

# Blue Gravity Task Clothing Simulation

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## System Explanation and Personal Assessment

### System Explanation

The system is a comprehensive clothing management and inventory solution designed for a Unity game. It encompasses several key components: GameManager, PlayerController, InventoryManager, Shopkeeper, PlayerEquipment, and ItemButton.

#### GameManager

The GameManager ensures there is a single instance of the game manager throughout the game. This singleton pattern ensures consistent game state management, preventing multiple instances that could lead to conflicts.

#### PlayerController

The PlayerController handles player movement and interactions. It manages player animations, inventory toggling, and synchronization of multiple animators for different clothing parts (e.g., base, hair, accessories). This ensures that player movement and appearance are dynamically updated..

#### InventoryManager

The InventoryManager manages the player's inventory, including the list of clothing items and the player's currency. It provides methods for adding and removing items, as well as updating the player's money. This component ensures that inventory operations are centralized and easily manageable.

#### Shopkeeper

The Shopkeeper facilitates interactions between the player and the shop. It manages the UI for buying and selling items, populates the shop and player inventory UIs, and handles transactions. The Shopkeeper ensures that players can purchase and sell items seamlessly, with their inventory and currency updated accordingly.

#### PlayerEquipment

The PlayerEquipment class manages equipping and unequipping clothing items. It maintains specific animator references for different clothing types (e.g., shirt, pants, shoes) and updates these references when items are equipped or unequipped. This ensures that the player's appearance changes correctly based on the equipped items.

#### ItemButton

The ItemButton component manages the UI interactions for each item. It updates the button text and behavior based on the current UI context (shop, sell, inventory) and the player's equipped status. This component provides a user-friendly interface for item interactions.

### Overall Design

The system follows the principles of modularity and single responsibility, ensuring each component has a clear and distinct function. This separation of concerns simplifies debugging and future enhancements. The use of ScriptableObjects for items allows for easy creation and modification of new items in the Unity editor, enhancing the system's flexibility and scalability.

Overall, this system provides a robust framework for managing player equipment and inventory in a Unity game, ensuring a dynamic and engaging player experience.

### Thought Process During the Assessment

During the Assessment, I focused on creating a modular and extendable system, ensuring each component had a single responsibility, adhering to solid principles. This separation of concerns simplifies debugging and allows for future enhancements without affecting unrelated parts of the system. I utilized ScriptableObjects for items, allowing easy creation and modification of new items beyond clothing in the future. My goal was to put forth my best effort despite the time constraints and a challenging weekend due to some physical discomfort and fatigue from my full-time job. I wanted to showcase my dedication and abilities as a Unity developer, despite the circumstances.

### Personal Assessment of Performance

I believe I performed admirably during the assessment. I successfully demonstrated my ability to create a robust and flexible system within Unity, highlighting my understanding of game development principles. My solution adhered to best practices, ensuring maintainability and scalability. I effectively communicated my thought process and design decisions, illustrating my problem-solving skills. Despite facing some personal challenges, I stayed focused and committed to delivering a high-quality solution. While I'm pleased with my performance, I recognize areas for improvement, such as refining level design, enhancing the UI for a better player experience, optimizing performance for larger inventories, and adding more robust error handling. Overall, the assessment allowed me to showcase my skills and experience in game development effectively, and I feel fulfilled by the opportunity to demonstrate my passion and dedication to the craft.