Pranjali Barve
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Prototype Two

Found here: https://github.com/Pranj99/MUStudDivDisplay

User feedback Integration

- **Elevate Engagement:**
    - We've enhanced engagement through the introduction of an interactive plinth, featuring two buttons. One button triggers the display of user information, while the other initiates audio narration. These buttons are designed to simulate real-life interaction, lighting up when hovered over to indicate activation. Pressing the button again deactivates it, turning off the button light. Upon pressing the user info button, a screen showcasing user information appears, disappearing upon a subsequent press. Similarly, pressing the audio narration button initiates narration, which can be stopped by pressing the button again.We have also made the object on display grabbable to enhance interaction.

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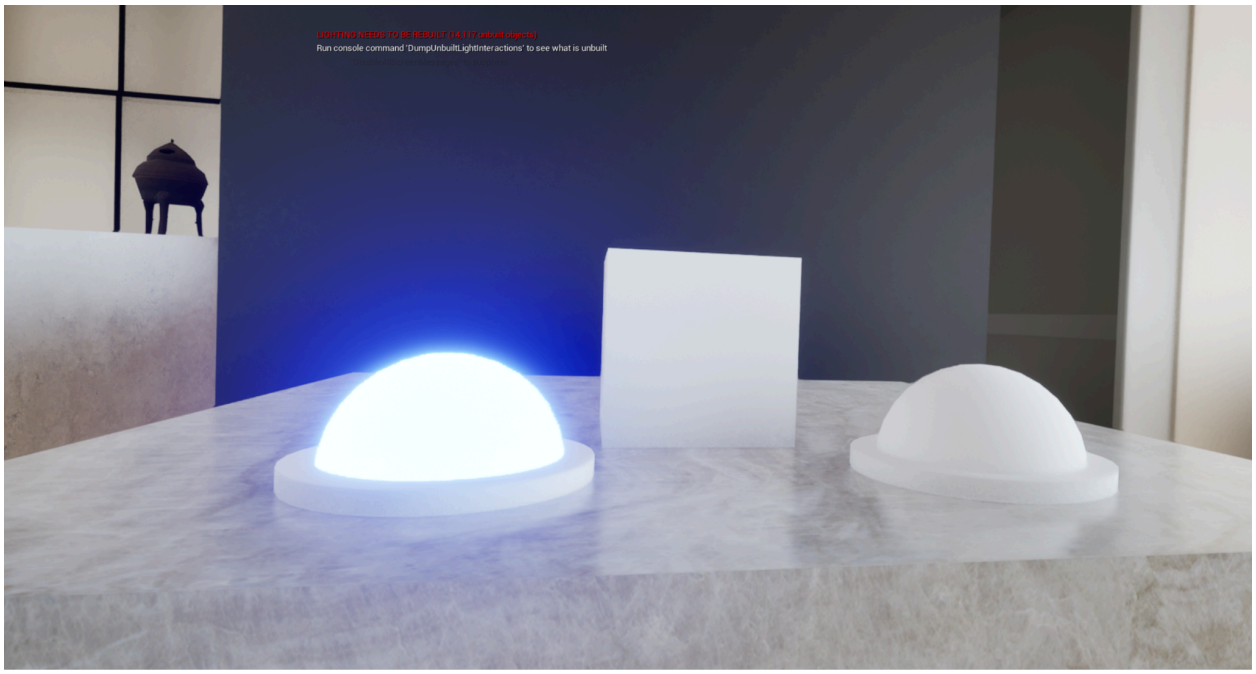

