

The Magic Apprentice

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Chapter 1

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Chapter 6

Namespace Documentation

6.1 Tests Namespace Reference

Classes

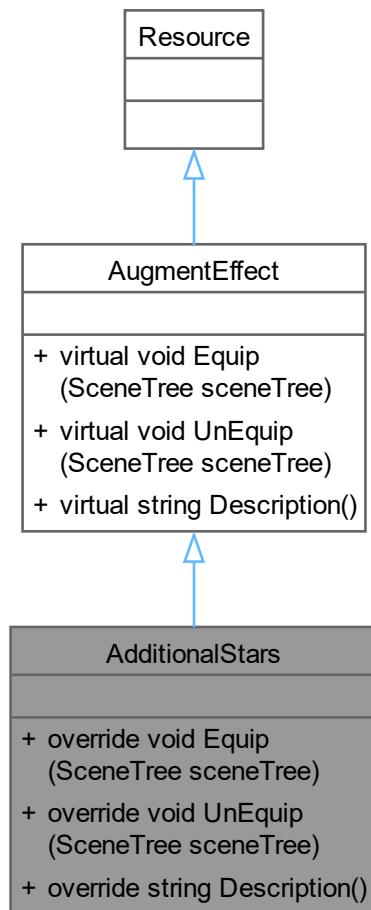
- class [TestAugmentInventory](#)
- class [TestAugmentManager](#)
- class [TestAugments](#)
- class [TestCurseHandler](#)
- class [TestDirections](#)
- class [TestDungeon](#)
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- class [TestInventorySpells](#)
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- class [TestPlayerStates](#)
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- class [TestUISpellSlots](#)

Chapter 7

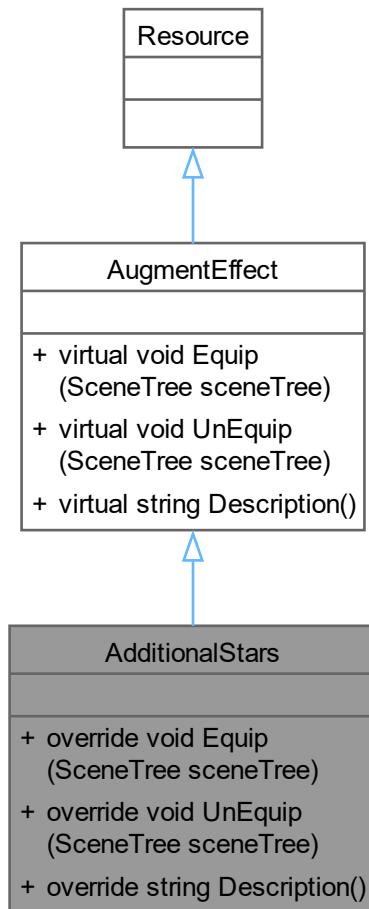
Class Documentation

7.1 AdditionalStars Class Reference

Inheritance diagram for AdditionalStars:



Collaboration diagram for AdditionalStars:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override void [UnEquip](#) (SceneTree sceneTree)
- override string [Description](#) ()

7.1.1 Detailed Description

[AugmentEffect](#) to increase the amount of stars spawned by StarRain by a faktor

7.1.2 Member Function Documentation

7.1.2.1 Description()

```
override string AdditionalStars.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.1.2.2 Equip()

```
override void AdditionalStars.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Change the static member AmountStarsToSpawn of [InventoryStarRain](#)

Reimplemented from [AugmentEffect](#).

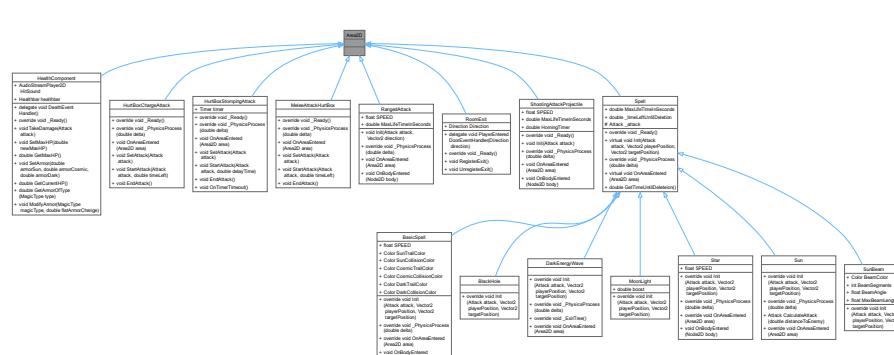
7.1.2.3 UnEquip()

```
override void AdditionalStars.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

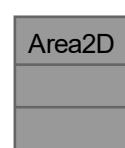
Reverts the change to AmountStarsToSpawn

Reimplemented from [AugmentEffect](#).

- The documentation for this class was generated from the following file:



Collaboration diagram for Area2D:

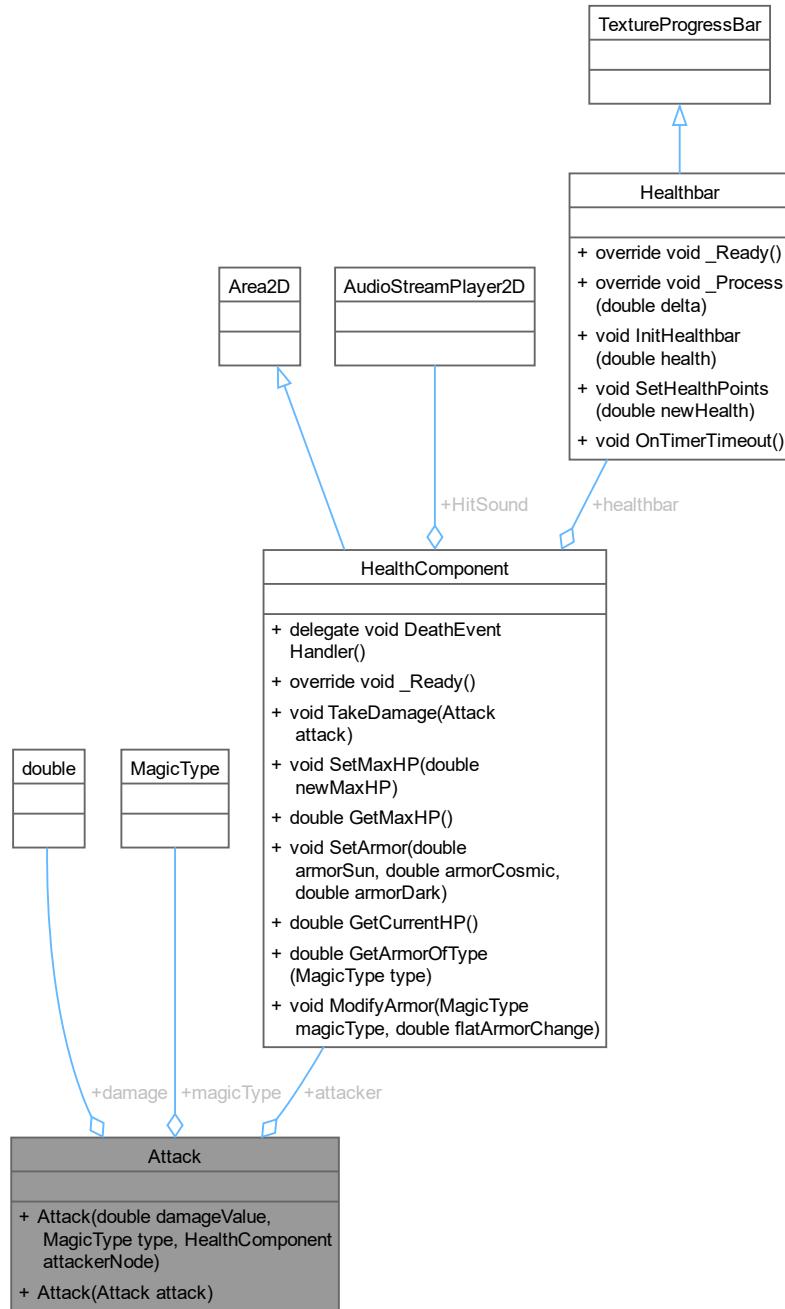


The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/entities/**HealthComponent.cs**

7.3 Attack Class Reference

Collaboration diagram for Attack:



Public Member Functions

- `Attack` (`double damageValue, MagicType type, HealthComponent attackerNode`)
- `Attack` (`Attack attack`)

Public Attributes

- `double damage`
The damage value of the attack.
- `MagicType magicType`
The magic type of the attack.
- `HealthComponent attacker`
Reference to the `HealthComponent` of the attacker.

7.3.1 Detailed Description

Basic class that encapsulates everything responsible for an attack

7.3.2 Constructor & Destructor Documentation

7.3.2.1 `Attack()` [1/2]

```
Attack.Attack (
    double damageValue,
    MagicType type,
    HealthComponent attackerNode) [inline]
```

7.3.2.2 `Attack()` [2/2]

```
Attack.Attack (
    Attack attack) [inline]
```

Copy constructor

7.3.3 Member Data Documentation

7.3.3.1 `attacker`

```
HealthComponent Attack.attacker
```

Reference to the `HealthComponent` of the attacker.

7.3.3.2 `damage`

```
double Attack.damage
```

The damage value of the attack.

7.3.3.3 magicType

`MagicType` `Attack.magicType`

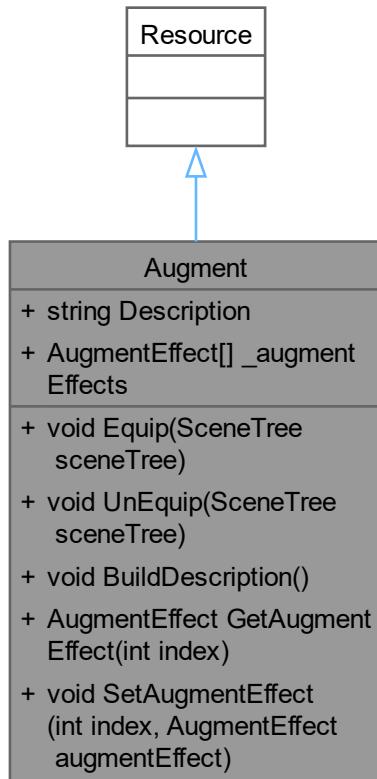
The magic type of the attack.

The documentation for this class was generated from the following file:

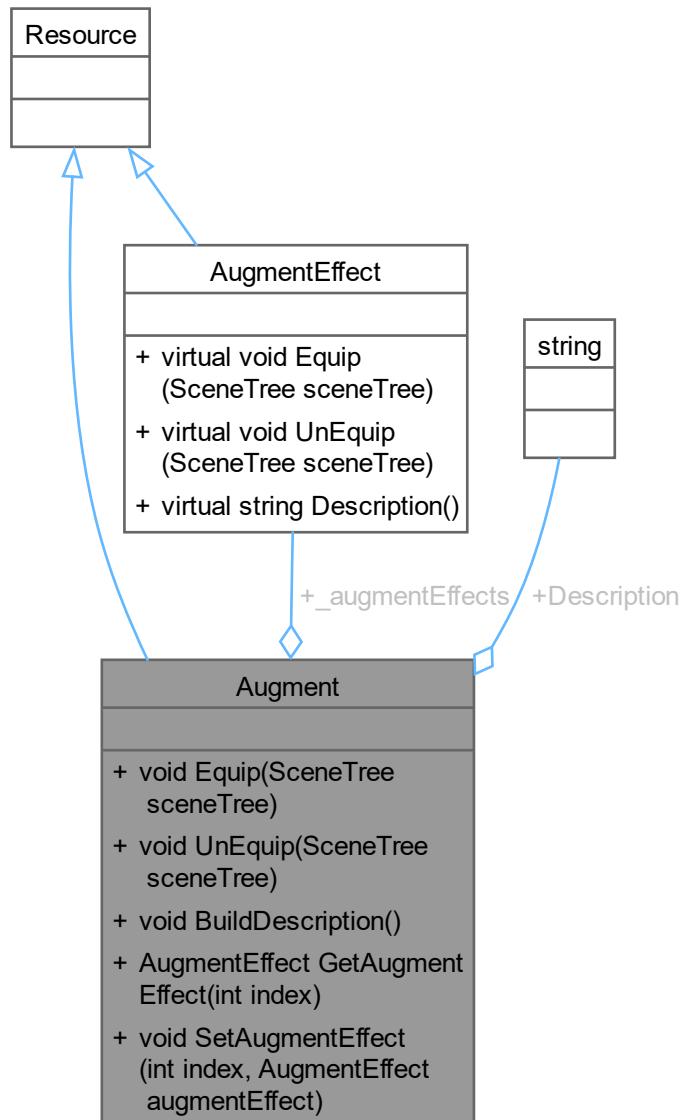
- `TheMagicApprentice/modules/attack.cs`

7.4 Augment Class Reference

Inheritance diagram for Augment:



Collaboration diagram for Augment:



Public Member Functions

- void `Equip` (SceneTree sceneTree)
- void `UnEquip` (SceneTree sceneTree)
- void `BuildDescription` ()
- `AugmentEffect GetAugmentEffect` (int index)
- void `SetAugmentEffect` (int index, `AugmentEffect` augmentEffect)

Public Attributes

- string `Description` = ""
the description of the augment that is displayed when hovering over it
- `AugmentEffect[] _augmentEffects` = new `AugmentEffect[3]`

7.4.1 Detailed Description

The [Augment](#) class Every augment is a resource using this script Each [Augment](#) can have up to 3 [Augment](#) effects

7.4.2 Member Function Documentation

7.4.2.1 BuildDescription()

```
void Augment.BuildDescription () [inline]
```

Build the description of the [Augment](#) from the AugmentEffects

7.4.2.2 Equip()

```
void Augment.Equip (
    SceneTree sceneTree) [inline]
```

Equips the [Augment](#) by calling Equip for each [AugmentEffect](#) inside _augmentEffects

7.4.2.3 GetAugmentEffect()

```
AugmentEffect Augment.GetAugmentEffect (
    int index) [inline]
```

Get the [AugmentEffect](#) at index. Returns null if outside of range and prints a debug message

7.4.2.4 SetAugmentEffect()

```
void Augment.SetAugmentEffect (
    int index,
    AugmentEffect augmentEffect) [inline]
```

Set the [AugmentEffect](#) at index. Also updates the Description. Prints a debug message if outside of range

7.4.2.5 UnEquip()

```
void Augment.UnEquip (
    SceneTree sceneTree) [inline]
```

UnEquips the [Augment](#) by calling UnEquip for each [AugmentEffect](#) inside _augmentEffects

7.4.3 Member Data Documentation

7.4.3.1 _augmentEffects

```
AugmentEffect [ ] Augment._augmentEffects = new AugmentEffect[3]
```

7.4.3.2 Description

```
string Augment.Description = ""
```

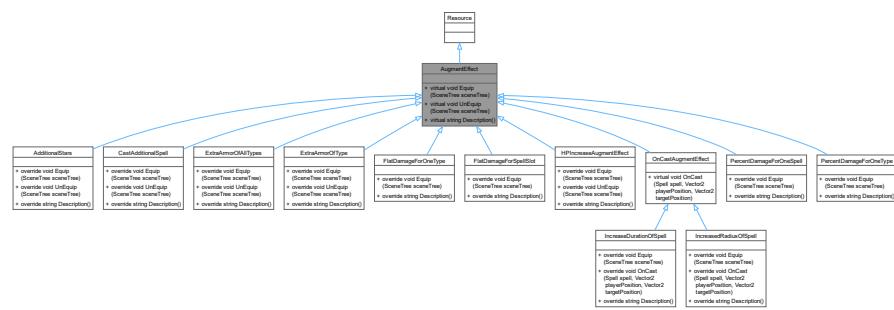
the description of the augment that is displayed when hovering over it

The documentation for this class was generated from the following file:

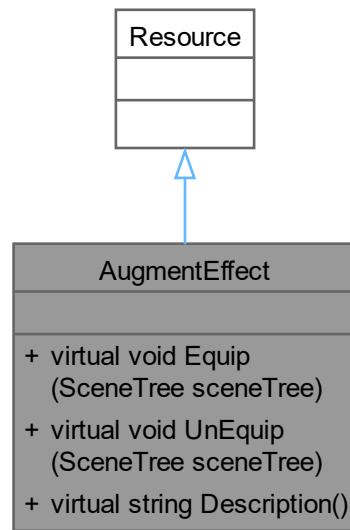
- TheMagicApprentice/modules/augments/Augment.cs

7.5 AugmentEffect Class Reference

Inheritance diagram for AugmentEffect:



Collaboration diagram for AugmentEffect:



Public Member Functions

- virtual void [Equip](#) (SceneTree sceneTree)
- virtual void [UnEquip](#) (SceneTree sceneTree)
- virtual string [Description](#) ()

7.5.1 Detailed Description

The base class for all augment effects

7.5.2 Member Function Documentation

7.5.2.1 Description()

```
virtual string AugmentEffect.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented in [AdditionalStars](#), [CastAdditionalSpell](#), [ExtraArmorOfAllTypes](#), [ExtraArmorOfType](#), [FlatDamageForOneType](#), [FlatDamageForSpellSlot](#), [HPIncreaseAugmentEffect](#), [IncreasedRadiusOfSpell](#), [IncreaseDurationOfSpell](#), [PercentDamageForOneSpell](#), and [PercentDamageForOneType](#).

7.5.2.2 Equip()

```
virtual void AugmentEffect.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called whenever the player equips an augment. Gets reference to the current SceneTree in order to access Groups

Reimplemented in [AdditionalStars](#), [CastAdditionalSpell](#), [ExtraArmorOfAllTypes](#), [ExtraArmorOfType](#), [FlatDamageForOneType](#), [FlatDamageForSpellSlot](#), [HPIncreaseAugmentEffect](#), [IncreasedRadiusOfSpell](#), [IncreaseDurationOfSpell](#), [PercentDamageForOneSpell](#), and [PercentDamageForOneType](#).

7.5.2.3 UnEquip()

```
virtual void AugmentEffect.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called if the player unequips the augment. It is responsible for the cleanup

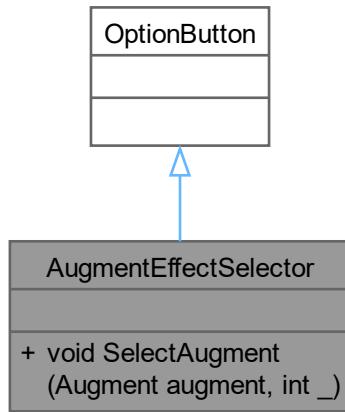
Reimplemented in [AdditionalStars](#), [CastAdditionalSpell](#), [ExtraArmorOfAllTypes](#), [ExtraArmorOfType](#), and [HPIncreaseAugmentEffect](#).

The documentation for this class was generated from the following file:

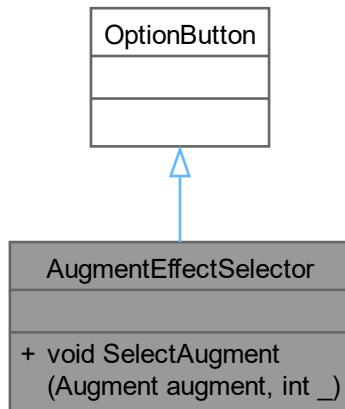
- TheMagicApprentice/modules/augments/augment_effects/[AugmentEffect.cs](#)

7.6 AugmentEffectSelector Class Reference

Inheritance diagram for AugmentEffectSelector:



Collaboration diagram for AugmentEffectSelector:



Public Member Functions

- `void SelectAugment (Augment augment, int _)`

7.6.1 Detailed Description

This class extends the [OptionButton](#). It allows you to choose between the AugmentEffects of one [Augment](#). It is used in the Fuse [Augment](#) System.

7.6.2 Member Function Documentation

7.6.2.1 SelectAugment()

```
void AugmentEffectSelector.SelectAugment (
    Augment augment,
    int _) [inline]
```

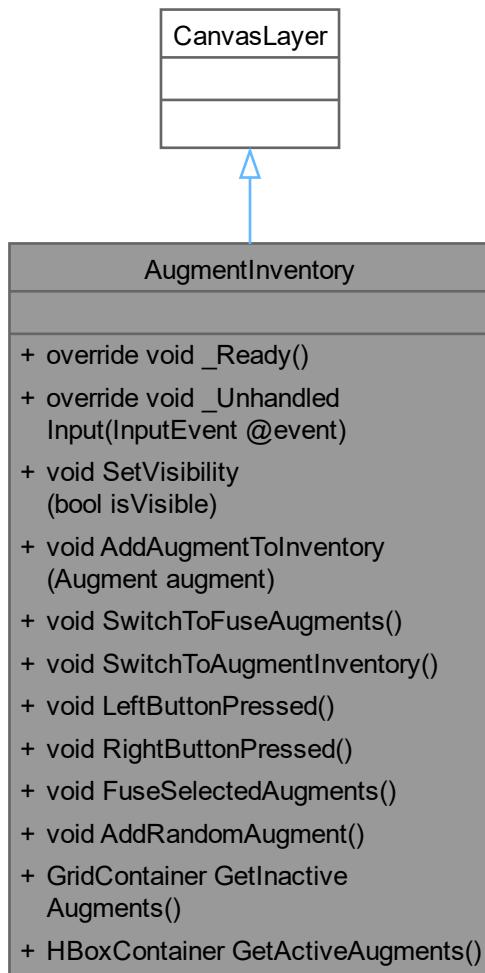
This function is used to generate the Items of the [OptionButton](#) using an [Augment](#). Since this function gets called by the signal EquipAugmentInSlot, it needs to take an int that we dont care about.

The documentation for this class was generated from the following file:

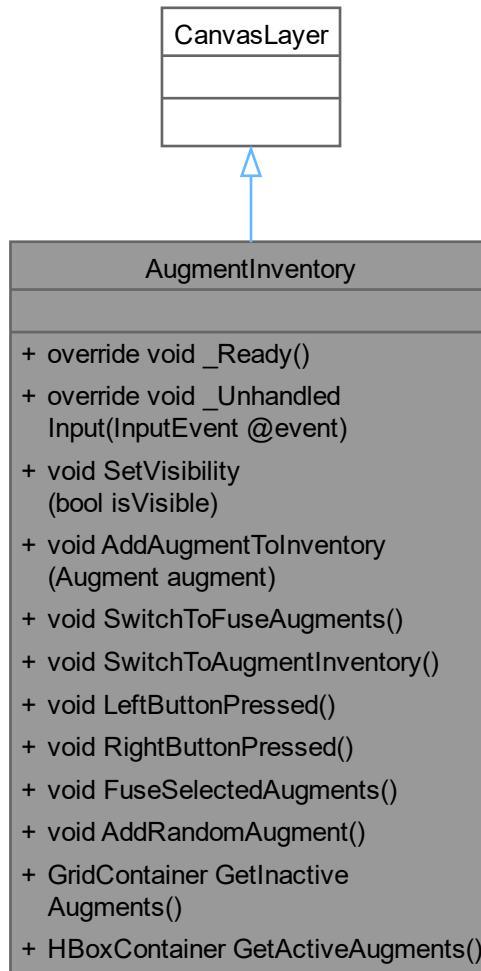
- [TheMagicApprentice/modules/entities/player/inventory/augments/AugmentEffectSelector.cs](#)

7.7 AugmentInventory Class Reference

Inheritance diagram for AugmentInventory:



Collaboration diagram for AugmentInventory:



Public Member Functions

- override void `_Ready()`
- override void `_UnhandledInput(InputEvent @event)`
- void `SetVisibility(bool isVisible)`
- void `AddAugmentToInventory(Augment augment)`
- void `SwitchToFuseAugments()`
- void `SwitchToAugmentInventory()`
- void `LeftButtonPressed()`
- void `RightButtonPressed()`
- void `FuseSelectedAugments()`
- void `AddRandomAugment()`
- GridContainer `GetInactiveAugments()`
- HBoxContainer `GetActiveAugments()`

7.7.1 Detailed Description

The [AugmentInventory](#) is the root node of the augment inventory. It handles the creation of all [InventorySlots](#) and the adding of new augments to the inventory. The scene is a child of the player so that it is always loaded as the scene contains all augment data. Usually the visibility and the processing is disabled. Except if the player clicks the "Open Augment Inventory" button. It can then be closed again using ESC.

7.7.2 Member Function Documentation

7.7.2.1 [_Ready\(\)](#)

```
override void AugmentInventory._Ready () [inline]
```

Gets the Reference to the Grid and fills it with [_numberOfSlots](#) many empty slots and gets reference to the active augments and creates the 5 active augment slots

7.7.2.2 [_UnhandledInput\(\)](#)

```
override void AugmentInventory._UnhandledInput (
    InputEvent @ event) [inline]
```

If Esc is pressed the [AugmentInventory](#) becomes invisible again and stops processing

7.7.2.3 [AddAugmentToInventory\(\)](#)

```
void AugmentInventory.AddAugmentToInventory (
    Augment augment) [inline]
```

Adds a new augment to the inventory by finding an empty slot in the Grid, creating and [InventoryItem](#) with the [Augment](#) and putting it in the slot In case all slots are filled it creates a new row of slots in the inventory.

7.7.2.4 [AddRandomAugment\(\)](#)

```
void AugmentInventory.AddRandomAugment () [inline]
```

Adds a random augment to the inventory

7.7.2.5 [FuseSelectedAugments\(\)](#)

```
void AugmentInventory.FuseSelectedAugments () [inline]
```

Fuse the currently selected Augments in the way specified by the 2 OptionButtons, using the [AugmentManagers](#) [FuseAugments](#) function.

7.7.2.6 [GetActiveAugments\(\)](#)

```
HBoxContainer AugmentInventory.GetActiveAugments () [inline]
```

Getter for [_activeAugments](#). Only used be tests

7.7.2.7 GetInactiveAugments()

```
GridContainer AugmentInventory.GetInactiveAugments () [inline]
```

Getter for _inactiveAugments. Only used be tests

7.7.2.8 LeftButtonPressed()

```
void AugmentInventory.LeftButtonPressed () [inline]
```

Gets called when the left button of the menu is pressed. Handles transition to Fuse Augments and Skill Tree

7.7.2.9 RightButtonPressed()

```
void AugmentInventory.RightButtonPressed () [inline]
```

Gets called when right button is pressed. Handles transition to Skill Tree and Active Augments

7.7.2.10 SetVisibility()

```
void AugmentInventory.SetVisibility (
    bool isVisible) [inline]
```

Set the visibility and the ProcessMode of the [AugmentInventory](#). I.e. enable and disable it.

7.7.2.11 SwitchToAugmentInventory()

```
void AugmentInventory.SwitchToAugmentInventory () [inline]
```

Sets the visibility of the HBoxContainers such that the Augement Inventory Menu is visible

7.7.2.12 SwitchToFuseAugments()

```
void AugmentInventory.SwitchToFuseAugments () [inline]
```

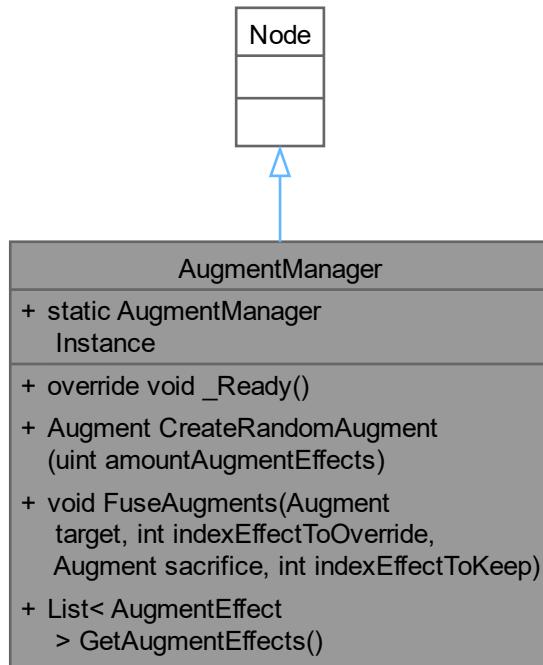
Sets the visibility of the HBoxContainers such that the Fuse Augement Menu is visible

The documentation for this class was generated from the following file:

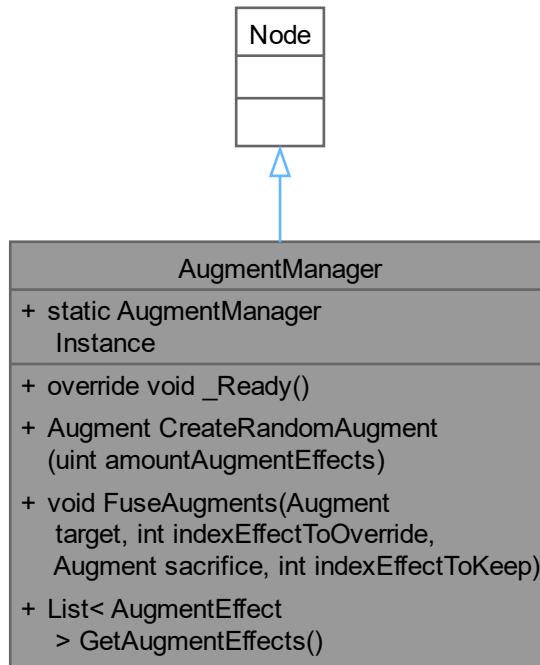
- TheMagicApprentice/modules/entities/player/inventory/augments/[AugmentInventory.cs](#)

7.8 AugmentManager Class Reference

Inheritance diagram for AugmentManager:



Collaboration diagram for AugmentManager:



Public Member Functions

- override void [_Ready \(\)](#)
- [Augment CreateRandomAugment \(uint amountAugmentEffects\)](#)
- void [FuseAugments \(Augment target, int indexEffectToOverride, Augment sacrifice, int indexEffectToKeep\)](#)
- List< [AugmentEffect](#) > [GetAugmentEffects \(\)](#)

Properties

- static [AugmentManager Instance](#) [get]
Instance of the Singleton.

7.8.1 Detailed Description

This pseudo singleton class manages all the different Augments and [AugmentEffect](#). It loads all AugmentEffects at runtime and is used to automatically create a random augment with 1-3 AugmentEffects

It handles all complicated parts of [Augment](#) creation.

It is an autoload of the Game and thus always accessible using the static `Instance` member

7.8.2 Member Function Documentation

7.8.2.1 `_Ready()`

```
override void AugmentManager._Ready () [inline]
```

Since this node is an autoload the ready function gets called exactly ones at the start of the game. Use this to set it to the static Instance of the class.

7.8.2.2 `CreateRandomAugment()`

```
Augment AugmentManager.CreateRandomAugment (
    uint amountAugmentEffects) [inline]
```

Automatically creates a random augment with amountAugmentEffects randomly selected AugmentEffects

Parameters

| | |
|-----------------------------------|---|
| <code>amountAugmentEffects</code> | should be between 1 and 3. If it is larger then 3 it will instead use 3 and if it is 0 then it will return an augment without effects |
|-----------------------------------|---|

7.8.2.3 `FuseAugments()`

```
void AugmentManager.FuseAugments (
    Augment target,
    int indexEffectToOverride,
    Augment sacrifice,
    int indexEffectToKeep) [inline]
```

Fuses two Augments by overriding the `AugmentEffect` from `fuseTo` with index `indexEffectToKeep` with the `AugmentEffect` from `fuseFrom` at position `indexEffectToKeep`. Both target and sacrifice have to be mutable, as target gets changed and sacrifice gets deleted

7.8.2.4 `GetAugmentEffects()`

```
List< AugmentEffect > AugmentManager.GetAugmentEffects () [inline]
```

Getter for AugmentEffects. Is only used by tests

7.8.3 Property Documentation

7.8.3.1 `Instance`

```
AugmentManager AugmentManager.Instance [static], [get]
```

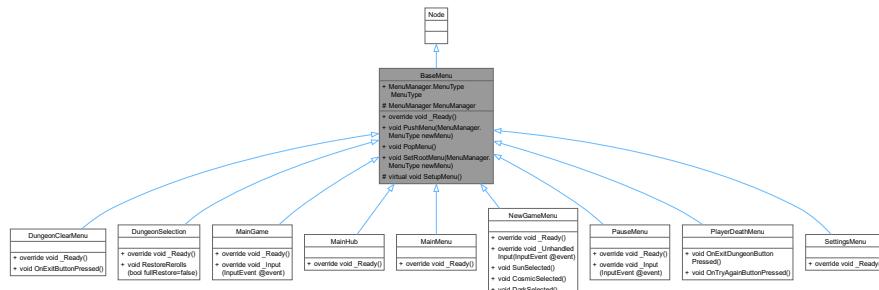
Instance of the Singleton.

The documentation for this class was generated from the following file:

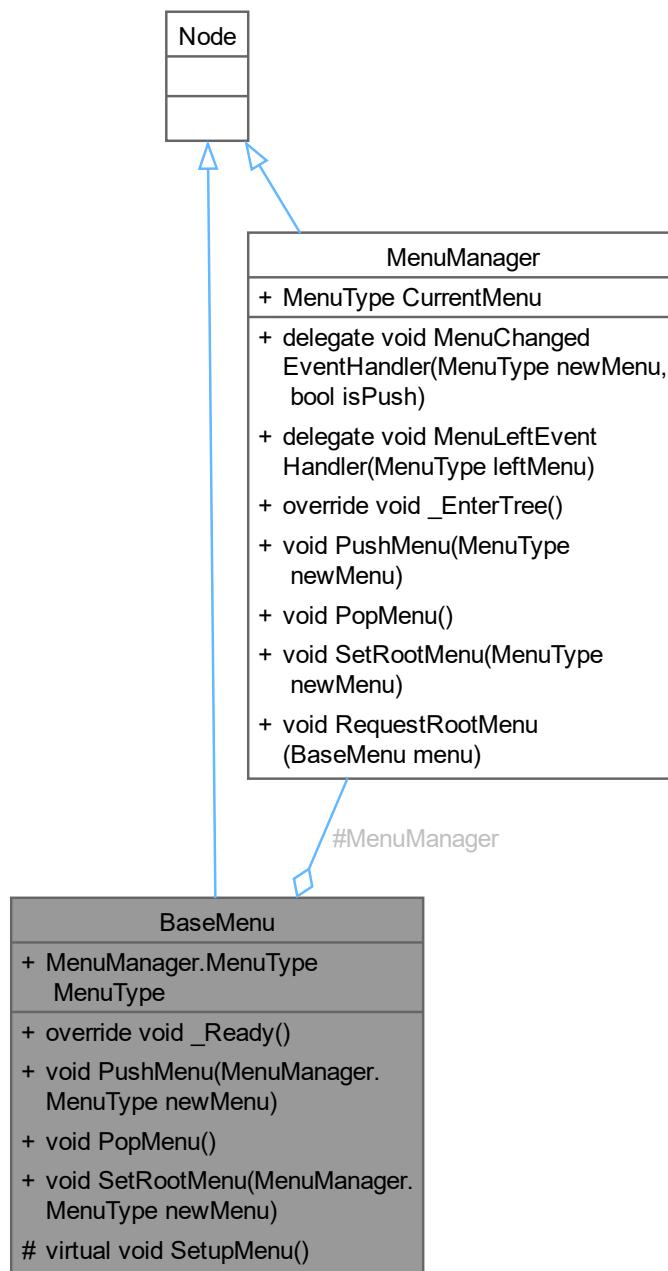
- TheMagicApprentice/modules/augments/[AugmentManager.cs](#)

7.9 BaseMenu Class Reference

Inheritance diagram for BaseMenu:



Collaboration diagram for BaseMenu:



Public Member Functions

- `override void _Ready ()`
- `void PushMenu (MenuManager.MenuType newMenu)`
- `void PopMenu ()`
- `void SetRootMenu (MenuManager.MenuType newMenu)`

Protected Member Functions

- virtual void [SetupMenu \(\)](#)

Protected Attributes

- [MenuManager MenuManager](#)

Properties

- [MenuManager.MenuType MenuType \[get, protected set\]](#)

7.9.1 Detailed Description

Base class for all menu types in the game. Provides common functionality and interface with the [MenuManager](#).

7.9.2 Member Function Documentation

7.9.2.1 [_Ready\(\)](#)

```
override void BaseMenu._Ready () [inline]
```

Initializes the menu by getting the [MenuManager](#) reference and calling [SetupMenu](#).

7.9.2.2 [PopMenu\(\)](#)

```
void BaseMenu.PopMenu () [inline]
```

Pops the current menu from the stack.

7.9.2.3 [PushMenu\(\)](#)

```
void BaseMenu.PushMenu (
    MenuManager.MenuType newMenu) [inline]
```

Pushes a new menu onto the stack.

Parameters

| | |
|----------------------|---------------------------|
| <code>newMenu</code> | The type of menu to push. |
|----------------------|---------------------------|

7.9.2.4 [SetRootMenu\(\)](#)

```
void BaseMenu.SetRootMenu (
    MenuManager.MenuType newMenu) [inline]
```

Sets a new root menu, clearing the existing menu stack.

Parameters

| | |
|----------------|--|
| <i>newMenu</i> | The type of menu to set as the new root. |
|----------------|--|

7.9.2.5 SetupMenu()

```
virtual void BaseMenu.SetupMenu () [inline], [protected], [virtual]
```

Virtual method for setting up the menu. Can be overridden in derived classes to provide specific setup logic.

7.9.3 Member Data Documentation**7.9.3.1 MenuManager**

```
MenuManager BaseMenu.MenuManager [protected]
```

Reference to the [MenuManager](#) instance.

7.9.4 Property Documentation**7.9.4.1 MenuType**

```
MenuManager.MenuType BaseMenu.MenuType [get], [protected set]
```

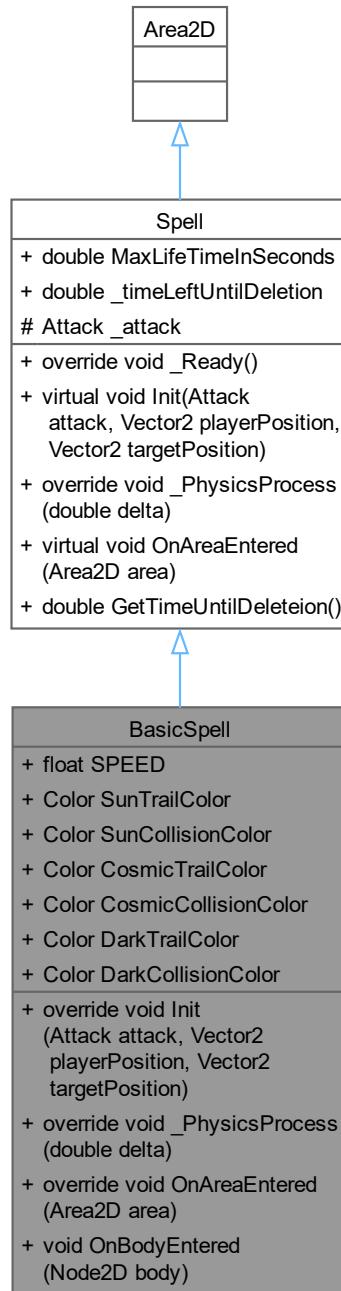
The type of this menu.

The documentation for this class was generated from the following file:

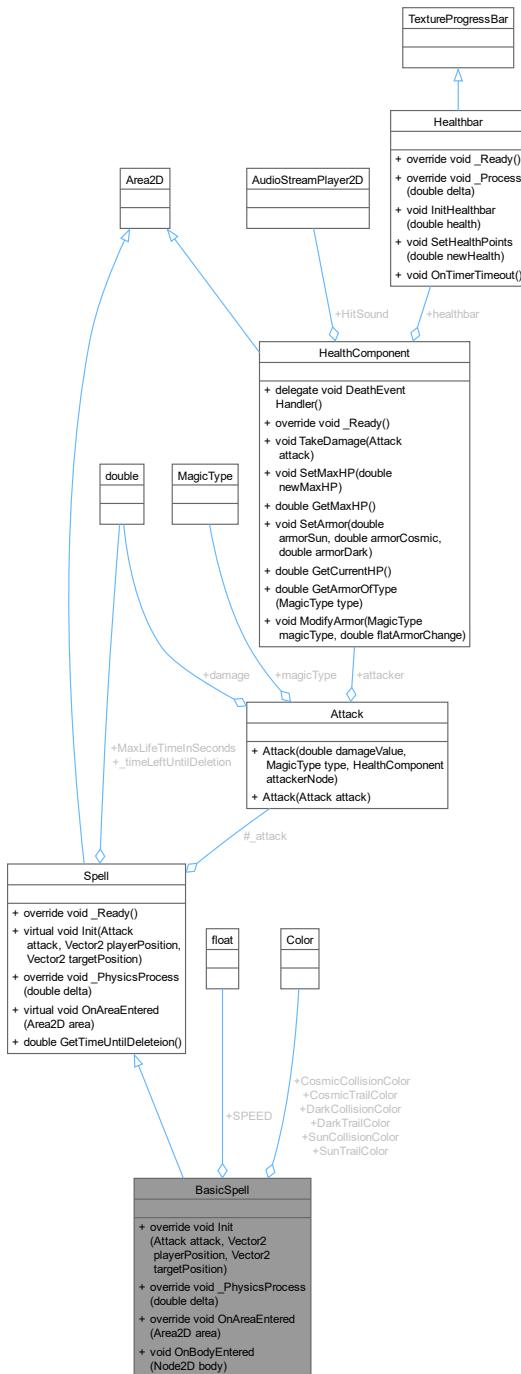
- TheMagicApprentice/modules/ui/[BaseMenu.cs](#)

7.10 BasicSpell Class Reference

Inheritance diagram for BasicSpell:



Collaboration diagram for BasicSpell:



Public Member Functions

- override void **Init** (Attack attack, Vector2 playerPosition, Vector2 targetPosition)
 - override void **_PhysicsProcess** (double delta)
 - override void **OnAreaEntered** (Area2D area)
 - void **OnBodyEntered** (Node2D body)

Public Member Functions inherited from Spell

- override void `_Ready()`
- override void `_PhysicsProcess(double delta)`
- double `GetTimeUntilDeleteion()`

Public Attributes

- float `SPEED` = 600
Speed of the spell. Do not set to high or else it might not hit enemies.
- Color `SunTrailColor` = new Color(1, 0.8f, 0)
- Color `SunCollisionColor` = new Color(1, 0.6f, 0)
- Color `CosmicTrailColor` = new Color(0.3f, 0.7f, 1)
- Color `CosmicCollisionColor` = new Color(0, 0.5f, 1)
- Color `DarkTrailColor` = new Color(0.5f, 0, 0.5f)
- Color `DarkCollisionColor` = new Color(0.3f, 0, 0.3f)

Public Attributes inherited from Spell

- double `MaxLifeTimeInSeconds` = 5.0
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double `_timeLeftUntilDeletion`
Time left until deletion.

Additional Inherited Members

Protected Attributes inherited from Spell

- Attack `_attack`
Contains damage, type and caster reference for damage calculation.

7.10.1 Detailed Description

The basic spell object of each element. Setting the element will also change the color.

Note that since we use an `Area2D` which we manually move, if the spells moves ultra fast it can move over the enemies and thus miss them.

7.10.2 Member Function Documentation

7.10.2.1 `_PhysicsProcess()`

```
override void BasicSpell._PhysicsProcess (
    double delta) [inline]
```

Move the spell in `_direction` Count down the max life time of the spell and remove the spell once the time is up

7.10.2.2 Init()

```
override void BasicSpell.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Call after instantiating the base spell scene in order to set the [Attack](#) of the spell and change the animation depending on the magic type.

Reimplemented from [Spell](#).

7.10.2.3 OnAreaEntered()

```
override void BasicSpell.OnAreaEntered (
    Area2D area) [inline], [virtual]
```

Gets called when the spell hits a Health component since health components use area2Ds. Since the spells mask layer is set to the enemies layer, it cannot hit the player

Reimplemented from [Spell](#).

7.10.2.4 OnBodyEntered()

```
void BasicSpell.OnBodyEntered (
    Node2D body) [inline]
```

Since parts of the tilemap that have a collision layer are not area2D nodes, body entered is necessary to use. This function detects collisions with all types of 2D nodes. Check if the projectile entered a part of the tilemap, which means a wall or object, and remove the projectile. This requires mask 1 (Collision) to be set!

7.10.3 Member Data Documentation

7.10.3.1 CosmicCollisionColor

```
Color BasicSpell.CosmicCollisionColor = new Color(0, 0.5f, 1)
```

7.10.3.2 CosmicTrailColor

```
Color BasicSpell.CosmicTrailColor = new Color(0.3f, 0.7f, 1)
```

7.10.3.3 DarkCollisionColor

```
Color BasicSpell.DarkCollisionColor = new Color(0.3f, 0, 0.3f)
```

7.10.3.4 DarkTrailColor

```
Color BasicSpell.DarkTrailColor = new Color(0.5f, 0, 0.5f)
```

7.10.3.5 SPEED

```
float BasicSpell.SPEED = 600
```

Speed of the spell. Do not set to high or else it might not hit enemies.

7.10.3.6 SunCollisionColor

```
Color BasicSpell.SunCollisionColor = new Color(1, 0.6f, 0)
```

7.10.3.7 SunTrailColor

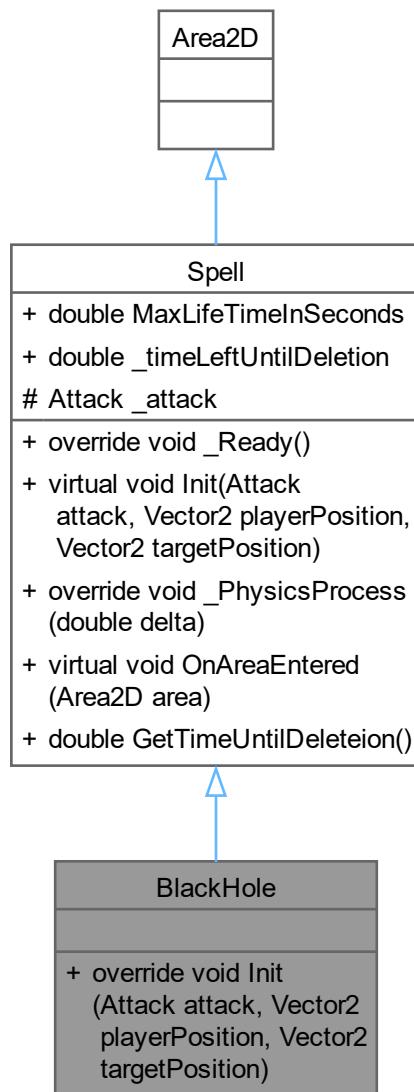
```
Color BasicSpell.SunTrailColor = new Color(1, 0.8f, 0)
```

The documentation for this class was generated from the following file:

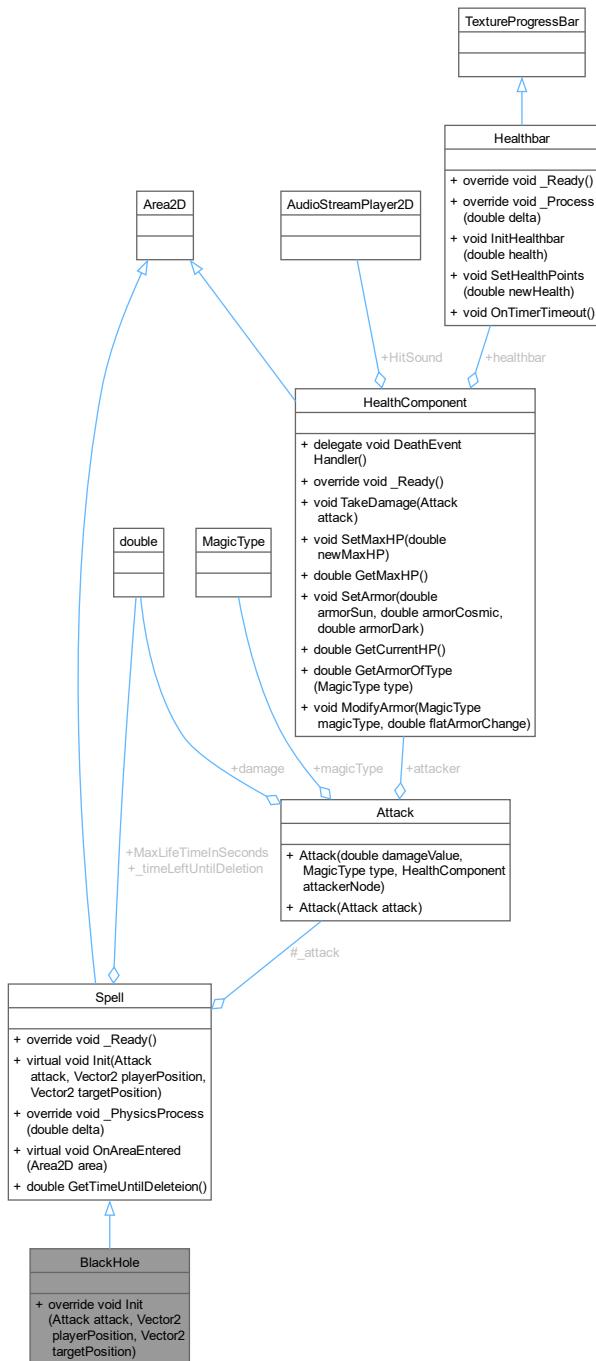
- TheMagicApprentice/modules/entities/player/spells/basic_spell/[BasicSpell.cs](#)

7.11 BlackHole Class Reference

Inheritance diagram for BlackHole:



Collaboration diagram for BlackHole:



Public Member Functions

- `override void Init (Attack attack, Vector2 playerPosition, Vector2 targetPosition)`

Public Member Functions inherited from `Spell`

- `override void _Ready ()`

- override void [_PhysicsProcess](#) (double delta)
- virtual void [OnAreaEntered](#) (Area2D area)
- double [GetTimeUntilDeleteion](#) ()

Additional Inherited Members

Public Attributes inherited from [Spell](#)

- double [MaxLifeTimeInSeconds](#) = 5.0

How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double [_timeLeftUntilDeletion](#)

Time left until deletion.

Protected Attributes inherited from [Spell](#)

- [Attack _attack](#)

Contains damage, type and caster reference for damage calculation.

7.11.1 Detailed Description

The spell object of the spell black hole TODO: Currently the gravity does not affect anything. we probalby have to use gravity or something like that inside the slime class

7.11.2 Member Function Documentation

7.11.2.1 [Init\(\)](#)

```
override void BlackHole.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Every [Spell](#) has to overide this method as it is used to initialize the spell on creation

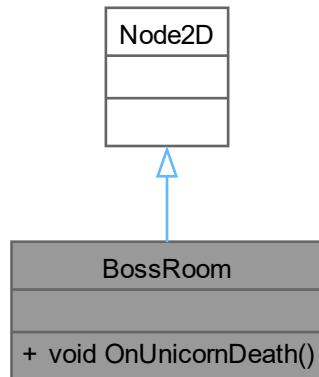
Reimplemented from [Spell](#).

The documentation for this class was generated from the following file:

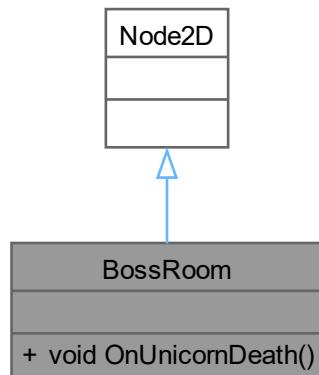
- TheMagicApprentice/modules/entities/player/spells/black_hole/[BlackHole.cs](#)

7.12 BossRoom Class Reference

Inheritance diagram for BossRoom:



Collaboration diagram for BossRoom:



Public Member Functions

- void [OnUnicornDeath \(\)](#)

7.12.1 Member Function Documentation

7.12.1.1 OnUnicornDeath()

```
void BossRoom.OnUnicornDeath () [inline]
```

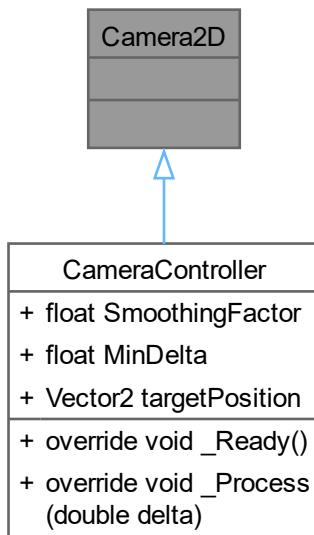
gets called when unicorn dies.

The documentation for this class was generated from the following file:

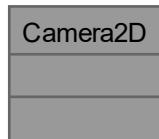
- [TheMagicApprentice/modules/rooms/BossRoom.cs](#)

7.13 Camera2D Class Reference

Inheritance diagram for Camera2D:



Collaboration diagram for Camera2D:



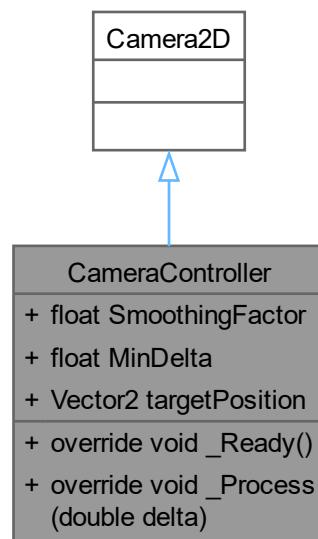
The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/entities/player/[CameraController.cs](#)

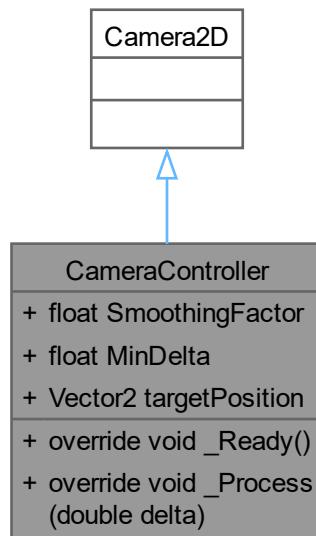
7.14 CameraController Class Reference

This class controls the camera in the game.

Inheritance diagram for CameraController:



Collaboration diagram for CameraController:



Public Member Functions

- `override void _Ready ()`
Called when the node enters the scene tree for the first time.
- `override void _Process (double delta)`
Called every frame. 'delta' is the elapsed time since the previous frame.

Properties

- `float SmoothingFactor = 1f [get, set]`
Smoothing factor for camera movement.
- `float MinDelta = 0.01f [get, set]`
Minimum delta for camera movement.

7.14.1 Detailed Description

This class controls the camera in the game.

7.14.2 Member Function Documentation

7.14.2.1 `_Process()`

```
override void CameraController._Process (
    double delta) [inline]
```

Called every frame. 'delta' is the elapsed time since the previous frame.

Updates the camera position based on the player's position and the current roomtype.

Parameters

| | |
|--------------|--|
| <i>delta</i> | The elapsed time since the previous frame. |
|--------------|--|

7.14.2.2 Ready()

```
override void CameraController._Ready () [inline]
```

Called when the node enters the scene tree for the first time.

Initializes the player and room handler, and sets the initial camera position.

7.14.3 Property Documentation**7.14.3.1 MinDelta**

```
float CameraController.MinDelta = 0.01f [get], [set]
```

Minimum delta for camera movement.

7.14.3.2 SmoothingFactor

```
float CameraController.SmoothingFactor = 1f [get], [set]
```

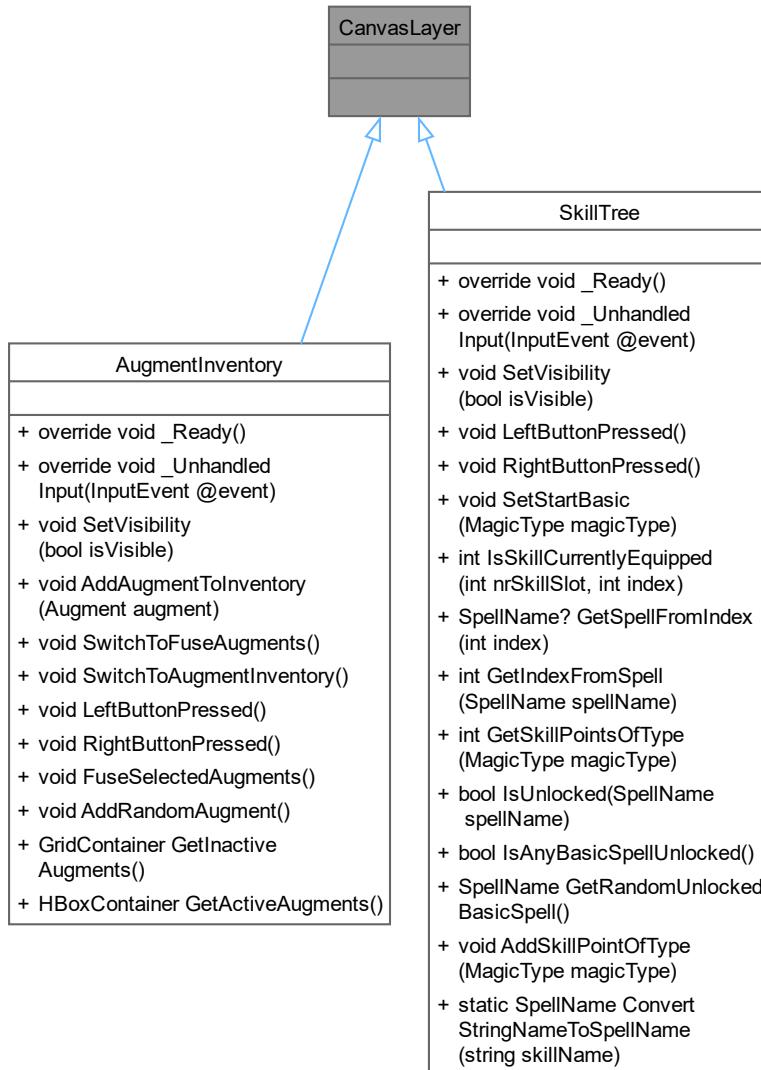
Smoothing factor for camera movement.

The documentation for this class was generated from the following file:

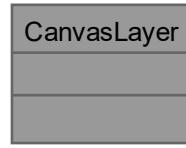
- TheMagicApprentice/modules/entities/player/[CameraController.cs](#)

7.15 CanvasLayer Class Reference

Inheritance diagram for CanvasLayer:



Collaboration diagram for CanvasLayer:

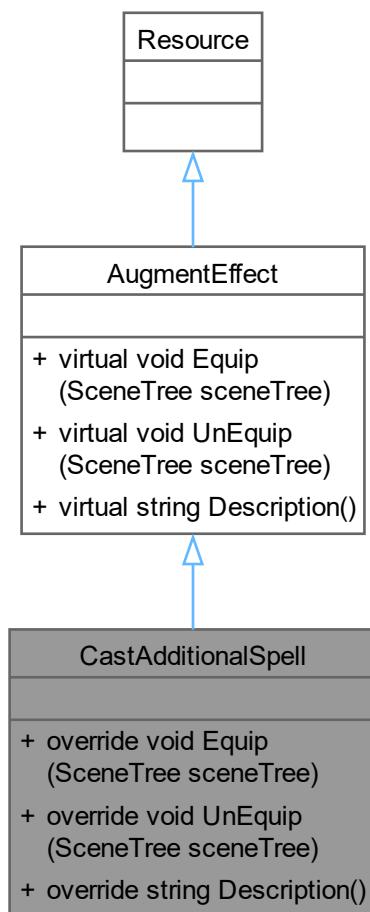


The documentation for this class was generated from the following file:

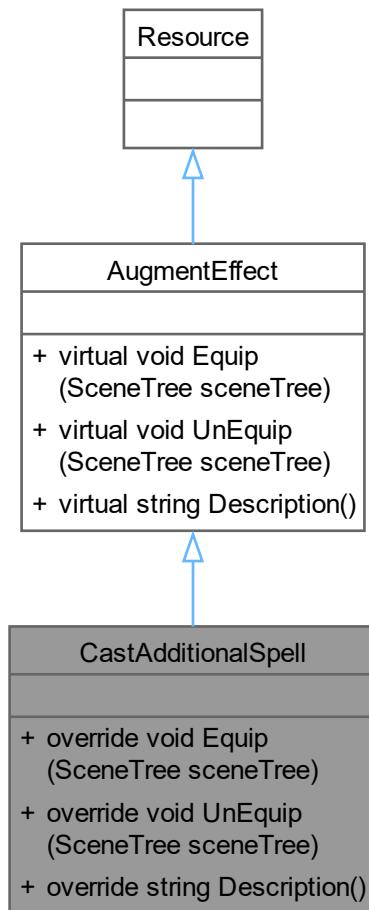
- TheMagicApprentice/modules/entities/player/inventory/augments/[AugmentInventory.cs](#)

7.16 CastAdditionalSpell Class Reference

Inheritance diagram for CastAdditionalSpell:



Collaboration diagram for CastAdditionalSpell:



Public Member Functions

- `override void Equip (SceneTree sceneTree)`
- `override void UnEquip (SceneTree sceneTree)`
- `override string Description ()`

7.16.1 Detailed Description

`AugmentEffect` to cast one spell, when casting another. The UnEquipping is handled in the player class.

The basic spells are never the `_castedSpell`. Combinations only exist in one direction.

7.16.2 Member Function Documentation

7.16.2.1 Description()

```
override string CastAdditionalSpell.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.16.2.2 Equip()

```
override void CastAdditionalSpell.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

If `_castedSpell` is in a [Spell](#) Group, we also add `_additionalSpell`

Reimplemented from [AugmentEffect](#).

