

GAME

PROGRAMMING

LAB 10

VR APPLICATION - HAND SIMULATIONS

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STEPS TO PERFORM TASK:

1. Download the following app from asset store: Meta XR All-in-One SDK : Click <https://packagestore.unrealengine.com/packages/tools/integration/meta-xr-all-in-one-sdk-269657>
2. Install in a 3D project
3. It is recommended that the editor is restarted whenever this notification appears.
4. One has to check if the Meta XR Interaction SDK app that has to be installed is in parallel with this app.
5. All the subpackages need to be imported under the sample in both apps
6. We go to the top menu: Edit → Project Settings → MetaXR → Fix all.
7. On the navigational panel in the main window, click on the Project tab – then open the Example Scenes folder
8. Open the first handgrab scene
9. In the Hierarchy, go to Interactables, then SimpleGrab4ComboGrab and press the f key at the instance of this object cup game object and go to SimpleGrab4ComboGrab > HandGrabInteractable to see one of the hand simulation

10. Similarly see the other other grabinteractables for the cube gameobject.

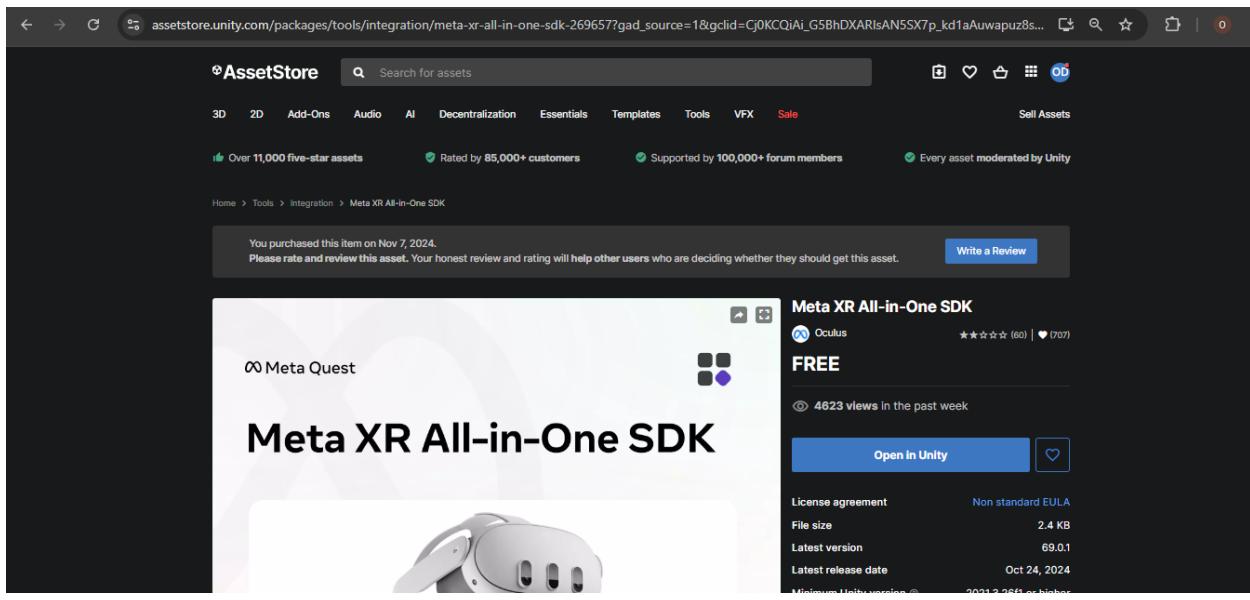
11. Instead do the same with the other three gameobjects that are in the scene

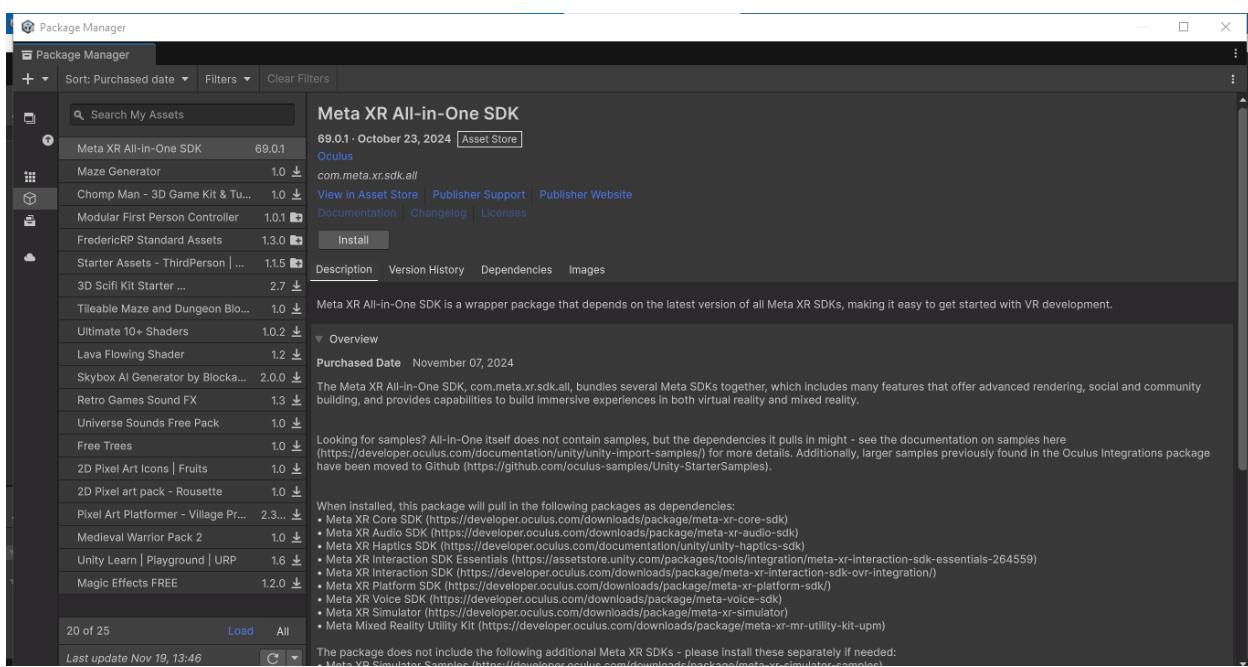
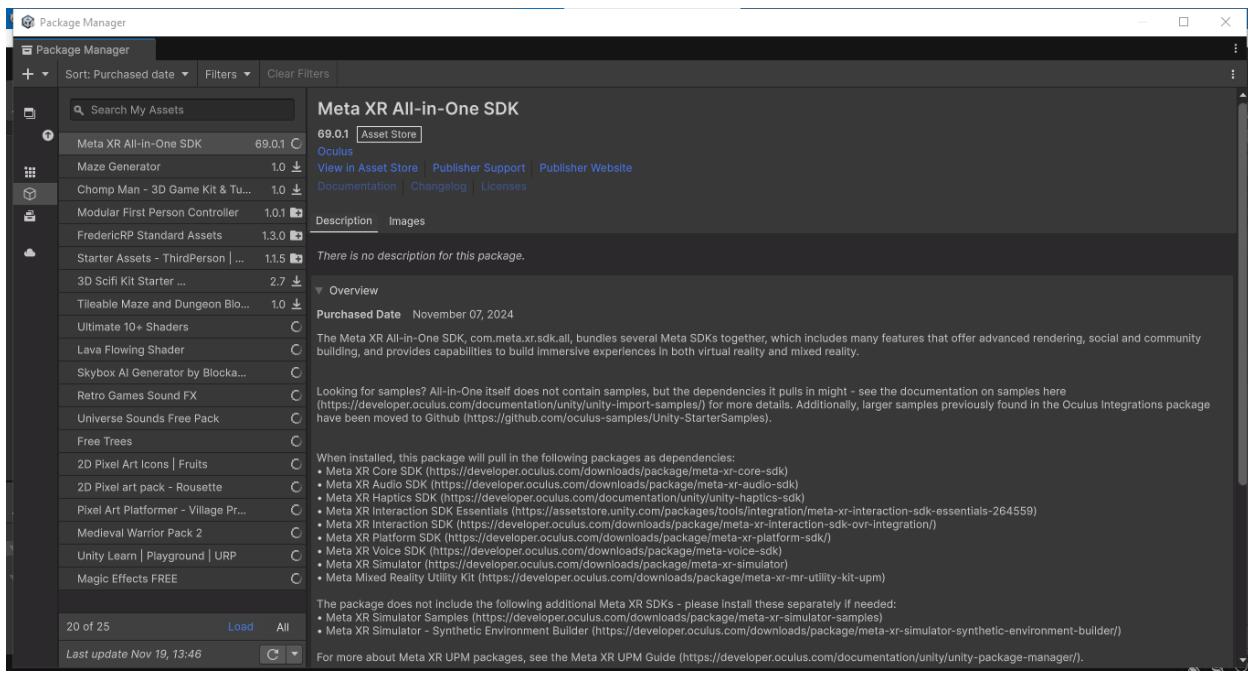
12. For these game objects indeed look at all the various hand poses that are interactable

13. The same must be done for four other sample scenes → look into the different interactables and attempt to Grove it's usability

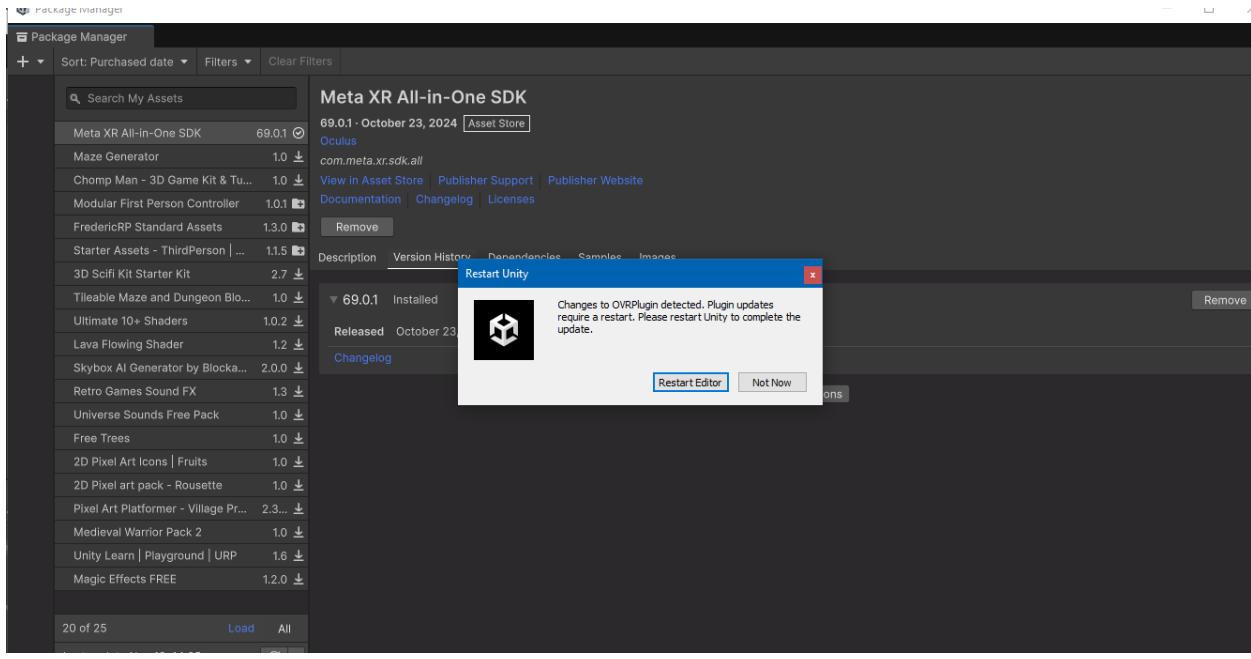
14. Take a screenshot of everything.

