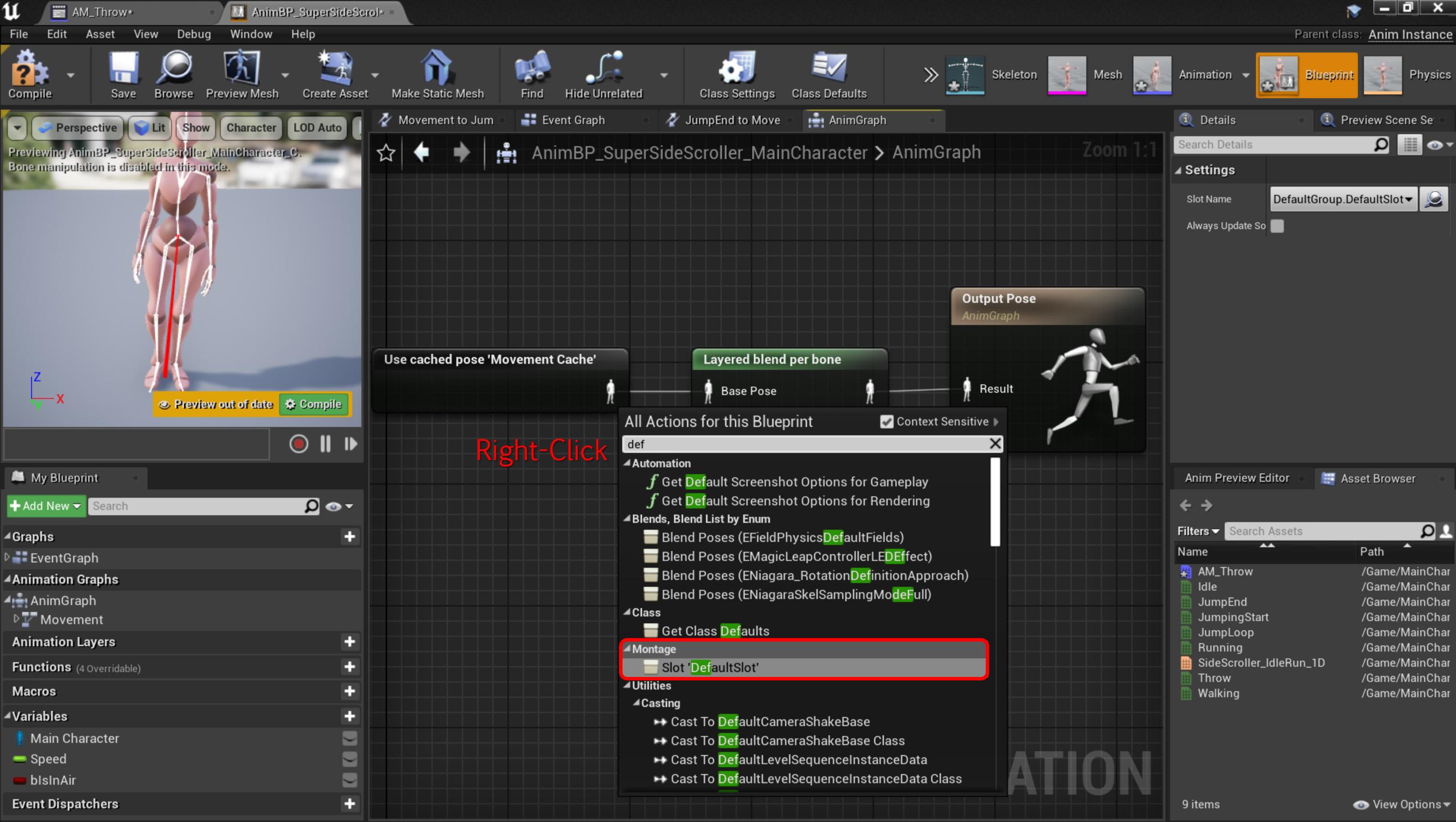


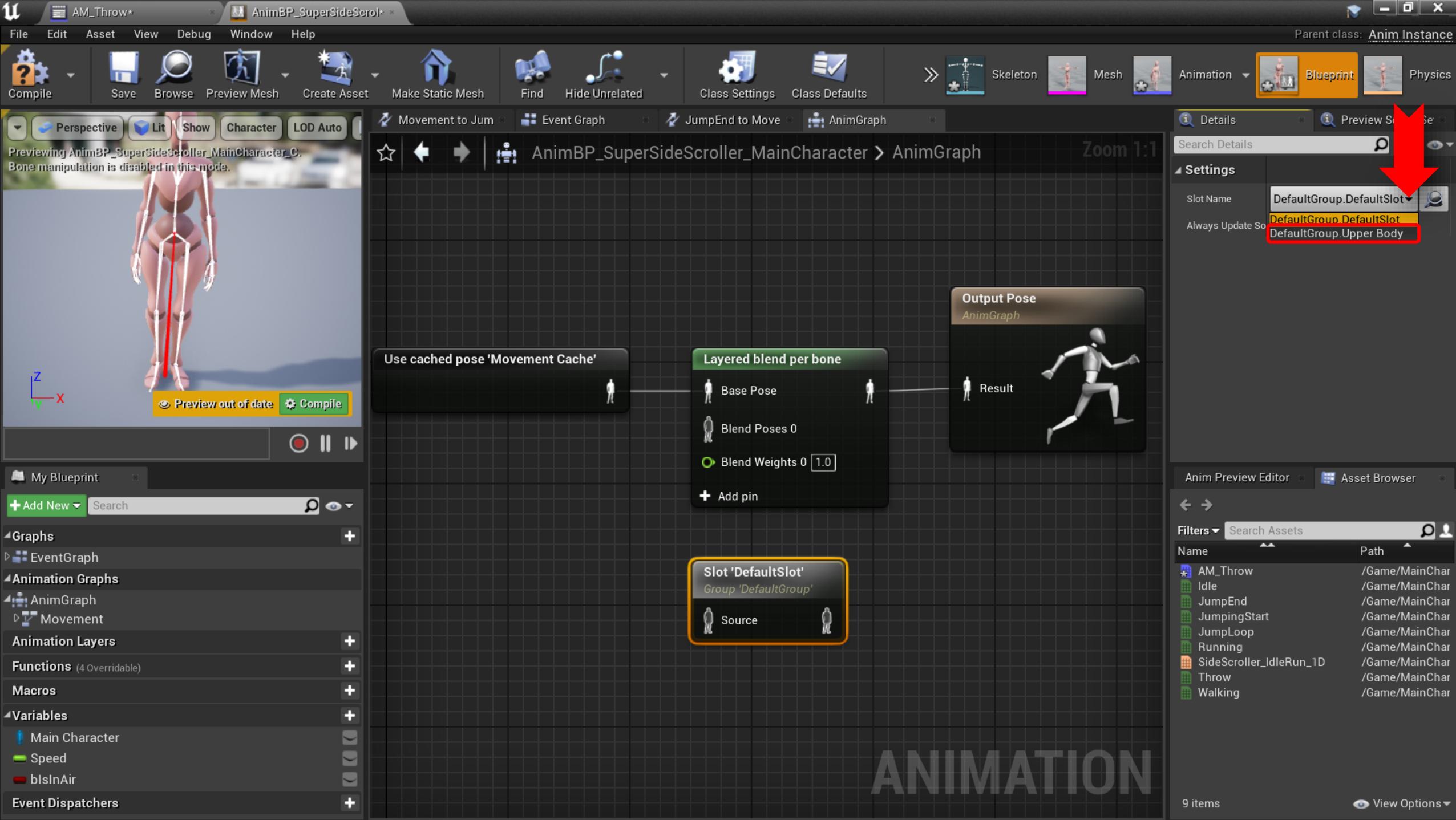


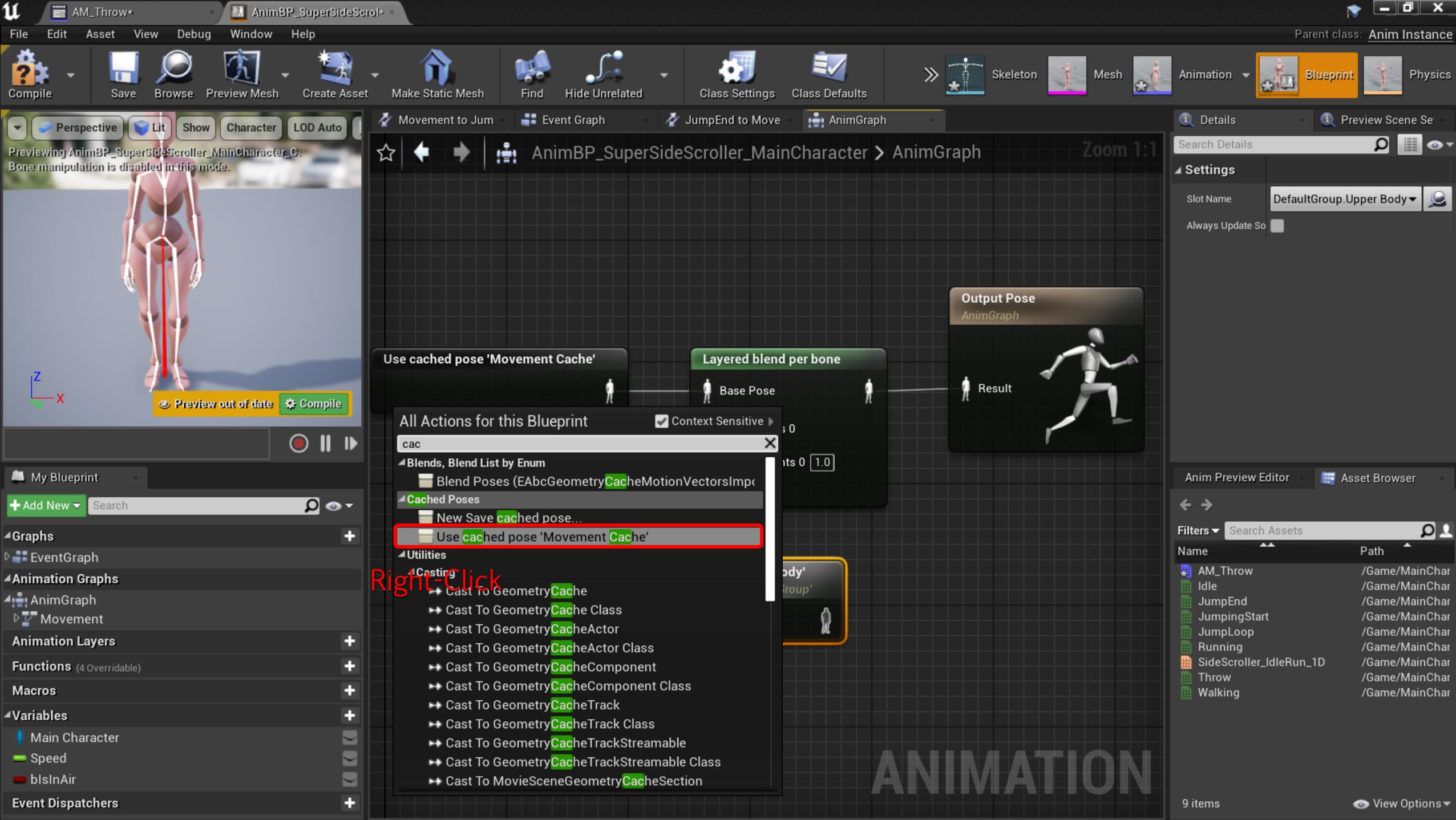


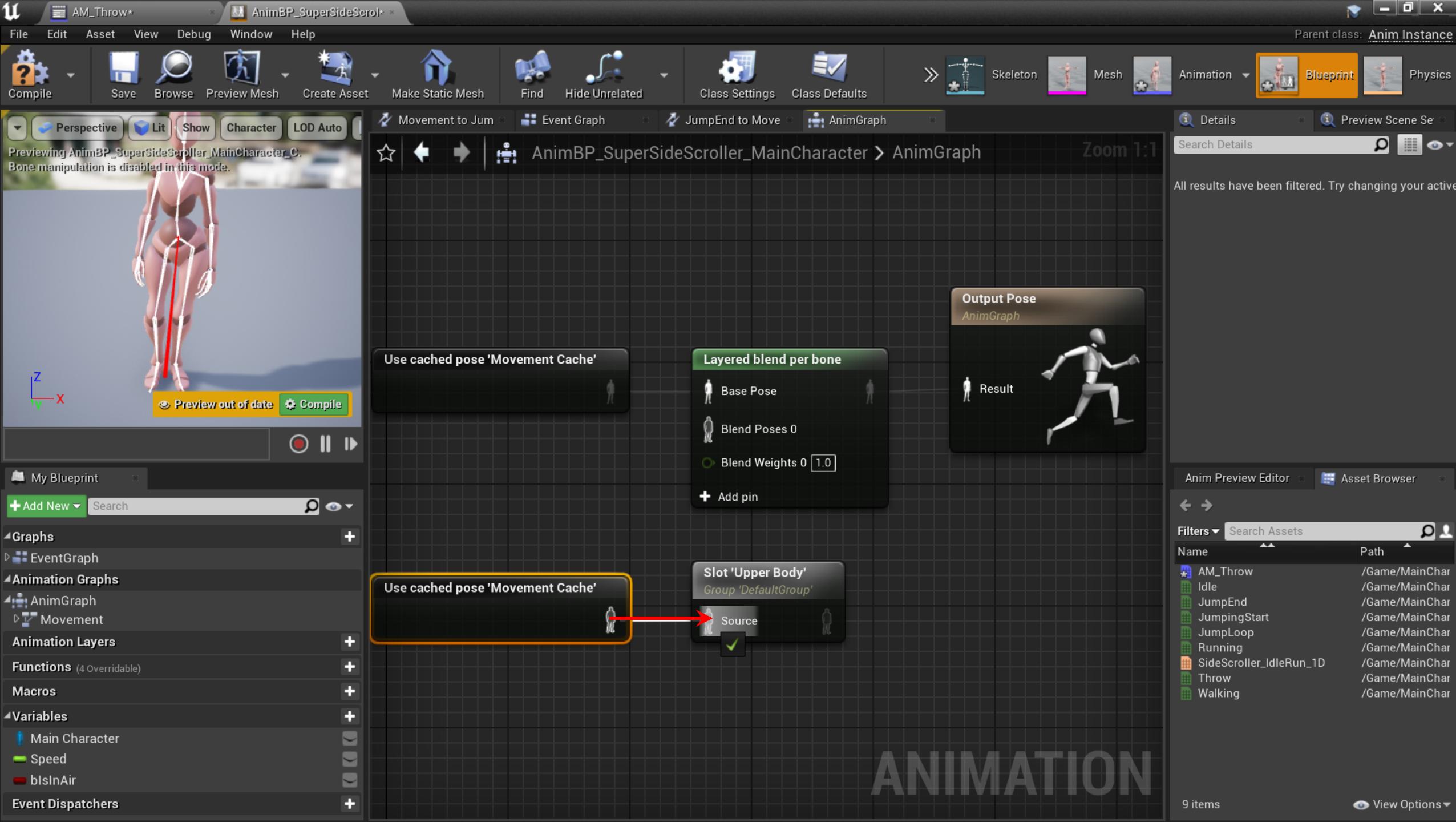


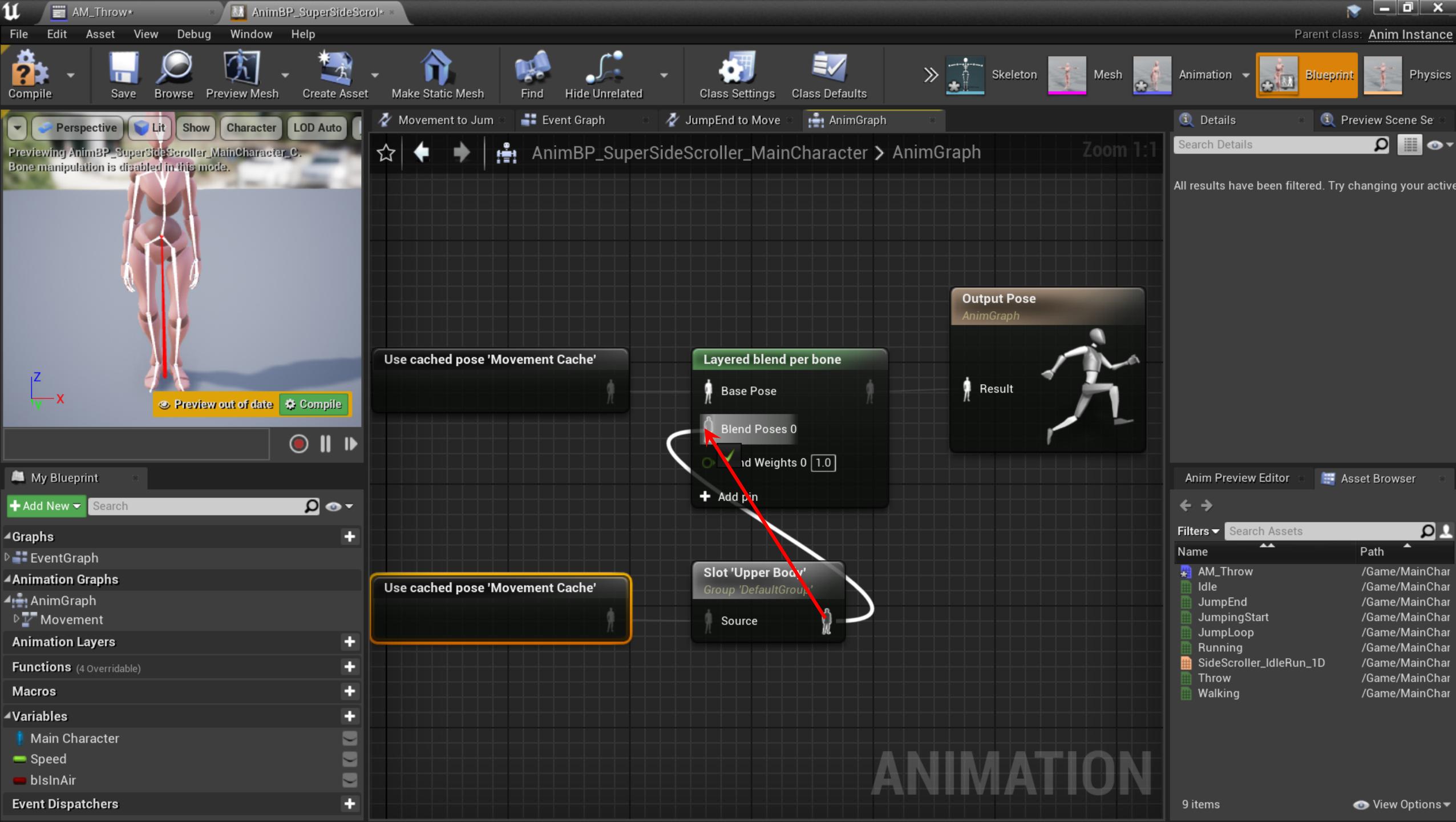


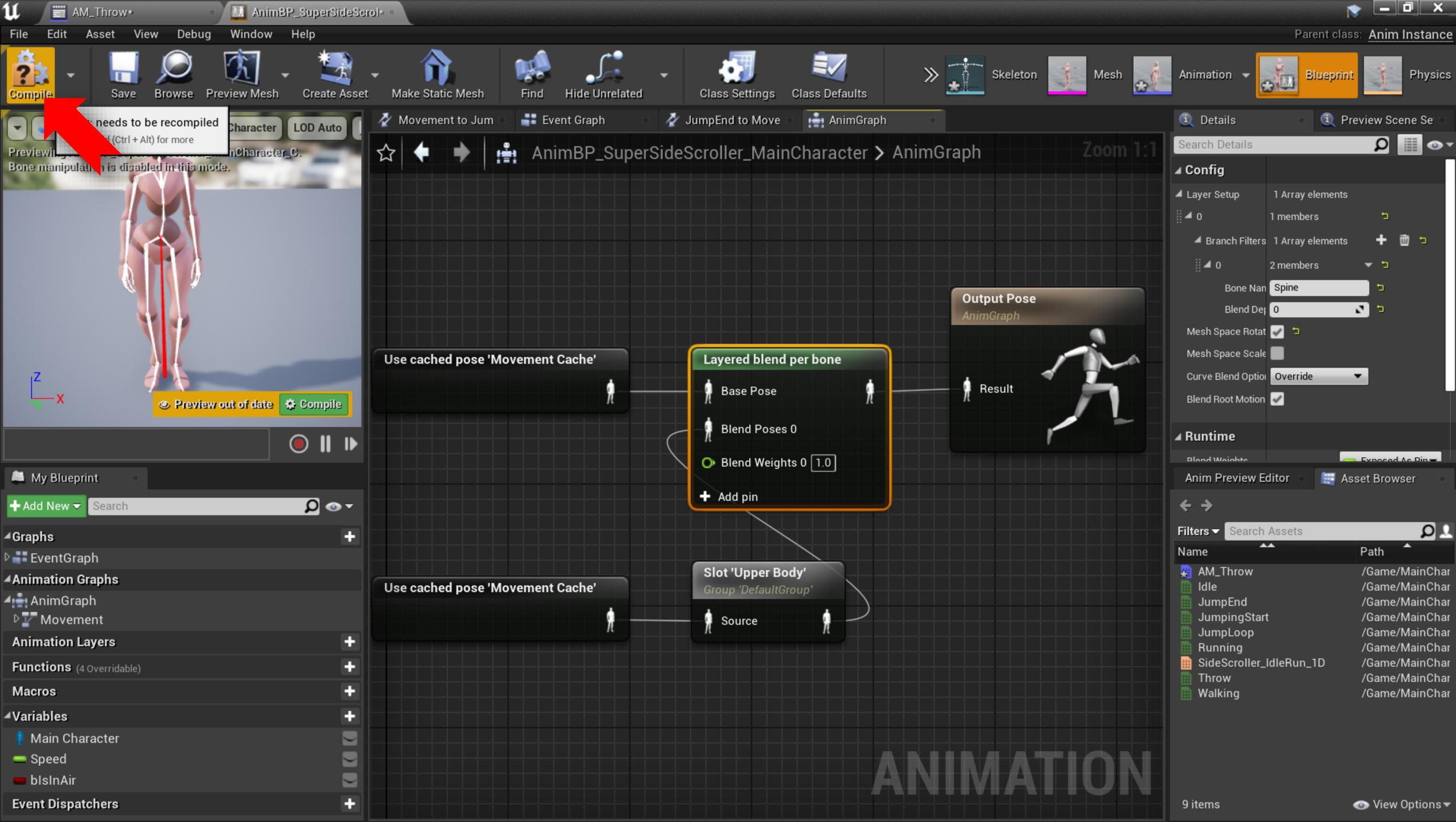














Exercise 12.06: Previewing the Throw Animation

Content Browser Output Log

Add/Import Save All Content > MainCharacter > Blueprints

Search Paths Filters Search Blueprints

Content
Geometry
MainCharacter
Animation
Blueprints
Mesh
Mannequin
SideScrollerCPP
StarterContent
