

Designing an E-commerce Experience in Virtual Reality

Final Presentation

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Executive Summary

This project developed a VR shopping experience for a clothing website using Unity. The aim was to create an engaging and immersive online shopping experience that mimics a real-world shopping environment.

Throughout the project, I identified challenges in making the VR environment easy to navigate and interact with. These insights will guide improvements in future versions. Overall, the project showcased VR's potential to revolutionize e-commerce by enhancing how users interact with products online.

Introduction

Overview

Exploring the integration of e-commerce in a VR environment to study user shopping experience.

Tools Used

- Designed using Figma
- Developed using Unity and
- Tested with Oculus Rift.
- Youtube VR Videos for reference

Goal and Objectives

Goal

To set up the shopping experience for an item in a VR environment.

Objectives

- **Understand** the UX principles specific to VR, focusing on designing user-friendly interfaces.
- **Study** user interactions within a VR shopping platform, identifying key user behaviors and preferences that influence shopping decisions.
- **Investigate** the technical challenges and solutions involved in creating an immersive and functional e-commerce VR environment.

Design and Development **Methodology**

Design	Development	Testing
<ul style="list-style-type: none">Used Figma to design the e-commerce platform's user interfaces.	<ul style="list-style-type: none">Imported UIs into Unity.Made the pages interactive.Created a shopping flow for purchasing a single item.	<ul style="list-style-type: none">Tested the interaction flows.Identified and refined key areas.

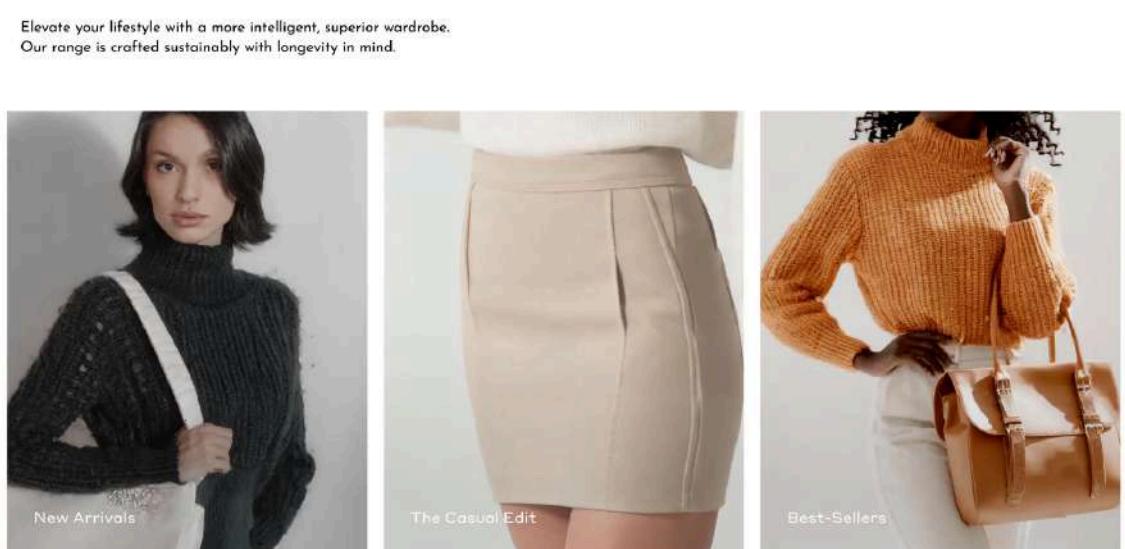
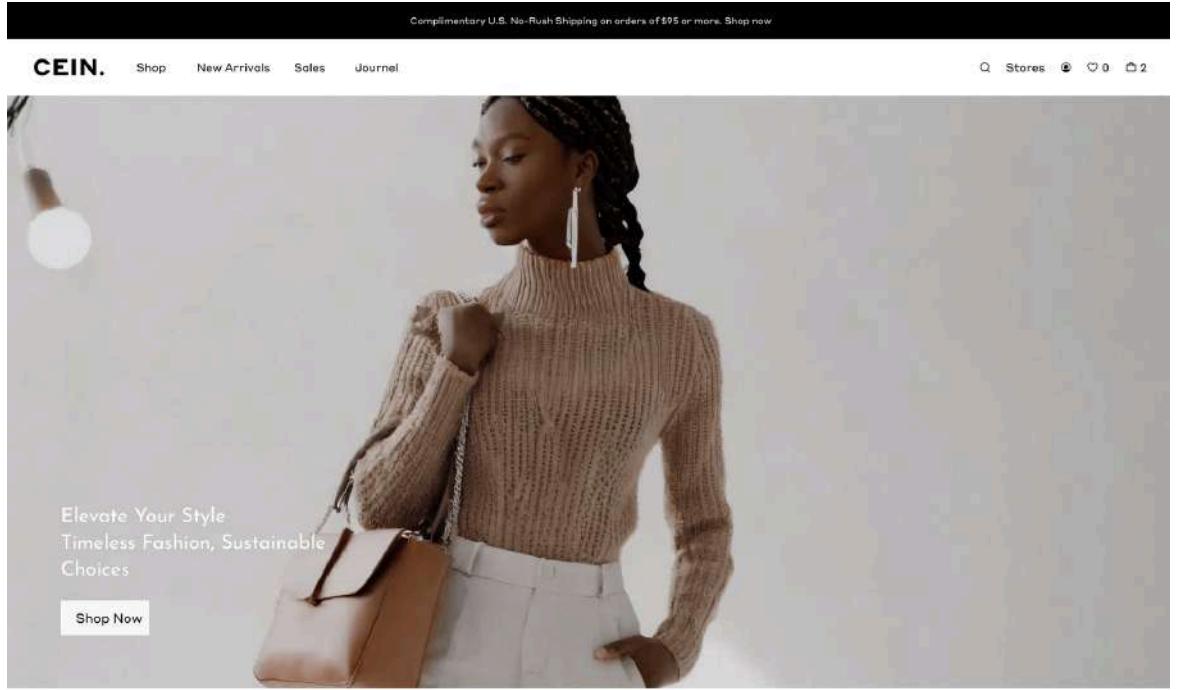
Design Phase

Objective is to design key pages including a welcoming Landing Page, a Product Listing Page to browse items, a detailed Product Details Page for product information, and a Cart Page to review and finalize purchases.

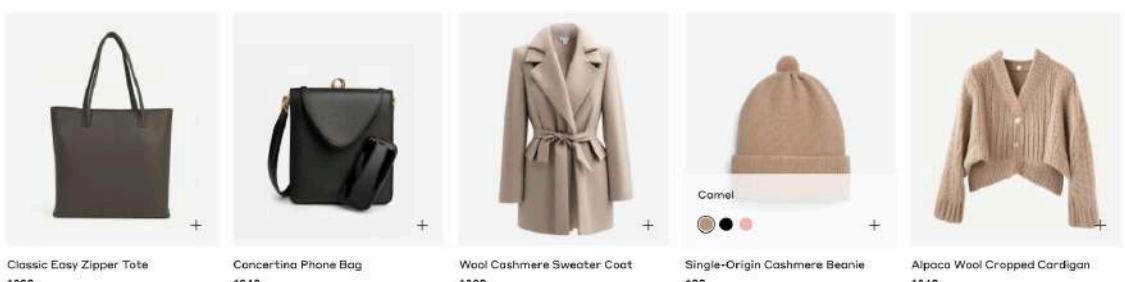
Each page was designed to ensure a seamless shopping flow from start to add in cart.

The image shows a design interface for a fashion e-commerce website. On the left, a sidebar lists various page types: Pages, Template, VR, Component, License, Cover, and Layers. Under Layers, several pages are listed: Cart, Product detail, Quick view - desktop, Product Listing, Landing - desktop, and Landing - desktop. The 'Landing - desktop' page is currently selected and highlighted in blue. The main content area displays the 'Landing - desktop' page, which features a large image of a woman in a tan sweater and white pants, with a promotional banner below it. To the right of the landing page is a 'Product Listing' page showing a grid of fashion items like coats, skirts, and shirts. The bottom right corner of the interface shows a footer with links to 'Customer Support', 'Information', 'About Us', 'Privacy Policy', and 'Subscribe'.