Initially downloading the package as shown below:

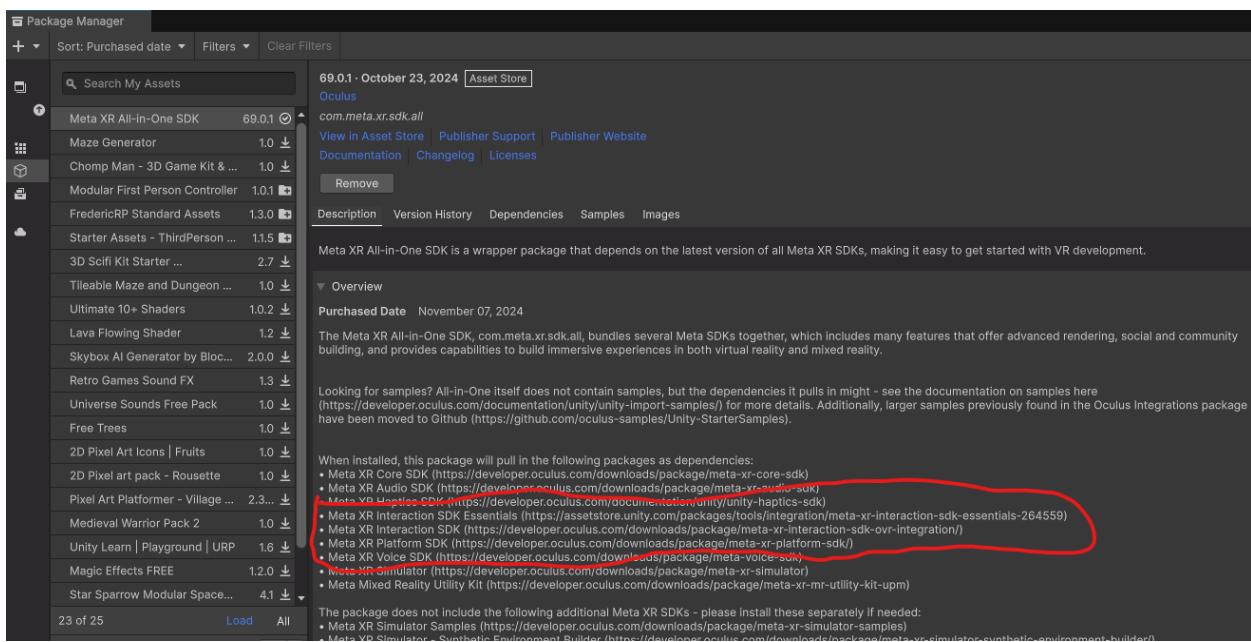




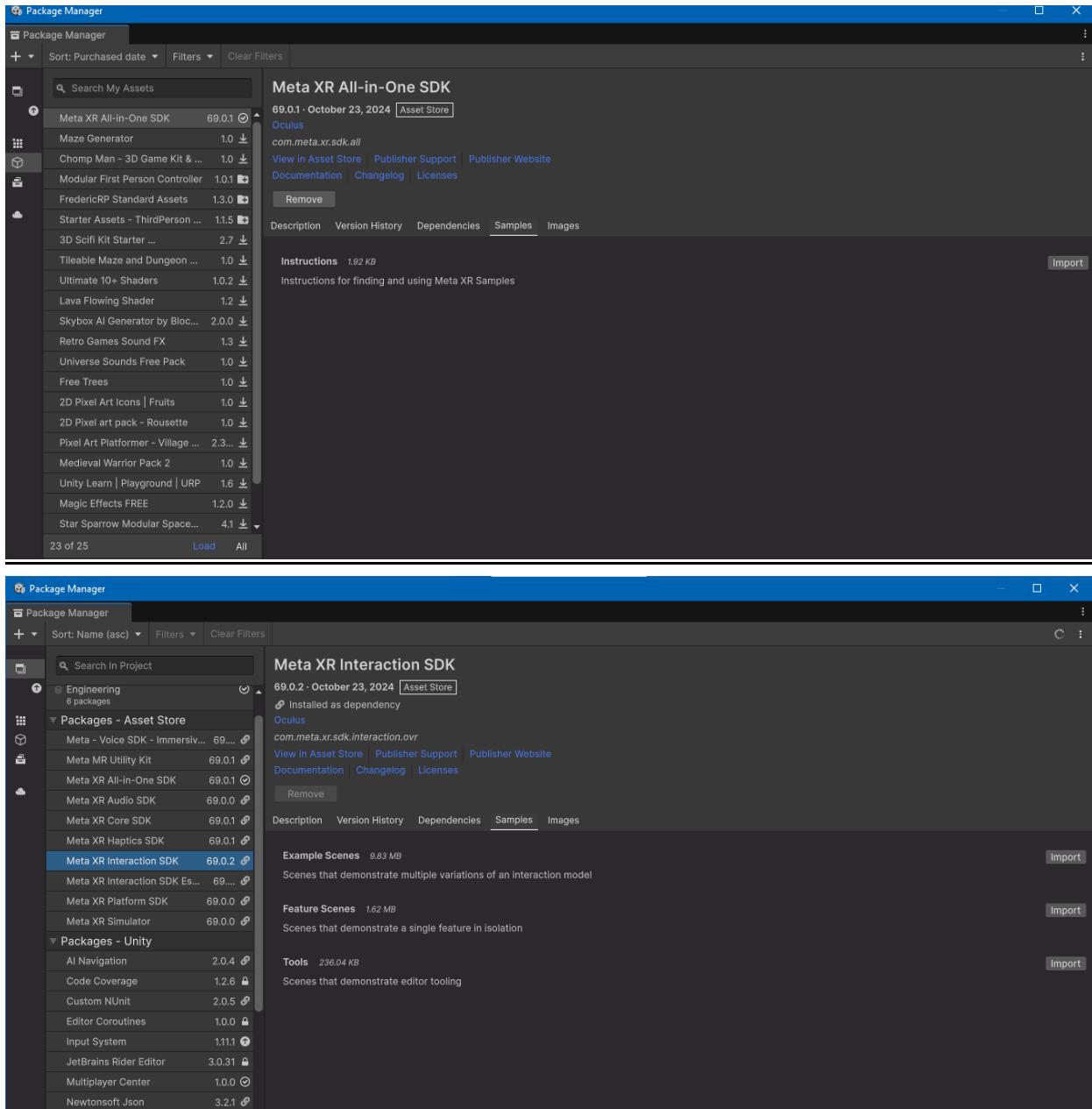
Restart the editor as shown below



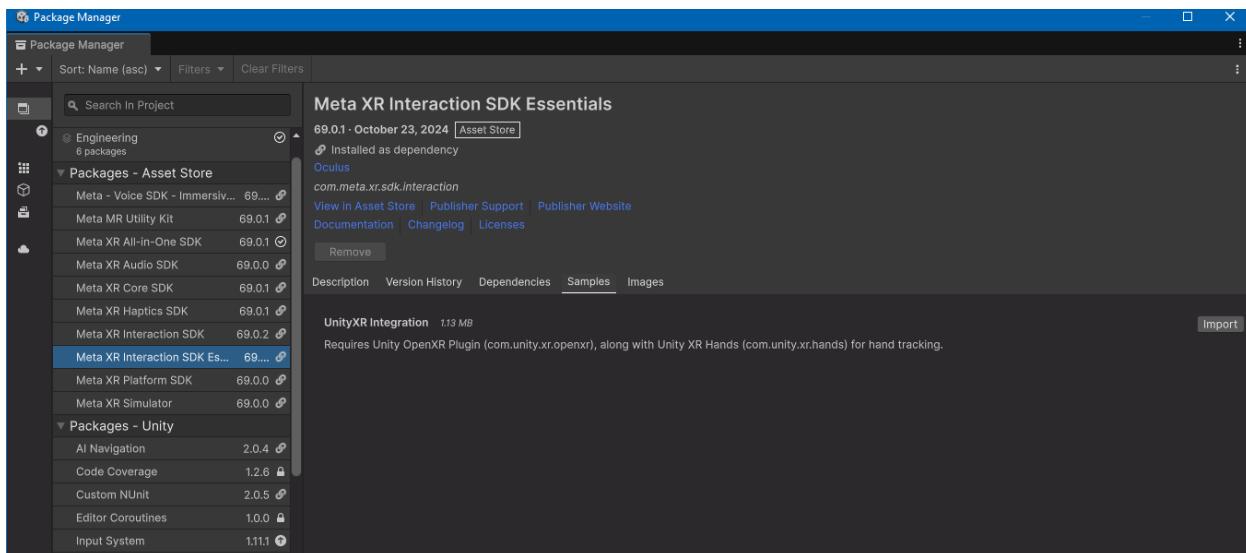
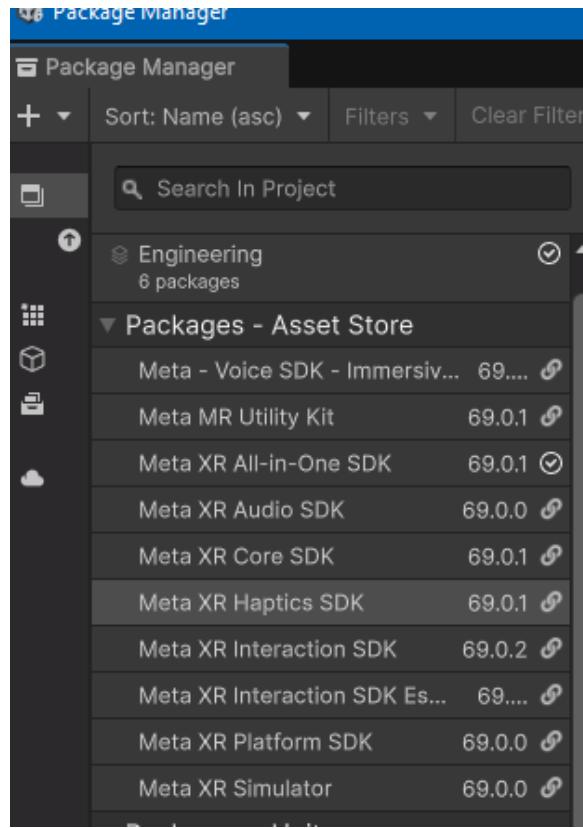
Check that if the Meta XR interaction SDK is installed or not