C++ Classes

AnimBP_SuperSideScroller_MainCharacter
BP_SuperSideScroller_MainCharacter

2 items (1 selected) View Options

Side Scroller Template

Ledge1, Ledge2, Ledge3, Ledge4, Ledge5, Ledge6, Ledge7, Ledge8, Ledge9, Floor

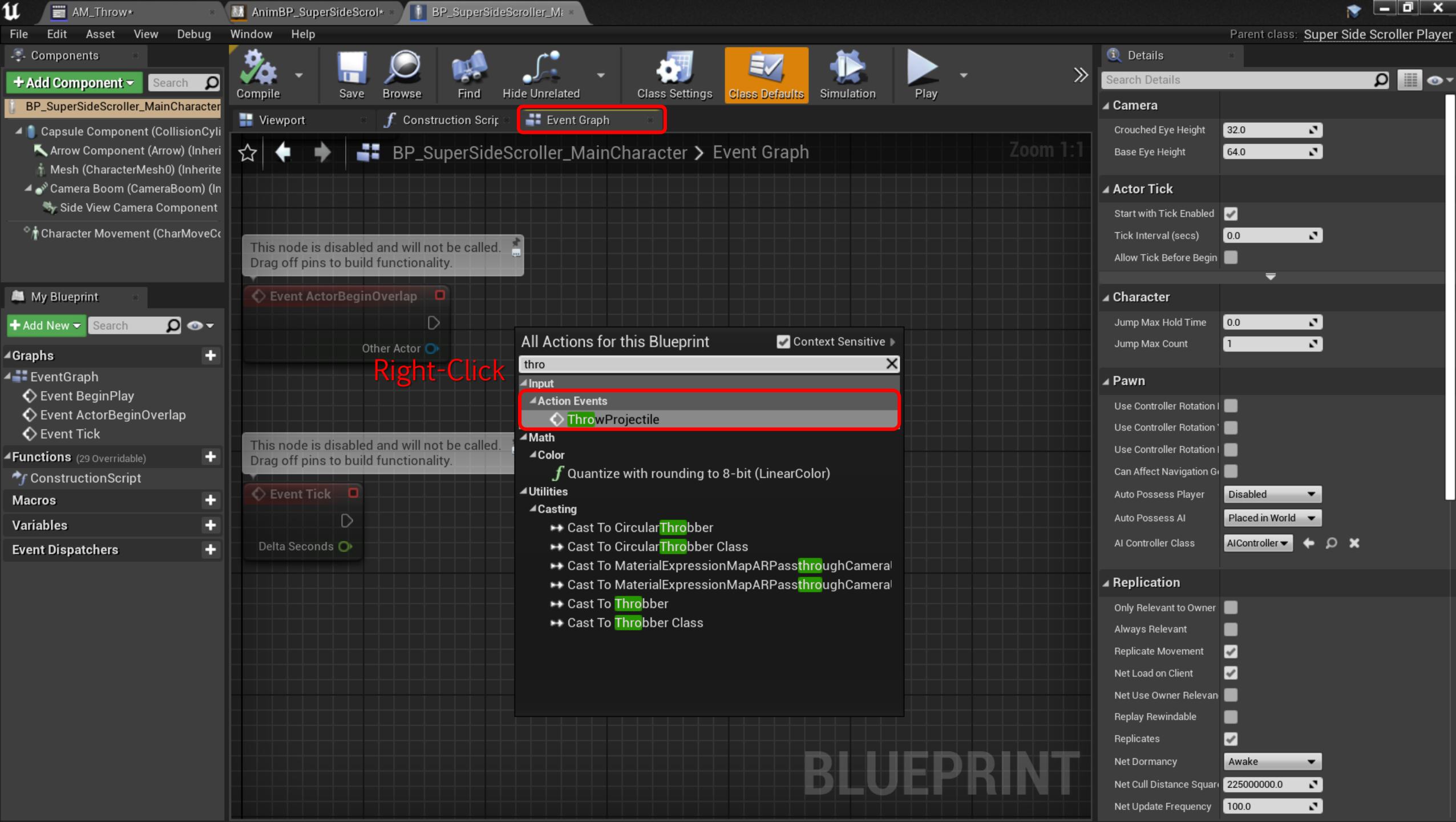
StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor, StaticMeshActor

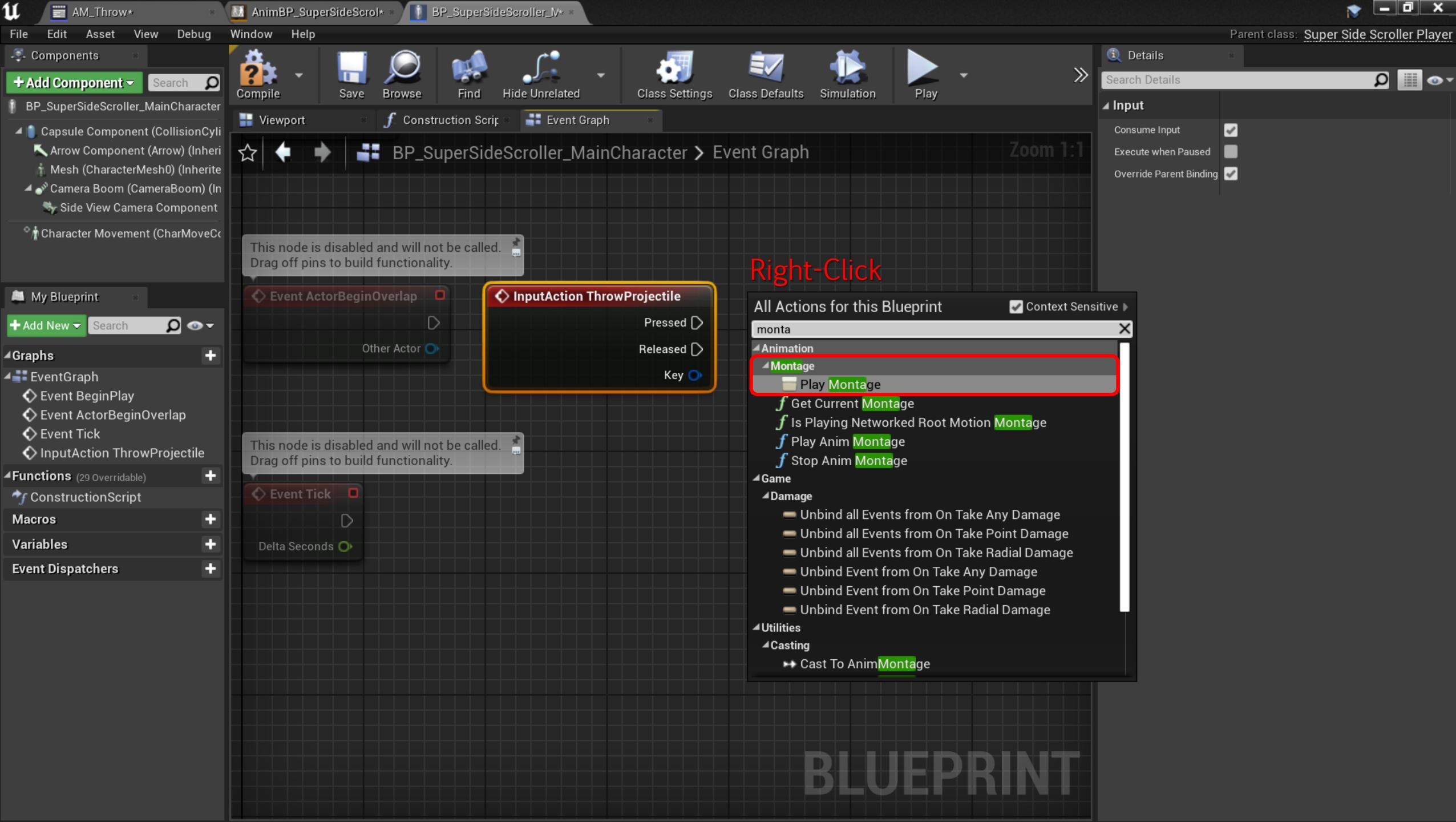
26 actors View Options

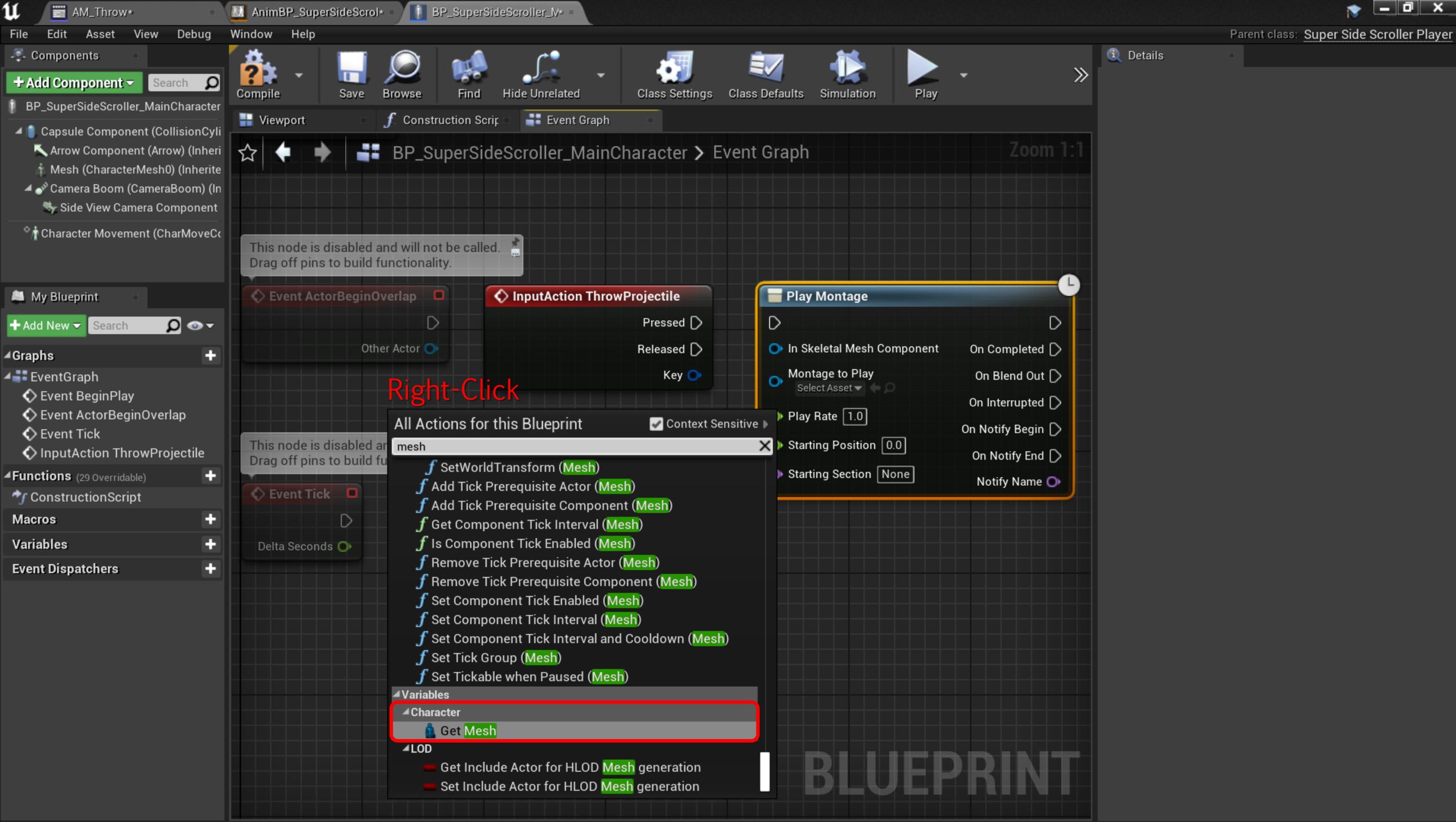
Details World Settings

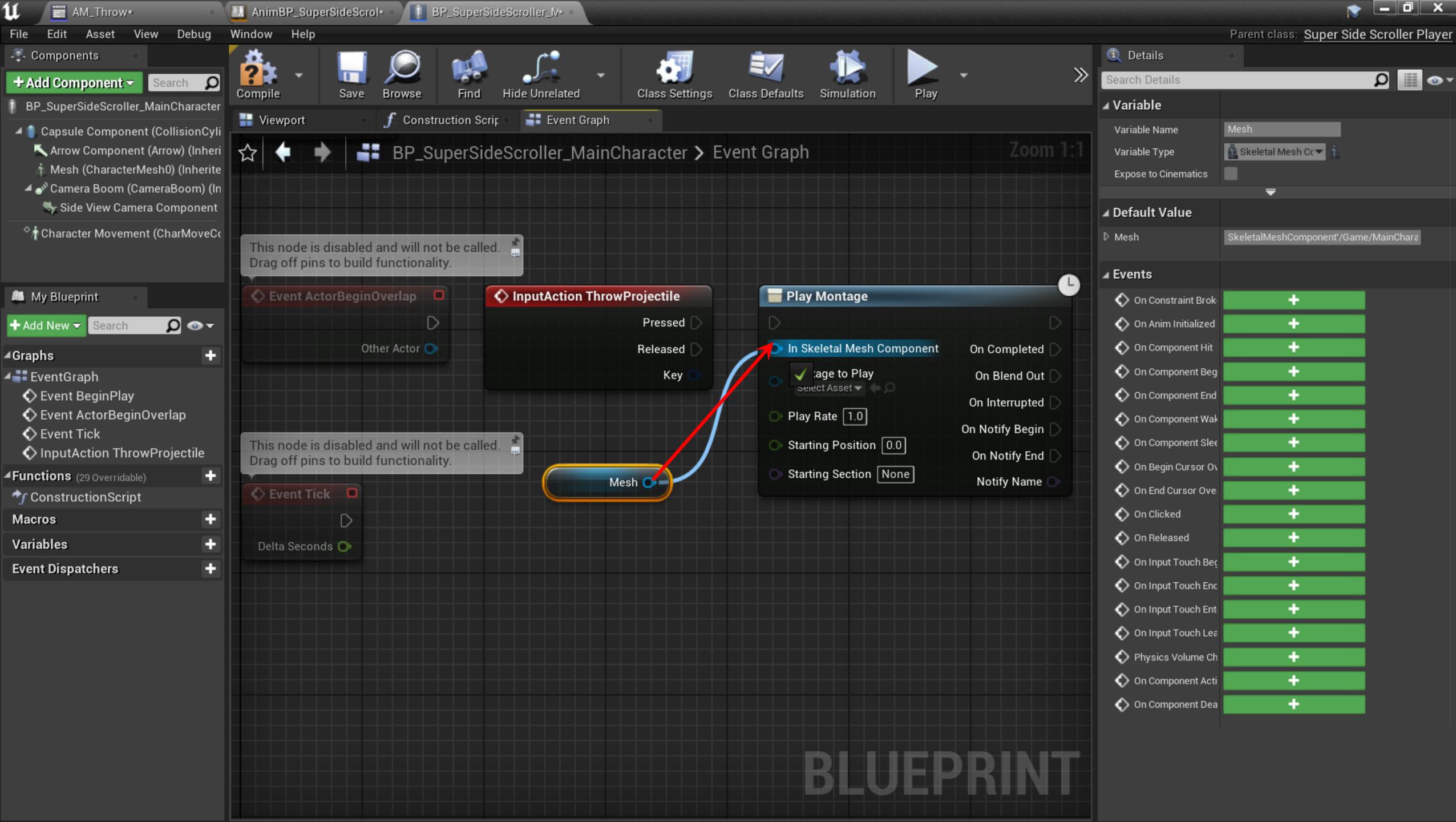
Select an object to view details.