Figma UI Designs



What to Wear Now



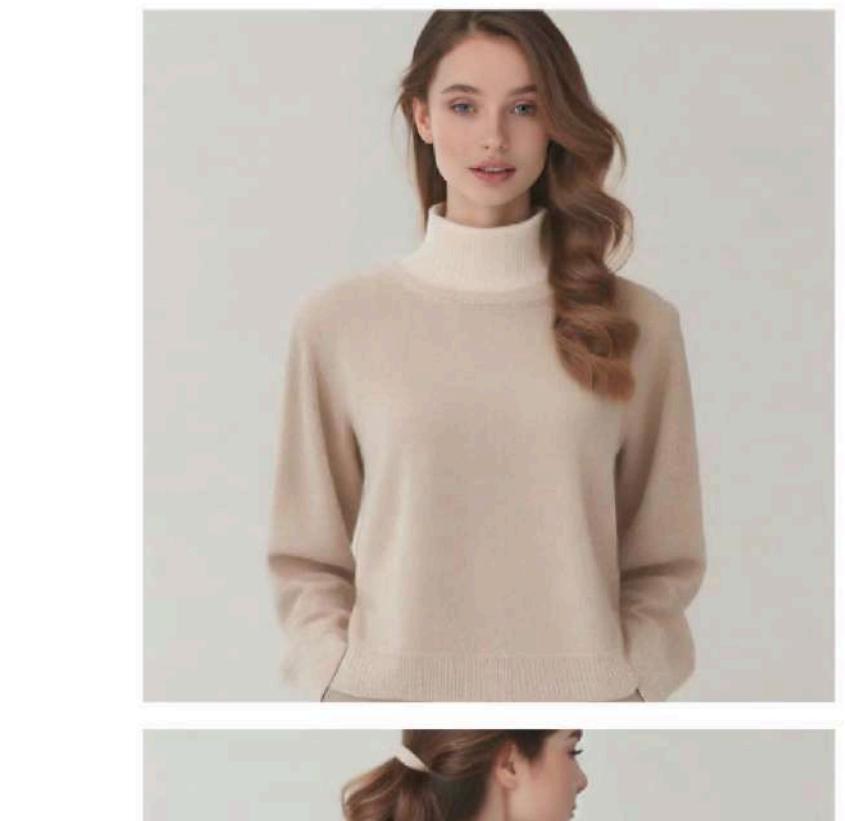
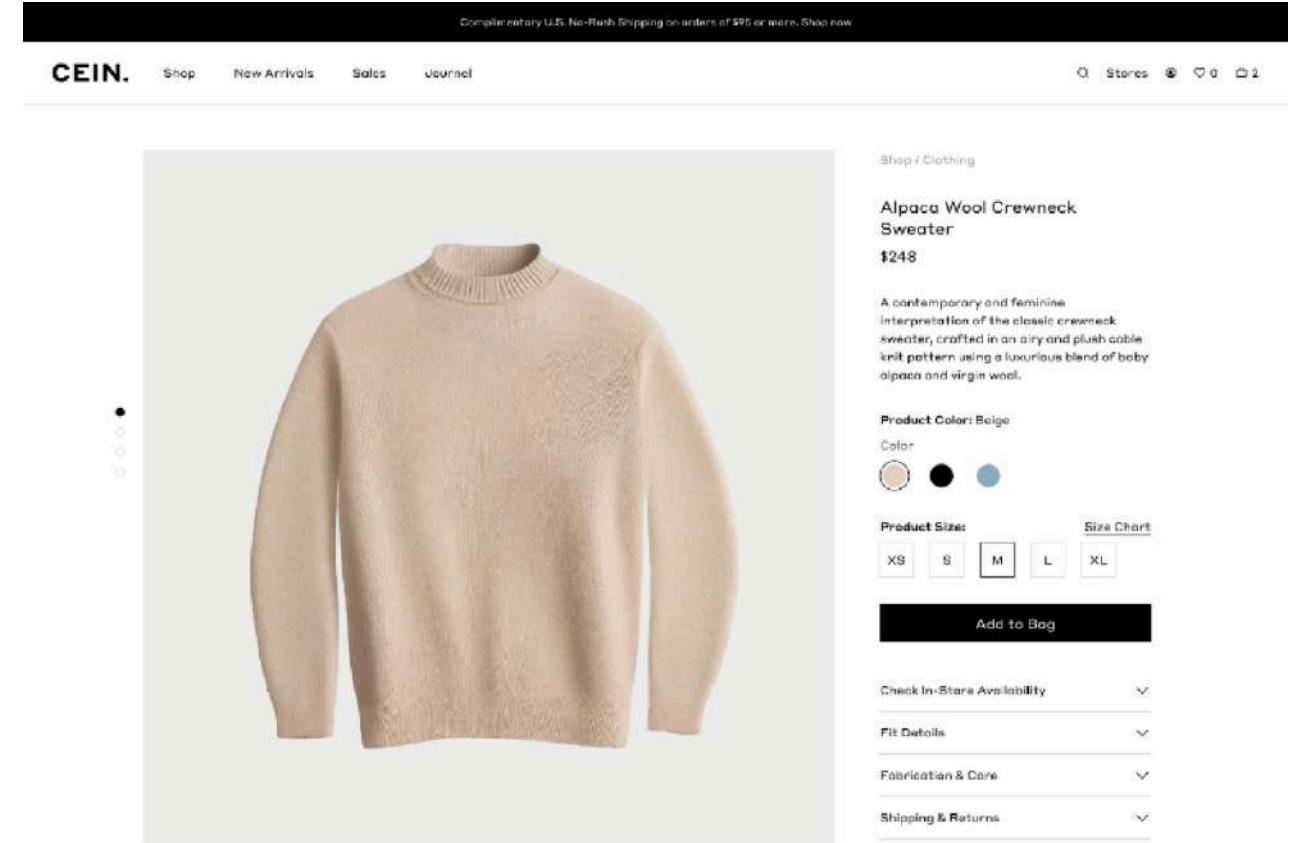
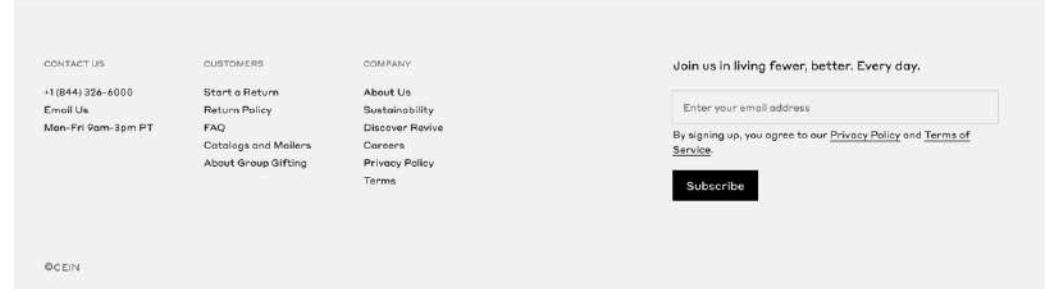
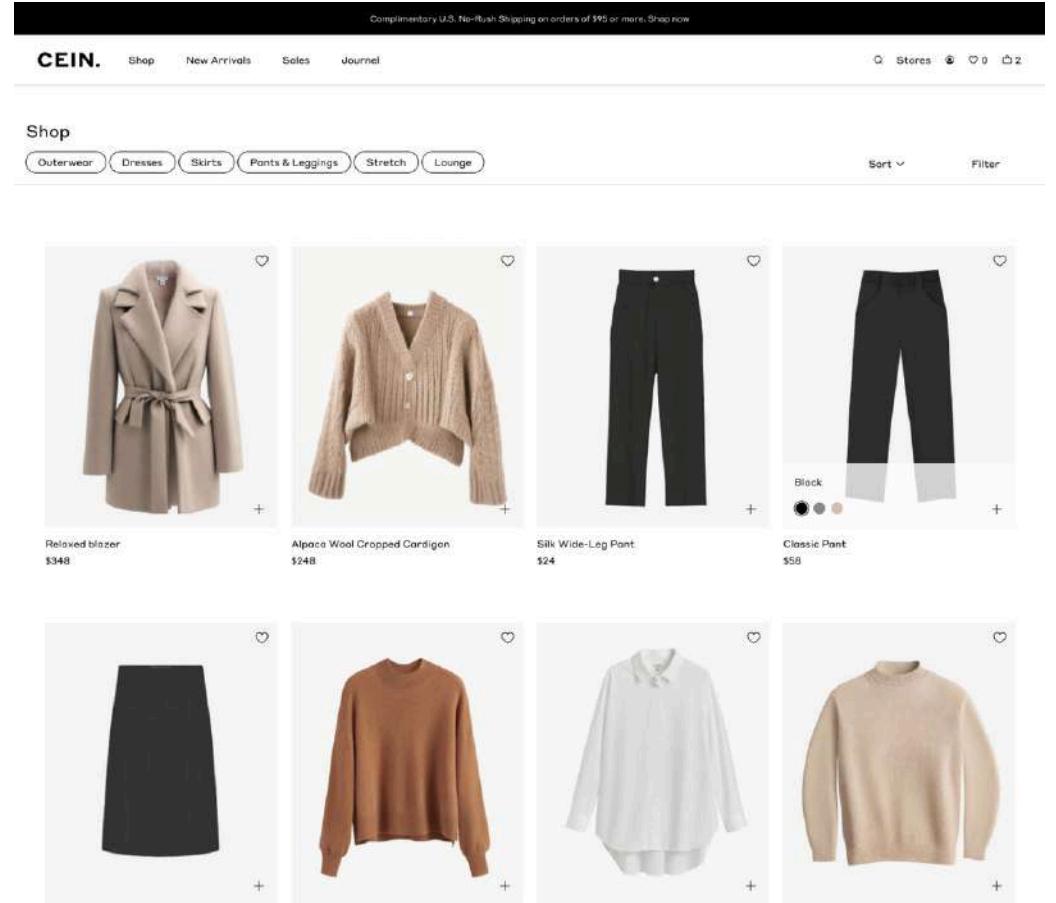
Classic Easy Zipper Tote
\$298

Concertina Phone Bag
\$248

Wool Cashmere Sweater Coat
\$398

Single-Origin Cashmere Beanie
\$98

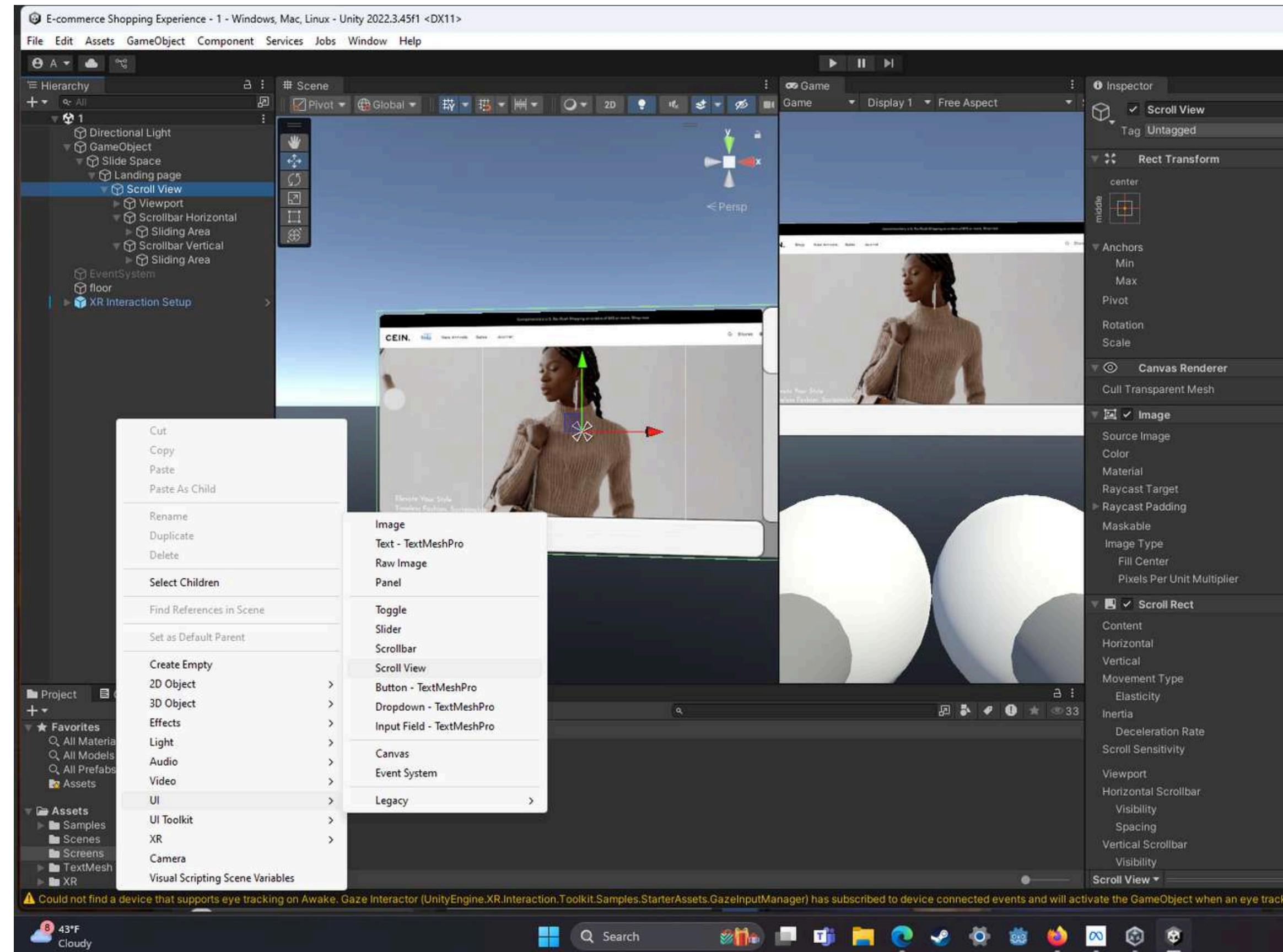
Alpaca Wool Cropped Cardigan
\$248



Development Phase

Objective is to build a functional VR interface for the designed pages.