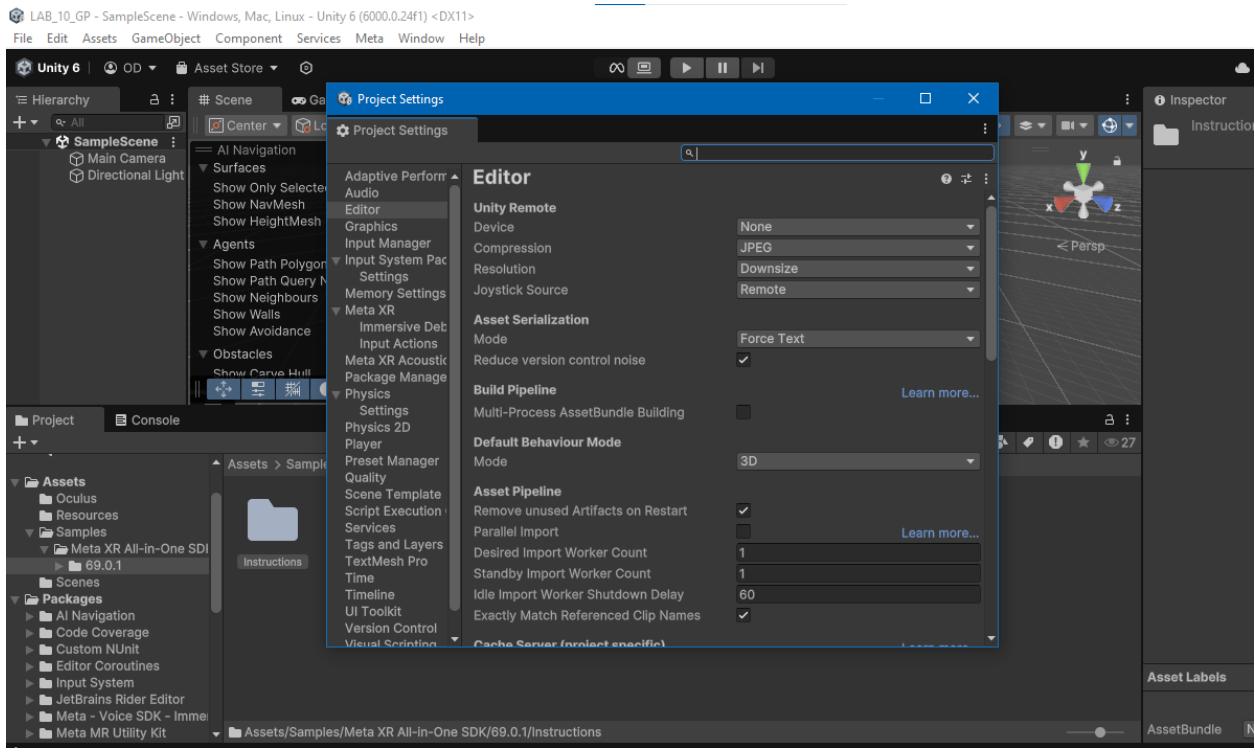
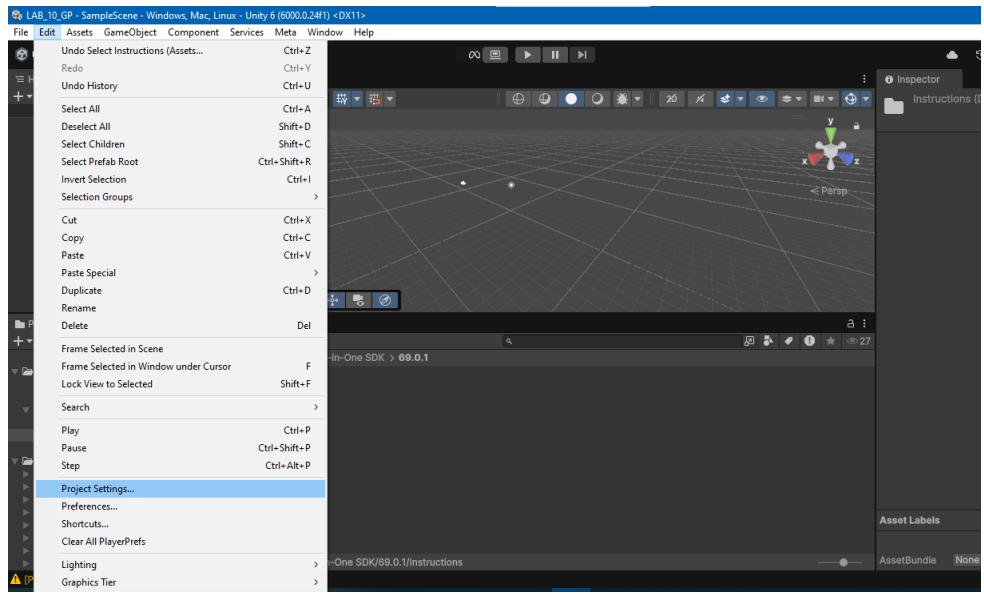
Import all necessary sample for the task



Similarly importing like above for all related SDK packages as shown below



Our editor platform gets updated
after installing the package



The image contains two side-by-side screenshots of the Unity Package Manager interface.

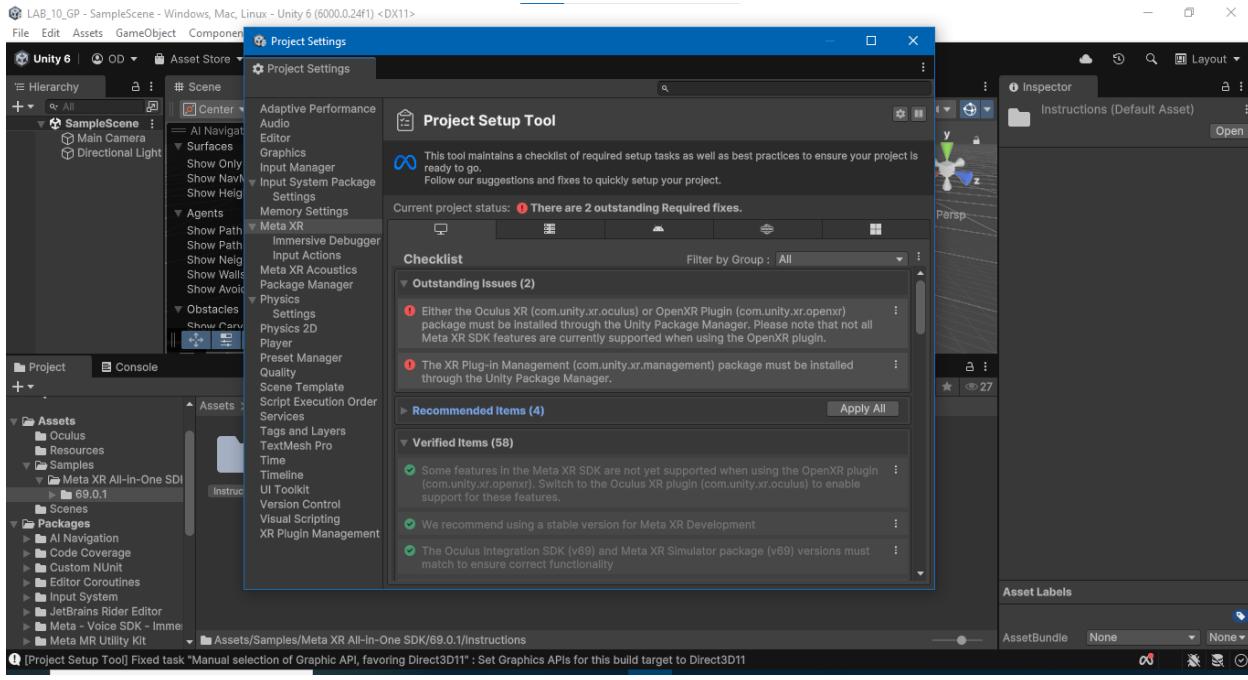
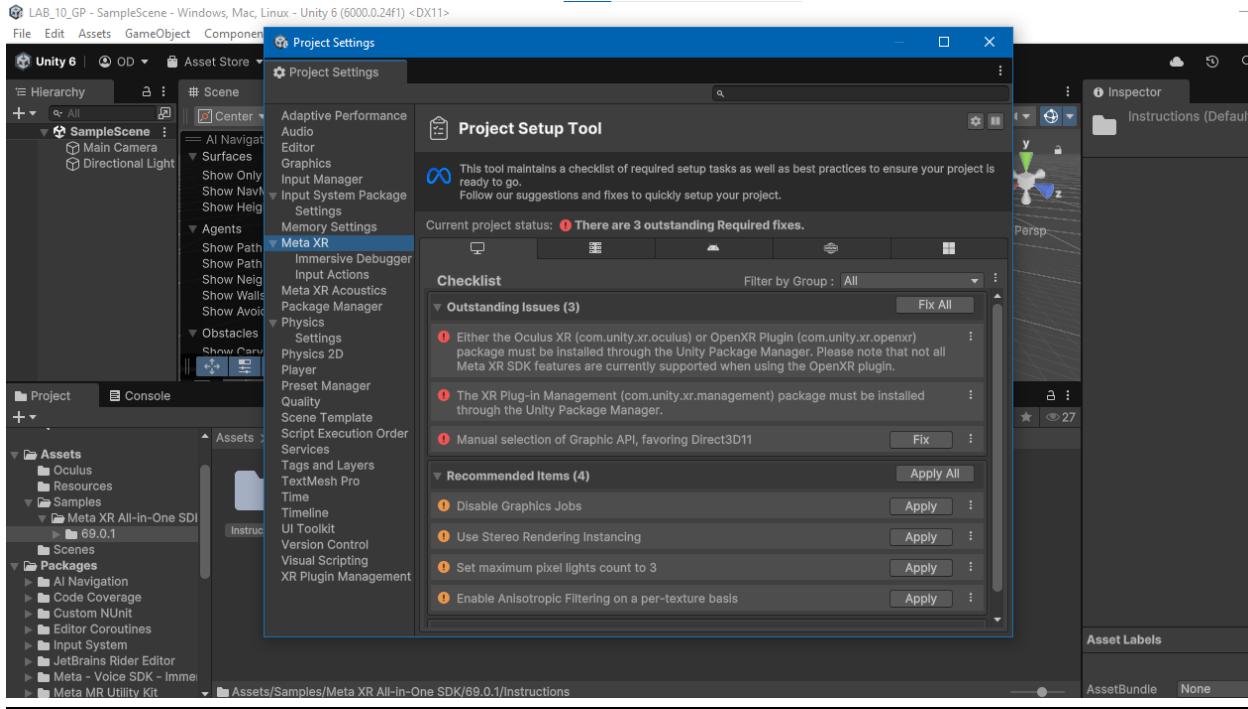
Screenshot 1: Meta XR Platform SDK

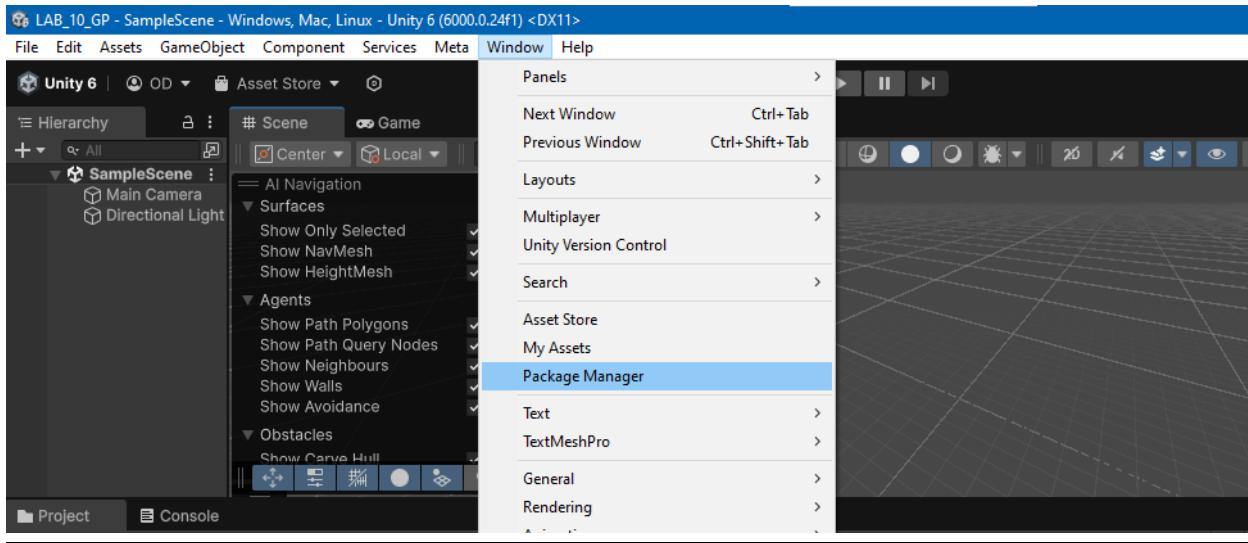
- Left Panel:** Shows the Project tree under "Engineering" with 6 packages installed. Under "Packages - Asset Store", it lists:
 - Meta - Voice SDK - Immersive... 69.0.0
 - Meta MR Utility Kit 69.0.1
 - Meta XR All-in-One SDK 69.0.1
 - Meta XR Audio SDK 69.0.0
 - Meta XR Core SDK 69.0.1
 - Meta XR Haptics SDK 69.0.1
 - Meta XR Interaction SDK 69.0.2
 - Meta XR Interaction SDK Es... 69.0.0
 - Meta XR Platform SDK 69.0.0
 - Meta XR Simulator 69.0.0
- Right Panel:** Details for "Meta XR Platform SDK" version 69.0.0 (October 09, 2024). It includes sections for "App Deep Linking", "Entitlement Check", "Group Presence", "Reporting Callback", and "Simple Platform". Each section has a "Reimport" button.