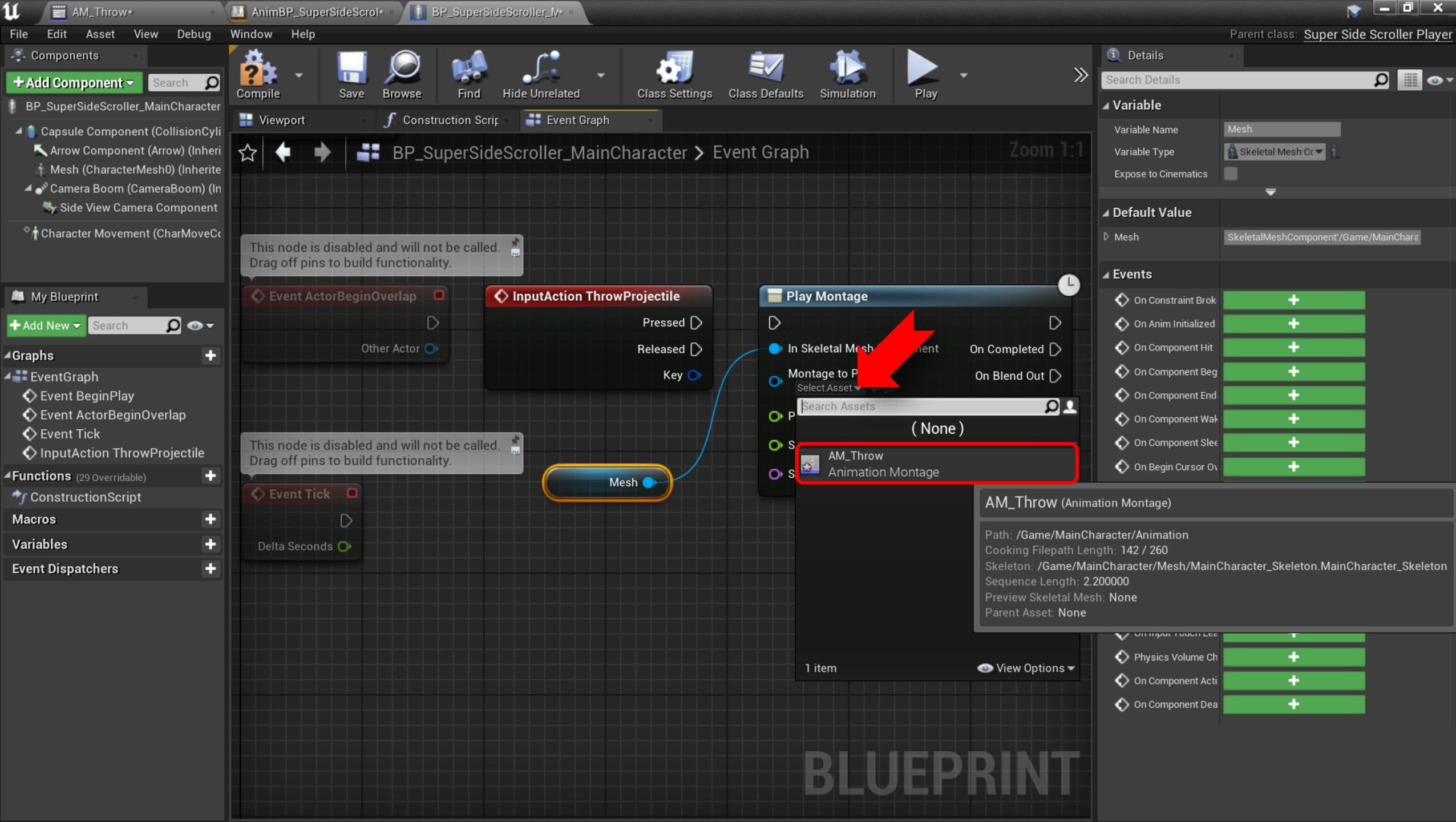
The screenshot shows the Unreal Engine Editor interface. In the center, a 3D viewports displays a character model within a wireframe capsule, set against a dark background with floating platforms labeled 'Ledge1' through 'Ledge9' and a 'Floor'. The title 'Side Scroller Template' is visible above the character. On the left, the Content Browser lists various asset types like Empty, Point, Playe, Cube, Spher, Cylind, Cone, and Plane. Below these, under 'Blueprints', two blueprints are listed: 'AnimBP_SuperSideScroller_MainCharacter' and 'BP_SuperSideScroller_MainCharacter', with the latter being selected and highlighted in yellow. A large red arrow points from the bottom-left towards this selected blueprint. At the bottom of the Content Browser, it says '2 items (1 selected)' and 'View Options'. The top menu bar includes 'Content Browser', 'Output Log', 'Add/Import', 'Save All', and navigation icons. The bottom navigation bar shows the current path: 'Content > MainCharacter > Blueprints'.

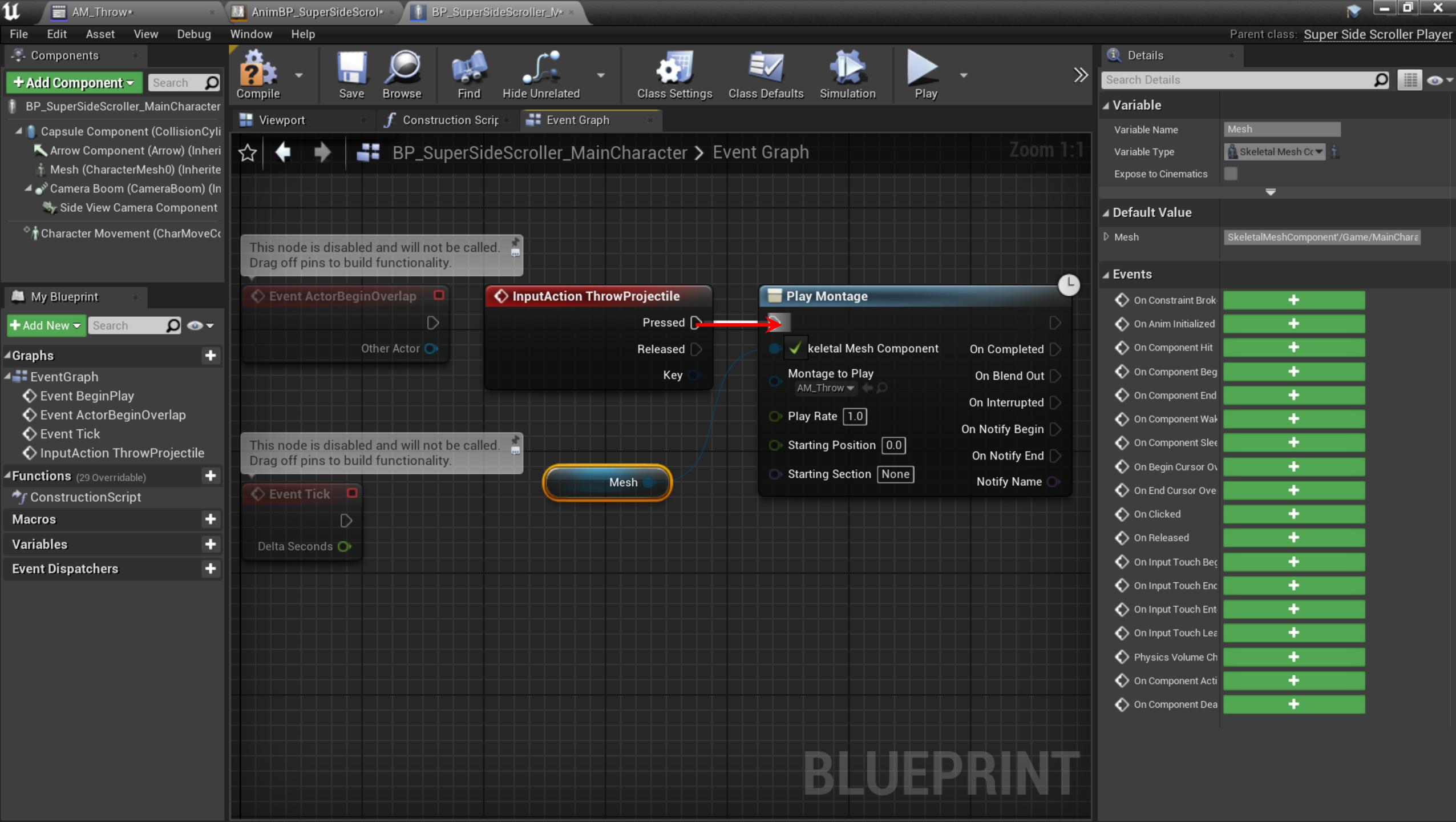












Components

+ Add Component Search

BP_SuperSideScroller_MainCharacter

- Capsule Component (CollisionCylinder)
- Arrow Component (Arrow) (Inherited)
- Mesh (CharacterMesh0) (Inherited)
- Camera Boom (CameraBoom) (Inherited)
- Side View Camera Component
- Character Movement (CharMoveComponent)

My Blueprint

+ Add New Search

Graphs

- EventGraph
- Event BeginPlay
- Event ActorBeginOverlap
- Event Tick
- InputAction ThrowProjectile

Functions (29 Overridable)

- ConstructionScript

Macros

Variables

Event Dispatchers

Compile

Save

Browse

Find

Hide Unrelated

Class Settings

Class Defaults

Simulation

Play

This node is disabled and will not be called.
Drag off pins to build functionality.

Event ActorBeginOverlap

Other Actor

InputAction ThrowProjectile

Pressed

Released

Key

Mesh

Play Montage

In Skeletal Mesh Component

Montage to Play

Play Rate

Starting Position

Starting Section

On Completed

On Blend Out

On Interrupted

On Notify Begin

On Notify End

Notify Name

This node is disabled and will not be called.
Drag off pins to build functionality.

Event Tick

Delta Seconds

Zoom 1:1

BLUEPRINT

A screenshot of the Unreal Engine Blueprint Editor. The main workspace shows a graph with nodes like 'Event ActorBeginOverlap', 'InputAction ThrowProjectile', and 'Play Montage'. A red arrow points from the top-left towards the 'Compile' button in the toolbar. The toolbar also includes other buttons for Save, Browse, Find, Hide Unrelated, Class Settings, Class Defaults, Simulation, and Play. The status bar at the bottom right displays the word 'BLUEPRINT'.

SideScrollerExampleMap • DDC SuperSideScroller

File Edit Window Help

Place Actors

Search Classes

Recently Placed

Basic

Lights

Cinematic

Visual Effects

Geometry

Volumes

All Classes

Empty

Empty

Empty

Point

Player

Cube

Sphere

Cylinder

Cone

Plane

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Compile >

Shift+F1 for Mouse Cursor

Side Scroller Template

36 actors View Options

Content Browser Output Log

Add/Import Save All Content MainCharacter Blueprints

Search Paths Filters Search Blueprints

Content Geometry MainCharacter Animation Blueprints Mesh Mannequin SideScrollerCPP StarterContent C++ Classes

AnimBP_SuperSideScroller_MainCharacter BP_SuperSideScroller_MainCharacter

2 items (1 selected) View Options

World Outliner

Label	Type
SideScrollerExampleMap (World)	World
ArenaGeometry	Folder
Ledges	Folder
Ledge1	StaticMeshActor
Ledge2	StaticMeshActor
Ledge3	StaticMeshActor
Ledge4	StaticMeshActor
Ledge5	StaticMeshActor
Ledge6	StaticMeshActor
Ledge7	StaticMeshActor
Ledge8	StaticMeshActor
Ledge9	StaticMeshActor
Floor	StaticMeshActor

Details World Settings

Select an object to view details.



The Super Side Scroller Game Enemy

- › This enemy will have a basic back-and-forth movement pattern and will not support any attacks.
 - Only colliding with the player character will it be able to inflict damage.
- › For the sake of efficiency and time, you will use the assets already provided by Unreal Engine 4 in the **SideScroller** template for the enemy.



Exercise 12.07: Creating the Enemy Base C++ Class

SideScrollerExampleMap*

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
- Refresh Visual Studio Project
- Open Visual Studio
- 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

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

Perspective Lit Show

Foreground 0.25 4

World Outliner

Label	Type
SideScrollerExampleMap (World)	Folder
ArenaGeometry	Folder
Ledges	Folder
Ledge1	StaticMeshActor
Ledge2	StaticMeshActor
Ledge3	StaticMeshActor
Ledge4	StaticMeshActor
Ledge5	StaticMeshActor
Ledge6	StaticMeshActor
Ledge7	StaticMeshActor
Ledge8	StaticMeshActor
Ledge9	StaticMeshActor
Floor	StaticMeshActor

26 actors View Options

Details World Settings

Select an object to view details.

Side Scroller Template

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

ut Log

Content MainCharacter Blueprints

Search Blueprints



Choose Parent Class

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

Show All Classes

superside

X

- Object
- Actor
- Info
- GameModeBase
 - SuperSideScrollerGameMode
- Pawn
- Character
 - SuperSideScrollerCharacter
 - SuperSideScroller_Player

9 items (1 selected)

View Options ▾

Selected Class

Super Side Scroller Character

Selected Class Source

SuperSideScrollerCharacter.h

Next >

Create Class

Cancel



Name Your New Super Side Scroller 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 style="border: 2px solid red; width: 200px; height: 30px;" type="text" value="EnemyBase"/>	SuperSideScroller (Runtime) ▾	Public	Private
Path	<input style="width: 400px; height: 30px;" type="text" value="C:/Users/sunje/Desktop/Unreal/SuperSideScroller/Source/SuperSideScroller/"/> <button style="border: none; background-color: transparent; font-size: small;">Choose Folder</button>			
Header File	C:/Users/sunje/Desktop/Unreal/SuperSideScroller/Source/SuperSideScroller/EnemyBase.h			
Source File	C:/Users/sunje/Desktop/Unreal/SuperSideScroller/Source/SuperSideScroller/EnemyBase.cpp			

< Back

Create Class

Cancel

상태바
EnemyBase.cpp ✘ x EnemyBase.h SuperSideScroller_Player.cpp SuperSideScroller_Player.h
SuperSideScroller (전역 범위)
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "EnemyBase.h"
5
6

슬루션 탐색기 🔍 Live Share 🔍
슬루션 탐색기 검색(Ctrl+;) 🔍
슬루션 탐색기 'SuperSideScroller' (2/2개 프로젝트)
Engine
↳ UE4
Games
↳ SuperSideScroller
↳ 참조
↳ 외부 종속성
↳ Config
↳ Source
↳ SuperSideScroller.uproject
Visualizers
↳ UE4.natvis

100 % ✘ 문제가 검색되지 않음

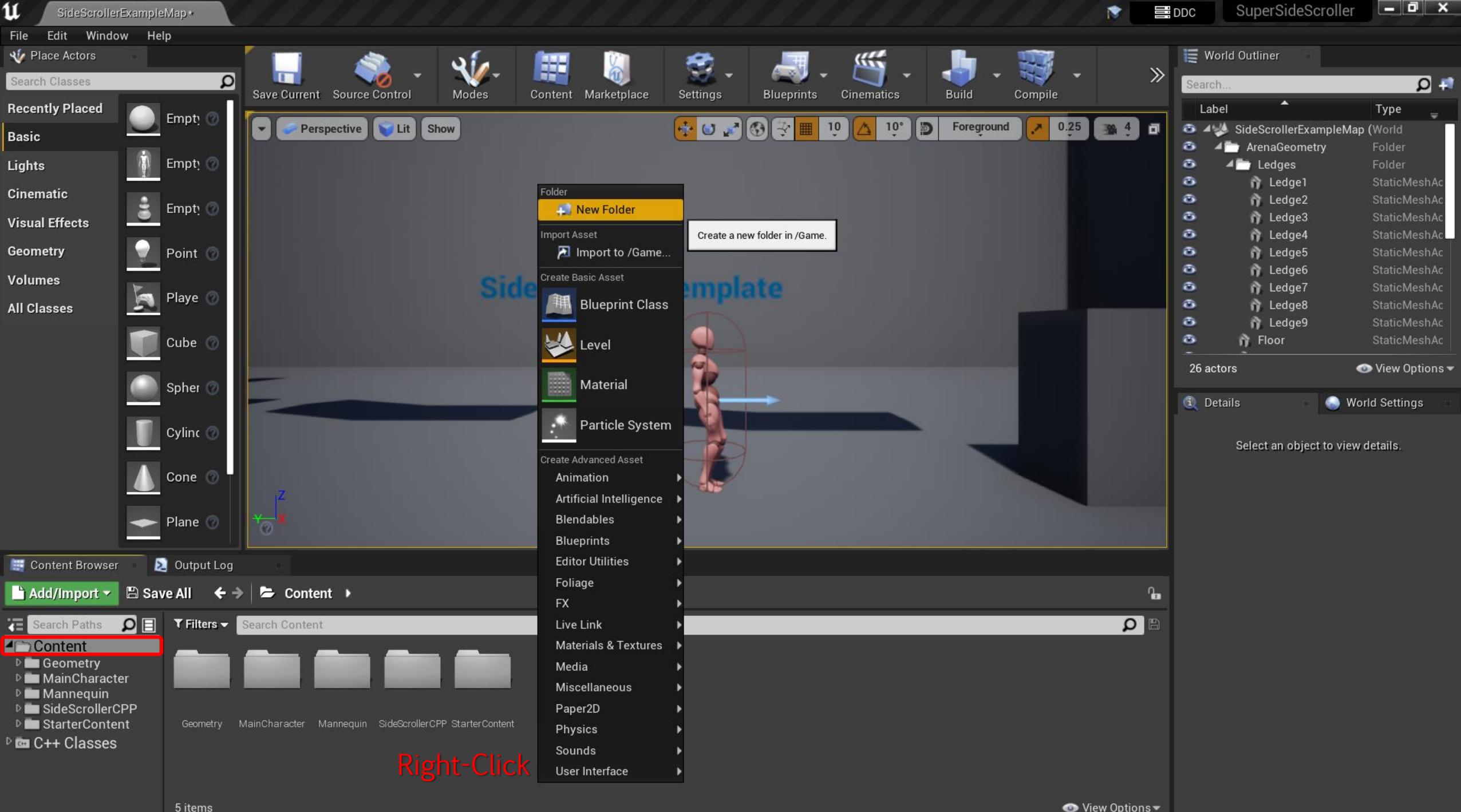
줄: 1 문자: 1 탭 CRLF

슬루션 탐색기 Git 변경 내용

↑ 소스 제어에 추가 ▲

1

준비





The screenshot shows the Content Browser panel. The left sidebar lists "Content" with sub-folders: Enemy, Geometry, MainCharacter, Mannequin, SideScrollerCPP, StarterContent, and C++ Classes. The "Enemy" folder is highlighted with a yellow background and has a red arrow pointing to it from the bottom left. The main content area shows a grid of five folder icons, with the "Enemy" folder being the first one. Below the grid, the labels "Geometry", "MainCharacter", "Mannequin", "SideScrollerCPP", "StarterContent", and "C++ Classes" are listed. At the bottom, there is a message: "6 items (1 selected)". The bottom right corner of the Content Browser has a "View Options" button.

SideScrollerExampleMap* DDC SuperSideScroller

File Edit Window Help

Place Actors Search Classes

Recently Placed Basic Lights Cinematic Visual Effects Geometry Volumes All Classes

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

Perspective Lit Show

Foreground 0.25 4

Folder New Folder Import Asset Import to /Game/Enemy... Create a new folder in /Game/Enemy...

Blueprint Class Level Material Particle System

Create Advanced Asset Animation Artificial Intelligence Blendables Blueprints Editor Utilities Foliage FX Live Link Materials & Textures Media Miscellaneous Paper2D Physics Sounds User Interface

Content Browser Output Log

Add/Import Save All Filters Search Engine Content Enemy Geometry MainCharacter Mannequin SideScrollerCPP StarterContent C++ Classes

Right-Click 0 items

World Outliner Search... Label Type

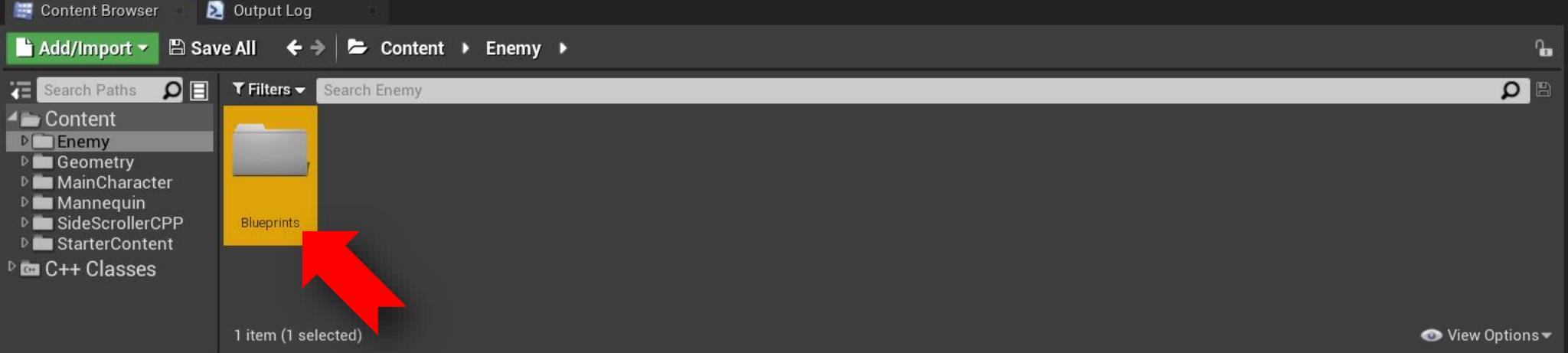
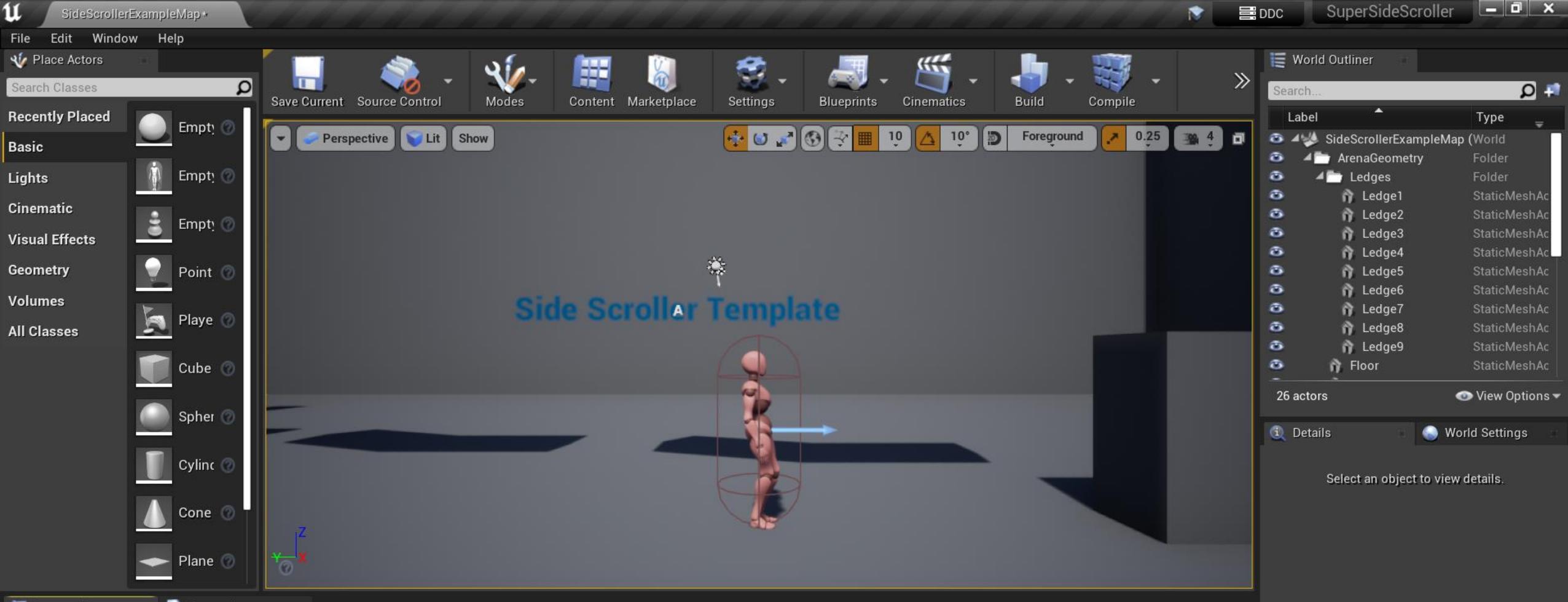
SideScrollerExampleMap (World) ArenaGeometry Ledges Ledge1 Ledge2 Ledge3 Ledge4 Ledge5 Ledge6 Ledge7 Ledge8 Ledge9 Floor

26 actors View Options

Details World Settings

Select an object to view details.

The screenshot shows the Unreal Engine 4 (UE4) interface. The title bar displays the project name "SideScrollerExampleMap*" and the build configuration "DDC". The top menu bar includes File, Edit, Window, Help, Place Actors, and a search bar for classes. A toolbar on the right contains icons for Save Current, Source Control, Modes, Content, Marketplace, Settings, Blueprints, Cinematics, Build, and Compile. Below the toolbar are perspective, lit, and show mode buttons, along with camera controls for foreground, zoom, and rotation. The main workspace shows a 3D scene with a character model and a wireframe cube. A context menu is open, showing options like New Folder, Import Asset, Blueprint Class, Level, Material, Particle System, and various asset creation categories. The Content Browser on the left lists content categories such as Content, Enemy, Geometry, MainCharacter, Mannequin, SideScrollerCPP, StarterContent, and C++ Classes, with "Enemy" highlighted. The World Outliner on the right lists the project's assets, including the main map, arena geometry, ledges, and floor assets. The bottom status bar indicates there are 0 items selected and provides a "View Options" button.



SideScrollerExampleMap* DDC SuperSideScroller

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 Content

Content

Enemy

Blueprints

Geometry

MainCharacter

Mannequin

SideScrollerCPP

StarterContent

C++ Classes

0 items

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

Perspective Lit Show

World Outliner

Label Type

SideScrollerExampleMap (World Folder

ArenaGeometry Folder

Ledges StaticMeshAc

Ledge1 StaticMeshAc

Ledge2 StaticMeshAc

Ledge3 StaticMeshAc

Ledge4 StaticMeshAc

Ledge5 StaticMeshAc

Ledge6 StaticMeshAc

Foreground 0.25 4

Blueprint Class

Blueprints are special assets that provide an intuitive, node-based interface that can be used to create new types of Actors and script level events; giving designers and gameplay programmers the tools to quickly create and iterate gameplay from within Unreal Editor without ever needing to write a line of code.

hold (Ctrl + Alt) for more

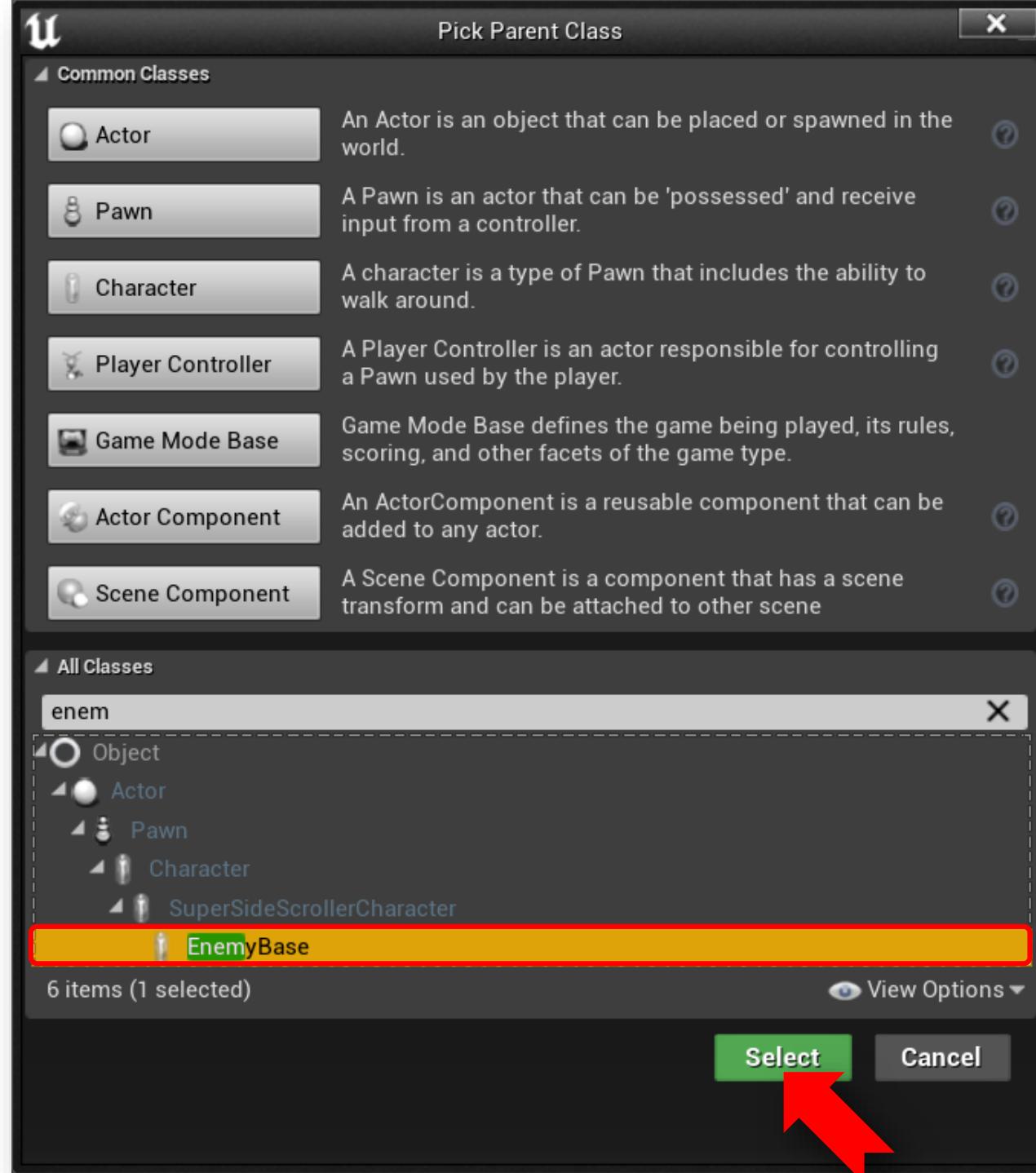
26 actors

Details World Settings

Select an object to view details.

Right-Click

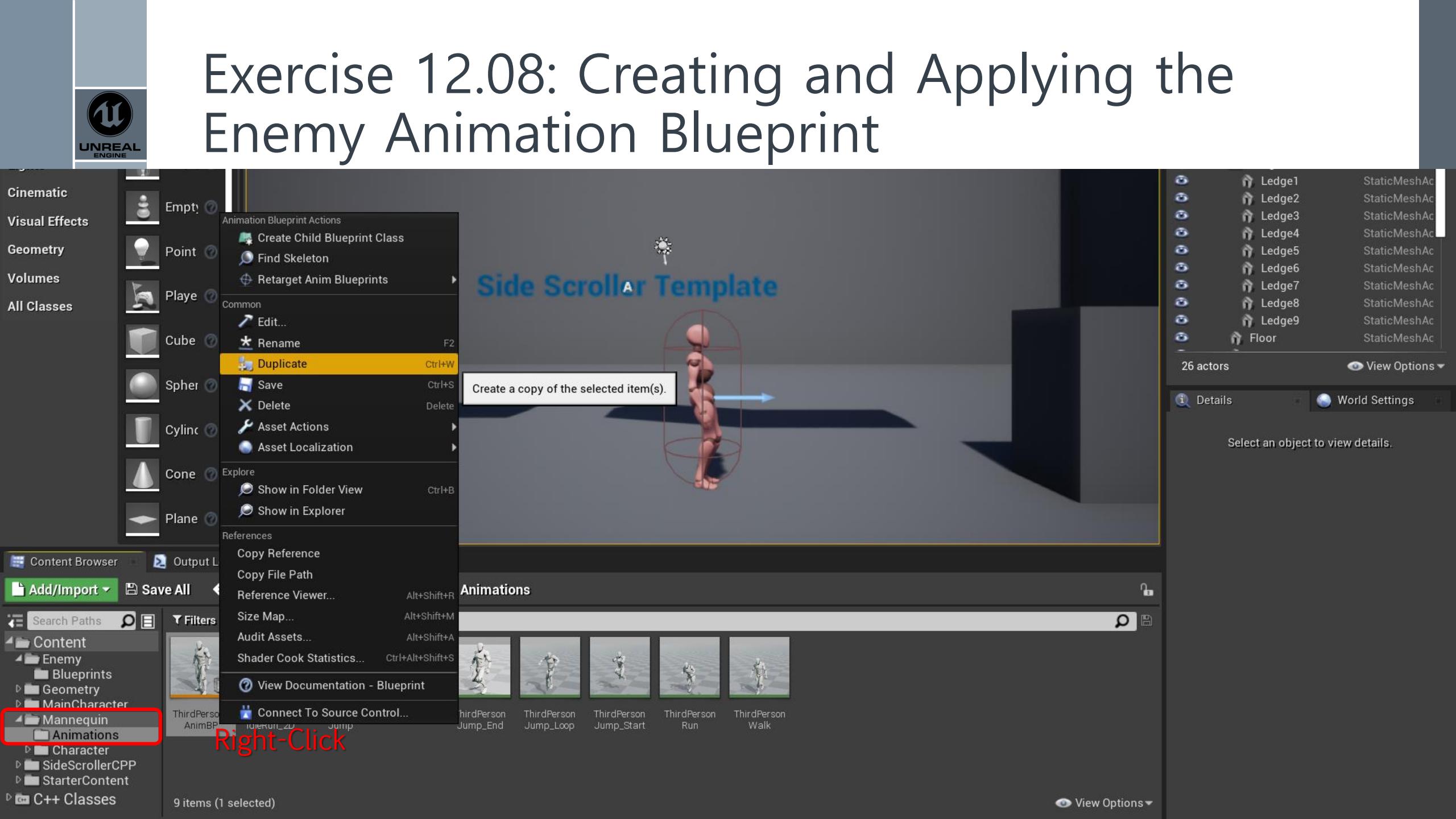
right click to create content.

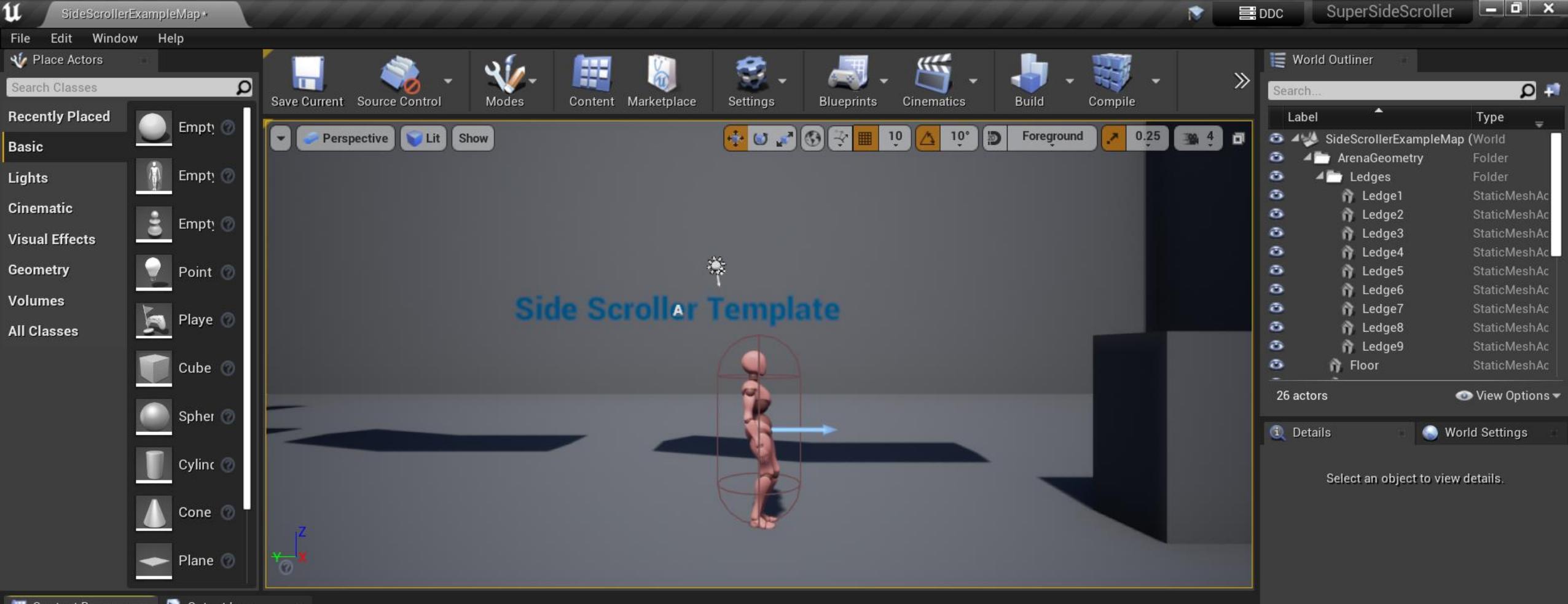




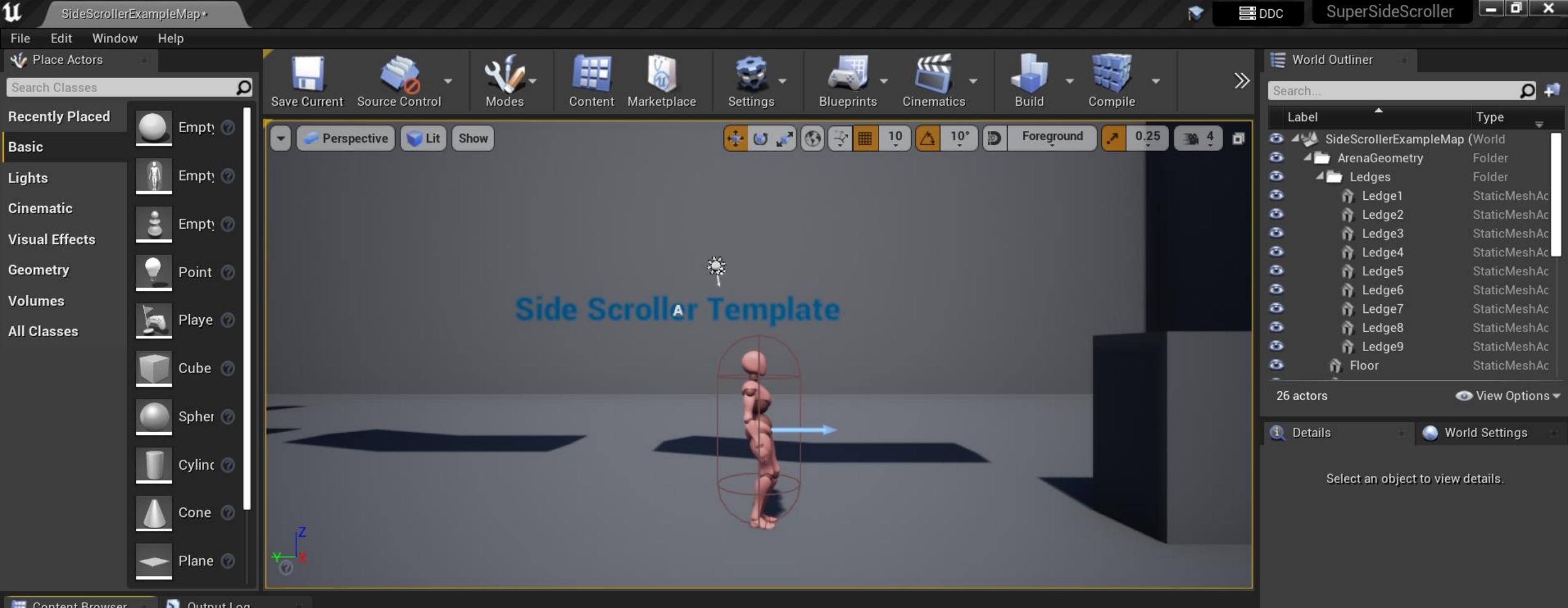
The Content Browser panel at the bottom of the screen displays the selected Blueprint "BP_Enemy". The "Filters" dropdown is set to "Blueprints". The search bar shows "Search Blueprints". The status bar indicates "1 item (1 selected)" and "View Options".

Exercise 12.08: Creating and Applying the Enemy Animation Blueprint

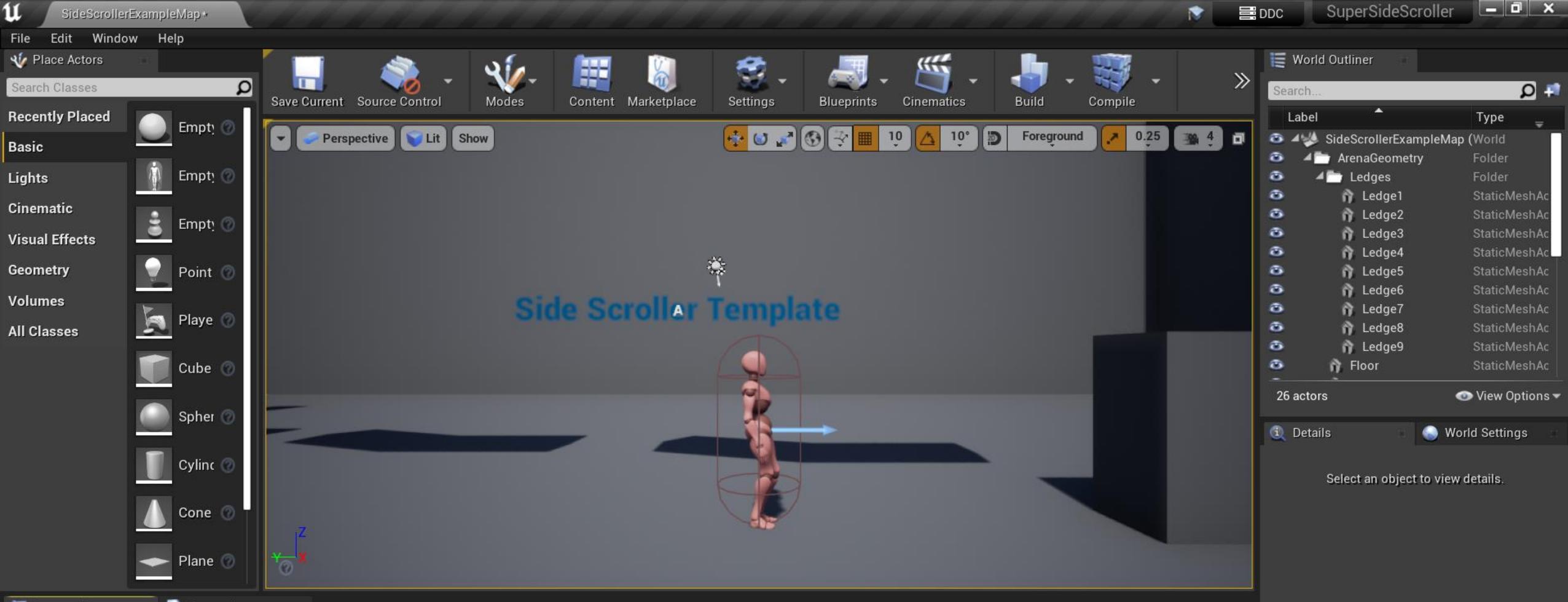




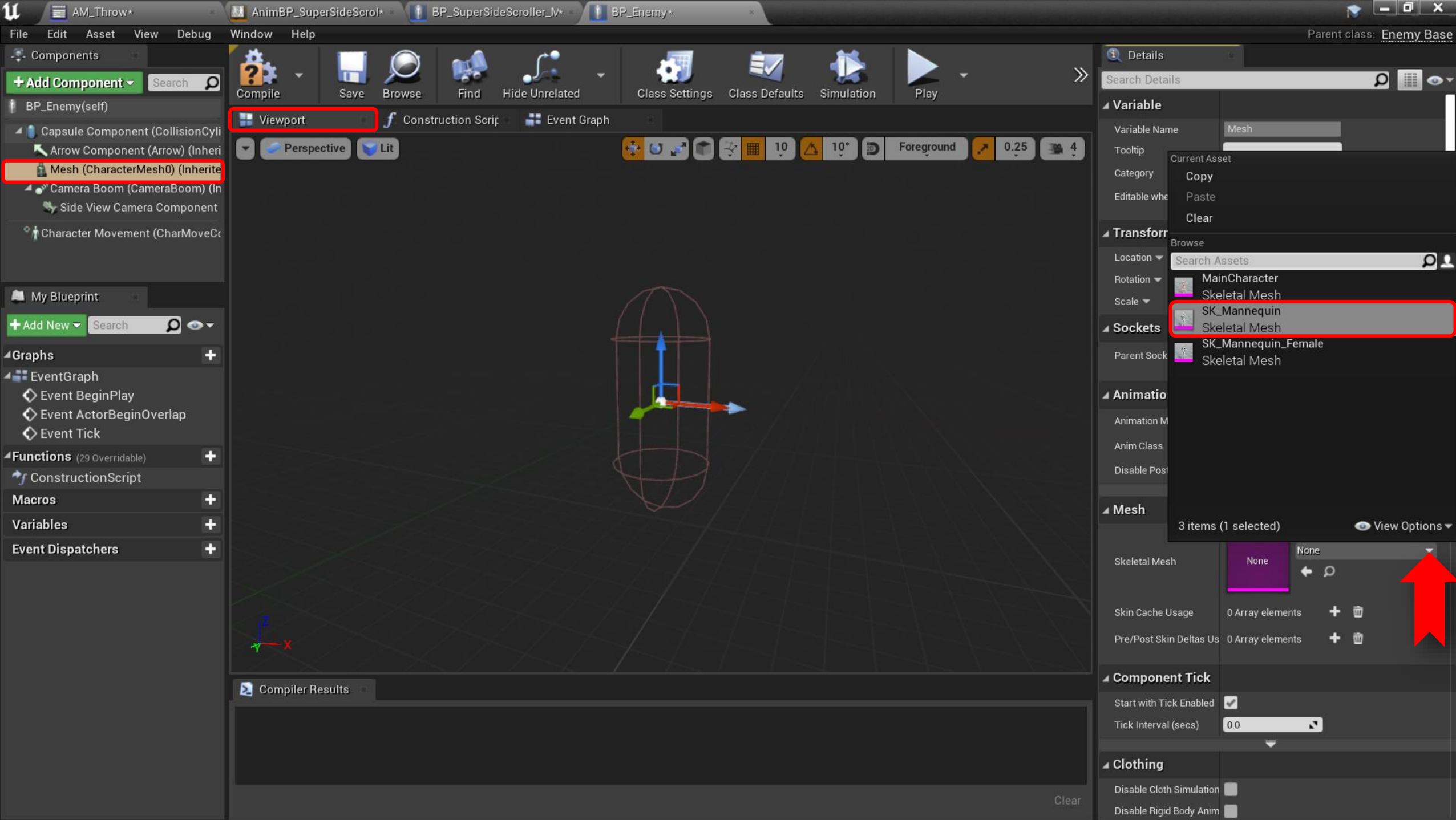
This screenshot focuses on the "Content Browser" panel from the previous image. It shows the "Content" folder structure with the "Mannequin" folder expanded. A red arrow points to the "Blueprints" folder within "Mannequin". The "AnimBP_Enemy" blueprint is selected and highlighted with a yellow border. The "Content Browser" also displays a list of animation sequences: ThirdPerson_AnimBP, ThirdPerson_IdleRun_2D, ThirdPerson_Jump, ThirdPersonIdle, ThirdPersonJump_End, ThirdPersonJump_Loop, ThirdPersonJump_Start, ThirdPersonRun, and ThirdPersonWalk.

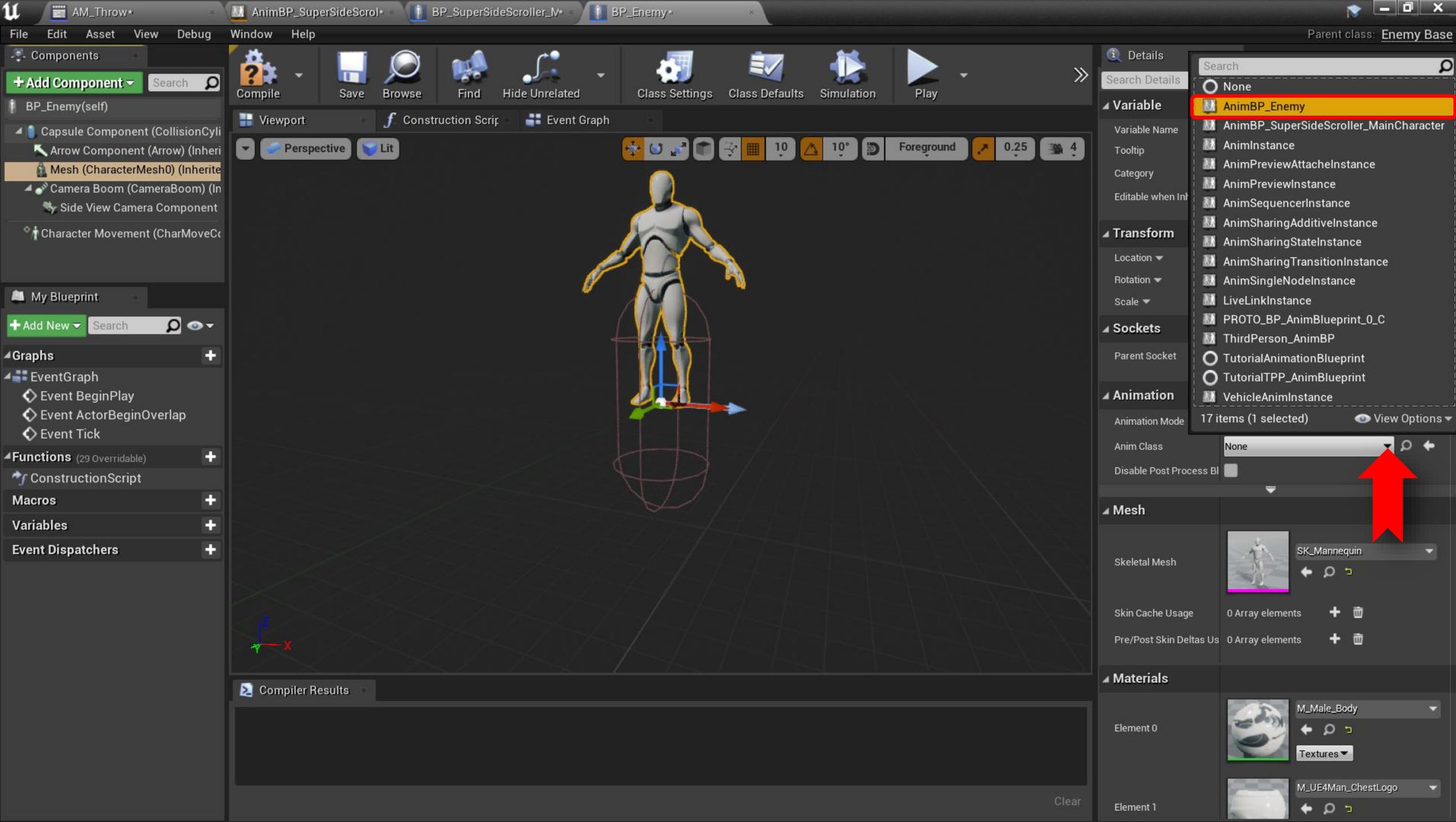


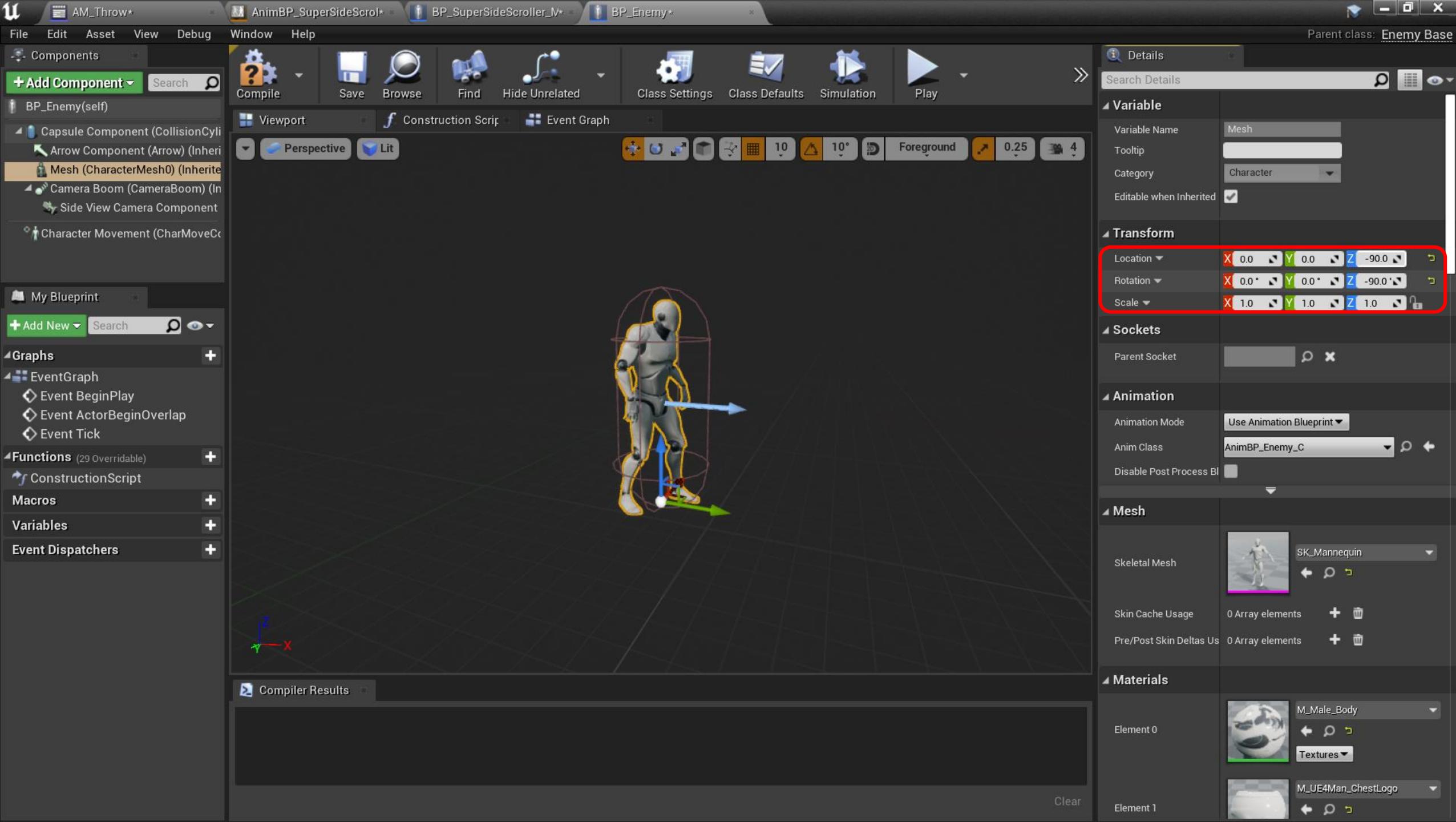
The screenshot shows the Content Browser interface. The top bar has tabs for Add/Import, Save All, and Content. The Content Browser tree view shows "Content", "Enemy", "Blueprints", "Geometry", "MainCharacter", "Mannequin", "Animations", "Character", "SideScrollerCPP", "StarterContent", and "C++ Classes". A context menu is open over the "Animations" folder, with options "Move/Copy to Blueprints", "Move Here" (highlighted with a yellow box), "Copy Here", and "Advanced Copy Here". A tooltip says "Move the dragged items to this folder, preserving the structure of any copied folders." Below the tree view, there are thumbnail previews of animation clips: Move, Move, Move, Move, Move, Move, Move, Move, ThirdPerson_Jump_Start, ThirdPerson_Run, and ThirdPerson_Walk. The status bar at the bottom indicates "10 items (1 selected)".



The screenshot shows the Content Browser panel of the Unreal Engine 4 Editor. The left sidebar displays the "Content" tree, with the "Enemy" folder highlighted and its "Blueprints" subfolder selected. A red box highlights this selection. In the main list area, there are two items: "AnimBP_Enemy" and "BP_Enemy". The "BP_Enemy" item is highlighted with a yellow box and has a large red arrow pointing towards it from the bottom left. The status bar at the bottom indicates "2 items (1 selected)".







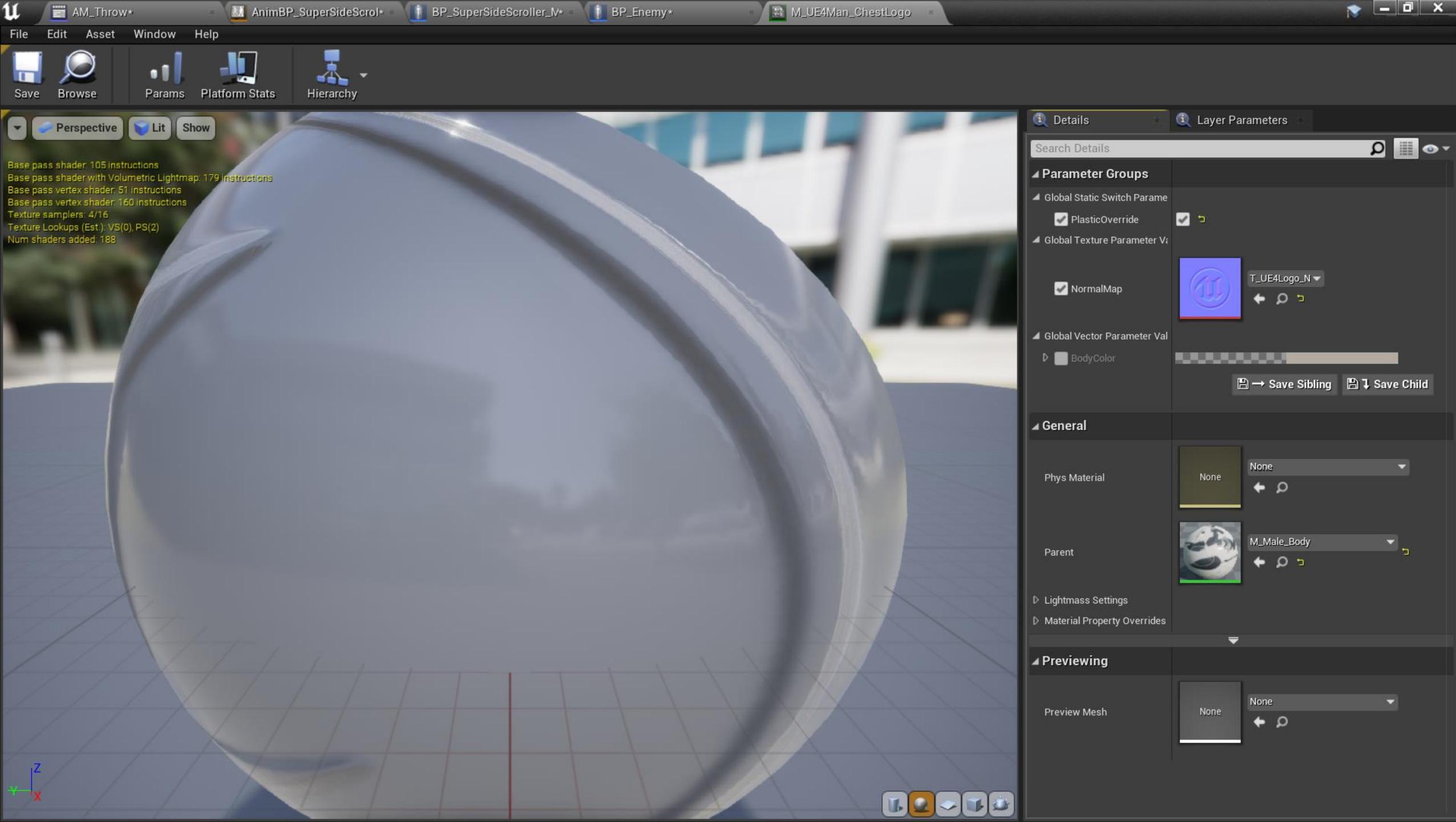


Materials and Material Instances

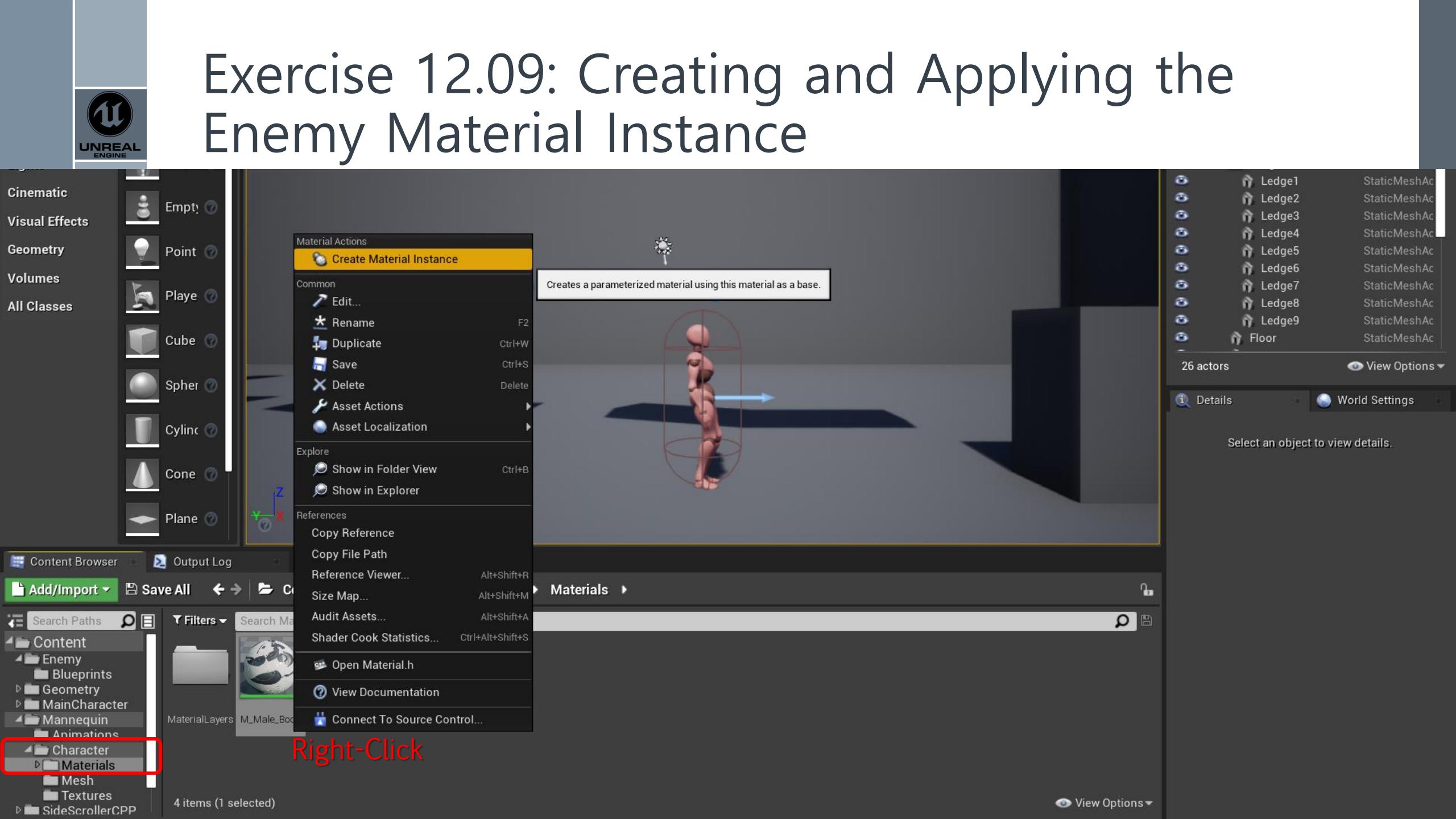
- › **A Material**
 - A type of asset that can be applied to a mesh that will then control how the mesh looks in-game
- › **The Material editor**
 - To control over many parts of how the end visual result will look, including control over parameters such as **Textures**, **Emissive**, and **Specular**, among others
- › **A Material Instance**
 - An extension of a **Material** where you do have control over the parameters that the creator of the **Material** exposes to you



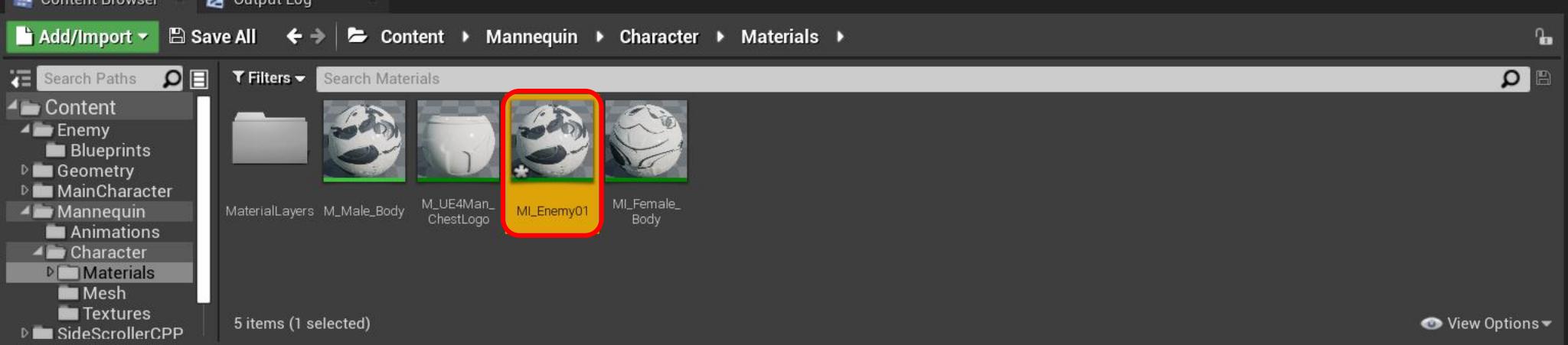
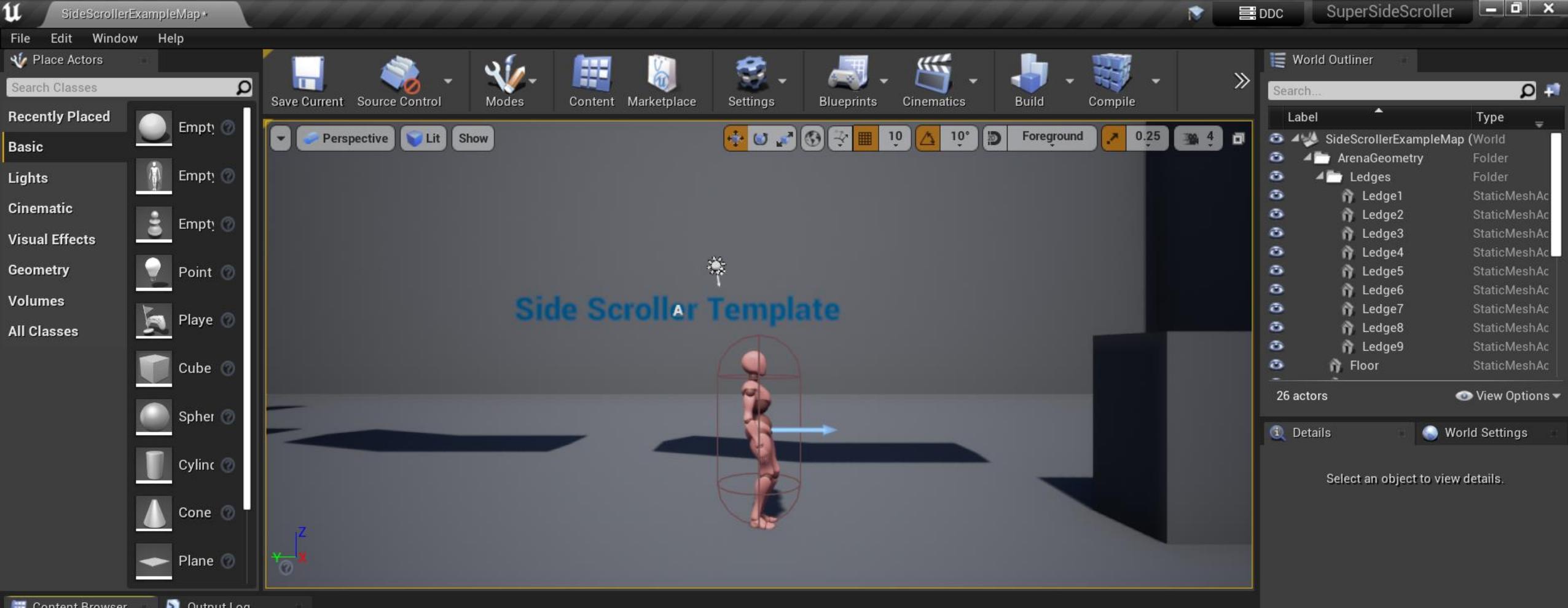
The Content Browser is open, showing the "Materials" section under the "Character" category. It lists four items: "M_Male_Body" (selected), "M_UE4Man_ChestLogo" (highlighted in yellow), and "MI_Female_Body". The "MaterialLayers" dropdown shows "M_Male_Body" and "M_UE4Man_ChestLogo". The bottom status bar indicates "4 items (1 selected)" and "View Options".

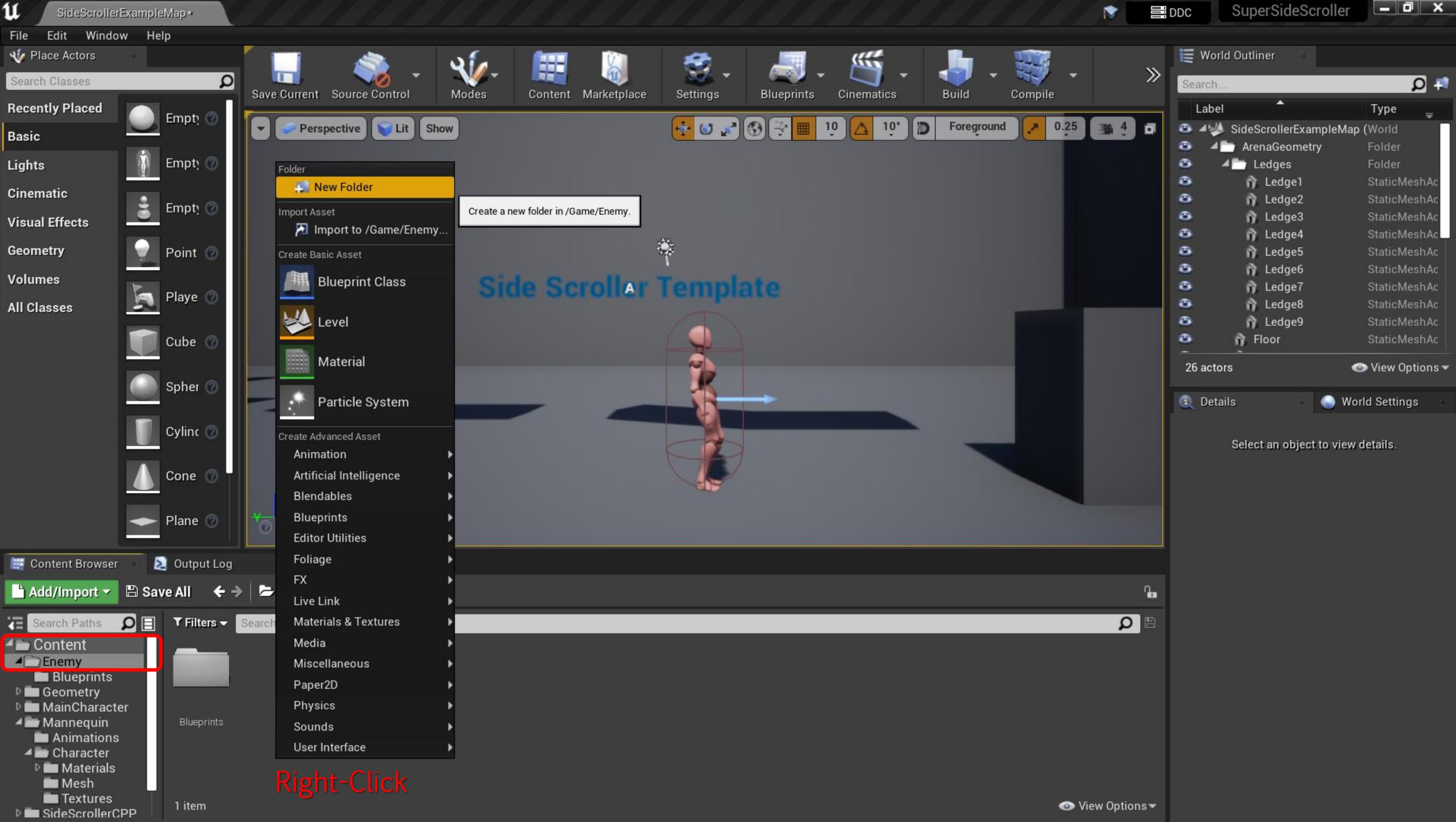


Exercise 12.09: Creating and Applying the Enemy Material Instance



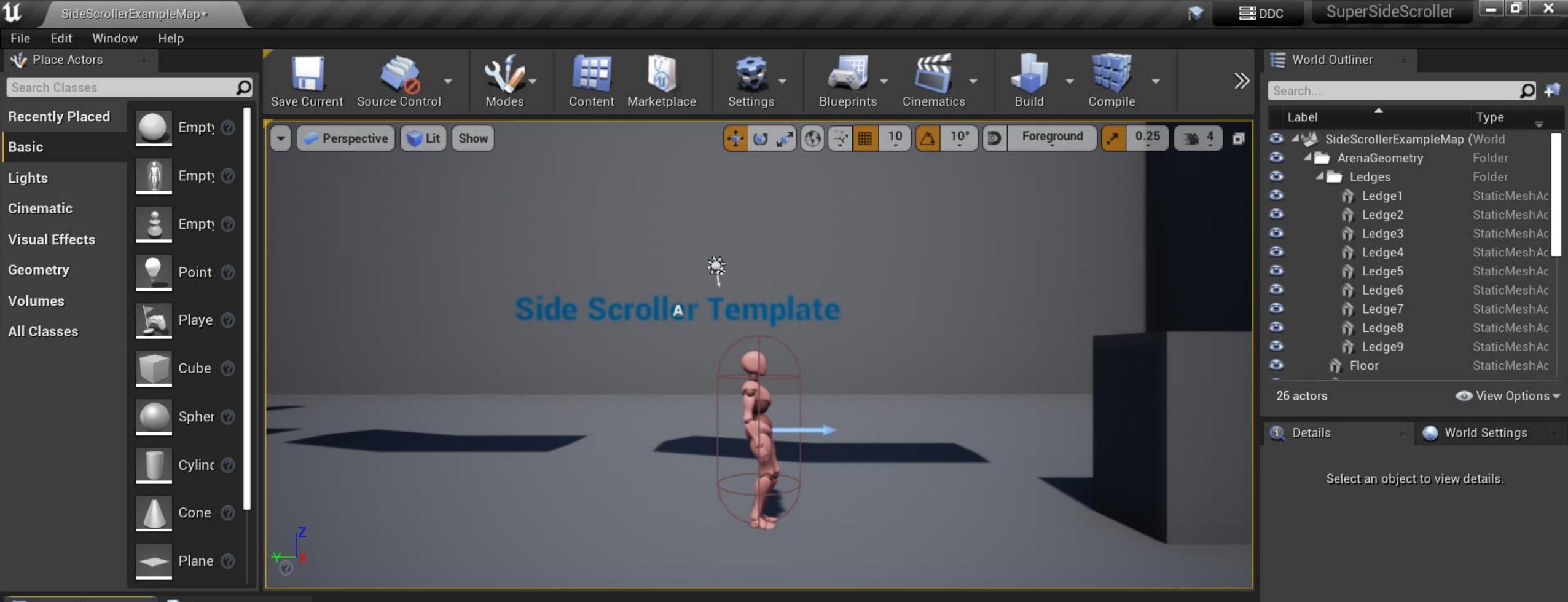
Right-Click







This screenshot shows the "Content Browser" window. The top menu bar includes "Add/Import", "Save All", and navigation buttons. The main area displays the "Content" folder structure under the "Enemy" folder. The "Materials" folder is highlighted with a red box. The bottom of the browser shows a search bar for "Search Enemy" and a status message: "2 items (1 selected)".

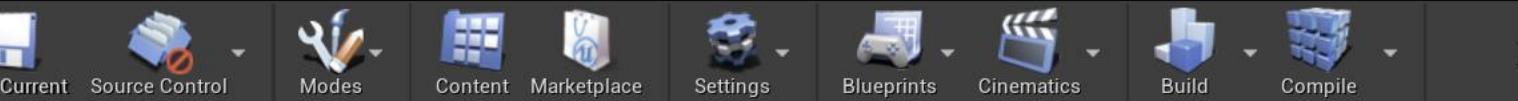


The screenshot shows the Content Browser interface. The top bar includes the "Add/Import" button, "Save All", and navigation buttons. The path bar shows "Content > Mannequin > Character > Materials". The main area displays a list of materials. A red arrow points from the "Materials" folder in the Content tree to the "Materials" item in the list. The list includes "MI_Enemy01" (selected), "MI_Female_Body", and other items. The bottom left shows the Content tree with "Content", "Enemy", "Blueprints", "Materials" (highlighted with a red box), "Geometry", "MainCharacter", "Mannequin", "Animations", "Character", and "Materials". The bottom right shows "View Options".

File Edit Window Help

Place Actors

Search Classes



Recently Placed

Empty
Empty
Empty
Point
Playe
Cube
Spher
Cylind
Cone
Plane

Basic

Lights

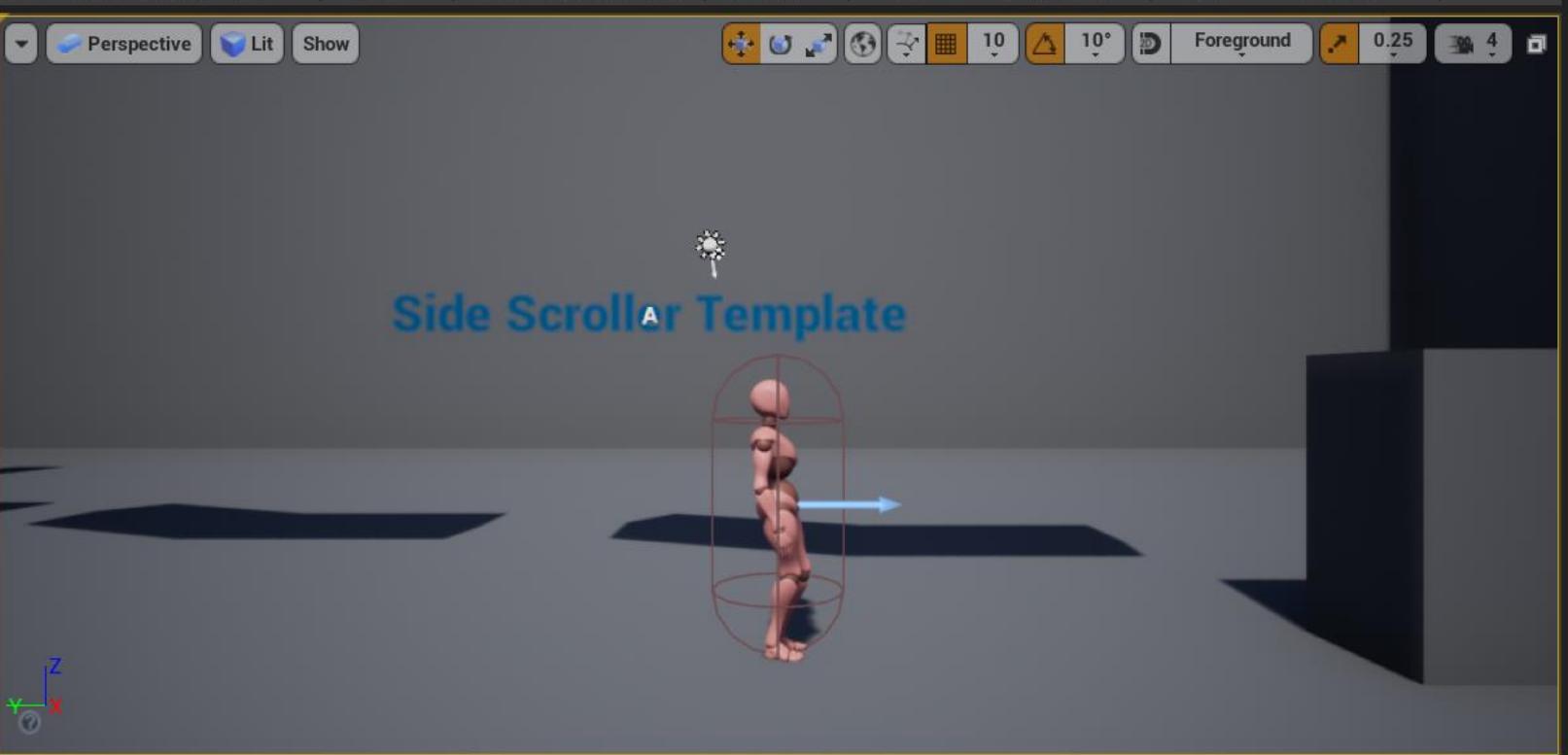
Cinematic

Visual Effects

Geometry

Volumes

All Classes



Label	Type
SideScrollerExampleMap (World)	Folder
ArenaGeometry	Folder
Ledges	Folder
Ledge1	StaticMeshActor
Ledge2	StaticMeshActor
Ledge3	StaticMeshActor
Ledge4	StaticMeshActor
Ledge5	StaticMeshActor
Ledge6	StaticMeshActor
Ledge7	StaticMeshActor
Ledge8	StaticMeshActor
Ledge9	StaticMeshActor
Floor	StaticMeshActor
26 actors	

View Options

Details World Settings

Select an object to view details.

Content Browser Output Log

Add/Import Save All Content > Mannequin > Character > Materials >

Move/Copy to Materials

Move Here

Copy Here

Advanced Copy Here

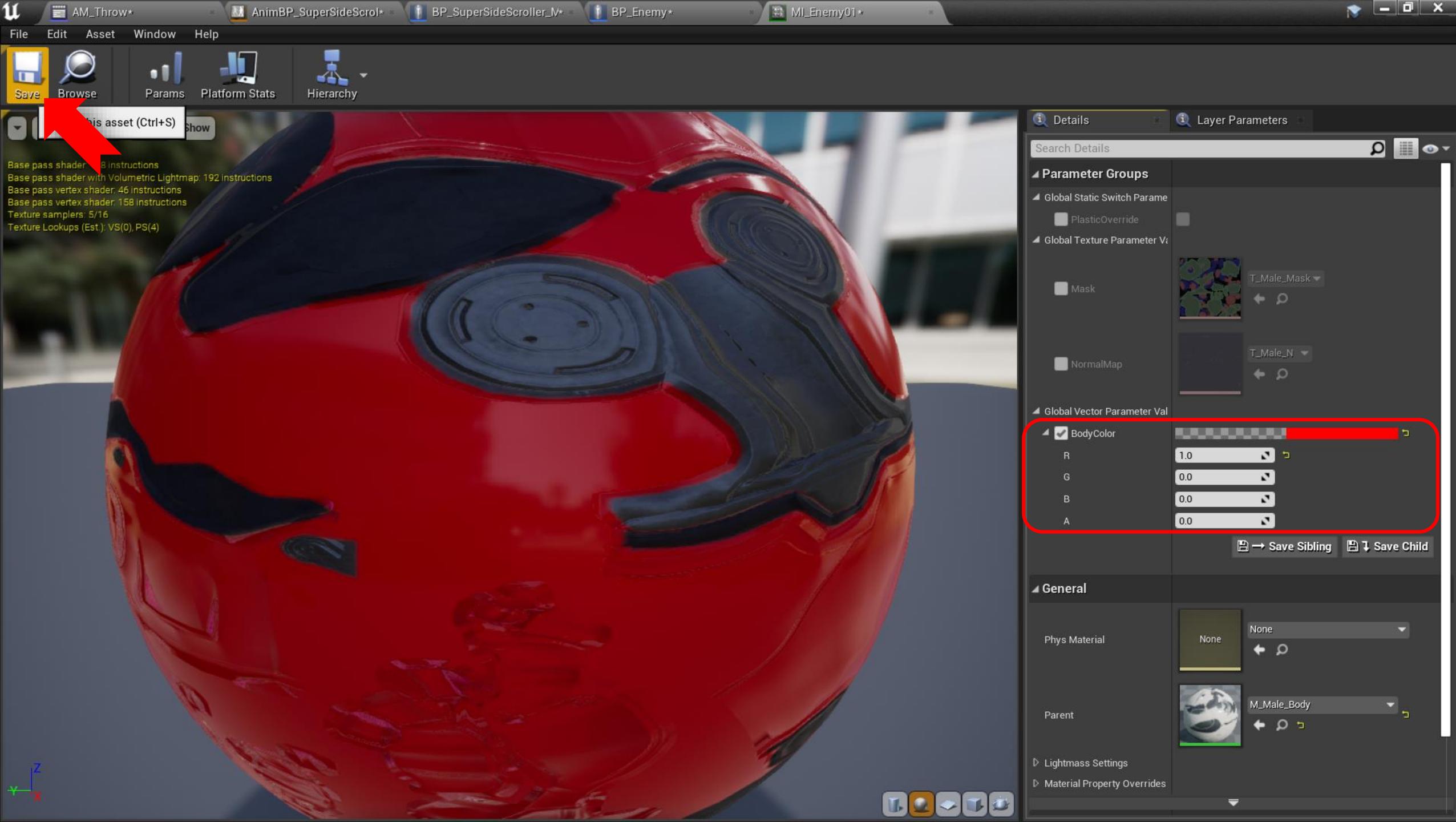
Move the dragged items to this folder, preserving the structure of any copied folders.

5 items selected

View Options

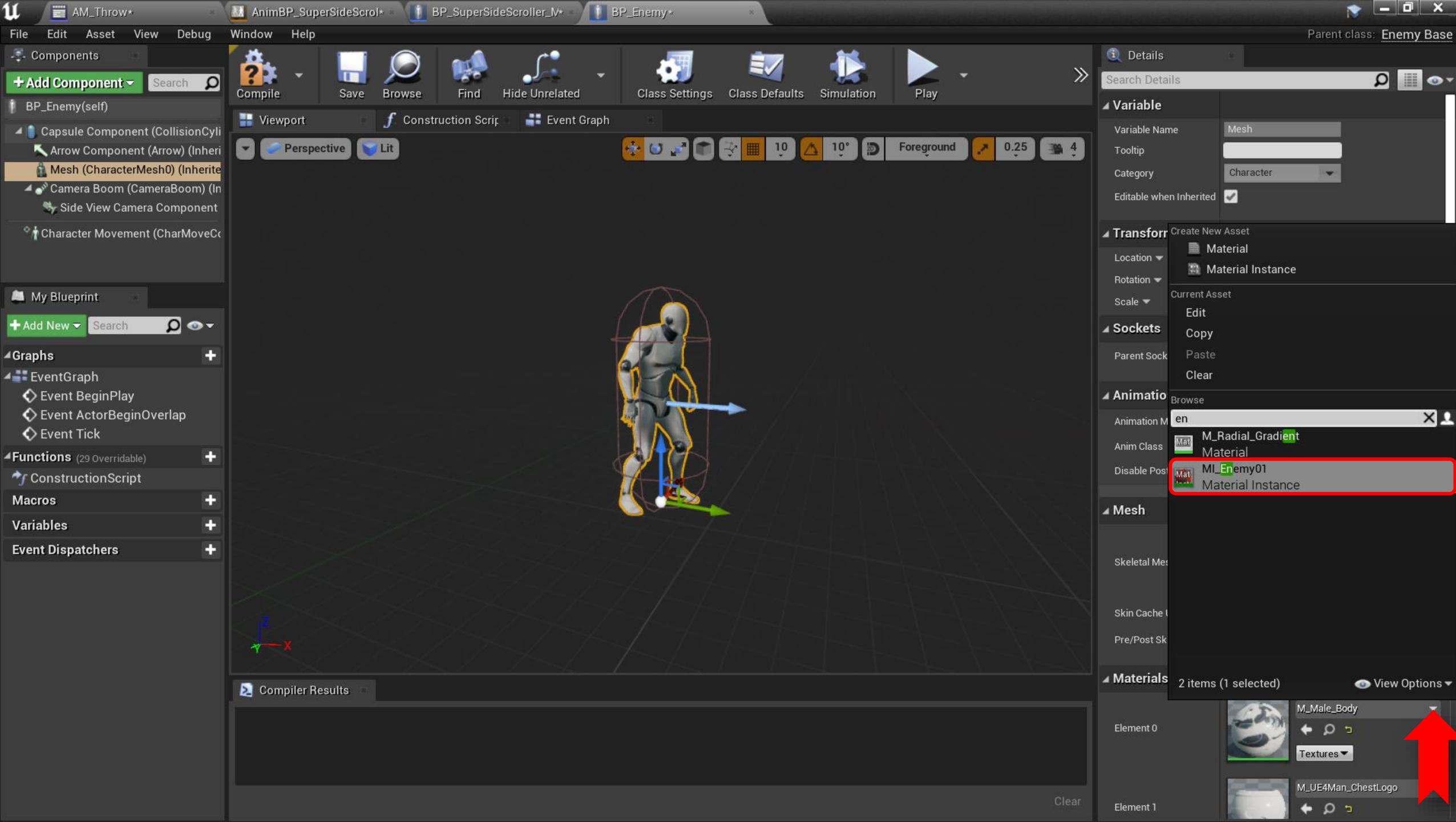


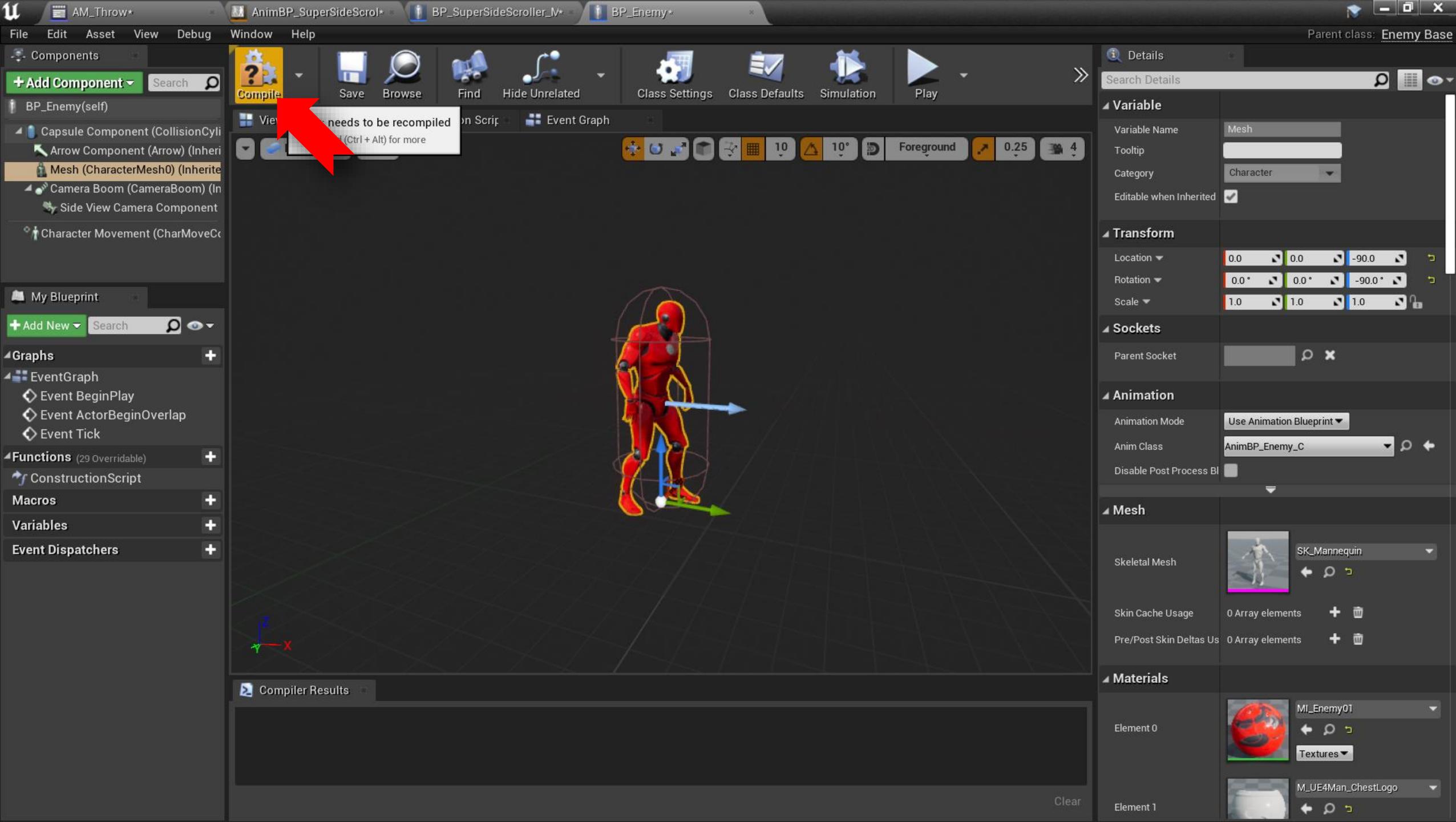
The screenshot shows the Content Browser interface. The top bar has tabs for Add/Import, Save All, and Content. The Content browser tree shows "Content", "Enemy" (selected), "Blueprints", "Materials", "Geometry", "MainCharacter", "Mannequin", "Animations", "Character", "Materials", "Mesh", and "Textures". A red arrow points to the "ML_Enemy01" material thumbnail in the Materials section. The bottom status bar indicates "1 item (1 selected)" and "View Options".





The Content Browser is open, showing the "Content" folder structure. The "Blueprints" folder under "Enemy" is expanded, revealing "AnimBP_Enemy" and "BP_Enemy". The "BP_Enemy" item is selected and highlighted with a yellow background. A red arrow points from the bottom left towards the "BP_Enemy" icon. The status bar at the bottom indicates "2 items (1 selected)".







Activity 12.01: Updating Blend Weights

The screenshot shows the Unreal Engine Editor interface. The top half displays a 3D view of a character model named "MainCharacter" within a wireframe capsule, set against a dark background with floating text "Side Scroller Template". The bottom half shows the Content Browser with the path "Content > MainCharacter > Blueprints". The Content Browser lists several Blueprint files: "AnimBP_SuperSideScroller_MainCharacter", "BP_SuperSideScroller_MainCharacter", and "BP_SuperSideScroller_Mesh". A red arrow points to the "AnimBP_SuperSideScroller_MainCharacter" file. The right side of the screen shows the Details panel with "26 actors" listed, including various ledge and floor assets, and the World Settings panel.