Imported the UI designs into Unity, made the pages interactive to enable user clicks, and created a straightforward shopping flow allowing users to select and purchase an item effortlessly.



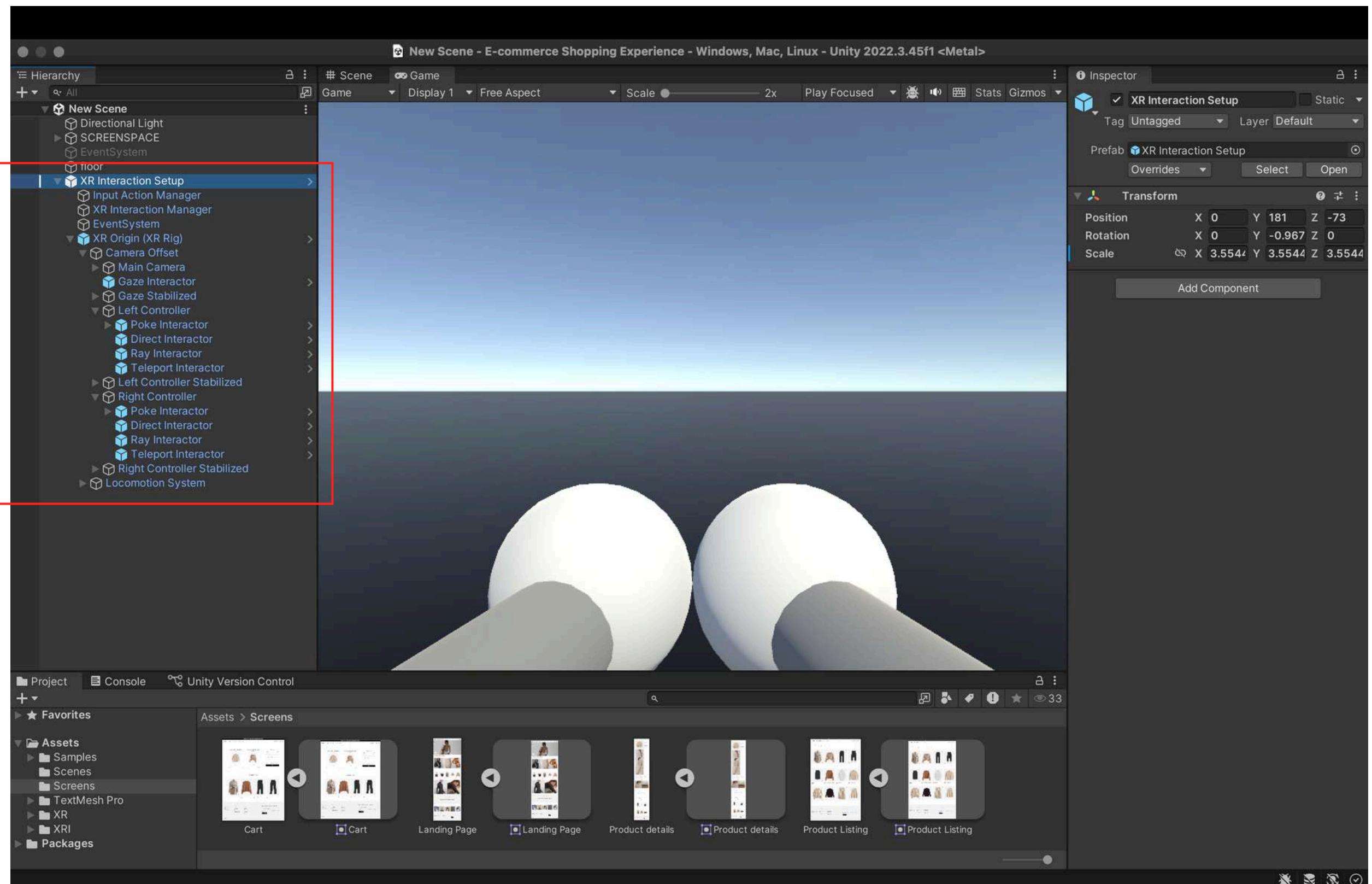
Development Phase - Steps

XR Interaction Setup	Need an interactable VR environment setup in Unity, to navigate and interact.
Import the UI designs into the Unity	Imported UI assets were placed on a Canvas to create the UI layout. Converted these images to 2D Sprites for better integration into Unity's interface system.
Make the screens interactive	Added buttons and other interactive elements to the screens. Linked these to areas that responded to user clicks, enabling navigation through the VR interface.
Create a shopping flow	Programmed the pages to activate or deactivate based on user actions. This controlled the display of each page, ensuring a seamless transition as users moved through the shopping process.

Development - XR Interaction Setup

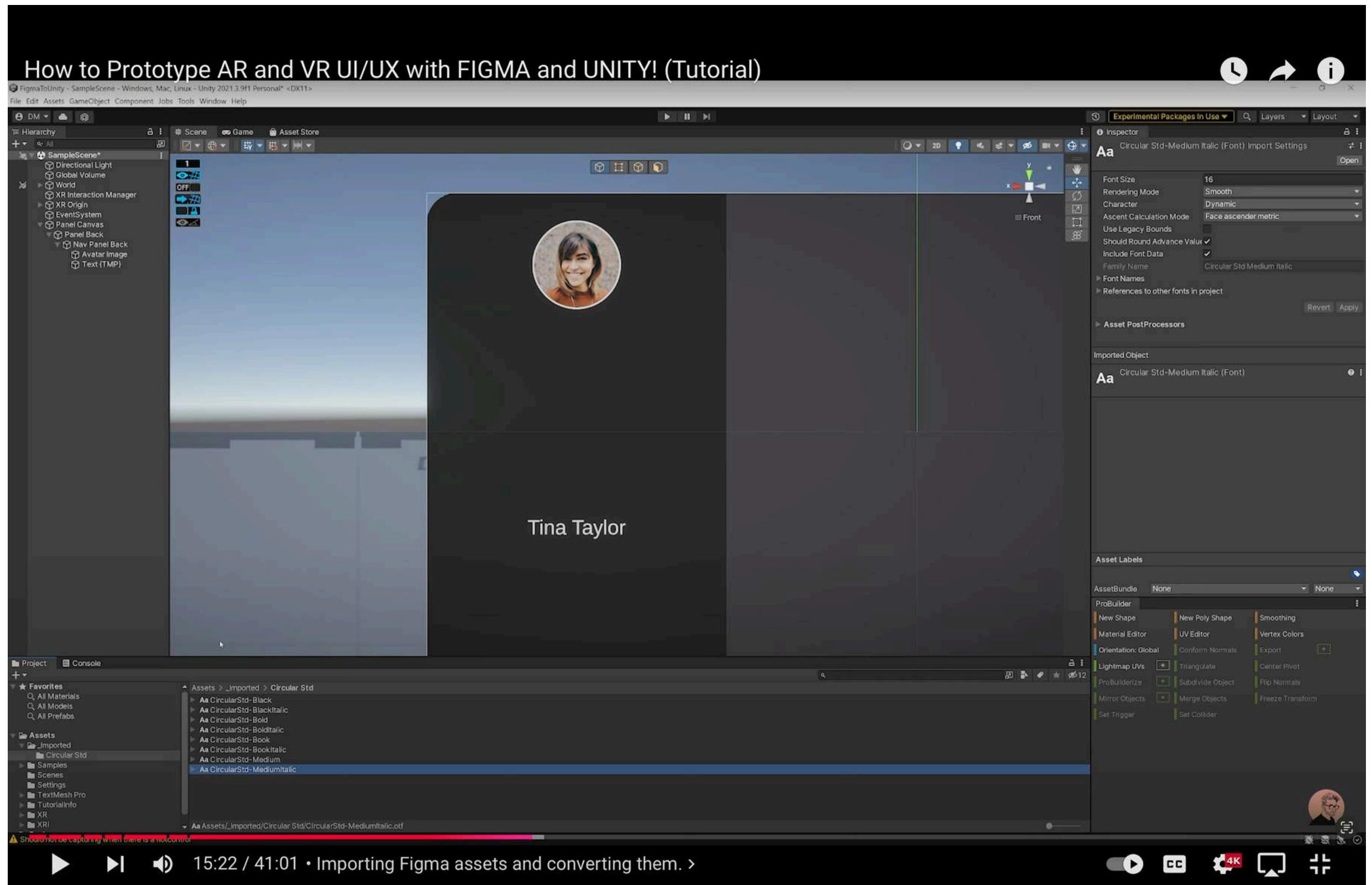
STEP 1

I set up an interactable VR environment in Unity, allowing users to scroll and click elements for **navigation** and **interaction**.