Screenshot 2: Meta - Voice SDK - Immersive Voice Commands

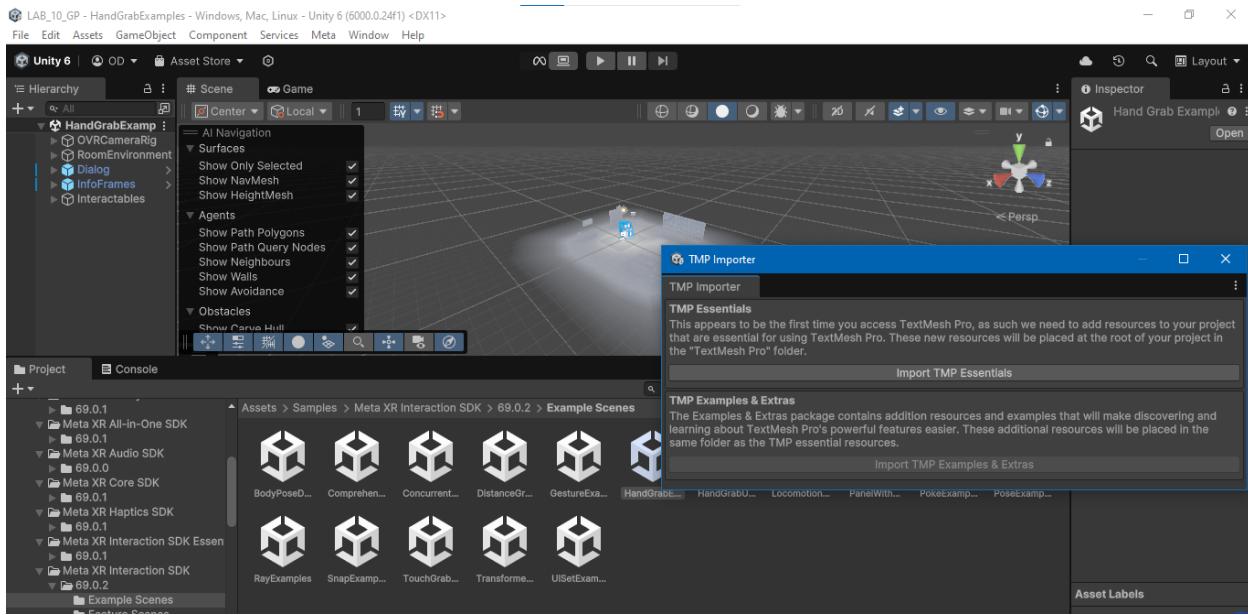
- Left Panel:** Shows the Project tree under "Engineering" with 6 packages installed. Under "Packages - Asset Store", it lists:
 - Meta - Voice SDK - Immersive... 69.0.0
 - Meta MR Utility Kit 69.0.1
 - Meta XR All-in-One SDK 69.0.1
 - Meta XR Audio SDK 69.0.0
 - Meta XR Core SDK 69.0.1
 - Meta XR Haptics SDK 69.0.1
 - Meta XR Interaction SDK 69.0.2
 - Meta XR Interaction SDK Es... 69.0.0
 - Meta XR Platform SDK 69.0.0
 - Meta XR Simulator 69.0.0
- Right Panel:** Details for "Meta - Voice SDK - Immersive Voice Commands" version 69.0.0 (October 09, 2024). It includes sections for "Shapes", "Shapes with Conduit", "Built-In Timer", "TTS Voices", "TTS Lip Sync", and "Live Understanding". Each section has a "Reimport" button.

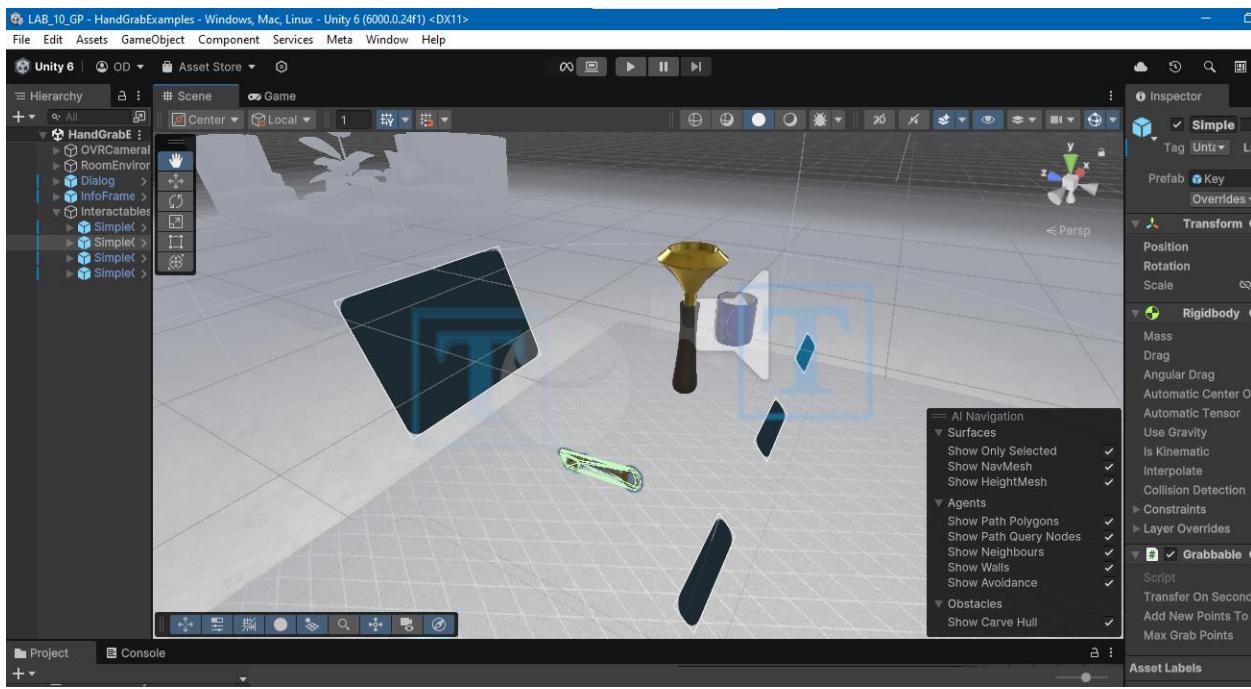
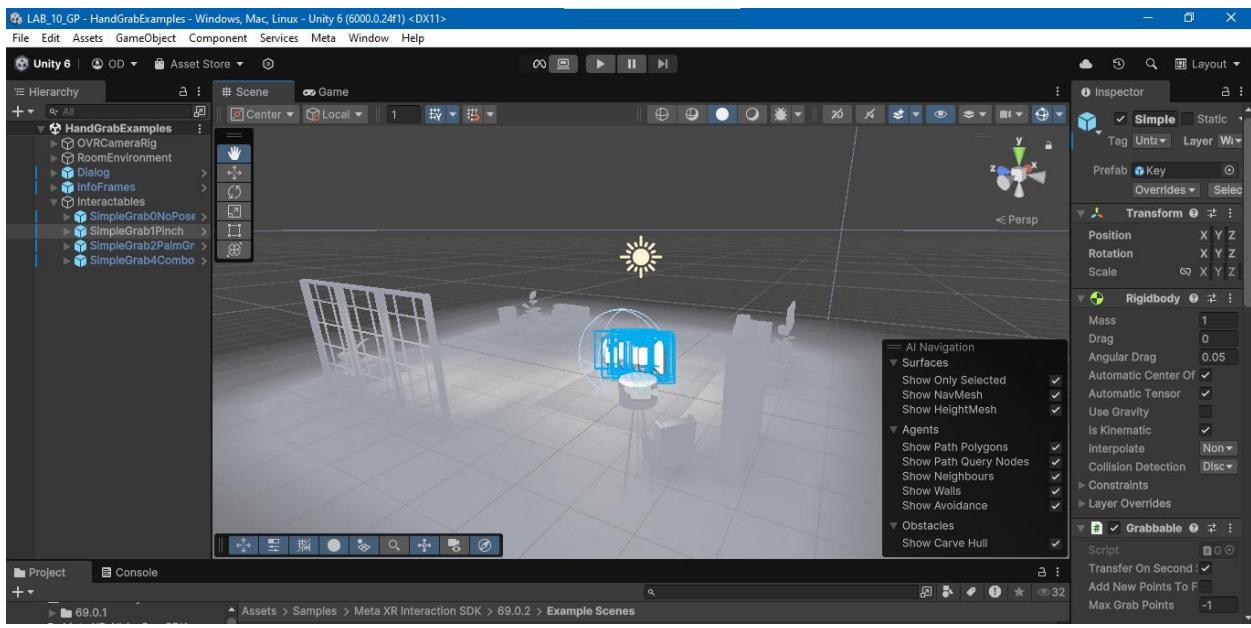
Fix all the issues occurred and apply the recommended as per need.



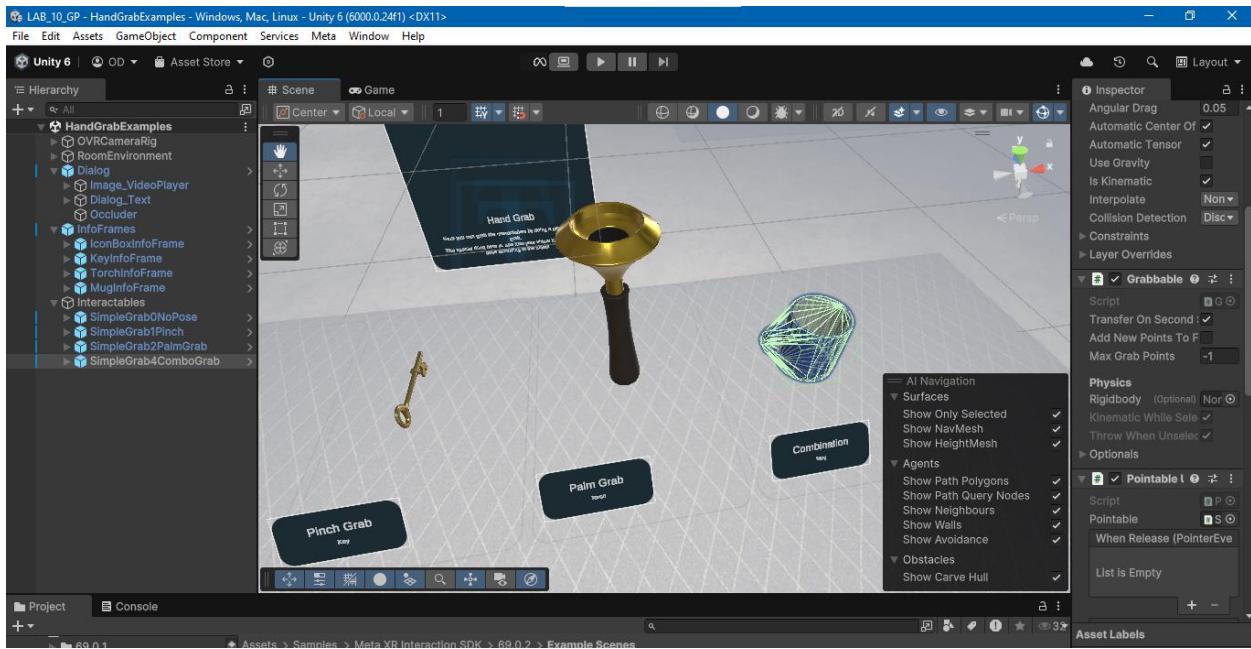


After all the above procedures
importing again some necessary TMP
essentials.