7.16.2.3 UnEquip()

```
override void CastAdditionalSpell.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

We need to manually unequip `_additionalSpell` from the group if `_castedSpell` is in the group. This is ugly and should be changed once skill tree exists. But it works for now, since cyclic dependancies do not exist TODO this should not be neccessary anymore

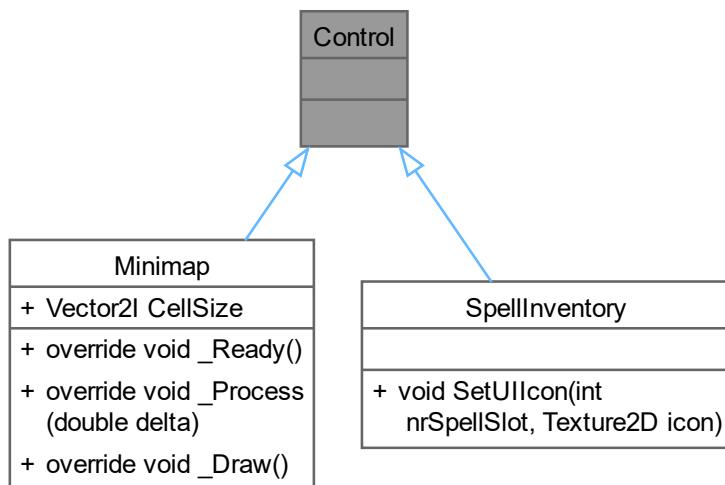
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

- [TheMagicApprentice/modules/augments/augment_effects/CastAdditionalSpell.cs](#)

7.17 Control Class Reference

Inheritance diagram for Control:



Collaboration diagram for Control:

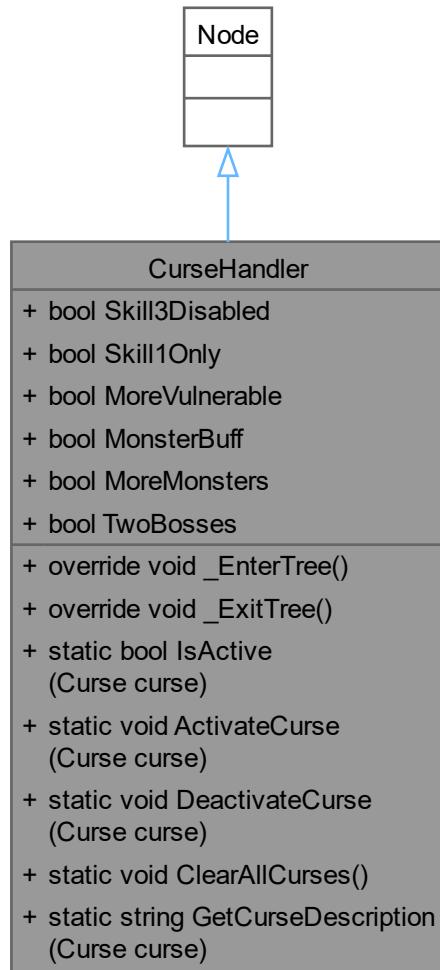


The documentation for this class was generated from the following file:

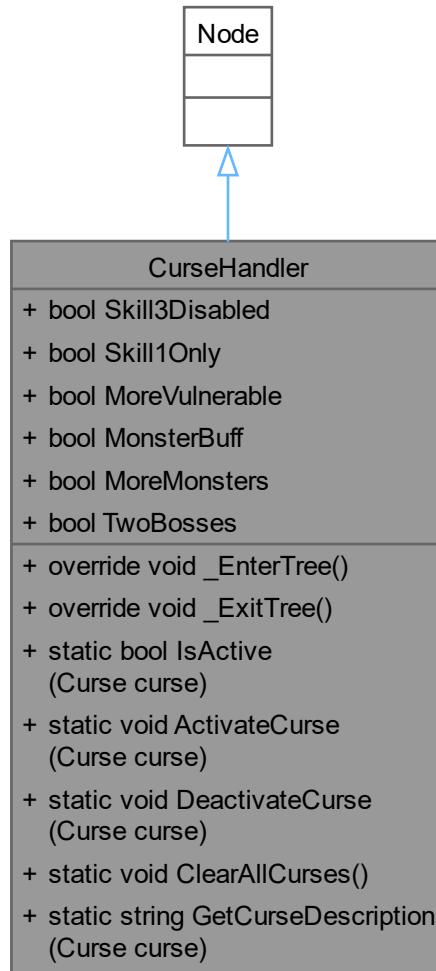
- TheMagicApprentice/modules/handlers/[Minimap.cs](#)

7.18 CurseHandler Class Reference

Inheritance diagram for CurseHandler:



Collaboration diagram for CurseHandler:



Public Member Functions

- `override void _EnterTree ()`
Called when the node enters the scene tree for the first time.
- `override void _ExitTree ()`
Called when the node is about to be removed from the scene tree.

Static Public Member Functions

- `static bool IsActive (Curse curse)`
Checks if a specific curse is active.
- `static void ActivateCurse (Curse curse)`
Activates a specific curse.
- `static void DeactivateCurse (Curse curse)`

- static void [ClearAllCurses \(\)](#)
Deactivates all curses.
- static string [GetCurseDescription \(Curse curse\)](#)

Properties

- bool [Skill3Disabled](#) = false [get, set]
Boolean properties representing the state of each curse.
- bool [Skill1Only](#) = false [get, set]
- bool [MoreVulnerable](#) = false [get, set]
- bool [MonsterBuff](#) = false [get, set]
- bool [MoreMonsters](#) = false [get, set]
- bool [TwoBosses](#) = false [get, set]

7.18.1 Member Function Documentation

7.18.1.1 [_EnterTree\(\)](#)

```
override void CurseHandler._EnterTree () [inline]
```

Called when the node enters the scene tree for the first time.

7.18.1.2 [_ExitTree\(\)](#)

```
override void CurseHandler._ExitTree () [inline]
```

Called when the node is about to be removed from the scene tree.

7.18.1.3 [ActivateCurse\(\)](#)

```
static void CurseHandler.ActivateCurse (
    Curse curse) [inline], [static]
```

Activates a specific curse.

Parameters

| | |
|--------------|-----------------------|
| <i>curse</i> | The curse to activate |
|--------------|-----------------------|

7.18.1.4 [ClearAllCurses\(\)](#)

```
static void CurseHandler.ClearAllCurses () [inline], [static]
```

Deactivates all curses.

7.18.1.5 [DeactivateCurse\(\)](#)

```
static void CurseHandler.DeactivateCurse (
    Curse curse) [inline], [static]
```

Deactivates a specific curse.

Parameters

| | |
|--------------------|-------------------------|
| <code>curse</code> | The curse to deactivate |
|--------------------|-------------------------|

7.18.1.6 GetCurseDescription()

```
static string CurseHandler.GetCurseDescription (
    Curse curse) [inline], [static]
```

7.18.1.7 IsActive()

```
static bool CurseHandler.IsActive (
    Curse curse) [inline], [static]
```

Checks if a specific curse is active.

Parameters

| | |
|--------------------|--------------------|
| <code>curse</code> | The curse to check |
|--------------------|--------------------|

Returns

True if the curse is active, false otherwise

7.18.2 Property Documentation**7.18.2.1 MonsterBuff**

```
bool CurseHandler.MonsterBuff = false [get], [set]
```

7.18.2.2 MoreMonsters

```
bool CurseHandler.MoreMonsters = false [get], [set]
```

7.18.2.3 MoreVulnerable

```
bool CurseHandler.MoreVulnerable = false [get], [set]
```

7.18.2.4 Skill1Only

```
bool CurseHandler.Skill1Only = false [get], [set]
```

7.18.2.5 Skill3Disabled

```
bool CurseHandler.Skill3Disabled = false [get], [set]
```

Boolean properties representing the state of each curse.

We use bools even though we have a Curse enum in @enums.cs because this lets us set them active or disabled in the editor very easily.

7.18.2.6 TwoBosses

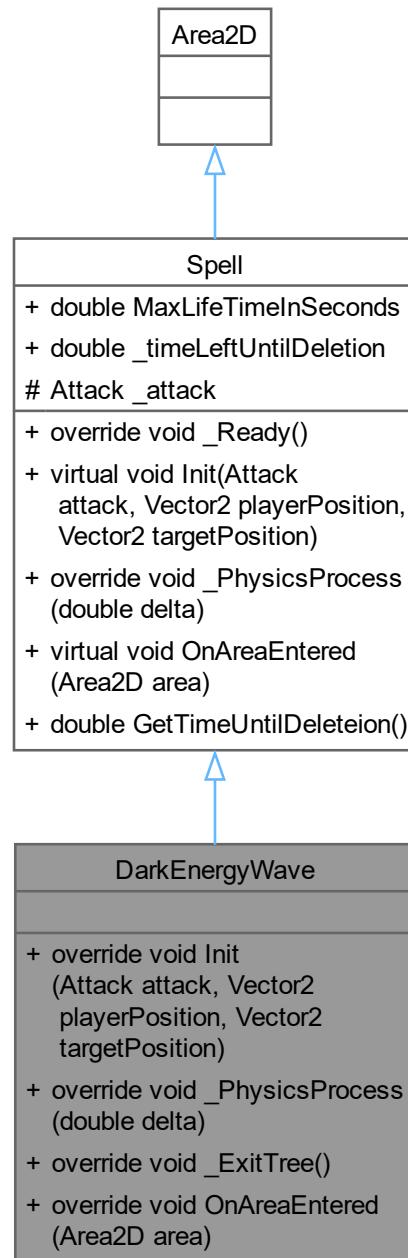
```
bool CurseHandler.TwoBosses = false [get], [set]
```

The documentation for this class was generated from the following file:

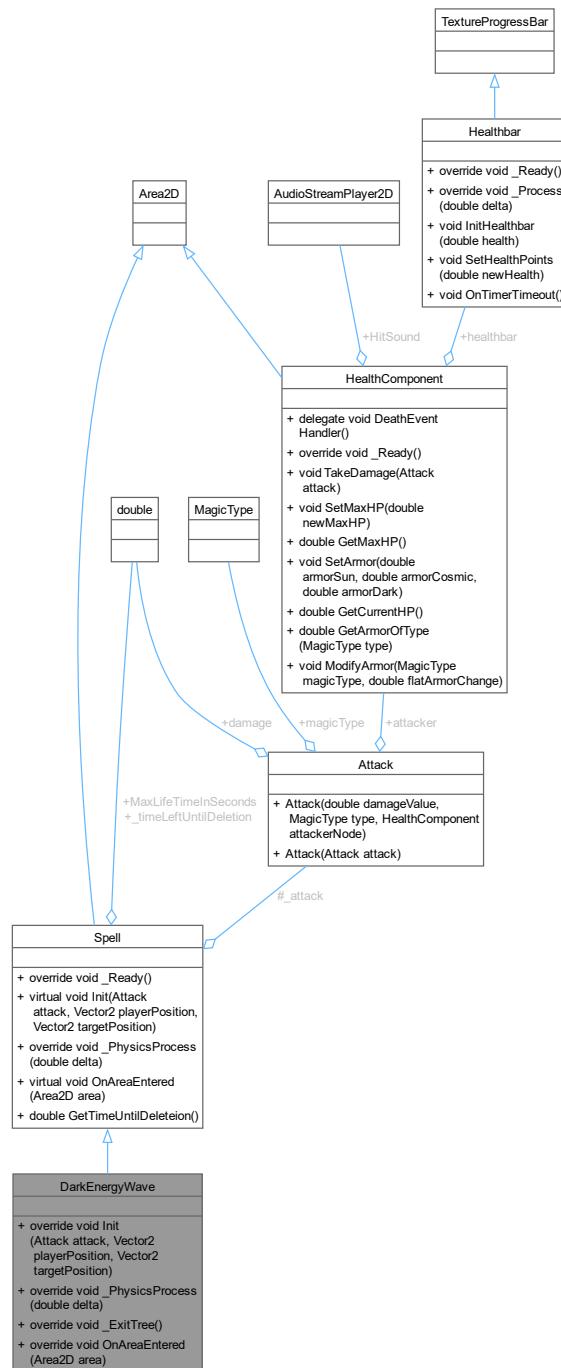
- TheMagicApprentice/modules/handlers/[CurseHandler.cs](#)

7.19 DarkEnergyWave Class Reference

Inheritance diagram for DarkEnergyWave:



Collaboration diagram for DarkEnergyWave:



Public Member Functions

- `override void Init (Attack attack, Vector2 playerPosition, Vector2 targetPosition)`
- `override void _PhysicsProcess (double delta)`
- `override void _ExitTree ()`
- `override void OnAreaEntered (Area2D area)`

Public Member Functions inherited from Spell

- override void [_Ready\(\)](#)
- override void [_PhysicsProcess\(double delta\)](#)
- double [GetTimeUntilDeleteion\(\)](#)

Additional Inherited Members

Public Attributes inherited from Spell

- double [MaxLifeTimeInSeconds](#) = 5.0
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double [_timeLeftUntilDeletion](#)
Time left until deletion.

Protected Attributes inherited from Spell

- Attack [_attack](#)
Contains damage, type and caster reference for damage calculation.

7.19.1 Detailed Description

The spell object of the spell dark energy wave.

Every tick it increases in size. Enemies hit are pushed away.

7.19.2 Member Function Documentation

7.19.2.1 [_ExitTree\(\)](#)

```
override void DarkEnergyWave._ExitTree () [inline]
```

Clean up the spell when it's removed from the scene

7.19.2.2 [_PhysicsProcess\(\)](#)

```
override void DarkEnergyWave._PhysicsProcess (
    double delta) [inline]
```

Increase the size every tick

7.19.2.3 Init()

```
override void DarkEnergyWave.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Every [Spell](#) has to overide this method as it is used to initialize the spell on creation

Reimplemented from [Spell](#).

7.19.2.4 OnAreaEntered()

```
override void DarkEnergyWave.OnAreaEntered (
    Area2D area) [inline], [virtual]
```

If we hit an enemy we push them back

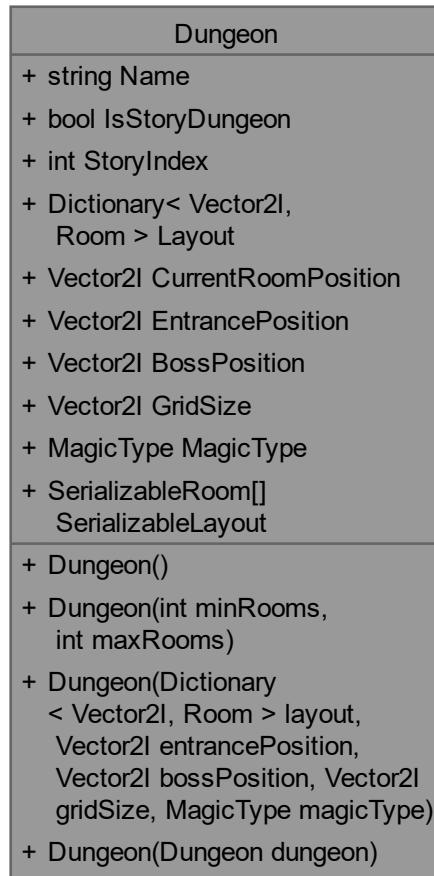
Reimplemented from [Spell](#).

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/entities/player/spells/dark_energy_wave/[DarkEnergyWave.cs](#)

7.20 Dungeon Class Reference

Collaboration diagram for Dungeon:



Public Member Functions

- [Dungeon \(\)](#)
- [Dungeon \(int minRooms, int maxRooms\)](#)
- [Dungeon \(Dictionary< Vector2I, Room > layout, Vector2I entrancePosition, Vector2I bossPosition, Vector2I gridSize, MagicType magicType\)](#)
- [Dungeon \(Dungeon dungeon\)](#)

Properties

- string [Name](#) [get, set]

Name of the dungeon.
- bool [IsStoryDungeon](#) [get, set]

Whether this is a story dungeon.

- int `StoryIndex` = -1 [get, set]
Index of story dungeon (0-4), -1 if not a story dungeon.
- Dictionary< `Vector2I`, `Room` > `Layout` [get, set]
Layout of the dungeon, where each room is mapped to a position.
- `Vector2I CurrentRoomPosition` [get, set]
Current room position in the dungeon.
- `Vector2I EntrancePosition` [get, set]
Entrance position of the dungeon.
- `Vector2I BossPosition` [get, set]
Boss room position in the dungeon.
- `Vector2I GridSize` [get, set]
Size of the dungeon grid.
- `MagicType MagicType` [get, set]
Magic type of the dungeon.
- `SerializableRoom[] SerializableLayout` [get, set]

7.20.1 Constructor & Destructor Documentation

7.20.1.1 `Dungeon()` [1/4]

`Dungeon.Dungeon ()` [inline]

Parameterless constructor for JSON deserialization.

7.20.1.2 `Dungeon()` [2/4]

```
Dungeon.Dungeon (
    int minRooms,
    int maxRooms) [inline]
```

Constructor for the `Dungeon` class. Initializes the minimum and maximum number of rooms and the layout.

Parameters

| | |
|-----------------------|---|
| <code>minRooms</code> | Minimum number of rooms in the dungeon. |
| <code>maxRooms</code> | Maximum number of rooms in the dungeon. |

7.20.1.3 `Dungeon()` [3/4]

```
Dungeon.Dungeon (
    Dictionary< Vector2I, Room > layout,
    Vector2I entrancePosition,
    Vector2I bossPosition,
    Vector2I gridSize,
    MagicType magicType) [inline]
```

Constructor for the `Dungeon` class. Initializes the dungeon with a given layout, entrance position, boss position, grid size, and magic type.

Parameters

| | |
|-------------------------|---|
| <i>layout</i> | Dictionary mapping positions to rooms in the dungeon. |
| <i>entrancePosition</i> | Position of the entrance in the dungeon. |
| <i>bossPosition</i> | Position of the boss room in the dungeon. |
| <i>gridSize</i> | Size of the dungeon grid. |
| <i>magicType</i> | Magic type of the dungeon. |

7.20.1.4 Dungeon() [4/4]

```
Dungeon.Dungeon (
    Dungeon dungeon) [inline]
```

Copy constructor for the [Dungeon](#) class. Initializes the dungeon by copying the properties of another dungeon.

Parameters

| | |
|----------------|----------------------|
| <i>dungeon</i> | The dungeon to copy. |
|----------------|----------------------|

7.20.2 Property Documentation**7.20.2.1 BossPosition**

```
Vector2I Dungeon.BossPosition [get], [set]
```

Boss room position in the dungeon.

7.20.2.2 CurrentRoomPosition

```
Vector2I Dungeon.CurrentRoomPosition [get], [set]
```

Current room position in the dungeon.

7.20.2.3 EntrancePosition

```
Vector2I Dungeon.EntrancePosition [get], [set]
```

Entrance position of the dungeon.

7.20.2.4 GridSize

```
Vector2I Dungeon.GridSize [get], [set]
```

Size of the dungeon grid.

7.20.2.5 IsStoryDungeon

```
bool Dungeon.IsStoryDungeon [get], [set]
```

Whether this is a story dungeon.

7.20.2.6 Layout

```
Dictionary<Vector2I, Room> Dungeon.Layout [get], [set]
```

Layout of the dungeon, where each room is mapped to a position.

7.20.2.7 MagicType

```
MagicType Dungeon.MagicType [get], [set]
```

Magic type of the dungeon.

7.20.2.8 Name

```
string Dungeon.Name [get], [set]
```

Name of the dungeon.

7.20.2.9 SerializableLayout

```
SerializableRoom [] Dungeon.SerializableLayout [get], [set]
```

7.20.2.10 StoryIndex

```
int Dungeon.StoryIndex = -1 [get], [set]
```

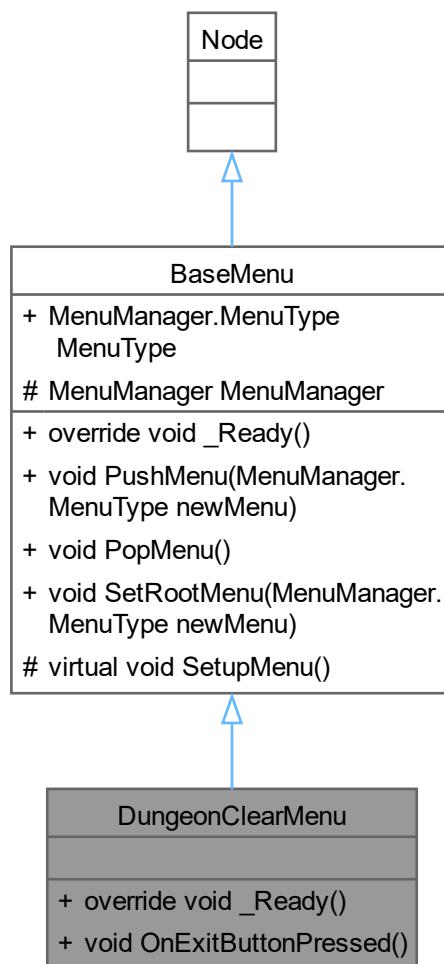
Index of story dungeon (0-4), -1 if not a story dungeon.

The documentation for this class was generated from the following file:

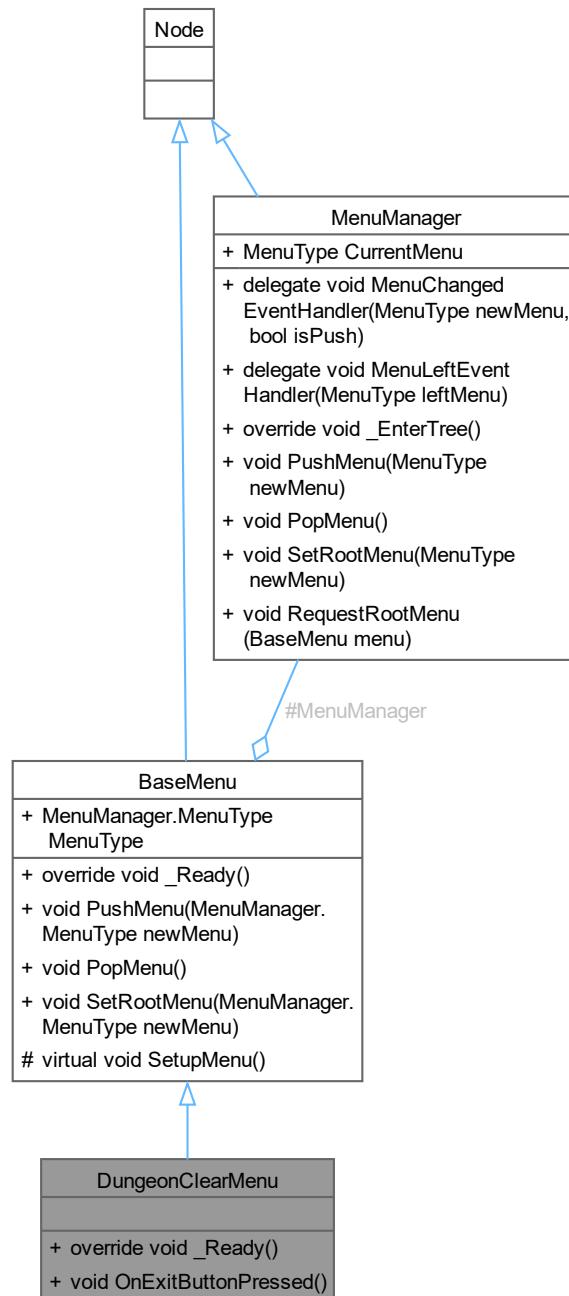
- TheMagicApprentice/modules/handlers/[Dungeon.cs](#)

7.21 DungeonClearMenu Class Reference

Inheritance diagram for DungeonClearMenu:



Collaboration diagram for DungeonClearMenu:



Public Member Functions

- override void [_Ready \(\)](#)
- void [OnExitButtonPressed \(\)](#)

Public Member Functions inherited from [BaseMenu](#)

- override void [_Ready \(\)](#)

- void [PushMenu](#) (`MenuManager.MenuType` newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) (`MenuManager.MenuType` newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- `MenuManager` `MenuManager`

Properties inherited from [BaseMenu](#)

- `MenuManager.MenuType` `MenuType` [get, protected set]

7.21.1 Member Function Documentation

7.21.1.1 [_Ready\(\)](#)

```
override void DungeonClearMenu._Ready () [inline]
```

When instanciated, generate the augments, add them to the player and display them. Also add the skill point to the player

7.21.1.2 [OnExitButtonPressed\(\)](#)

```
void DungeonClearMenu.OnExitButtonPressed () [inline]
```

Called when the ExitDungeonButton is pressed. CallDeferreds the exitdungeon function. Need to use call deferred to prevent bugs

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/ui/dungeon_clear_menu/[DungeonClearMenu.cs](#)

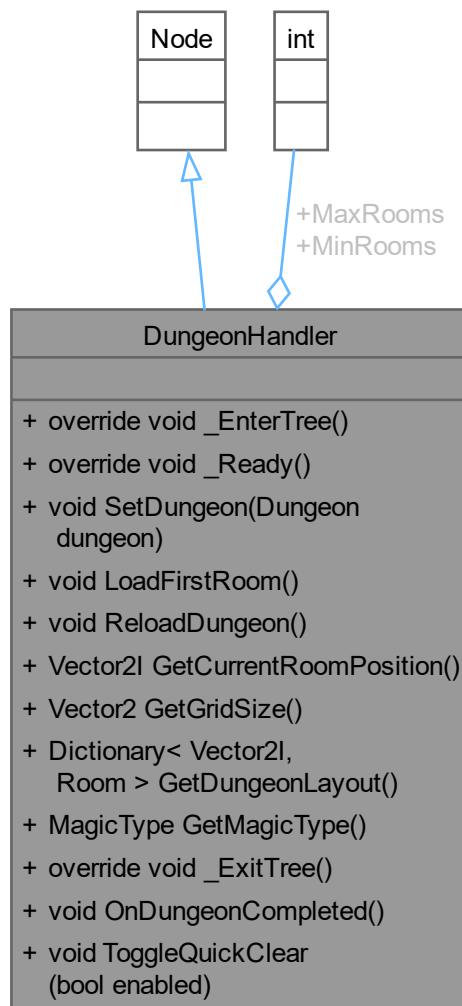
7.22 DungeonHandler Class Reference

Manages the dungeon layout, room transitions, and player movement between rooms.

Inheritance diagram for DungeonHandler:



Collaboration diagram for DungeonHandler:



Public Member Functions

- `override void _EnterTree ()`
- `override void _Ready ()`
- `void SetDungeon (Dungeon dungeon)`
- `void LoadFirstRoom ()`
- `void ReloadDungeon ()`
- `Vector2I GetCurrentRoomPosition ()`
- `Vector2 GetGridSize ()`
- `Dictionary< Vector2I, Room > GetDungeonLayout ()`
- `MagicType GetMagicType ()`
- `override void _ExitTree ()`
- `void OnDungeonCompleted ()`
- `void ToggleQuickClear (bool enabled)`

Public Attributes

- int **MinRooms** = 5
Minimum number of rooms in the dungeon.
- int **MaxRooms** = 10
Maximum number of rooms in the dungeon.

7.22.1 Detailed Description

Manages the dungeon layout, room transitions, and player movement between rooms.

This class is responsible for handling the overall structure of the dungeon, including loading rooms, managing room transitions, and keeping track of the player's position within the dungeon.

7.22.2 Member Function Documentation

7.22.2.1 **_EnterTree()**

```
override void DungeonHandler._EnterTree () [inline]
```

Called when the node is added to the scene tree, adds this node to the `dungeon_handler` group.

7.22.2.2 **_ExitTree()**

```
override void DungeonHandler._ExitTree () [inline]
```

7.22.2.3 **_Ready()**

```
override void DungeonHandler._Ready () [inline]
```

Called when the node enters the scene tree for the first time. Initializes the dungeon, player, and room handler, and loads the initial room.

7.22.2.4 **GetCurrentRoomPosition()**

```
Vector2I DungeonHandler.GetCurrentRoomPosition () [inline]
```

Gets the current room position in the dungeon layout.

Returns

The current room position.

7.22.2.5 GetDungeonLayout()

```
Dictionary< Vector2I, Room > DungeonHandler.GetDungeonLayout () [inline]
```

Gets the entire dungeon layout.

Returns

A dictionary representing the dungeon layout.

7.22.2.6 GetGridSize()

```
Vector2 DungeonHandler.GetGridSize () [inline]
```

Gets the grid size of the dungeon.

Returns

The grid size of the dungeon.

7.22.2.7 GetMagicType()

```
MagicType DungeonHandler.GetMagicType () [inline]
```

Gets the magic type of the dungeon.

Returns

The magic type of the dungeon.

7.22.2.8 LoadFirstRoom()

```
void DungeonHandler.LoadFirstRoom () [inline]
```

7.22.2.9 OnDungeonCompleted()

```
void DungeonHandler.OnDungeonCompleted () [inline]
```

Is called after all enemies of the boss room are killed

7.22.2.10 ReloadDungeon()

```
void DungeonHandler.ReloadDungeon () [inline]
```

Reloads the dungeon by relabeling all rooms as not cleared and loading again into the first room

7.22.2.11 SetDungeon()

```
void DungeonHandler.SetDungeon (
    Dungeon dungeon) [inline]
```

Loads a dungeon.

Parameters

| | |
|----------------|---------------------|
| <i>dungeon</i> | The dungeon to set. |
|----------------|---------------------|

7.22.2.12 ToggleQuickClear()

```
void DungeonHandler.ToggleQuickClear (
    bool enabled) [inline]
```

Quickly toggles debug mode.

Parameters

| | |
|----------------|---|
| <i>enabled</i> | True to enable debug mode, false to disable it. |
|----------------|---|

7.22.3 Member Data Documentation**7.22.3.1 MaxRooms**

```
int DungeonHandler.MaxRooms = 10
```

Maximum number of rooms in the dungeon.

7.22.3.2 MinRooms

```
int DungeonHandler.MinRooms = 5
```

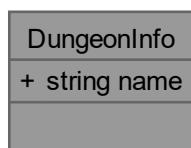
Minimum number of rooms in the dungeon.

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/handlers/[DungeonHandler.cs](#)

7.23 DungeonInfo Class Reference

Collaboration diagram for DungeonInfo:



Properties

- string `name` [get, set]

7.23.1 Property Documentation

7.23.1.1 name

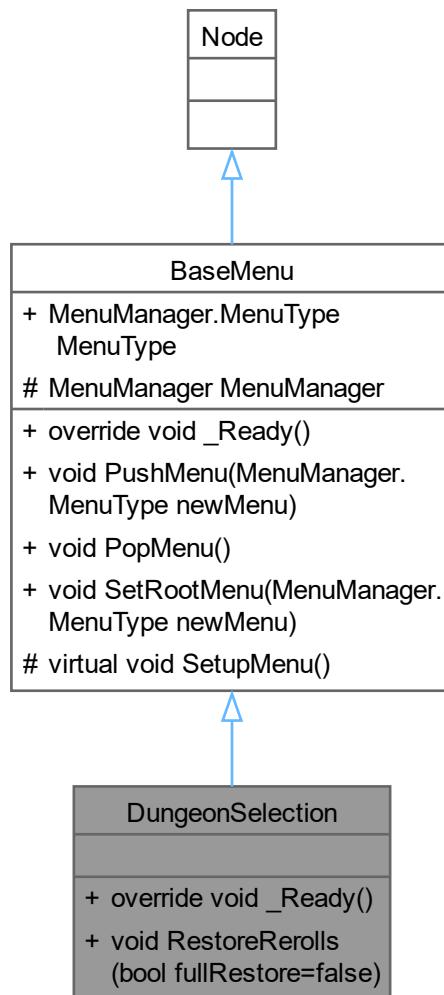
```
string DungeonInfo.name [get], [set]
```

The documentation for this class was generated from the following file:

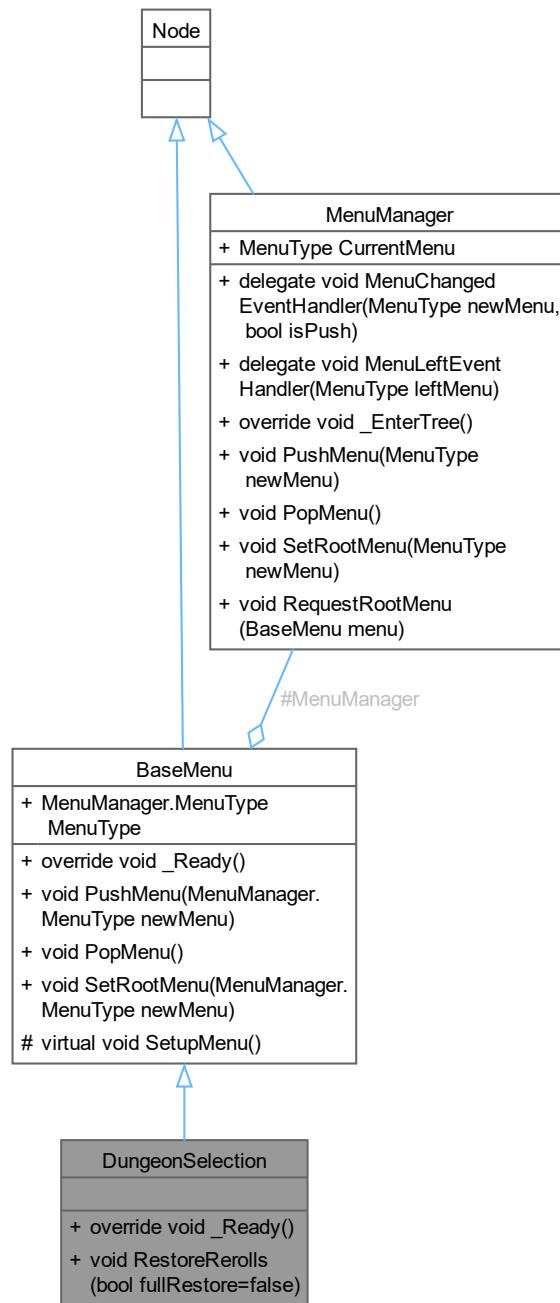
- TheMagicApprentice/modules/ui/dungeon_selection/[DungeonSelection.cs](#)

7.24 DungeonSelection Class Reference

Inheritance diagram for DungeonSelection:



Collaboration diagram for DungeonSelection:



Public Member Functions

- `override void _Ready ()`
- `void RestoreRerolls (bool fullRestore=false)`

Public Member Functions inherited from **BaseMenu**

- `override void _Ready ()`

- void [PushMenu](#) (`MenuManager.MenuType` newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) (`MenuManager.MenuType` newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- `MenuManager` `MenuManager`

Properties inherited from [BaseMenu](#)

- `MenuManager.MenuType` `MenuType` [get, protected set]

7.24.1 Member Function Documentation

7.24.1.1 [_Ready\(\)](#)

```
override void DungeonSelection._Ready () [inline]
```

7.24.1.2 [RestoreRerolls\(\)](#)

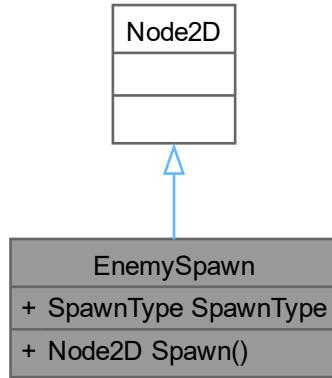
```
void DungeonSelection.RestoreRerolls (
    bool fullRestore = false) [inline]
```

The documentation for this class was generated from the following file:

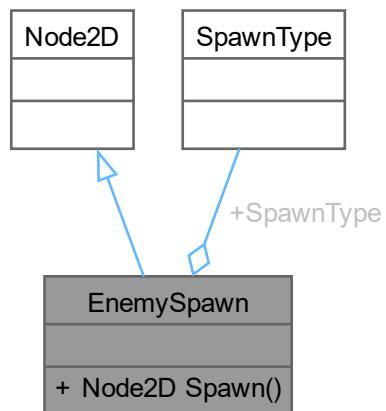
- TheMagicApprentice/modules/ui/dungeon_selection/[DungeonSelection.cs](#)

7.25 EnemySpawn Class Reference

Inheritance diagram for EnemySpawn:



Collaboration diagram for EnemySpawn:



Public Member Functions

- `Node2D Spawn \(\)`

Public Attributes

- `SpawnType SpawnType = SpawnType.RANDOM`

7.25.1 Detailed Description

The [EnemySpawn](#) class represents a node in the room where enemies can be spawned. These nodes are spread around the room and initialized by the [RoomHandler](#). They set the initial values for slimes when they are spawned.

7.25.2 Member Function Documentation

7.25.2.1 Spawn()

```
Node2D EnemySpawn.Spawn () [inline]
```

Spawns a slime enemy at the position of this [EnemySpawn](#) node.

Returns

The spawned slime enemy as a Node2D.

7.25.3 Member Data Documentation

7.25.3.1 SpawnType

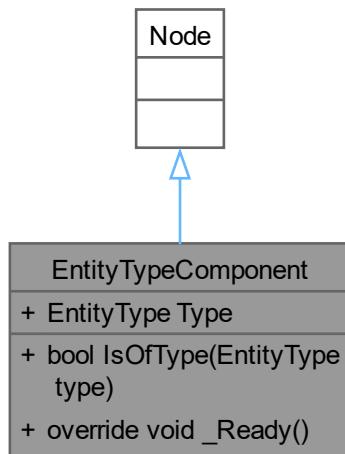
```
SpawnType EnemySpawn.SpawnType = SpawnType.RANDOM
```

The documentation for this class was generated from the following file:

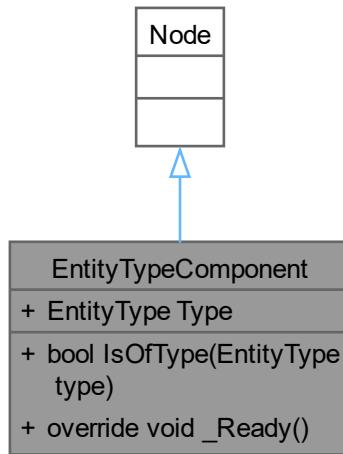
- [TheMagicApprentice/modules/rooms/EnemySpawn.cs](#)

7.26 EntityTypeComponent Class Reference

Inheritance diagram for EntityTypeComponent:



Collaboration diagram for EntityTypeComponent:



Public Types

- enum `EntityType` {

`None = 0` , `Player = 1 << 0` , `Enemy = 1 << 1` , `Boss = 1 << 2` ,

`Projectile = 1 << 3` , `Slime = Enemy | (1 << 4)` , `Unicorn = Enemy | Boss | (1 << 5)` }

Enum for the different types of entities.

Public Member Functions

- bool `IsOfType (EntityType type)`

Checks if the entity is of a specific type.
- override void `_Ready ()`

Called when the node enters the scene tree for the first time.

Properties

- `EntityType Type = EntityType.None [get, set]`

7.26.1 Member Enumeration Documentation

7.26.1.1 EntityType

```
enum EntityTypeComponent.EntityType
```

Enum for the different types of entities.

The different types are None, Player, Enemy, Boss, Projectile, Slime, and Unicorn. This enum uses flags, meaning an entity can be a combination of types. For example, a Slime is both a Slime and an Enemy.

NOTE: This enum is currently not in use. This is a design question if we want to have every relevant node have an EntityTypeComponent. It could be hard to maintain in the future, so it is currently not being used but could be relevant in the future.

Enumerator

| | |
|------------|--|
| None | |
| Player | |
| Enemy | |
| Boss | |
| Projectile | |
| Slime | |
| Unicorn | |

7.26.2 Member Function Documentation**7.26.2.1 _Ready()**

```
override void EntityTypeComponent._Ready () [inline]
```

Called when the node enters the scene tree for the first time.

7.26.2.2 IsOfType()

```
bool EntityTypeComponent.IsOfType (
    EntityType type) [inline]
```

Checks if the entity is of a specific type.

Parameters

| | |
|-------------|---------------------------|
| <i>type</i> | The type to check against |
|-------------|---------------------------|

Returns

True if the entity is of the specified type, false otherwise

7.26.3 Property Documentation**7.26.3.1 Type**

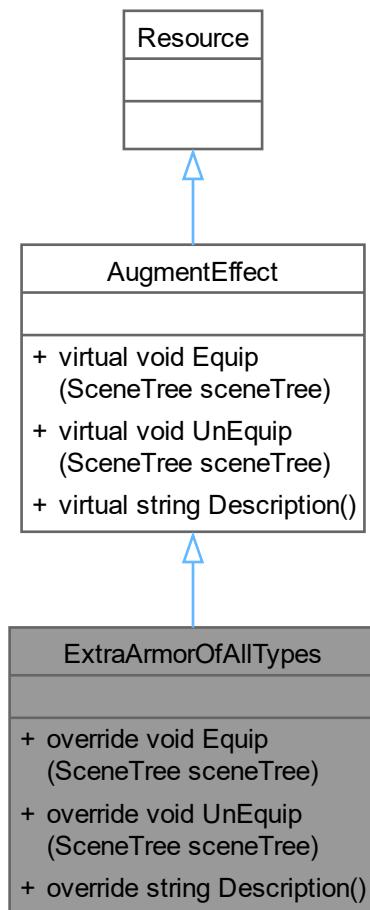
```
EntityType EntityTypeComponent.Type = EntityType.None [get], [set]
```

The documentation for this class was generated from the following file:

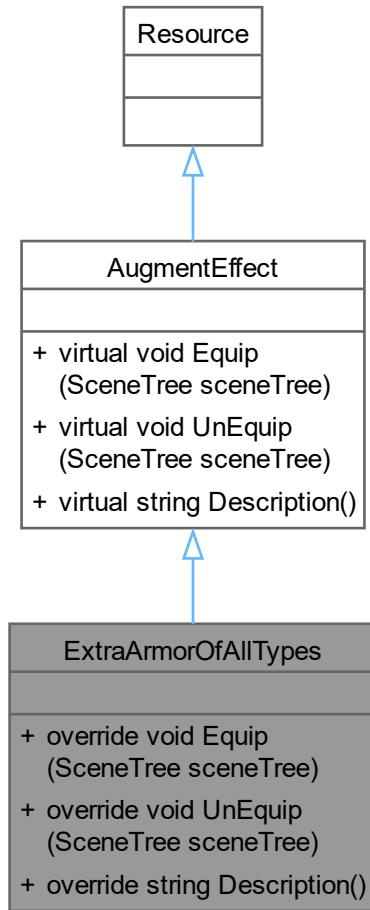
- TheMagicApprentice/modules/entities/[EntityTypeComponent.cs](#)

7.27 ExtraArmorOfAllTypes Class Reference

Inheritance diagram for ExtraArmorOfAllTypes:



Collaboration diagram for ExtraArmorOfAllTypes:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override void [UnEquip](#) (SceneTree sceneTree)
- override string [Description](#) ()

7.27.1 Detailed Description

[AugmentEffect](#) to increase the armor of all types

7.27.2 Member Function Documentation

7.27.2.1 Description()

```
override string ExtraArmorOfAllTypes.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.27.2.2 Equip()

```
override void ExtraArmorOfAllTypes.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Get the players Healthcomponent and modify it

Reimplemented from [AugmentEffect](#).

7.27.2.3 UnEquip()

```
override void ExtraArmorOfAllTypes.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

remember to remove the armor when unequipping the item

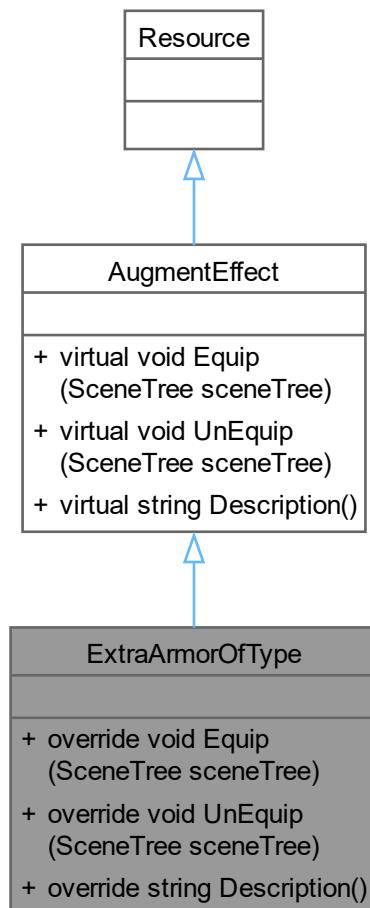
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

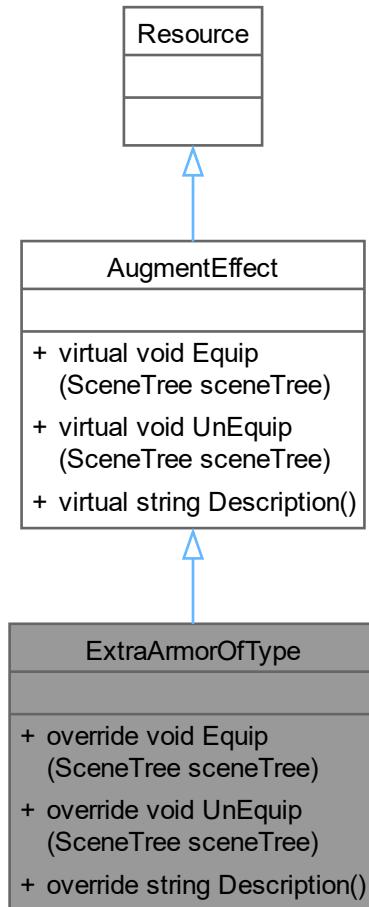
- TheMagicApprentice/modules/augments/augment_effects/[ExtraArmorOfAllTypes.cs](#)

7.28 ExtraArmorOfType Class Reference

Inheritance diagram for ExtraArmorOfType:



Collaboration diagram for ExtraArmorOfType:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override void [UnEquip](#) (SceneTree sceneTree)
- override string [Description](#) ()

7.28.1 Detailed Description

[AugmentEffect](#) to increase the Armor of one magic type

7.28.2 Member Function Documentation

7.28.2.1 Description()

```
override string ExtraArmorOfType.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.28.2.2 Equip()

```
override void ExtraArmorOfType.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Get the players Healthcomponent and modify it

Reimplemented from [AugmentEffect](#).

7.28.2.3 UnEquip()

```
override void ExtraArmorOfType.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

remember to remove the armor when unequipping the item

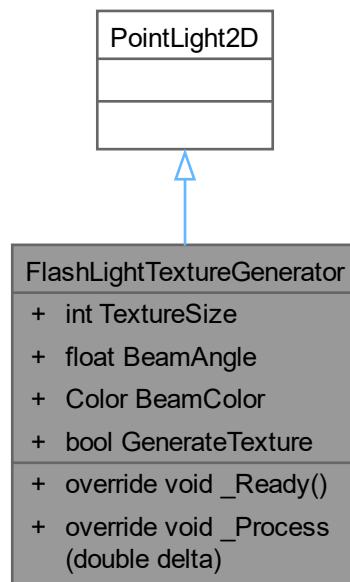
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

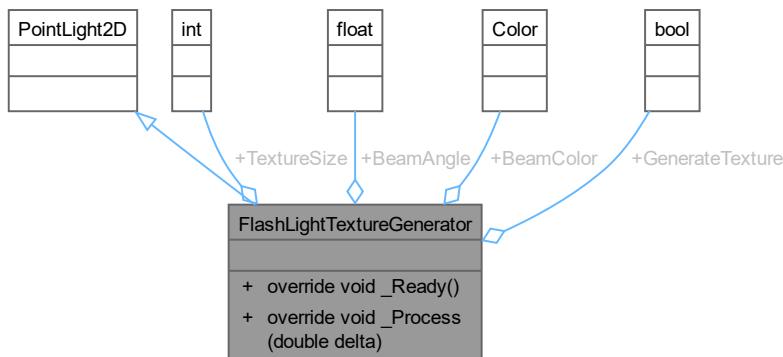
- TheMagicApprentice/modules/augments/augment_effects/[ExtraArmorOfType.cs](#)

7.29 FlashLightTextureGenerator Class Reference

Inheritance diagram for FlashLightTextureGenerator:



Collaboration diagram for FlashLightTextureGenerator:



Public Member Functions

- `override void _Ready()`
- `override void _Process(double delta)`

Public Attributes

- `int TextureSize = 256`
The size of the generated texture in pixels.
- `float BeamAngle = 38.0f`
The angle of the flashlight beam in degrees.
- `Color BeamColor = new Color(1, 1, 1, 1)`
The color of the flashlight beam.
- `bool GenerateTexture = false`
Flag to trigger texture generation in the editor.

7.29.1 Detailed Description

A tool class for generating flashlight textures in the Godot editor. This class extends `PointLight2D` and provides functionality to create custom flashlight beam textures.

7.29.2 Member Function Documentation

7.29.2.1 _Process()

```
override void FlashLightTextureGenerator._Process (
    double delta) [inline]
```

Called every frame to process the node. In the editor, this method checks if texture generation is requested and generates the texture if needed.

7.29.2.2 `_Ready()`

```
override void FlashLightTextureGenerator._Ready () [inline]
```

Called when the node enters the scene tree. Prints a ready message for debugging purposes.

7.29.3 Member Data Documentation

7.29.3.1 `BeamAngle`

```
float FlashLightTextureGenerator.BeamAngle = 38.0f
```

The angle of the flashlight beam in degrees.

7.29.3.2 `BeamColor`

```
Color FlashLightTextureGenerator.BeamColor = new Color(1, 1, 1, 1)
```

The color of the flashlight beam.

7.29.3.3 `GenerateTexture`

```
bool FlashLightTextureGenerator.GenerateTexture = false
```

Flag to trigger texture generation in the editor.

7.29.3.4 `TextureSize`

```
int FlashLightTextureGenerator.TextureSize = 256
```

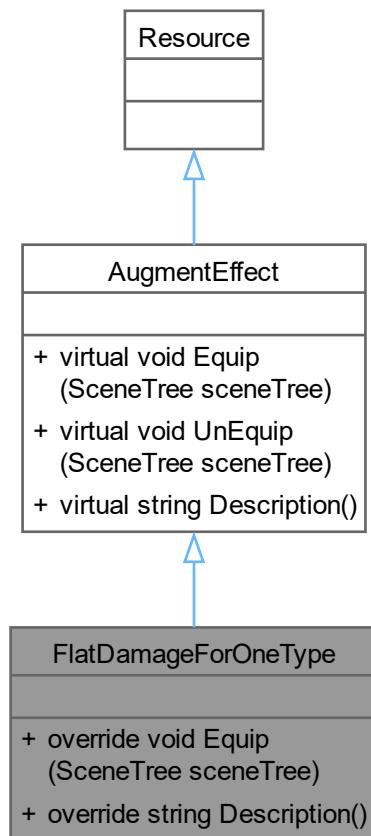
The size of the generated texture in pixels.

The documentation for this class was generated from the following file:

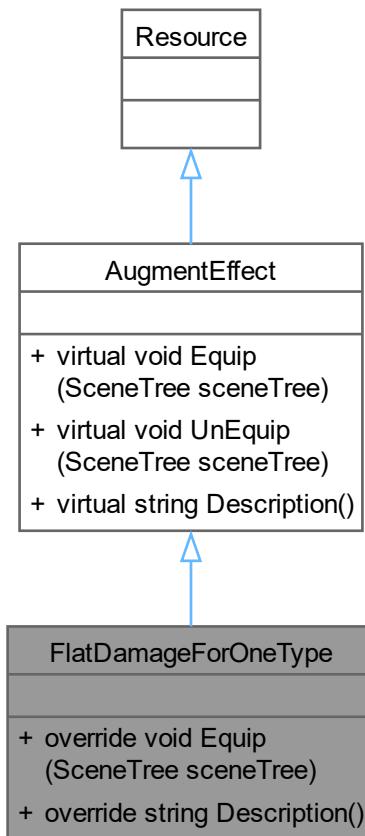
- TheMagicApprentice/modules/entities/player/spells/sun_beam/[FlashLightTextureGenerator.cs](#)

7.30 FlatDamageForOneType Class Reference

Inheritance diagram for FlatDamageForOneType:



Collaboration diagram for FlatDamageForOneType:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override string [Description](#) ()

Public Member Functions inherited from [AugmentEffect](#)

- virtual void [UnEquip](#) (SceneTree sceneTree)

7.30.1 Detailed Description

[AugmentEffect](#) to increase the damage of all spells of a type by a flat amount

7.30.2 Member Function Documentation

7.30.2.1 Description()

```
override string FlatDamageForOneType.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.30.2.2 Equip()

```
override void FlatDamageForOneType.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called whenever the player equips an augment. Gets reference to the current SceneTree in order to access Groups

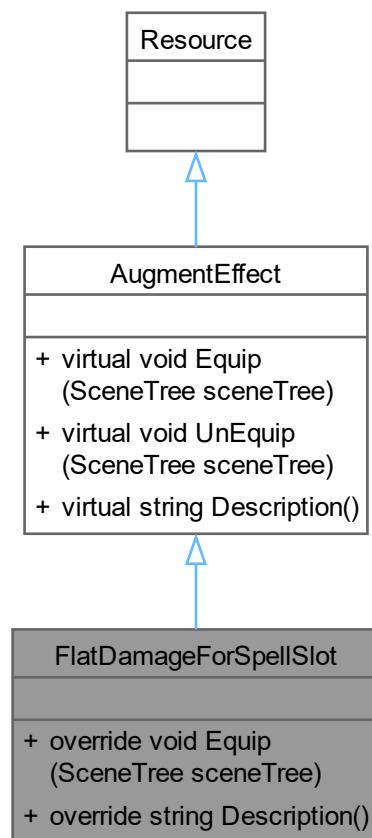
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

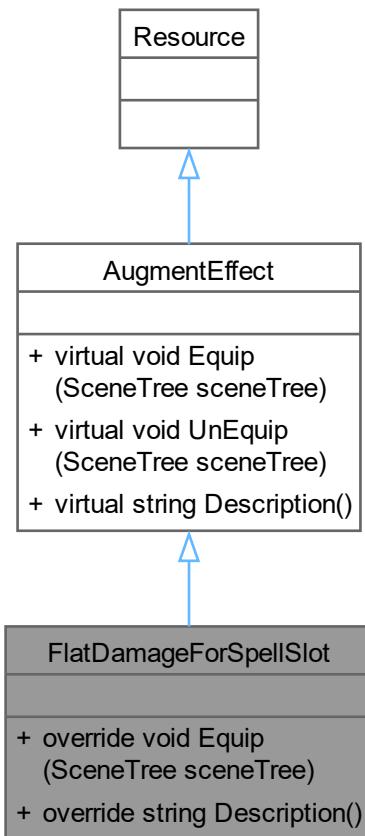
- TheMagicApprentice/modules/augments/augment_effects/[FlatDamageForOneType.cs](#)

7.31 FlatDamageForSpellSlot Class Reference

Inheritance diagram for FlatDamageForSpellSlot:



Collaboration diagram for FlatDamageForSpellSlot:



Public Member Functions

- `override void Equip (SceneTree sceneTree)`
- `override string Description ()`

Public Member Functions inherited from [AugmentEffect](#)

- `virtual void UnEquip (SceneTree sceneTree)`

7.31.1 Detailed Description

[AugmentEffect](#) to increase the damage of all spells in slot `_slot` by a flat amount. (Uses all spells currently in the spell group)

7.31.2 Member Function Documentation

7.31.2.1 Description()

```
override string FlatDamageForSpellSlot.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.31.2.2 Equip()

```
override void FlatDamageForSpellSlot.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called whenever the player equips an augment. Gets reference to the current SceneTree in order to access Groups

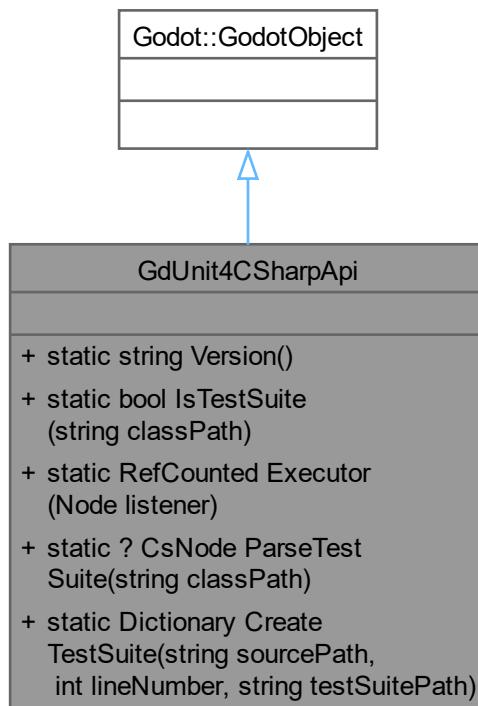
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

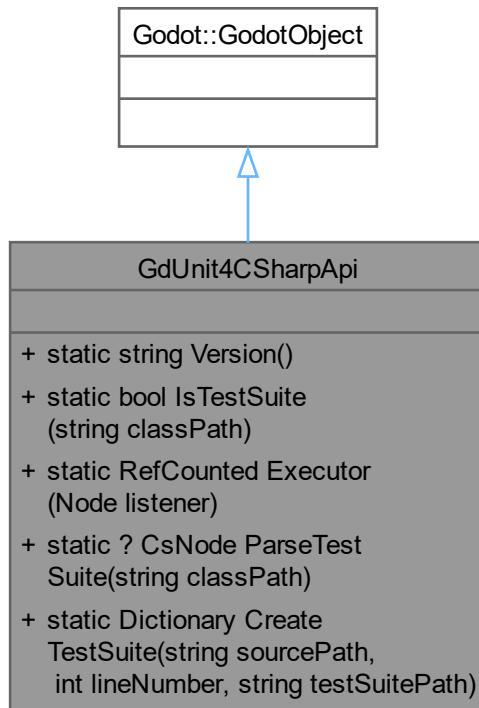
- TheMagicApprentice/modules/augments/augment_effects/[FlatDamageForSpellSlot.cs](#)

7.32 GdUnit4CSharpApi Class Reference

Inheritance diagram for GdUnit4CSharpApi:



Collaboration diagram for GdUnit4CSharpApi:



Static Public Member Functions

- static string [Version \(\)](#)
- static bool [IsTestSuite \(string classPath\)](#)
- static RefCounted [Executor \(Node listener\)](#)
- static ? CsNode [ParseTestSuite \(string classPath\)](#)
- static Dictionary [CreateTestSuite \(string sourcePath, int lineNumber, string testSuitePath\)](#)

7.32.1 Member Function Documentation

7.32.1.1 [CreateTestSuite\(\)](#)

```
static Dictionary GdUnit4CSharpApi.CreateTestSuite (
    string sourcePath,
    int lineNumber,
    string testSuitePath) [static]
```

7.32.1.2 [Executor\(\)](#)

```
static RefCounted GdUnit4CSharpApi.Executor (
    Node listener) [static]
```

7.32.1.3 IsTestSuite()

```
static bool GdUnit4CSharpApi.IsTestSuite (
    string classPath) [static]
```

7.32.1.4 ParseTestSuite()

```
static ? CsNode GdUnit4CSharpApi.ParseTestSuite (
    string classPath) [static]
```

7.32.1.5 Version()

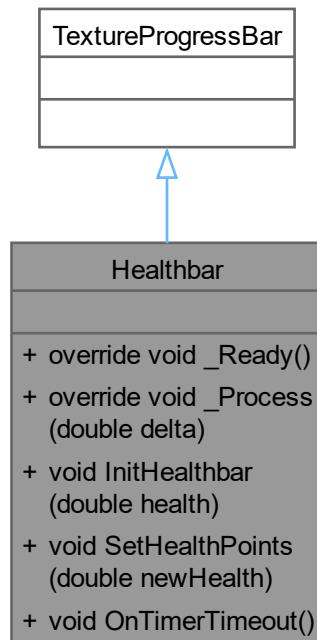
```
static string GdUnit4CSharpApi.Version () [static]
```

The documentation for this class was generated from the following file:

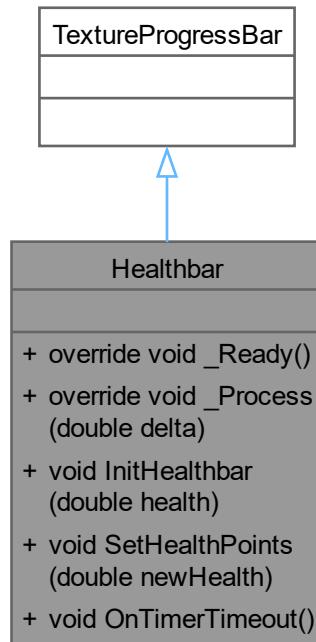
- TheMagicApprentice/addons/gdUnit4/src/mono/[GdUnit4CSharpApi.cs](#)

7.33 Healthbar Class Reference

Inheritance diagram for Healthbar:



Collaboration diagram for Healthbar:



Public Member Functions

- override void [_Ready \(\)](#)
- override void [_Process \(double delta\)](#)
- void [InitHealthbar \(double health\)](#)
- void [SetHealthPoints \(double newHealth\)](#)
- void [OnTimerTimeout \(\)](#)

7.33.1 Detailed Description

Health bar skript

7.33.2 Member Function Documentation

7.33.2.1 [_Process\(\)](#)

```
override void Healthbar._Process (
    double delta) [inline]
```

7.33.2.2 [_Ready\(\)](#)

```
override void Healthbar._Ready () [inline]
```

7.33.2.3 InitHealthbar()

```
void Healthbar.InitHealthbar (
    double health) [inline]
```

7.33.2.4 OnTimerTimeout()

```
void Healthbar.OnTimerTimeout () [inline]
```

7.33.2.5 SetHealthPoints()

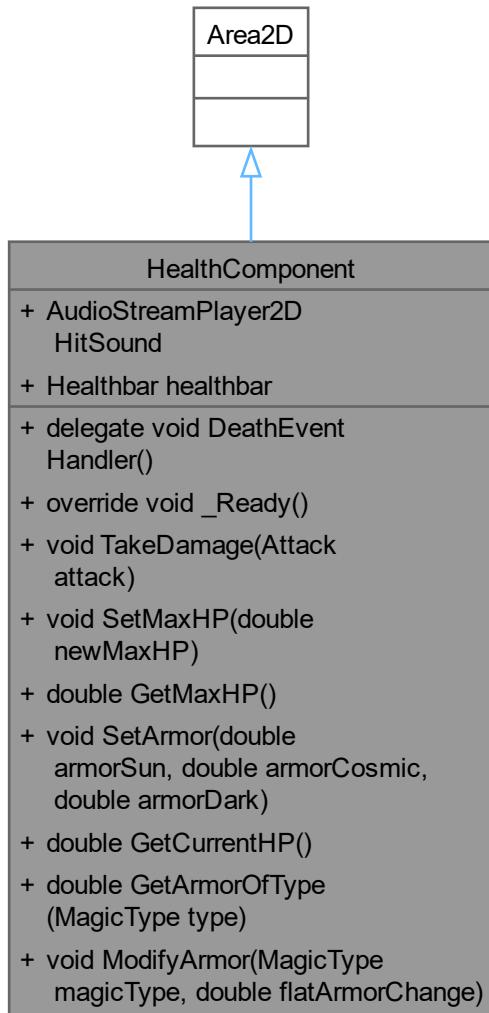
```
void Healthbar.SetHealthPoints (
    double newHealth) [inline]
```

The documentation for this class was generated from the following file:

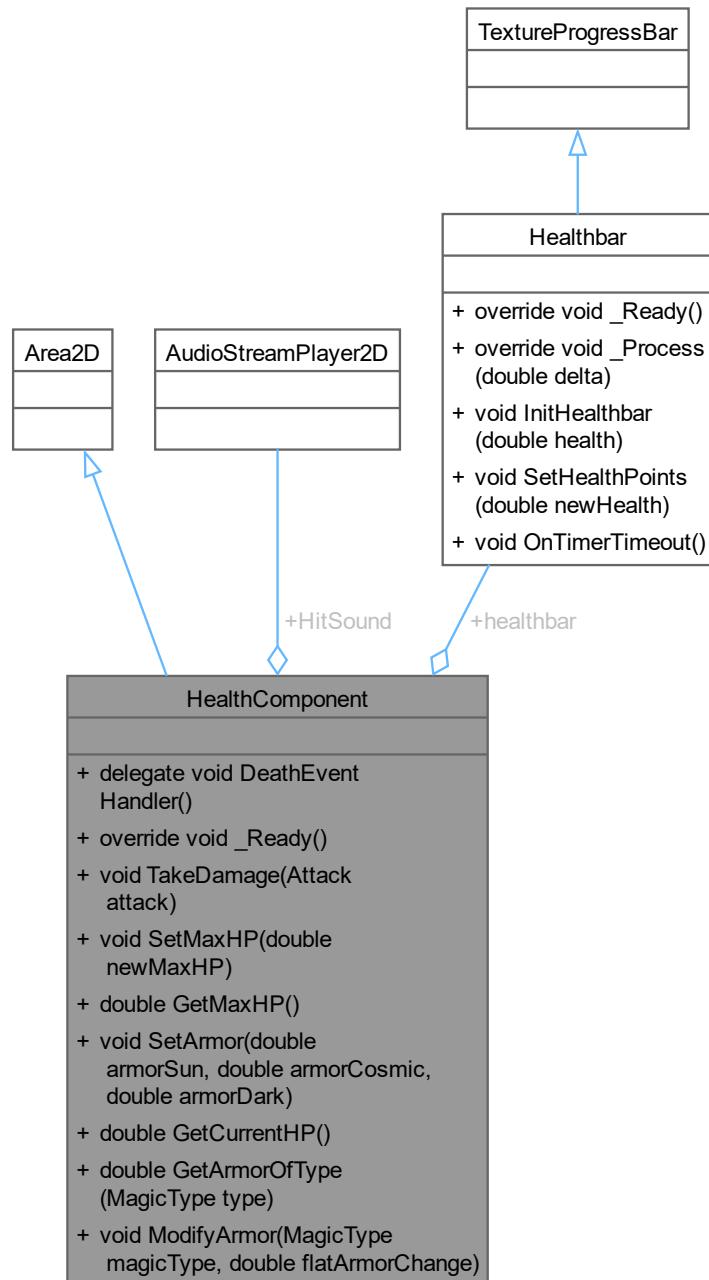
- TheMagicApprentice/modules/entities/healthbar/[Healthbar.cs](#)

7.34 HealthComponent Class Reference

Inheritance diagram for HealthComponent:



Collaboration diagram for HealthComponent:



Public Member Functions

- delegate void `DeathEventHandler ()`
Signal that gets emitted if the entities health reaches 0.
- override void `_Ready ()`
- void `TakeDamage (Attack attack)`
- void `SetMaxHP (double newMaxHP)`

- double `GetMaxHP ()`
- void `SetArmor` (double armorSun, double armorCosmic, double armorDark)
- double `GetCurrentHP ()`
- double `GetArmorOfType` (`MagicType` type)
- void `ModifyArmor` (`MagicType` magicType, double flatArmorChange)

Public Attributes

- `AudioStreamPlayer2D HitSound`
Reference to the AudioStreamPlayer2D that plays the hit sound. Can be null. If it is null, it is ignored.
- `Healthbar healthbar`

7.34.1 Member Function Documentation

7.34.1.1 `_Ready()`

```
override void HealthComponent._Ready () [inline]
```

During initialization we set the currentHP to the MaxHP

7.34.1.2 `DeathEventHandler()`

```
delegate void HealthComponent.DeathEventHandler ()
```

Signal that gets emitted if the entities health reaches 0.