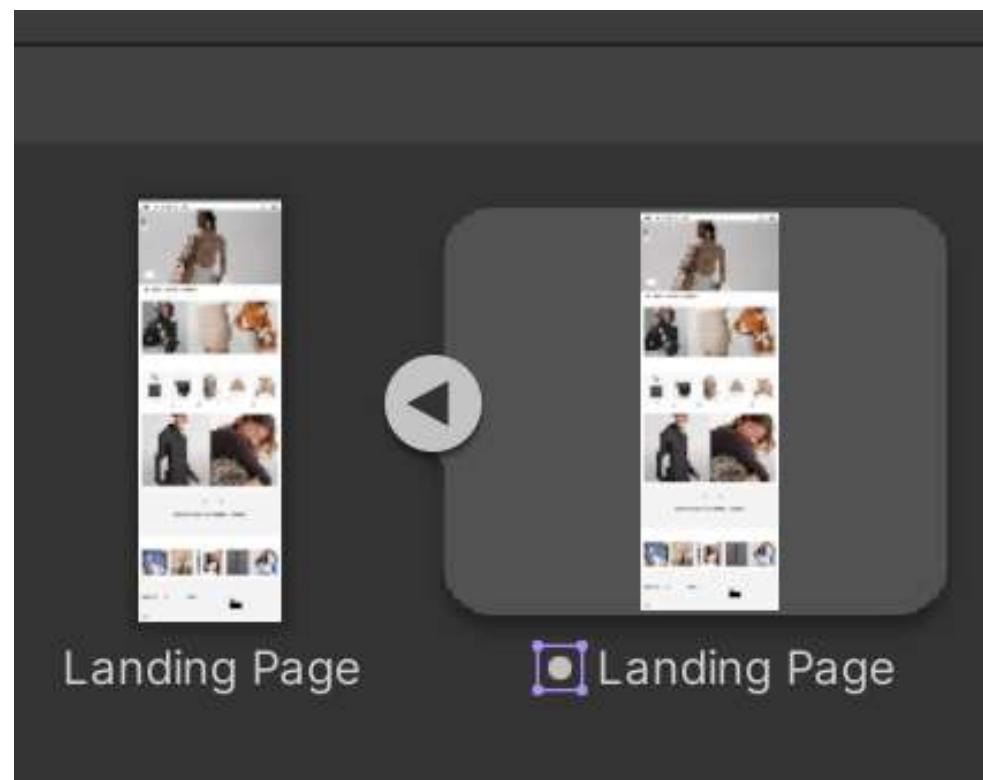
Development - Import the UI designs into the Unity

I referred to a YouTube video to learn how to import UI elements from [Figma](#) into Unity and set them up effectively.

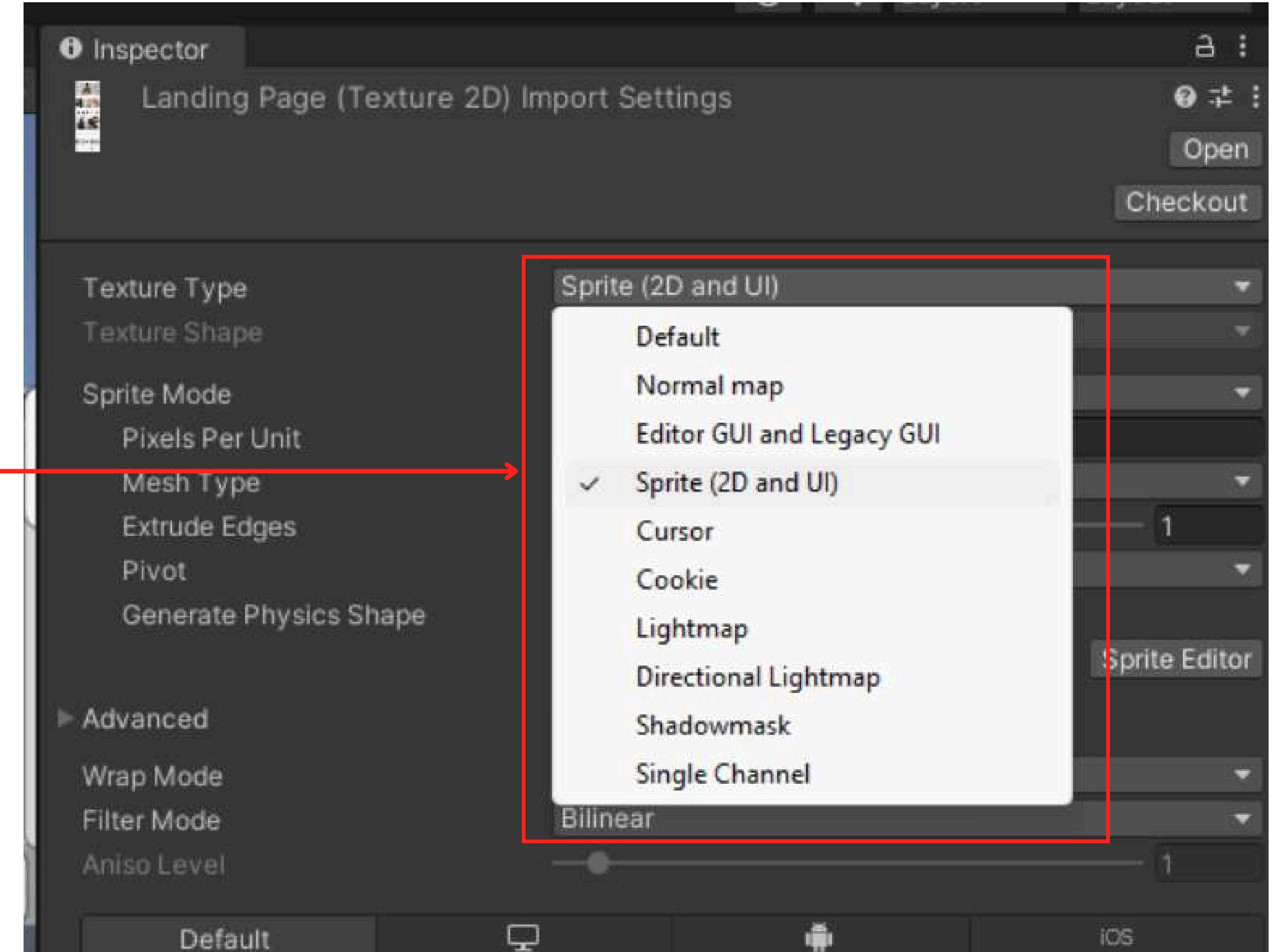


Development - Import the UI designs into the Unity

STEP 2

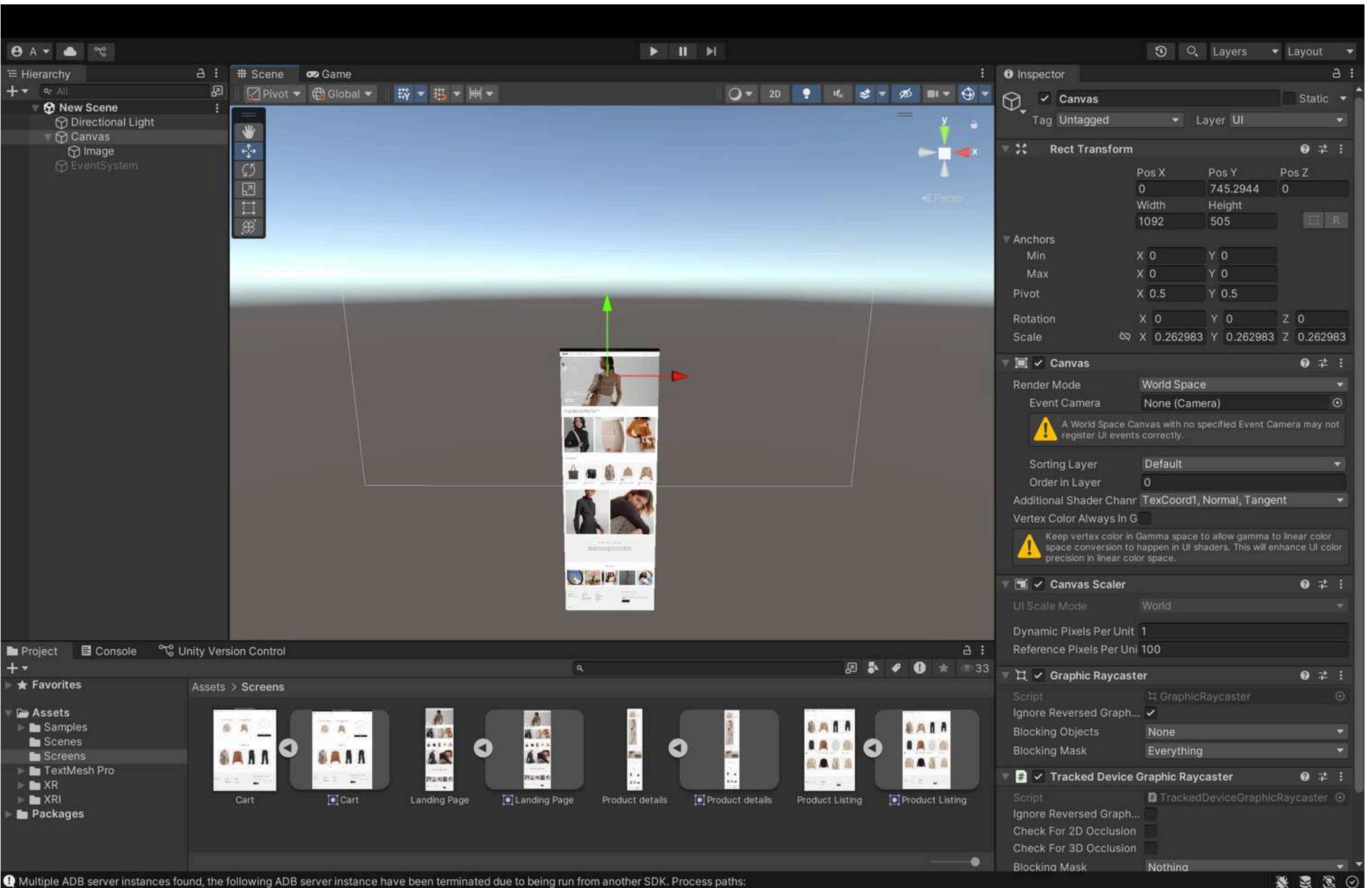


Using "Sprite (2D and UI)" makes sure the UI works well with Unity's interface system, allowing **easy setup and interaction**.