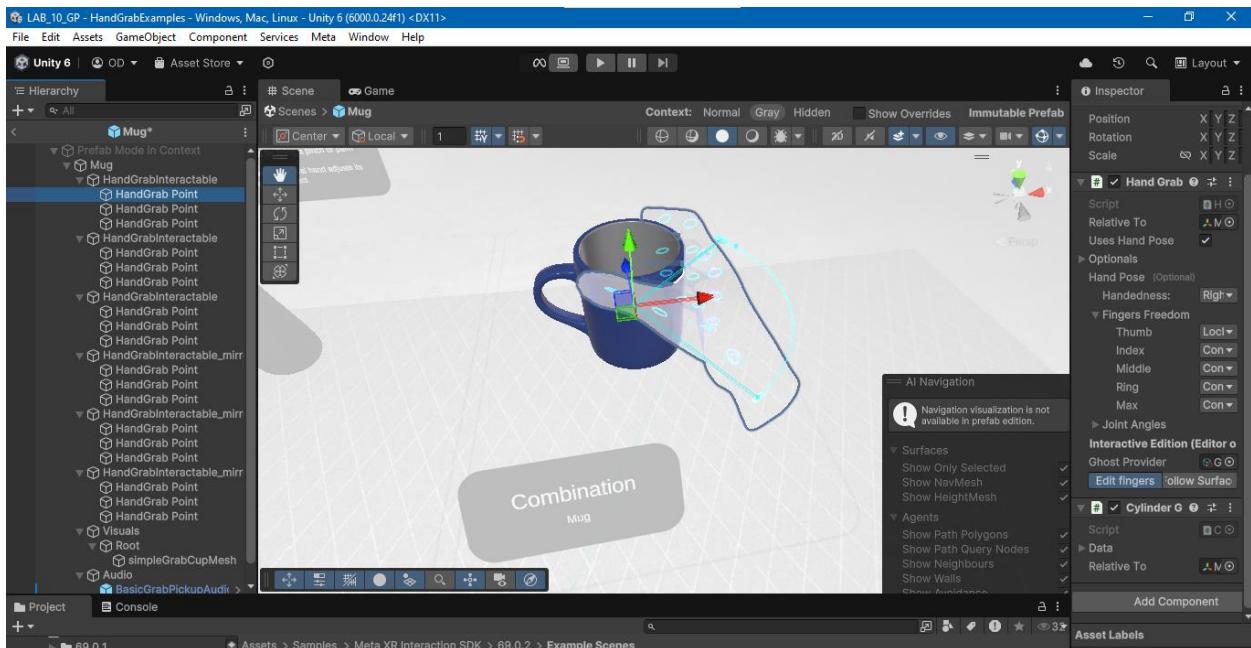




Now first clicking on the SimpleGrab4ComboGrab as mentioned.



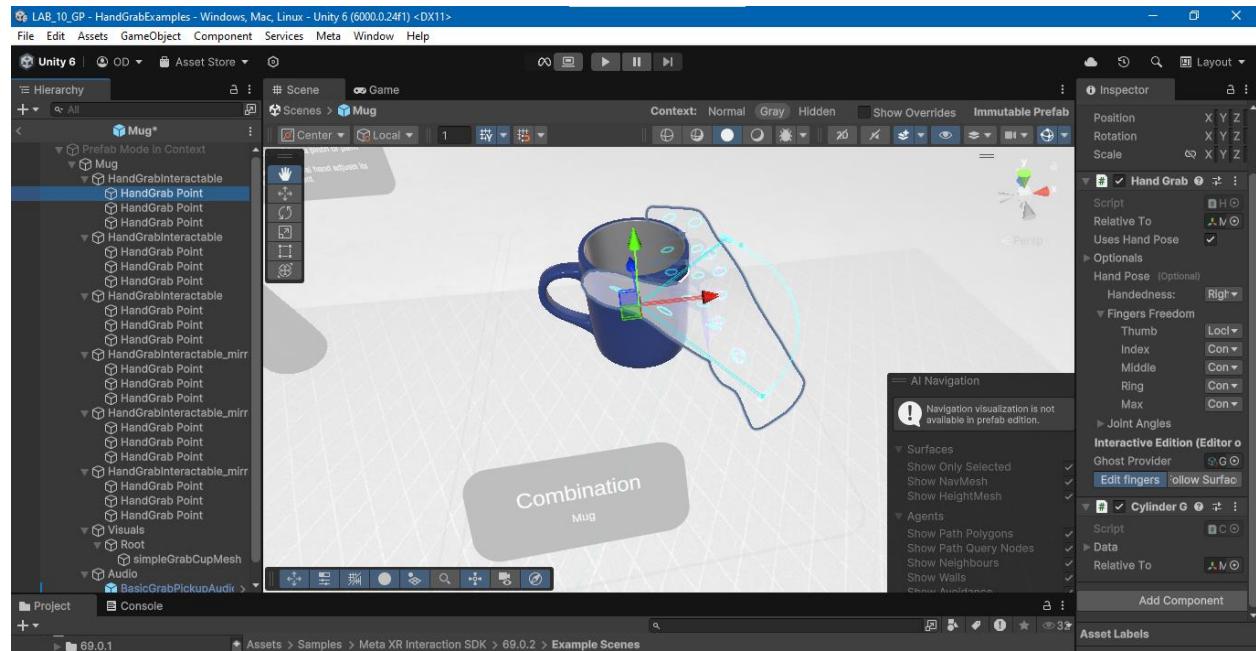
Visualizing the hand now



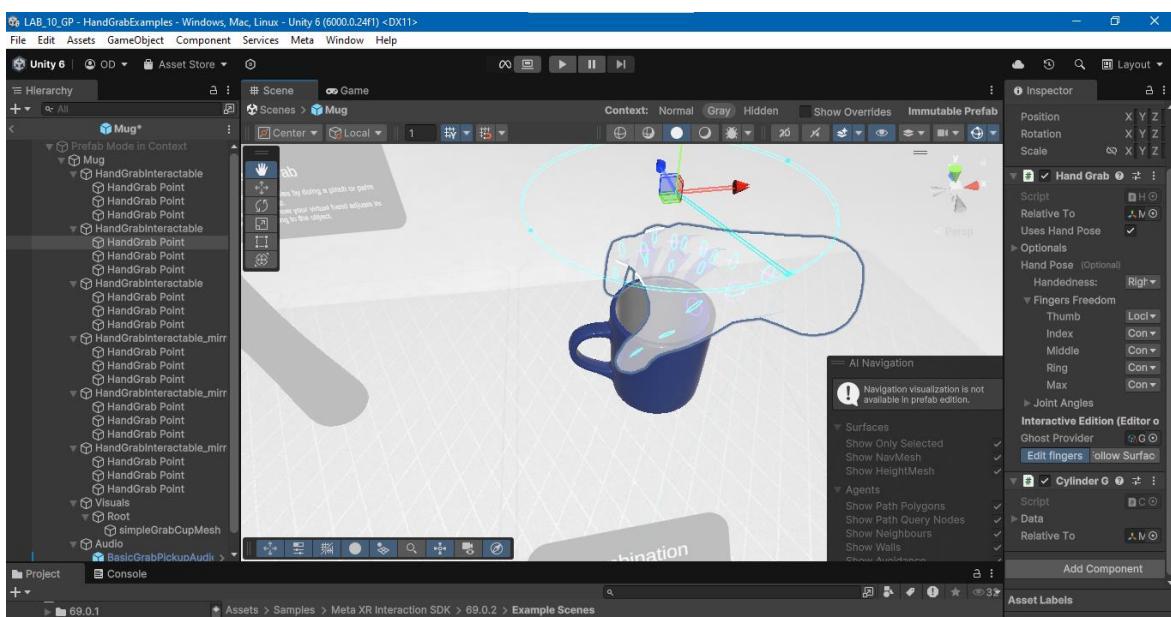
Visualizing more hand visualizations for grabbing

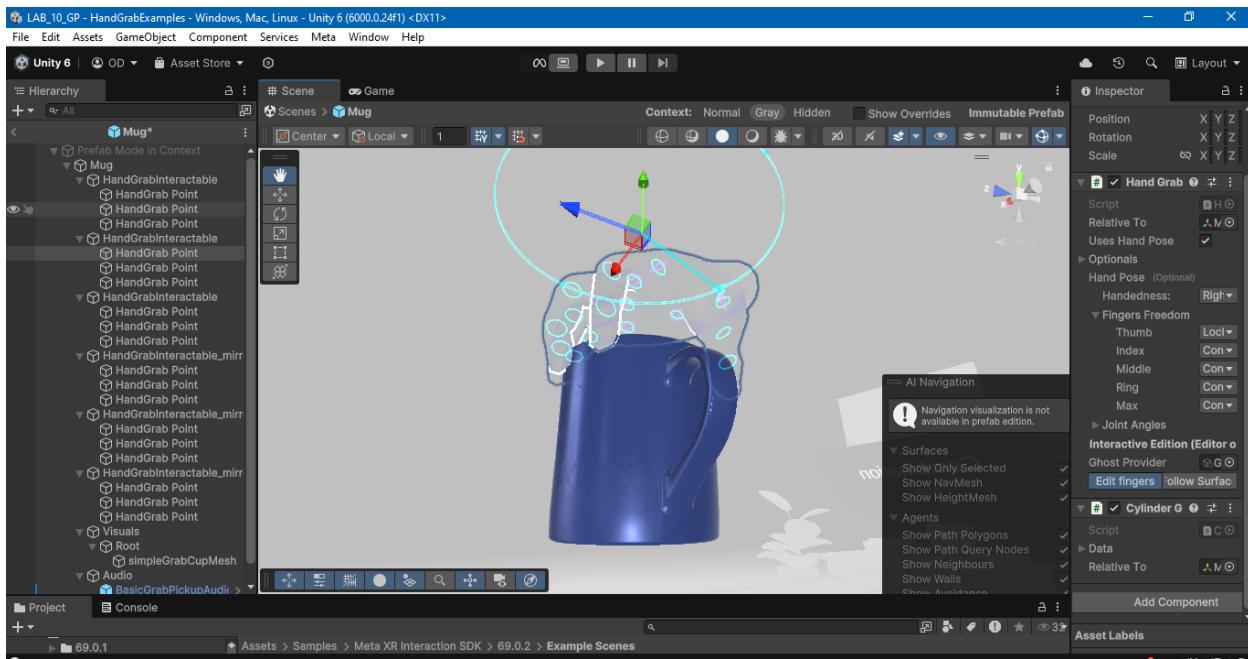
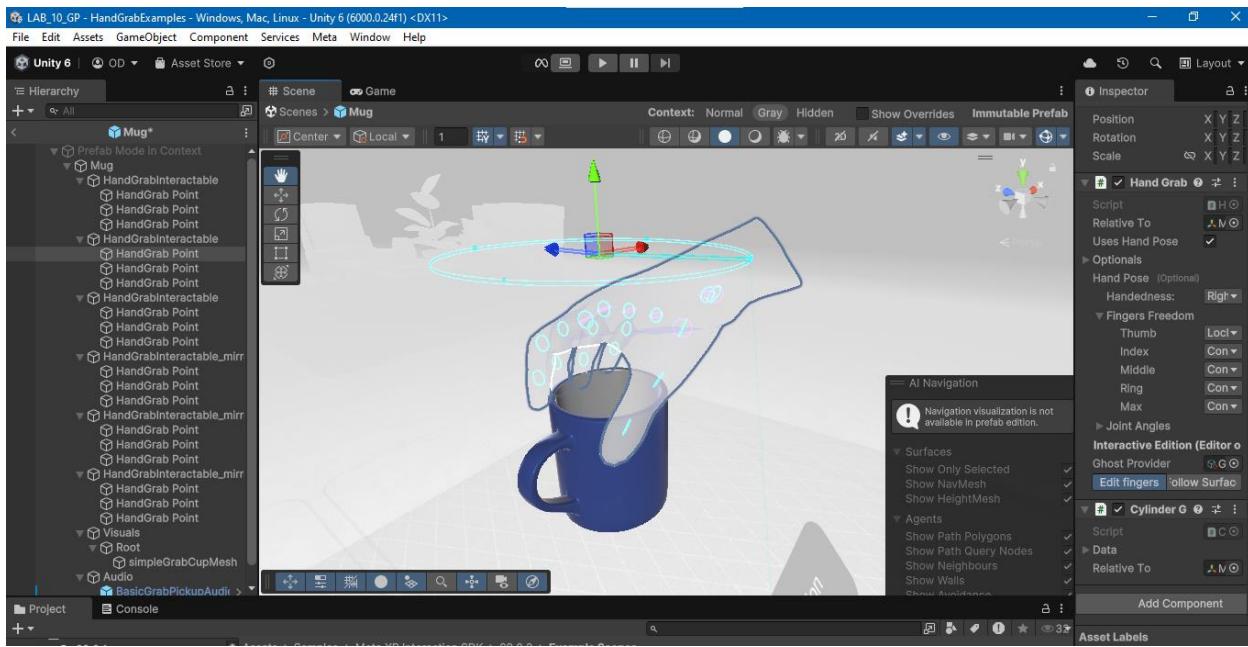
For SimpleGrab4ComboGrab:

Visualization type 1: (Holding only the rim)

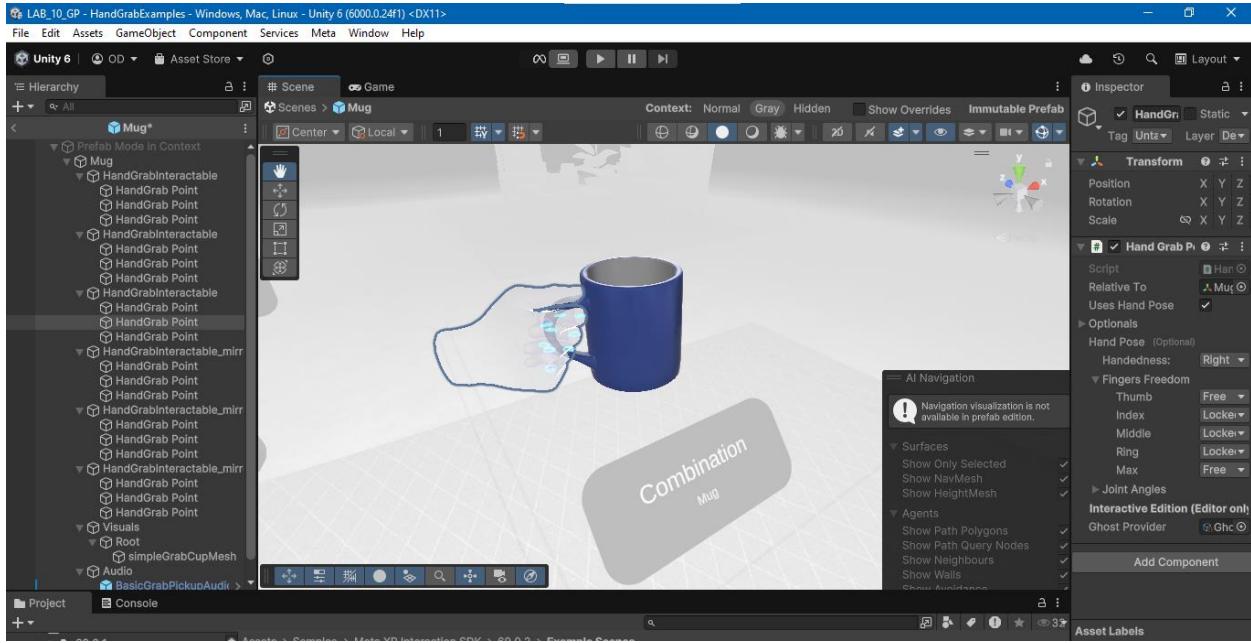


Visualization type 2: (Carrying/grabbing/holding with the support from top / rim)

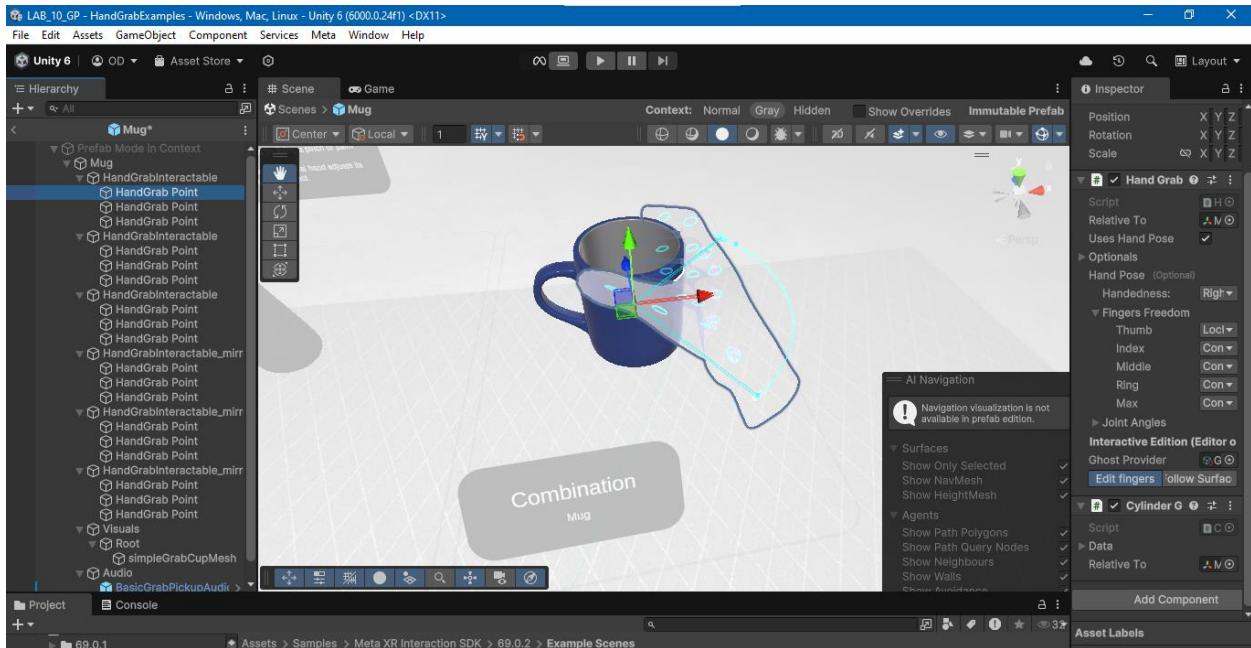




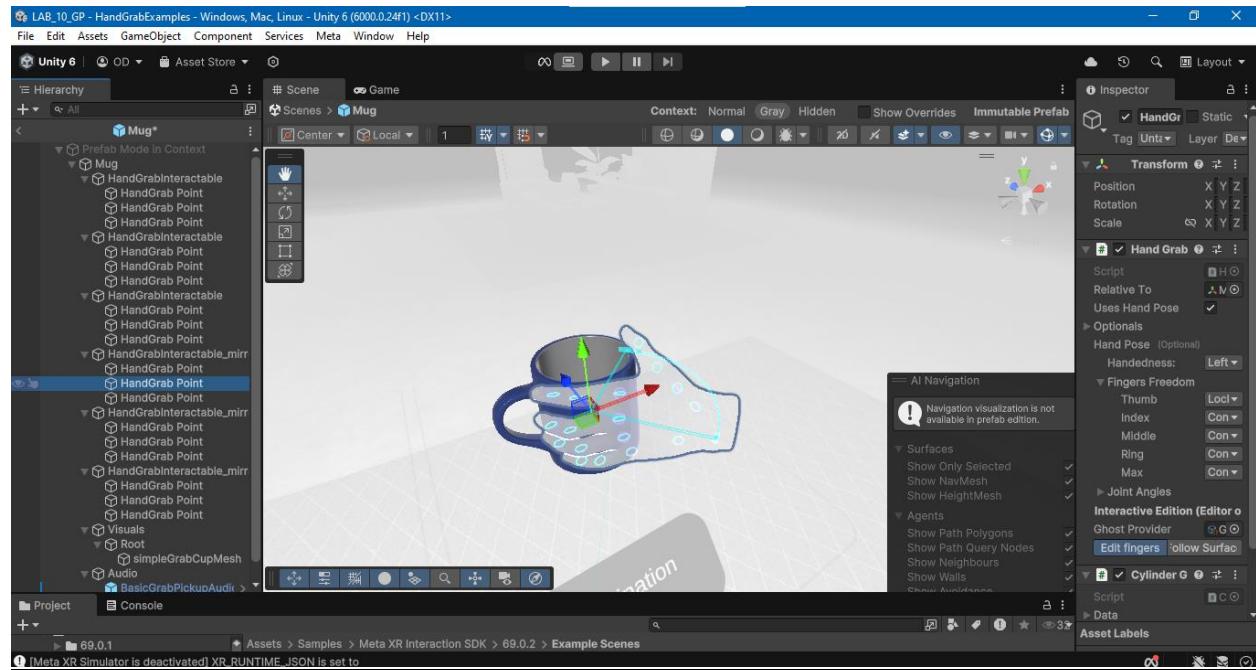
Visualization type 3: (Grabbing through side) (Holding from side holder of mug)



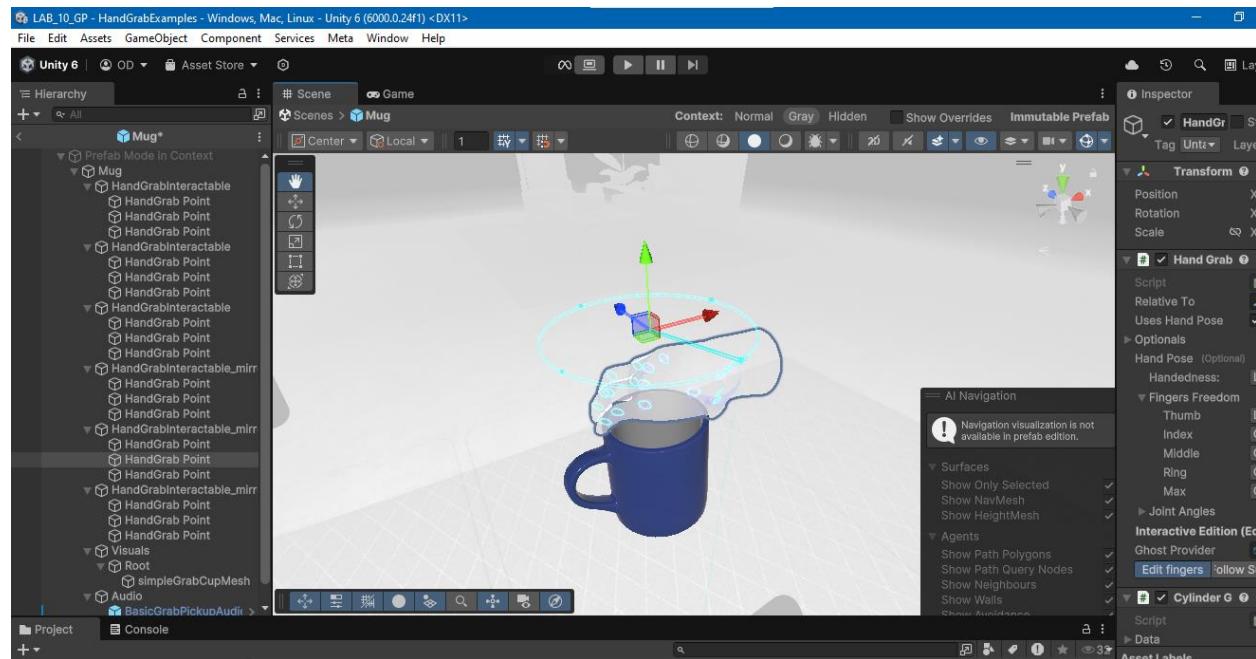
Visualization type 4: (Holding only the rim)