7.34.1.3 `GetArmorOfType()`

```
double HealthComponent.GetArmorOfType (
    MagicType type) [inline]
```

Returns the armor of the MagicType. Is only used by tests

7.34.1.4 `GetCurrentHP()`

```
double HealthComponent.GetCurrentHP () [inline]
```

Getter for CurrentHP. Is only used by tests

7.34.1.5 `GetMaxHP()`

```
double HealthComponent.GetMaxHP () [inline]
```

Getter for MaxHP

7.34.1.6 ModifyArmor()

```
void HealthComponent.ModifyArmor (
    MagicType magicType,
    double flatArmorChange) [inline]
```

Modify the armor for one element by addition

7.34.1.7 SetArmor()

```
void HealthComponent.SetArmor (
    double armorSun,
    double armorCosmic,
    double armorDark) [inline]
```

Setter for Armor

7.34.1.8 SetMaxHP()

```
void HealthComponent.SetMaxHP (
    double newMaxHP) [inline]
```

Setter for MaxHP. Also automatically resets CurrentHP since this function is only called outside dungeon

7.34.1.9 TakeDamage()

```
void HealthComponent.TakeDamage (
    Attack attack) [inline]
```

Gets called whenever the hitbox of the Healthcomponent collides with a hurtbox. Processes the [Attack](#) and if currentHP reaches zero emits the signal Death.

7.34.2 Member Data Documentation

7.34.2.1 healthbar

[Healthbar](#) HealthComponent.healthbar

7.34.2.2 HitSound

[AudioStreamPlayer2D](#) HealthComponent.HitSound

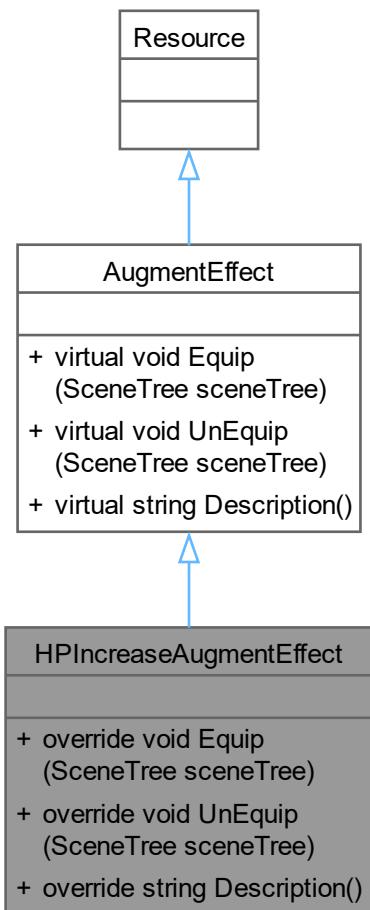
Reference to the AudioStreamPlayer2D that plays the hit sound. Can be null. If it is null, it is ignored.

The documentation for this class was generated from the following file:

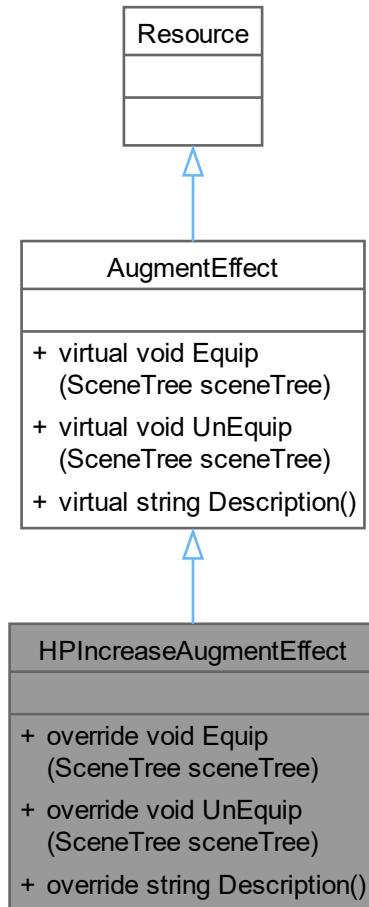
- TheMagicApprentice/modules/entities/[HealthComponent.cs](#)

7.35 HPIIncreaseAugmentEffect Class Reference

Inheritance diagram for HPIIncreaseAugmentEffect:



Collaboration diagram for HPIncreaseAugmentEffect:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override void [UnEquip](#) (SceneTree sceneTree)
- override string [Description](#) ()

7.35.1 Detailed Description

[AugmentEffect](#) to increase the HP of player by percentage

7.35.2 Member Function Documentation

7.35.2.1 Description()

```
override string HPIncreaseAugmentEffect.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.35.2.2 Equip()

```
override void HPIncreaseAugmentEffect.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Get the players Healthcomponent and modify it

Reimplemented from [AugmentEffect](#).

7.35.2.3 UnEquip()

```
override void HPIncreaseAugmentEffect.UnEquip (
    SceneTree sceneTree) [inline], [virtual]
```

remember to remove the armor when unequipping the item

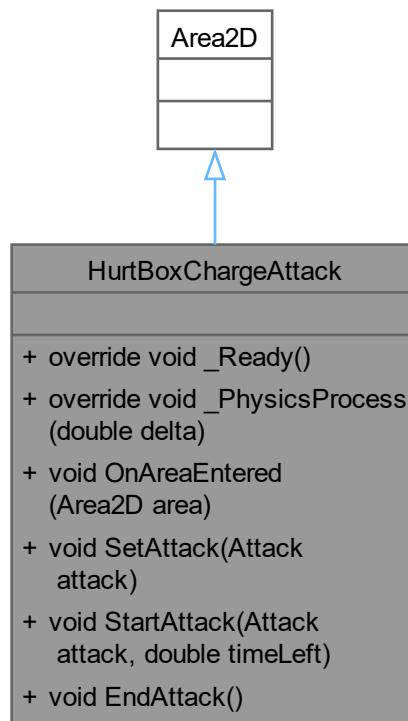
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

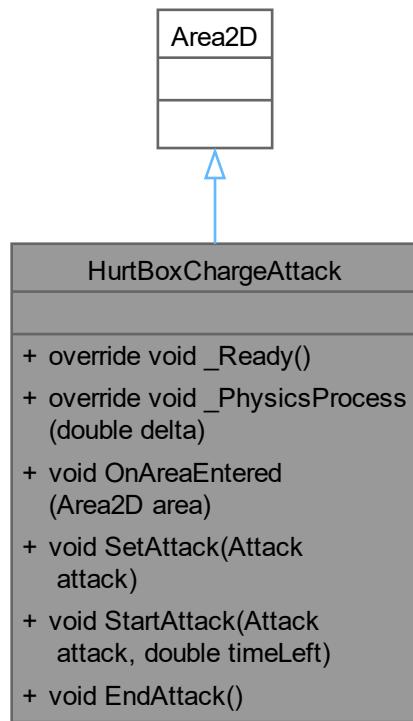
- TheMagicApprentice/modules/augments/augment_effects/[HPIncreaseAugmentEffect.cs](#)

7.36 HurtBoxChargeAttack Class Reference

Inheritance diagram for HurtBoxChargeAttack:



Collaboration diagram for HurtBoxChargeAttack:



Public Member Functions

- `override void _Ready ()`
- `override void _PhysicsProcess (double delta)`
- `void OnAreaEntered (Area2D area)`
- `void SetAttack (Attack attack)`
- `void StartAttack (Attack attack, double timeLeft)`
- `void EndAttack ()`

7.36.1 Member Function Documentation

7.36.1.1 `_PhysicsProcess()`

```
override void HurtBoxChargeAttack._PhysicsProcess (
    double delta) [inline]
```

Count down the time left in the charge attack state. When the charge attack is over, end the attack.

7.36.1.2 _Ready()

```
override void HurtBoxChargeAttack._Ready () [inline]
```

Monitoring is set to false so that the collisions from unicorn and PC only damage the PC if the unicorn is performing an attack.

7.36.1.3 EndAttack()

```
void HurtBoxChargeAttack.EndAttack () [inline]
```

When the attack is ended, disable the monitoring again so that the player cannot be hurt.

7.36.1.4 OnAreaEntered()

```
void HurtBoxChargeAttack.OnAreaEntered (
    Area2D area) [inline]
```

The unicorn should only be able to detect collisions with the PC. If the unicorn collides with the PC, the damage function is called. The player can be hit by the unicorns charge attack several times -> invincibility frames for the player will probably be necessary.

7.36.1.5 SetAttack()

```
void HurtBoxChargeAttack.SetAttack (
    Attack attack) [inline]
```

Attack is currently set from the Attacking state in the ranged attack function, so right before the attack is made.

7.36.1.6 StartAttack()

```
void HurtBoxChargeAttack.StartAttack (
    Attack attack,
    double timeLeft) [inline]
```

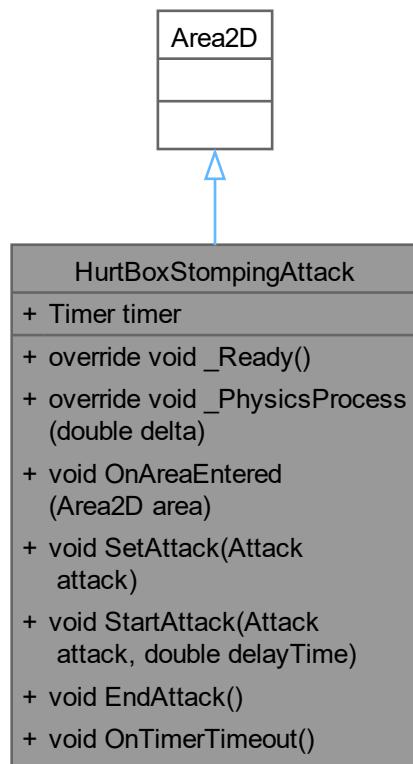
Start attack begins the attack by setting the attack and enabling monitoring such that collisions with the player can be detected. The time left is also set to track how long the unicorn will remain in the attack state.

The documentation for this class was generated from the following file:

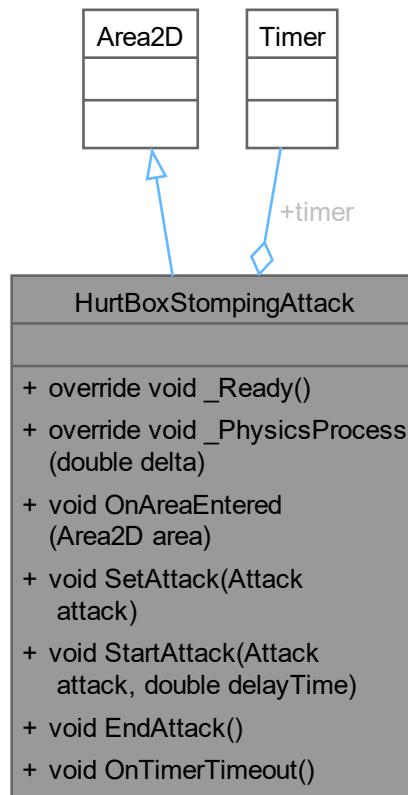
- TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/[HurtBoxChargeAttack.cs](#)

7.37 HurtBoxStompingAttack Class Reference

Inheritance diagram for HurtBoxStompingAttack:



Collaboration diagram for HurtBoxStompingAttack:



Public Member Functions

- `override void _Ready()`
- `override void _PhysicsProcess(double delta)`
- `void OnAreaEntered(Area2D area)`
- `void SetAttack(Attack attack)`
- `void StartAttack(Attack attack, double delayTime)`
- `void EndAttack()`
- `void OnTimerTimeout()`

Public Attributes

- `Timer timer`

timer used to track the delay time of the stomping attack (damage should only be applied when the unicorn hits the ground)

7.37.1 Member Function Documentation

7.37.1.1 `_PhysicsProcess()`

```
override void HurtBoxStompingAttack._PhysicsProcess (
    double delta) [inline]
```

Count down the time left in which the hurtbox should stay active. When the time is up end the attack (disable the hurtbox).

7.37.1.2 `_Ready()`

```
override void HurtBoxStompingAttack._Ready () [inline]
```

Monitoring is set to false so that the collisions from unicorn and PC only damage the PC if the unicorn is performing an attack.

7.37.1.3 `EndAttack()`

```
void HurtBoxStompingAttack.EndAttack () [inline]
```

When the attack is ended, disable the monitoring again so that the player cannot be hurt.

7.37.1.4 `OnAreaEntered()`

```
void HurtBoxStompingAttack.OnAreaEntered (
    Area2D area) [inline]
```

The unicorn should only be able to detect collisions with the PC. If the unicorns hurtbox on the ground collides with the PC, the damage function is called. The player can only be hit once by the stomping attack, so the attack ends when the player was damaged.

7.37.1.5 `OnTimerTimeout()`

```
void HurtBoxStompingAttack.OnTimerTimeout () [inline]
```

The timer ends when the unicorn hits the floor with its hooves. Then the damage should be applied in the area around the unicorn. Therefore the Hurtbox is activated when the timer runs out and a short period of time is set, in which the hurtbox is active.

7.37.1.6 `SetAttack()`

```
void HurtBoxStompingAttack.SetAttack (
    Attack attack) [inline]
```

`Attack` is currently set from the Attacking state in the ranged attack function, so right before the attack is made.

7.37.1.7 StartAttack()

```
void HurtBoxStompingAttack.StartAttack (
    Attack attack,
    double delayTime) [inline]
```

Start attack begins the attack by setting the attack. Also sets the timer to the delay time, after which the damage phase of the attack begins. Starts the timer.

7.37.2 Member Data Documentation

7.37.2.1 timer

```
Timer HurtBoxStompingAttack.timer
```

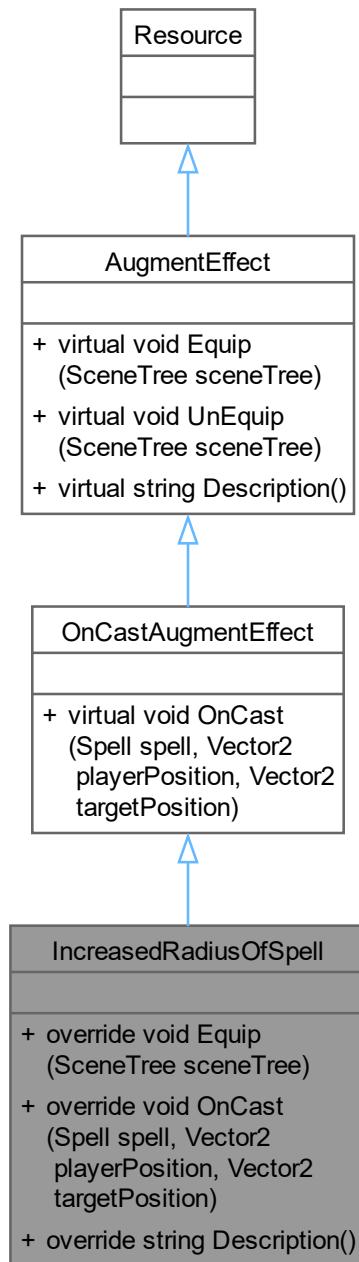
timer used to track the delay time of the stomping attack (damage should only be applied when the unicorn hits the ground)

The documentation for this class was generated from the following file:

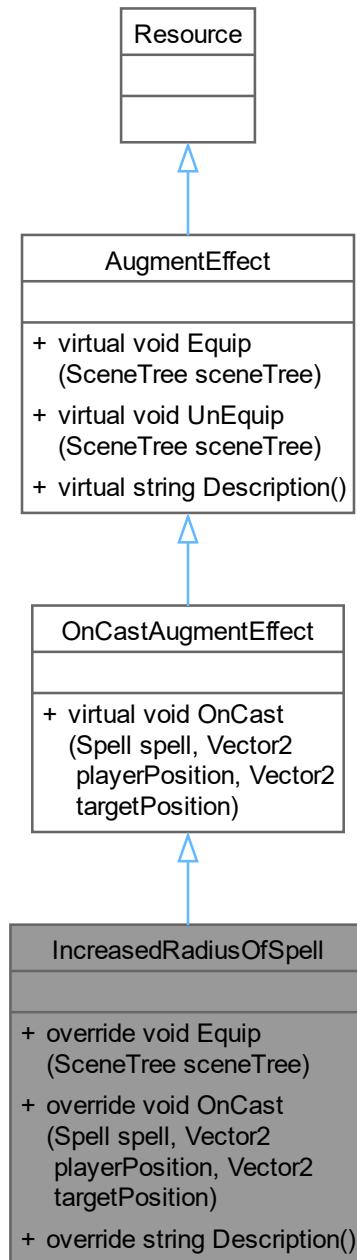
- [TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/HurtBoxStompingAttack.cs](#)

7.38 IncreasedRadiusOfSpell Class Reference

Inheritance diagram for IncreasedRadiusOfSpell:



Collaboration diagram for IncreasedRadiusOfSpell:



Public Member Functions

- override void [Equip](#) (SceneTree sceneTree)
- override void [OnCast](#) (Spell spell, Vector2 playerPosition, Vector2 targetPosition)
- override string [Description](#) ()

Public Member Functions inherited from [AugmentEffect](#)

- virtual void [UnEquip](#) (SceneTree sceneTree)

7.38.1 Detailed Description

[AugmentEffect](#) to increase the radius of a spell

7.38.2 Member Function Documentation

7.38.2.1 Description()

```
override string IncreasedRadiusOfSpell.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.38.2.2 Equip()

```
override void IncreasedRadiusOfSpell.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Adds itself to the OnCastAugment List of the correct Inventory spell

Reimplemented from [AugmentEffect](#).

7.38.2.3 OnCast()

```
override void IncreasedRadiusOfSpell.OnCast (
    Spell spell,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Increases the size of the spell

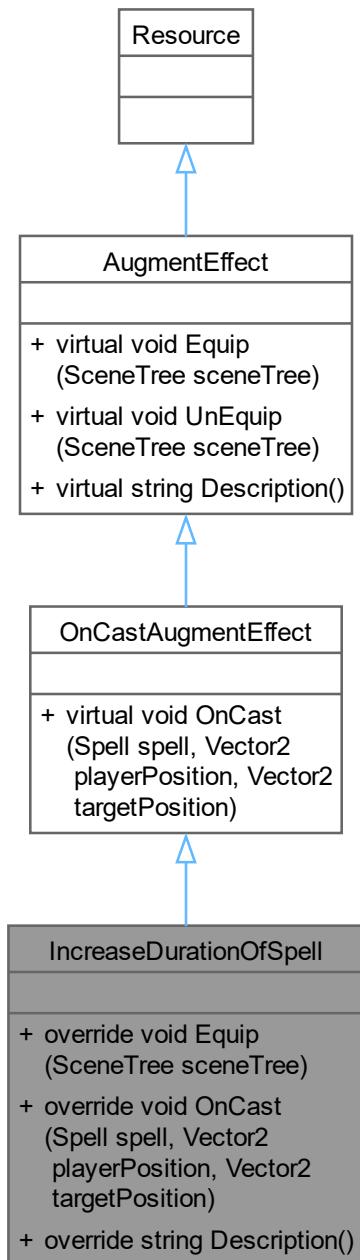
Reimplemented from [OnCastAugmentEffect](#).

The documentation for this class was generated from the following file:

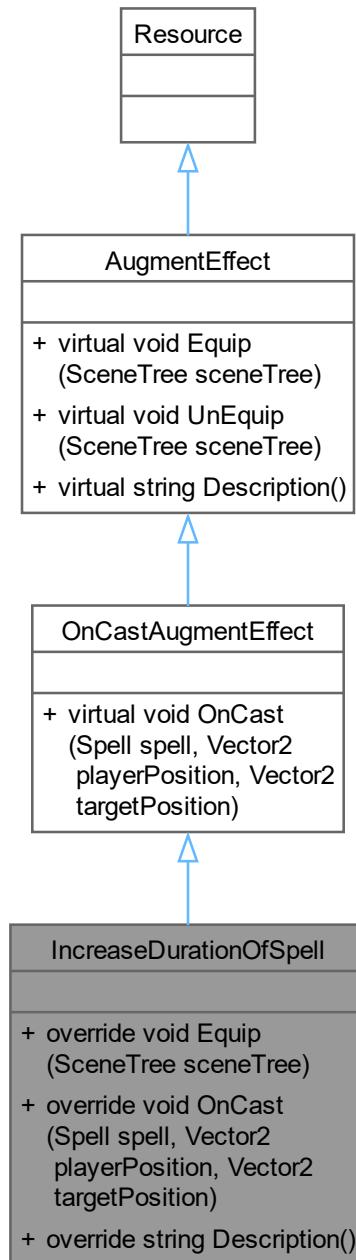
- TheMagicApprentice/modules/augments/augment_effects/[IncreasedRadiusOfSpell.cs](#)

7.39 IncreaseDurationOfSpell Class Reference

Inheritance diagram for IncreaseDurationOfSpell:



Collaboration diagram for IncreaseDurationOfSpell:



Public Member Functions

- `override void Equip (SceneTree sceneTree)`
- `override void OnCast (Spell spell, Vector2 playerPosition, Vector2 targetPosition)`
- `override string Description ()`

Public Member Functions inherited from [AugmentEffect](#)

- virtual void [UnEquip](#) (SceneTree sceneTree)

7.39.1 Detailed Description

[AugmentEffect](#) to increase the duration of a spell

7.39.2 Member Function Documentation

7.39.2.1 Description()

```
override string IncreaseDurationOfSpell.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.39.2.2 Equip()

```
override void IncreaseDurationOfSpell.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

Adds itself to the OnCastAugment List of the correct Inventory spell

Reimplemented from [AugmentEffect](#).

7.39.2.3 OnCast()

```
override void IncreaseDurationOfSpell.OnCast (
    Spell spell,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Increases the duration of the spell

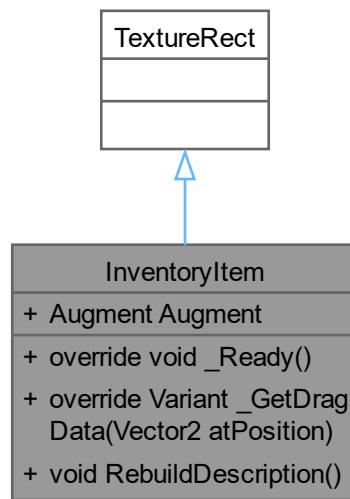
Reimplemented from [OnCastAugmentEffect](#).

The documentation for this class was generated from the following file:

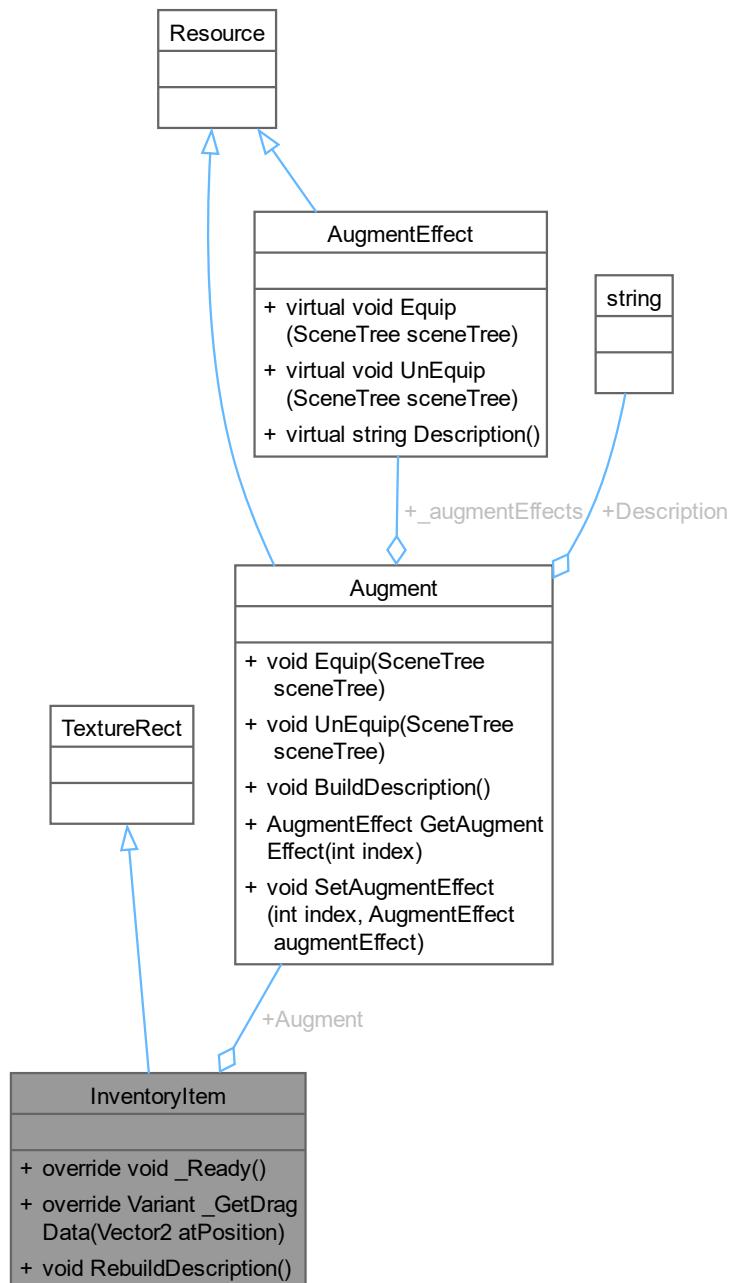
- TheMagicApprentice/modules/augments/augment_effects/[IncreaseDurationOfSpell.cs](#)

7.40 InventoryItem Class Reference

Inheritance diagram for InventoryItem:



Collaboration diagram for InventoryItem:



Public Member Functions

- `override void _Ready()`
- `override Variant _GetDragData(Vector2 atPosition)`
- `void RebuildDescription()`

Public Attributes

- [Augment](#) [Augment](#)

Reference to the [Augment](#).

7.40.1 Detailed Description

This class is responsible for the items inside the inventory. It contains the [Augment](#) as a variable. This is basically a wrapper for Augments so that they can be used as Items inside the inventory

7.40.2 Member Function Documentation

7.40.2.1 [_GetDragData\(\)](#)

```
override Variant InventoryItem._GetDragData (
    Vector2 atPosition) [inline]
```

Used by the engine for drag and drop. Creates the drag preview image the is moved with the mouse

7.40.2.2 [_Ready\(\)](#)

```
override void InventoryItem._Ready () [inline]
```

When adding the Item to the tree we set the settings, texture and Tooltip

7.40.2.3 [RebuildDescription\(\)](#)

```
void InventoryItem.RebuildDescription () [inline]
```

Rebuild the description of the [Augment](#) and set the tooltiptext

7.40.3 Member Data Documentation

7.40.3.1 [Augment](#)

[Augment](#) [InventoryItem.Augment](#)

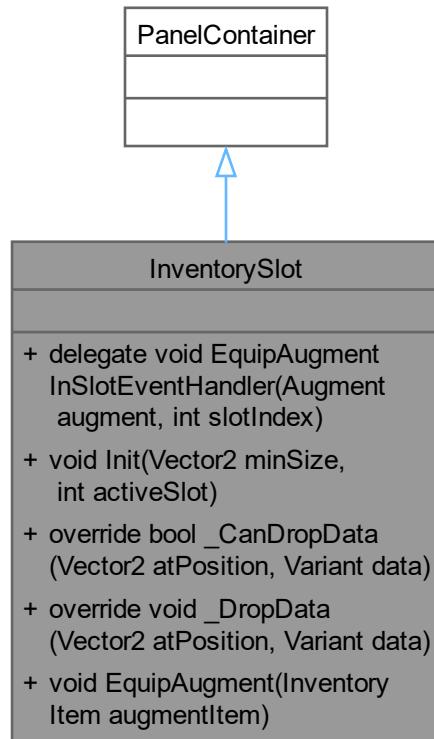
Reference to the [Augment](#).

The documentation for this class was generated from the following file:

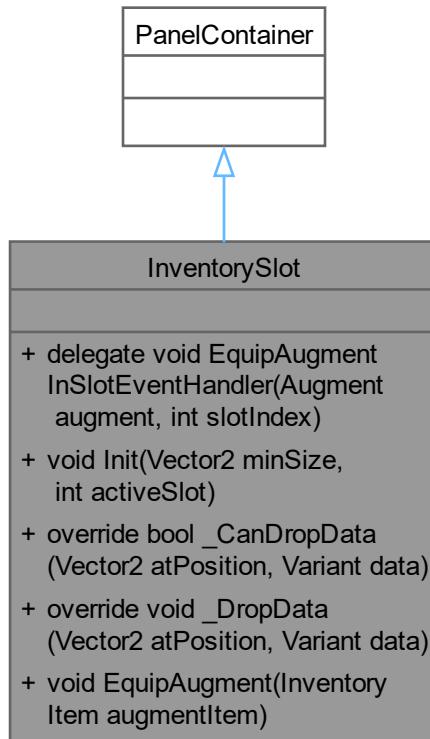
- TheMagicApprentice/modules/entities/player/inventory/augments/[InventoryItem.cs](#)

7.41 InventorySlot Class Reference

Inheritance diagram for InventorySlot:



Collaboration diagram for InventorySlot:



Public Member Functions

- delegate void [EquipAugmentInSlotEventHandler](#) ([Augment](#) augment, int slotIndex)
Signal that gets emitted if the entities health reaches 0.
- void [Init](#) (Vector2 minSize, int activeSlot)
- override bool [_CanDropData](#) (Vector2 atPosition, Variant data)
- override void [_DropData](#) (Vector2 atPosition, Variant data)
- void [EquipAugment](#) ([InventoryItem](#) augmentItem)

7.41.1 Detailed Description

The [InventorySlot](#) class. An inventorySlot contains an item, if it has a child. Which is then the item it contains. Uses Godots internal [_CanDropData](#) and [_DropData](#) function to handle the drag and drop logic

7.41.2 Member Function Documentation

7.41.2.1 [_CanDropData\(\)](#)

```
override bool InventorySlot._CanDropData (
    Vector2 atPosition,
    Variant data) [inline]
```

Return true if data is an [InventoryItem](#)

7.41.2.2 `_DropData()`

```
override void InventorySlot._DropData (
    Vector2 atPosition,
    Variant data) [inline]
```

Reparent the [InventoryItem](#) to this slot. In case there was another [InventoryItem](#) in the slot, they switch places

7.41.2.3 `EquipAugment()`

```
void InventorySlot.EquipAugment (
    InventoryItem augmentItem) [inline]
```

Reparent the [InventoryItem](#) and emit the signal `EquipAugmentInSlot`

7.41.2.4 `EquipAugmentInSlotEventHandler()`

```
delegate void InventorySlot.EquipAugmentInSlotEventHandler (
    Augment augment,
    int slotIndex)
```

Signal that gets emitted if the entities health reaches 0.

7.41.2.5 `Init()`

```
void InventorySlot.Init (
    Vector2 minSize,
    int activeSlot) [inline]
```

Initialize the data of the [InventorySlot](#)

Parameters

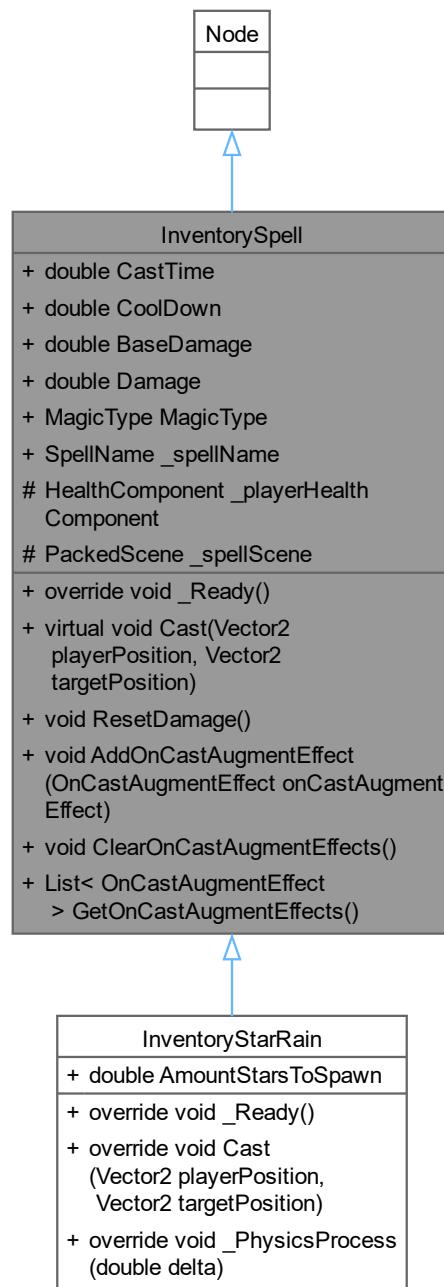
| | |
|----------------------|---|
| <code>minSize</code> | determines the minimum size of the slot |
| <code>active</code> | sets <code>_activeAugmentSlot</code> |

The documentation for this class was generated from the following file:

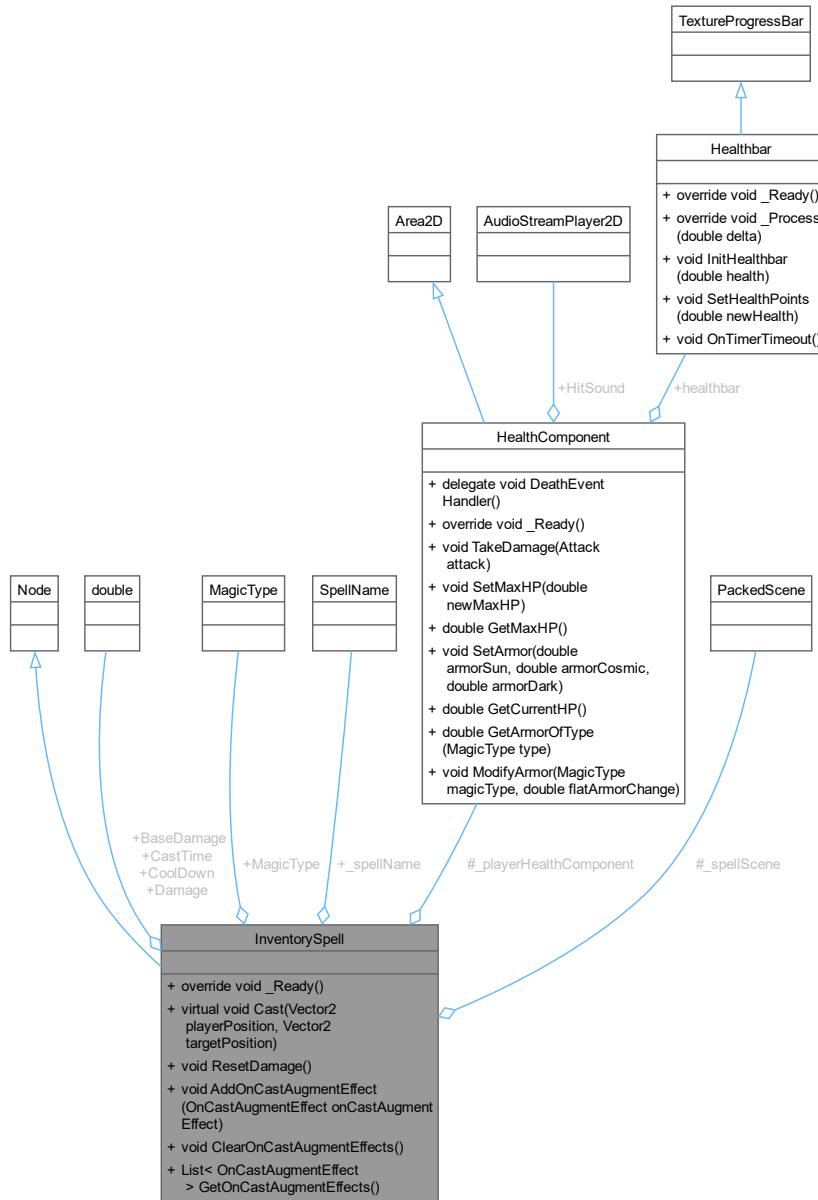
- TheMagicApprentice/modules/entities/player/inventory/augments/[InventorySlot.cs](#)

7.42 InventorySpell Class Reference

Inheritance diagram for InventorySpell:



Collaboration diagram for InventorySpell:



Public Member Functions

- `override void _Ready ()`
- `virtual void Cast (Vector2 playerPosition, Vector2 targetPosition)`
- `void ResetDamage ()`
- `void AddOnCastAugmentEffect (OnCastAugmentEffect onCastAugmentEffect)`
- `void ClearOnCastAugmentEffects ()`
- `List< OnCastAugmentEffect > GetOnCastAugmentEffects ()`

Public Attributes

- double **CastTime** = 0.2
How long it takes to cast the spell.
- double **CoolDown** = 0.5
How long until the spell can be used again.
- double **BaseDamage** = 60
base damage of the skill
- double **Damage**
actual damage of the spell
- **MagicType MagicType** = **MagicType.SUN**
Magic type of the spell.
- **SpellName _spellName**
Name of the spell to cast.

Protected Attributes

- **HealthComponent _playerHealthComponent**
*Reference to the players **HealthComponent**.*
- **PackedScene _spellScene**

7.42.1 Detailed Description

Base class for all spells inside the inventory

7.42.2 Member Function Documentation**7.42.2.1 Ready()**

```
override void InventorySpell._Ready () [inline]
```

call **ResetDamage** in order to set **Damage** to **BaseDamage**. Adds the spell to the correct base groups depending on the **MagicType**

7.42.2.2 AddOnCastAugmentEffect()

```
void InventorySpell.AddOnCastAugmentEffect (
    OnCastAugmentEffect onCastAugmentEffect) [inline]
```

add an **OnCastAugmentEffect**

7.42.2.3 Cast()

```
virtual void InventorySpell.Cast (
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Casts the spell by instanciating the scene and initializing the spell playerPosition and targetPosition are both global coordinates

Reimplemented in [InventoryStarRain](#).

7.42.2.4 ClearOnCastAugmentEffects()

```
void InventorySpell.ClearOnCastAugmentEffects () [inline]
```

Empties the List of OnCastAugmentEffects

7.42.2.5 GetOnCastAugmentEffects()

```
List< OnCastAugmentEffect > InventorySpell.GetOnCastAugmentEffects () [inline]
```

Getter for OnCastAugmentEffects. Used by tests only

7.42.2.6 ResetDamage()

```
void InventorySpell.ResetDamage () [inline]
```

Reset Damage to BaseDamage

7.42.3 Member Data Documentation

7.42.3.1 _playerHealthComponent

```
HealthComponent InventorySpell._playerHealthComponent [protected]
```

Reference to the players [HealthComponent](#).

7.42.3.2 _spellName

```
SpellName InventorySpell._spellName
```

Name of the spell to cast.

7.42.3.3 _spellScene

```
PackedScene InventorySpell._spellScene [protected]
```

7.42.3.4 BaseDamage

```
double InventorySpell.BaseDamage = 60
```

base damage of the skill

7.42.3.5 CastTime

```
double InventorySpell.CastTime = 0.2
```

How long it takes to cast the spell.

7.42.3.6 CoolDown

```
double InventorySpell.CoolDown = 0.5
```

How long until the spell can be used again.

7.42.3.7 Damage

```
double InventorySpell.Damage
```

actual damage of the spell

7.42.3.8 MagicType

```
MagicType InventorySpell.MagicType = MagicType.SUN
```

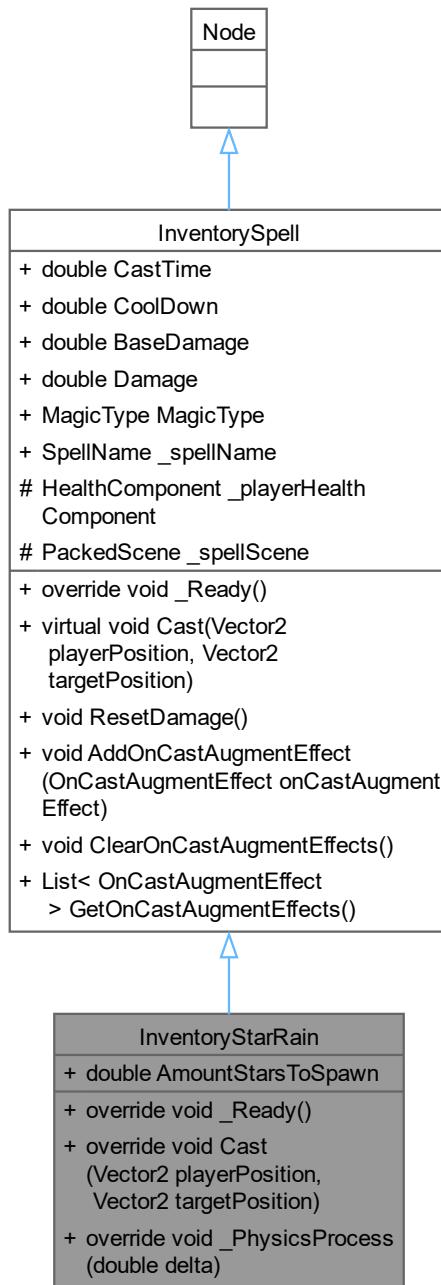
Magic type of the spell.

The documentation for this class was generated from the following file:

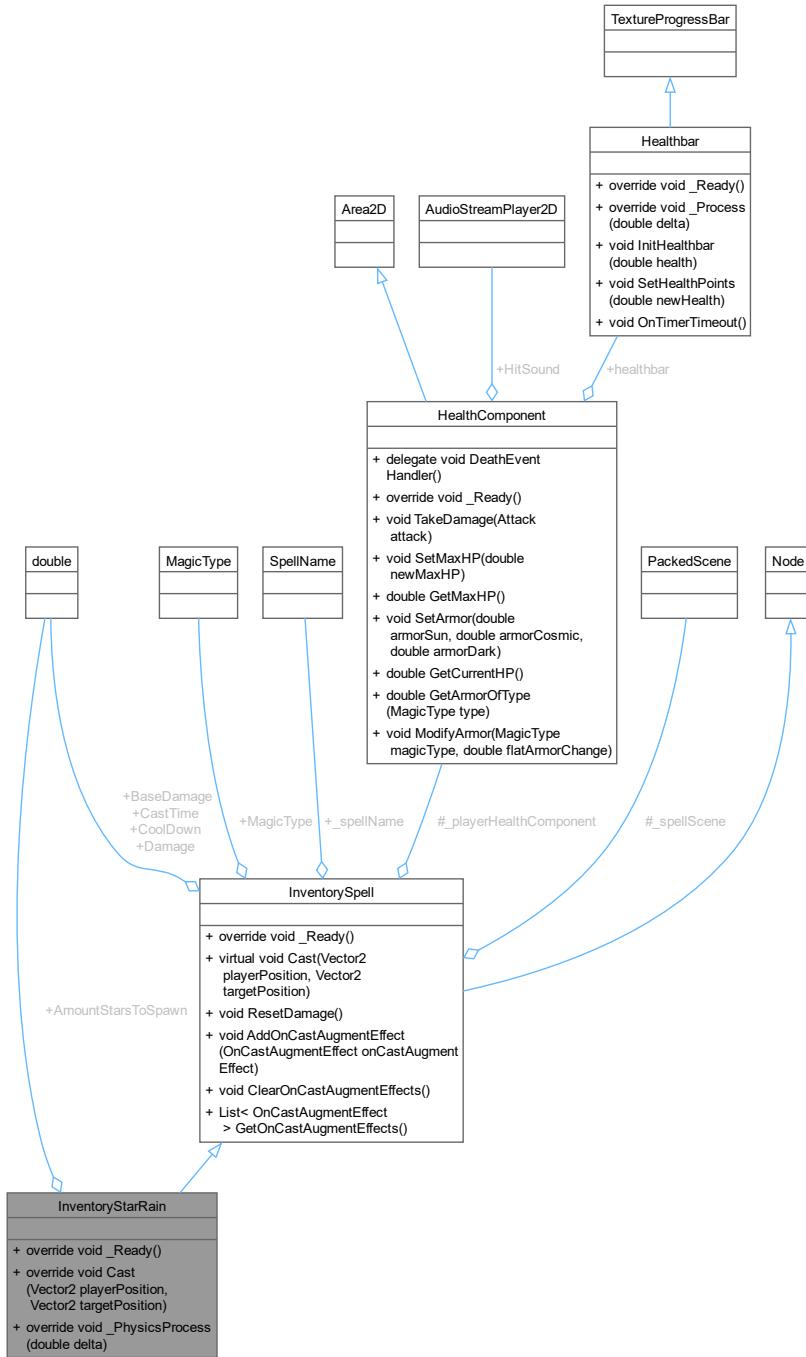
- TheMagicApprentice/modules/entities/player/inventory/spells/[InventorySpell.cs](#)

7.43 InventoryStarRain Class Reference

Inheritance diagram for InventoryStarRain:



Collaboration diagram for InventoryStarRain:



Public Member Functions

- override void Ready ()
 - override void Cast (Vector2 playerPosition, Vector2 targetPosition)
 - override void PhysicsProcess (double delta)

Public Member Functions inherited from [InventorySpell](#)

- override void [_Ready\(\)](#)
- void [ResetDamage\(\)](#)
- void [AddOnCastAugmentEffect\(OnCastAugmentEffect onCastAugmentEffect\)](#)
- void [ClearOnCastAugmentEffects\(\)](#)
- List<[OnCastAugmentEffect](#)> [GetOnCastAugmentEffects\(\)](#)

Public Attributes

- double [AmountStarsToSpawn](#) = 10

How many stars are created. Uses double instead of int to allow easy manipulation from augments.

Public Attributes inherited from [InventorySpell](#)

- double [CastTime](#) = 0.2
How long it takes to cast the spell.
- double [CoolDown](#) = 0.5
How long until the spell can be used again.
- double [BaseDamage](#) = 60
base damage of the skill
- double [Damage](#)
actual damage of the spell
- MagicType [MagicType](#) [MagicType.SUN](#)
Magic type of the spell.
- SpellName [_spellName](#)
Name of the spell to cast.

Additional Inherited Members

Protected Attributes inherited from [InventorySpell](#)

- HealthComponent [_playerHealthComponent](#)
Reference to the players [HealthComponent](#).
- PackedScene [_spellScene](#)

7.43.1 Detailed Description

Class for the [Node](#) responsible for summoning the [Star Rain](#) spell. Instead of instantly spawning the spell once, it spawns the spell every

7.43.2 Member Function Documentation

7.43.2.1 [_PhysicsProcess\(\)](#)

```
override void InventoryStarRain._PhysicsProcess (
    double delta) [inline]
```

7.43.2.2 _Ready()

```
override void InventoryStarRain._Ready () [inline]
```

Additionaly to base class also adds itself to the [Star Rain Spell](#) Group

7.43.2.3 Cast()

```
override void InventoryStarRain.Cast (
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Casts the spell by instanciating the scene and initializing the spell playerPosition and targetPosition are both global coordinates

Reimplemented from [InventorySpell](#).

7.43.3 Member Data Documentation

7.43.3.1 AmountStarsToSpawn

```
double InventoryStarRain.AmountStarsToSpawn = 10
```

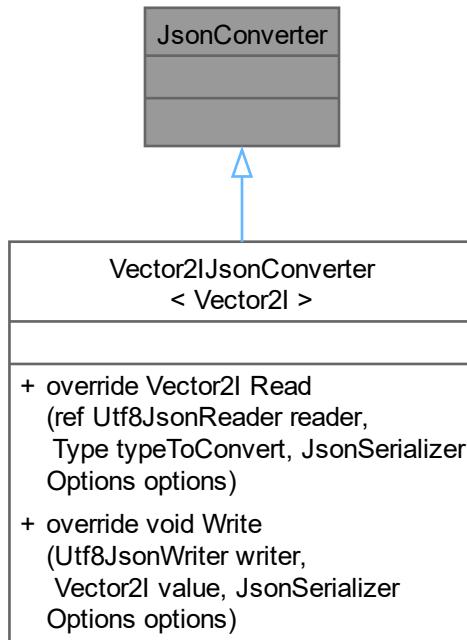
How many stars are created. Uses double instead of int to allow easy manipulation from augments.

The documentation for this class was generated from the following file:

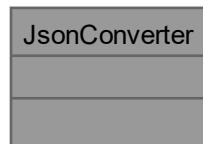
- TheMagicApprentice/modules/entities/player/inventory/spells/[InventoryStarRain.cs](#)

7.44 JsonConverter Class Reference

Inheritance diagram for JsonConverter:



Collaboration diagram for JsonConverter:

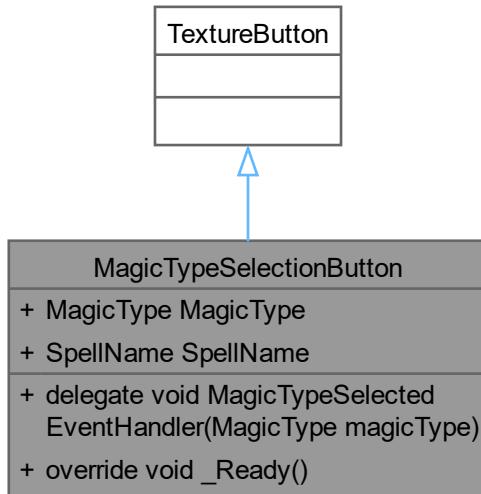


The documentation for this class was generated from the following file:

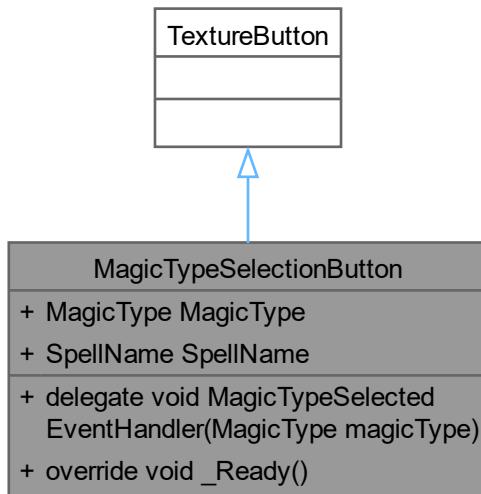
- TheMagicApprentice/modules/utils/[Vector2IJsonConverter.cs](#)

7.45 MagicTypeSelectionButton Class Reference

Inheritance diagram for MagicTypeSelectionButton:



Collaboration diagram for MagicTypeSelectionButton:



Public Member Functions

- delegate void `MagicTypeSelectedEventHandler (MagicType magicType)`
- override void `_Ready ()`

Properties

- `MagicType MagicType = MagicType.SUN [get, set]`
- `SpellName SpellName = SpellName.SunBasic [get, set]`

7.45.1 Member Function Documentation

7.45.1.1 `_Ready()`

```
override void MagicTypeSelectionButton._Ready () [inline]
```

7.45.1.2 `MagicTypeSelectedEventHandler()`

```
delegate void MagicTypeSelectionButton.MagicTypeSelectedEventHandler (
    MagicType magicType)
```

7.45.2 Property Documentation

7.45.2.1 `MagicType`

```
MagicType MagicTypeSelectionButton.MagicType = MagicType.SUN [get], [set]
```

7.45.2.2 `SpellName`

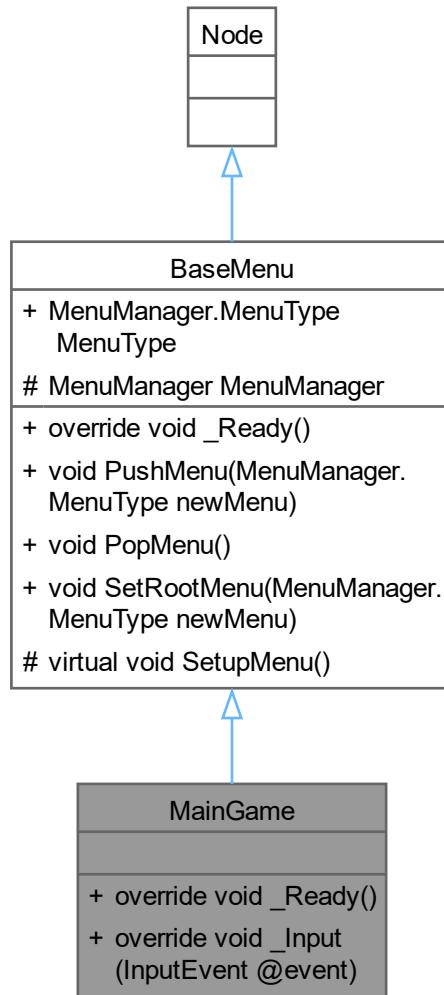
```
SpellName MagicTypeSelectionButton.SpellName = SpellName.SunBasic [get], [set]
```

The documentation for this class was generated from the following file:

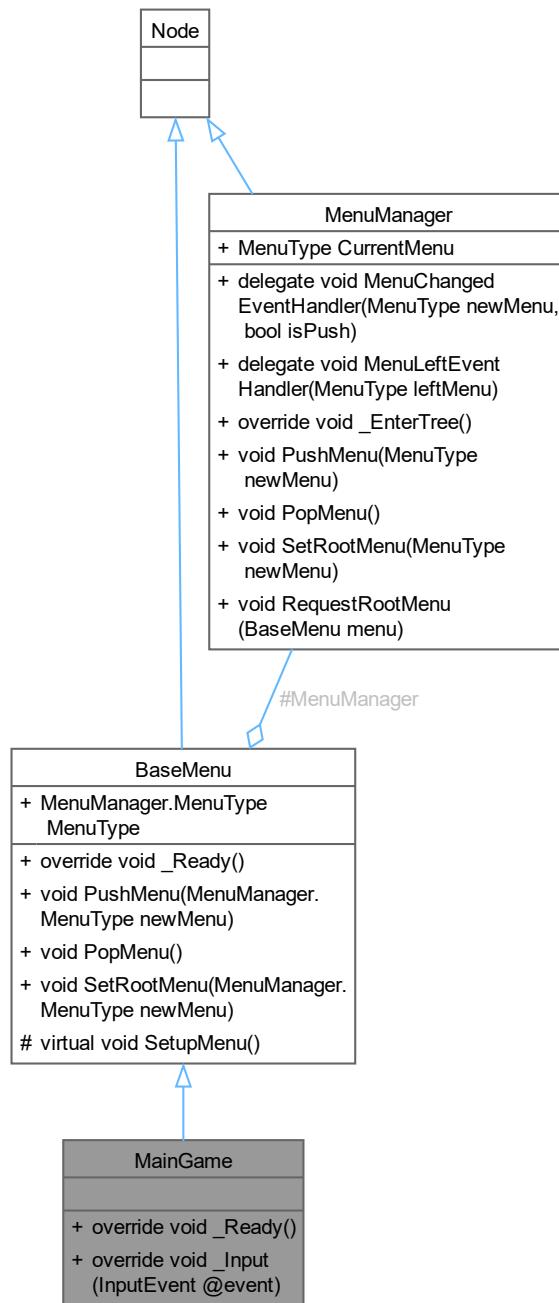
- TheMagicApprentice/modules/ui/dungeon_selection/[MagicTypeSelectionButton.cs](#)

7.46 MainGame Class Reference

Inheritance diagram for MainGame:



Collaboration diagram for MainGame:



Public Member Functions

- `override void _Ready ()`
- `override void _Input (InputEvent @event)`

Public Member Functions inherited from `BaseMenu`

- `override void _Ready ()`

- void [PushMenu](#) ([MenuManager.MenuType](#) newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) ([MenuManager.MenuType](#) newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- [MenuManager](#) [MenuManager](#)

Properties inherited from [BaseMenu](#)

- [MenuManager.MenuType](#) [MenuType](#) [get, protected set]

7.46.1 Member Function Documentation

7.46.1.1 [_Input\(\)](#)

```
override void MainGame._Input (
    InputEvent @ event) [inline]
```

7.46.1.2 [_Ready\(\)](#)

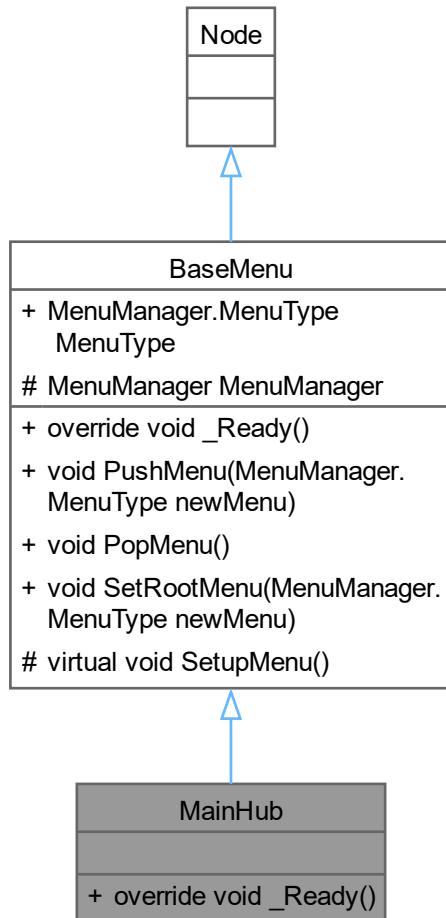
```
override void MainGame._Ready () [inline]
```

The documentation for this class was generated from the following file:

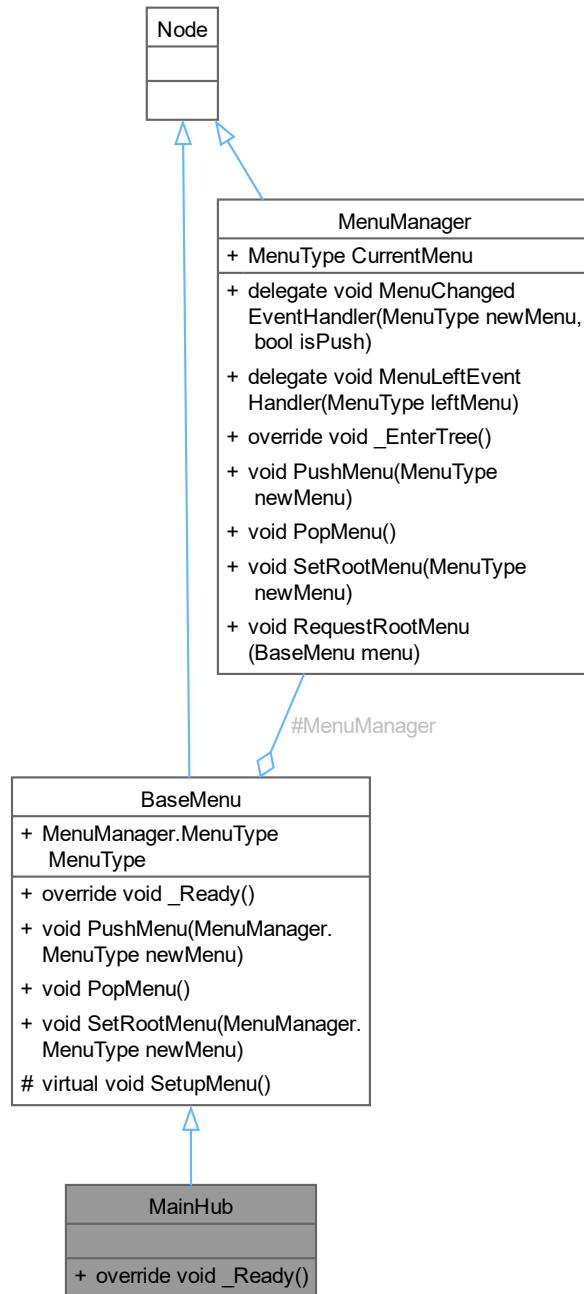
- TheMagicApprentice/modules/ui/[MainGame.cs](#)

7.47 MainHub Class Reference

Inheritance diagram for MainHub:



Collaboration diagram for MainHub:



Public Member Functions

- `override void _Ready ()`

Public Member Functions inherited from [BaseMenu](#)

- `override void _Ready ()`

- void [PushMenu](#) (MenuManager.MenuType newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) (MenuManager.MenuType newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- MenuManager [MenuManager](#)

Properties inherited from [BaseMenu](#)

- MenuManager.MenuType [MenuType](#) [get, protected set]

7.47.1 Member Function Documentation

7.47.1.1 [_Ready\(\)](#)

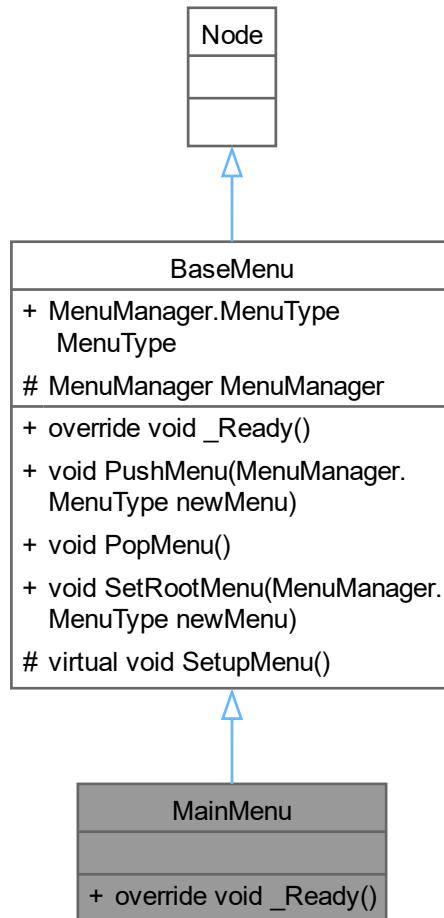
```
override void MainHub._Ready () [inline]
```

The documentation for this class was generated from the following file:

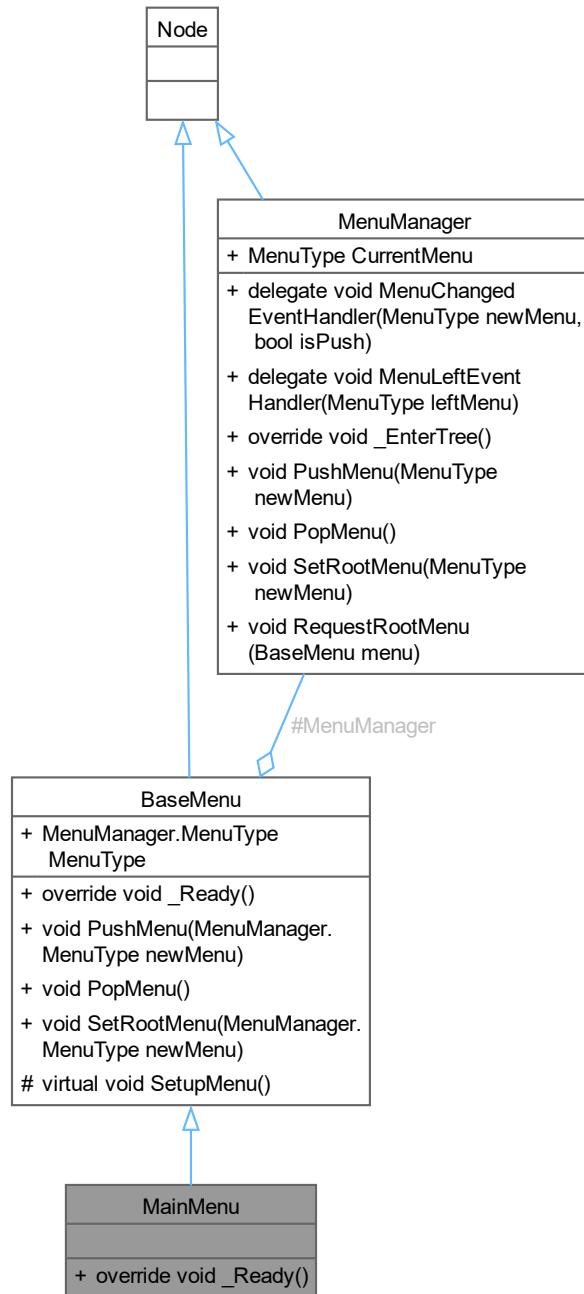
- TheMagicApprentice/modules/ui/main_hub/[MainHub.cs](#)

7.48 MainMenu Class Reference

Inheritance diagram for MainMenu:



Collaboration diagram for MainMenu:



Public Member Functions

- `override void _Ready ()`

Public Member Functions inherited from [BaseMenu](#)

- `override void _Ready ()`

- void [PushMenu](#) ([MenuManager.MenuType](#) newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) ([MenuManager.MenuType](#) newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- [MenuManager](#) [MenuManager](#)

Properties inherited from [BaseMenu](#)

- [MenuManager.MenuType](#) [MenuType](#) [get, protected set]

7.48.1 Member Function Documentation

7.48.1.1 [_Ready\(\)](#)

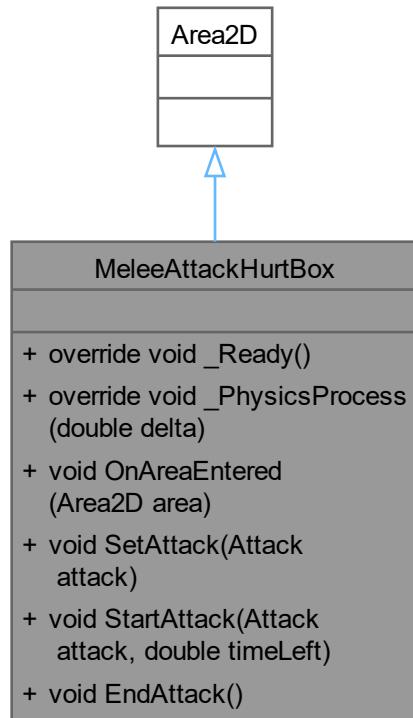
```
override void MainMenu._Ready () [inline]
```

The documentation for this class was generated from the following file:

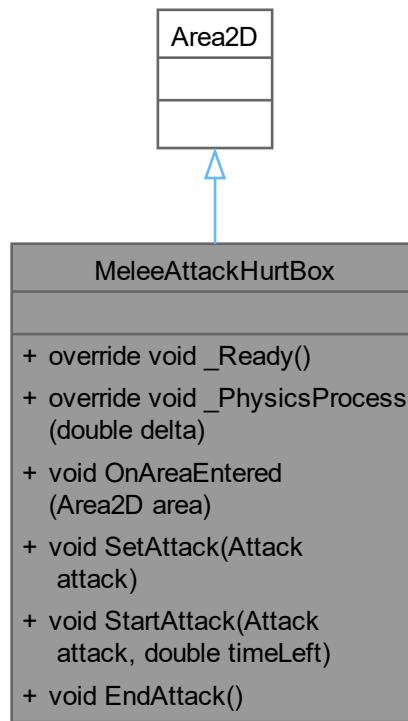
- TheMagicApprentice/modules/ui/main_menu/[MainMenu.cs](#)

7.49 MeleeAttackHurtBox Class Reference

Inheritance diagram for MeleeAttackHurtBox:



Collaboration diagram for MeleeAttackHurtBox:



Public Member Functions

- override void `_Ready ()`
- override void `_PhysicsProcess (double delta)`
- void `OnAreaEntered (Area2D area)`
- void `SetAttack (Attack attack)`
- void `StartAttack (Attack attack, double timeLeft)`
- void `EndAttack ()`

7.49.1 Member Function Documentation

7.49.1.1 `_PhysicsProcess()`

```
override void MeleeAttackHurtBox._PhysicsProcess (
    double delta) [inline]
```

Count down the time left in the attack state. When the attack state is over, end the attack.