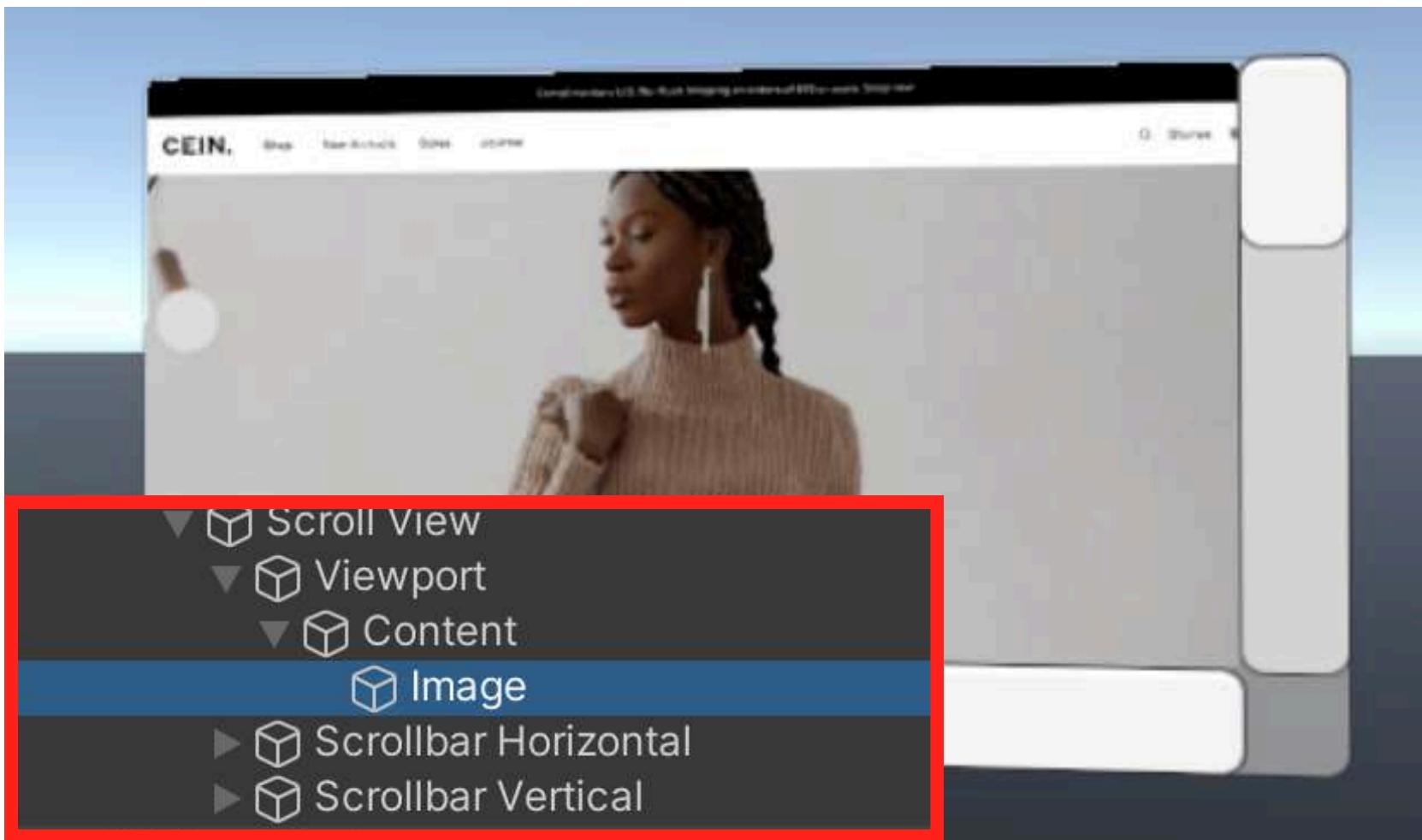


Development - Import the UI designs into the Unity

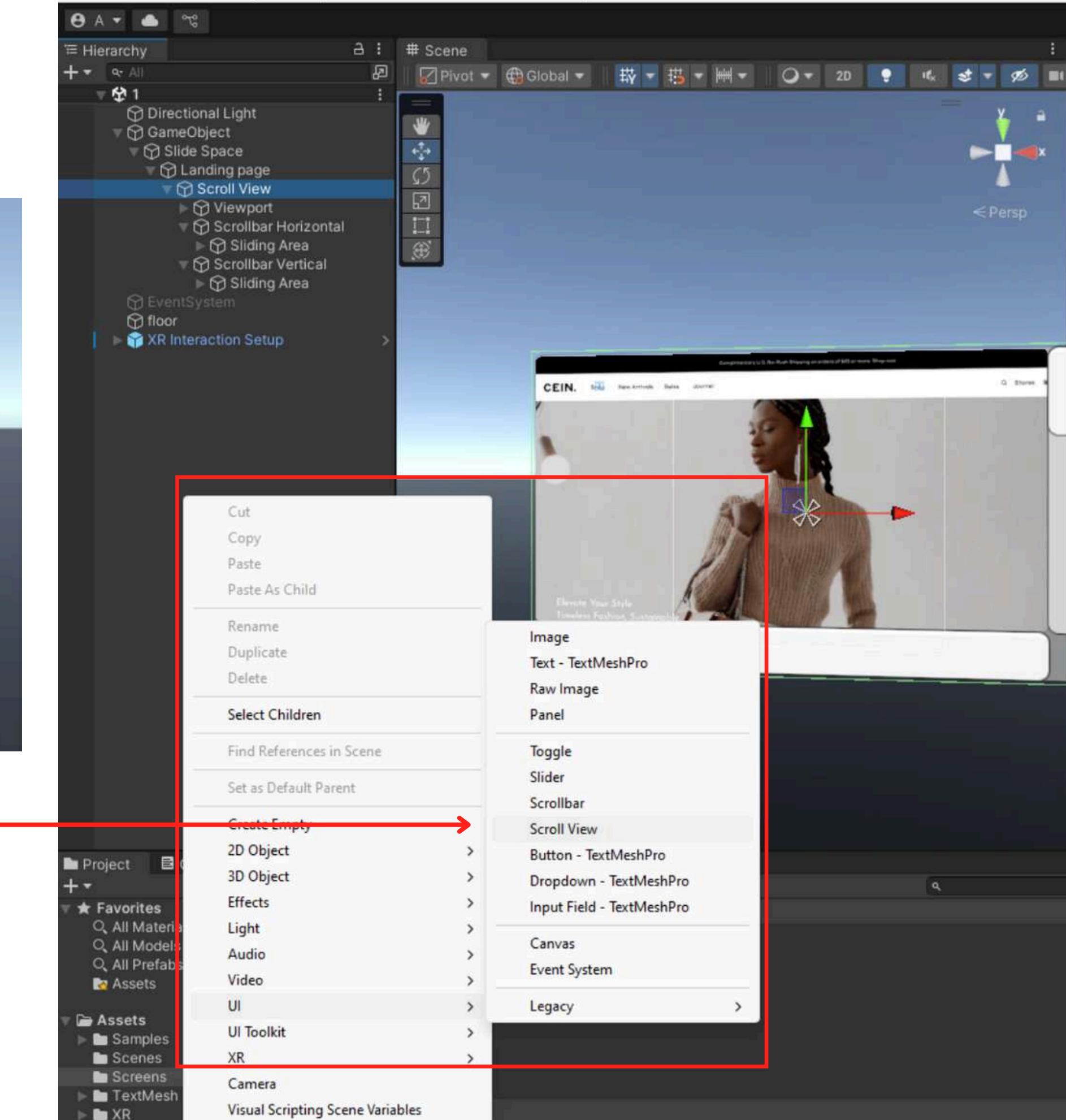
- Created a Canvas
- Added an Image (GameObject > UI > Image)
- Adjusted Size (width and height)
- Positioned the Image



Development - Make the screens interactive



- Used **ScrollView** to manage and organize a large amount of content within a limited screen space.
- Made the Image as child object of the scroll view as [View port --> Content -->Image]



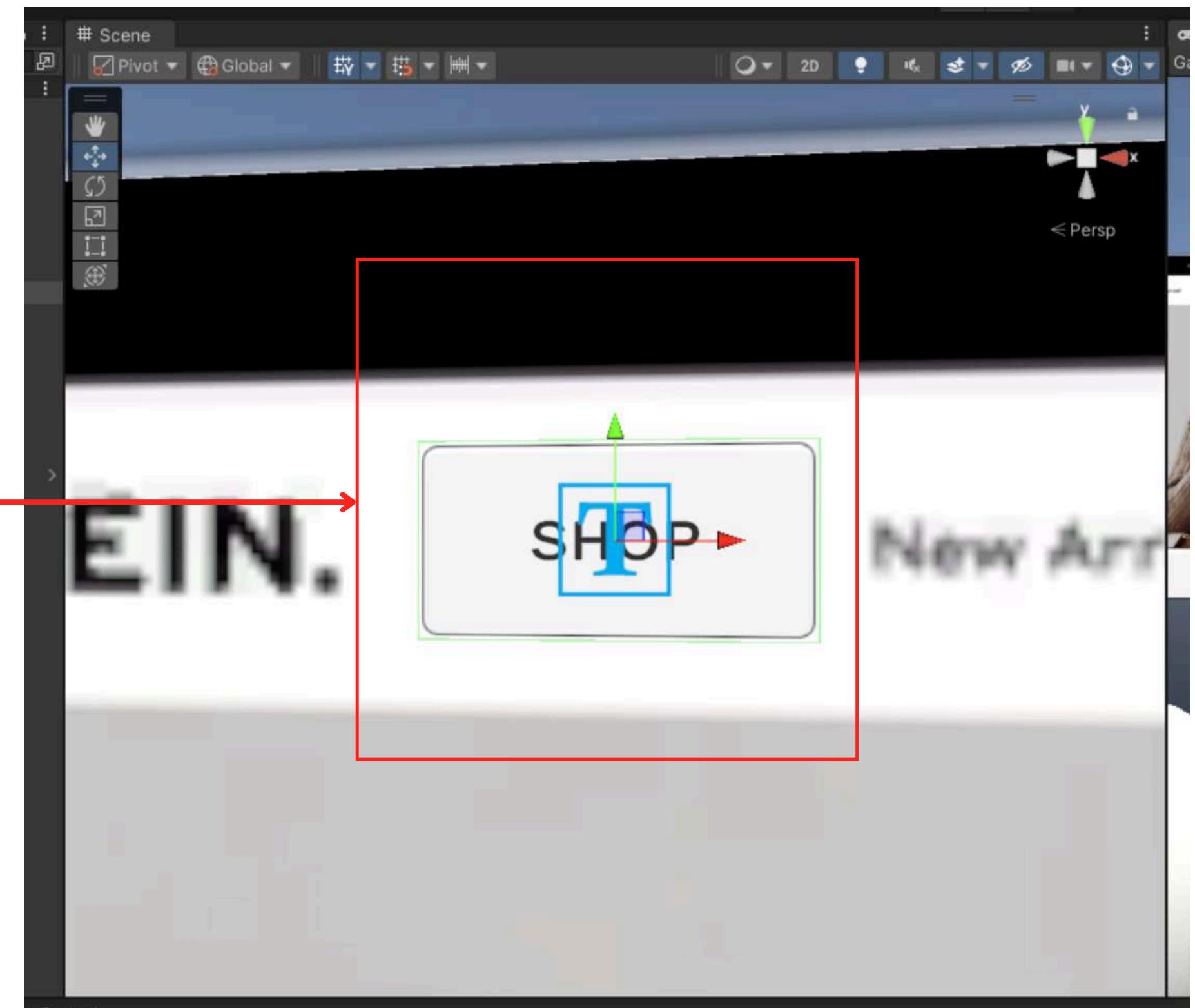
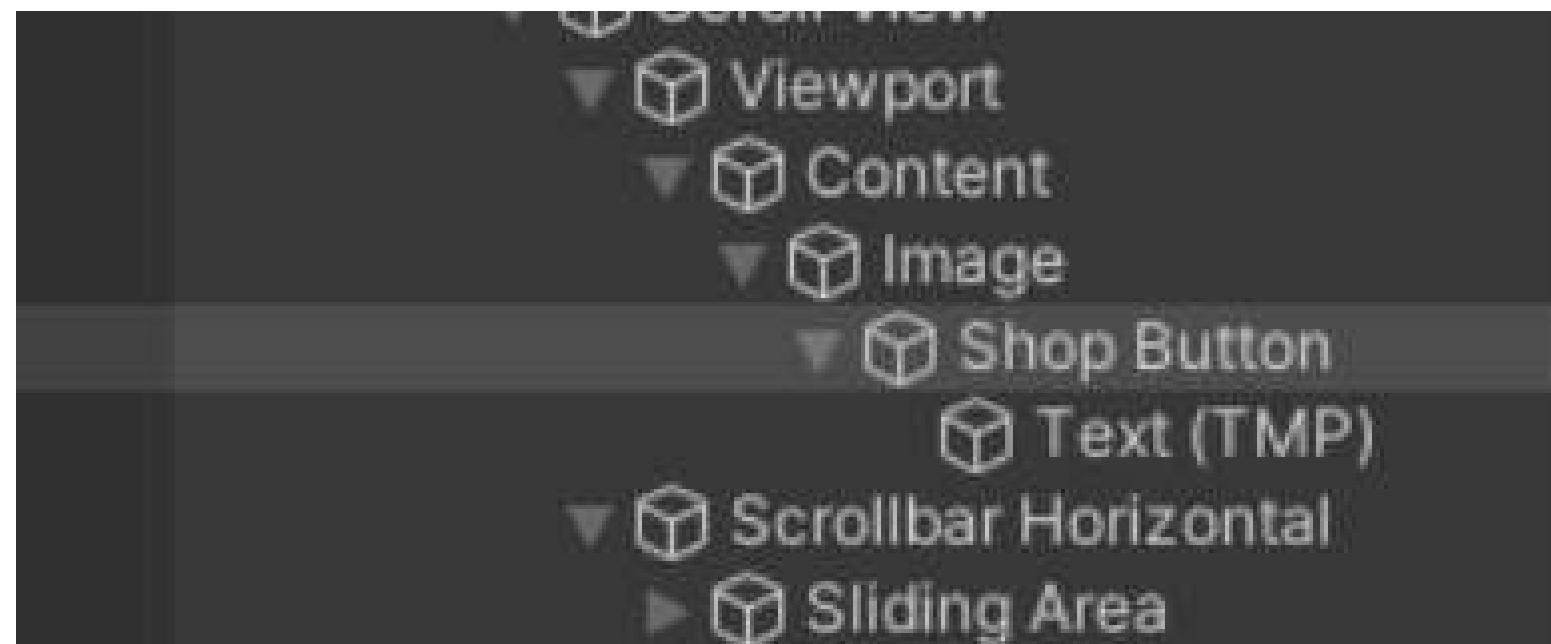
Development - Make the screens interactive