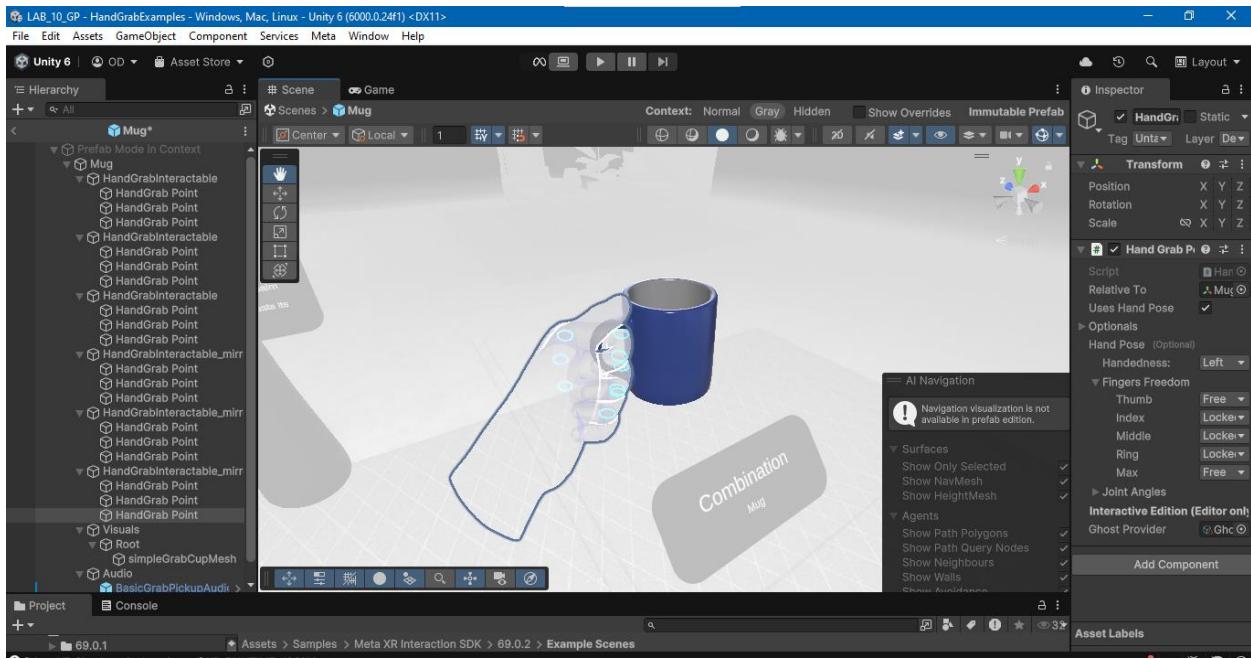
Visualization type 5: (Grabbing using most of the hand part)



Visualization Type 6: (Touching top part of mug with fingers.)

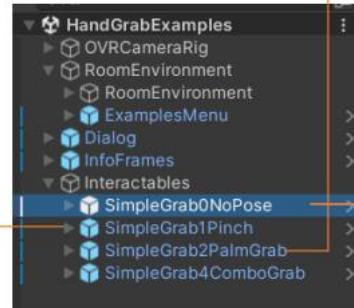
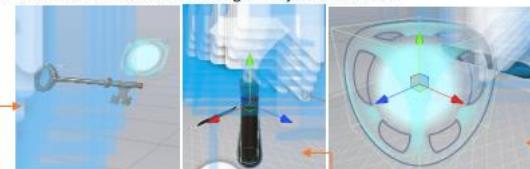


Visualization Type 7: (Grabbing the holder using all fingers completely)



Checking for all other handposes mentioned

11. Do the same for the other three gameobjects in the scene

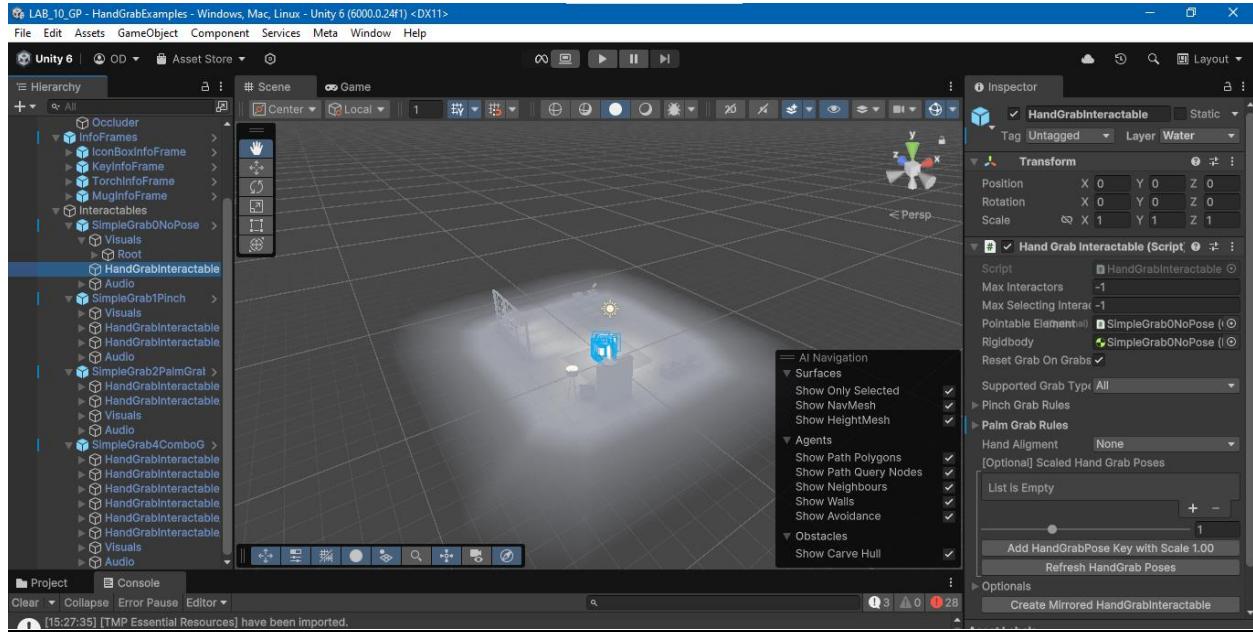


12. For these game objects check for all different interactable hand pose

13. Do the same for four other sample scenes → examine the different interactables and try to understand it's usability.

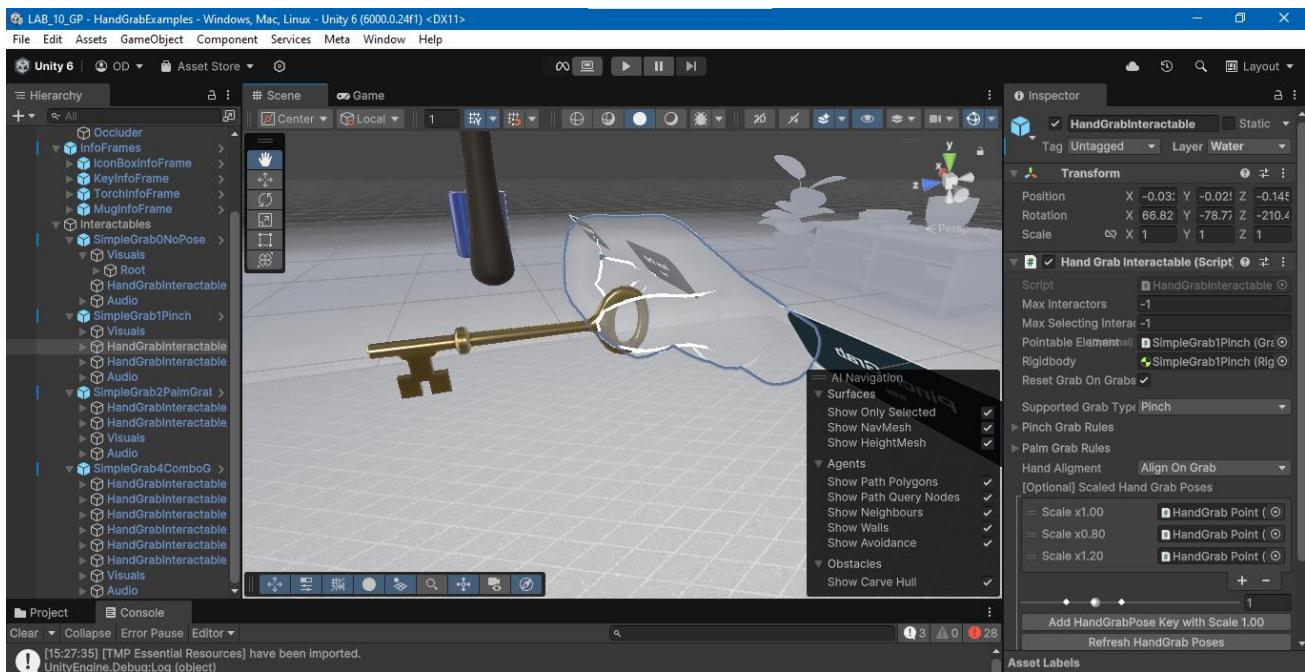
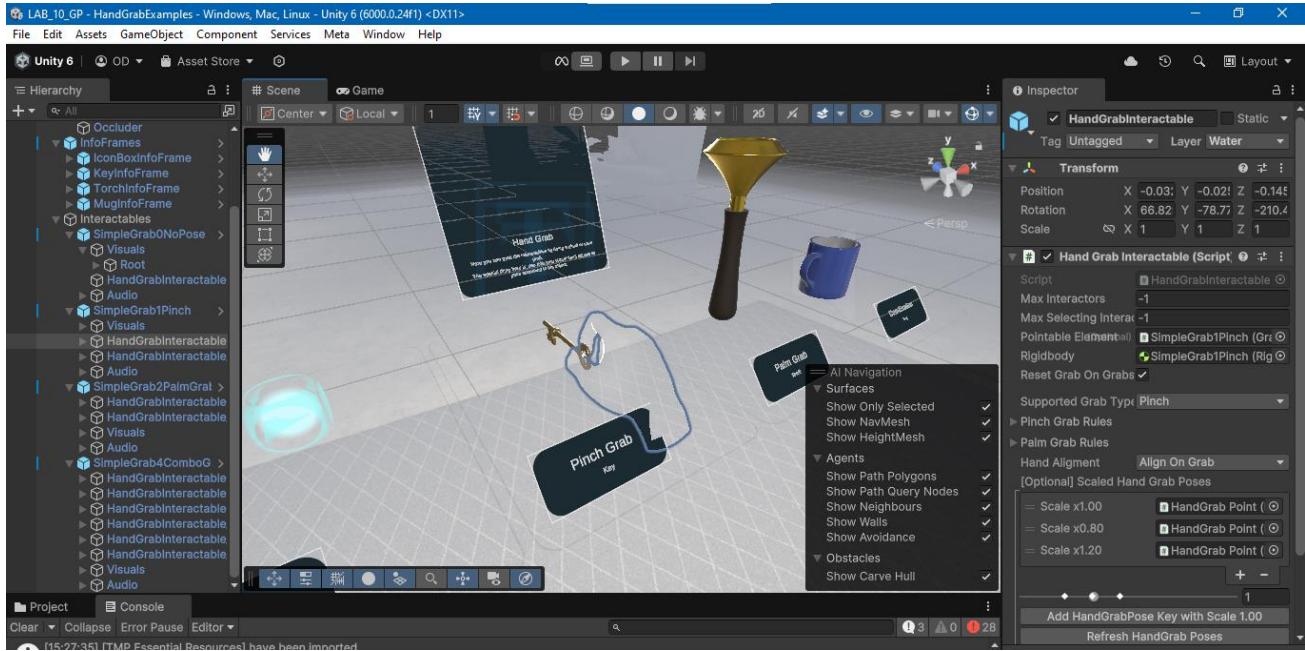
Now, we will do for SimpleGrab0NoPose, SimpleGrab1Pinch, and SimpleGrab2PalmGrab