7.49.1.2 _Ready()

```
override void MeleeAttackHurtBox._Ready () [inline]
```

Monitoring is set to false so that the collisions from slime and PC only damage the PC if the slime is in the Attacking state. Monitoring is toggled on in StartAttack function.

7.49.1.3 EndAttack()

```
void MeleeAttackHurtBox.EndAttack () [inline]
```

When the attack is ended, disable the monitoring again so that the player cannot be hurt.

7.49.1.4 OnAreaEntered()

```
void MeleeAttackHurtBox.OnAreaEntered (
    Area2D area) [inline]
```

The slime should only be able to detect collisions with the PC. If the slime collides with the PC, the damage function is called. Afterwards Monitoring is set to false again to prevent the player from taking damage from the same attack a second time.

7.49.1.5 SetAttack()

```
void MeleeAttackHurtBox.SetAttack (
    Attack attack) [inline]
```

`Attack` is currently set from the Attacking state in the ranged attack function, so right before the attack is made.

7.49.1.6 StartAttack()

```
void MeleeAttackHurtBox.StartAttack (
    Attack attack,
    double timeLeft) [inline]
```

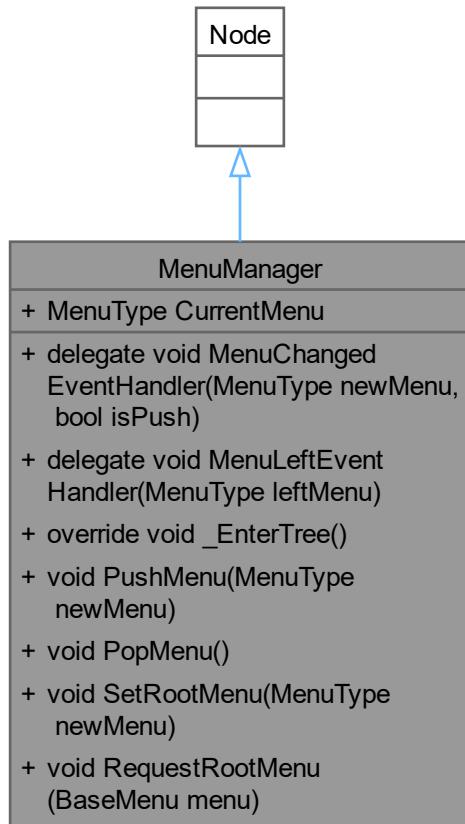
Start attack begins the attack by setting the attack and enabling monitoring such that collisions with the player can be detected. The time left is also set to track how long the slime will remain in the attack state.

The documentation for this class was generated from the following file:

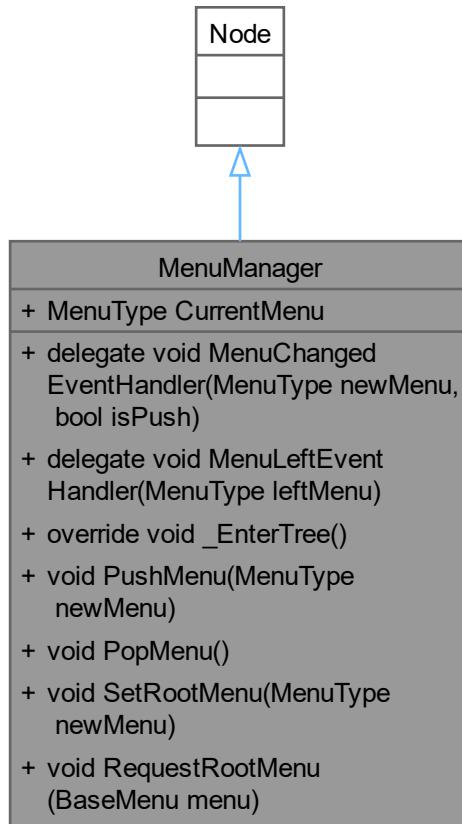
- TheMagicApprentice/modules/entities/slimes/slime-attacks/[MeleeAttackHurtBox.cs](#)

7.50 MenuManager Class Reference

Inheritance diagram for MenuManager:



Collaboration diagram for MenuManager:



Public Types

- enum `MenuType` {
 `MainGame` , `MainMenu` , `MainHub` , `PauseMenu` ,
 `SettingsMenu` , `DungeonSelection` , `DungeonClearMenu` , `NewGameMenu` ,
 `PlayerDeathMenu` }

Public Member Functions

- delegate void `MenuChangedEventHandler` (`MenuType` newMenu, `bool` isPush)
- delegate void `MenuLeftEvent Handler` (`MenuType` leftMenu)
- override void `_EnterTree` ()
- void `PushMenu` (`MenuType` newMenu)
- void `PopMenu` ()
- void `SetRootMenu` (`MenuType` newMenu)
- void `RequestRootMenu` (`BaseMenu` menu)

Properties

- `MenuType CurrentMenu` [get]

7.50.1 Detailed Description

Manages the menu system for the game. Handles menu transitions, stack management, and menu instantiation.

7.50.2 Member Enumeration Documentation

7.50.2.1 `MenuType`

```
enum MenuManager.MenuType
```

Enum representing different types of menus in the game.

Enumerator

| | |
|------------------|--|
| MainGame | |
| MainMenu | |
| MainHub | |
| PauseMenu | |
| SettingsMenu | |
| DungeonSelection | |
| DungeonClearMenu | |
| NewGameMenu | |
| PlayerDeathMenu | |

7.50.3 Member Function Documentation

7.50.3.1 `_EnterTree()`

```
override void MenuManager._EnterTree () [inline]
```

Called when the node is added to the scene tree, adds this node to the menu_manager group.

7.50.3.2 `MenuChangedEventHandler()`

```
delegate void MenuManager.MenuChangedEventHandler (
    MenuType newMenu,
    bool isPush)
```

7.50.3.3 `MenuLeftEventHandler()`

```
delegate void MenuManager.MenuLeftEventHandler (
    MenuType leftMenu)
```

7.50.3.4 `PopMenu()`

```
void MenuManager.PopMenu () [inline]
```

Pops the top menu from the stack and removes its instance.

7.50.3.5 `PushMenu()`

```
void MenuManager.PushMenu (
    MenuType newMenu) [inline]
```

Pushes a new menu onto the stack and instantiates it.

Parameters

| | |
|----------------------|--|
| <code>newMenu</code> | The type of menu to push onto the stack. |
|----------------------|--|

7.50.3.6 RequestRootMenu()

```
void MenuManager.RequestRootMenu (
    BaseMenu menu) [inline]
```

7.50.3.7 SetRootMenu()

```
void MenuManager.SetRootMenu (
    MenuType newMenu) [inline]
```

Clears the menu stack and sets a new root menu.

Parameters

| | |
|----------------------|--|
| <code>newMenu</code> | The type of menu to set as the new root. |
|----------------------|--|

7.50.4 Property Documentation**7.50.4.1 CurrentMenu**

```
MenuType MenuManager.CurrentMenu [get]
```

Gets the current active menu.

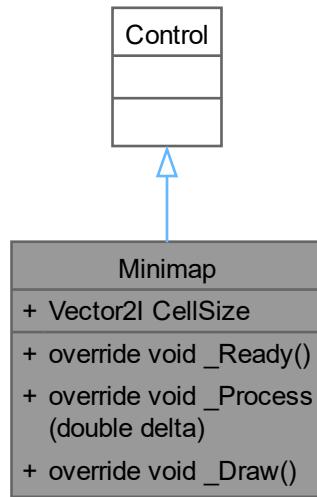
The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/handlers/[MenuManager.cs](#)

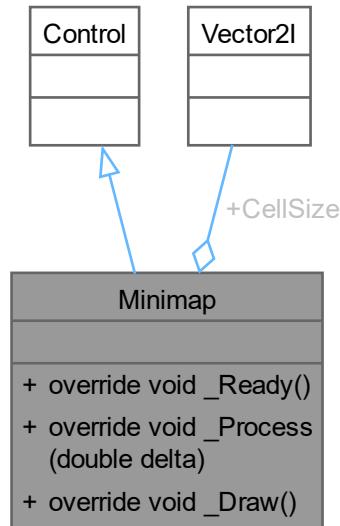
7.51 Minimap Class Reference

A UI element that displays a minimap of the dungeon.

Inheritance diagram for Minimap:



Collaboration diagram for Minimap:



Public Member Functions

- `override void _Ready ()`

Called when the node enters the scene tree for the first time. Initializes references to the [DungeonHandler](#) and retrieves the dungeon layout.

- override void [_Process](#) (double delta)
Called every frame. Updates the minimap display.
- override void [_Draw](#) ()
Draws the minimap.

Public Attributes

- Vector2I [CellSize](#) = new Vector2I(10, 10)
Size of each cell in the minimap grid.

7.51.1 Detailed Description

A UI element that displays a minimap of the dungeon.

7.51.2 Member Function Documentation

7.51.2.1 [_Draw\(\)](#)

```
override void Minimap._Draw () [inline]
```

Draws the minimap.

7.51.2.2 [_Process\(\)](#)

```
override void Minimap._Process (
    double delta) [inline]
```

Called every frame. Updates the minimap display.

Parameters

| | |
|--------------|--|
| <i>delta</i> | The time elapsed since the last frame. |
|--------------|--|

7.51.2.3 [_Ready\(\)](#)

```
override void Minimap._Ready () [inline]
```

Called when the node enters the scene tree for the first time. Initializes references to the [DungeonHandler](#) and retrieves the dungeon layout.

7.51.3 Member Data Documentation

7.51.3.1 CellSize

```
Vector2I Minimap.CellSize = new Vector2I(10, 10)
```

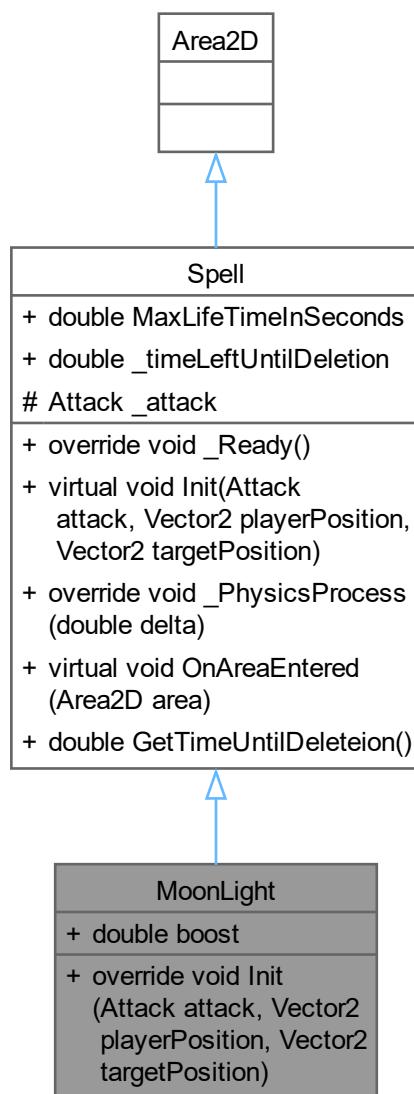
Size of each cell in the minimap grid.

The documentation for this class was generated from the following file:

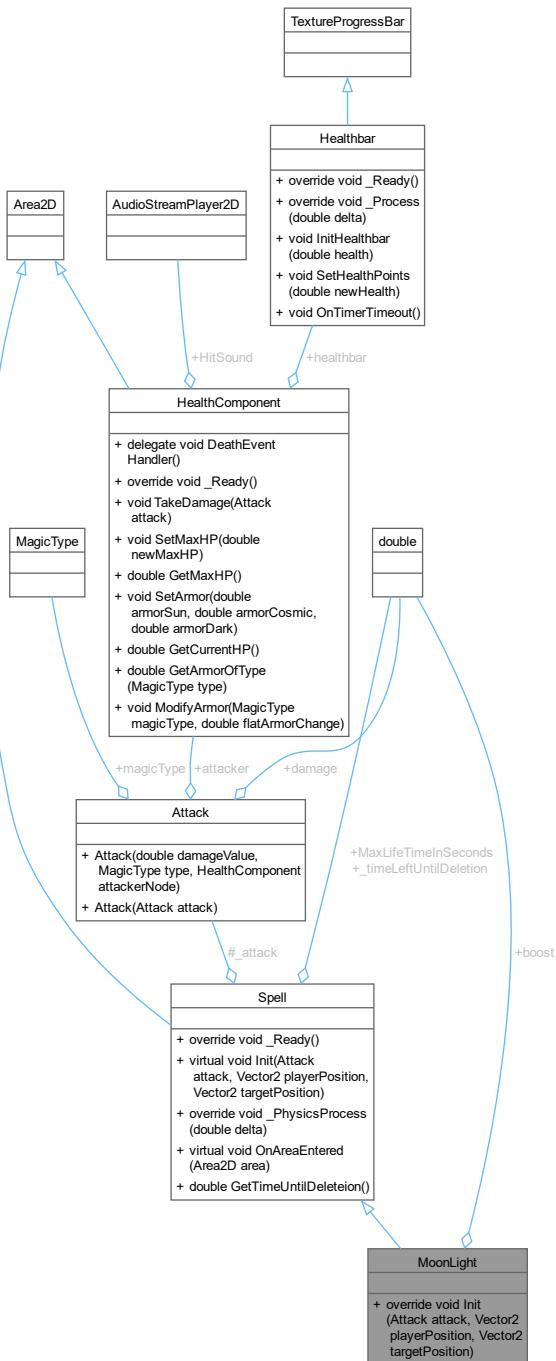
- TheMagicApprentice/modules/handlers/[Minimap.cs](#)

7.52 MoonLight Class Reference

Inheritance diagram for MoonLight:



Collaboration diagram for MoonLight:



Public Member Functions

- `override void Init (Attack attack, Vector2 playerPosition, Vector2 targetPosition)`

Public Member Functions inherited from **Spell**

- `override void _Ready ()`

- override void `_PhysicsProcess` (double delta)
- virtual void `OnAreaEntered` (Area2D area)
- double `GetTimeUntilDeleteion` ()

Public Attributes

- double `boost` = 1.5
boost factor by how much the player is boosted

Public Attributes inherited from Spell

- double `MaxLifeTimelnSeconds` = 5.0
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double `_timeLeftUntilDeletion`
Time left until deletion.

Additional Inherited Members

Protected Attributes inherited from Spell

- `Attack _attack`
Contains damage, type and caster reference for damage calculation.

7.52.1 Detailed Description

The spell object of the moonlight spell.

7.52.2 Member Function Documentation

7.52.2.1 Init()

```
override void MoonLight.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Every `Spell` has to overide this method as it is used to initialize the spell on creation

Reimplemented from `Spell`.

7.52.3 Member Data Documentation

7.52.3.1 boost

```
double MoonLight.boost = 1.5
```

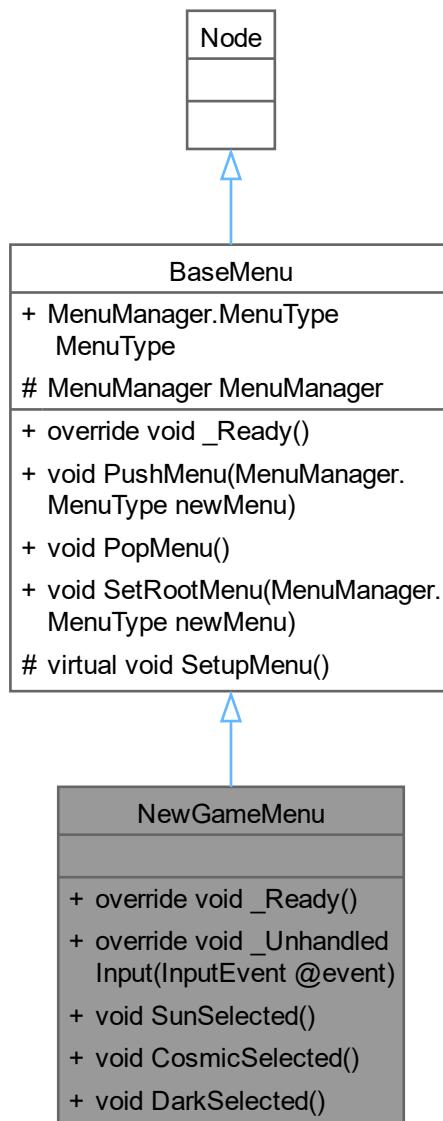
boost factor by how much the player is boosted

The documentation for this class was generated from the following file:

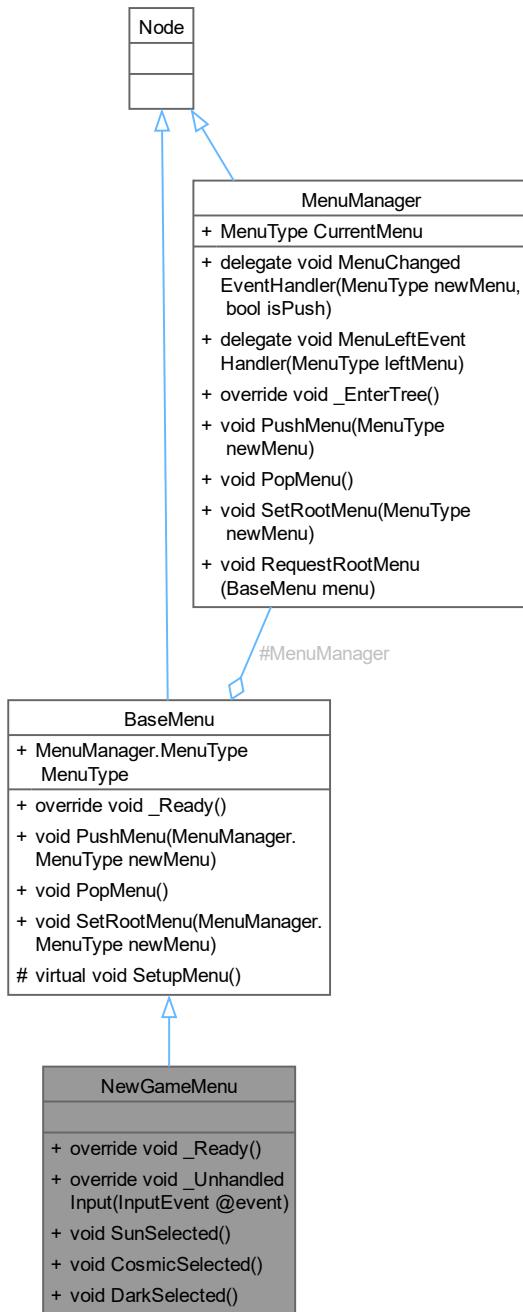
- TheMagicApprentice/modules/entities/player/spells/moon_light/MoonLight.cs

7.53 NewGameMenu Class Reference

Inheritance diagram for NewGameMenu:



Collaboration diagram for NewGameMenu:



Public Member Functions

- `override void _Ready ()`
- `override void _UnhandledInput (InputEvent @event)`
- `void SunSelected ()`
- `void CosmicSelected ()`
- `void DarkSelected ()`

Public Member Functions inherited from [BaseMenu](#)

- `override void _Ready ()`
- `void PushMenu (MenuManager.MenuType newMenu)`
- `void PopMenu ()`
- `void SetRootMenu (MenuManager.MenuType newMenu)`

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- `virtual void SetupMenu ()`

Protected Attributes inherited from [BaseMenu](#)

- `MenuManager MenuManager`

Properties inherited from [BaseMenu](#)

- `MenuManager.MenuType MenuType [get, protected set]`

7.53.1 Member Function Documentation

7.53.1.1 [_Ready\(\)](#)

```
override void NewGameMenu._Ready () [inline]
```

Resets the player scene

7.53.1.2 [_UnhandledInput\(\)](#)

```
override void NewGameMenu._UnhandledInput (
    InputEvent @ event) [inline]
```

If the ESC key is pressed, return to main menu

7.53.1.3 [CosmicSelected\(\)](#)

```
void NewGameMenu.CosmicSelected () [inline]
```

Gets called when the button for the cosmic element is pressed

7.53.1.4 [DarkSelected\(\)](#)

```
void NewGameMenu.DarkSelected () [inline]
```

Gets called when the button for the dark element is pressed

7.53.1.5 SunSelected()

```
void NewGameMenu.SunSelected () [inline]
```

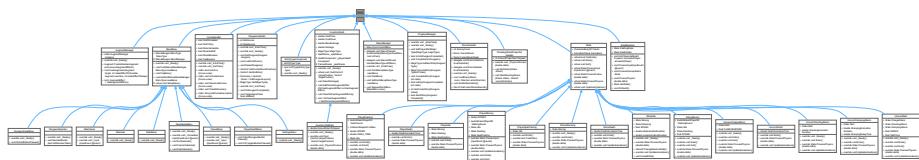
Gets called when the button for the sun element is pressed

The documentation for this class was generated from the following file:

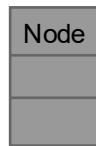
- TheMagicApprentice/modules/ui/new_game_menu/[NewGameMenu.cs](#)

7.54 Node Class Reference

Inheritance diagram for Node:



Collaboration diagram for Node:

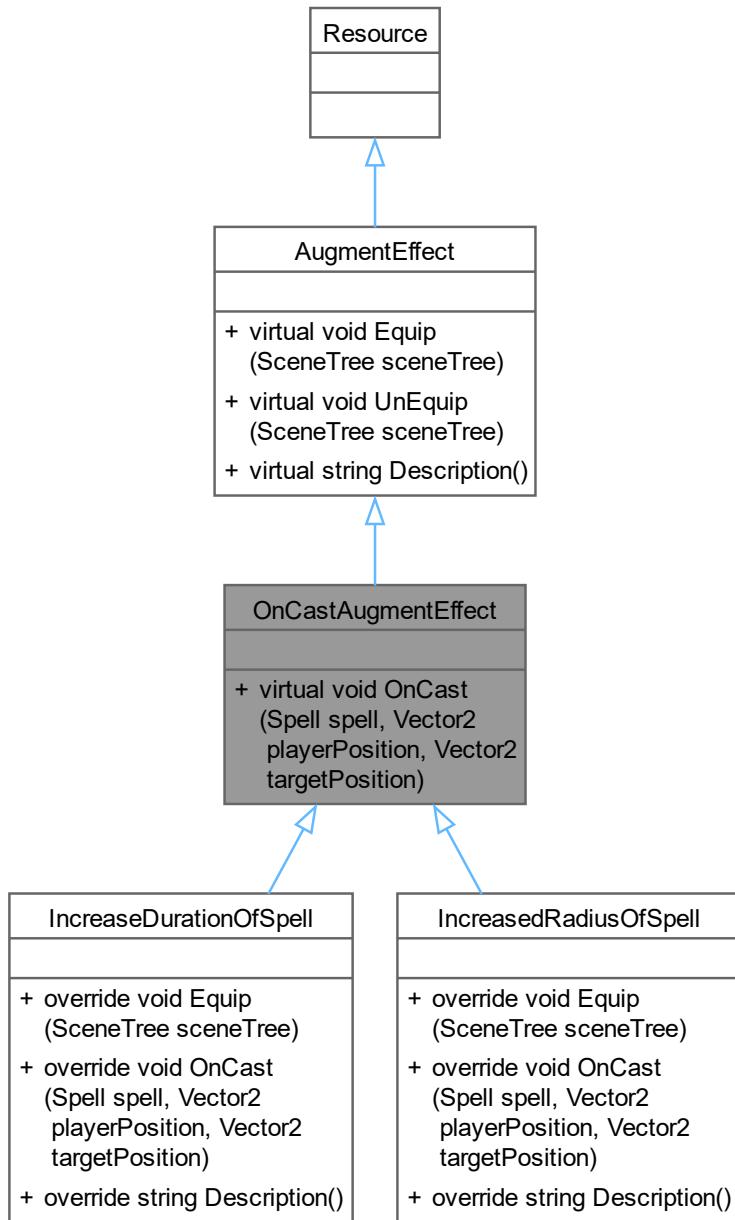


The documentation for this class was generated from the following file:

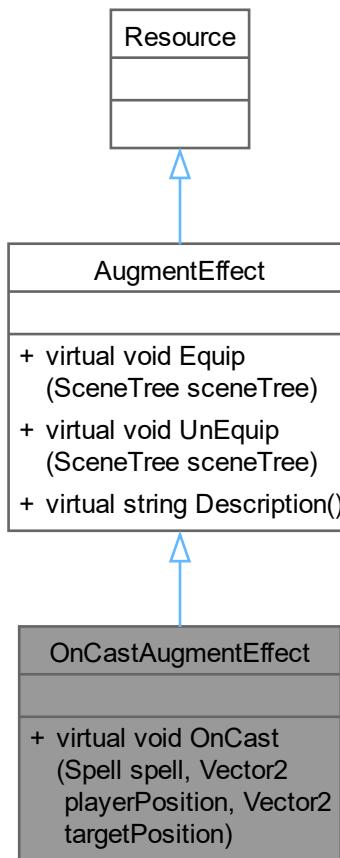
- TheMagicApprentice/modules/augments/[AugmentManager.cs](#)

7.55 OnCastAugmentEffect Class Reference

Inheritance diagram for OnCastAugmentEffect:



Collaboration diagram for OnCastAugmentEffect:



Public Member Functions

- `+ virtual void OnCast (Spell spell, Vector2 playerPosition, Vector2 targetPosition)`

Public Member Functions inherited from [AugmentEffect](#)

- `+ virtual void Equip (SceneTree sceneTree)`
- `+ virtual void UnEquip (SceneTree sceneTree)`
- `+ virtual string Description ()`

7.55.1 Detailed Description

Base class for all augments whose effects are only activated when a spell is cast

7.55.2 Member Function Documentation

7.55.2.1 OnCast()

```
virtual void OnCastAugmentEffect.OnCast (
    Spell spell,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

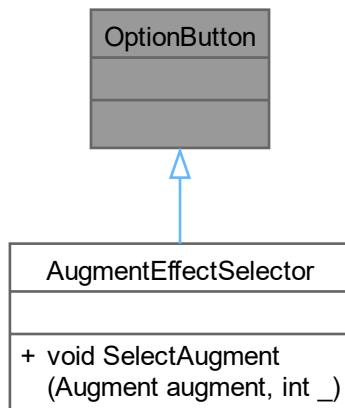
Reimplemented in [IncreasedRadiusOfSpell](#), and [IncreaseDurationOfSpell](#).

The documentation for this class was generated from the following file:

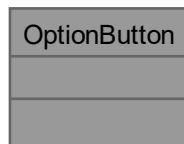
- [TheMagicApprentice/modules/augments/augment_effects/OnCastAugmentEffect.cs](#)

7.56 OptionButton Class Reference

Inheritance diagram for OptionButton:



Collaboration diagram for OptionButton:

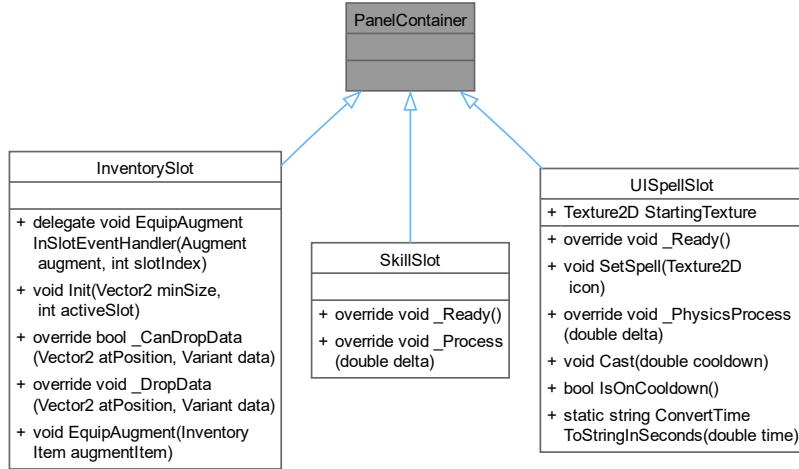


The documentation for this class was generated from the following file:

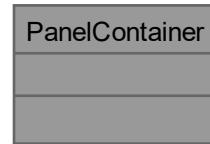
- [TheMagicApprentice/modules/entities/player/inventory/augments/AugmentEffectSelector.cs](#)

7.57 PanelContainer Class Reference

Inheritance diagram for PanelContainer:



Collaboration diagram for PanelContainer:

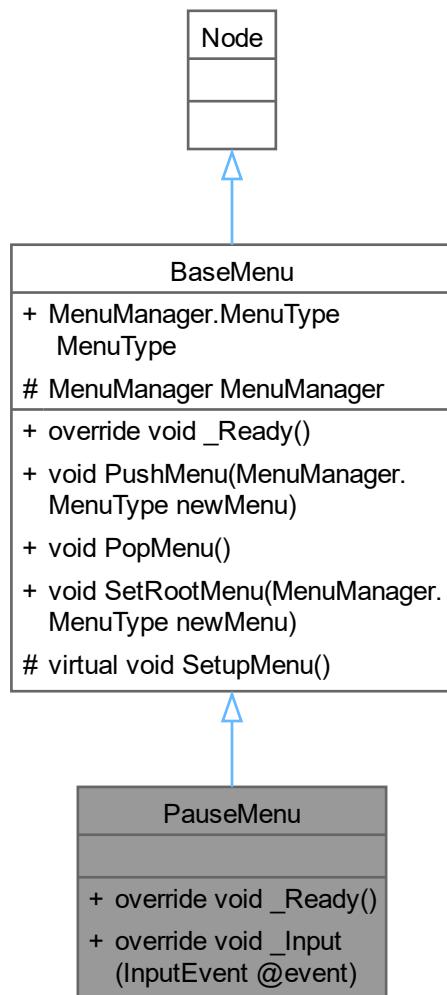


The documentation for this class was generated from the following file:

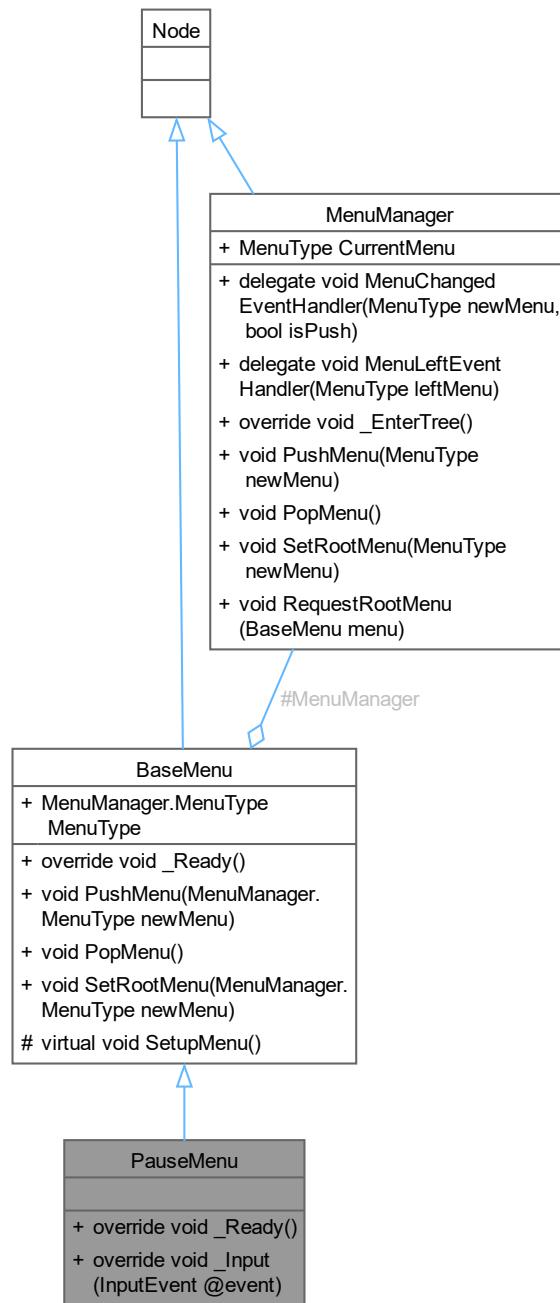
- TheMagicApprentice/modules/entities/player/inventory/augments/[InventorySlot.cs](#)

7.58 PauseMenu Class Reference

Inheritance diagram for PauseMenu:



Collaboration diagram for PauseMenu:



Public Member Functions

- `override void _Ready ()`
- `override void _Input (InputEvent @event)`

Public Member Functions inherited from `BaseMenu`

- `override void _Ready ()`

- void [PushMenu](#) ([MenuManager.MenuType](#) newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) ([MenuManager.MenuType](#) newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- [MenuManager](#) [MenuManager](#)

Properties inherited from [BaseMenu](#)

- [MenuManager.MenuType](#) [MenuType](#) [get, protected set]

7.58.1 Member Function Documentation

7.58.1.1 [_Input\(\)](#)

```
override void PauseMenu._Input (
    InputEvent @ event) [inline]
```

7.58.1.2 [_Ready\(\)](#)

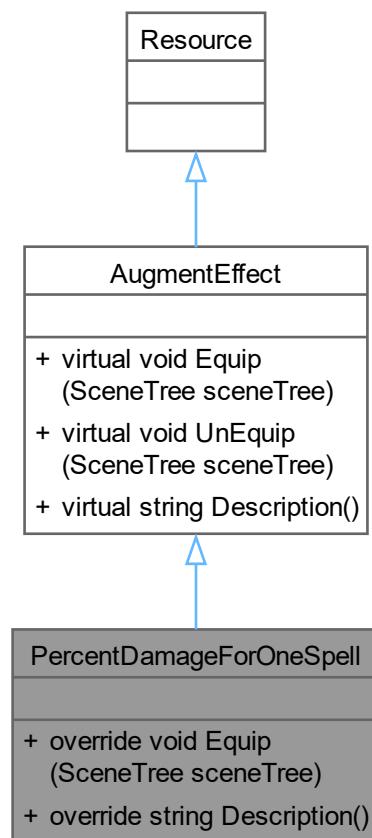
```
override void PauseMenu._Ready () [inline]
```

The documentation for this class was generated from the following file:

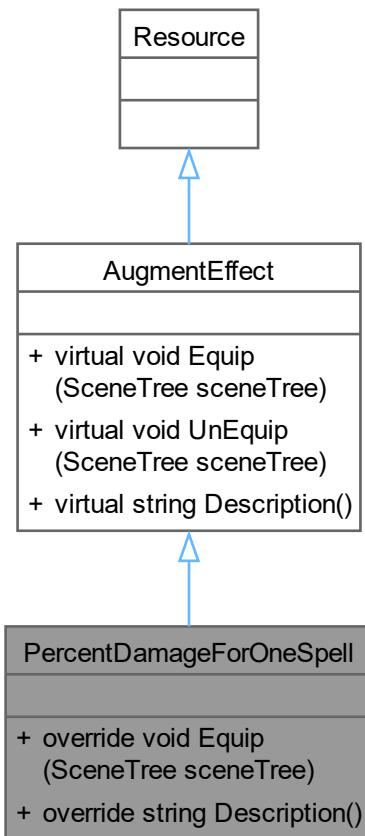
- TheMagicApprentice/modules/ui/pause_menu/[PauseMenu.cs](#)

7.59 PercentDamageForOneSpell Class Reference

Inheritance diagram for PercentDamageForOneSpell:



Collaboration diagram for PercentDamageForOneSpell:



Public Member Functions

- `override void Equip (SceneTree sceneTree)`
- `override string Description ()`

Public Member Functions inherited from [AugmentEffect](#)

- `virtual void UnEquip (SceneTree sceneTree)`

7.59.1 Detailed Description

[AugmentEffect](#) to increase the damage for one skill by `_damageIncreaseFaktor`

7.59.2 Member Function Documentation

7.59.2.1 Description()

```
override string PercentDamageForOneSpell.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.59.2.2 Equip()

```
override void PercentDamageForOneSpell.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called whenever the player equips an augment. Gets reference to the current SceneTree in order to access Groups

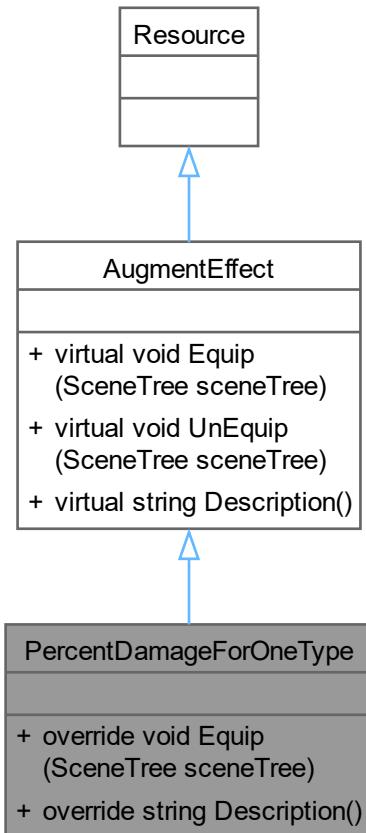
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

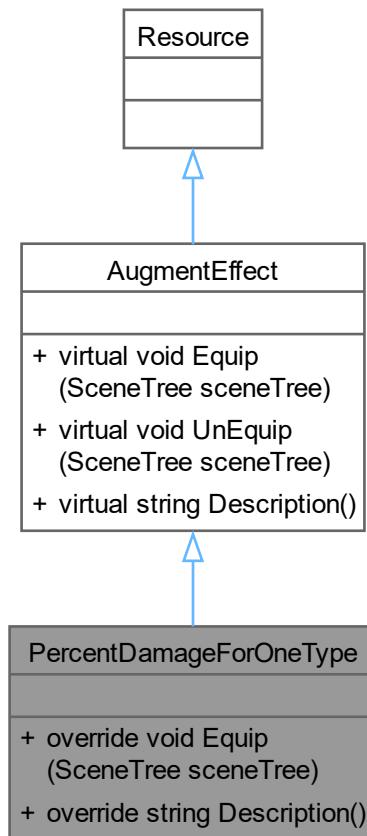
- TheMagicApprentice/modules/augments/augment_effects/[PercentDamageForOneSpell.cs](#)

7.60 PercentDamageForOneType Class Reference

Inheritance diagram for PercentDamageForOneType:



Collaboration diagram for PercentDamageForOneType:



Public Member Functions

- `override void Equip (SceneTree sceneTree)`
- `override string Description ()`

Public Member Functions inherited from [AugmentEffect](#)

- `virtual void UnEquip (SceneTree sceneTree)`

7.60.1 Detailed Description

[AugmentEffect](#) to increase the damage for all skills of the type `_magicType`

7.60.2 Member Function Documentation

7.60.2.1 Description()

```
override string PercentDamageForOneType.Description () [inline], [virtual]
```

Get the description of the augment effect

Reimplemented from [AugmentEffect](#).

7.60.2.2 Equip()

```
override void PercentDamageForOneType.Equip (
    SceneTree sceneTree) [inline], [virtual]
```

This function gets called whenever the player equips an augment. Gets reference to the current SceneTree in order to access Groups

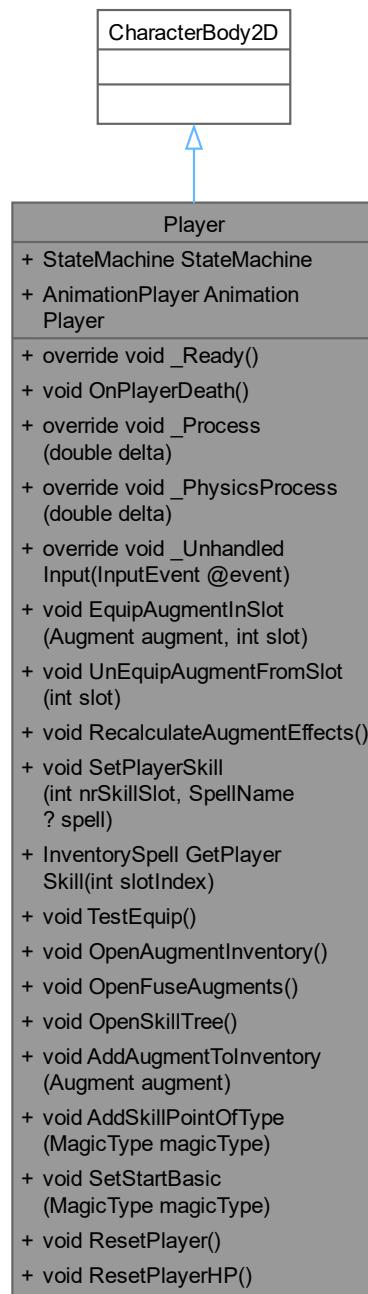
Reimplemented from [AugmentEffect](#).

The documentation for this class was generated from the following file:

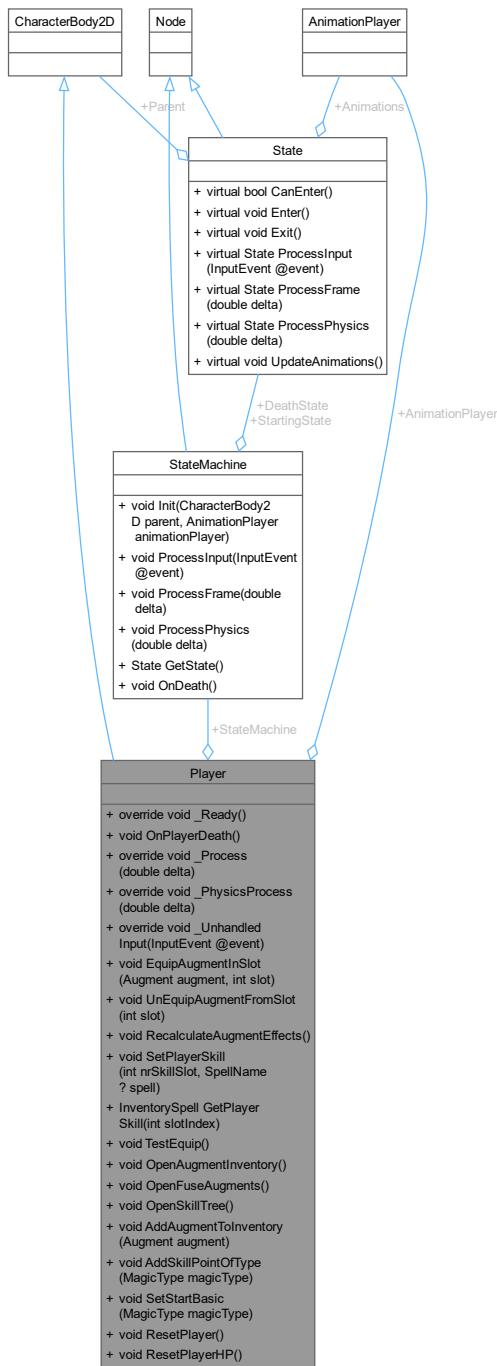
- TheMagicApprentice/modules/augments/augment_effects/[PercentDamageForOneType.cs](#)

7.61 Player Class Reference

Inheritance diagram for Player:



Collaboration diagram for Player:



Public Member Functions

- `override void _Ready()`
- `void OnPlayerDeath()`
- `override void _Process(double delta)`
- `override void _PhysicsProcess(double delta)`
- `override void _UnhandledInput(InputEvent @event)`

- void [EquipAugmentInSlot](#) ([Augment](#) augment, int slot)
- void [UnEquipAugmentFromSlot](#) (int slot)
- void [RecalculateAugmentEffects](#) ()
- void [SetPlayerSkill](#) (int nrSkillSlot, [SpellName?](#) spell)
- [InventorySpell](#) [GetPlayerSkill](#) (int slotIndex)
- void [TestEquip](#) ()
- void [OpenAugmentInventory](#) ()
- void [OpenFuseAugments](#) ()
- void [OpenSkillTree](#) ()
- void [AddAugmentToInventory](#) ([Augment](#) augment)
- void [AddSkillPointOfType](#) ([MagicType](#) magicType)
- void [SetStartBasic](#) ([MagicType](#) magicType)
- void [ResetPlayer](#) ()
- void [ResetPlayerHP](#) ()

Public Attributes

- [StateMachine](#) [StateMachine](#)
Reference to the state machine of the player character.
- [AnimationPlayer](#) [AnimationPlayer](#)
Reference to the animation player of the player character.

7.61.1 Detailed Description

The [Player](#) class is the root node of the player scene. It initializes the Players state machine and then forwards Input, Process and PhysicsProcess to the state machine. It also manages the active augments of the player. The scene is set as an autoload so that every part of the game can reference it. Process is only enabled if the main_game scene is set as active scene in the [MenuManager](#)

7.61.2 Member Function Documentation

7.61.2.1 [_PhysicsProcess\(\)](#)

```
override void Player._PhysicsProcess (
    double delta) [inline]
```

Is called every physics update We simply forward the call to the state machine

7.61.2.2 [_Process\(\)](#)

```
override void Player._Process (
    double delta) [inline]
```

Is called every frame We simply forward the call to the state machine

7.61.2.3 `_Ready()`

```
override void Player._Ready () [inline]
```

Is called when the player character enters the scene tree. Checks if the references to the state machine and the animation player are valid and then sends them to the state machine so that all states get the references

7.61.2.4 `_UnhandledInput()`

```
override void Player._UnhandledInput (
    InputEvent @ event) [inline]
```

Is called whenever any input from the user is unhandled. We simply forward the call to the state machine

7.61.2.5 `AddAugmentToInventory()`

```
void Player.AddAugmentToInventory (
    Augment augment) [inline]
```

Adds the augment to the inventory

7.61.2.6 `AddSkillPointOfType()`

```
void Player.AddSkillPointOfType (
    MagicType magicType) [inline]
```

Add a skill point of type `MagicType`. Is called by the dungeon clear menu and is used to forward to the skill tree.

7.61.2.7 `EquipAugmentInSlot()`

```
void Player.EquipAugmentInSlot (
    Augment augment,
    int slot) [inline]
```

Equips an `Augment` at slot

7.61.2.8 `GetPlayerSkill()`

```
InventorySpell Player.GetPlayerSkill (
    int slotIndex) [inline]
```

Get the reference to the `InventorySpell` at the index

7.61.2.9 `OnPlayerDeath()`

```
void Player.OnPlayerDeath () [inline]
```

Gets called when HP reach 0. Opens the death screen using `CallDeferred`

7.61.2.10 OpenAugmentInventory()

```
void Player.OpenAugmentInventory () [inline]
```

Show the [AugmentInventory](#) by setting its visibility to true. Ensuring that the inventory is shown by switching to it first. Is called by the main hub script when the button to open the menu is pressed

7.61.2.11 OpenFuseAugments()

```
void Player.OpenFuseAugments () [inline]
```

Show the Fuse [Augment](#) Menu by setting the [AugmentInventory](#) visibility to true. Ensuring that the fusing menu is shown by switching to it first. Is called by the main hub script when the button to open the menu is pressed

7.61.2.12 OpenSkillTree()

```
void Player.OpenSkillTree () [inline]
```

Show the Skill Tree by setting the [SkillTree](#) visibility to true. TODO: Is called by the main hub script when the button to open the menu is pressed

7.61.2.13 RecalculateAugmentEffects()

```
void Player.RecalculateAugmentEffects () [inline]
```

Recalculates all augment effects

7.61.2.14 ResetPlayer()

```
void Player.ResetPlayer () [inline]
```

Resets the player scene to the default. Is called whenever a new game is created Currently does not work

7.61.2.15 ResetPlayerHP()

```
void Player.ResetPlayerHP () [inline]
```

Resets the HP of the player

7.61.2.16 SetPlayerSkill()

```
void Player.SetPlayerSkill (
    int nrSkillsSlot,
    SpellName? spell) [inline]
```

Sets skills for the player. First, all augments are removed, then the currently equipped spell is removed. If a new spell should be set, it is added to the group corresponding to the spell slot. Afterwards, the augments are added again. Note: spell is null if a spell should be removed! This is intended behaviour.

7.61.2.17 SetStartBasic()

```
void Player.SetStartBasic (
    MagicType magicType) [inline]
```

Set the basic skill whith which the player starts the game

7.61.2.18 TestEquip()

```
void Player.TestEquip () [inline]
```

7.61.2.19 UnEquipAugmentFromSlot()

```
void Player.UnEquipAugmentFromSlot (
    int slot) [inline]
```

Remove an augment from a slot by equipping null in the slot

7.61.3 Member Data Documentation

7.61.3.1 AnimationPlayer

```
AnimationPlayer Player.AnimationPlayer
```

Reference to the animation player of the player charackter.

7.61.3.2 StateMachine

```
StateMachine Player.StateMachine
```

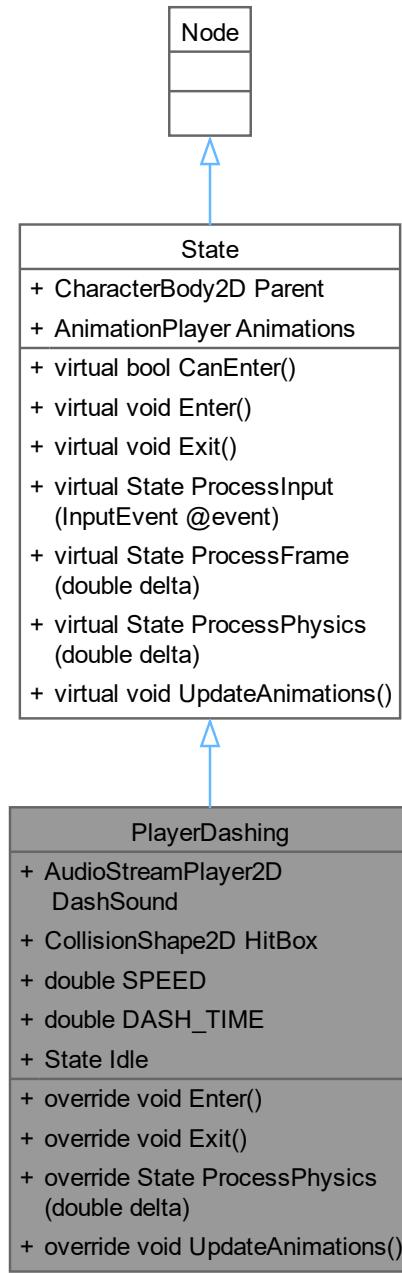
Reference to the state machine of the player charackter.

The documentation for this class was generated from the following file:

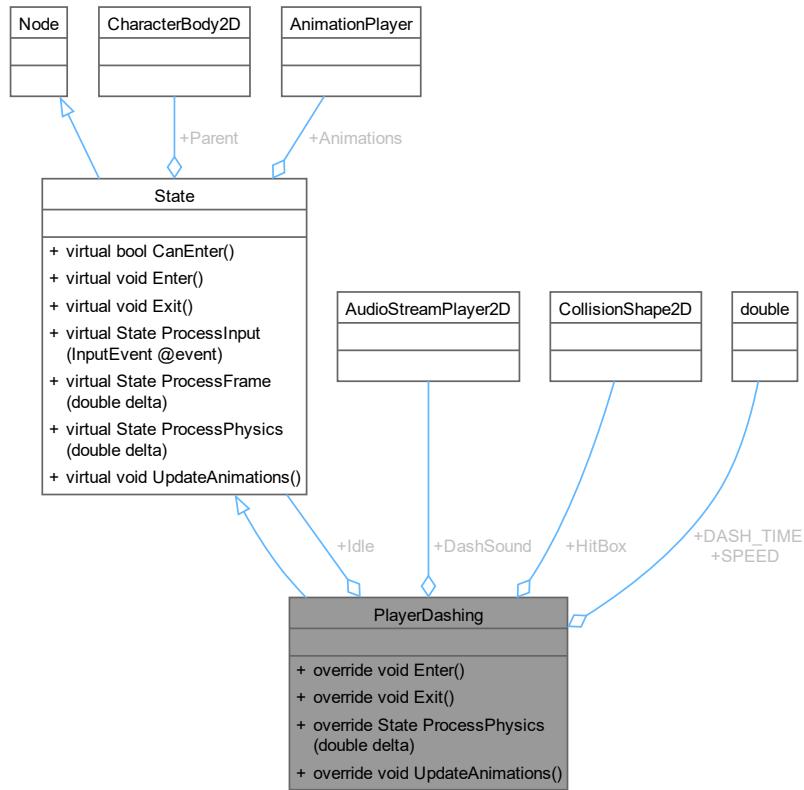
- TheMagicApprentice/modules/entities/player/[Player.cs](#)

7.62 PlayerDashing Class Reference

Inheritance diagram for PlayerDashing:



Collaboration diagram for PlayerDashing:



Public Member Functions

- `override void Enter ()`
- `override void Exit ()`
- `override State ProcessPhysics (double delta)`
- `override void UpdateAnimations ()`

Public Member Functions inherited from `State`

- `virtual bool CanEnter ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`

Public Attributes

- `AudioStreamPlayer2D DashSound`
Reference to the AudioStreamPlayer2D for the dash sound.
- `CollisionShape2D HitBox`
Reference of the HitBox of the player.
- `double SPEED = 500`
Speed of the dash.
- `double DASH_TIME = 0.15`
Duration of the dash.
- `State Idle`
Reference to the Idle state.

Public Attributes inherited from [State](#)

- CharacterBody2D [Parent](#)
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer [Animations](#)
Reference to the AnimationPlayer of the entity.

7.62.1 Detailed Description

Dash state of the player character. During dashing the hitbox of the player is disabled

7.62.2 Member Function Documentation

7.62.2.1 Enter()

```
override void PlayerDashing.Enter () [inline], [virtual]
```

When entering the dash state we disable the Hitbox and set the Velocity of the [Player](#)

Reimplemented from [State](#).

7.62.2.2 Exit()

```
override void PlayerDashing.Exit () [inline], [virtual]
```

When exiting the dash state we enable the Hitbox again

Reimplemented from [State](#).

7.62.2.3 ProcessPhysics()

```
override State PlayerDashing.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented from [State](#).

7.62.2.4 UpdateAnimations()

```
override void PlayerDashing.UpdateAnimations () [inline], [virtual]
```

Change the animation depending on the current movement of the player

Reimplemented from [State](#).

7.62.3 Member Data Documentation

7.62.3.1 DASH_TIME

```
double PlayerDashing.DASH_TIME = 0.15
```

Duration of the dash.

7.62.3.2 DashSound

```
AudioStreamPlayer2D PlayerDashing.DashSound
```

Reference to the AudioStreamPlayer2D for the dash sound.

7.62.3.3 HitBox

```
CollisionShape2D PlayerDashing.HitBox
```

Reference of the HitBox of the player.

7.62.3.4 Idle

```
State PlayerDashing.Idle
```

Reference to the Idle state.

7.62.3.5 SPEED

```
double PlayerDashing.SPEED = 500
```

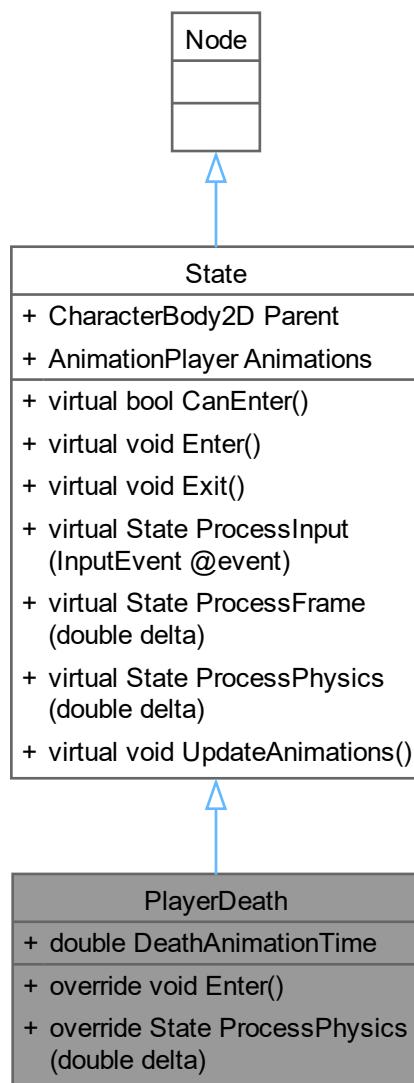
Speed of the dash.

The documentation for this class was generated from the following file:

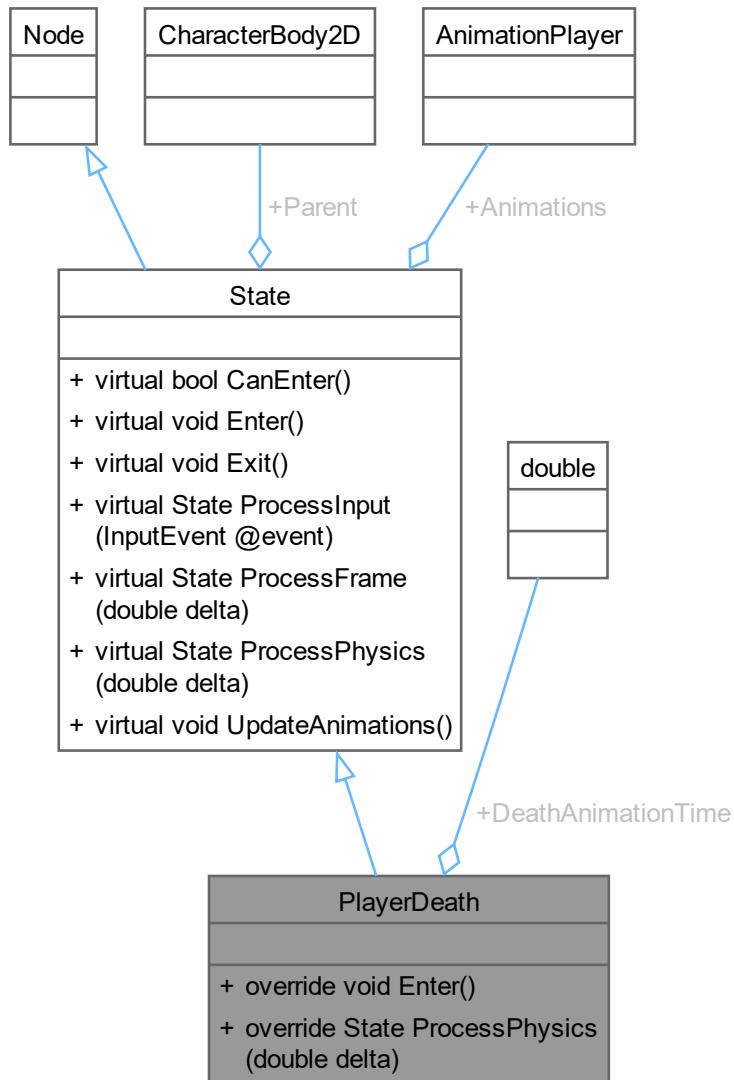
- TheMagicApprentice/modules/entities/player/states/[PlayerDashing.cs](#)

7.63 PlayerDeath Class Reference

Inheritance diagram for PlayerDeath:



Collaboration diagram for PlayerDeath:



Public Member Functions

- `override void Enter ()`
- `override State ProcessPhysics (double delta)`

Public Member Functions inherited from `State`

- `virtual bool CanEnter ()`
- `virtual void Exit ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`
- `virtual void UpdateAnimations ()`

Public Attributes

- double **DeathAnimationTime** = 1.0

Duration of the death animation.

Public Attributes inherited from [State](#)

- CharacterBody2D **Parent**

Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

- AnimationPlayer **Animations**

Reference to the AnimationPlayer of the entity.

7.63.1 Member Function Documentation

7.63.1.1 Enter()

```
override void PlayerDeath.Enter () [inline], [virtual]
```

Called everytime we enter the state

Reimplemented from [State](#).

7.63.1.2 ProcessPhysics()

```
override State PlayerDeath.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented from [State](#).

7.63.2 Member Data Documentation

7.63.2.1 DeathAnimationTime

```
double PlayerDeath.DeathAnimationTime = 1.0
```

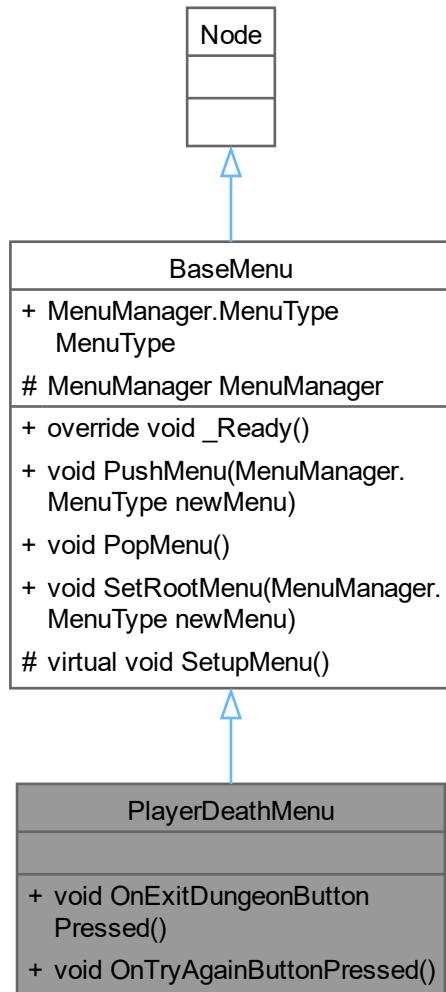
Duration of the death animation.

The documentation for this class was generated from the following file:

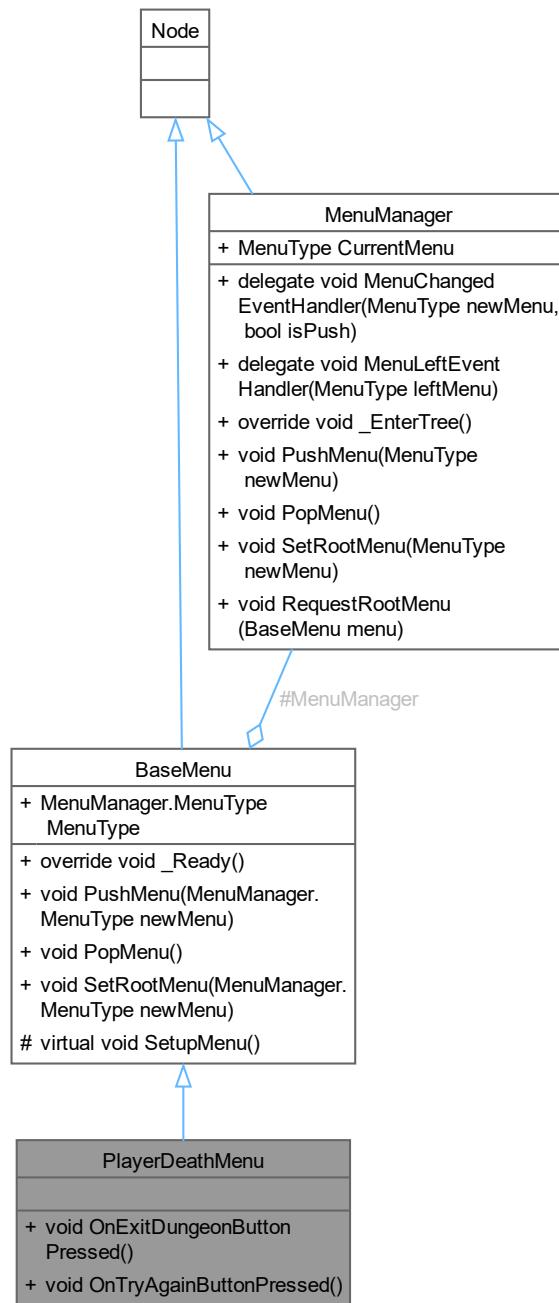
- TheMagicApprentice/modules/entities/player/states/[PlayerDeath.cs](#)

7.64 PlayerDeathMenu Class Reference

Inheritance diagram for PlayerDeathMenu:



Collaboration diagram for PlayerDeathMenu:



Public Member Functions

- void [OnExitDungeonButtonPressed \(\)](#)
- void [OnTryAgainButtonPressed \(\)](#)

Public Member Functions inherited from [BaseMenu](#)

- override void [_Ready \(\)](#)

- void [PushMenu](#) (MenuManager.MenuType newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) (MenuManager.MenuType newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- MenuManager [MenuManager](#)

Properties inherited from [BaseMenu](#)

- MenuManager.MenuType [MenuType](#) [get, protected set]

7.64.1 Member Function Documentation

7.64.1.1 [OnExitDungeonButtonPressed\(\)](#)

```
void PlayerDeathMenu.OnExitDungeonButtonPressed () [inline]
```

Gets called when the player presses the Exit [Dungeon](#) button. Simply calls ExitDungeon using CallDeferred to avoid problems

7.64.1.2 [OnTryAgainButtonPressed\(\)](#)

```
void PlayerDeathMenu.OnTryAgainButtonPressed () [inline]
```

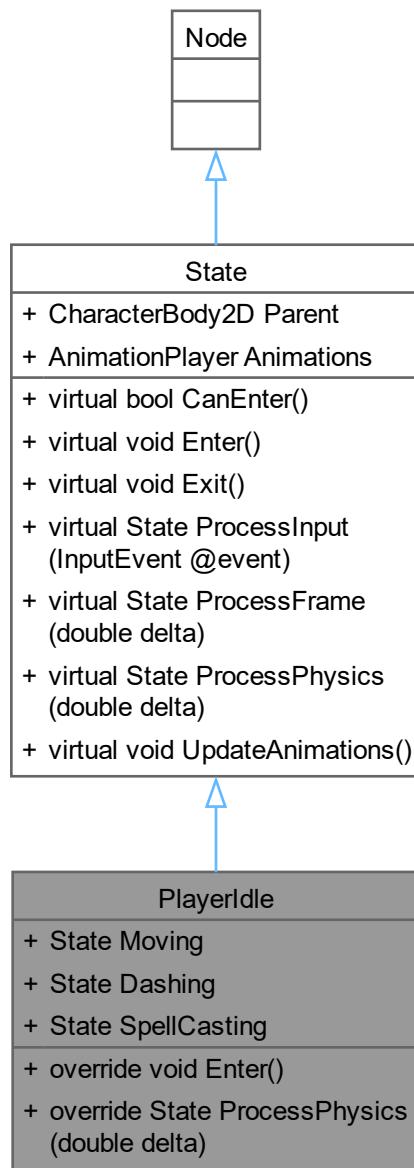
Gets called when the player presses the Try Again button. Simply calls TryAgain using CallDeferred to avoid problems

The documentation for this class was generated from the following file:

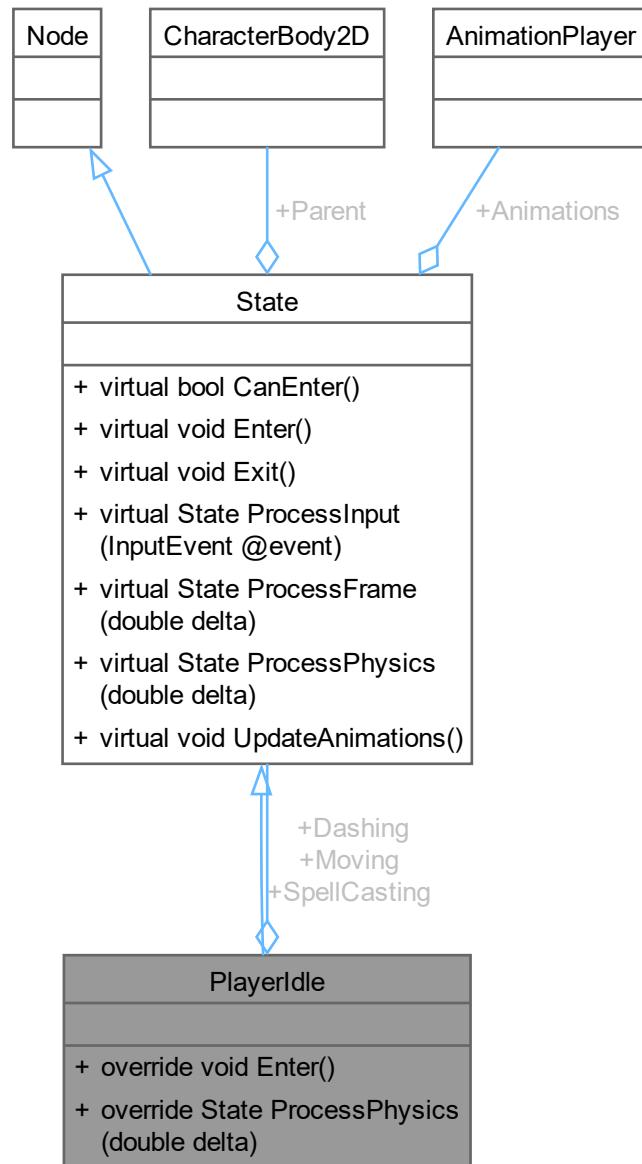
- TheMagicApprentice/modules/ui/player_death_menu/[PlayerDeathMenu.cs](#)

7.65 PlayerIdle Class Reference

Inheritance diagram for PlayerIdle:



Collaboration diagram for PlayerIdle:



Public Member Functions

- override void [Enter \(\)](#)
- override [State ProcessPhysics](#) (double delta)

Public Member Functions inherited from [State](#)

- virtual bool [CanEnter \(\)](#)
- virtual void [Exit \(\)](#)

- virtual [State ProcessInput](#) ([InputEvent @event](#))
- virtual [State ProcessFrame](#) (double delta)
- virtual void [UpdateAnimations](#) ()

Public Attributes

- [State Moving](#)
Reference to Moving state.
- [State Dashing](#)
Reference to Dashing state.
- [State SpellCasting](#)
Reference to SpellCasting state.

Public Attributes inherited from [State](#)

- [CharacterBody2D Parent](#)
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- [AnimationPlayer Animations](#)
Reference to the AnimationPlayer of the entity.

7.65.1 Member Function Documentation

7.65.1.1 Enter()

```
override void PlayerIdle.Enter () [inline], [virtual]
```

Play idle animation when we enter this state

Reimplemented from [State](#).

7.65.1.2 ProcessPhysics()

```
override State PlayerIdle.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented from [State](#).

7.65.2 Member Data Documentation

7.65.2.1 Dashing

```
State PlayerIdle.Dashing
```

Reference to Dashing state.

7.65.2.2 Moving

`State PlayerIdle.Moving`

Reference to Moving state.

7.65.2.3 SpellCasting

`State PlayerIdle.SpellCasting`

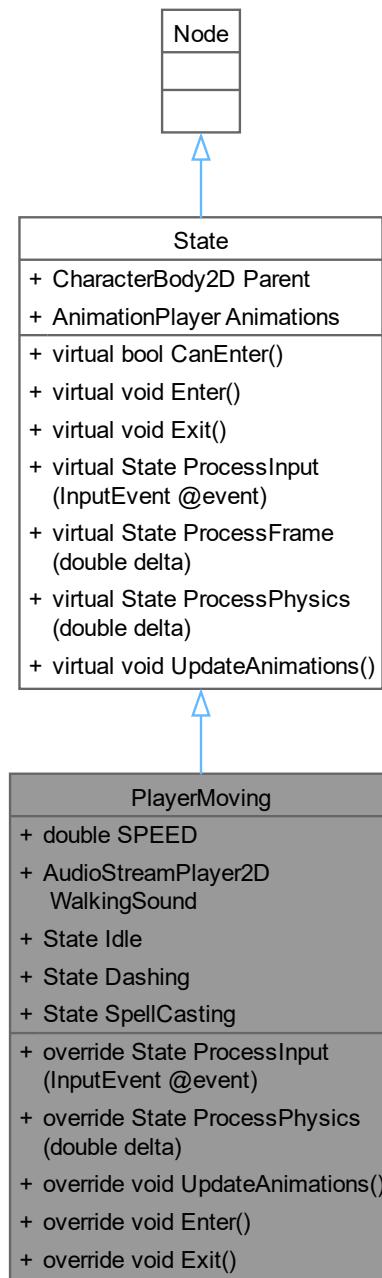
Reference to SpellCasting state.

The documentation for this class was generated from the following file:

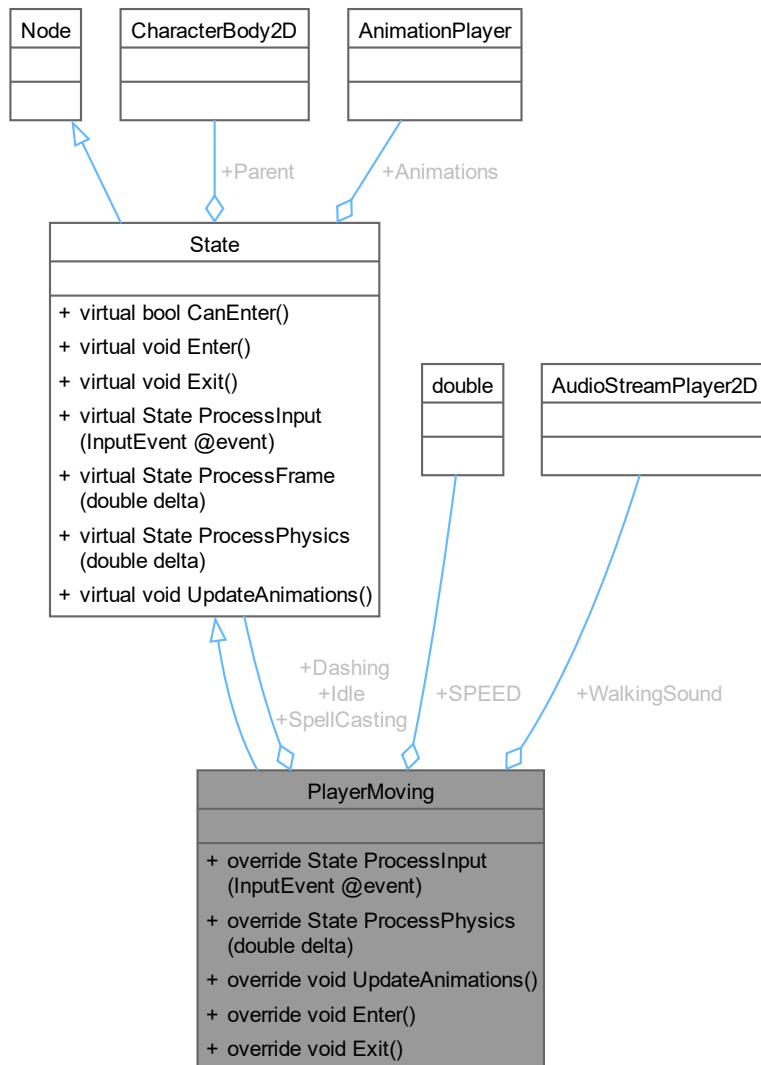
- TheMagicApprentice/modules/entities/player/states/[PlayerIdle.cs](#)

7.66 PlayerMoving Class Reference

Inheritance diagram for PlayerMoving:



Collaboration diagram for PlayerMoving:



Public Member Functions

- `override State ProcessInput (InputEvent @event)`
- `override State ProcessPhysics (double delta)`
- `override void UpdateAnimations ()`
- `override void Enter ()`
- `override void Exit ()`

Public Member Functions inherited from State

- `virtual bool CanEnter ()`
- `virtual State ProcessFrame (double delta)`

Public Attributes

- double **SPEED** = 100
Movement speed.
- AudioStreamPlayer2D **WalkingSound**
Reference to the AudioStreamPlayer2D for the walking sound.
- **State Idle**
Reference to Idle state.
- **State Dashing**
Reference to Dashing state.
- **State SpellCasting**
Reference to SpellCasting state.

Public Attributes inherited from [State](#)

- CharacterBody2D **Parent**
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer **Animations**
Reference to the AnimationPlayer of the entity.

7.66.1 Member Function Documentation

7.66.1.1 Enter()

```
override void PlayerMoving.Enter () [inline], [virtual]
```

Start playing the walking sound when entering

Reimplemented from [State](#).

7.66.1.2 Exit()

```
override void PlayerMoving.Exit () [inline], [virtual]
```

Stops the walking sound from playing when we leave the state

Reimplemented from [State](#).

7.66.1.3 ProcessInput()

```
override State PlayerMoving.ProcessInput (
    InputEvent @ event) [inline], [virtual]
```

If the state is the current state this function gets called whenever there is an unhandled input

Reimplemented from [State](#).

7.66.1.4 ProcessPhysics()

```
override State PlayerMoving.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented from [State](#).

7.66.1.5 UpdateAnimations()

```
override void PlayerMoving.UpdateAnimations () [inline], [virtual]
```

Change the animation depending on the current movement of the player

Reimplemented from [State](#).

7.66.2 Member Data Documentation

7.66.2.1 Dashing

```
State PlayerMoving.Dashing
```

Reference to Dashing state.

7.66.2.2 Idle

```
State PlayerMoving.Idle
```

Reference to Idle state.

7.66.2.3 SPEED

```
double PlayerMoving.SPEED = 100
```

Movement speed.

7.66.2.4 SpellCasting

```
State PlayerMoving.SpellCasting
```

Reference to SpellCasting state.

7.66.2.5 WalkingSound

AudioStreamPlayer2D PlayerMoving.WalkingSound

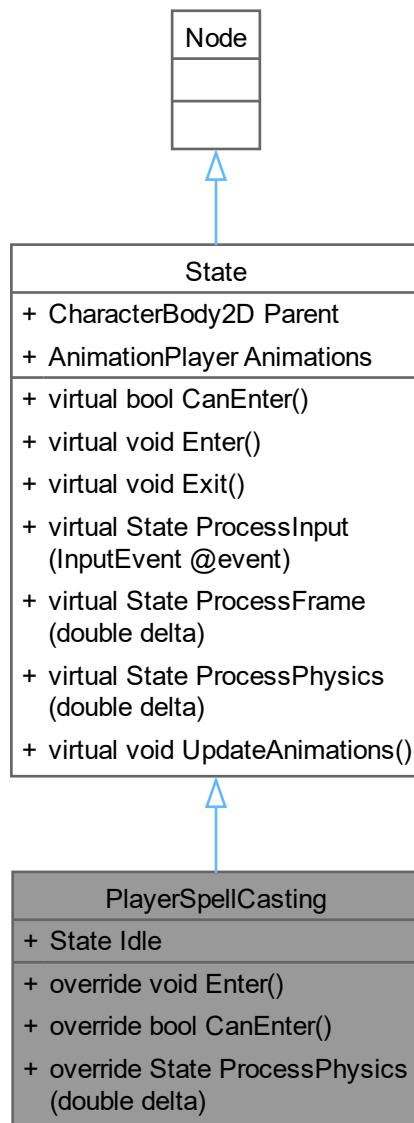
Reference to the AudioStreamPlayer2D for the walking sound.

The documentation for this class was generated from the following file:

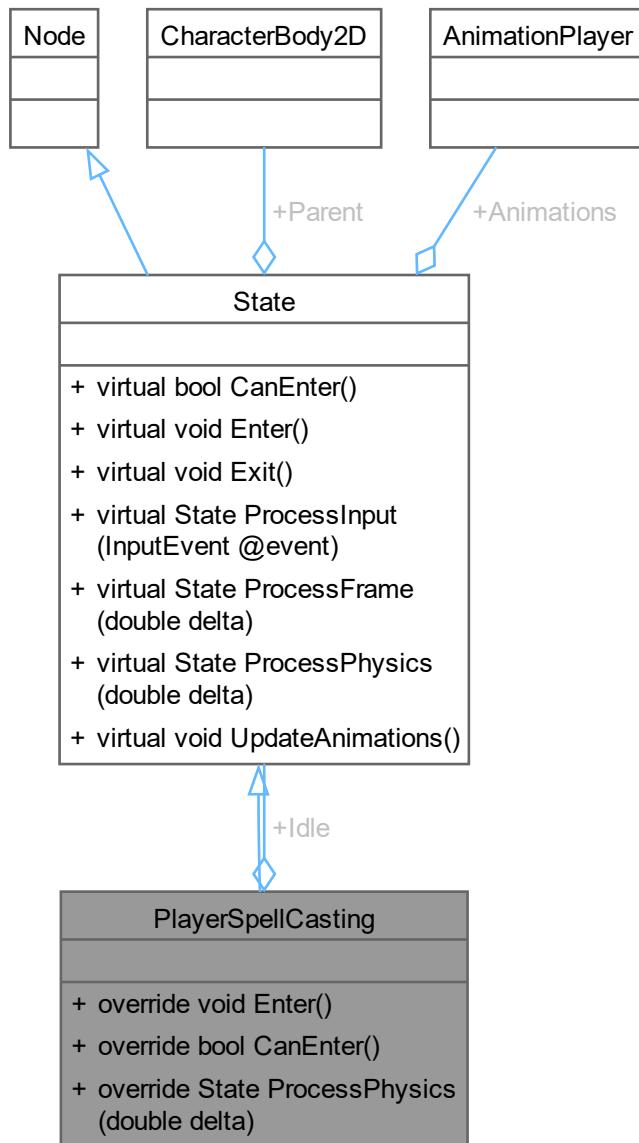
- TheMagicApprentice/modules/entities/player/states/[PlayerMoving.cs](#)

7.67 PlayerSpellCasting Class Reference

Inheritance diagram for PlayerSpellCasting:



Collaboration diagram for PlayerSpellCasting:



Public Member Functions

- `override void Enter ()`
- `override bool CanEnter ()`
- `override State ProcessPhysics (double delta)`

Public Member Functions inherited from `State`

- `virtual void Exit ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`
- `virtual void UpdateAnimations ()`

Public Attributes

- [State Idle](#)

Reference to the Idle state.

Public Attributes inherited from [State](#)

- [CharacterBody2D Parent](#)

Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

- [AnimationPlayer Animations](#)

Reference to the AnimationPlayer of the entity.

7.67.1 Member Function Documentation

7.67.1.1 [CanEnter\(\)](#)

```
override bool PlayerSpellCasting.CanEnter () [inline], [virtual]
```

Called before we enter the state. Checks if we are allowed to enter the state

Reimplemented from [State](#).

7.67.1.2 [Enter\(\)](#)

```
override void PlayerSpellCasting.Enter () [inline], [virtual]
```

Get the correct spell by checking whether spell1, spell2 or spell3 was cast. Then cast it and set the time left to the duration given by the spell. TODO: Spells are not yet implemented so this does nothing.

Reimplemented from [State](#).

7.67.1.3 [ProcessPhysics\(\)](#)

```
override State PlayerSpellCasting.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented from [State](#).

7.67.2 Member Data Documentation

7.67.2.1 [Idle](#)

```
State PlayerSpellCasting.Idle
```

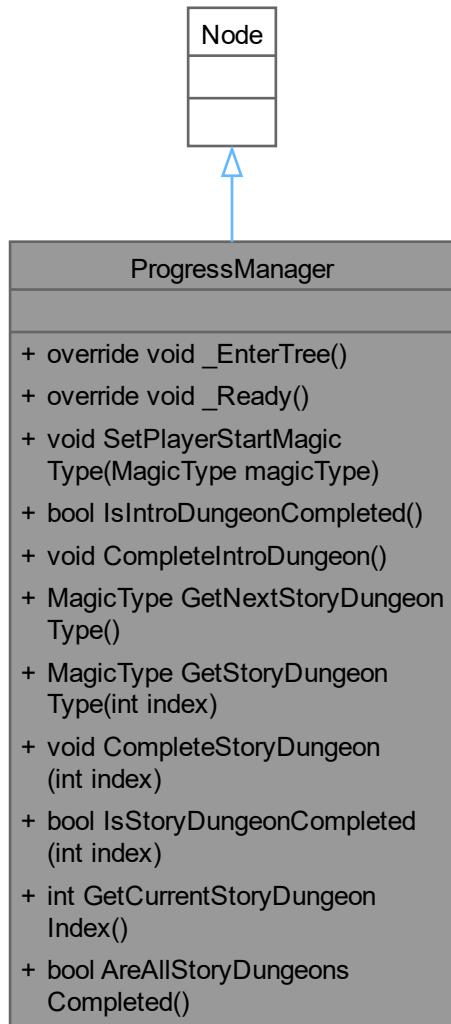
Reference to the Idle state.

The documentation for this class was generated from the following file:

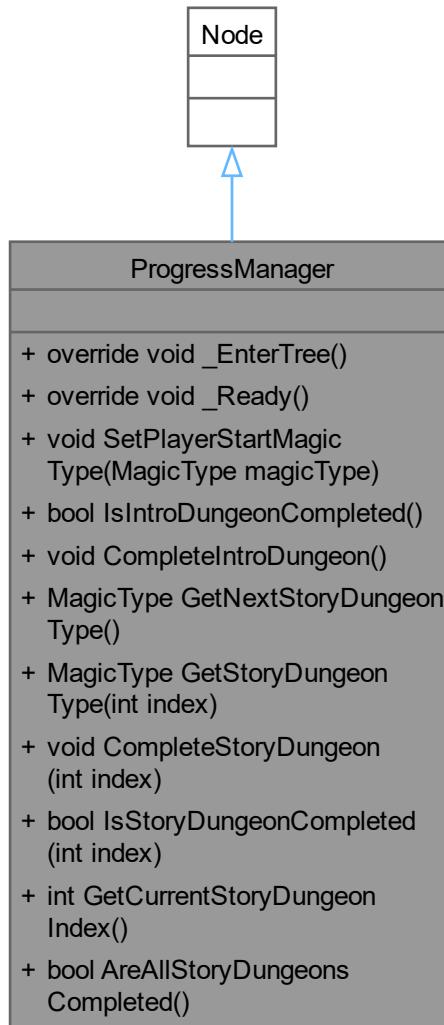
- TheMagicApprentice/modules/entities/player/states/[PlayerSpellCasting.cs](#)

7.68 ProgressManager Class Reference

Inheritance diagram for ProgressManager:



Collaboration diagram for ProgressManager:



Public Member Functions

- override void `_EnterTree ()`
- override void `_Ready ()`
- void `SetPlayerStartMagicType (MagicType magicType)`
- bool `IsIntroDungeonCompleted ()`
- void `CompleteIntroDungeon ()`
- `MagicType GetNextStoryDungeonType ()`
- `MagicType GetStoryDungeonType (int index)`
- void `CompleteStoryDungeon (int index)`
- bool `IsStoryDungeonCompleted (int index)`
- int `GetCurrentStoryDungeonIndex ()`
- bool `AreAllStoryDungeonsCompleted ()`

7.68.1 Member Function Documentation

7.68.1.1 `_EnterTree()`

```
override void ProgressManager._EnterTree () [inline]
```

Called when the node is added to the scene tree, adds this node to the progress_manager group.

7.68.1.2 `_Ready()`

```
override void ProgressManager._Ready () [inline]
```

7.68.1.3 `AreAllStoryDungeonsCompleted()`

```
bool ProgressManager.AreAllStoryDungeonsCompleted () [inline]
```

7.68.1.4 `CompleteIntroDungeon()`

```
void ProgressManager.CompleteIntroDungeon () [inline]
```

7.68.1.5 `CompleteStoryDungeon()`

```
void ProgressManager.CompleteStoryDungeon (
    int index) [inline]
```

7.68.1.6 `GetCurrentStoryDungeonIndex()`

```
int ProgressManager.GetCurrentStoryDungeonIndex () [inline]
```

7.68.1.7 `GetNextStoryDungeonType()`

```
MagicType ProgressManager.GetNextStoryDungeonType () [inline]
```

7.68.1.8 `GetStoryDungeonType()`

```
MagicType ProgressManager.GetStoryDungeonType (
    int index) [inline]
```

7.68.1.9 `IsIntroDungeonCompleted()`

```
bool ProgressManager.IsIntroDungeonCompleted () [inline]
```

7.68.1.10 IsStoryDungeonCompleted()

```
bool ProgressManager.IsStoryDungeonCompleted (
    int index) [inline]
```

7.68.1.11 SetPlayerStartMagicType()

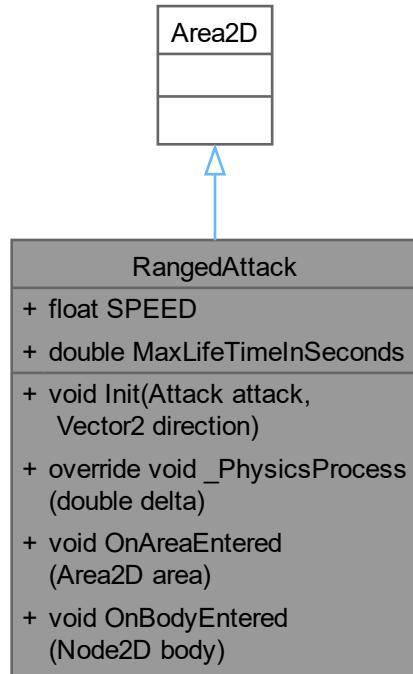
```
void ProgressManager.SetPlayerStartMagicType (
    MagicType magicType) [inline]
```

The documentation for this class was generated from the following file:

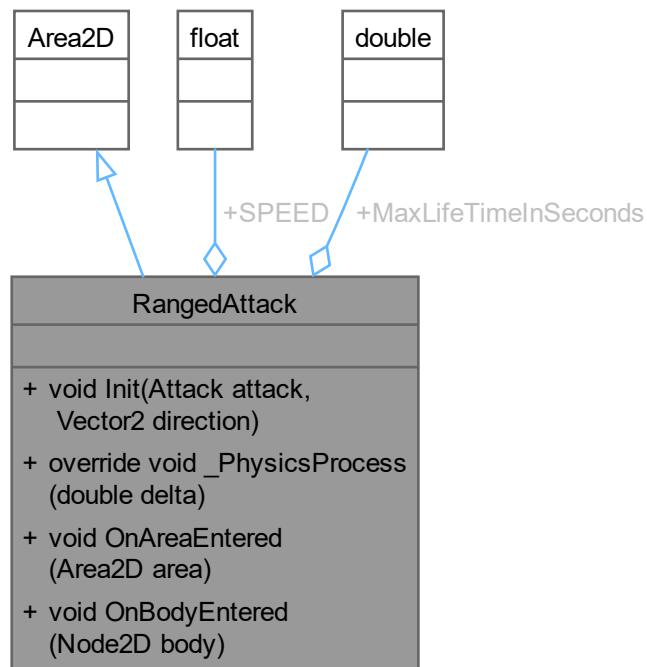
- [TheMagicApprentice/modules/handlers/ProgressManager.cs](#)

7.69 RangedAttack Class Reference

Inheritance diagram for RangedAttack:



Collaboration diagram for RangedAttack:



Public Member Functions

- void [Init \(Attack attack, Vector2 direction\)](#)
- override void [_PhysicsProcess \(double delta\)](#)
- void [OnAreaEntered \(Area2D area\)](#)
- void [OnBodyEntered \(Node2D body\)](#)

Public Attributes

- float [SPEED](#) = 100
Speed of the attack. Do not set too high or evading might be too difficult.
- double [MaxLifeTimeInSeconds](#) = 5

7.69.1 Member Function Documentation

7.69.1.1 [_PhysicsProcess\(\)](#)

```
override void RangedAttack._PhysicsProcess (
    double delta) [inline]
```

Change position of the projectile. Count down the max life time of the projectile and remove the projectile once the time is up

7.69.1.2 Init()

```
void RangedAttack.Init (
    Attack attack,
    Vector2 direction) [inline]
```

Set attack and direction which are given to the Init function. LookAt is used to ensure that the sprite with the projectile looks in the correct direction. The colour of the sprite is adapted based on the Magic type the attack has.
NOTE: if the projectiles get changed, maybe a change in png becomes necessary here

7.69.1.3 OnAreaEntered()

```
void RangedAttack.OnAreaEntered (
    Area2D area) [inline]
```

Gets called when the projectile hits a Health component since health components use area2Ds. Since the projectile's mask layer is set to the player layer, it cannot hit other slimes.

7.69.1.4 OnBodyEntered()

```
void RangedAttack.OnBodyEntered (
    Node2D body) [inline]
```

Since parts of the tilemap that have a collision layer are not area2D nodes, body entered is necessary to use. This function detects collisions with all types of 2D nodes. Check if the projectile entered a part of the tilemap, which means a wall or object, and remove the projectile. This requires mask 1 (Collision) to be set!

7.69.2 Member Data Documentation

7.69.2.1 MaxLifeTimeInSeconds

```
double RangedAttack.MaxLifeTimeInSeconds = 5
```

7.69.2.2 SPEED

```
float RangedAttack.SPEED = 100
```

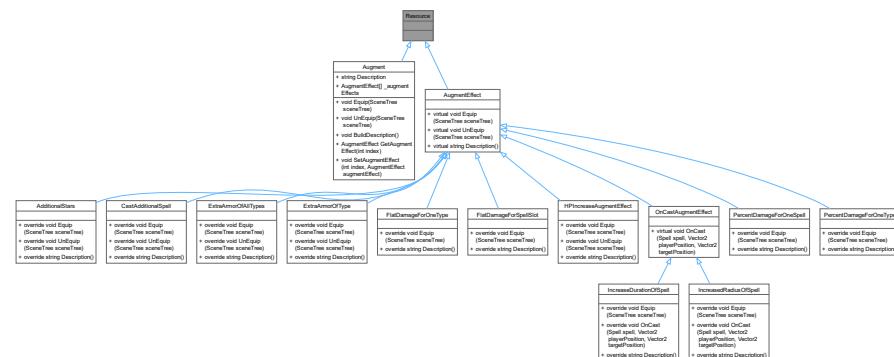
Speed of the attack. Do not set too high or evading might be too difficult.

The documentation for this class was generated from the following file:

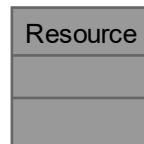
- TheMagicApprentice/modules/entities/slimes/slime-attacks/[RangedAttack.cs](#)

7.70 Resource Class Reference

Inheritance diagram for Resource:



Collaboration diagram for Resource:



The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/augments/[Augment.cs](#)

7.71 Room Class Reference

Collaboration diagram for Room:

| Room |
|---|
| + RoomType Type |
| + string ScenePath |
| + bool IsVisited |
| + bool IsCleared |
| + Room() |
| + Room(RoomType type, string scenePath) |

Public Member Functions

- [Room \(\)](#)
- [Room \(RoomType type, string scenePath\)](#)

Properties

- [RoomType Type \[get, set\]](#)
- [string ScenePath \[get, set\]](#)
- [bool IsVisited \[get, set\]](#)
- [bool IsCleared \[get, set\]](#)

7.71.1 Constructor & Destructor Documentation

7.71.1.1 Room() [1/2]

`Room.Room () [inline]`

Parameterless constructor for JSON deserialization.

7.71.1.2 Room() [2/2]

`Room.Room (`
 [RoomType type,](#)
 [string scenePath\) \[inline\]](#)

7.71.2 Property Documentation

7.71.2.1 IsCleared

```
bool Room.IsCleared [get], [set]
```

7.71.2.2 IsVisited

```
bool Room.IsVisited [get], [set]
```

7.71.2.3 ScenePath

```
string Room.ScenePath [get], [set]
```

7.71.2.4 Type

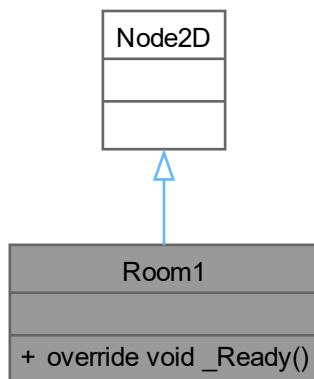
```
RoomType Room.Type [get], [set]
```

The documentation for this class was generated from the following file:

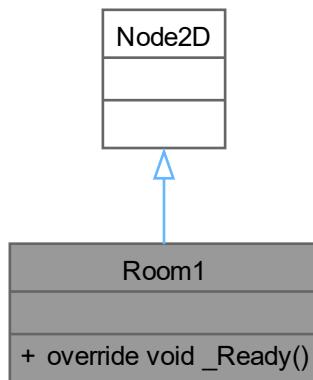
- TheMagicApprentice/modules/handlers/[Room.cs](#)

7.72 Room1 Class Reference

Inheritance diagram for Room1:



Collaboration diagram for Room1:



Public Member Functions

- `override void _Ready ()`

7.72.1 Member Function Documentation

7.72.1.1 _Ready()

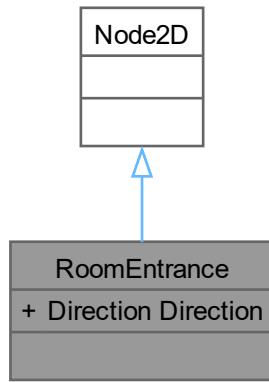
```
override void Room1._Ready () [inline]
```

The documentation for this class was generated from the following file:

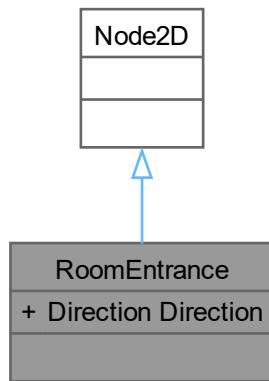
- [TheMagicApprentice/modules/rooms/Room1.cs](#)

7.73 RoomEntrance Class Reference

Inheritance diagram for RoomEntrance:



Collaboration diagram for RoomEntrance:



Properties

- [Direction Direction](#) [get, set]
The direction of the room entrance.

7.73.1 Property Documentation

7.73.1.1 Direction

```
Direction RoomEntrance.Direction [get], [set]
```

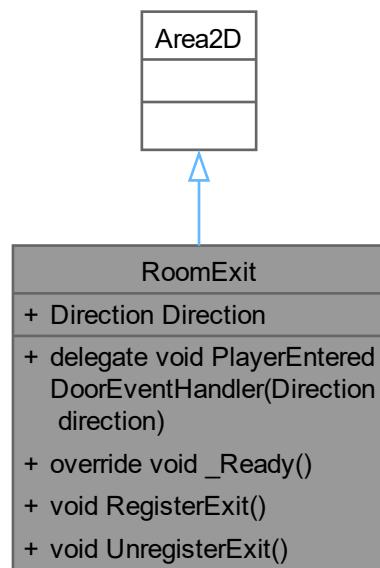
The direction of the room entrance.

The documentation for this class was generated from the following file:

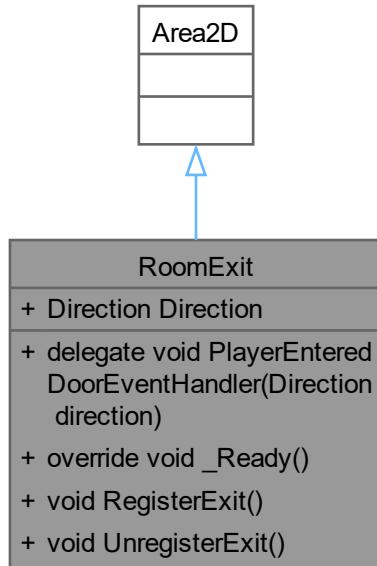
- [TheMagicApprentice/modules/rooms/RoomEntrance.cs](#)

7.74 RoomExit Class Reference

Inheritance diagram for RoomExit:



Collaboration diagram for RoomExit:



Public Member Functions

- delegate void [PlayerEnteredDoorEventHandler](#) (Direction direction)
Signal emitted when the player enters the door.
- override void [_Ready](#) ()
- void [RegisterExit](#) ()
- void [UnregisterExit](#) ()

Properties

- [Direction Direction](#) [get, set]
The direction from which the player entered the door.

7.74.1 Detailed Description

A room exit node that emits a signal when the player enters the door. Once a detection with the player is detected, a signal is emitted with the direction from which the player entered the door, which is used by [DungeonHandler](#) to load the next room.

7.74.2 Member Function Documentation

7.74.2.1 [_Ready\(\)](#)

```
override void RoomExit._Ready () [inline]
```

7.74.2.2 PlayerEnteredDoorEventHandler()

```
delegate void RoomExit.PlayerEnteredDoorEventHandler (
    Direction direction)
```

Signal emitted when the player enters the door.

7.74.2.3 RegisterExit()

```
void RoomExit.RegisterExit () [inline]
```

Called when the room is initialized. Connects the BodyEntered signal to the OnBodyEntered method to detect [Player](#) Exits.

7.74.2.4 UnregisterExit()

```
void RoomExit.UnregisterExit () [inline]
```

7.74.3 Property Documentation

7.74.3.1 Direction

[Direction](#) RoomExit.Direction [get], [set]

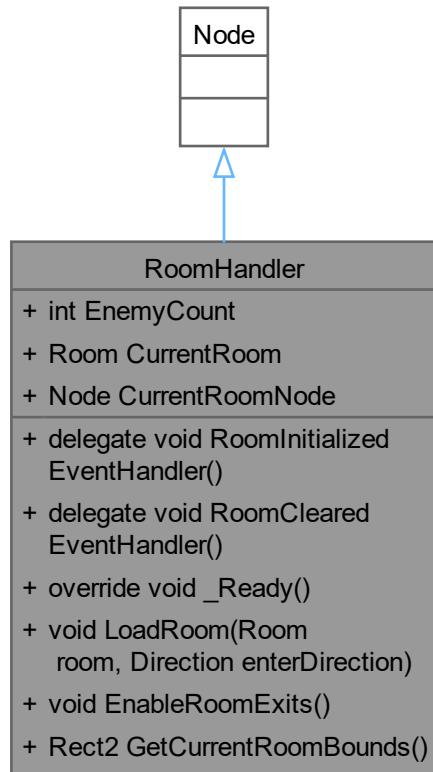
The direction from which the player entered the door.

The documentation for this class was generated from the following file:

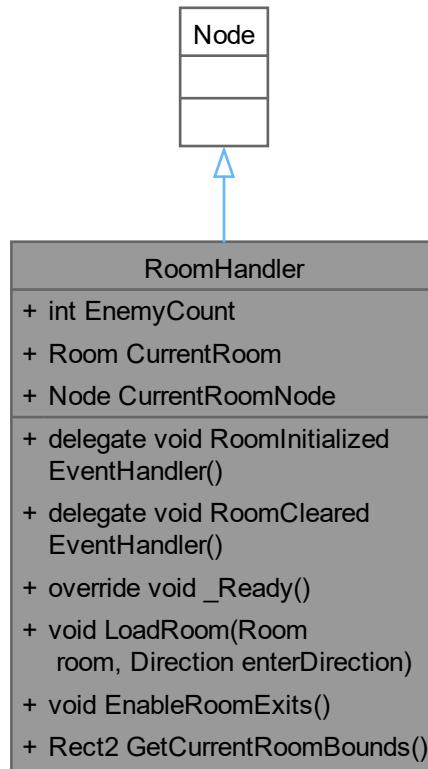
- TheMagicApprentice/modules/rooms/[RoomExit.cs](#)

7.75 RoomHandler Class Reference

Inheritance diagram for RoomHandler:



Collaboration diagram for RoomHandler:



Public Member Functions

- delegate void [RoomInitializedEventHandler \(\)](#)
Signal emitted after a new room is loaded.
- delegate void [RoomClearedEventHandler \(\)](#)
Signal emitted once all enemies in the room have been killed.
- override void [_Ready \(\)](#)
- void [LoadRoom \(Room room, Direction enterDirection\)](#)
- void [EnableRoomExits \(\)](#)
- Rect2 [GetCurrentRoomBounds \(\)](#)

Properties

- int [EnemyCount = 3](#) [get, set]
Number of enemies to spawn in each room.
- Room [CurrentRoom](#) [get]
Reference to the current room object.
- Node [CurrentRoomNode](#) [get]
Reference to the current room node. Has to contain a "TileMap" node.

7.75.1 Member Function Documentation

7.75.1.1 `_Ready()`

```
override void RoomHandler._Ready () [inline]
```

Called when the node is added to the scene. Initializes the player and room handler, and loads the initial room.

7.75.1.2 `EnableRoomExits()`

```
void RoomHandler.EnableRoomExits () [inline]
```

Enables the Rooms Exits.

7.75.1.3 `GetCurrentRoomBounds()`

```
Rect2 RoomHandler.GetCurrentRoomBounds () [inline]
```

Gets the current room bounds in real-world coordinates.

Returns

The current room bounds in real-world coordinates.

7.75.1.4 `LoadRoom()`

```
void RoomHandler.LoadRoom (
    Room room,
    Direction enterDirection) [inline]
```

Loads a room by name and sets the player's position based on the entrance direction.

Parameters

| | |
|-----------------------------|--|
| <code>roomName</code> | The name of the room to load. |
| <code>enterDirection</code> | The direction from which the player enters the room. |

7.75.1.5 `RoomClearedEventHandler()`

```
delegate void RoomHandler.RoomClearedEventHandler ()
```

Signal emitted once all enemies in the room have been killed.

7.75.1.6 `RoomInitializedEventHandler()`

```
delegate void RoomHandler.RoomInitializedEventHandler ()
```

Signal emitted after a new room is loaded.

7.75.2 Property Documentation

7.75.2.1 CurrentRoom

`Room` RoomHandler.CurrentRoom [get]

Reference to the current room object.

7.75.2.2 CurrentRoomNode

`Node` RoomHandler.CurrentRoomNode [get]

Reference to the current room node. Has to contain a "TileMap" node.

7.75.2.3 EnemyCount

`int` RoomHandler.EnemyCount = 3 [get], [set]

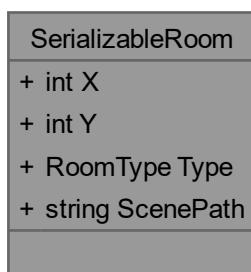
Number of enemies to spawn in each room.

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/handlers/[RoomHandler.cs](#)

7.76 SerializableRoom Class Reference

Collaboration diagram for SerializableRoom:



Properties

- `int X` [get, set]
- `int Y` [get, set]
- `RoomType Type` [get, set]
- `string ScenePath` [get, set]

7.76.1 Property Documentation

7.76.1.1 ScenePath

```
string SerializableRoom.ScenePath [get], [set]
```

7.76.1.2 Type

```
RoomType SerializableRoom.Type [get], [set]
```

7.76.1.3 X

```
int SerializableRoom.X [get], [set]
```

7.76.1.4 Y

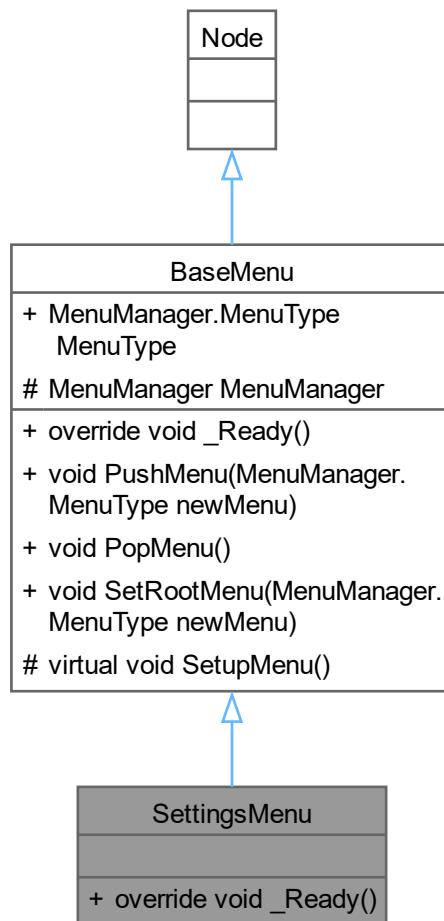
```
int SerializableRoom.Y [get], [set]
```

The documentation for this class was generated from the following file:

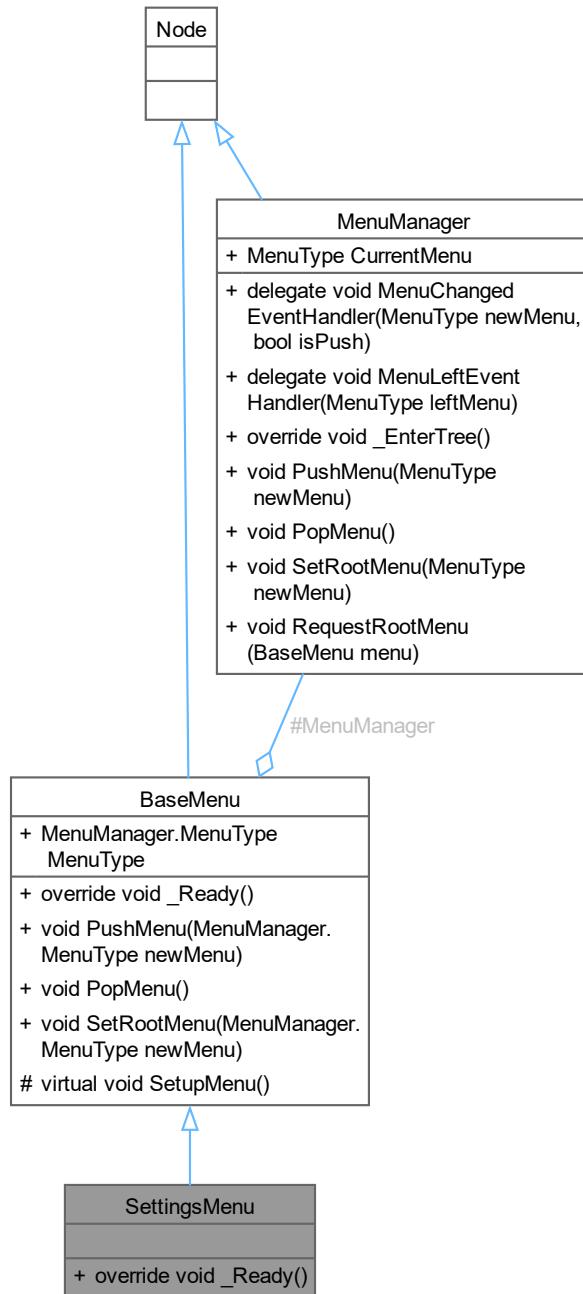
- TheMagicApprentice/modules/handlers/[Dungeon.cs](#)

7.77 SettingsMenu Class Reference

Inheritance diagram for SettingsMenu:



Collaboration diagram for SettingsMenu:



Public Member Functions

- `override void _Ready ()`

Public Member Functions inherited from `BaseMenu`

- `override void _Ready ()`

- void [PushMenu](#) ([MenuManager.MenuType](#) newMenu)
- void [PopMenu](#) ()
- void [SetRootMenu](#) ([MenuManager.MenuType](#) newMenu)

Additional Inherited Members

Protected Member Functions inherited from [BaseMenu](#)

- virtual void [SetupMenu](#) ()

Protected Attributes inherited from [BaseMenu](#)

- [MenuManager](#) [MenuManager](#)

Properties inherited from [BaseMenu](#)

- [MenuManager.MenuType](#) [MenuType](#) [get, protected set]

7.77.1 Member Function Documentation

7.77.1.1 [_Ready\(\)](#)

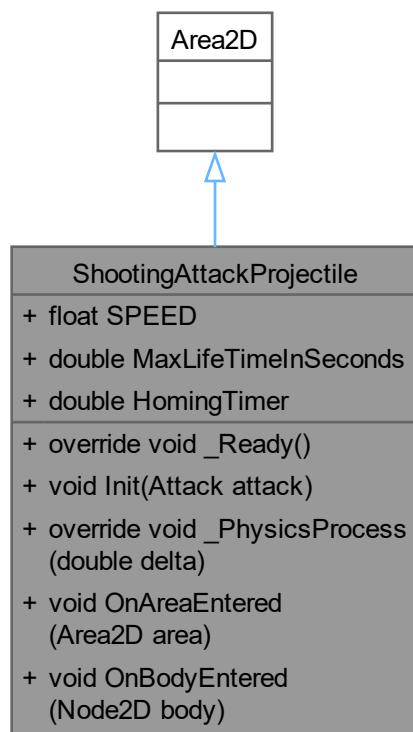
```
override void SettingsMenu._Ready () [inline]
```

The documentation for this class was generated from the following file:

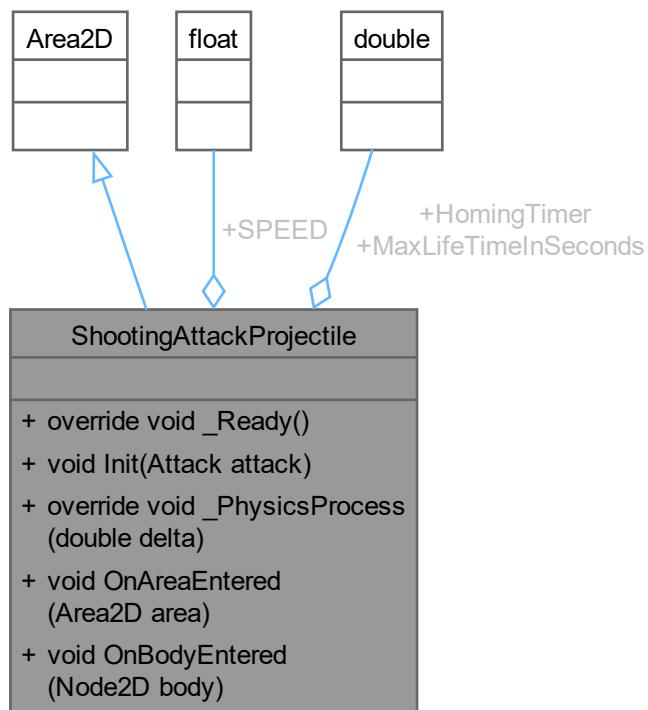
- TheMagicApprentice/modules/ui/settings_menu/[SettingsMenu.cs](#)

7.78 ShootingAttackProjectile Class Reference

Inheritance diagram for ShootingAttackProjectile:



Collaboration diagram for ShootingAttackProjectile:



Public Member Functions

- override void `_Ready()`
- void `Init(Attack attack)`
- override void `_PhysicsProcess(double delta)`
- void `OnAreaEntered(Area2D area)`
- void `OnBodyEntered(Node2D body)`

Public Attributes

- float `SPEED = 300`
Speed of the attack. Do not set too high or evading might be too difficult.
- double `MaxLifeTimeInSeconds = 5`
maximum life time of the projectile, the projectile is remove afterwards
- double `HomingTimer = 1`
time after spawn in which the projectile changes its direction according to the position of the player

7.78.1 Member Function Documentation

7.78.1.1 `_PhysicsProcess()`

```
override void ShootingAttackProjectile._PhysicsProcess (
    double delta) [inline]
```

Change position of the projectile. Count down homing timer. As long as the homing timer is not up, accelerate the projectile in the direction of the current position of the player. Once the homing timer is up, the projectile keeps the last direction. Count down the max life time of the projectile and remove the projectile once the time is up

7.78.1.2 `_Ready()`

```
override void ShootingAttackProjectile._Ready () [inline]
```

Initialise the random number generator needed to generate a random direction for the projectile. Set player so that the direction from the unicorn to the player can be determined later.

7.78.1.3 `Init()`

```
void ShootingAttackProjectile.Init (
    Attack attack) [inline]
```

Initialise the projectiles parameters. Set the attack so that the projectile can damage the player when hitting them. Set max life time in seconds after which the projectile is removed again. Initialise the direction of the projectile as a random direction. Set the homing timer, which is the time the projectile is accelerated towards the current position of the player

7.78.1.4 `OnAreaEntered()`

```
void ShootingAttackProjectile.OnAreaEntered (
    Area2D area) [inline]
```

Gets called when the spell hits a Health component since health components use area2Ds. Projectile mask is set such, that it can only hit the player.

7.78.1.5 `OnBodyEntered()`

```
void ShootingAttackProjectile.OnBodyEntered (
    Node2D body) [inline]
```

Since parts of the tilemap that have a collision layer are not area2D nodes, body entered is necessary to use. This function detects collisions with all types of 2D nodes. Check if the projectile entered a part of the tilemap, which means a wall or object, and remove the projectile. This requires mask 1 (Collision) to be set!

7.78.2 Member Data Documentation

7.78.2.1 HomingTimer

```
double ShootingAttackProjectile.HomingTimer = 1
```

time after spawn in which the projectile changes its direction according to the position of the player

7.78.2.2 MaxLifeTimeInSeconds

```
double ShootingAttackProjectile.MaxLifeTimeInSeconds = 5
```

maximum life time of the projectile, the projectile is remove afterwards

7.78.2.3 SPEED