- Was able to interact with the landing screen by **scrolling**.
- Iterated multiple times to align the screen and adjust the view area.



Development - Make the screens interactive

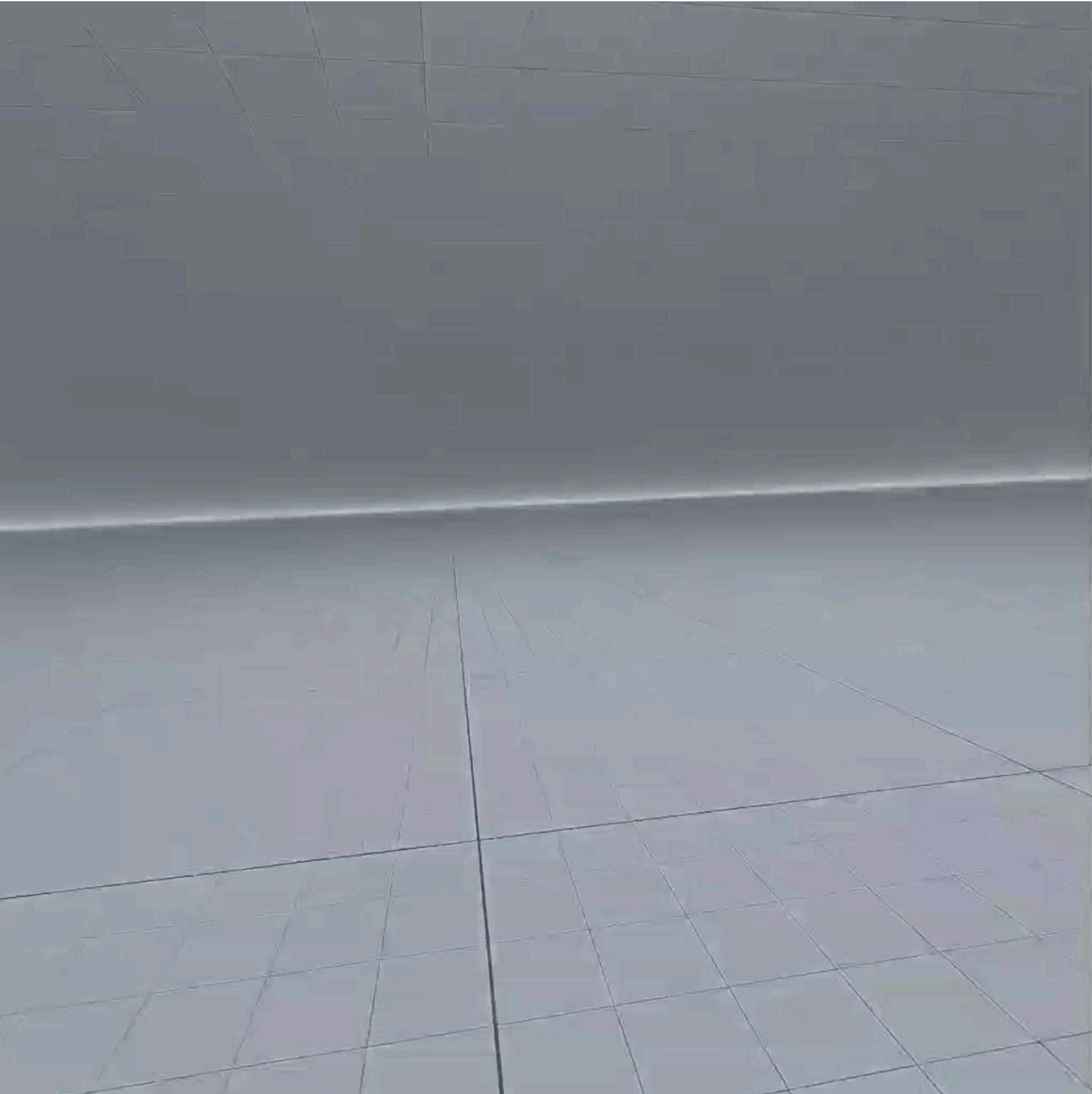
STEP 3



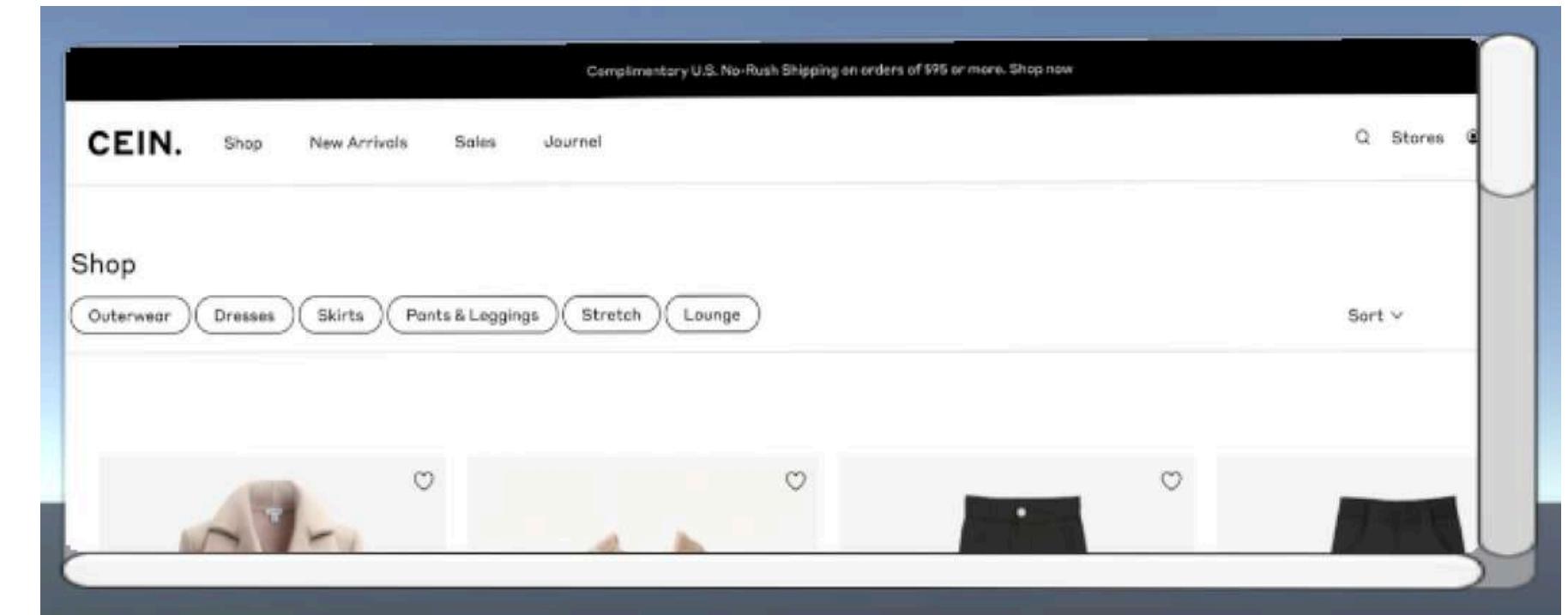
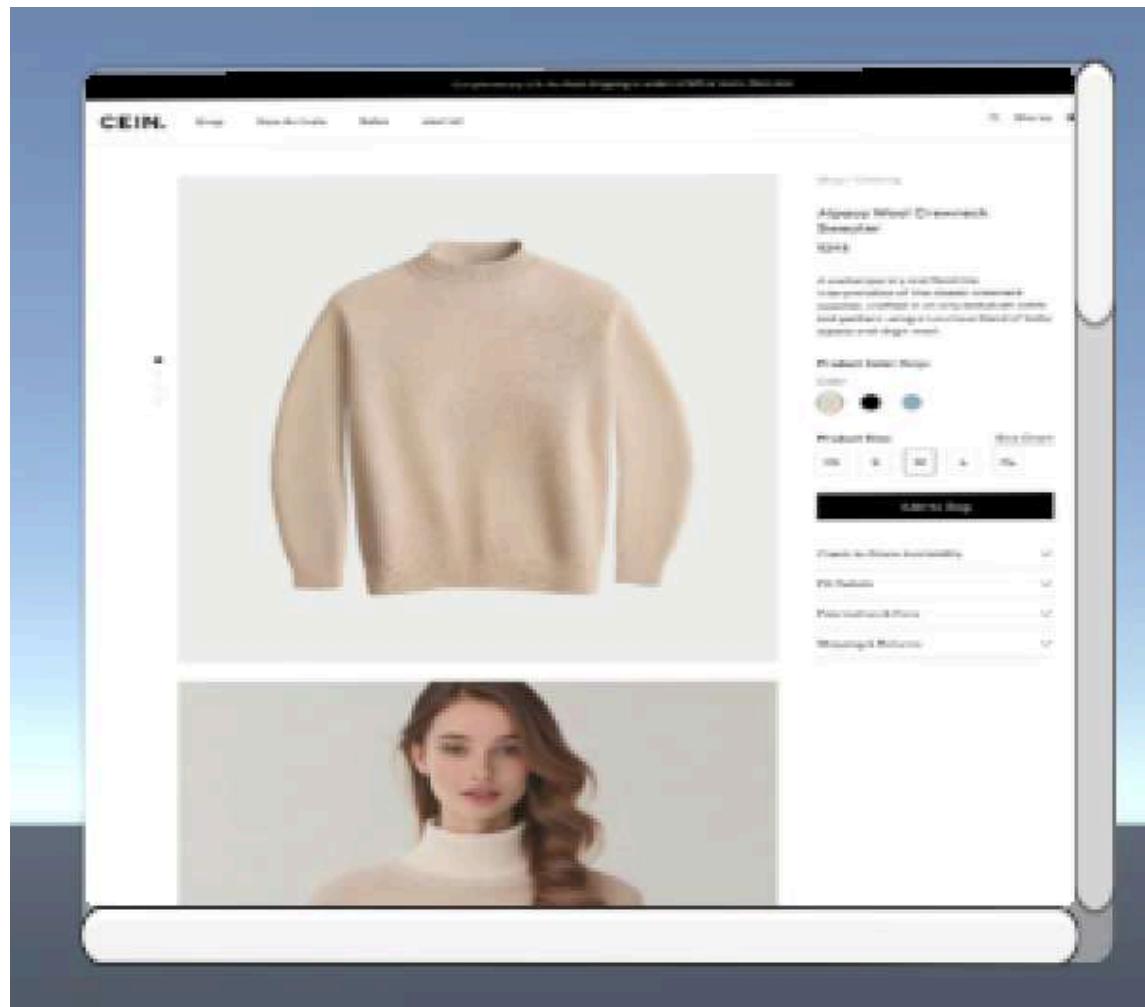
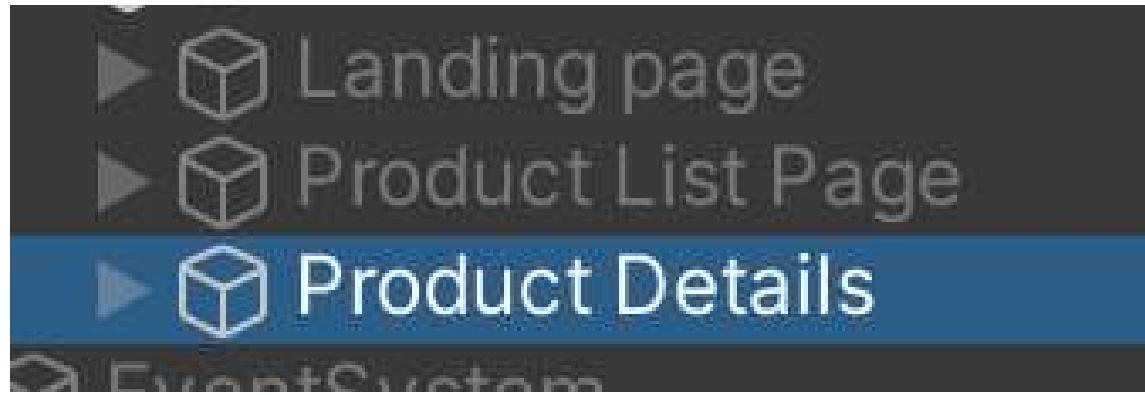
- Added a **UI button** in front of the shop menu item to make it interactive and set it as a child object of the image.