For SimpleGrab0NoPose: (We don't see any visual)

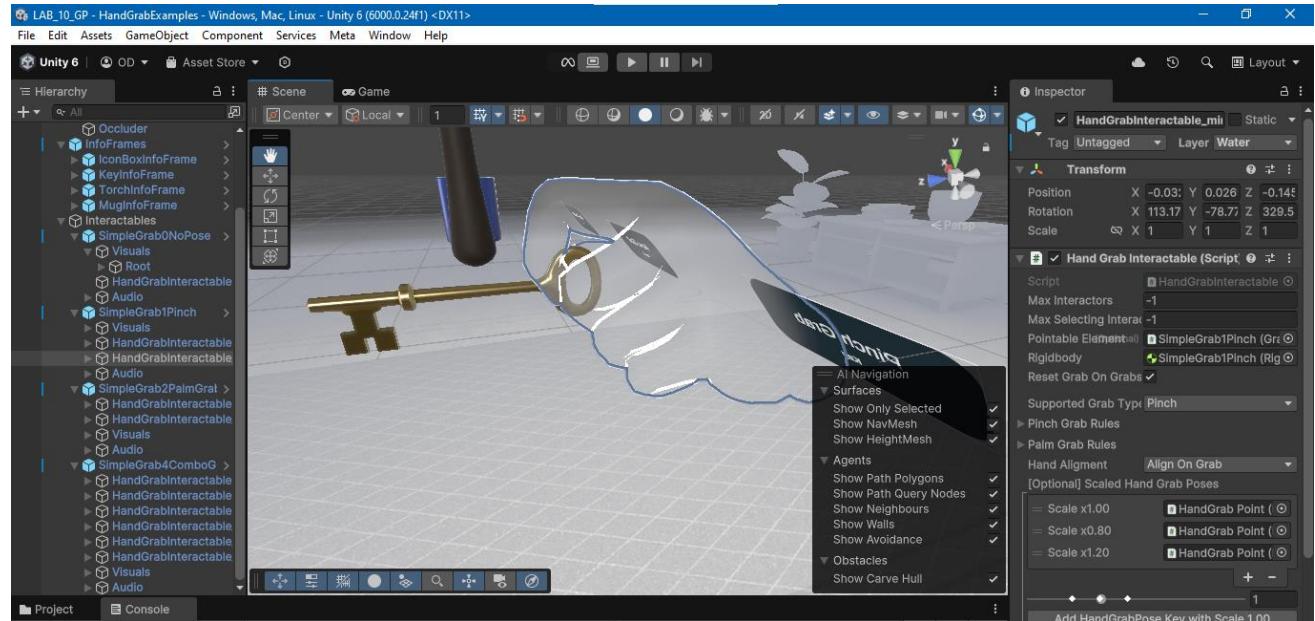
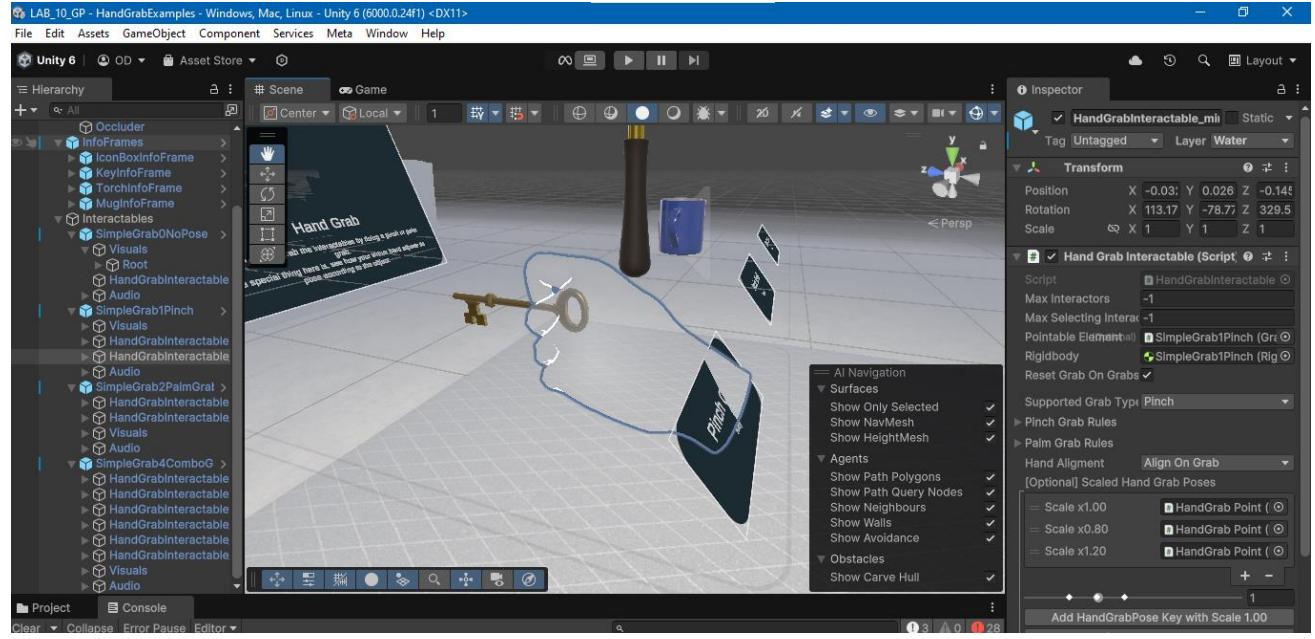


For SimpleGrab1Pinch: (We see holding key visualizations)

Visualization 1:

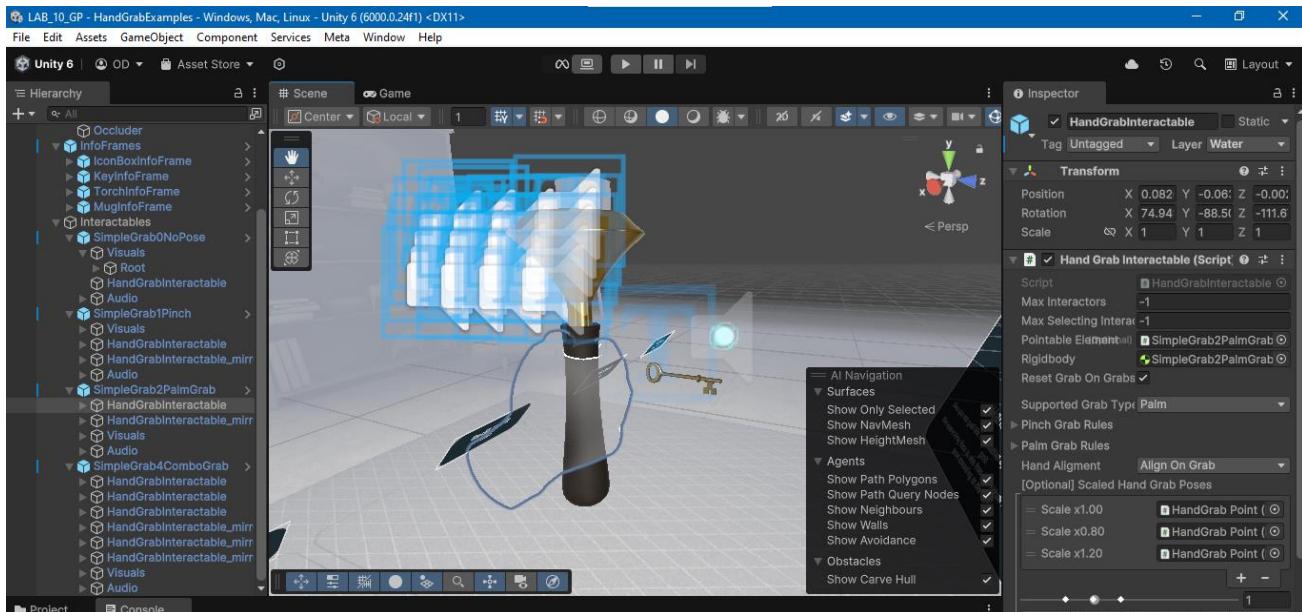
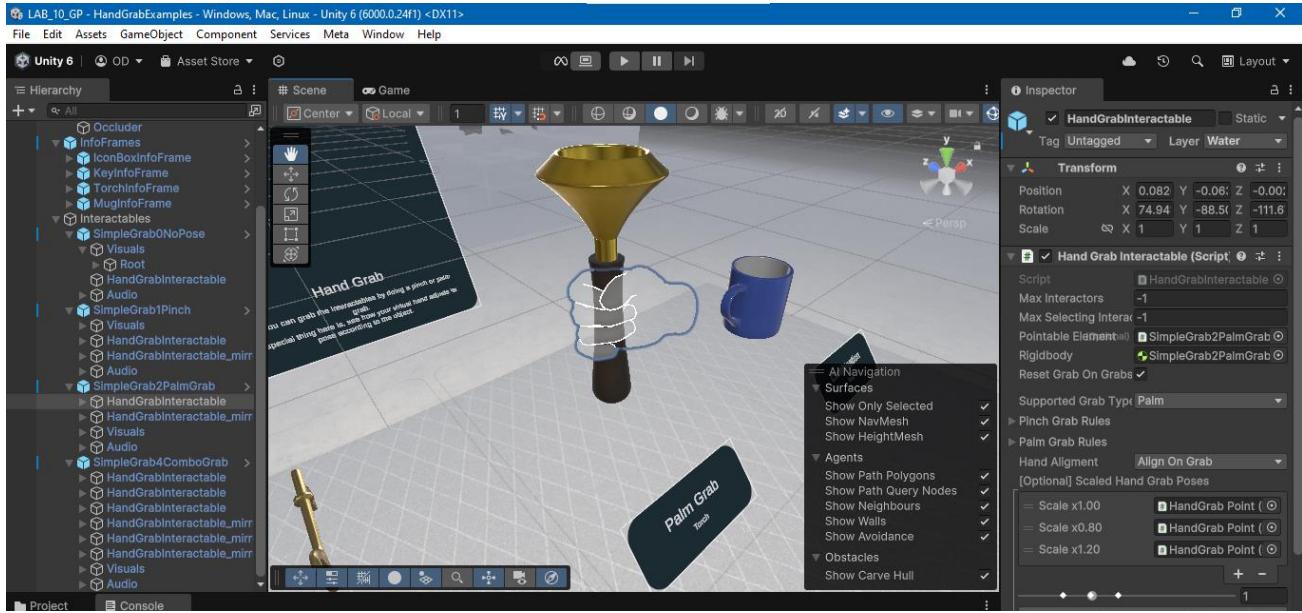


Visualization 2:



For SimpleGrab2Pinch:

Visualization 1:



Visualization 2:

