

Hello!

In this Document I'll try to explain a little about the process of making the Clothes Shop project for the LSW Interview Test.

How the System works:

1. The Player:
 - I use the "New" Input System in this project.
 - Player Movement and Interaction is managed by "PlayerManager".
 - The Player Object has a Collider to interact with the World (Walls and Decoration Tiles)
 - Shopkeeper Object has a Collider in order to interact with Player
 - Player Object has a child that contains all "Graphics-related" Objects.
 - Footstep sound is triggered in an Animation Event.
2. The InventoryManager:
 - It is responsible for keeping track of the Player's Items
 - It is responsible for changing the Player Graphics (Sprites) when Items are added (bought) or removed (sold)
3. The MoneyManager:
 - It is responsible for keeping track of the Player's Money;
 - It is also responsible for "Buying" or "Selling" Items
4. The ShopCanvas and Shopkeeper:
 - The ShopCanvas receives information from the Shopkeeper, via the ShopManager
 - The Shopkeeper has a list of items, a Shop Name, and the option to build a "Sell Menu"
 - The ShopCanvas uses a Vertical Scroll of a Vertical Layout Group
 - The LayoutGroup is populated in runtime with ItemButtons according to the Shopkeeper Item List (BuyMenu) or the Player ItemList (Sell Menu)
 - The Player Zoom View is obtained through a Render Texture linked to a Camera that follows the Player
5. The ShopManager:
 - It is responsible for Populating the BuyMenu and SellMenu with ItemButtons
 - It is responsible for setting the Navigations of the Buttons
 - It is responsible for Opening and Closing the ShopCanvas
 - It is responsible for Adding the OnClick function of the ItemButtons

Personal notes:

1. Button Navigation:
 - I found that if Button Navigation is set to "Automatic" and left to be managed by the EventSystem, it may turn UI navigation chaotic and broken. So I decided to handle it in the ShopManager class. And that's why I created the "helper" class "ButtonNavigationManager".

- With more time, I'd focus on refactoring the ShopManager class. I'd like to make a better code for Building the buttons and Populating the menus. Maybe creating a ButtonBuilder class and using some Lists to keep track of the created Buttons would help.

- Another troubling matter was the Event System + ScrollRect. To change button navigation, first I tried to use the EventTrigger component. But this component intercepts the events, so the ScrollRect no longer scrolls when the button is pressed (you need to press the image between buttons). So I needed to create the class "ItemButtonEventHandler" in order to set the OnSelect and OnDeselect callbacks.

- Also, I needed to create the function "SnapScrollToView" in order to make the ScrollRect show buttons that were hidden below or above the ViewArea.

2. Test Driven Development (TDD):

- I'm practicing TDD. I think it is greatly useful to create tests in any kind of project.

- The making of Tests prior to the code lets me project the way I want my architecture and the right Dependencies and References I must create in each class. It makes the visualization of "what I need to implement next" easier.

- But one aspect of Testing in Unity I still have difficulties with is the Setup of Mock Elements. I will study this asap.

- SceneLayout Tests: these tests verify if there are the right amount of specified Objects in Scene. I find it useful in order to keep track of the "important" GameObjects I want in a scene.

3. How well I think I did:

- I found nice Sounds to use for every interaction (footstep, doorbell, open/close shop, button select, buy item, sell item)

- I love how the Pixel Art looks and how cute the Walking animation I created looks.

- I used TDD

- I learned about Navigation, ScrollRect, Event System, Event Triggers

- I think I did pretty well.

Thanks!