Development - Make the screens interactive

- In VR, clicking the button made the first screen **inactive**, so now there was a need to add a second screen to **replace** the first one when the "Shop" button was clicked.

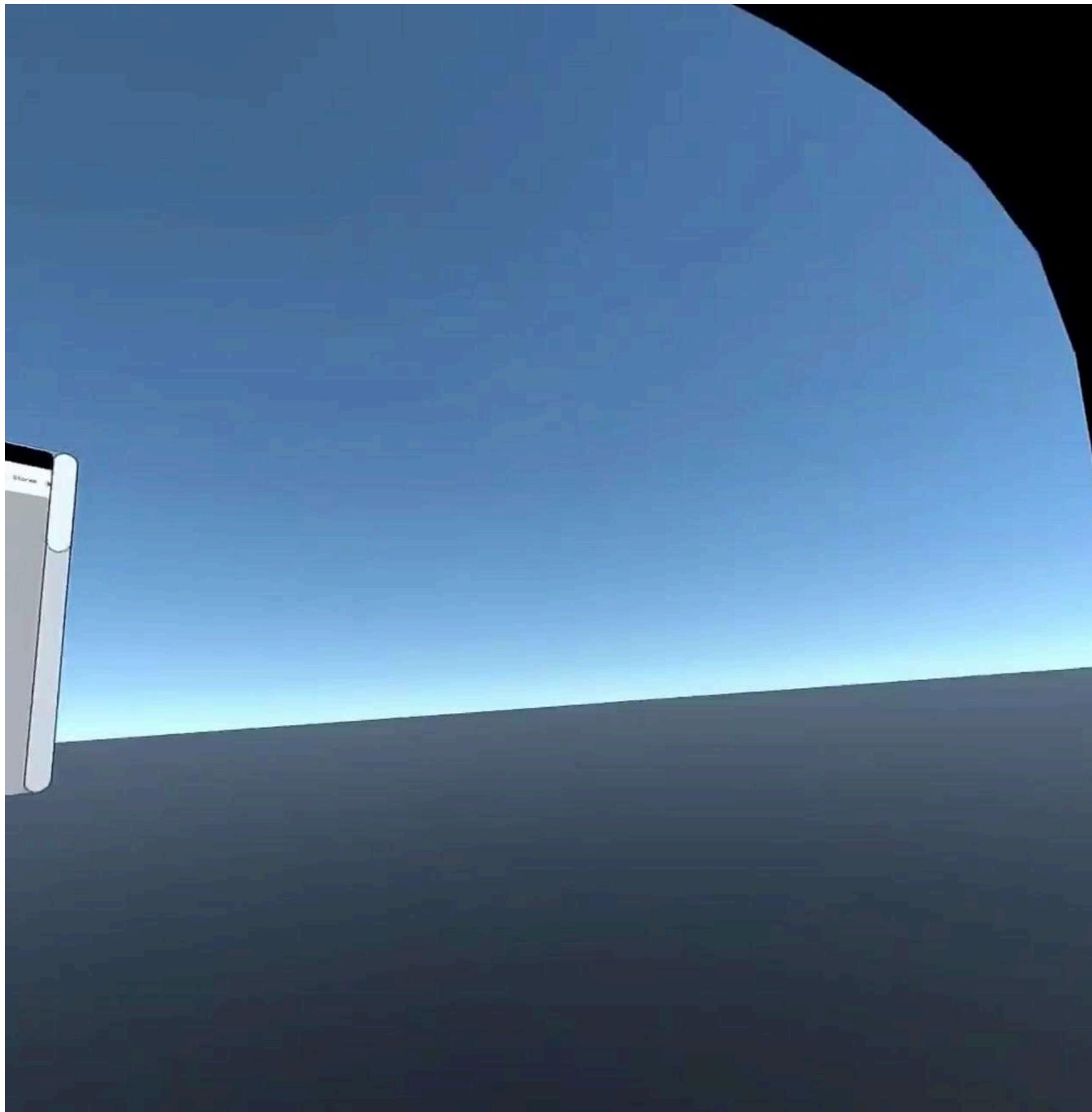


Development - Create a shopping flow



The product details and product list pages were added in the same way as the first landing page.

Development - Create a shopping flow

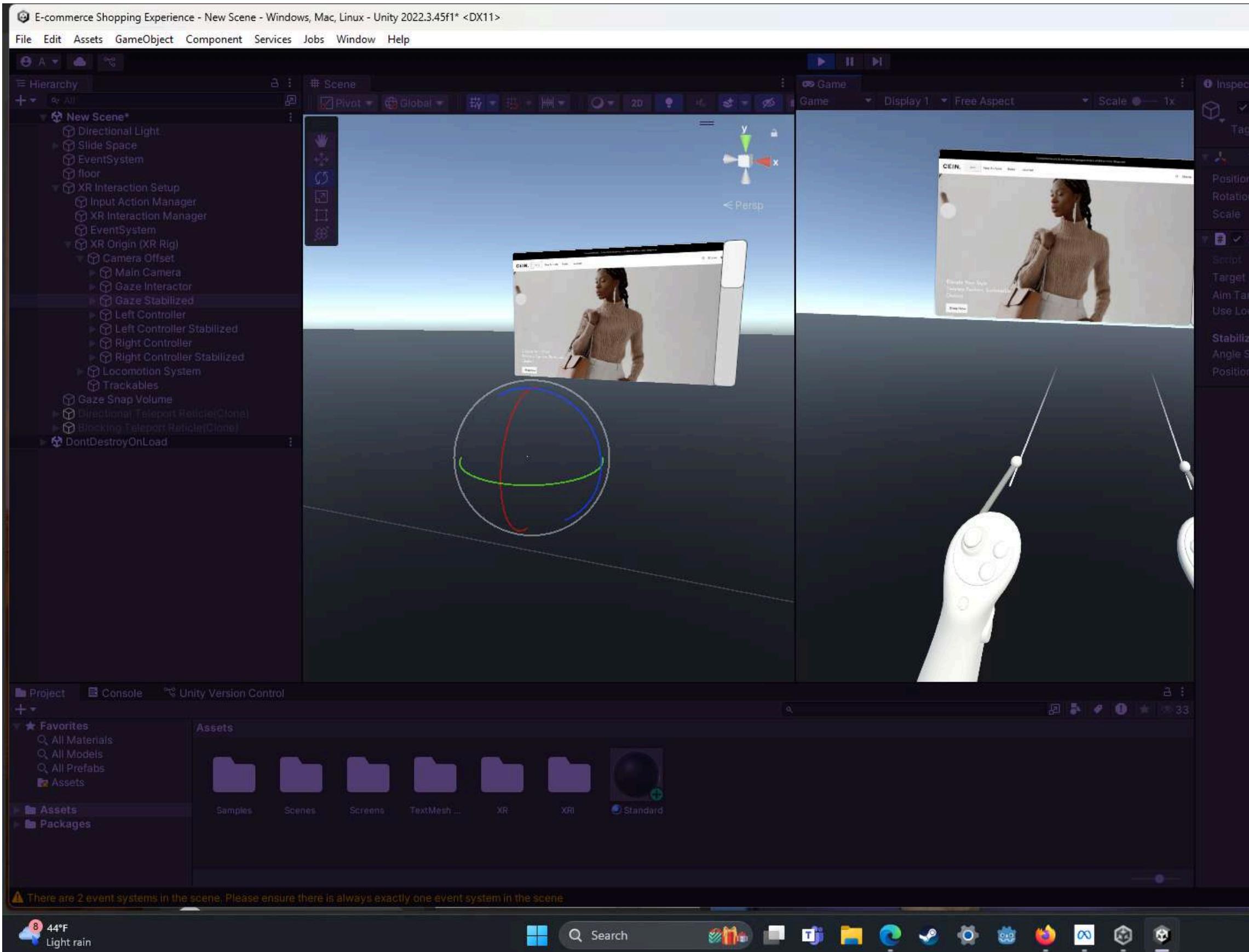


- **Buttons** were set up in appropriate places on the product items to make them clickable and navigate to the next “Product Details” page.
- Set up the button's **OnClick function** to **deactivate** the product list screen when a product is clicked and **activate** the product details page.



Testing Phase

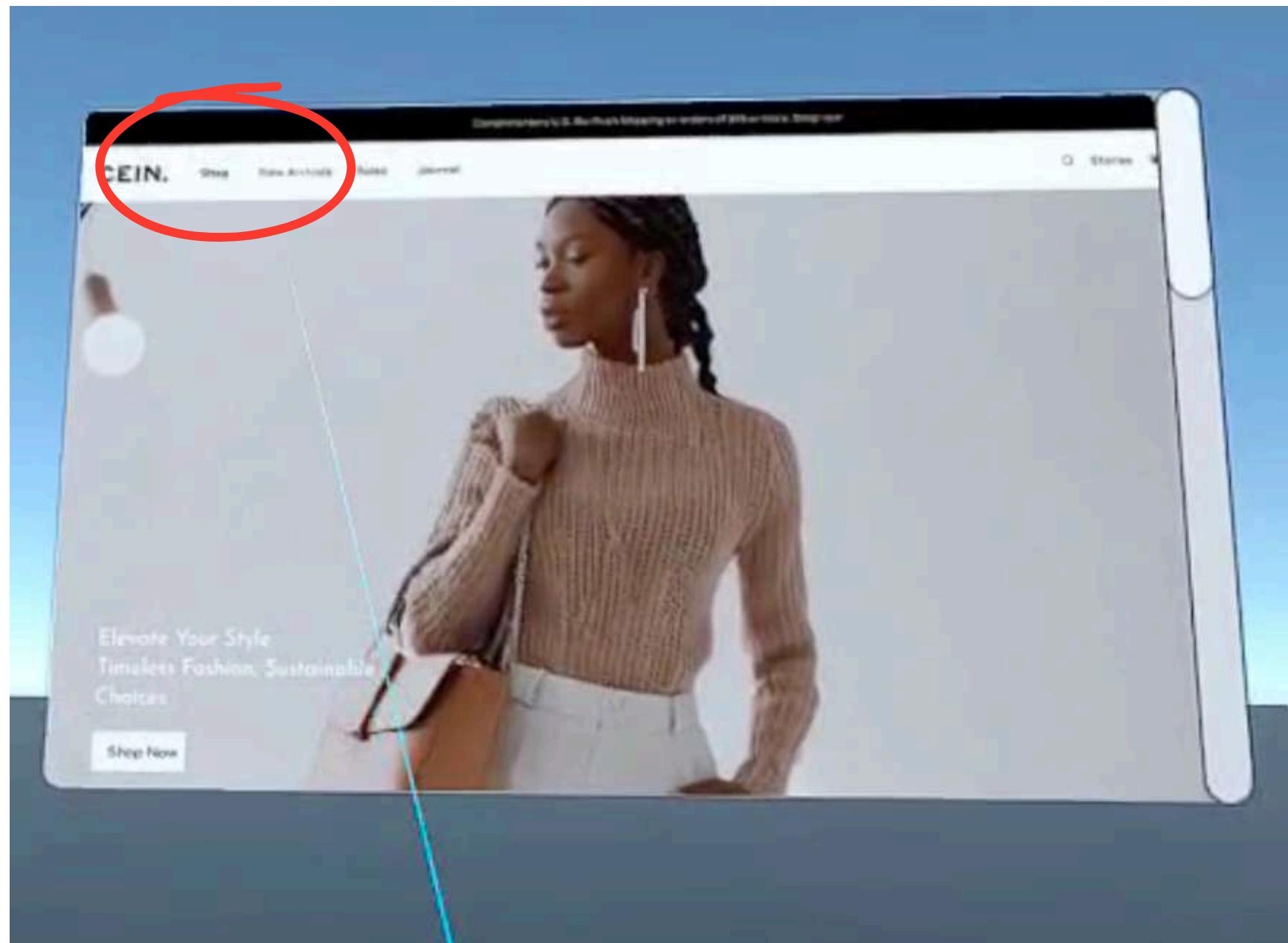
Objective was to test the entire flow and to identify any irregularities or malfunctions, aiming for smooth screen transitions upon button clicks.



Testing Phase



Testing Phase - Problems

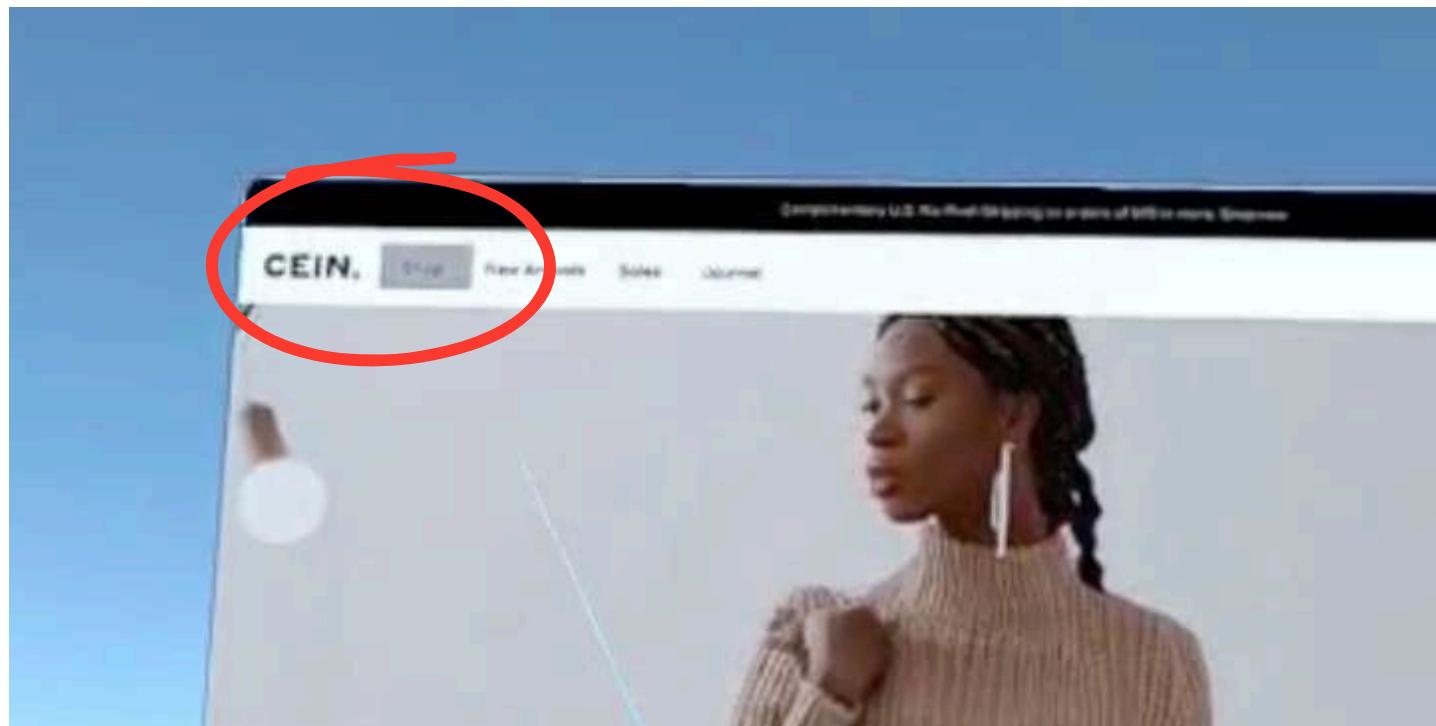


UX Problem Identified

I made the button invisible to display the original menu item, and while the button worked on click, there was no hover feedback to indicate it was being highlighted.

This helped me identify a UX issue: the need for **clear feedback** to show when an **action** is being performed or is about to be taken.

Testing Phase - Problems



UX Problem solved

I updated the button to display a hover color, providing clear **feedback** to indicate when it was being highlighted, solving the UX issue of missing visual feedback during interaction.



Testing Phase - Final Demo



Plans for Future

1. Standardize all **screen sizes** to ensure the Scroll View remains fixed and consistent across pages.
2. Add a luxury store **3D environment** in the background to enhance the immersive shopping experience in VR.

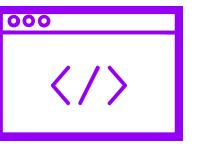


Conclusion



Design

Learned how to design and develop a basic e-commerce flow in VR.



Development

Gained experience with Unity for creating interactive and scrollable UI.



Interaction

Understood the importance of user feedback and interaction in VR design.



Improvement

Identified areas for improvement to enhance the VR shopping experience.

Grateful For Your Time!

Presentor

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Advisor

Professor Ciera Jones