```
float ShootingAttackProjectile.SPEED = 300
```

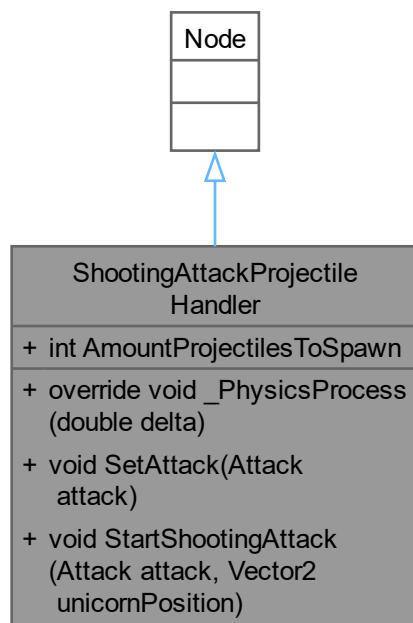
Speed of the attack. Do not set too high or evading might be too difficult.

The documentation for this class was generated from the following file:

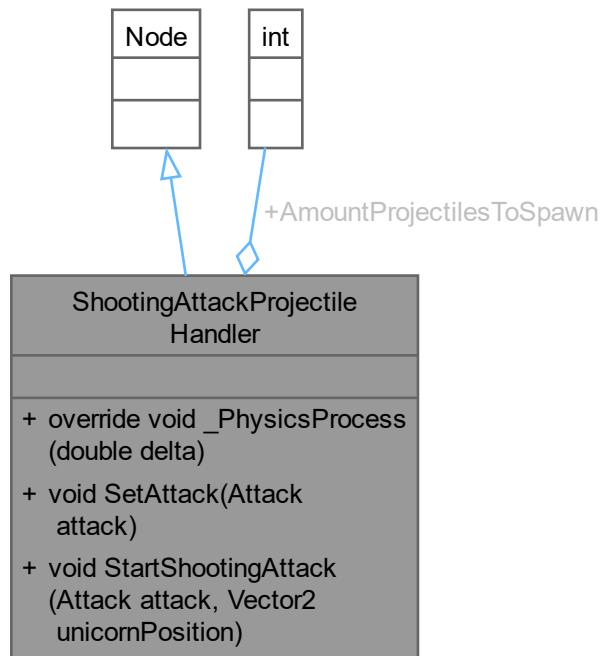
- TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/[ShootingAttackProjectile.cs](#)

7.79 ShootingAttackProjectileHandler Class Reference

Inheritance diagram for ShootingAttackProjectileHandler:



Collaboration diagram for ShootingAttackProjectileHandler:



Public Member Functions

- `override void _PhysicsProcess (double delta)`
- `void SetAttack (Attack attack)`
- `void StartShootingAttack (Attack attack, Vector2 unicornPosition)`

Public Attributes

- `int AmountProjectilesToSpawn = 10`
How many projectiles are created.

7.79.1 Member Function Documentation

7.79.1.1 `_PhysicsProcess()`

```
override void ShootingAttackProjectileHandler._PhysicsProcess (
    double delta) [inline]
```

As long as there are still projectiles that need to be spawned, spawn one projectile per physics frame and reduce the number of projectiles left to spawn by one.

7.79.1.2 SetAttack()

```
void ShootingAttackProjectileHandler.SetAttack (
    Attack attack) [inline]
```

`Attack` is currently set from the Attacking state in the ranged attack function, so right before the attack is made.

7.79.1.3 StartShootingAttack()

```
void ShootingAttackProjectileHandler.StartShootingAttack (
    Attack attack,
    Vector2 unicornPosition) [inline]
```

Starts shooting attack by setting the projectiles left to spawn and initialising the attack used for the projectiles.

7.79.2 Member Data Documentation

7.79.2.1 AmountProjectilesToSpawn

```
int ShootingAttackProjectileHandler.AmountProjectilesToSpawn = 10
```

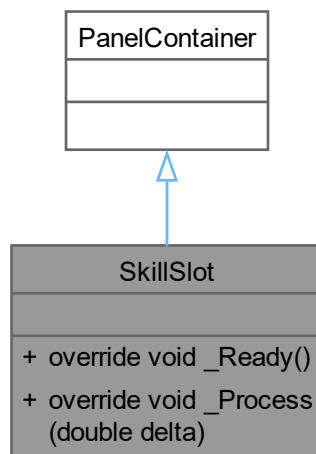
How many projectiles are created.

The documentation for this class was generated from the following file:

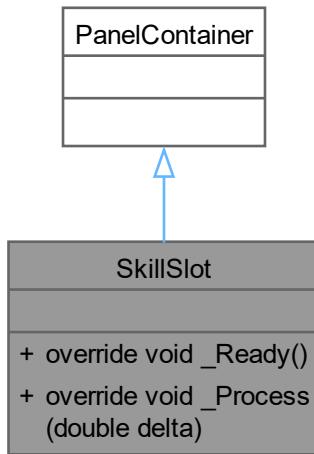
- [TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/ShootingAttackProjectileHandler.cs](#)

7.80 SkillSlot Class Reference

Inheritance diagram for SkillSlot:



Collaboration diagram for SkillSlot:



Public Member Functions

- `override void _Ready ()`
- `override void _Process (double delta)`

7.80.1 Member Function Documentation

7.80.1.1 `_Process()`

```
override void SkillSlot._Process (
    double delta) [inline]
```

7.80.1.2 `_Ready()`

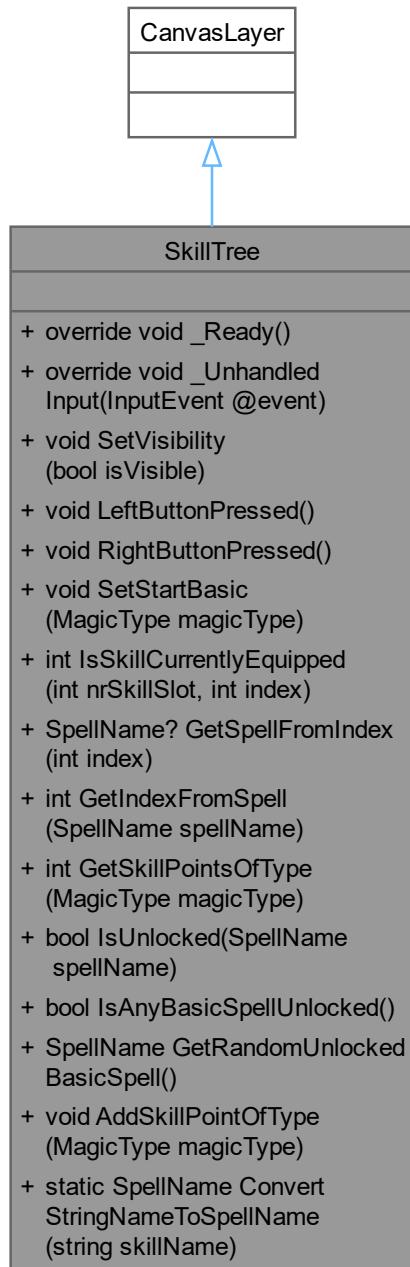
```
override void SkillSlot._Ready () [inline]
```

The documentation for this class was generated from the following file:

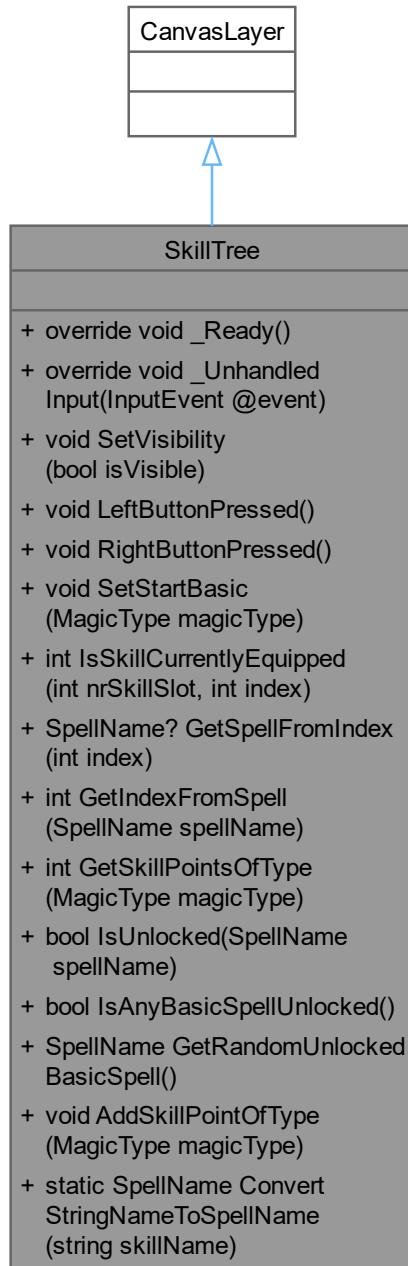
- [TheMagicApprentice/modules/entities/player/inventory/spells/SkillSlot.cs](#)

7.81 SkillTree Class Reference

Inheritance diagram for SkillTree:



Collaboration diagram for SkillTree:



Public Member Functions

- override void `_Ready()`
- override void `_UnhandledInput(InputEvent @event)`
- void `SetVisibility(bool isVisible)`
- void `LeftButtonPressed()`
- void `RightButtonPressed()`

- void `SetStartBasic (MagicType magicType)`
- int `IsSkillCurrentlyEquipped (int nrSkillSlot, int index)`
- `SpellName? GetSpellFromIndex (int index)`
- int `GetIndexFromSpell (SpellName spellName)`
- int `GetSkillPointsOfType (MagicType magicType)`
- bool `IsUnlocked (SpellName spellName)`
- bool `IsAnyBasicSpellUnlocked ()`
- `SpellName GetRandomUnlockedBasicSpell ()`
- void `AddSkillPointOfType (MagicType magicType)`

Static Public Member Functions

- static `SpellName ConvertStringNameToSpellName (string skillName)`

7.81.1 Member Function Documentation

7.81.1.1 `_Ready()`

```
override void SkillTree._Ready () [inline]
```

7.81.1.2 `_UnhandledInput()`

```
override void SkillTree._UnhandledInput (
    InputEvent @ event) [inline]
```

If Esc is pressed the `SkillTree` becomes invisible again and stops processing

7.81.1.3 `AddSkillPointOfType()`

```
void SkillTree.AddSkillPointOfType (
    MagicType magicType) [inline]
```

Add a skill point of the `MagicType` `magicType`

7.81.1.4 `ConvertStringNameToSpellName()`

```
static SpellName SkillTree.ConvertStringNameToSpellName (
    string skillName) [static]
```

Converts the `StringName` of a spell into the actual `SpellName`. Is used to convert the Name of the buttons that are the skill tree into the corresponding `SpellName`

7.81.1.5 `GetIndexFromSpell()`

```
int SkillTree.GetIndexFromSpell (
    SpellName spellName)
```

Returns the index of the `SpellName` from the OptionsButton. Is the inverse of `GetSpellFromIndex`. Is not static since technically it depends on implementation that might in the future depend on the scene.

7.81.1.6 GetRandomUnlockedBasicSpell()

```
SpellName SkillTree.GetRandomUnlockedBasicSpell () [inline]
```

Returns a random unlocked basic spell. Returns SunBasic if no basic spell is unlocked.

7.81.1.7 GetSkillPointsOfType()

```
int SkillTree.GetSkillPointsOfType (
    MagicType magicType) [inline]
```

Returns the number of SkillPoints currently available of the MagicType. Does so by reading the value from the display string. Incase there is an error with converting the string to int, it resets the skill points to 0 and returns -1 to indicate that there was something wrong (this is only really used for the tests)

7.81.1.8 GetSpellFromIndex()

```
SpellName? SkillTree.GetSpellFromIndex (
    int index)
```

Function that gets the SpellName corresponding to each index from the OptionsButton Function returns null if index is not between 0 and 8!

7.81.1.9 IsAnyBasicSpellUnlocked()

```
bool SkillTree.IsAnyBasicSpellUnlocked () [inline]
```

Returns whether any basic spell is unlocked

7.81.1.10 IsSkillCurrentlyEquipped()

```
int SkillTree.IsSkillCurrentlyEquipped (
    int nrSkillSlot,
    int index) [inline]
```

Function that checks if the selected skill is already equipped to a different skill slot Note: This function can only find one additional copy of the skill, not several. But there should never be more than one other copy of any spell. Caution: nrSkillSlot ranges from 0 to 2, while the OptionButtons have numbers from 1 to 3

7.81.1.11 IsUnlocked()

```
bool SkillTree.IsUnlocked (
    SpellName spellName) [inline]
```

Returns whether the spell is unlocked by checking if it is disabled in the first skill slot

7.81.1.12 LeftButtonPressed()

```
void SkillTree.LeftButtonPressed () [inline]
```

Gets called when the left button of the skill tree menu is pressed. Handles transition to [Augment Inventory](#)

7.81.1.13 RightButtonPressed()

```
void SkillTree.RightButtonPressed () [inline]
```

Gets called when the right button of the skill tree menu is pressed. Handles transition to Fusing Augments Menu

7.81.1.14 SetStartBasic()

```
void SkillTree.SetStartBasic (
    MagicType magicType) [inline]
```

Unlocks the basic skill of the magicType and sets it as the skill in slot 1. Is used whenever a new game is started to set the first spell of the game

7.81.1.15 SetVisibility()

```
void SkillTree.SetVisibility (
    bool isVisible) [inline]
```

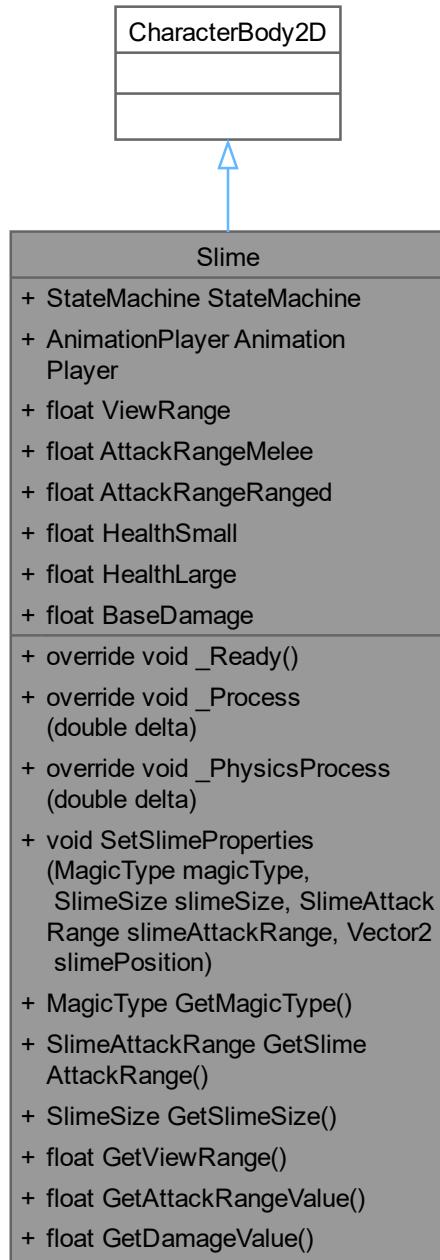
Set the visibility and the ProcessMode of the [SkillTree](#). I.e. enable and disable it.

The documentation for this class was generated from the following file:

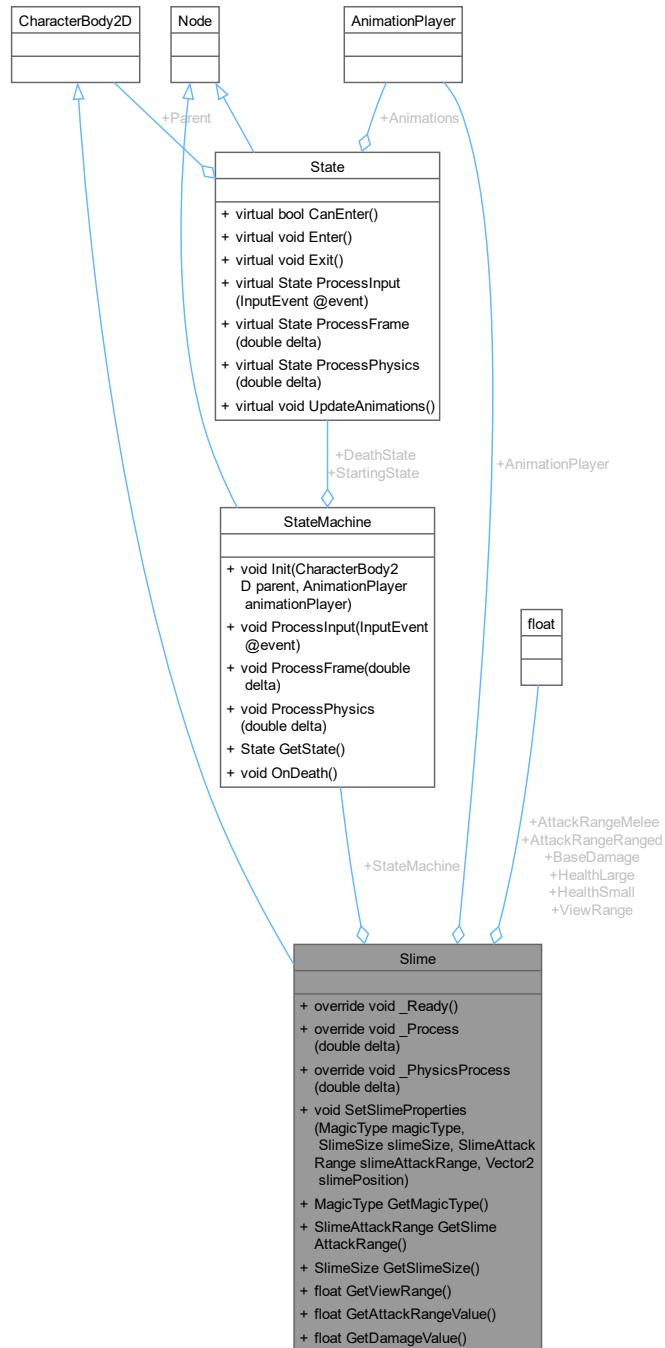
- TheMagicApprentice/modules/entities/player/inventory/spells/[SkillTree.cs](#)

7.82 Slime Class Reference

Inheritance diagram for Slime:



Collaboration diagram for Slime:



Public Member Functions

- `+ override void _Ready ()`
- `+ override void _Process (double delta)`
- `+ override void _PhysicsProcess (double delta)`
- `+ void SetSlimeProperties (MagicType magicType, SlimeSize slimeSize, SlimeAttackRange slimeAttackRange, Vector2 slimePosition)`

- `MagicType GetMagicType ()`
- `SlimeAttackRange GetSlimeAttackRange ()`
- `SlimeSize GetSlimeSize ()`
- `float GetViewRange ()`
- `float GetAttackRangeValue ()`
- `float GetDamageValue ()`

Public Attributes

- `StateMachine StateMachine`
Reference to the state machine of the slime.
- `AnimationPlayer AnimationPlayer`
Reference to the animation player of the slime.
- `float ViewRange = 100`
Range in which slimes can detect the PC (currently the same for melee and ranged, but this can be changed)
- `float AttackRangeMelee = 10`
Range from which a melee slime can attack the PC.
- `float AttackRangeRanged = 50`
Range from which a ranged slime can attack the PC.
- `float HealthSmall = 100`
Health of the small slime.
- `float HealthLarge = 200`
Health of the large slime.
- `float BaseDamage = 10`

7.82.1 Member Function Documentation

7.82.1.1 `_PhysicsProcess()`

```
override void Slime._PhysicsProcess (
    double delta) [inline]
```

Is called every physics update We simply forward the call to the state machine

7.82.1.2 `_Process()`

```
override void Slime._Process (
    double delta) [inline]
```

Is called every frame We simply forward the call to the state machine

7.82.1.3 `_Ready()`

```
override void Slime._Ready () [inline]
```

Is called when the slime enters the scene tree. Checks if the references to the state machine and the animation player are valid and then sends them to the state machine so that all states get the references

7.82.1.4 GetAttackRangeValue()

```
float Slime.GetAttackRangeValue () [inline]
```

Getter for attack range of the slime. Using this function ensures that the correct attack range is returned for every slime independent of their attack range type.

7.82.1.5 GetDamageValue()

```
float Slime.GetDamageValue () [inline]
```

Getter for damage value of the slime.

7.82.1.6 GetMagicType()

```
MagicType Slime.GetMagicType () [inline]
```

Getter for magic type of a slime.

7.82.1.7 GetSlimeAttackRange()

```
SlimeAttackRange Slime.GetSlimeAttackRange () [inline]
```

Getter for attack range type of a slime.

7.82.1.8 GetSlimeSize()

```
SlimeSize Slime.GetSlimeSize () [inline]
```

Getter for size of a slime.

7.82.1.9 GetViewRange()

```
float Slime.GetViewRange () [inline]
```

Getter for view range of the slime.

7.82.1.10 SetSlimeProperties()

```
void Slime.SetSlimeProperties (
    MagicType magicType,
    SlimeSize slimeSize,
    SlimeAttackRange slimeAttackRange,
    Vector2 slimePosition) [inline]
```

Allows to set the properties of the slime. This needs to be called whenever a new slime is added to a scene. Set magic type, slime size and slime attack range of the slime. Furthermore the position of the slime in the dungeon is set here. If the slime size is large, the collision shapes of the slime are scaled up. The default collision shapes fit the small slime. Also set view range and attack range for the slime.

7.82.2 Member Data Documentation

7.82.2.1 AnimationPlayer

```
AnimationPlayer Slime.AnimationPlayer
```

Reference to the animation player of the slime.

7.82.2.2 AttackRangeMelee

```
float Slime.AttackRangeMelee = 10
```

Range from which a melee slime can attack the PC.

7.82.2.3 AttackRangeRanged

```
float Slime.AttackRangeRanged = 50
```

Range from which a ranged slime can attack the PC.

7.82.2.4 BaseDamage

```
float Slime.BaseDamage = 10
```

7.82.2.5 HealthLarge

```
float Slime.HealthLarge = 200
```

Health of the large slime.

7.82.2.6 HealthSmall

```
float Slime.HealthSmall = 100
```

Health of the small slime.

7.82.2.7 StateMachine

```
StateMachine Slime.StateMachine
```

Reference to the state machine of the slime.

7.82.2.8 ViewRange

```
float Slime.ViewRange = 100
```

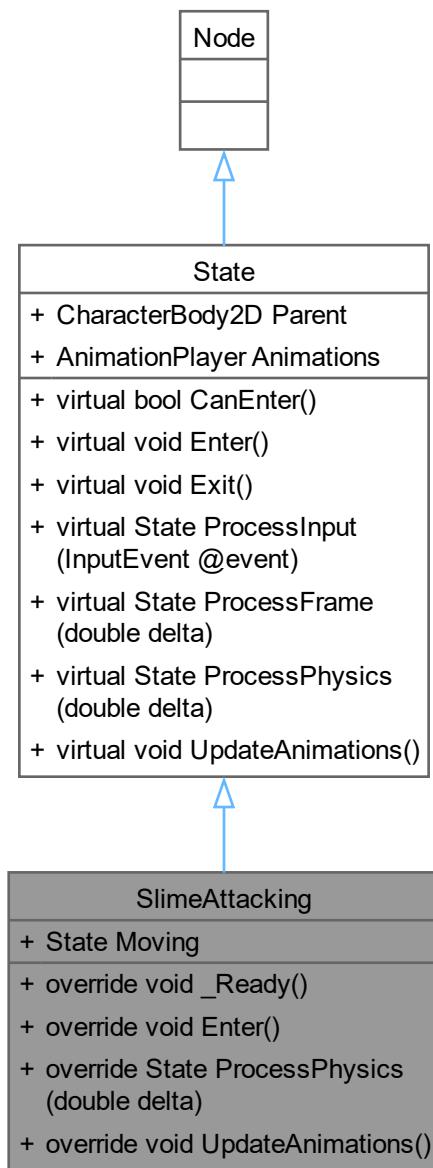
Range in which slimes can detect the PC (currently the same for melee and ranged, but this can be changed)

The documentation for this class was generated from the following file:

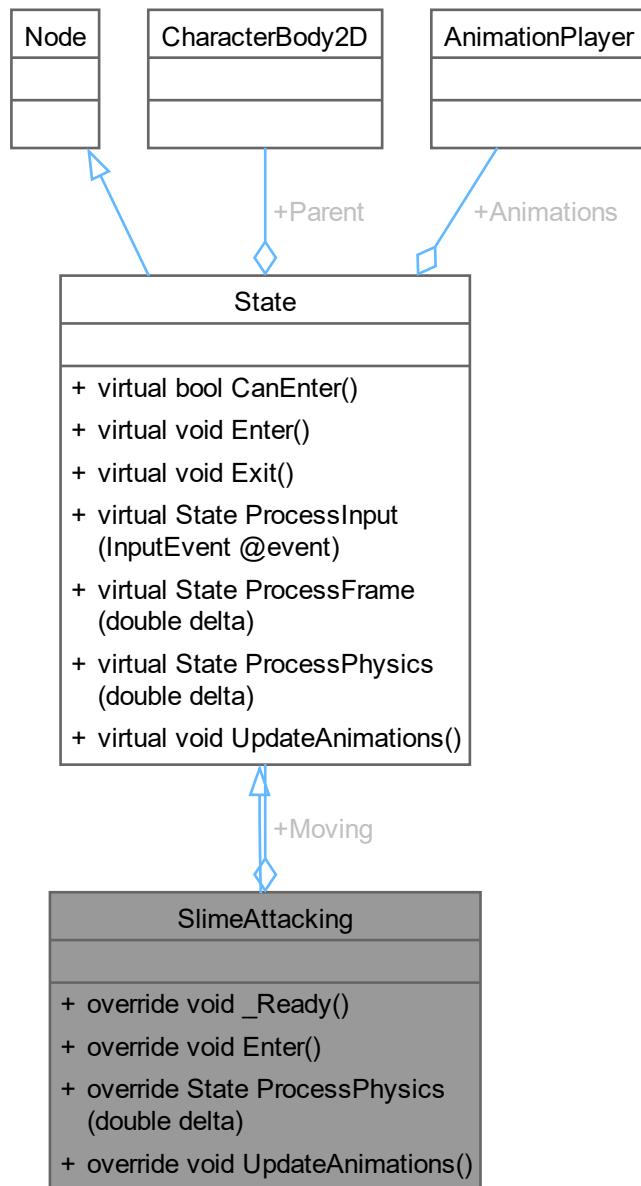
- TheMagicApprentice/modules/entities/slimes/[Slime.cs](#)

7.83 SlimeAttacking Class Reference

Inheritance diagram for SlimeAttacking:



Collaboration diagram for SlimeAttacking:



Public Member Functions

- override void **_Ready** ()
- override void **Enter** ()
- override **State ProcessPhysics** (double delta)
- override void **UpdateAnimations** ()

Public Member Functions inherited from State

- virtual bool [CanEnter \(\)](#)
- virtual void [Exit \(\)](#)
- virtual [State ProcessInput \(InputEvent @event\)](#)
- virtual [State ProcessFrame \(double delta\)](#)

Public Attributes

- [State Moving](#)

Reference to Moving state.

Public Attributes inherited from State

- CharacterBody2D [Parent](#)

Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

- AnimationPlayer [Animations](#)

Reference to the AnimationPlayer of the entity.

7.83.1 Member Function Documentation

7.83.1.1 [_Ready\(\)](#)

```
override void SlimeAttacking._Ready () [inline]
```

Sets player

7.83.1.2 [Enter\(\)](#)

```
override void SlimeAttacking.Enter () [inline], [virtual]
```

Calls update animation. Chooses whether to perform a ranged or a melee attack based on the attack range and executes the attack.

Reimplemented from [State](#).

7.83.1.3 [ProcessPhysics\(\)](#)

```
override State SlimeAttacking.ProcessPhysics (
    double delta) [inline], [virtual]
```

Once the attack animation is done, return to the Moving state and set monitoring of the melee attack hurt box to false so that the slime does not damage the player if they are colliding. While in Attacking state, move the slime according to the velocity set in the attack (no movement for ranged, to the position of the player for melee).

Reimplemented from [State](#).

7.83.1.4 UpdateAnimations()

```
override void SlimeAttacking.UpdateAnimations () [inline], [virtual]
```

Plays attack animation. Currently only slime magic type is considered.

Reimplemented from [State](#).

7.83.2 Member Data Documentation

7.83.2.1 Moving

[State](#) SlimeAttacking.Moving

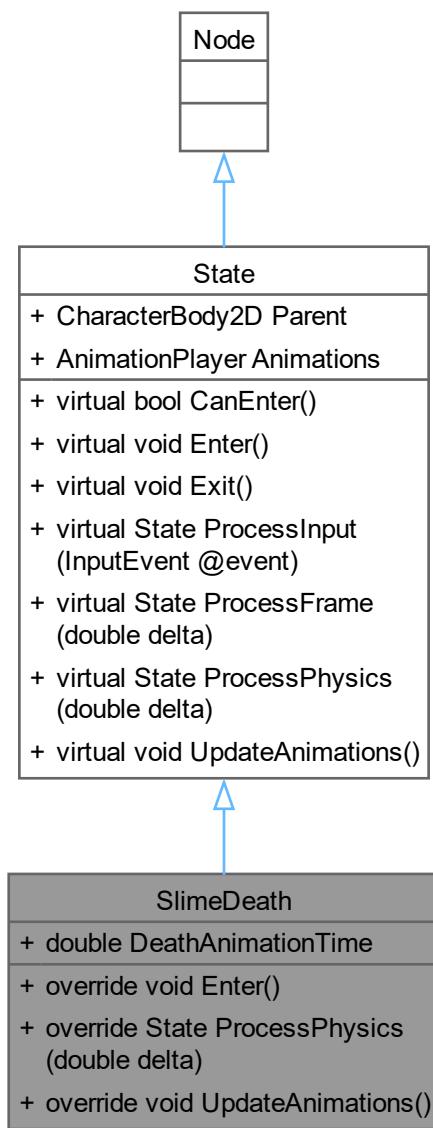
Reference to Moving state.

The documentation for this class was generated from the following file:

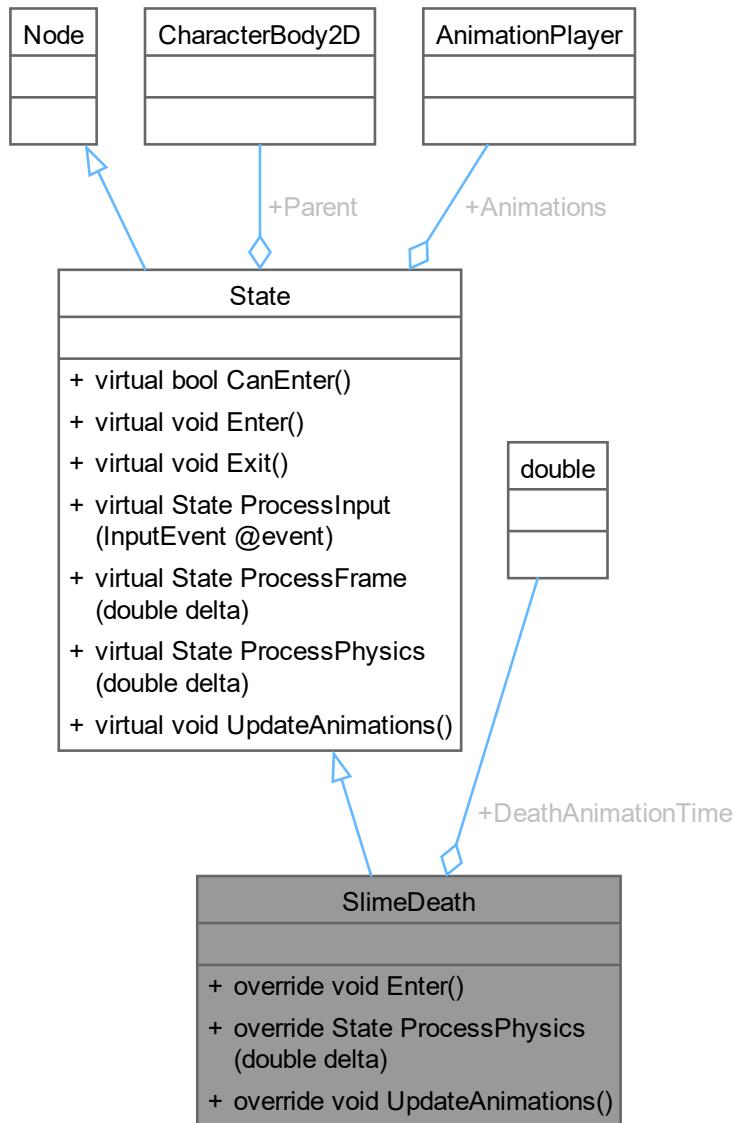
- TheMagicApprentice/modules/entities/slimes/states/[SlimeAttacking.cs](#)

7.84 SlimeDeath Class Reference

Inheritance diagram for SlimeDeath:



Collaboration diagram for SlimeDeath:



Public Member Functions

- `override void Enter ()`
- `override State ProcessPhysics (double delta)`
- `override void UpdateAnimations ()`

Public Member Functions inherited from State

- `virtual bool CanEnter ()`
- `virtual void Exit ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`

Public Attributes

- double **DeathAnimationTime** = 0.6

Duration of the death animation.

Public Attributes inherited from [State](#)

- CharacterBody2D **Parent**

Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

- AnimationPlayer **Animations**

Reference to the AnimationPlayer of the entity.

7.84.1 Member Function Documentation

7.84.1.1 Enter()

```
override void SlimeDeath.Enter () [inline], [virtual]
```

Set duration of death animation and play death animation. Call function to ensure that slime cannot be hit by attacks once it entered the death state.

Reimplemented from [State](#).

7.84.1.2 ProcessPhysics()

```
override State SlimeDeath.ProcessPhysics (
    double delta) [inline], [virtual]
```

Once the duration of the death animation has passed, remove the slime from the scene tree.

Reimplemented from [State](#).

7.84.1.3 UpdateAnimations()

```
override void SlimeDeath.UpdateAnimations () [inline], [virtual]
```

play death animation. Animation name has to be constructed from the slimes properties. Currently used properties: magic type.

Reimplemented from [State](#).

7.84.2 Member Data Documentation

7.84.2.1 DeathAnimationTime

```
double SlimeDeath.DeathAnimationTime = 0.6
```

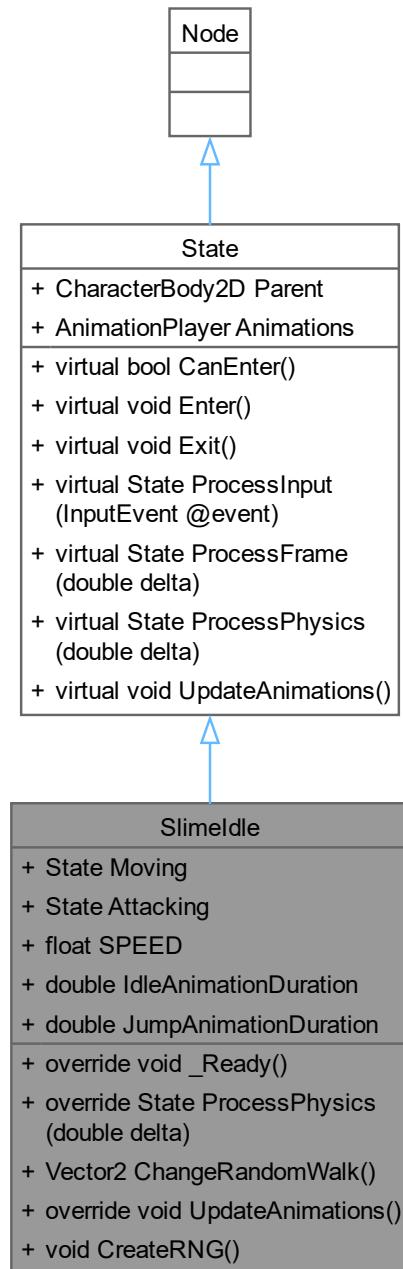
Duration of the death animation.

The documentation for this class was generated from the following file:

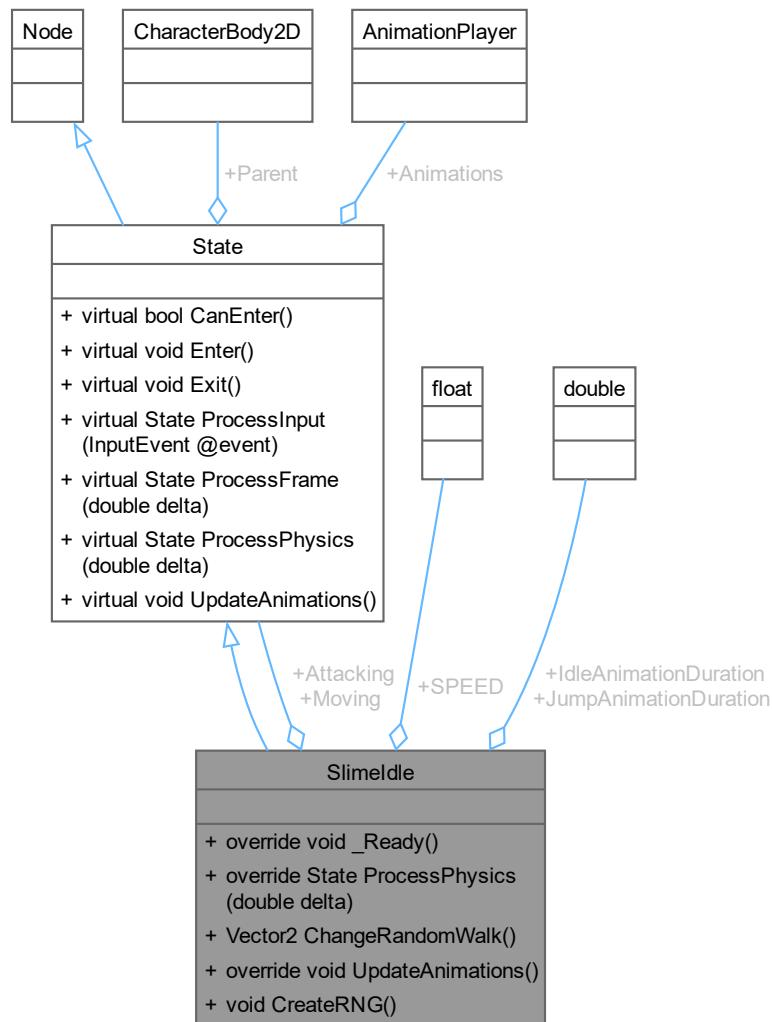
- TheMagicApprentice/modules/entities/slimes/states/[SlimeDeath.cs](#)

7.85 Slimidle Class Reference

Inheritance diagram for Slimidle:



Collaboration diagram for Slimidle:



Public Member Functions

- `override void _Ready ()`
- `override State ProcessPhysics (double delta)`
- `Vector2 ChangeRandomWalk ()`
- `override void UpdateAnimations ()`
- `void CreateRNG ()`

Public Member Functions inherited from `State`

- `virtual bool CanEnter ()`
- `virtual void Enter ()`
- `virtual void Exit ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`

Public Attributes

- **State Moving**
Reference to Moving state.
- **State Attacking**
Reference to Attacking state.
- float **SPEED** = 20
Speed of the slime when it is idle.
- double **IdleAnimationDuration**
Duration of the idle animation.
- double **JumpAnimationDuration**
duration of the jump/move animation

Public Attributes inherited from [State](#)

- CharacterBody2D **Parent**
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer **Animations**
Reference to the AnimationPlayer of the entity.

7.85.1 Member Function Documentation

7.85.1.1 [_Ready\(\)](#)

```
override void SlimeIdle._Ready () [inline]
```

Set player and random number generator for the random walk.

7.85.1.2 [ChangeRandomWalk\(\)](#)

```
Vector2 SlimeIdle.ChangeRandomWalk () [inline]
```

Changes action of the slime from staying idle in one place to randomly walking in one direction or the other way around. Change `_idleAtSamePsoition` first to update what the slime is doing now. Updates animations afterwards to fit the new state. Generate an integer between 0 and 5 that is later multiplied by the animation duration to ensure that the changes in movements of the idle slime do not happen in the middle of animations. Set `timeLeft` in the current state and generate a random direction if the slime should move. Return the direction or (0,0) if the slime stays at the same position.

7.85.1.3 [CreateRNG\(\)](#)

```
void SlimeIdle.CreateRNG () [inline]
```

This function is only needed for the test and should not be called in any other situation. `random` is normally initialised in `Ready` but that function cannot be called for the test because it leads to crashes.

7.85.1.4 ProcessPhysics()

```
override State SlimeIdle.ProcessPhysics (
    double delta) [inline], [virtual]
```

First, if there is a player, check if the slime is close enough to change state. If not, reduce timeLeft. If timeLeft reaches zero, the slime changes from staying idle in one place to randomly walking in one direction or the other way around. This is done by calling the ChangeRandomWalk function. Afterwards, move_and_slide is called so that the slime can move.

Reimplemented from [State](#).

7.85.1.5 UpdateAnimations()

```
override void SlimeIdle.UpdateAnimations () [inline], [virtual]
```

Updates the slimes animation based on its current activity, idle stationary or walking in a random direction.

Reimplemented from [State](#).

7.85.2 Member Data Documentation

7.85.2.1 Attacking

[State](#) SlimeIdle.Attacking

Reference to Attacking state.

7.85.2.2 IdleAnimationDuration

```
double SlimeIdle.IdleAnimationDuration
```

Duration of the idle animation.

7.85.2.3 JumpAnimationDuration

```
double SlimeIdle.JumpAnimationDuration
```

duration of the jump/move animation

7.85.2.4 Moving

[State](#) SlimeIdle.Moving

Reference to Moving state.

7.85.2.5 SPEED

```
float SlimeIdle.SPEED = 20
```

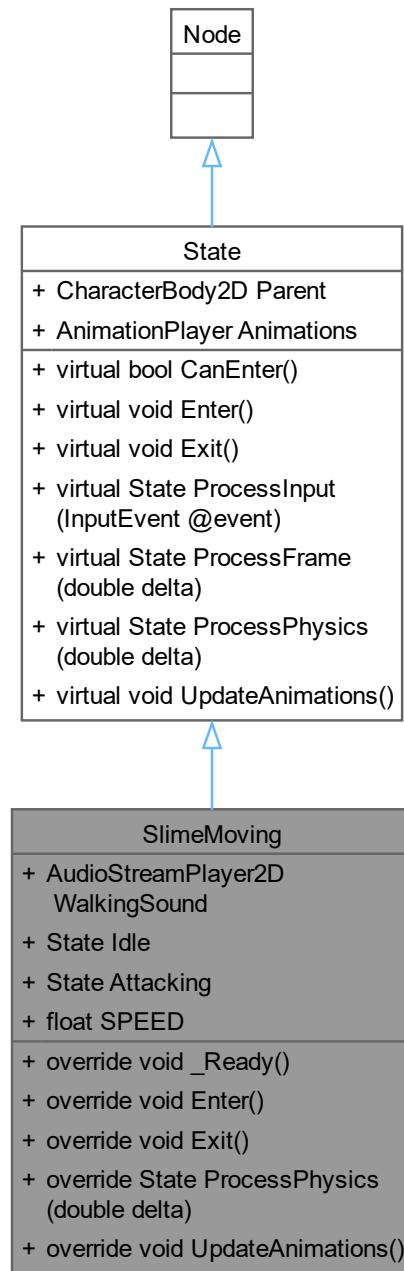
Speed of the slime when it is idle.

The documentation for this class was generated from the following file:

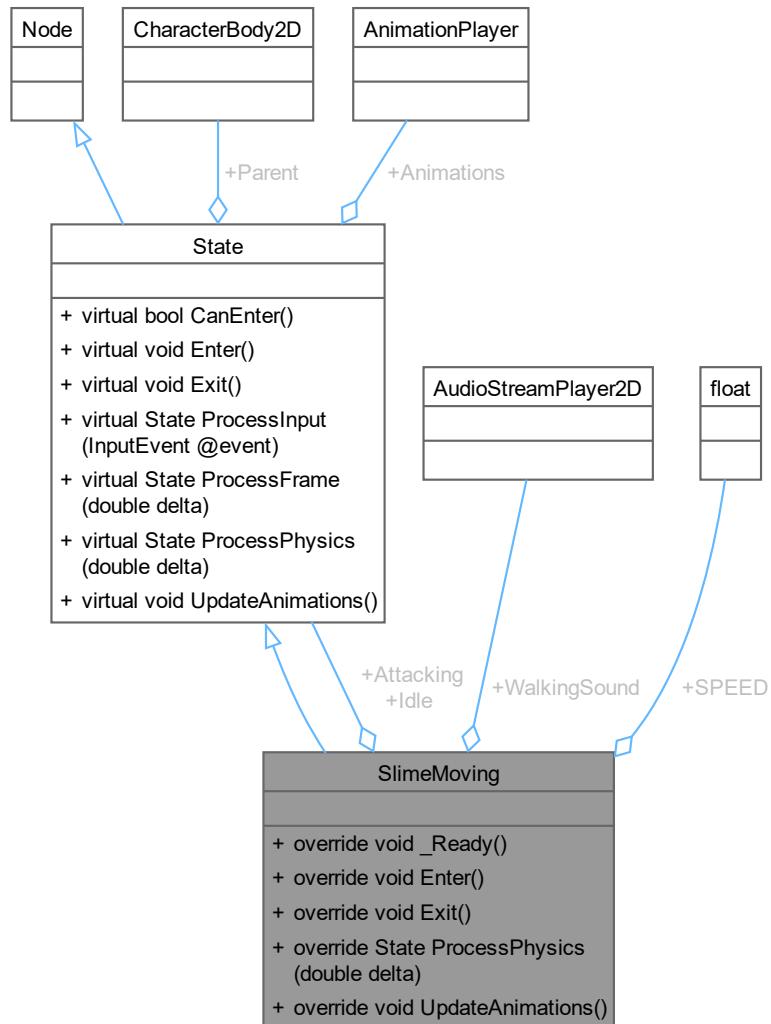
- TheMagicApprentice/modules/entities/slimes/states/[Slimidle.cs](#)

7.86 SlimeMoving Class Reference

Inheritance diagram for SlimeMoving:



Collaboration diagram for SlimeMoving:



Public Member Functions

- `override void _Ready ()`
- `override void Enter ()`
- `override void Exit ()`
- `override State ProcessPhysics (double delta)`
- `override void UpdateAnimations ()`

Public Member Functions inherited from `State`

- `virtual bool CanEnter ()`
- `virtual State ProcessInput (InputEvent @event)`
- `virtual State ProcessFrame (double delta)`

Public Attributes

- `AudioStreamPlayer2D WalkingSound`
Reference to the AudioStreamPlayer2D for the walking sound.
- `State Idle`
Reference to Idle state.
- `State Attacking`
Reference to Attacking state.
- float `SPEED` = 50
Speed of the slime when it moves towards the player.

Public Attributes inherited from `State`

- `CharacterBody2D Parent`
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- `AnimationPlayer Animations`
Reference to the AnimationPlayer of the entity.

7.86.1 Member Function Documentation

7.86.1.1 `_Ready()`

```
override void SlimeMoving._Ready () [inline]
```

Set player.

7.86.1.2 `Enter()`

```
override void SlimeMoving.Enter () [inline], [virtual]
```

Update animations when entering the state.

Reimplemented from `State`.

7.86.1.3 `Exit()`

```
override void SlimeMoving.Exit () [inline], [virtual]
```

Stop the walking sound when leaving the state

Reimplemented from `State`.

7.86.1.4 `ProcessPhysics()`

```
override State SlimeMoving.ProcessPhysics (
    double delta) [inline], [virtual]
```

Calculate distance to player to find out whether the state should be changed. If the slime remains in Moving, move towards the player and play the jump/move animation.

Reimplemented from `State`.

7.86.1.5 UpdateAnimations()

```
override void SlimeMoving.UpdateAnimations () [inline], [virtual]
```

play jump/move animation. Animation name has to be constructed from the slimes properties. Currently used properties: magic type. If animation is already playing, the animation is NOT started again from the beginning.

Reimplemented from [State](#).

7.86.2 Member Data Documentation

7.86.2.1 Attacking

```
State SlimeMoving.Attacking
```

Reference to Attacking state.

7.86.2.2 Idle

```
State SlimeMoving.Idle
```

Reference to Idle state.

7.86.2.3 SPEED

```
float SlimeMoving.SPEED = 50
```

Speed of the slime when it moves towards the player.

7.86.2.4 WalkingSound

```
AudioStreamPlayer2D SlimeMoving.WalkingSound
```

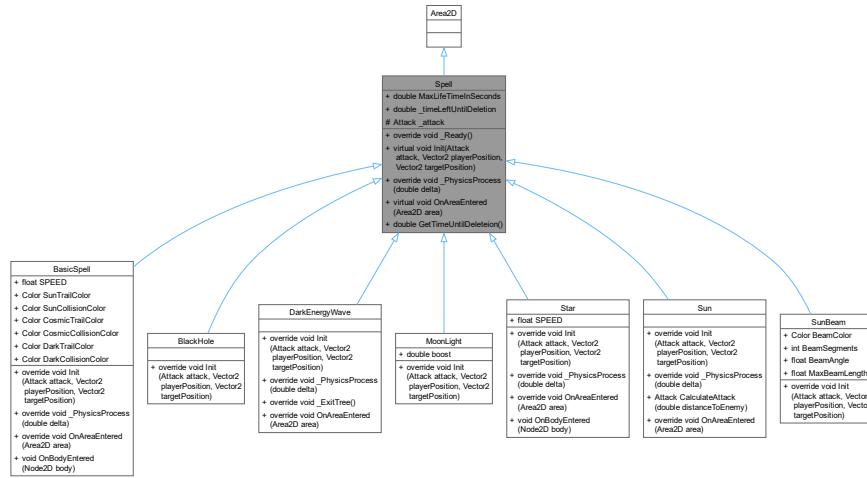
Reference to the AudioStreamPlayer2D for the walking sound.

The documentation for this class was generated from the following file:

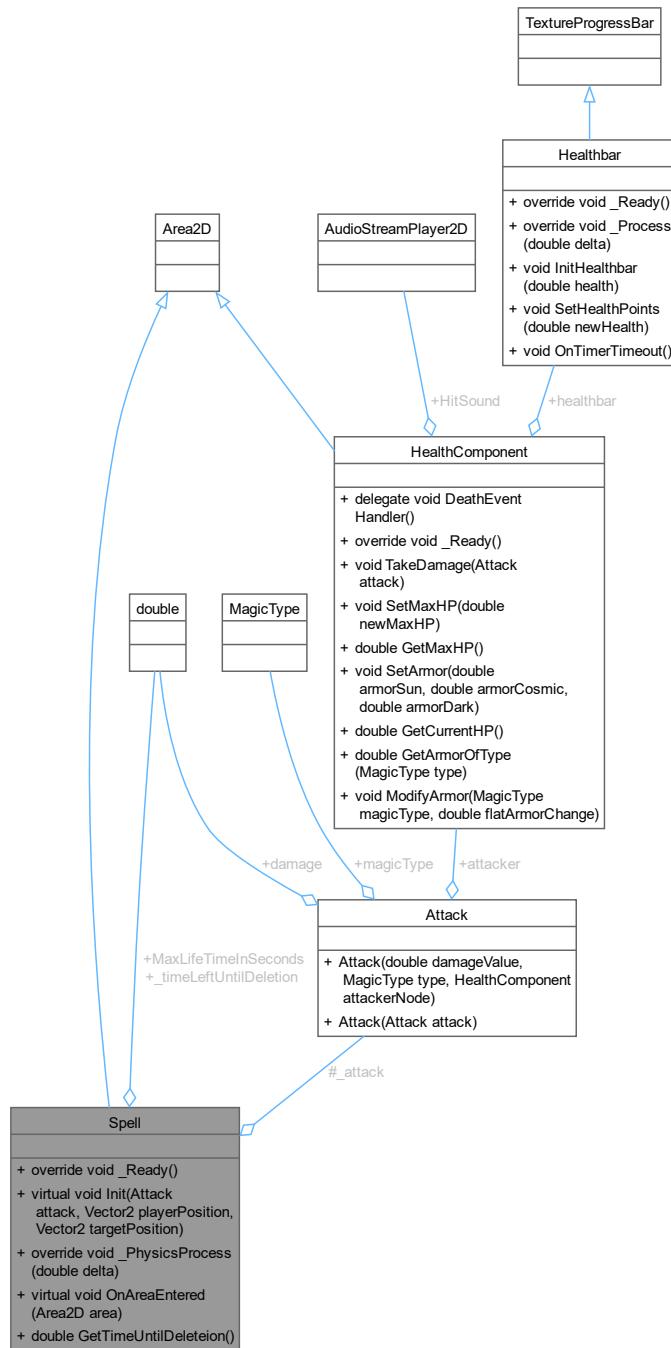
- TheMagicApprentice/modules/entities/slimes/states/[SlimeMoving.cs](#)

7.87 Spell Class Reference

Inheritance diagram for Spell:



Collaboration diagram for Spell:



Public Member Functions

- override void `_Ready()`
- virtual void `Init(Attack attack, Vector2 playerPosition, Vector2 targetPosition)`
- override void `_PhysicsProcess (double delta)`
- virtual void `OnAreaEntered (Area2D area)`
- double `GetTimeUntilDeleteion()`

Public Attributes

- double **MaxLifeTimeInSeconds** = 5.0
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double **_timeLeftUntilDeletion**
Time left until deletion.

Protected Attributes

- **Attack _attack**
Contains damage, type and caster reference for damage calculation.

7.87.1 Detailed Description

The spell base class. Every spell inherits this class.

7.87.2 Member Function Documentation

7.87.2.1 **_PhysicsProcess()**

```
override void Spell._PhysicsProcess (
    double delta) [inline]
```

If the spell has reached its maximal duration, we delete it

7.87.2.2 **_Ready()**

```
override void Spell._Ready () [inline]
```

When the scene is added to the scene tree, we initialize **_duration** with the value from Duration and connect the OnAreaEntered Method to the AreaEntered signal

7.87.2.3 **GetTimeUntilDeleteion()**

```
double Spell.GetTimeUntilDeleteion () [inline]
```

Getter for **_timeLeftUntilDeletion**. Is only used in tests.

7.87.2.4 **Init()**

```
virtual void Spell.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Every **Spell** has to overide this method as it is used to initialize the spell on creation

Reimplemented in [BasicSpell](#), [BlackHole](#), [DarkEnergyWave](#), [MoonLight](#), [Star](#), [Sun](#), and [SunBeam](#).

7.87.2.5 OnAreaEntered()

```
virtual void Spell.OnAreaEntered (
    Area2D area) [inline], [virtual]
```

Default implementation of the OnAreaEntered method for all Spells Simply checks if the area is a [HealthComponent](#) and calls TakeDamage().

Reimplemented in [BasicSpell](#), [DarkEnergyWave](#), [Star](#), and [Sun](#).

7.87.3 Member Data Documentation

7.87.3.1 _attack

```
Attack Spell._attack [protected]
```

Contains damage, type and caster reference for damage calculation.

7.87.3.2 _timeLeftUntilDeletion

```
double Spell._timeLeftUntilDeletion
```

Time left until deletion.

7.87.3.3 MaxLifeTimeInSeconds

```
double Spell.MaxLifeTimeInSeconds = 5.0
```

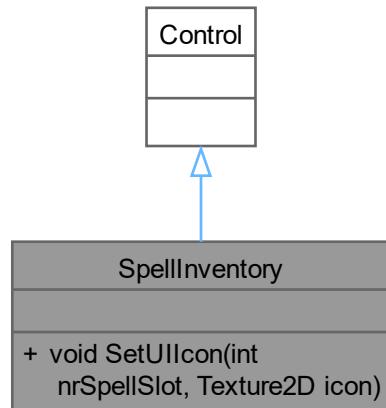
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.

The documentation for this class was generated from the following file:

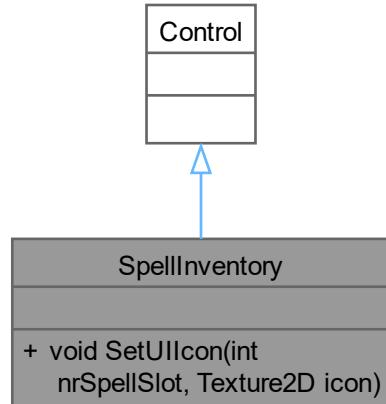
- TheMagicApprentice/modules/entities/player/spells/[Spell.cs](#)

7.88 SpellInventory Class Reference

Inheritance diagram for SpellInventory:



Collaboration diagram for SpellInventory:



Public Member Functions

- void [SetUIIcon](#) (int nrSpellSlot, Texture2D icon)

7.88.1 Member Function Documentation

7.88.1.1 SetUIIcon()

```
void SpellInventory.SetUIIcon (
    int nrSpellSlot,
    Texture2D icon) [inline]
```

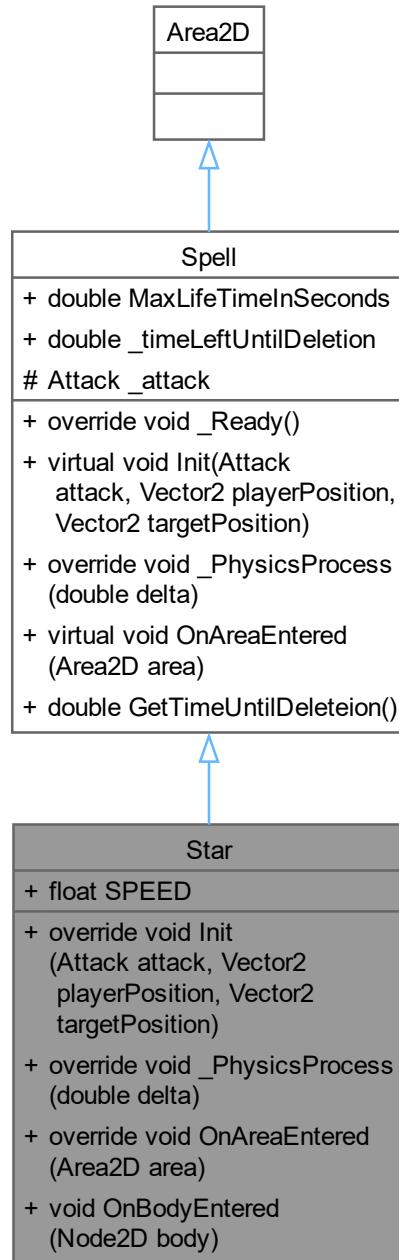
This function calls the [SpellInventory](#) to change the icons of the spells when the spells are changed. Find the correct spell slot that was changed and call the spell slot to change the icon. Note: icon can be null if a spell is removed and no new spell is added! This is intended behaviour.

The documentation for this class was generated from the following file:

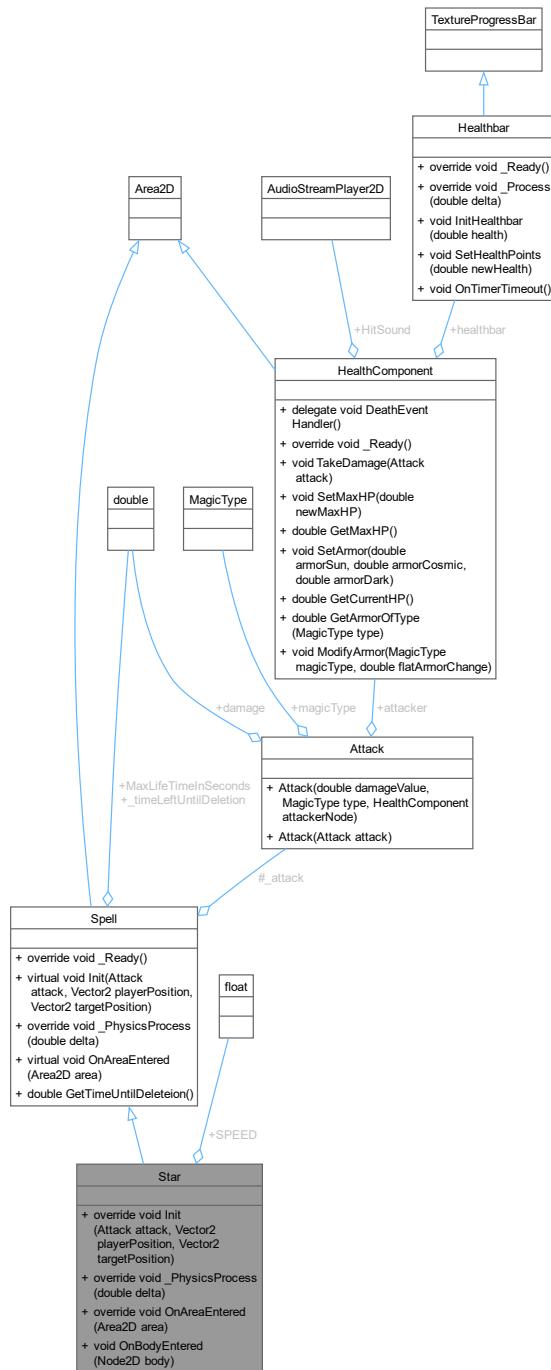
- TheMagicApprentice/modules/entities/player/inventory/[SpellInventory.cs](#)

7.89 Star Class Reference

Inheritance diagram for Star:



Collaboration diagram for Star:



Public Member Functions

- `override void Init(Attack attack, Vector2 playerPosition, Vector2 targetPosition)`
- `override void _PhysicsProcess(double delta)`
- `override void OnAreaEntered(Area2D area)`
- `void OnBodyEntered(Node2D body)`

Public Member Functions inherited from Spell

- override void `_Ready()`
- override void `_PhysicsProcess(double delta)`
- double `GetTimeUntilDeleteion()`

Public Attributes

- float `SPEED` = 500

Speed of the spell. Do not set to high or else it might not hit enemies.

Public Attributes inherited from Spell

- double `MaxLifeTimeInSeconds` = 5.0

How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double `_timeLeftUntilDeletion`

Time left until deletion.

Additional Inherited Members

Protected Attributes inherited from Spell

- `Attack _attack`

Contains damage, type and caster reference for damage calculation.

7.89.1 Detailed Description

Class of the individual `Star` of the spell star rain

On creation gets a random offset from the player and moves towards the mouse position at cast time

7.89.2 Member Function Documentation

7.89.2.1 `_PhysicsProcess()`

```
override void Star._PhysicsProcess (
    double delta) [inline]
```

Change position of the spell. Count down the max life time of the spell and remove the spell once the time is up

7.89.2.2 `Init()`

```
override void Star.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Similar to `BasicSpell` but add a random offset to the starting position. `Attack` contains the total damage combined of all 10 stars, so divide by 10 for individual star.

Reimplemented from `Spell`.

7.89.2.3 OnAreaEntered()

```
override void Star.OnAreaEntered (
    Area2D area) [inline], [virtual]
```

Gets called when the spell hits a Health component since health components use area2Ds. Since the spells mask layer is set to the enemies layer, it cannot hit the player

Reimplemented from [Spell](#).

7.89.2.4 OnBodyEntered()

```
void Star.OnBodyEntered (
    Node2D body) [inline]
```

Since parts of the tilemap that have a collision layer are not area2D nodes, body entered is necessary to use. This function detects collisions with all types of 2D nodes. Check if the projectile entered a part of the tilemap, which means a wall or object, and remove the projectile. This requires mask 1 (Collision) to be set!

7.89.3 Member Data Documentation

7.89.3.1 SPEED

```
float Star.SPEED = 500
```

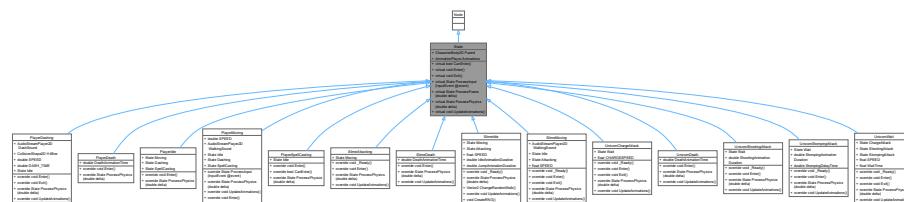
Speed of the spell. Do not set to high or else it might not hit enemies.

The documentation for this class was generated from the following file:

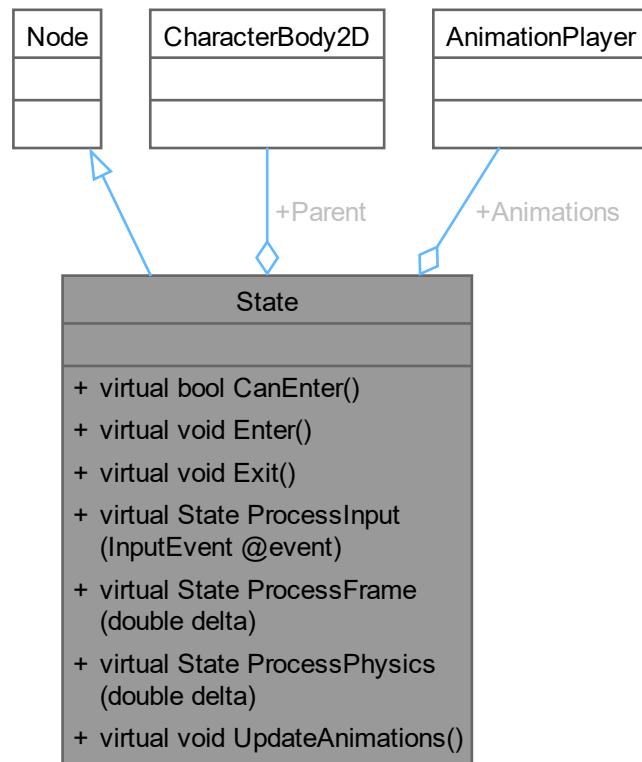
- [TheMagicApprentice/modules/entities/player/spells/star_rain/Star.cs](#)

7.90 State Class Reference

Inheritance diagram for State:



Collaboration diagram for State:



Public Member Functions

- virtual bool `CanEnter ()`
- virtual void `Enter ()`
- virtual void `Exit ()`
- virtual State `ProcessInput`(InputEvent @event)
- virtual State `ProcessFrame`(double delta)
- virtual State `ProcessPhysics`(double delta)
- virtual void `UpdateAnimations ()`

Public Attributes

- CharacterBody2D `Parent`
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer `Animations`
Reference to the AnimationPlayer of the entity.

7.90.1 Member Function Documentation

7.90.1.1 CanEnter()

```
virtual bool State.CanEnter () [inline], [virtual]
```

Called before we enter the state. Checks if we are allowed to enter the state

Reimplemented in [PlayerSpellCasting](#).

7.90.1.2 Enter()

```
virtual void State.Enter () [inline], [virtual]
```

Called everytime we enter the state

Reimplemented in [PlayerDashing](#), [PlayerDeath](#), [PlayerIdle](#), [PlayerMoving](#), [PlayerSpellCasting](#), [SlimeAttacking](#), [SlimeDeath](#), [SlimeMoving](#), [UnicornChargeAttack](#), [UnicornDeath](#), [UnicornShootingAttack](#), [UnicornStompingAttack](#), and [UnicornWait](#).

7.90.1.3 Exit()

```
virtual void State.Exit () [inline], [virtual]
```

Called everytime we exit the state

Reimplemented in [PlayerDashing](#), [PlayerMoving](#), [SlimeMoving](#), [UnicornChargeAttack](#), and [UnicornWait](#).

7.90.1.4 ProcessFrame()

```
virtual State State.ProcessFrame (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every frame

7.90.1.5 ProcessInput()

```
virtual State State.ProcessInput (
    InputEvent @ event) [inline], [virtual]
```

If the state is the current state this function gets called whenever there is an unhandled input

Reimplemented in [PlayerMoving](#).

7.90.1.6 ProcessPhysics()

```
virtual State State.ProcessPhysics (
    double delta) [inline], [virtual]
```

If the state is the current state this function gets called every physics update

Reimplemented in [PlayerDashing](#), [PlayerDeath](#), [PlayerIdle](#), [PlayerMoving](#), [PlayerSpellCasting](#), [SlimeAttacking](#), [SlimeDeath](#), [Slimedle](#), [SlimeMoving](#), [UnicornChargeAttack](#), [UnicornDeath](#), [UnicornShootingAttack](#), [UnicornStompingAttack](#), and [UnicornWait](#).

7.90.1.7 UpdateAnimations()

```
virtual void State.UpdateAnimations () [inline], [virtual]
```

Called in ProcessFrame. Is responsible for playing the correct animation for the state

Reimplemented in [PlayerDashing](#), [PlayerMoving](#), [SlimeAttacking](#), [SlimeDeath](#), [Slimedle](#), [SlimeMoving](#), [UnicornChargeAttack](#), [UnicornDeath](#), [UnicornShootingAttack](#), [UnicornStompingAttack](#), and [UnicornWait](#).

7.90.2 Member Data Documentation

7.90.2.1 Animations

```
AnimationPlayer State.Animations
```

Reference to the AnimationPlayer of the entity.

7.90.2.2 Parent

```
CharacterBody2D State.Parent
```

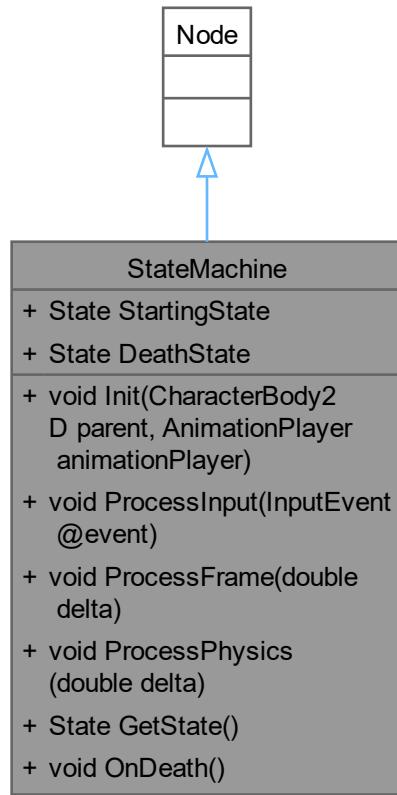
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

The documentation for this class was generated from the following file:

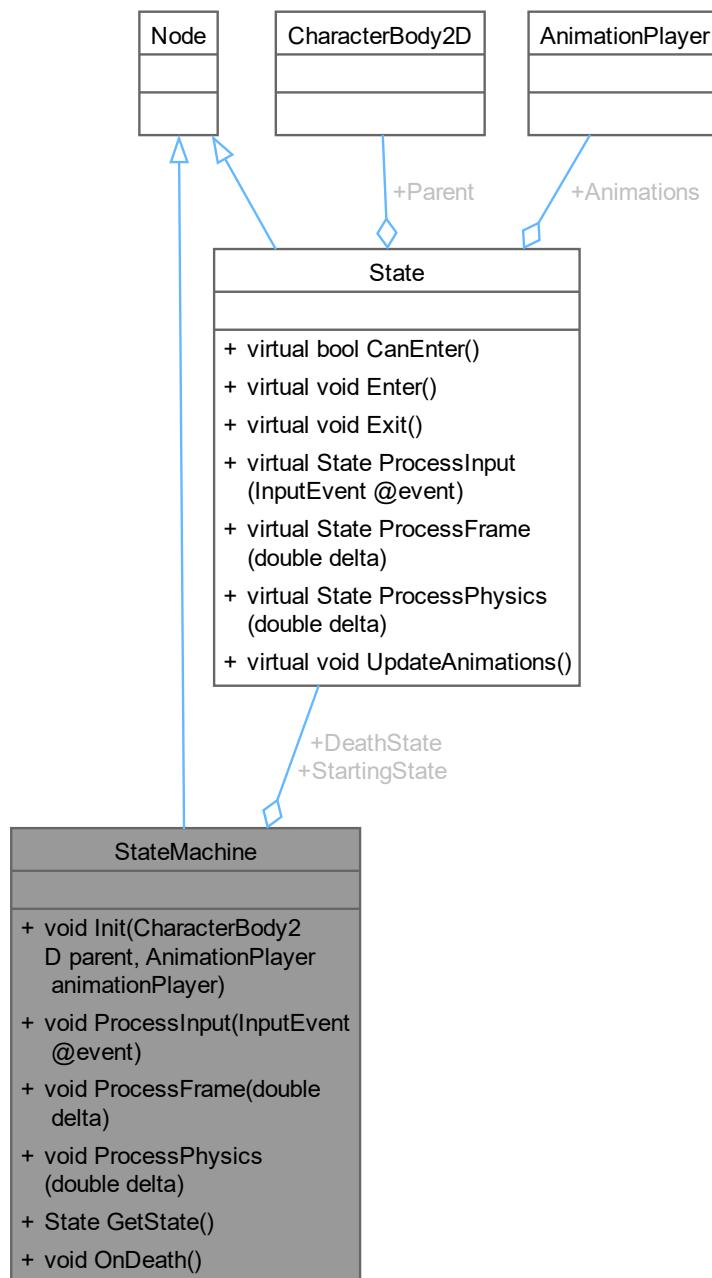
- TheMagicApprentice/modules/entities/[State.cs](#)

7.91 StateMachine Class Reference

Inheritance diagram for StateMachine:



Collaboration diagram for StateMachine:



Public Member Functions

- void [Init](#) (CharacterBody2D parent, AnimationPlayer animationPlayer)
- void [ProcessInput](#) (InputEvent @event)
- void [ProcessFrame](#) (double delta)
- void [ProcessPhysics](#) (double delta)
- [State GetState](#) ()
- void [OnDeath](#) ()

Public Attributes

- **State StartingState**
Reference to the State in which we start the game.
- **State DeathState**
Reference to the Death state.

7.91.1 Member Function Documentation

7.91.1.1 GetState()

```
State StateMachine.GetState () [inline]
```

Getter for currentState. Is only used for testing

7.91.1.2 Init()

```
void StateMachine.Init (
    CharacterBody2D parent,
    AnimationPlayer animationPlayer) [inline]
```

Initialise all states by setting their Parent and Animations members and changes into the StartingState

7.91.1.3 OnDeath()

```
void StateMachine.OnDeath () [inline]
```

7.91.1.4 ProcessFrame()

```
void StateMachine.ProcessFrame (
    double delta) [inline]
```

direct the _Process from the entity to the current state

7.91.1.5 ProcessInput()

```
void StateMachine.ProcessInput (
    InputEvent @ event) [inline]
```

direct the input from the entity to the current state

7.91.1.6 ProcessPhysics()

```
void StateMachine.ProcessPhysics (
    double delta) [inline]
```

direct the _PhysicsProcess from the entity to the current state

7.91.2 Member Data Documentation

7.91.2.1 DeathState

`State StateMachine.DeathState`

Reference to the Death state.

7.91.2.2 StartingState

`State StateMachine.StartingState`

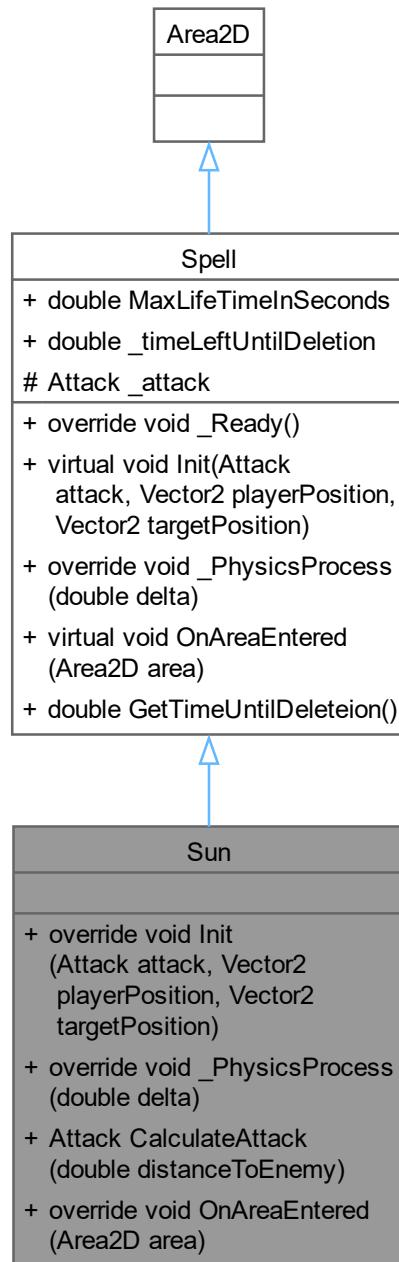
Reference to the `State` in which we start the game.

The documentation for this class was generated from the following file:

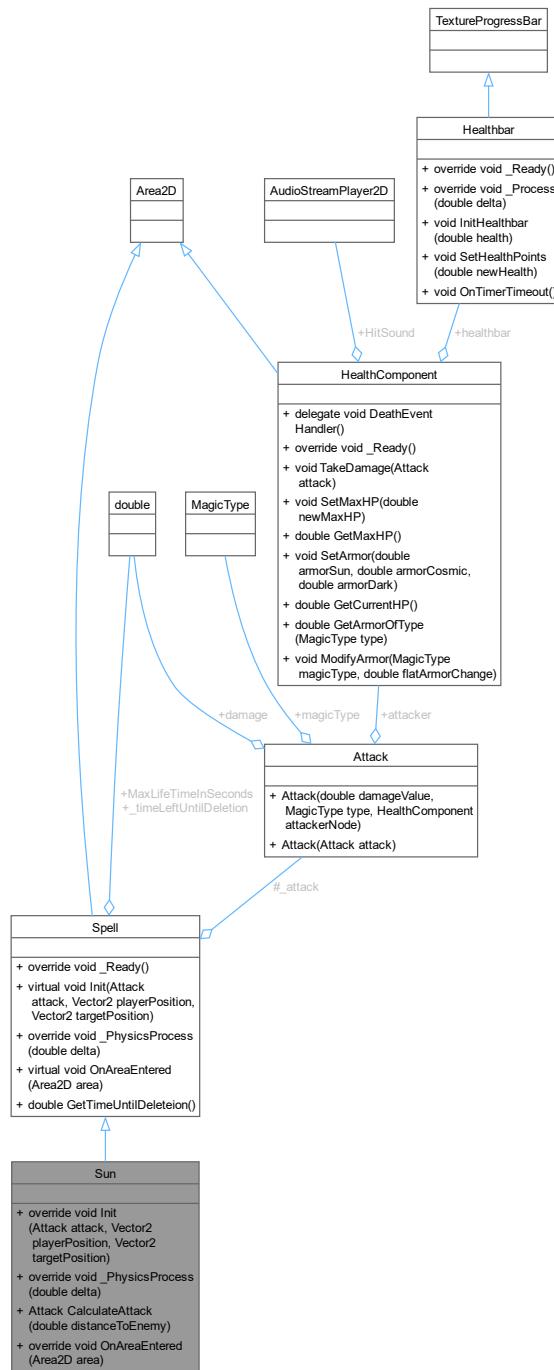
- `TheMagicApprentice/modules/entities/StateMachine.cs`

7.92 Sun Class Reference

Inheritance diagram for Sun:



Collaboration diagram for Sun:



Public Member Functions

- `override void Init (Attack attack, Vector2 playerPosition, Vector2 targetPosition)`
- `override void _PhysicsProcess (double delta)`
- `Attack CalculateAttack (double distanceToEnemy)`
- `override void OnAreaEntered (Area2D area)`

Public Member Functions inherited from Spell

- override void `_Ready()`
- override void `_PhysicsProcess(double delta)`
- double `GetTimeUntilDeleteion()`

Additional Inherited Members

Public Attributes inherited from Spell

- double `MaxLifeTimeInSeconds = 5.0`
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double `_timeLeftUntilDeletion`
Time left until deletion.

Protected Attributes inherited from Spell

- `Attack _attack`
Contains damage, type and caster reference for damage calculation.

7.92.1 Detailed Description

The spell object of the spell summon sun. Deals damage every tick to enemies inside its radius

7.92.2 Member Function Documentation

7.92.2.1 `_PhysicsProcess()`

```
override void Sun._PhysicsProcess (
    double delta) [inline]
```

Every physics update, deal damage to all enemies inside the sun

7.92.2.2 `CalculateAttack()`

```
Attack Sun.CalculateAttack (
    double distanceToEnemy) [inline]
```

Calculate the damage depending on the distance to the enemy. Use linear scaling since otherwise not fun.

7.92.2.3 Init()

```
override void Sun.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Positions the [Sun](#) at the mouse position. Create the [Attack](#) is the dmg per second. Since damage is applied 60 times per second, we need to divide by 60

Reimplemented from [Spell](#).

7.92.2.4 OnAreaEntered()

```
override void Sun.OnAreaEntered (
    Area2D area) [inline], [virtual]
```

Override OnAreaEntered to make it empty since we do not want to use it. All Damage is applied in [_PhysicsProcess](#)

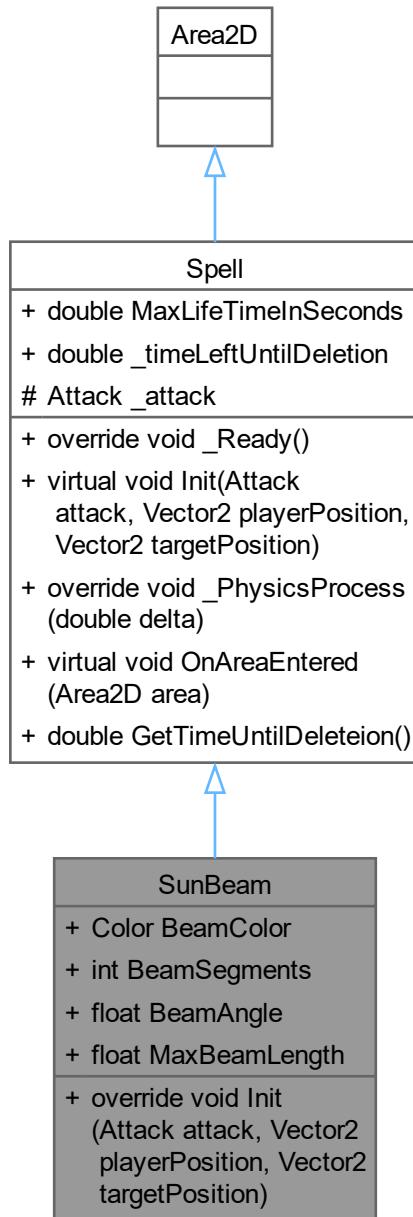
Reimplemented from [Spell](#).

The documentation for this class was generated from the following file:

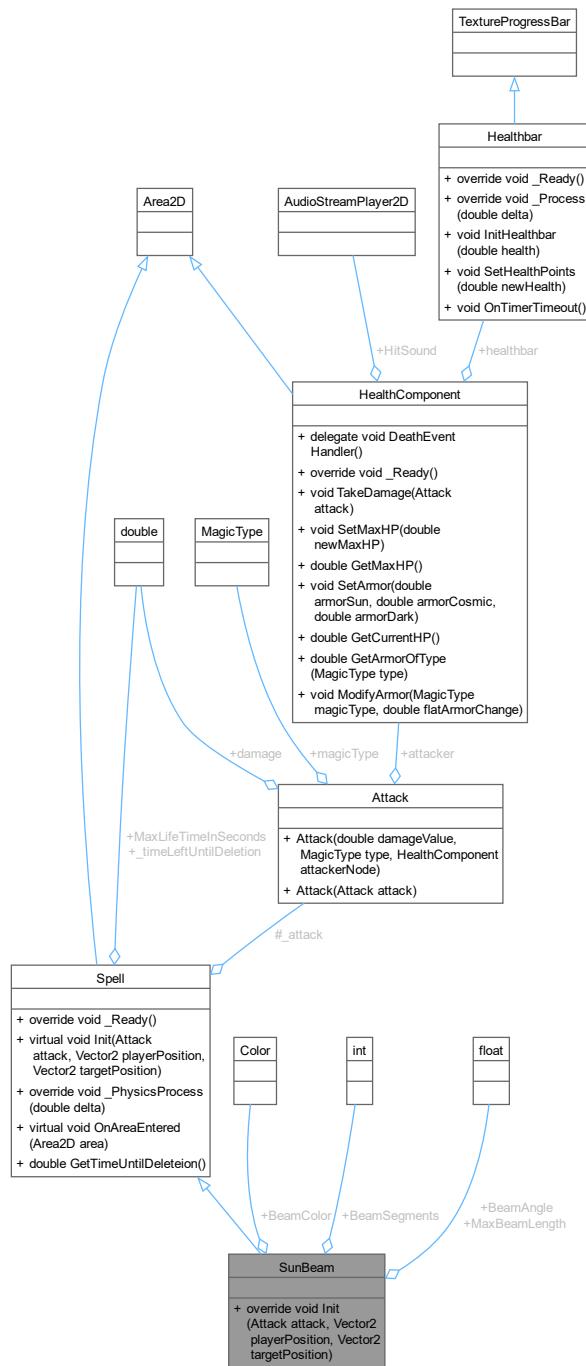
- TheMagicApprentice/modules/entities/player/spells/summon_sun/[Sun.cs](#)

7.93 SunBeam Class Reference

Inheritance diagram for SunBeam:



Collaboration diagram for SunBeam:



Public Member Functions

- `override void Init (Attack attack, Vector2 playerPosition, Vector2 targetPosition)`

Public Member Functions inherited from **Spell**

- `override void _Ready ()`

- override void `_PhysicsProcess` (double delta)
- virtual void `OnAreaEntered` (Area2D area)
- double `GetTimeUntilDeleteion` ()

Public Attributes

- Color `BeamColor` = new Color(1, 1, 0, 0.7f)
The color of the sun beam.
- int `BeamSegments` = 100
The number of segments in the beam for smooth rendering.
- float `BeamAngle` = 38.0f
The angle of the beam in degrees.
- float `MaxBeamLength` = 200.0f
The maximum length of the beam.

Public Attributes inherited from Spell

- double `MaxLifeTimeInSeconds` = 5.0
How long the spell exists at maximum until it is removed from the world, can be changed for every spell in the godot editor.
- double `_timeLeftUntilDeletion`
Time left until deletion.

Additional Inherited Members

Protected Attributes inherited from Spell

- `Attack _attack`
Contains damage, type and caster reference for damage calculation.

7.93.1 Detailed Description

The `SunBeam` spell class. This spell creates a beam of light that can damage enemies.

7.93.2 Member Function Documentation

7.93.2.1 Init()

```
override void SunBeam.Init (
    Attack attack,
    Vector2 playerPosition,
    Vector2 targetPosition) [inline], [virtual]
```

Every `Spell` has to overide this method as it is used to initialize the spell on creation

Reimplemented from `Spell`.

7.93.3 Member Data Documentation

7.93.3.1 BeamAngle

```
float SunBeam.BeamAngle = 38.0f
```

The angle of the beam in degrees.

7.93.3.2 BeamColor

```
Color SunBeam.BeamColor = new Color(1, 1, 0, 0.7f)
```

The color of the sun beam.

7.93.3.3 BeamSegments

```
int SunBeam.BeamSegments = 100
```

The number of segments in the beam for smooth rendering.

7.93.3.4 MaxBeamLength

```
float SunBeam.MaxBeamLength = 200.0f
```

The maximum length of the beam.

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/entities/player/spells/sun_beam/[SunBeam.cs](#)

7.94 Tests.TestAugmentInventory Class Reference

Collaboration diagram for Tests.TestAugmentInventory:

| Tests.TestAugmentInventory |
|--|
| |
| + void SetupTest() |
| + void TestAddAugmentToInventory() |
| + void TestInventoryOverflow() |
| + void TestActiveInventory Slots(int slotIndex) |

Public Member Functions

- void [SetupTest \(\)](#)
- void [TestAddAugmentToInventory \(\)](#)
- void [TestInventoryOverflow \(\)](#)
- void [TestActiveInventorySlots \(int slotIndex\)](#)

7.94.1 Detailed Description

Integration test for the [AugmentInventory](#).

7.94.2 Member Function Documentation

7.94.2.1 SetupTest()

```
void Tests.TestAugmentInventory.SetupTest () [inline]
```

Load the main game scene and get the reference to the [AugmentInventory](#). Also Checks that the [AugmentInventory](#) was created

7.94.2.2 TestActiveInventorySlots()

```
void Tests.TestAugmentInventory.TestActiveInventorySlots (
    int slotIndex) [inline]
```

[Tests](#) that active inventorySlots work and the augments are equiped.

7.94.2.3 TestAddAugmentToInventory()

```
void Tests.TestAugmentInventory.TestAddAugmentToInventory () [inline]
```

Test the function AddAugmentToInventory

7.94.2.4 TestInventoryOverflow()

```
void Tests.TestAugmentInventory.TestInventoryOverflow () [inline]
```

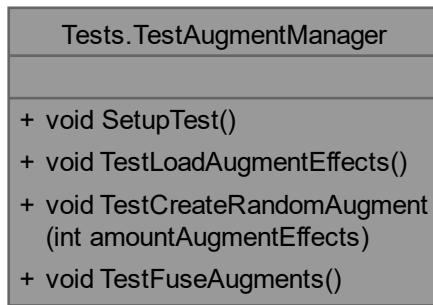
Test that when adding an augment and all slots are full, new slots are created

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/integration/TestAugmentInventory.cs](#)

7.95 Tests.TestAugmentManager Class Reference

Collaboration diagram for Tests.TestAugmentManager:



Public Member Functions

- void [SetupTest \(\)](#)
- void [TestLoadAugmentEffects \(\)](#)
- void [TestCreateRandomAugment \(int amountAugmentEffects\)](#)
- void [TestFuseAugments \(\)](#)

7.95.1 Detailed Description

Unit tests for the [AugmentManager](#) Class

7.95.2 Member Function Documentation

7.95.2.1 SetupTest()

```
void Tests.TestAugmentManager.SetupTest () [inline]
```

7.95.2.2 TestCreateRandomAugment()

```
void Tests.TestAugmentManager.TestCreateRandomAugment (
    int amountAugmentEffects) [inline]
```

Test automatic generation of Augments

7.95.2.3 TestFuseAugments()

```
void Tests.TestAugmentManager.TestFuseAugments () [inline]
```

Test fusing of augments

7.95.2.4 TestLoadAugmentEffects()

```
void Tests.TestAugmentManager.TestLoadAugmentEffects () [inline]
```

Test that LoadAugmentEffects loads

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestAugmentManager.cs](#)

7.96 Tests.TestAugments Class Reference

Collaboration diagram for Tests.TestAugments:

| Tests.TestAugments |
|---|
| + void SetupTest() + void TearDown() + void TestGetSetAugmentEffect() + void TestAugmentEquipping() + void TestAdditionalStars() + void TestCastAdditionalSpell() + void TestExtraArmor() + void TestDamageIncreaseDark (string effectName) + void TestFlatDamageSlot1() + void TestHPIIncrease() + void TestIncreaseRadiusBlack Hole() + void TestIncreaseDuration BlackHole() + void TestPercentDamageSun Basic() + static Augment CreateAugment WithAugmenteffect(string pathToAugmentEffectResource) |

Public Member Functions

- void [SetupTest \(\)](#)
- void [TearDown \(\)](#)
- void [TestGetSetAugmentEffect \(\)](#)
- void [TestAugmentEquipping \(\)](#)
- void [TestAdditionalStars \(\)](#)
- void [TestCastAdditionalSpell \(\)](#)
- void [TestExtraArmor \(\)](#)
- void [TestDamageIncreaseDark \(string effectName\)](#)
- void [TestFlatDamageSlot1 \(\)](#)
- void [TestHPIIncrease \(\)](#)
- void [TestIncreaseRadiusBlackHole \(\)](#)
- void [TestIncreaseDurationBlackHole \(\)](#)
- void [TestPercentDamageSunBasic \(\)](#)

Static Public Member Functions

- static [Augment CreateAugmentWithAugmenteffect \(string pathToAugmentEffectResource\)](#)

7.96.1 Detailed Description

Integration test for augments Contains an integration test for every augment class but not all augments since that would be too much effort Uses the main_game.tscn since there the player is autoloaded and not disabled.

7.96.2 Member Function Documentation

7.96.2.1 CreateAugmentWithAugmenteffect()

```
static Augment Tests.TestAugments.CreateAugmentWithAugmenteffect (
    string pathToAugmentEffectResource) [inline], [static]
```

Create augment from string path to augmenteffect resource. Function is public since it is also used in [TestAugmentInventory](#)

7.96.2.2 SetupTest()

```
void Tests.TestAugments.SetupTest () [inline]
```

Setup the scene and get the reference to the player

7.96.2.3 TearDown()

```
void Tests.TestAugments.TearDown () [inline]
```

7.96.2.4 TestAdditionalStars()

```
void Tests.TestAugments.TestAdditionalStars () [inline]
```

Test the [Augment](#) additional_stars

7.96.2.5 TestAugmentEquipping()

```
void Tests.TestAugments.TestAugmentEquipping () [inline]
```

Test equipping augments in random slots

7.96.2.6 TestCastAdditionalSpell()

```
void Tests.TestAugments.TestCastAdditionalSpell () [inline]
```

Test that [AugmentEffect](#) cast_star_rain_on_moonlight works

7.96.2.7 TestDamageIncreaseDark()

```
void Tests.TestAugments.TestDamageIncreaseDark (
    string effectName) [inline]
```

Check the flat_damage_dark effect and the percent_damage_dark effect

7.96.2.8 TestExtraArmor()

```
void Tests.TestAugments.TestExtraArmor () [inline]
```

Check that the extra_armor_sun effect and extra_armor_of_all_types work

7.96.2.9 TestFlatDamageSlot1()

```
void Tests.TestAugments.TestFlatDamageSlot1 () [inline]
```

Check flat_damage_slot1 effect

7.96.2.10 TestGetSetAugmentEffect()

```
void Tests.TestAugments.TestGetSetAugmentEffect () [inline]
```

Quick test of Get/SetAugmentEffect

7.96.2.11 TestHPIncrease()

```
void Tests.TestAugments.TestHPIncrease () [inline]
```

Test HP_increase effect

7.96.2.12 TestIncreaseDurationBlackHole()

```
void Tests.TestAugments.TestIncreaseDurationBlackHole () [inline]
```

Test increase_duration_black_hole effect

7.96.2.13 TestIncreaseRadiusBlackHole()

```
void Tests.TestAugments.TestIncreaseRadiusBlackHole () [inline]
```

Test increase_radius_black_hole effect

7.96.2.14 TestPercentDamageSunBasic()

```
void Tests.TestAugments.TestPercentDamageSunBasic () [inline]
```

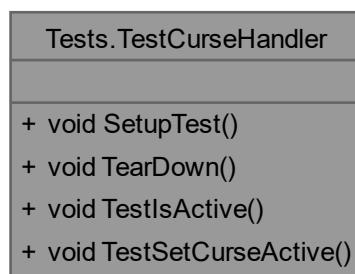
Test percent_damage_sun_basic

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/integration/TestAugments.cs

7.97 Tests.TestCurseHandler Class Reference

Collaboration diagram for Tests.TestCurseHandler:



Public Member Functions

- void [SetupTest \(\)](#)
- void [TearDown \(\)](#)
- void [TestIsActive \(\)](#)
- void [TestSetCurseActive \(\)](#)

7.97.1 Detailed Description

Integration test for the [CurseHandler](#).

7.97.2 Member Function Documentation

7.97.2.1 [SetupTest\(\)](#)

```
void Tests.TestCurseHandler.SetupTest () [inline]
```

7.97.2.2 [TearDown\(\)](#)

```
void Tests.TestCurseHandler.TearDown () [inline]
```

7.97.2.3 [TestIsActive\(\)](#)

```
void Tests.TestCurseHandler.TestIsActive () [inline]
```

7.97.2.4 [TestSetCurseActive\(\)](#)

```
void Tests.TestCurseHandler.TestSetCurseActive () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/integration/[TestCurseHandler.cs](#)

7.98 Tests.TestDirections Class Reference

Collaboration diagram for Tests.TestDirections:

| Tests.TestDirections |
|--|
| |
| + void TestGetOppositeDirection() + void TestCalculateNewPosition() |

Public Member Functions

- void [TestGetOppositeDirection \(\)](#)
- void [TestCalculateNewPosition \(\)](#)

7.98.1 Detailed Description

Unit tests for the DirectionHelper class. [Tests](#) the GetOppositeDirection function.

7.98.2 Member Function Documentation

7.98.2.1 TestCalculateNewPosition()

```
void Tests.TestDirections.TestCalculateNewPosition () [inline]
```

7.98.2.2 TestGetOppositeDirection()

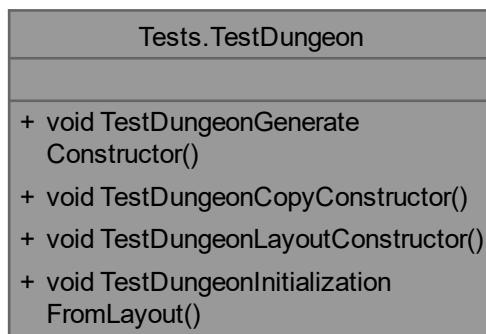
```
void Tests.TestDirections.TestGetOppositeDirection () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestDirections.cs](#)

7.99 Tests.TestDungeon Class Reference

Collaboration diagram for Tests.TestDungeon:



Public Member Functions

- void [TestDungeonGenerateConstructor\(\)](#)
- void [TestDungeonCopyConstructor\(\)](#)
- void [TestDungeonLayoutConstructor\(\)](#)
- void [TestDungeonInitializationFromLayout\(\)](#)

7.99.1 Member Function Documentation

7.99.1.1 [TestDungeonCopyConstructor\(\)](#)

```
void Tests.TestDungeon.TestDungeonCopyConstructor () [inline]
```

7.99.1.2 [TestDungeonGenerateConstructor\(\)](#)

```
void Tests.TestDungeon.TestDungeonGenerateConstructor () [inline]
```

7.99.1.3 [TestDungeonInitializationFromLayout\(\)](#)

```
void Tests.TestDungeon.TestDungeonInitializationFromLayout () [inline]
```

7.99.1.4 [TestDungeonLayoutConstructor\(\)](#)

```
void Tests.TestDungeon.TestDungeonLayoutConstructor () [inline]
```

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/unit/TestDungeon.cs](#)

7.100 Tests.TestDungeonGenerator Class Reference

Collaboration diagram for Tests.TestDungeonGenerator:

| Tests.TestDungeonGenerator |
|------------------------------------|
| |
| + void TestDungeonGeneration() |
| + void TestIsValidDungeonLayout() |
| + void TestAddRoom() |
| + void TestGetShuffledDirections() |
| + void TestGetNextPosition() |
| + void TestGetRandomRoomScene() |

Public Member Functions

- void [TestDungeonGeneration \(\)](#)
- void [TestIsValidDungeonLayout \(\)](#)
- void [TestAddRoom \(\)](#)
- void [TestGetShuffledDirections \(\)](#)
- void [TestGetNextPosition \(\)](#)
- void [TestGetRandomRoomScene \(\)](#)

7.100.1 Member Function Documentation

7.100.1.1 [TestAddRoom\(\)](#)

```
void Tests.TestDungeonGenerator.TestAddRoom () [inline]
```

7.100.1.2 [TestDungeonGeneration\(\)](#)

```
void Tests.TestDungeonGenerator.TestDungeonGeneration () [inline]
```

7.100.1.3 [TestGetNextPosition\(\)](#)

```
void Tests.TestDungeonGenerator.TestGetNextPosition () [inline]
```

7.100.1.4 [TestGetRandomRoomScene\(\)](#)

```
void Tests.TestDungeonGenerator.TestGetRandomRoomScene () [inline]
```

7.100.1.5 [TestGetShuffledDirections\(\)](#)

```
void Tests.TestDungeonGenerator.TestGetShuffledDirections () [inline]
```

7.100.1.6 [TestIsValidDungeonLayout\(\)](#)

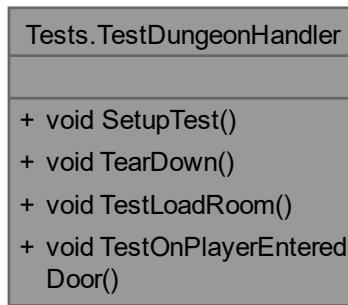
```
void Tests.TestDungeonGenerator.TestIsValidDungeonLayout () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestDungeonGenerator.cs](#)

7.101 Tests.TestDungeonHandler Class Reference

Collaboration diagram for Tests.TestDungeonHandler:



Public Member Functions

- void [SetupTest \(\)](#)
- void [TearDown \(\)](#)
- void [TestLoadRoom \(\)](#)
- void [TestOnPlayerEnteredDoor \(\)](#)

7.101.1 Detailed Description

Integration test for the player scene.

7.101.2 Member Function Documentation

7.101.2.1 [SetupTest\(\)](#)

```
void Tests.TestDungeonHandler.SetupTest () [inline]
```

7.101.2.2 [TearDown\(\)](#)

```
void Tests.TestDungeonHandler.TearDown () [inline]
```

7.101.2.3 [TestLoadRoom\(\)](#)

```
void Tests.TestDungeonHandler.TestLoadRoom () [inline]
```

7.101.2.4 TestOnPlayerEnteredDoor()

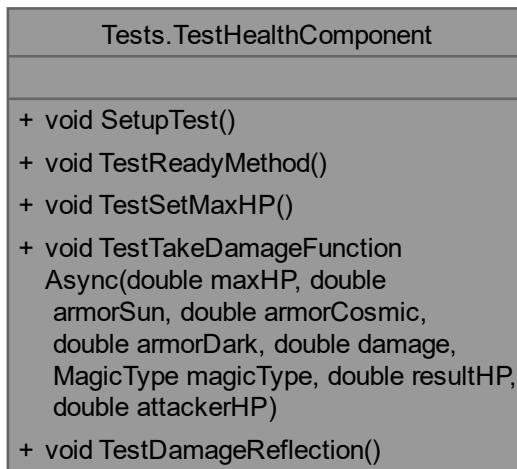
```
void Tests.TestDungeonHandler.TestOnPlayerEnteredDoor () [inline]
```

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/integration/TestDungeonHandler.cs](#)

7.102 Tests.TestHealthComponent Class Reference

Collaboration diagram for Tests.TestHealthComponent:



Public Member Functions

- [void SetupTest \(\)](#)
- [void TestReadyMethod \(\)](#)
- [void TestSetMaxHP \(\)](#)
- [void TestTakeDamageFunctionAsync \(double maxHP, double armorSun, double armorCosmic, double armorDark, double damage, MagicType magicType, double resultHP, double attackerHP\)](#)
- [void TestDamageReflection \(\)](#)

7.102.1 Detailed Description

Unit tests for the [HealthComponent Tests](#) the TakeDamage function

7.102.2 Member Function Documentation

7.102.2.1 SetupTest()

```
void Tests.TestHealthComponent.SetupTest () [inline]
```

7.102.2.2 TestDamageReflection()

```
void Tests.TestHealthComponent.TestDamageReflection () [inline]
```

7.102.2.3 TestReadyMethod()

```
void Tests.TestHealthComponent.TestReadyMethod () [inline]
```

7.102.2.4 TestSetMaxHP()

```
void Tests.TestHealthComponent.TestSetMaxHP () [inline]
```

7.102.2.5 TestTakeDamageFunctionAsync()

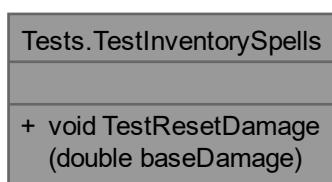
```
void Tests.TestHealthComponent.TestTakeDamageFunctionAsync (
    double maxHP,
    double armorSun,
    double armorCosmic,
    double armorDark,
    double damage,
    MagicType magicType,
    double resultHP,
    double attackerHP) [inline]
```

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/unit/TestHealthComponent.cs](#)

7.103 Tests.TestInventorySpells Class Reference

Collaboration diagram for Tests.TestInventorySpells:



Public Member Functions

- void [TestResetDamage](#) (double baseDamage)

7.103.1 Detailed Description

Unit tests for all [Spell](#) classes

7.103.2 Member Function Documentation

7.103.2.1 TestResetDamage()

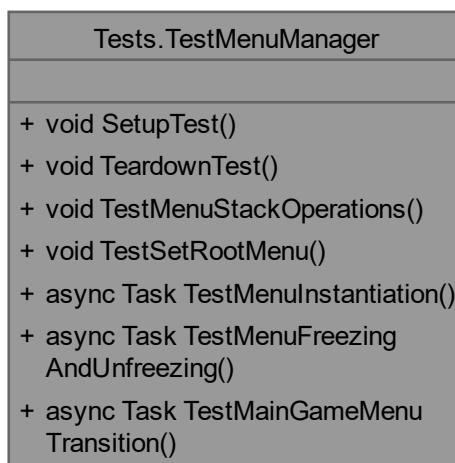
```
void Tests.TestInventorySpells.TestResetDamage (
    double baseDamage) [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestInventorySpell.cs](#)

7.104 Tests.TestMenuManager Class Reference

Collaboration diagram for Tests.TestMenuManager:



Public Member Functions

- void [SetupTest](#) ()
- void [TeardownTest](#) ()
- void [TestMenuStackOperations](#) ()
- void [TestSetRootMenu](#) ()
- async Task [TestMenuInstantiation](#) ()
- async Task [TestMenuFreezingAndUnfreezing](#) ()
- async Task [TestMainGameMenuTransition](#) ()

7.104.1 Member Function Documentation

7.104.1.1 [SetupTest\(\)](#)

```
void Tests.TestMenuManager.SetupTest () [inline]
```

7.104.1.2 [TeardownTest\(\)](#)

```
void Tests.TestMenuManager.TeardownTest () [inline]
```

7.104.1.3 [TestMainGameMenuTransition\(\)](#)

```
async Task Tests.TestMenuManager.TestMainGameMenuTransition () [inline]
```

7.104.1.4 [TestMenuFreezingAndUnfreezing\(\)](#)

```
async Task Tests.TestMenuManager.TestMenuFreezingAndUnfreezing () [inline]
```

7.104.1.5 [TestMenuInstantiation\(\)](#)

```
async Task Tests.TestMenuManager.TestMenuInstantiation () [inline]
```

7.104.1.6 [TestMenuStackOperations\(\)](#)

```
void Tests.TestMenuManager.TestMenuStackOperations () [inline]
```

7.104.1.7 [TestSetRootMenu\(\)](#)

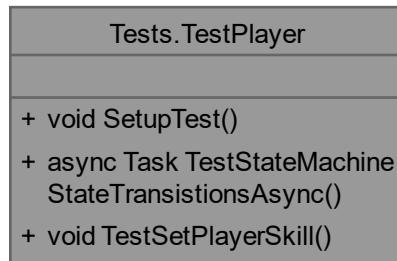
```
void Tests.TestMenuManager.TestSetRootMenu () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/integration/[TestMenu.cs](#)

7.105 Tests.TestPlayer Class Reference

Collaboration diagram for Tests.TestPlayer:



Public Member Functions

- void [SetupTest \(\)](#)
- async Task [TestStateMachineStateTransistionsAsync \(\)](#)
- void [TestSetPlayerSkill \(\)](#)

7.105.1 Detailed Description

Integration test for the player scene. Uses the main_game.tscn since there the player is autoloaded and not disabled.

7.105.2 Member Function Documentation

7.105.2.1 SetupTest()

```
void Tests.TestPlayer.SetupTest () [inline]
```

7.105.2.2 TestSetPlayerSkill()

```
void Tests.TestPlayer.TestSetPlayerSkill () [inline]
```

Test SetPlayerSkill

7.105.2.3 TestStateMachineStateTransistionsAsync()

```
async Task Tests.TestPlayer.TestStateMachineStateTransistionsAsync () [inline]
```

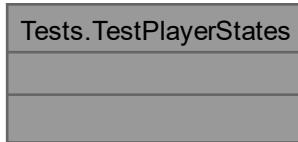
Test the transitions between states

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/integration/[TestPlayer.cs](#)

7.106 Tests.TestPlayerStates Class Reference

Collaboration diagram for Tests.TestPlayerStates:



7.106.1 Detailed Description

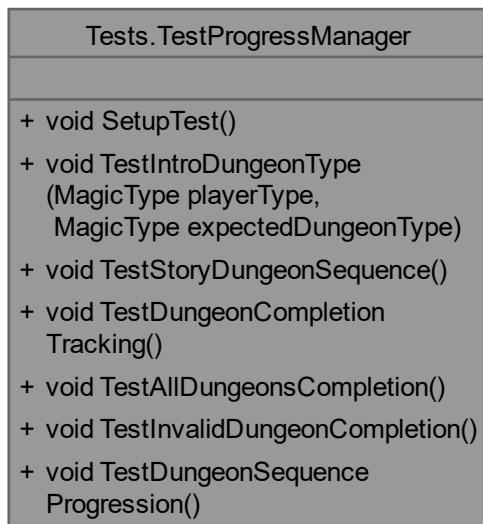
Unit tests for all player states. Is empty since I cannot think of any unit tests

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/unit/TestPlayerStates.cs](#)

7.107 Tests.TestProgressManager Class Reference

Collaboration diagram for Tests.TestProgressManager:



Public Member Functions

- void [SetupTest \(\)](#)
- void [TestIntroDungeonType \(MagicType playerType, MagicType expectedDungeonType\)](#)
- void [TestStoryDungeonSequence \(\)](#)
- void [TestDungeonCompletionTracking \(\)](#)
- void [TestAllDungeonsCompletion \(\)](#)
- void [TestInvalidDungeonCompletion \(\)](#)
- void [TestDungeonSequenceProgression \(\)](#)

7.107.1 Member Function Documentation

7.107.1.1 [SetupTest\(\)](#)

```
void Tests.TestProgressManager.SetupTest () [inline]
```

7.107.1.2 [TestAllDungeonsCompletion\(\)](#)

```
void Tests.TestProgressManager.TestAllDungeonsCompletion () [inline]
```

7.107.1.3 [TestDungeonCompletionTracking\(\)](#)

```
void Tests.TestProgressManager.TestDungeonCompletionTracking () [inline]
```

7.107.1.4 [TestDungeonSequenceProgression\(\)](#)

```
void Tests.TestProgressManager.TestDungeonSequenceProgression () [inline]
```

7.107.1.5 [TestIntroDungeonType\(\)](#)

```
void Tests.TestProgressManager.TestIntroDungeonType (
    MagicType playerType,
    MagicType expectedDungeonType) [inline]
```

7.107.1.6 [TestInvalidDungeonCompletion\(\)](#)

```
void Tests.TestProgressManager.TestInvalidDungeonCompletion () [inline]
```

7.107.1.7 [TestStoryDungeonSequence\(\)](#)

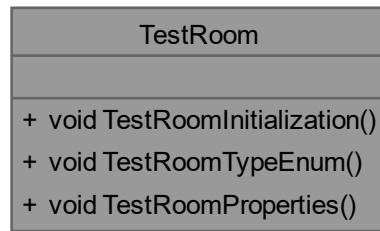
```
void Tests.TestProgressManager.TestStoryDungeonSequence () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestProgressManager.cs](#)

7.108 TestRoom Class Reference

Collaboration diagram for TestRoom:



Public Member Functions

- void [TestRoomInitialization \(\)](#)
- void [TestRoomTypeEnum \(\)](#)
- void [TestRoomProperties \(\)](#)

7.108.1 Member Function Documentation

7.108.1.1 TestRoomInitialization()

```
void TestRoom.TestRoomInitialization () [inline]
```

7.108.1.2 TestRoomProperties()

```
void TestRoom.TestRoomProperties () [inline]
```

7.108.1.3 TestRoomTypeEnum()

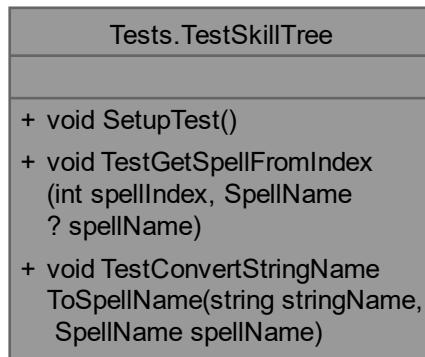
```
void TestRoom.TestRoomTypeEnum () [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestRoom.cs](#)

7.109 Tests.TestSkillTree Class Reference

Collaboration diagram for Tests.TestSkillTree:



Public Member Functions

- void [SetupTest\(\)](#)
- void [TestGetSpellFromIndex\(int spellIndex, SpellName? spellName\)](#)
- void [TestConvertStringNameToSpellName\(string stringName, SpellName spellName\)](#)

7.109.1 Detailed Description

Unit tests for the [SkillTree](#) Class

7.109.2 Member Function Documentation

7.109.2.1 [SetupTest\(\)](#)

```
void Tests.TestSkillTree.SetupTest () [inline]
```

7.109.2.2 [TestConvertStringNameToSpellName\(\)](#)

```
void Tests.TestSkillTree.TestConvertStringNameToSpellName (
    string stringName,
    SpellName spellName) [inline]
```

7.109.2.3 TestGetSpellFromIndex()

```
void Tests.TestSkillTree.TestGetSpellFromIndex (
    int spellIndex,
    SpellName? spellName) [inline]
```

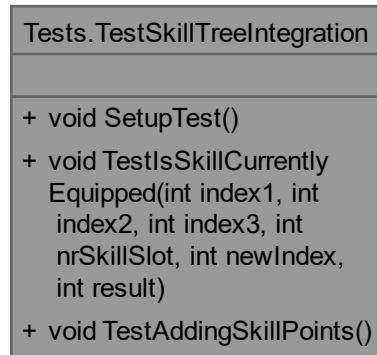
[Tests](#) both GetSpellFromIndex and its inverse

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/[TestSkillTree.cs](#)

7.110 Tests.TestSkillTreeIntegration Class Reference

Collaboration diagram for Tests.TestSkillTreeIntegration:



Public Member Functions

- void [SetupTest \(\)](#)
- void [TestIsSkillCurrentlyEquipped \(int index1, int index2, int index3, int nrSkillSlot, int newIndex, int result\)](#)
- void [TestAddingSkillPoints \(\)](#)

7.110.1 Detailed Description

Integration test for the [SkillTree](#).

7.110.2 Member Function Documentation

7.110.2.1 SetupTest()

```
void Tests.TestSkillTreeIntegration.SetupTest () [inline]
```

7.110.2.2 TestAddingSkillPoints()

```
void Tests.TestSkillTreeIntegration.TestAddingSkillPoints () [inline]
```

tests if adding skill points works and then tests if spending the skill points to unlock the skills works

7.110.2.3 TestIsSkillCurrentlyEquipped()

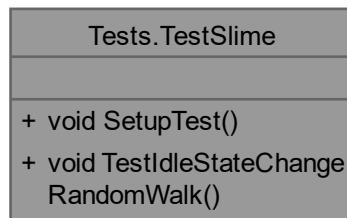
```
void Tests.TestSkillTreeIntegration.TestIsSkillCurrentlyEquipped (
    int index1,
    int index2,
    int index3,
    int nrSkillsSlot,
    int newIndex,
    int result) [inline]
```

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/integration/TestSkillTreeIntegration.cs](#)

7.111 Tests.TestSlime Class Reference

Collaboration diagram for Tests.TestSlime:



Public Member Functions

- [void SetupTest \(\)](#)
- [void TestIdleStateChangeRandomWalk \(\)](#)

7.111.1 Detailed Description

Unit tests for all slime states. So far, I could only think of one test for the idle slime state.

7.111.2 Member Function Documentation

7.111.2.1 SetupTest()

```
void Tests.TestSlime.SetupTest () [inline]
```

7.111.2.2 TestIdleStateChangeRandomWalk()

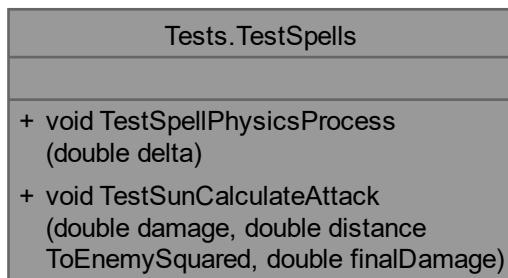
```
void Tests.TestSlime.TestIdleStateChangeRandomWalk () [inline]
```

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/unit/TestSlime.cs](#)

7.112 Tests.TestSpells Class Reference

Collaboration diagram for Tests.TestSpells:



Public Member Functions

- [void TestSpellPhysicsProcess \(double delta\)](#)
- [void TestSunCalculateAttack \(double damage, double distanceToEnemySquared, double finalDamage\)](#)

7.112.1 Detailed Description

Unit tests for all [Spell](#) classes

7.112.2 Member Function Documentation

7.112.2.1 TestSpellPhysicsProcess()

```
void Tests.TestSpells.TestSpellPhysicsProcess (
    double delta) [inline]
```

Test that `_PhysicsProcess` of [Spell](#) vlass correctly

7.112.2.2 TestSunCalculateAttack()

```
void Tests.TestSpells.TestSunCalculateAttack (
    double damage,
    double distanceToEnemySquared,
    double finalDamage) [inline]
```

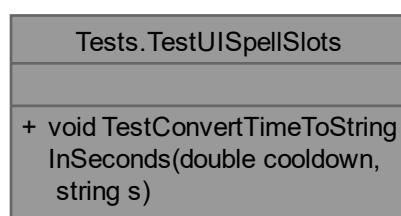
Test [Sun](#) `CalculateAttack()` function. Remeber that the damage calculated by `CalculateAttack` is 1/60 of the damage given to the spell

The documentation for this class was generated from the following file:

- [TheMagicApprentice/tests/unit/TestSpells.cs](#)

7.113 Tests.TestUISpellSlots Class Reference

Collaboration diagram for `Tests.TestUISpellSlots`:



Public Member Functions

- `void TestConvertTimeToStringInSeconds (double cooldown, string s)`

7.113.1 Detailed Description

Unit tests for all [Spell](#) classes

7.113.2 Member Function Documentation

7.113.2.1 TestConvertTimeToStringInSeconds()

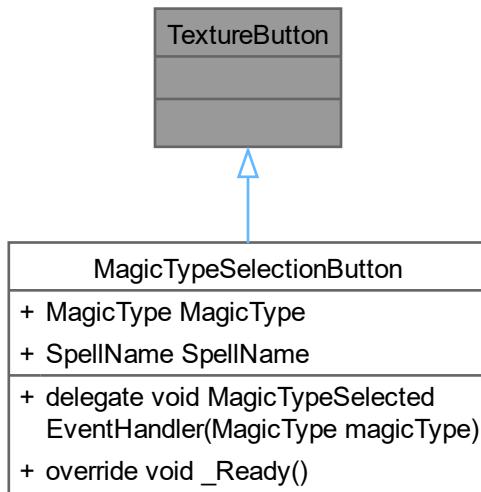
```
void Tests.TestUISpellSlots.TestConvertTimeToStringInSeconds (
    double cooldown,
    string s) [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/tests/unit/TestUISpellSlots.cs

7.114 TextureButton Class Reference

Inheritance diagram for TextureButton:



Collaboration diagram for TextureButton:

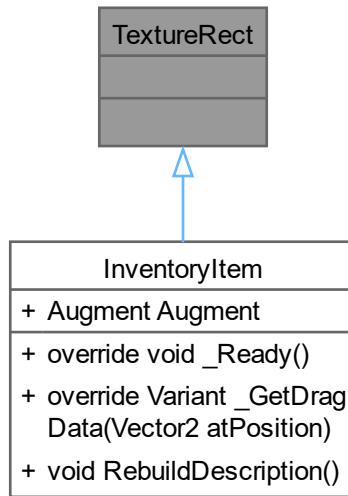


The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/ui/dungeon_selection/MagicTypeSelectionButton.cs

7.115 TextureRect Class Reference

Inheritance diagram for TextureRect:



Collaboration diagram for TextureRect:



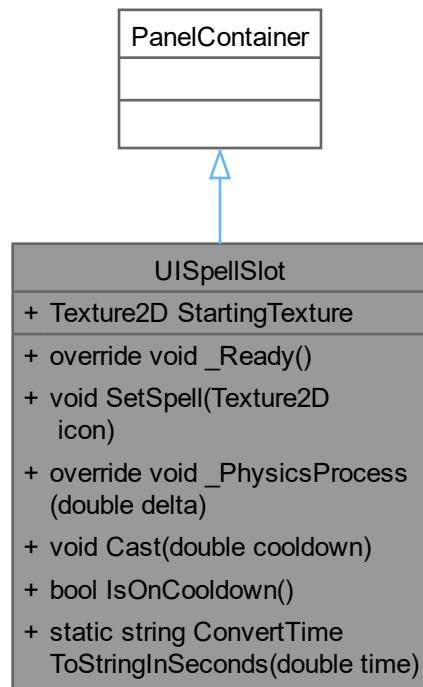
The documentation for this class was generated from the following file:

- `TheMagicApprentice/modules/entities/player/inventory/augments/InventoryItem.cs`

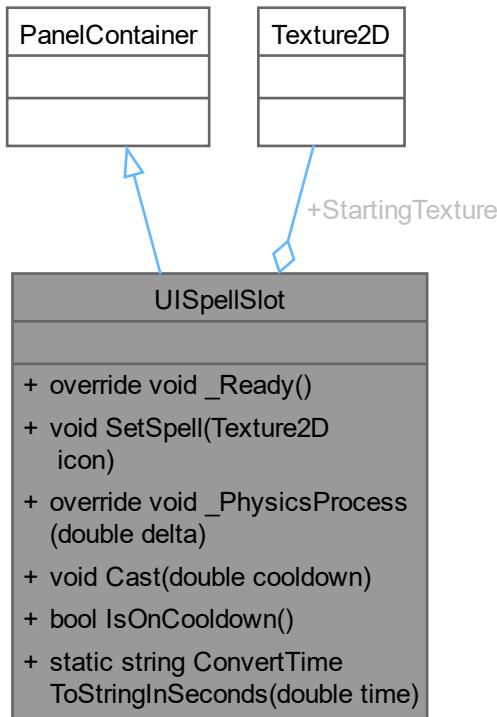
7.116 UISpellSlot Class Reference

Class for the `Spell` Box that shows the currently active spell.

Inheritance diagram for UISpellSlot:



Collaboration diagram for UISpellSlot:



Public Member Functions

- `override void _Ready ()`
- `void SetSpell (Texture2D icon)`
- `override void _PhysicsProcess (double delta)`
- `void Cast (double cooldown)`
- `bool IsOnCooldown ()`

Static Public Member Functions

- `static string ConvertTimeToStringInSeconds (double time)`

Public Attributes

- `Texture2D StartingTexture`

7.116.1 Detailed Description

Class for the [Spell](#) Box that shows the currently active spell.

7.116.2 Member Function Documentation

7.116.2.1 `_PhysicsProcess()`

```
override void UISpellSlot._PhysicsProcess (
    double delta) [inline]
```

7.116.2.2 `_Ready()`

```
override void UISpellSlot._Ready () [inline]
```

Set the reference to the textureRect

7.116.2.3 `Cast()`

```
void UISpellSlot.Cast (
    double cooldown) [inline]
```

7.116.2.4 `ConvertTimeToStringInSeconds()`

```
static string UISpellSlot.ConvertTimeToStringInSeconds (
    double time) [inline], [static]
```

Takes a double, rounds it up to the next integer and converts it to string and adds an s at the end. Uses System.← Globalization.CultureInfo to make sure that we use . and not , to separate the ,

7.116.2.5 `IsOnCooldown()`

```
bool UISpellSlot.IsOnCooldown () [inline]
```

returns true if physics process is enabled, false otherwise. This works because the physics process is enabled if and only if we are on cooldown.

7.116.2.6 `SetSpell()`

