

Inventory System Documentation - Formalized

This document outlines the structure and functionality of a fundamental inventory management system, inclusive of drag-and-drop capabilities and tooltip displays.

Components:

1. InventoryItemData Scriptable Object

- Description: A persistent data repository for individual inventory items. These are instantiated as assets within the project.
- Attributes:
 - itemName: A string variable representing the item's nomenclature.
 - itemDescription: A string variable providing an extensive item description.
 - itemTooltip: A string variable containing brief tooltip text.
 - itemIcon: A Sprite object representing the item's graphical icon.
- Creation Procedure: Access the Project window, right-click, and select "Create - Inventory Item".

2. CardManager MonoBehaviour

- Description: Governs a single inventory slot or a draggable item card.
- Key Attributes:
 - itemData: The InventoryItemData instance associated with the slot, which may be null.
 - isOccupied: A Boolean value indicating slot occupancy (true if occupied, false if empty).
 - useAsDrag: A Boolean value designating this card as the dedicated drag card.
 - emptyCard: A GameObject displayed when the slot is vacant.
 - itemName: A TextMeshPro text element displaying the item's name.
 - itemIcon: An Image element displaying the item's icon.
- Key Methods:
 - SetItem(InventoryItemData data): Assigns an item to the slot.
 - UnSetItem(): Removes the item from the slot.
- Functionality: Manages click and hover events via IPointerDownHandler, IPointerEnterHandler, and IPointerExitHandler. Communicates with ItemDraggingManager to initiate and conclude drag operations. Toggles the visibility of emptyCard based on slot occupancy.

3. ItemDraggingManager MonoBehaviour

- Description: Orchestrates the drag-and-drop mechanism.

- **Key Attributes:**
 - **dragCard** (static CardManager): The card currently being dragged.
 - **fromCard** (static CardManager): The origin of the drag operation.
 - **toCard** (static CardManager): The potential drop target slot under the cursor.
 - **draggingCardOffset**: The positional offset of the dragged card.
 - **tooltipOffset**: The positional offset of the tooltip.
 - **Functionality:** Employs static variables for system-wide drag state access. The Update method monitors mouse events: Mouse Down: Initiates the drag, transfers item data to dragCard, and removes the item from fromCard. Mouse Up: Concludes the drag, transfers the item to toCard if applicable, otherwise reverts to fromCard. Continuously updates the positions of dragCard and Tooltip to track the mouse cursor.
4. **TooltipManagerInventory MonoBehaviour**
- **Description:** Manages the display of tooltips.
 - **Key Attributes:**
 - **instance** (static): Provides global access via TooltipManagerInventory.instance.
 - **tooltip**: A TextMeshPro text element for the brief tooltip.
 - **desc**: A TextMeshPro text element for the extended description.
 - **Key Methods:**
 - **SetTooltip(InventoryItemData data)**: Displays the tooltip with item details.
 - **UnSetToolTip()**: Hides the tooltip.
 - **Functionality:** Updated by the ItemDraggingManager.

Operational Workflow:

1. **Configuration:** Create InventoryItemData assets for all inventory items. Generate UI elements for inventory slot cards. Attach CardManager scripts to each slot card. Create a designated "drag card" GameObject with CardManager and enable useAsDrag. Ensure an ItemDraggingManager and a TooltipManagerInventory are present in the scene, and configure their respective text fields.
2. **Drag Operation:** Clicking a non-useAsDrag CardManager sets ItemDraggingManager.fromCard. The ItemDraggingManager then copies item data to dragCard and follows the mouse cursor. Hovering over another CardManager slot sets ItemDraggingManager.toCard. Releasing the mouse transfers item data to toCard or reverts to fromCard.
3. **Tooltip Presentation:** CardManager utilizes TooltipManagerInventory.SetTooltip and UnSetToolTip during hover entry and exit, respectively. ItemDraggingManager continuously updates the Tooltip's position.