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GAM 655
Final Project
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<div align="center">**Code Requirements Documentation: Random Survival**</div>

Inheritance

EnemyBrain ScriptableObjects are built upon a base class that provides 8 virtual functions that can be overridden.

- EnemyBrainDash overrides DoAttackAction in order to pause, change color while facing the player, then finally dash in the player's direction.
- EnemyBrainFly overrides a number of functions in order to add verticality to the EnemyBrain logic.
- EnemyBrainPassive overrides the CheckShouldAttack function with an empty function to keep the unit from ever switching into Attacking State.

Composition

CharController class is flexible enough to be used by Enemy and Player classes to control their respective movement. (Each "has a" controller.)

Polymorphism

Static: CharController's Move function has 4 definitions with varying overloads for Vector2, Vector3, and x/z floats.

Dynamic: EnemyBrain SOs are assigned in EnemySetup SOs, which are then used to spawn Enemies. Each Enemy's Update() loop calls the DoAttackAction and DoSleepAction functions in whichever EnemyBrain it is assigned.

State Machine

Simple bool-backed State Machines are in classes such as Enemy, GameManager, and MenuManager. Enemy and EnemyBrain classes also utilize the EnemyState enum, which determines if an enemy is currently in Attacking or Sleeping State.

Physics Casting

SphereCast: PlayerWeapon uses a SphereCast for Ranged Attack, to account for the jankiness of the camera perspective and trying to determine where the player intended to click (using the 'chunky' raycast to give some margin of error to the player)

OverlapSphere: PlayerWeapon uses an OverlapSphere in front of the player's forward position to determine if an enemy is in range when attempting a Melee Attack.