Cinematic
Visual Effects
Geometry
Volumes
All Classes

Empty
Point
Plane
Cube
Sphere
Cylinder
Cone
Plane

Side Scroller Template

MainCharacter

Content Browser Output Log

Add/Import Save All Content > MainCharacter > Blueprints

Content
Enemy
Blueprints
Materials
Geometry
MainCharacter
Animation
Blueprints
Mesh
Mannequin
SideScrollerCPP
StarterContent

AnimBP_SuperSideScroller_MainCharacter

BP_SuperSideScroller_MainCharacter

BP_SuperSideScroller_Mesh

2 items (1 selected)

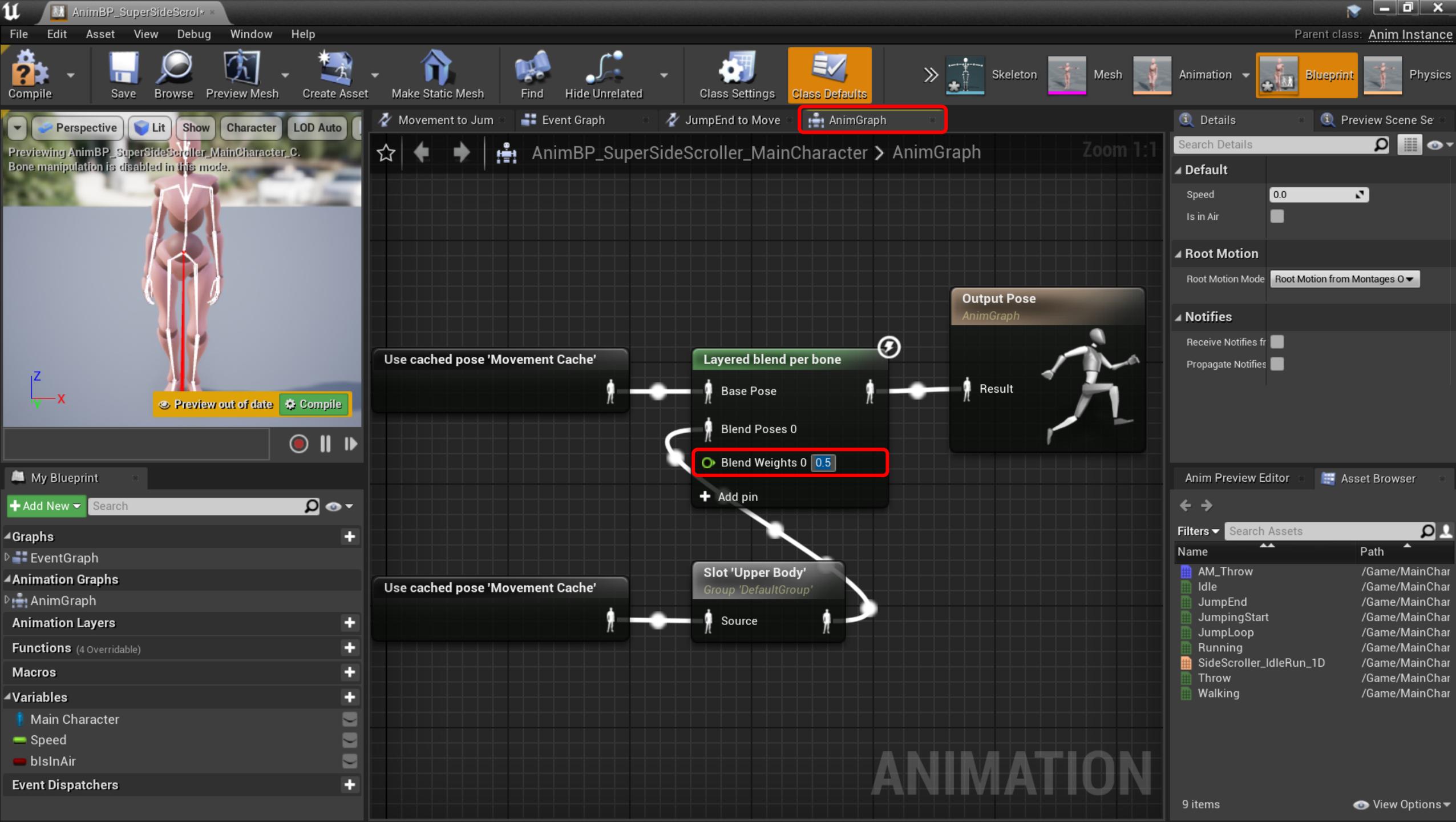
Ledge1
Ledge2
Ledge3
Ledge4
Ledge5
Ledge6
Ledge7
Ledge8
Ledge9
Floor

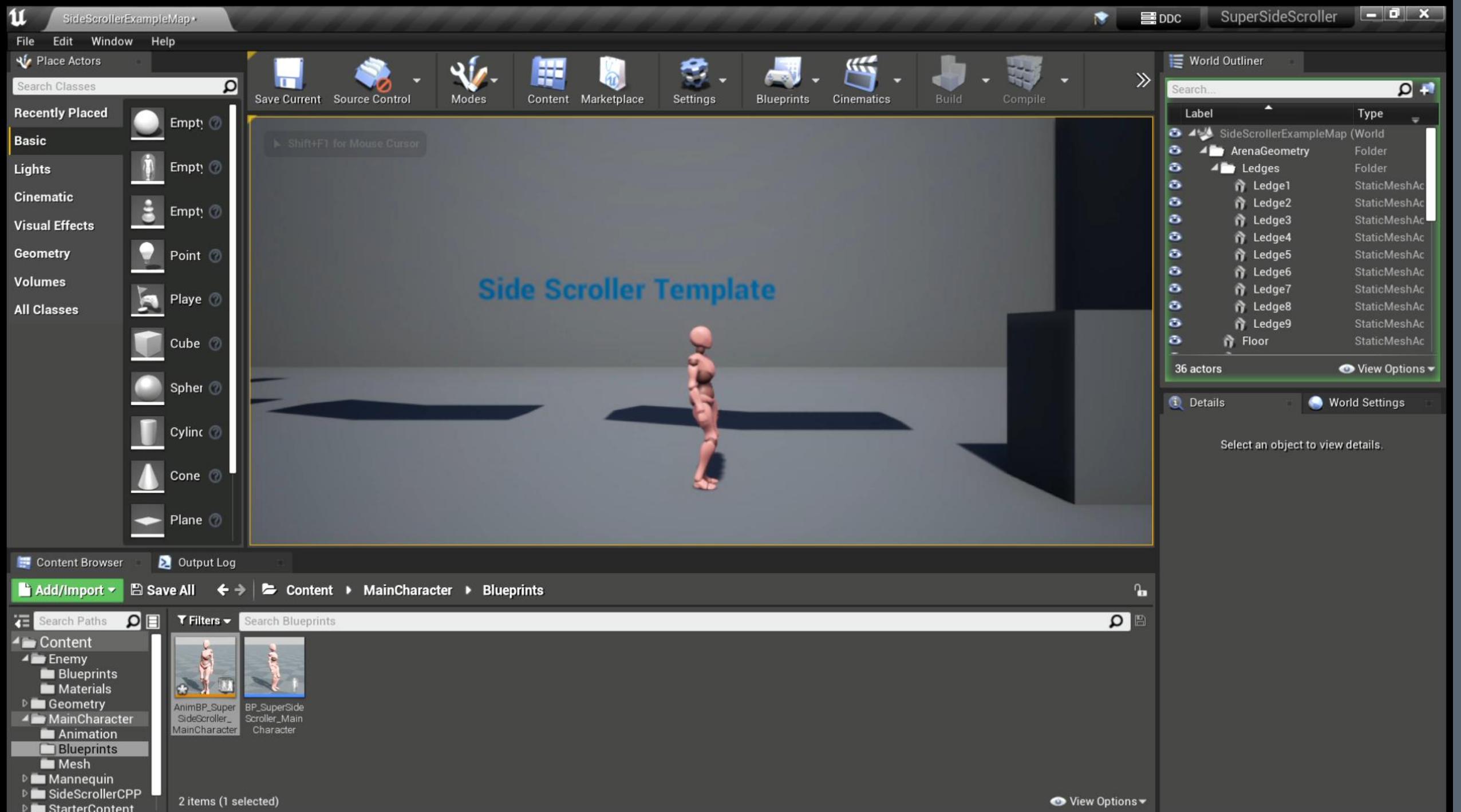
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor
StaticMeshActor

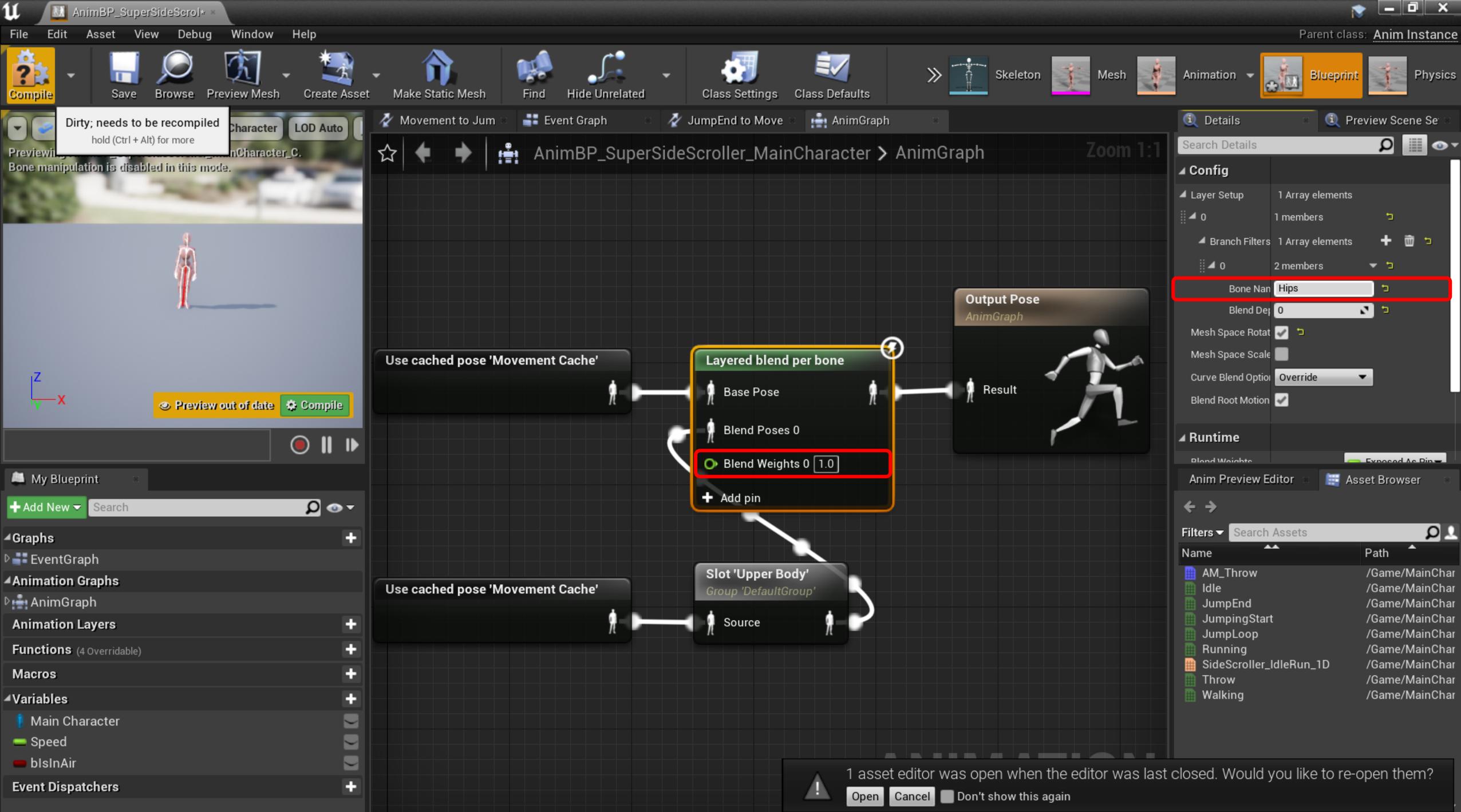
26 actors View Options

Details World Settings

Select an object to view details.







SideScrollerExampleMap

File Edit Window Help

Place Actors

Search Classes

Recently Placed

Basic

Lights

Cinematic

Visual Effects

Geometry

Volumes

All Classes

Empty

Empty

Empty

Point

Playe

Cube

Spher

Cylinc

Cone

Plane

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Compile > World Outliner Search... Label Type SideScrollerExampleMap (World Folder ArenaGeometry Folder Ledges StaticMeshAc Ledge1 StaticMeshAc Ledge2 StaticMeshAc Ledge3 StaticMeshAc Ledge4 StaticMeshAc Ledge5 StaticMeshAc Ledge6 StaticMeshAc Ledge7 StaticMeshAc Ledge8 StaticMeshAc Ledge9 StaticMeshAc Floor StaticMeshAc 36 actors View Options Details World Settings Select an object to view details.

Click for Mouse Control

Side Scroller Template

Content Browser Output Log

Add/Import Save All Content MainCharacter Blueprints

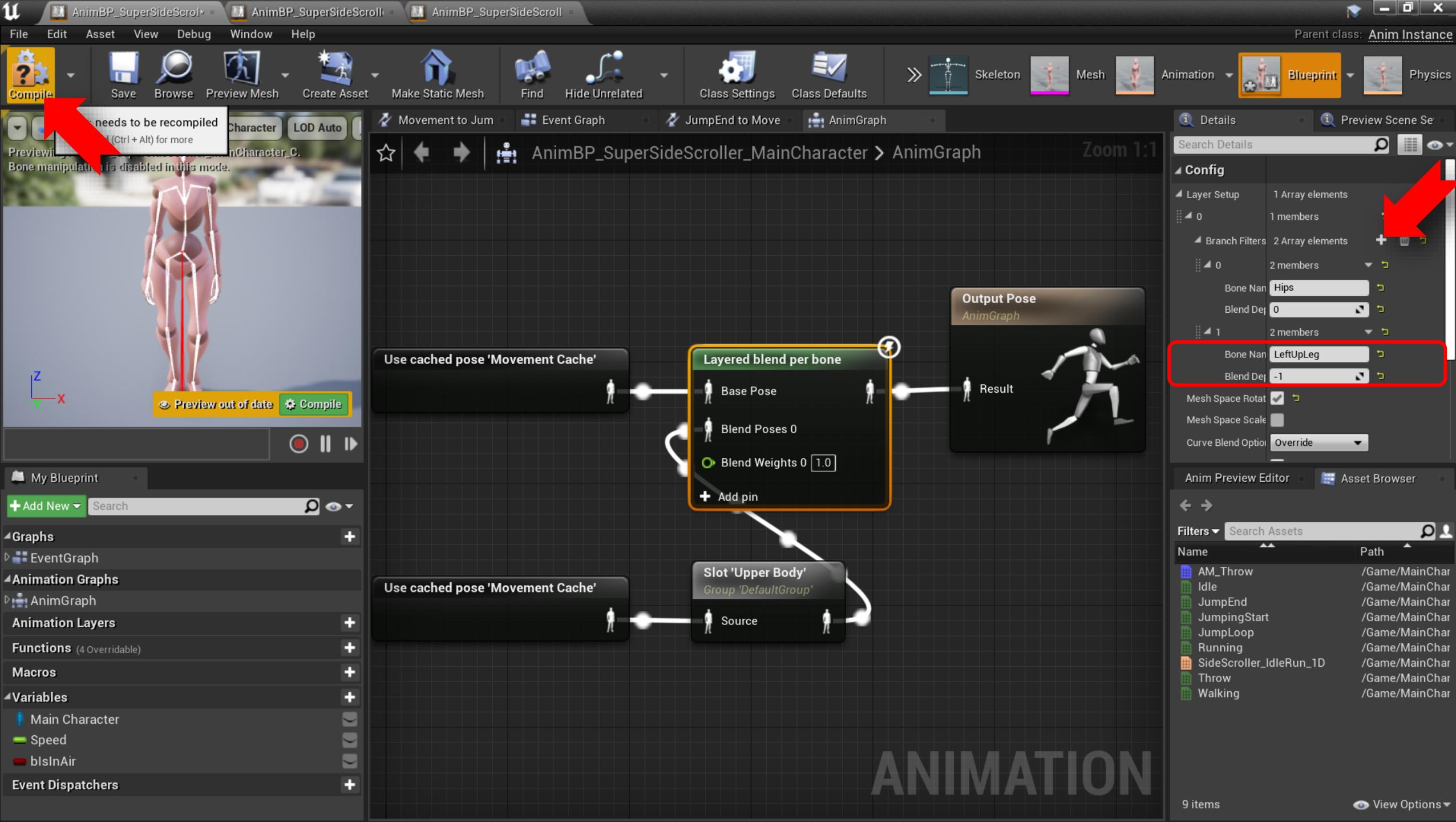
Content Paths Filters Search Blueprints

- Content
 - Enemy
 - Geometry
 - MainCharacter
 - Animation
 - Blueprints
 - Blueprints
 - Mesh
 - Mannequin
 - SideScrollerCPP
 - StarterContent

C++ Classes

2 items (1 selected)

View Options



SideScrollerExampleMap

File Edit Window Help

Place Actors

Search Classes

Recently Placed

Basic

Lights

Cinematic

Visual Effects

Geometry

Volumes

All Classes

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Compile >

World Outliner

Label Type

- SideScrollerExampleMap (World)
- ArenaGeometry (Folder)
 - Ledges (Folder)
 - Ledge1 (StaticMeshActor)
 - Ledge2 (StaticMeshActor)
 - Ledge3 (StaticMeshActor)
 - Ledge4 (StaticMeshActor)
 - Ledge5 (StaticMeshActor)
 - Ledge6 (StaticMeshActor)
 - Ledge7 (StaticMeshActor)
 - Ledge8 (StaticMeshActor)
 - Ledge9 (StaticMeshActor)
 - Floor (StaticMeshActor)

36 actors View Options

Details World Settings

Select an object to view details.

Content Browser Output Log

Add/Import Save All Content MainCharacter Blueprints

Content Paths Filters Search Blueprints

Content

- Enemy
- Geometry
- MainCharacter
 - Animation
 - Blueprints
 - Blueprints
 - Mesh
- Mannequin
- SideScrollerCPP
- StarterContent

C++ Classes

AnimBP_SuperSideScroller_MainCharacter BP_SuperSideScroller_MainCharacter

2 items (1 selected) View Options

Side Scroller Template

The screenshot shows the Unreal Engine 4 Editor interface. The main view displays a 3D scene titled "Side Scroller Template" featuring a pink humanoid character standing on a dark surface. A text box in the top left corner of the scene area says "Click for Mouse Control". The left sidebar lists various asset categories like Basic, Lights, and Geometry. The bottom left shows the Content Browser with a tree view of project assets, including MainCharacter, Animation, and Mesh. The right sidebar is the World Outliner showing a hierarchical list of actors in the current world, such as Ledges and Floor components. The top menu bar includes File, Edit, Window, Help, and various tool icons like Save Current, Source Control, and Build.



연습 과제

- › Activity 12.01까지 모두 완성한 **SuperSideScroller** 프로젝트를 제출하시오.
- › 제출 방법: “프로젝트 폴더” 전체 압축
→ 압축 파일 내에서 다음 “5개 폴더” 삭제
 - 1) Content 폴더 안 StarterContent 폴더
 - 2) Intermediate 폴더
 - 3) Saved 폴더
 - 4) Binary 폴더
 - 5) .vs 폴더
→ 압축파일 업로드