```
void UISpellSlot.SetSpell (
    Texture2D icon) [inline]
```

Set the texture of the textureRect

7.116.3 Member Data Documentation

7.116.3.1 `StartingTexture`

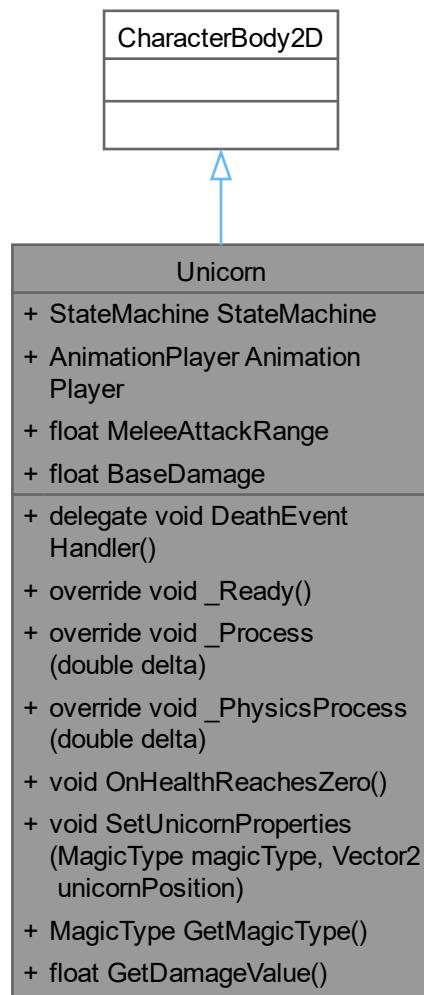
```
Texture2D UISpellSlot.StartingTexture
```

The documentation for this class was generated from the following file:

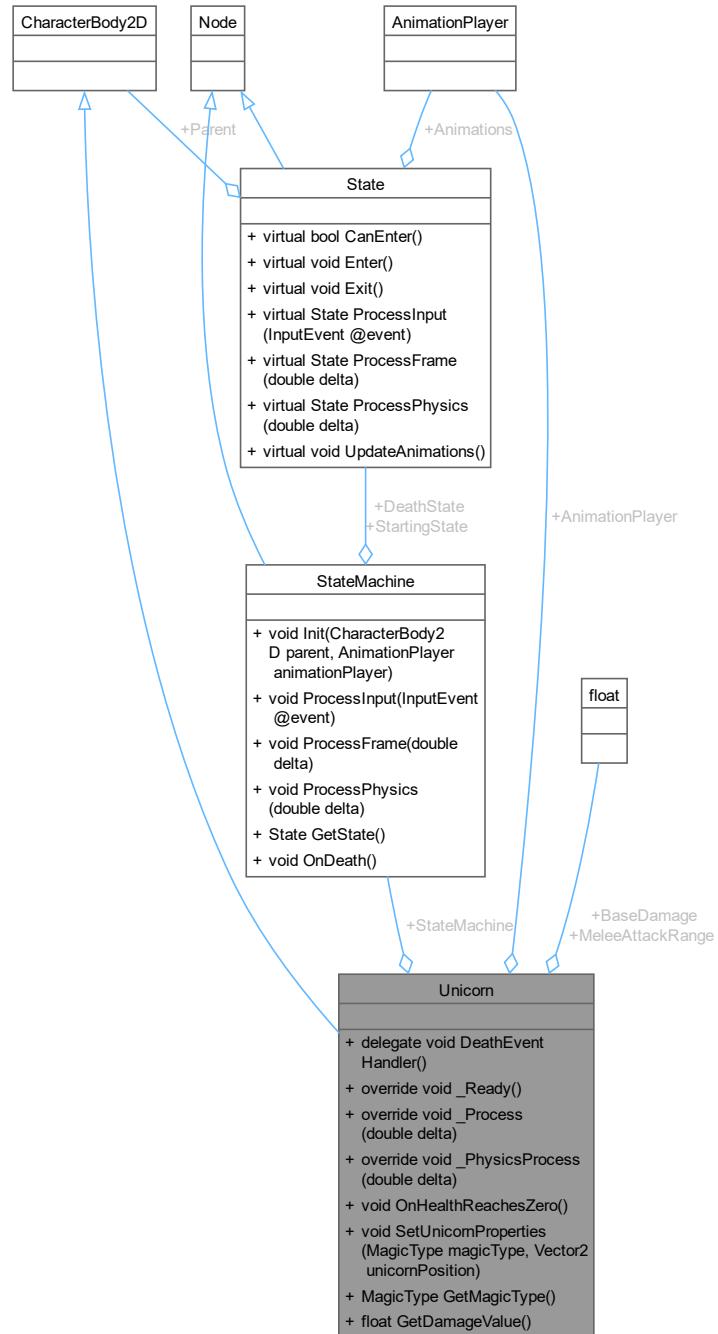
- TheMagicApprentice/modules/entities/player/inventory/[UISpellSlot.cs](#)

7.117 Unicorn Class Reference

Inheritance diagram for Unicorn:



Collaboration diagram for Unicorn:



Public Member Functions

- **delegate void DeathEventHandler ()**
Signal that gets emitted if the unicorn dies.
- **override void _Ready ()**
- **override void _Process (double delta)**
- **override void _PhysicsProcess (double delta)**

- void [OnHealthReachesZero \(\)](#)
- void [SetUnicornProperties \(MagicType magicType, Vector2 unicornPosition\)](#)
- [MagicType GetMagicType \(\)](#)
- float [GetDamageValue \(\)](#)

Public Attributes

- [StateMachine StateMachine](#)
Reference to the state machine of the unicorn.
- [AnimationPlayer AnimationPlayer](#)
Reference to the animation player of the unicorn.
- float [MeleeAttackRange = 50](#)
If the PC is inside of this radius, the unicorn performs a melee attack.
- float [BaseDamage = 25](#)
Basic damage of the unicorn.

7.117.1 Member Function Documentation

7.117.1.1 [_PhysicsProcess\(\)](#)

```
override void Unicorn._PhysicsProcess (
    double delta) [inline]
```

Is called every physics update We simply forward the call to the state machine

7.117.1.2 [_Process\(\)](#)

```
override void Unicorn._Process (
    double delta) [inline]
```

Is called every frame We simply forward the call to the state machine

7.117.1.3 [_Ready\(\)](#)

```
override void Unicorn._Ready () [inline]
```

Is called when the unicorn enters the scene tree. Checks if the references to the state machine and the animation player are valid and then sends them to the state machine so that all states get the references

7.117.1.4 [DeathEventHandler\(\)](#)

```
delegate void Unicorn.DeathEventHandler ()
```

Signal that gets emitted if the unicorn dies.

7.117.1.5 GetDamageValue()

```
float Unicorn.GetDamageValue () [inline]
```

Getter for damage value of the unicorn.

7.117.1.6 GetMagicType()

```
MagicType Unicorn.GetMagicType () [inline]
```

Getter for magic type of the unicorn.

7.117.1.7 OnHealthReachesZero()

```
void Unicorn.OnHealthReachesZero () [inline]
```

Gets called when the HP of the unicorn reaches zero. Emits the Death Signal of the [Unicorn](#) class so that room knows its dead

7.117.1.8 SetUnicornProperties()

```
void Unicorn.SetUnicornProperties (
    MagicType magicType,
    Vector2 unicornPosition) [inline]
```

Sets properties of the unicorn: Magic type, initial position and base damage. Modifications of the base damage could be done here. The armor values of the unicorn are set depending on the magic type of the unicorn.

7.117.2 Member Data Documentation

7.117.2.1 AnimationPlayer

```
AnimationPlayer Unicorn.AnimationPlayer
```

Reference to the animation player of the unicorn.

7.117.2.2 BaseDamage

```
float Unicorn.BaseDamage = 25
```

Basic damage of the unicorn.

7.117.2.3 MeleeAttackRange

```
float Unicorn.MeleeAttackRange = 50
```

If the PC is inside of this radius, the unicorn performs a melee attack.

7.117.2.4 StateMachine

`StateMachine` `Unicorn.StateMachine`

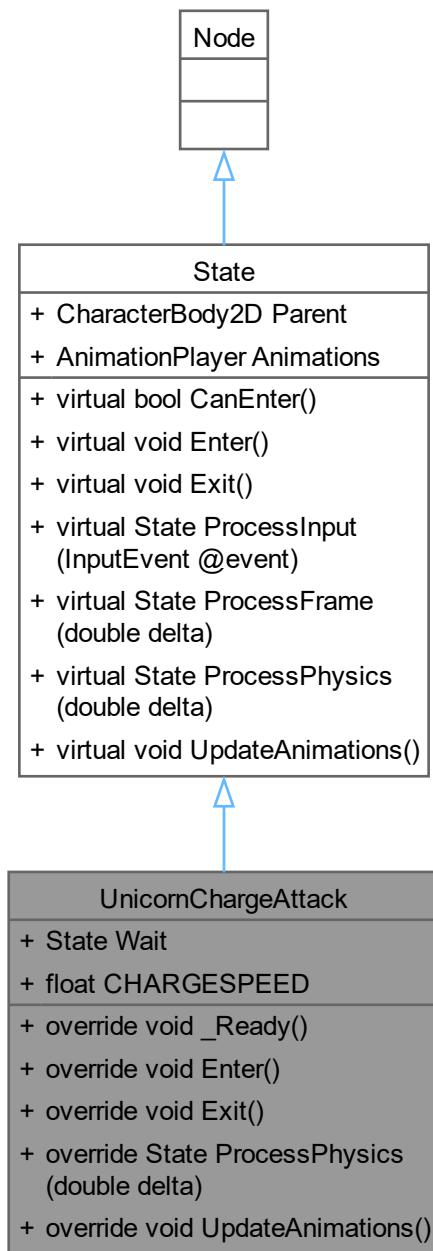
Reference to the state machine of the unicorn.

The documentation for this class was generated from the following file:

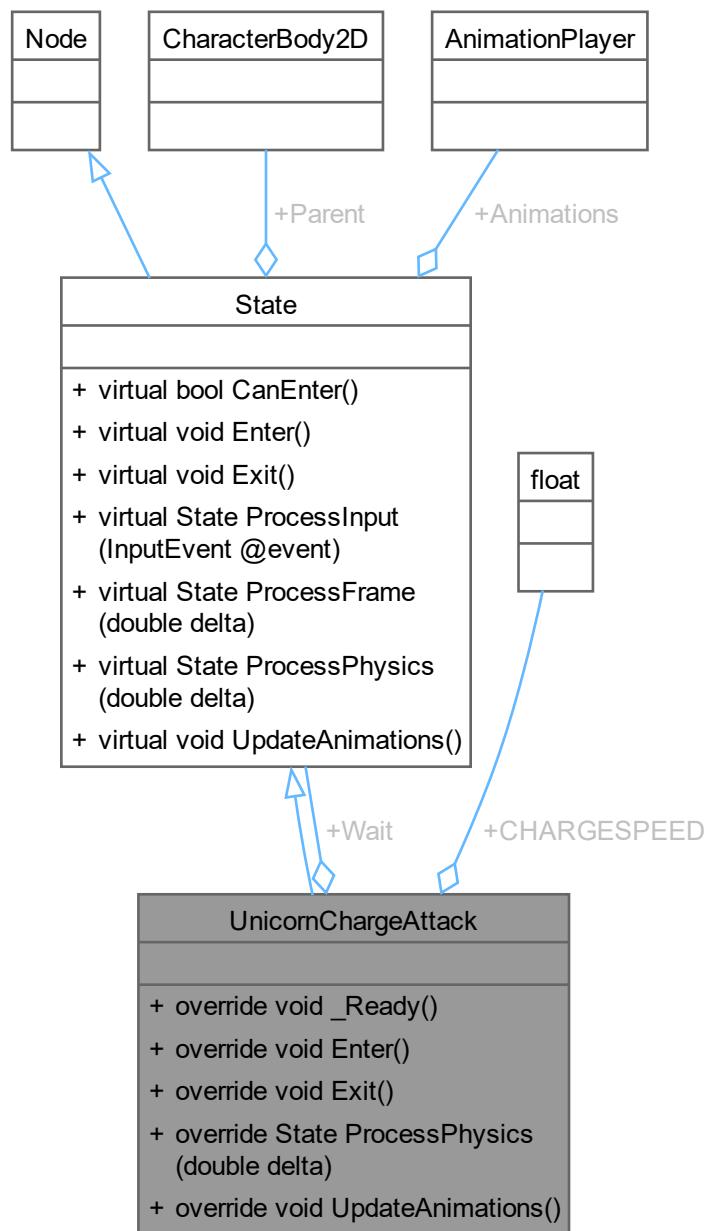
- `TheMagicApprentice/modules/entities/unicorns/Unicorn.cs`

7.118 UnicornChargeAttack Class Reference

Inheritance diagram for UnicornChargeAttack:



Collaboration diagram for UnicornChargeAttack:



Public Member Functions

- `override void _Ready ()`
- `override void Enter ()`
- `override void Exit ()`
- `override State ProcessPhysics (double delta)`
- `override void UpdateAnimations ()`

Public Member Functions inherited from [State](#)

- virtual bool [CanEnter \(\)](#)
- virtual [State ProcessInput \(InputEvent @event\)](#)
- virtual [State ProcessFrame \(double delta\)](#)

Public Attributes

- [State Wait](#)
Reference to Wait state.
- float [CHARGESPEED = 300](#)
Speed with which the unicorn charges at the player.

Public Attributes inherited from [State](#)

- [CharacterBody2D Parent](#)
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- [AnimationPlayer Animations](#)
Reference to the AnimationPlayer of the entity.

7.118.1 Member Function Documentation

7.118.1.1 [_Ready\(\)](#)

```
override void UnicornChargeAttack._Ready () [inline]
```

Set player so that the distance to the player can be determined later.

7.118.1.2 [Enter\(\)](#)

```
override void UnicornChargeAttack.Enter () [inline], [virtual]
```

When entering the state, the duration of the charge is determined at first.

Reimplemented from [State](#).

7.118.1.3 [Exit\(\)](#)

```
override void UnicornChargeAttack.Exit () [inline], [virtual]
```

When the unicorn leaves the state, reset the velocity to zero to ensure that the unicorn does not do any unintended movements when in the next state.

Reimplemented from [State](#).

7.118.1.4 ProcessPhysics()

```
override State UnicornChargeAttack.ProcessPhysics (
    double delta) [inline], [virtual]
```

Count down the time left in the Charge [Attack](#) state. When the time left has reached zero, return to the wait state.

Reimplemented from [State](#).

7.118.1.5 UpdateAnimations()

```
override void UnicornChargeAttack.UpdateAnimations () [inline], [virtual]
```

Update animations to the charge attack animation, depending on the magic type of the unicorn. Note: When the proper animation is done, there should be eight versions for the different directions. Then, this function has to be updated accordingly. At the moment, there are no animations.

Reimplemented from [State](#).

7.118.2 Member Data Documentation

7.118.2.1 CHARGESPEED

```
float UnicornChargeAttack.CHARGESPEED = 300
```

Speed with which the unicorn charges at the player.

7.118.2.2 Wait

```
State UnicornChargeAttack.Wait
```

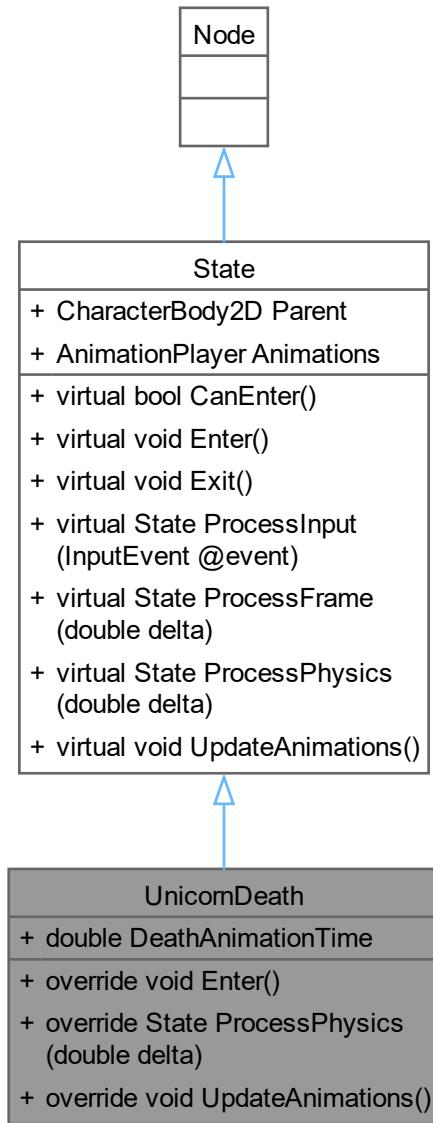
Reference to Wait state.

The documentation for this class was generated from the following file:

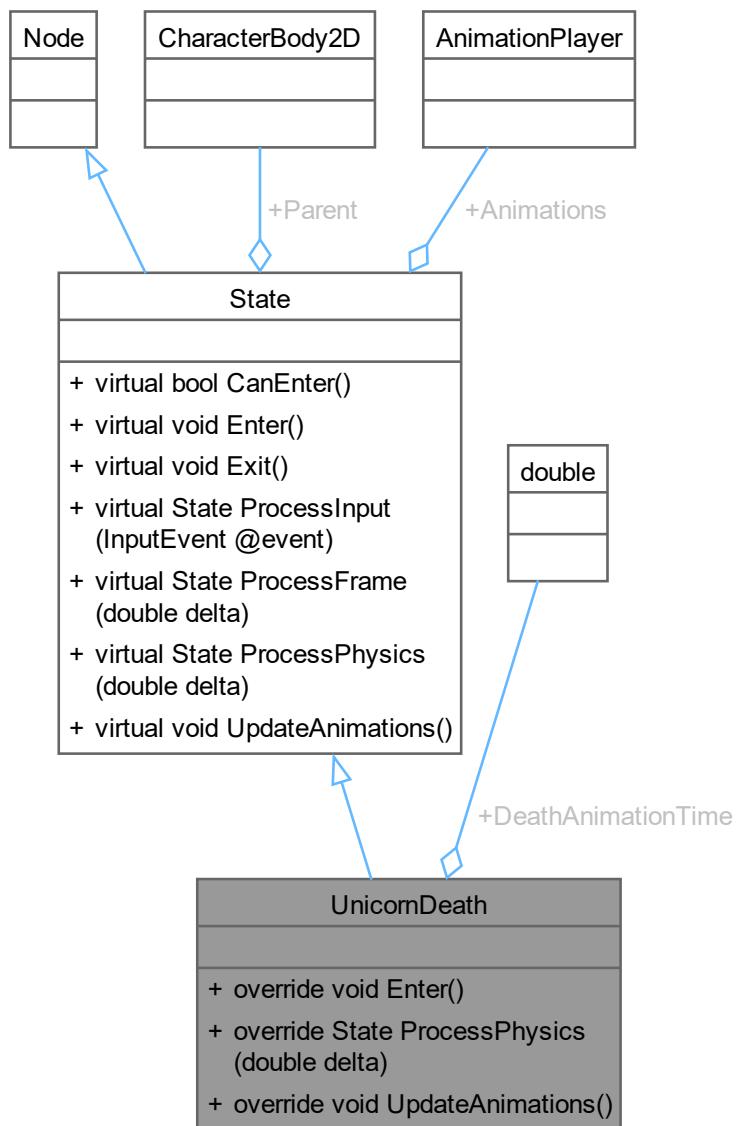
- TheMagicApprentice/modules/entities/unicorns/states/[UnicornChargeAttack.cs](#)

7.119 UnicornDeath Class Reference

Inheritance diagram for UnicornDeath:



Collaboration diagram for UnicornDeath:



Public Member Functions

- override void `Enter ()`
- override **State** `ProcessPhysics (double delta)`
- override void `UpdateAnimations ()`

Public Member Functions inherited from **State**

- virtual bool `CanEnter ()`
- virtual void `Exit ()`
- virtual **State** `ProcessInput (InputEvent @event)`
- virtual **State** `ProcessFrame (double delta)`

Public Attributes

- double **DeathAnimationTime** = 1.0

Duration of the death animation.

Public Attributes inherited from [State](#)

- [CharacterBody2D Parent](#)

Reference to the parent of the scene, i.e. the entity that this state machine belongs to.

- [AnimationPlayer Animations](#)

Reference to the AnimationPlayer of the entity.

7.119.1 Member Function Documentation

7.119.1.1 Enter()

```
override void UnicornDeath.Enter () [inline], [virtual]
```

Set duration of death animation and play death animation. Call function to ensure that unicorn cannot be hit by attacks once it entered the death state.

Reimplemented from [State](#).

7.119.1.2 ProcessPhysics()

```
override State UnicornDeath.ProcessPhysics (
    double delta) [inline], [virtual]
```

Once the duration of the death animation has passed, remove the unicorn from the scene tree. A signal or a function have to be called then, to tell the dungeon that it was successfully cleared.

Reimplemented from [State](#).

7.119.1.3 UpdateAnimations()

```
override void UnicornDeath.UpdateAnimations () [inline], [virtual]
```

Update animations to the death animation, depending on the magic type of the unicorn. At the moment, there are no animations.

Reimplemented from [State](#).

7.119.2 Member Data Documentation

7.119.2.1 DeathAnimationTime

```
double UnicornDeath.DeathAnimationTime = 1.0
```

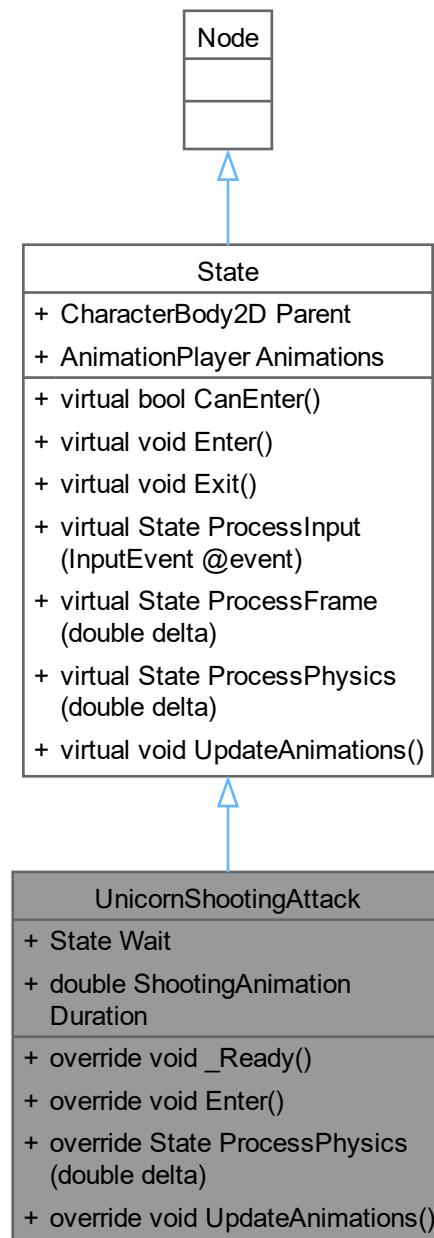
Duration of the death animation.

The documentation for this class was generated from the following file:

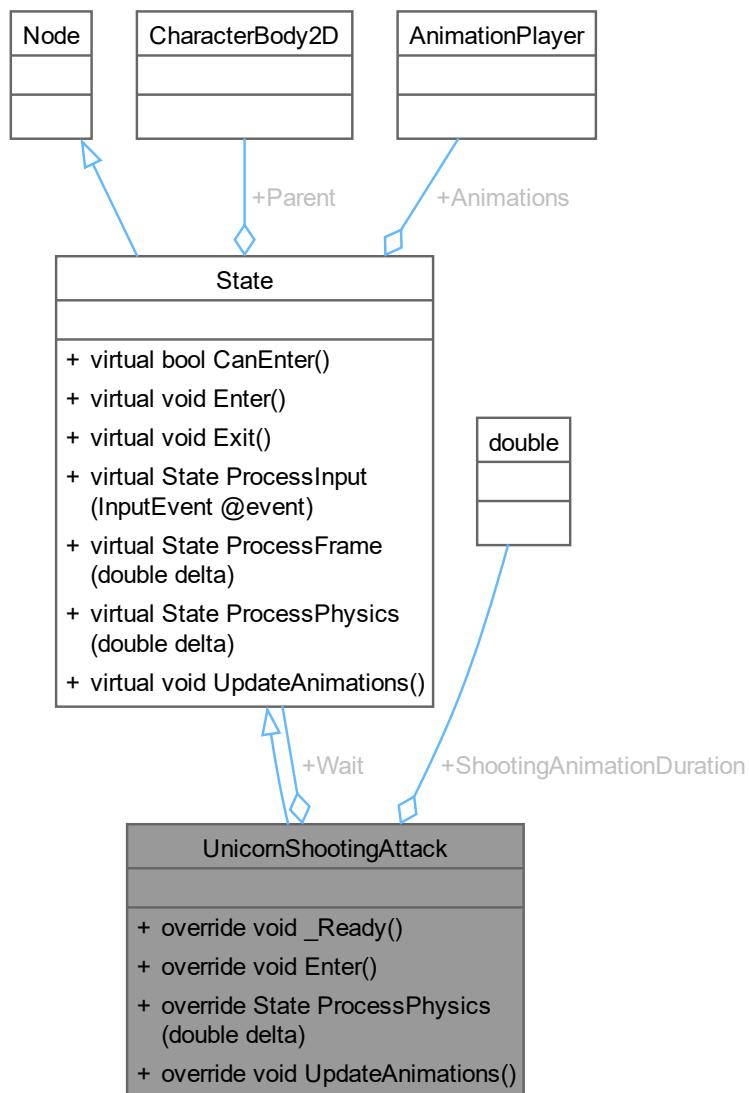
- [TheMagicApprentice/modules/entities/unicorns/states/UnicornDeath.cs](#)

7.120 UnicornShootingAttack Class Reference

Inheritance diagram for UnicornShootingAttack:



Collaboration diagram for UnicornShootingAttack:



Public Member Functions

- override void **_Ready** ()
- override void **Enter** ()
- override **State ProcessPhysics** (double delta)
- override void **UpdateAnimations** ()

Public Member Functions inherited from **State**

- virtual bool **CanEnter** ()
- virtual void **Exit** ()
- virtual **State ProcessInput** (InputEvent @event)
- virtual **State ProcessFrame** (double delta)

Public Attributes

- **State Wait**
Reference to Wait state.
- **double ShootingAnimationDuration**
Duration of the shooting attack animation.

Public Attributes inherited from [State](#)

- **CharacterBody2D Parent**
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- **AnimationPlayer Animations**
Reference to the AnimationPlayer of the entity.

7.120.1 Member Function Documentation

7.120.1.1 [_Ready\(\)](#)

```
override void UnicornShootingAttack._Ready () [inline]
```

Set player so that the distance to the player can be determined later.

7.120.1.2 [Enter\(\)](#)

```
override void UnicornShootingAttack.Enter () [inline], [virtual]
```

When entering the shooting attack state, set the time left in the state, which depends on the animation duration. Update the animation and call the function, that handles the shooting of the projectiles.

Reimplemented from [State](#).

7.120.1.3 [ProcessPhysics\(\)](#)

```
override State UnicornShootingAttack.ProcessPhysics (
    double delta) [inline], [virtual]
```

Count down the time left in the Shooting [Attack](#) state. When the time left has reached zero, return to the wait state.

Reimplemented from [State](#).

7.120.1.4 [UpdateAnimations\(\)](#)

```
override void UnicornShootingAttack.UpdateAnimations () [inline], [virtual]
```

Update animations to the charge attack animation, depending on the magic type of the unicorn. Note: When the proper animation is done, there should be eight versions for the different directions. Then, this function has to be updated accordingly. At the moment, there are no animations.

Reimplemented from [State](#).

7.120.2 Member Data Documentation

7.120.2.1 ShootingAnimationDuration

```
double UnicornShootingAttack.ShootingAnimationDuration
```

Duration of the shooting attack animation.

7.120.2.2 Wait

```
State UnicornShootingAttack.Wait
```

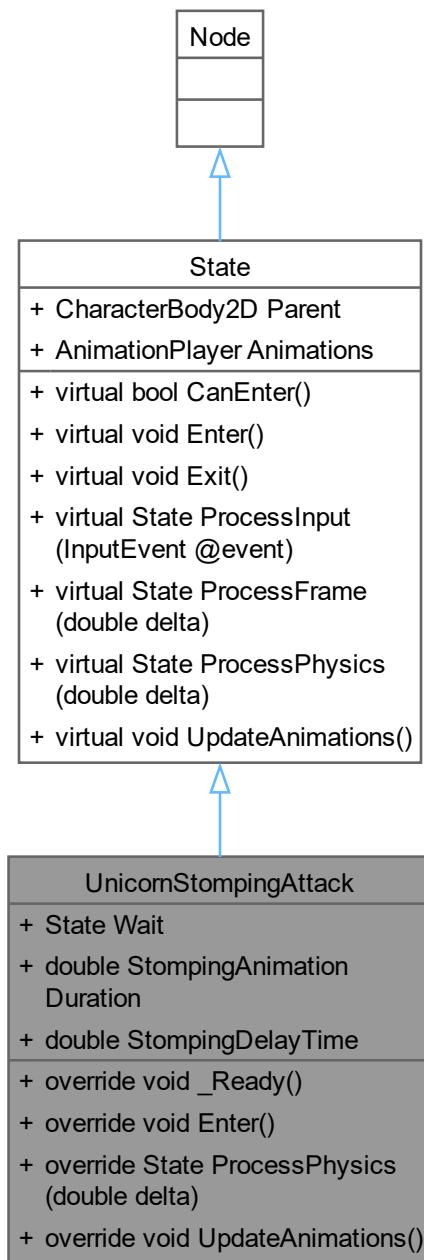
Reference to Wait state.

The documentation for this class was generated from the following file:

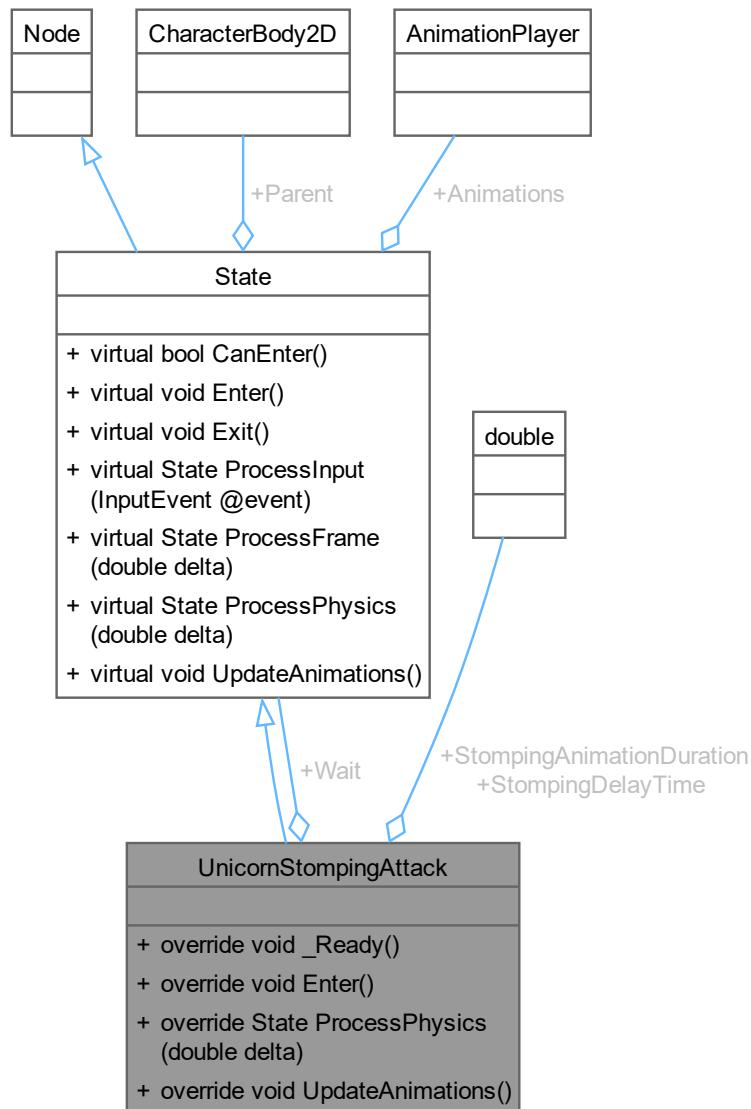
- TheMagicApprentice/modules/entities/unicorns/states/[UnicornShootingAttack.cs](#)

7.121 UnicornStompingAttack Class Reference

Inheritance diagram for UnicornStompingAttack:



Collaboration diagram for UnicornStompingAttack:



Public Member Functions

- override void `_Ready()`
- override void `Enter()`
- override `State ProcessPhysics (double delta)`
- override void `UpdateAnimations()`

Public Member Functions inherited from `State`

- virtual bool `CanEnter()`
- virtual void `Exit()`
- virtual `State ProcessInput (InputEvent @event)`
- virtual `State ProcessFrame (double delta)`

Public Attributes

- **State Wait**
Reference to Wait state.
- double **StompingAnimationDuration**
Duration of the stomping attack animation.
- double **StompingDelayTime** = 0.5
Time after which the unicorn hits the ground with its hooves in the animation.

Public Attributes inherited from State

- CharacterBody2D **Parent**
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer **Animations**
Reference to the AnimationPlayer of the entity.

7.121.1 Member Function Documentation

7.121.1.1 _Ready()

```
override void UnicornStompingAttack._Ready () [inline]
```

Set player so that the distance or direction to the player can be determined later.

7.121.1.2 Enter()

```
override void UnicornStompingAttack.Enter () [inline], [virtual]
```

When entering the stomping attack state, set the time left in the state depending on the animation duration. Update the animations and call the function that handles the effect of the stomping attack.

Reimplemented from [State](#).

7.121.1.3 ProcessPhysics()

```
override State UnicornStompingAttack.ProcessPhysics (
    double delta) [inline], [virtual]
```

Count down the time left in the Stomping [Attack](#) state. When the time left has reached zero, return to the wait state.

Reimplemented from [State](#).

7.121.1.4 UpdateAnimations()

```
override void UnicornStompingAttack.UpdateAnimations () [inline], [virtual]
```

Update animations to the stomping attack animation, depending on the magic type of the unicorn. Note: When the proper animation is done, there should be eight versions for the different directions. Then, this function has to be updated accordingly. At the moment, there are no animations.

Reimplemented from [State](#).

7.121.2 Member Data Documentation

7.121.2.1 StompingAnimationDuration

```
double UnicornStompingAttack.StompingAnimationDuration
```

Duration of the stomping attack animation.

7.121.2.2 StompingDelayTime

```
double UnicornStompingAttack.StompingDelayTime = 0.5
```

Time after which the unicorn hits the ground with its hooves in the animation.

7.121.2.3 Wait

```
State UnicornStompingAttack.Wait
```

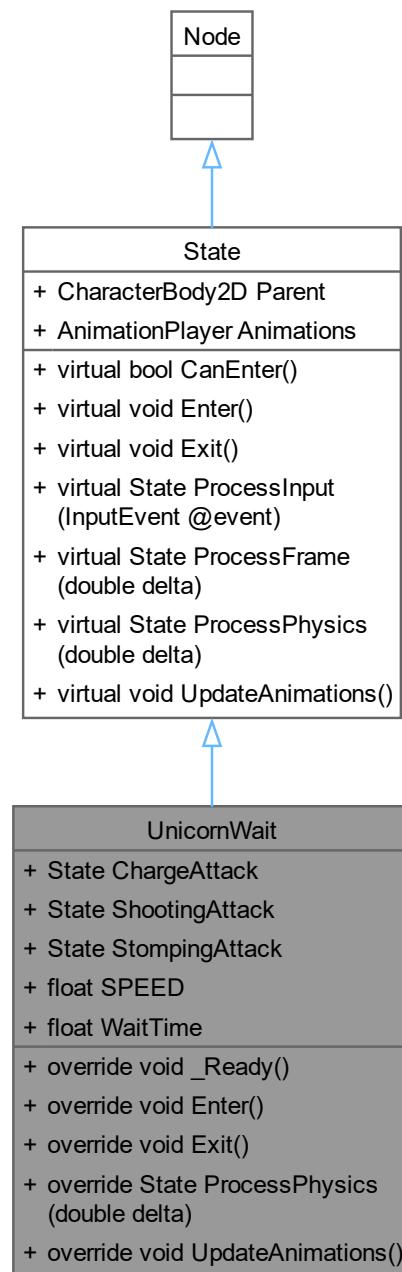
Reference to Wait state.

The documentation for this class was generated from the following file:

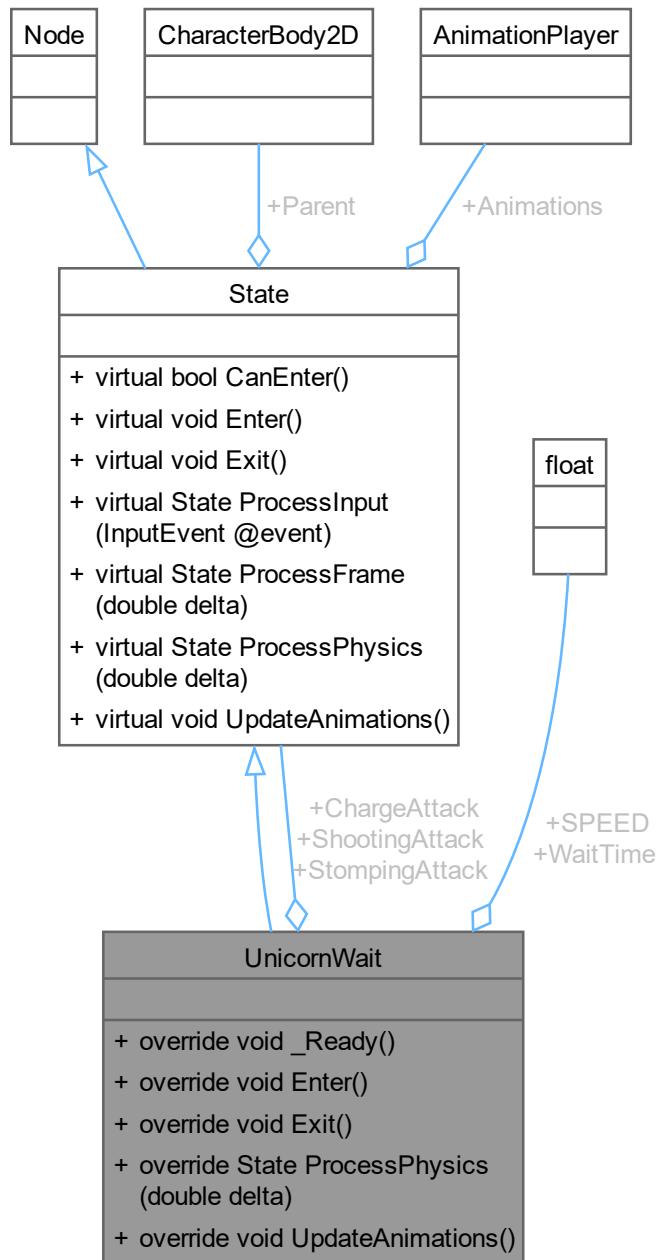
- TheMagicApprentice/modules/entities/unicorns/states/[UnicornStompingAttack.cs](#)

7.122 UnicornWait Class Reference

Inheritance diagram for UnicornWait:



Collaboration diagram for UnicornWait:



Public Member Functions

- override void **_Ready** ()
- override void **Enter** ()
- override void **Exit** ()
- override **State ProcessPhysics** (double delta)
- override void **UpdateAnimations** ()

Public Member Functions inherited from [State](#)

- virtual bool [CanEnter \(\)](#)
- virtual [State ProcessInput](#) (InputEvent @event)
- virtual [State ProcessFrame](#) (double delta)

Public Attributes

- [State ChargeAttack](#)
Reference to ChargeAttack state.
- [State ShootingAttack](#)
Reference to ShootingAttack state.
- [State StompingAttack](#)
Reference to StompingAttack state.
- float [SPEED](#) = 10
Speed of the unicorn when it waits until its next attack.
- float [WaitTime](#) = 2
Duration the unicorn spends in the wait state between attacks.

Public Attributes inherited from [State](#)

- CharacterBody2D [Parent](#)
Reference to the parent of the scene, i.e. the entity that this state machine belongs to.
- AnimationPlayer [Animations](#)
Reference to the AnimationPlayer of the entity.

7.122.1 Member Function Documentation

7.122.1.1 [_Ready\(\)](#)

```
override void UnicornWait._Ready () [inline]
```

Set player so that the distance to the player can be determined later.

7.122.1.2 [Enter\(\)](#)

```
override void UnicornWait.Enter () [inline], [virtual]
```

When the unicorn enters the state, set timeLeft so that the unicorn remains in the Wait state the for the correct time duration. Also update animations (call of update animations might have to be changed later).

Reimplemented from [State](#).

7.122.1.3 [Exit\(\)](#)

```
override void UnicornWait.Exit () [inline], [virtual]
```

When the unicorn leaves the state, reset the velocity to zero to ensure that the unicorn does not do any unintended movements when in the next state.

Reimplemented from [State](#).

7.122.1.4 ProcessPhysics()

```
override State UnicornWait.ProcessPhysics (
    double delta) [inline], [virtual]
```

Count down the time left in the wait state. If the time is smaller or equal to zero, call function SelectNextAttack to determine which attack is to be performed next and then change to that attack. If the unicorn remains in the wait state because the time is not up yet, the unicorn moves towards the current position of the player slowly.

Reimplemented from [State](#).

7.122.1.5 UpdateAnimations()

```
override void UnicornWait.UpdateAnimations () [inline], [virtual]
```

Update animations to the wait animation, depending on the magic type of the unicorn. Note: When the proper animation is done, there should be eight versions for the different directions. Then, this function has to be updated accordingly. At the moment, there are no animations.

Reimplemented from [State](#).

7.122.2 Member Data Documentation

7.122.2.1 ChargeAttack

```
State UnicornWait.ChargeAttack
```

Reference to ChargeAttack state.

7.122.2.2 ShootingAttack

```
State UnicornWait.ShootingAttack
```

Reference to ShootingAttack state.

7.122.2.3 SPEED

```
float UnicornWait.SPEED = 10
```

Speed of the unicorn when it waits until its next attack.

7.122.2.4 StompingAttack

```
State UnicornWait.StompingAttack
```

Reference to StompingAttack state.

7.122.2.5 WaitTime

```
float UnicornWait.WaitTime = 2
```

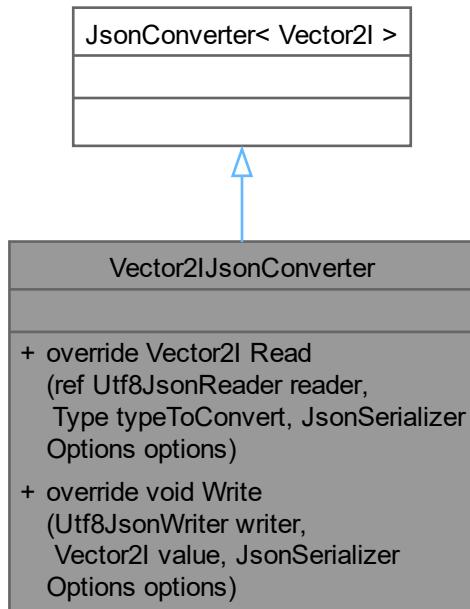
Duration the unicorn spends in the wait state between attacks.

The documentation for this class was generated from the following file:

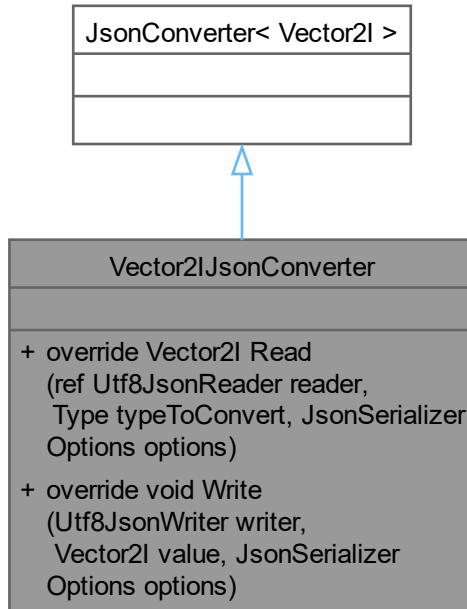
- [TheMagicApprentice/modules/entities/unicorns/states/UnicornWait.cs](#)

7.123 Vector2IJsonConverter Class Reference

Inheritance diagram for Vector2IJsonConverter:



Collaboration diagram for Vector2IJsonConverter:



Public Member Functions

- override Vector2I [Read](#) (ref Utf8JsonReader reader, Type typeToConvert, JsonSerializerOptions options)
- override void [Write](#) (Utf8JsonWriter writer, Vector2I value, JsonSerializerOptions options)

7.123.1 Member Function Documentation

7.123.1.1 [Read\(\)](#)

```
override Vector2I Vector2IJsonConverter.Read (
    ref Utf8JsonReader reader,
    Type typeToConvert,
    JsonSerializerOptions options) [inline]
```

7.123.1.2 [Write\(\)](#)

```
override void Vector2IJsonConverter.Write (
    Utf8JsonWriter writer,
    Vector2I value,
    JsonSerializerOptions options) [inline]
```

The documentation for this class was generated from the following file:

- TheMagicApprentice/modules/utils/[Vector2IJsonConverter.cs](#)

Chapter 8

File Documentation

8.1 TheMagicApprentice/addons/gdUnit4/src/mono/GdUnit4CSharpApi.cs File Reference

Classes

- class [GdUnit4CSharpApi](#)

8.2 TheMagicApprentice/addons/gut/LICENSE.md File Reference

8.3 TheMagicApprentice/modules/attack.cs File Reference

Classes

- class [Attack](#)

8.4 TheMagicApprentice/modules/augments/Augment.cs File Reference

Classes

- class [Augment](#)

8.5 TheMagicApprentice/modules/augments/ augment_effects/ AdditionalStars.cs File Reference

Classes

- class [AdditionalStars](#)

8.6 TheMagicApprentice/modules/augments/augment_effects/AugmentEffect.cs File Reference

Classes

- class [AugmentEffect](#)

8.7 TheMagicApprentice/modules/augments/augment_effects/CastAdditionalSpell.cs File Reference

Classes

- class [CastAdditionalSpell](#)

8.8 TheMagicApprentice/modules/augments/augment_effects/ExtraArmorOfAllTypes.cs File Reference

Classes

- class [ExtraArmorOfAllTypes](#)

8.9 TheMagicApprentice/modules/augments/augment_effects/ExtraArmorOfType.cs File Reference

Classes

- class [ExtraArmorOfType](#)

8.10 TheMagicApprentice/modules/augments/augment_effects/FlatDamageForOneType.cs File Reference

Classes

- class [FlatDamageForOneType](#)

8.11 TheMagicApprentice/modules/augments/augment_effects/FlatDamageForSpellSlot.cs File Reference

Classes

- class [FlatDamageForSpellSlot](#)

8.12 TheMagicApprentice/modules/augments/augment_effects/ HPIIncreaseAugmentEffect.cs File Reference

Classes

- class [HPIIncreaseAugmentEffect](#)

8.13 TheMagicApprentice/modules/augments/augment_effects/ IncreasedRadiusOfSpell.cs File Reference

Classes

- class [IncreasedRadiusOfSpell](#)

8.14 TheMagicApprentice/modules/augments/augment_effects/ IncreaseDurationOfSpell.cs File Reference

Classes

- class [IncreaseDurationOfSpell](#)

8.15 TheMagicApprentice/modules/augments/augment_effects/OnCast AugmentEffect.cs File Reference

Classes

- class [OnCastAugmentEffect](#)

8.16 TheMagicApprentice/modules/augments/augment_effects/Percent DamageForOneSpell.cs File Reference

Classes

- class [PercentDamageForOneSpell](#)

8.17 TheMagicApprentice/modules/augments/augment_effects/Percent DamageForOneType.cs File Reference

Classes

- class [PercentDamageForOneType](#)

8.18 TheMagicApprentice/modules/augments/AugmentManager.cs File Reference

Classes

- class [AugmentManager](#)

8.19 TheMagicApprentice/modules/entities/EntityTypeComponent.cs File Reference

Classes

- class [EntityTypeComponent](#)

8.20 TheMagicApprentice/modules/entities/healthbar/Healthbar.cs File Reference

Classes

- class [Healthbar](#)

8.21 TheMagicApprentice/modules/entities/HealthComponent.cs File Reference

Classes

- class [HealthComponent](#)

8.22 TheMagicApprentice/modules/entities/player/CameraController.cs File Reference

Classes

- class [CameraController](#)

This class controls the camera in the game.

8.23 TheMagicApprentice/modules/entities/player/inventory/augments/← AugmentEffectSelector.cs File Reference

Classes

- class [AugmentEffectSelector](#)

8.24 TheMagicApprentice/modules/entities/player/inventory/augments/[AugmentInventory.cs](#) File Reference

Classes

- class [AugmentInventory](#)

8.25 TheMagicApprentice/modules/entities/player/inventory/augments/[InventoryItem.cs](#) File Reference

Classes

- class [InventoryItem](#)

8.26 TheMagicApprentice/modules/entities/player/inventory/augments/[InventorySlot.cs](#) File Reference

Classes

- class [InventorySlot](#)

8.27 TheMagicApprentice/modules/entities/player/inventory/Spell/[Inventory.cs](#) File Reference

Classes

- class [SpellInventory](#)

8.28 TheMagicApprentice/modules/entities/player/inventory/spells/[InventorySpell.cs](#) File Reference

Classes

- class [InventorySpell](#)

8.29 TheMagicApprentice/modules/entities/player/inventory/spells/[InventoryStarRain.cs](#) File Reference

Classes

- class [InventoryStarRain](#)

8.30 TheMagicApprentice/modules/entities/player/inventory/spells/SkillSlot.cs File Reference

Classes

- class [SkillSlot](#)

8.31 TheMagicApprentice/modules/entities/player/inventory/spells/SkillTree.cs File Reference

Classes

- class [SkillTree](#)

8.32 TheMagicApprentice/modules/entities/player/inventory/UISpellSlot.cs File Reference

Classes

- class [UISpellSlot](#)

Class for the [Spell](#) Box that shows the currently active spell.

8.33 TheMagicApprentice/modules/entities/player/Player.cs File Reference

Classes

- class [Player](#)

8.34 TheMagicApprentice/modules/entities/player/spells/basic_spell/BasicSpell.cs File Reference

Classes

- class [BasicSpell](#)

8.35 TheMagicApprentice/modules/entities/player/spells/black_hole/BlackHole.cs File Reference

Classes

- class [BlackHole](#)

8.36 TheMagicApprentice/modules/entities/player/spells/dark_energy_← wave/DarkEnergyWave.cs File Reference

Classes

- class [DarkEnergyWave](#)

8.37 TheMagicApprentice/modules/entities/player/spells/moon_light/← MoonLight.cs File Reference

Classes

- class [MoonLight](#)

8.38 TheMagicApprentice/modules/entities/player/spells/Spell.cs File Reference

Classes

- class [Spell](#)

8.39 TheMagicApprentice/modules/entities/player/spells/star_rain/← Star.cs File Reference

Classes

- class [Star](#)

8.40 TheMagicApprentice/modules/entities/player/spells/summon_sun/← Sun.cs File Reference

Classes

- class [Sun](#)

8.41 TheMagicApprentice/modules/entities/player/spells/sun_beam/← FlashLightTextureGenerator.cs File Reference

Classes

- class [FlashLightTextureGenerator](#)

8.42 TheMagicApprentice/modules/entities/player/spells/sun_beam/← SunBeam.cs File Reference

Classes

- class [SunBeam](#)

8.43 TheMagicApprentice/modules/entities/player/states/Player← Dashing.cs File Reference

Classes

- class [PlayerDashing](#)

8.44 TheMagicApprentice/modules/entities/player/states/PlayerDeath.cs File Reference

Classes

- class [PlayerDeath](#)

8.45 TheMagicApprentice/modules/entities/player/states/PlayerIdle.cs File Reference

Classes

- class [PlayerIdle](#)

8.46 TheMagicApprentice/modules/entities/player/states/Player← Moving.cs File Reference

Classes

- class [PlayerMoving](#)

8.47 TheMagicApprentice/modules/entities/player/states/PlayerSpell← Casting.cs File Reference

Classes

- class [PlayerSpellCasting](#)

8.48 TheMagicApprentice/modules/entities/slimes/slime-attacks/MeleeAttackHurtBox.cs File Reference

Classes

- class [MeleeAttackHurtBox](#)

8.49 TheMagicApprentice/modules/entities/slimes/slime-attacks/RangedAttack.cs File Reference

Classes

- class [RangedAttack](#)

8.50 TheMagicApprentice/modules/entities/slimes/Slime.cs File Reference

Classes

- class [Slime](#)

8.51 TheMagicApprentice/modules/entities/slimes/states/SlimeAttacking.cs File Reference

Classes

- class [SlimeAttacking](#)

8.52 TheMagicApprentice/modules/entities/slimes/states/SlimeDeath.cs File Reference

Classes

- class [SlimeDeath](#)

8.53 TheMagicApprentice/modules/entities/slimes/states/Slimedle.cs File Reference

Classes

- class [Slimedle](#)

8.54 TheMagicApprentice/modules/entities/slimes/states/SlimeMoving.cs File Reference

Classes

- class [SlimeMoving](#)

8.55 TheMagicApprentice/modules/entities/State.cs File Reference

Classes

- class [State](#)

8.56 TheMagicApprentice/modules/entities/StateMachine.cs File Reference

Classes

- class [StateMachine](#)

8.57 TheMagicApprentice/modules/entities/unicorns/states/UnicornChargeAttack.cs File Reference

Classes

- class [UnicornChargeAttack](#)

8.58 TheMagicApprentice/modules/entities/unicorns/states/UnicornDeath.cs File Reference

Classes

- class [UnicornDeath](#)

8.59 TheMagicApprentice/modules/entities/unicorns/states/UnicornShootingAttack.cs File Reference

Classes

- class [UnicornShootingAttack](#)

8.60 TheMagicApprentice/modules/entities/unicorns/states/UnicornStompingAttack.cs File Reference

Classes

- class [UnicornStompingAttack](#)

8.61 TheMagicApprentice/modules/entities/unicorns/states/UnicornWait.cs File Reference

Classes

- class [UnicornWait](#)

8.62 TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/HurtBoxChargeAttack.cs File Reference

Classes

- class [HurtBoxChargeAttack](#)

8.63 TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/HurtBoxStompingAttack.cs File Reference

Classes

- class [HurtBoxStompingAttack](#)

8.64 TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/ShootingAttackProjectile.cs File Reference

Classes

- class [ShootingAttackProjectile](#)

8.65 TheMagicApprentice/modules/entities/unicorns/unicorn-attacks/ShootingAttackProjectileHandler.cs File Reference

Classes

- class [ShootingAttackProjectileHandler](#)

8.66 TheMagicApprentice/modules/entities/unicorns/Unicorn.cs File Reference

Classes

- class [Unicorn](#)

8.67 TheMagicApprentice/modules/enums.cs File Reference

Classes

- class [EntityTypeHelper](#)
- class [DirectionHelper](#)

Enumerations

- enum [MagicType](#) { [SUN](#) , [COSMIC](#) , [DARK](#) }

Global Enum for the Magic Type.
- enum [SlimeSize](#) { [LARGE](#) , [SMALL](#) }

Global Enum for the size of slimes.
- enum [SlimeAttackRange](#) { [MELEE](#) , [RANGED](#) }

Global Enum for the attack range of slimes.
- enum [Curse](#) {
 [SKILL_3_DISABLED](#) , [SKILL_1_ONLY](#) , [MORE_VULNERABLE](#) , [MONSTER_BUFF](#) ,
 [MORE_MONSTERS](#) , [TWO_BOSSES](#) }

Global Enum for the curses.
- enum [Direction](#) { [UP](#) , [DOWN](#) , [LEFT](#) , [RIGHT](#) }

Global Enum for the direction of movement.
- enum [SpellName](#) {
 [SunBasic](#) , [CosmicBasic](#) , [DarkBasic](#) , [SunBeam](#) ,
 [SummonSun](#) , [MoonLight](#) , [StarRain](#) , [DarkEnergyWave](#) ,
 [BlackHole](#) }

Global Enum for all spell names This Enum is mostly used by the augments so that we don't have to use strings.

8.67.1 Enumeration Type Documentation

8.67.1.1 Curse

enum [Curse](#)

Global Enum for the curses.

The different types are MONSTER_HP_INCREASE.

Enumerator

| | |
|----------------------------------|--|
| SKILL_3_DISABLED | |
| SKILL_1_ONLY | |
| MORE_VULNERABLE | |
| MONSTER_BUFF | |
| MORE_MONSTERS | |
| TWO_BOSSES | |

8.67.1.2 Direction

```
enum Direction
```

Global Enum for the direction of movement.

The different types are UP, DOWN, LEFT, RIGHT.

Enumerator

| | |
|-------|--|
| UP | |
| DOWN | |
| LEFT | |
| RIGHT | |

8.67.1.3 MagicType

```
enum MagicType
```

Global Enum for the Magic Type.

The different types are SUN, COSMIC DARK.

Enumerator

| | |
|--------|--|
| SUN | |
| COSMIC | |
| DARK | |

8.67.1.4 SlimeAttackRange

```
enum SlimeAttackRange
```

Global Enum for the attack range of slimes.

The different types are MELEE and RANGED.

Enumerator

| | |
|--------|--|
| MELEE | |
| RANGED | |

8.67.1.5 SlimeSize

```
enum SlimeSize
```

Global Enum for the size of slimes.

The different types are LARGE and SMALL.

Enumerator

| | |
|-------|--|
| LARGE | |
| SMALL | |

8.67.1.6 SpellName

enum [SpellName](#)

Global Enum for all spell names This Enum is mostly used by the augments so that we don't have to use strings.

Enumerator

| | |
|----------------|--|
| SunBasic | |
| CosmicBasic | |
| DarkBasic | |
| SunBeam | |
| SummonSun | |
| MoonLight | |
| StarRain | |
| DarkEnergyWave | |
| BlackHole | |

8.68 TheMagicApprentice/modules/Globals.cs File Reference

Classes

- class [Globals](#)

8.69 TheMagicApprentice/modules/handlers/CurseHandler.cs File Reference

Classes

- class [CurseHandler](#)

8.70 TheMagicApprentice/modules/handlers/Dungeon.cs File Reference

Classes

- class [Dungeon](#)
- class [SerializableRoom](#)

8.71 TheMagicApprentice/modules/handlers/DungeonGenerator.cs File Reference

Classes

- class [DungeonGenerator](#)

8.72 TheMagicApprentice/modules/handlers/DungeonHandler.cs File Reference

Classes

- class [DungeonHandler](#)

Manages the dungeon layout, room transitions, and player movement between rooms.

8.73 TheMagicApprentice/modules/handlers/Dungeons.cs File Reference

Classes

- class [Dungeons](#)

Static class containing predefined dungeons.

8.74 TheMagicApprentice/modules/handlers/MenuManager.cs File Reference

Classes

- class [MenuManager](#)

8.75 TheMagicApprentice/modules/handlers/Minimap.cs File Reference

Classes

- class [Minimap](#)

A UI element that displays a minimap of the dungeon.

8.76 TheMagicApprentice/modules/handlers/ProgressManager.cs File Reference

Classes

- class [ProgressManager](#)

8.77 TheMagicApprentice/modules/handlers/Room.cs File Reference

Classes

- class [Room](#)

Enumerations

- enum [RoomType](#) { [Normal](#) , [Boss](#) }

8.77.1 Enumeration Type Documentation

8.77.1.1 RoomType

enum [RoomType](#)

Enumerator

| | |
|--------|--|
| Normal | |
| Boss | |

8.78 TheMagicApprentice/modules/handlers/RoomHandler.cs File Reference

Classes

- class [RoomHandler](#)

8.79 TheMagicApprentice/modules/rooms/BossRoom.cs File Reference

Classes

- class [BossRoom](#)

8.80 TheMagicApprentice/modules/rooms/EnemySpawn.cs File Reference

Classes

- class [EnemySpawn](#)

Enumerations

- enum [SpawnType](#) { [RANDOM](#) , [MELEE_SLIME](#) , [BIG_SLIME](#) , [RANGED_SLIME](#) , [UNICORN](#) }

8.80.1 Enumeration Type Documentation

8.80.1.1 SpawnType

enum [SpawnType](#)

Enumerator

| | |
|--------------|--|
| RANDOM | |
| MELEE_SLIME | |
| BIG_SLIME | |
| RANGED_SLIME | |
| UNICORN | |

8.81 TheMagicApprentice/modules/rooms/Room1.cs File Reference

Classes

- class [Room1](#)

8.82 TheMagicApprentice/modules/rooms/RoomEntrance.cs File Reference

Classes

- class [RoomEntrance](#)

8.83 TheMagicApprentice/modules/rooms/RoomExit.cs File Reference

Classes

- class [RoomExit](#)

8.84 TheMagicApprentice/modules/ui/BaseMenu.cs File Reference

Classes

- class [BaseMenu](#)

8.85 TheMagicApprentice/modules/ui/dungeon_clear_menu/DungeonClearMenu.cs File Reference

Classes

- class [DungeonClearMenu](#)

8.86 TheMagicApprentice/modules/ui/dungeon_selection/DungeonSelection.cs File Reference

Classes

- class [DungeonSelection](#)
- class [DungeonInfo](#)

8.87 TheMagicApprentice/modules/ui/dungeon_selection/MagicTypeSelectionButton.cs File Reference

Classes

- class [MagicTypeSelectionButton](#)

8.88 TheMagicApprentice/modules/ui/main_hub/MainHub.cs File Reference

Classes

- class [MainHub](#)

8.89 TheMagicApprentice/modules/ui/main_menu/MainMenu.cs File Reference

Classes

- class [MainMenu](#)

8.90 TheMagicApprentice/modules/ui/MainGame.cs File Reference

Classes

- class [MainGame](#)

8.91 TheMagicApprentice/modules/ui/new_game_menu/NewGameMenu.cs File Reference

Classes

- class [NewGameMenu](#)

8.92 TheMagicApprentice/modules/ui/pause_menu/PauseMenu.cs File Reference

Classes

- class [PauseMenu](#)

8.93 TheMagicApprentice/modules/ui/player_death_menu/PlayerDeathMenu.cs File Reference

Classes

- class [PlayerDeathMenu](#)

8.94 TheMagicApprentice/modules/ui/settings_menu/SettingsMenu.cs File Reference

Classes

- class [SettingsMenu](#)

8.95 TheMagicApprentice/modules/utils/DungeonHelper.cs File Reference

Classes

- class [DungeonHelper](#)

8.96 TheMagicApprentice/modules/utils/Vector2IJsonConverter.cs File Reference

Classes

- class [Vector2IJsonConverter](#)

8.97 TheMagicApprentice/tests/integration/TestAugmentInventory.cs File Reference

Classes

- class [Tests.TestAugmentInventory](#)

Namespaces

- namespace [Tests](#)

8.98 TheMagicApprentice/tests/integration/TestAugments.cs File Reference

Classes

- class [Tests.TestAugments](#)

Namespaces

- namespace [Tests](#)

8.99 TheMagicApprentice/tests/integration/TestCurseHandler.cs File Reference

Classes

- class [Tests.TestCurseHandler](#)

Namespaces

- namespace [Tests](#)

8.100 TheMagicApprentice/tests/integration/TestDungeonHandler.cs File Reference

Classes

- class [Tests.TestDungeonHandler](#)

Namespaces

- namespace [Tests](#)

8.101 TheMagicApprentice/tests/integration/TestMenu.cs File Reference

Classes

- class [Tests.TestMenuManager](#)

Namespaces

- namespace [Tests](#)

8.102 TheMagicApprentice/tests/integration/TestPlayer.cs File Reference**Classes**

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