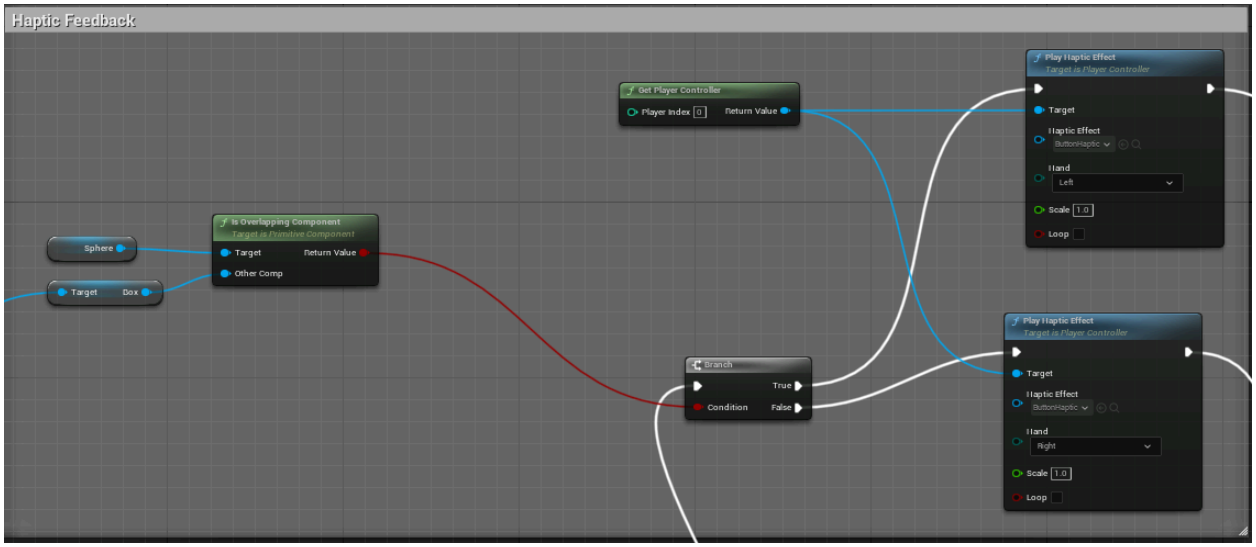

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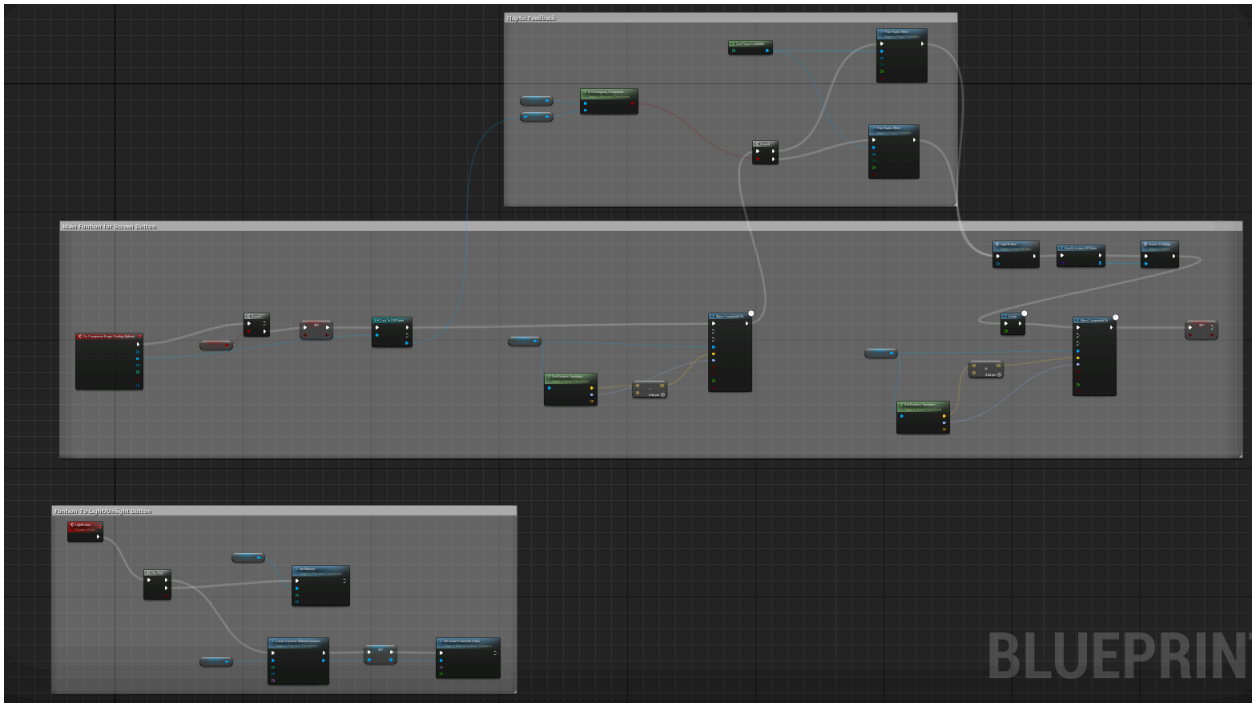

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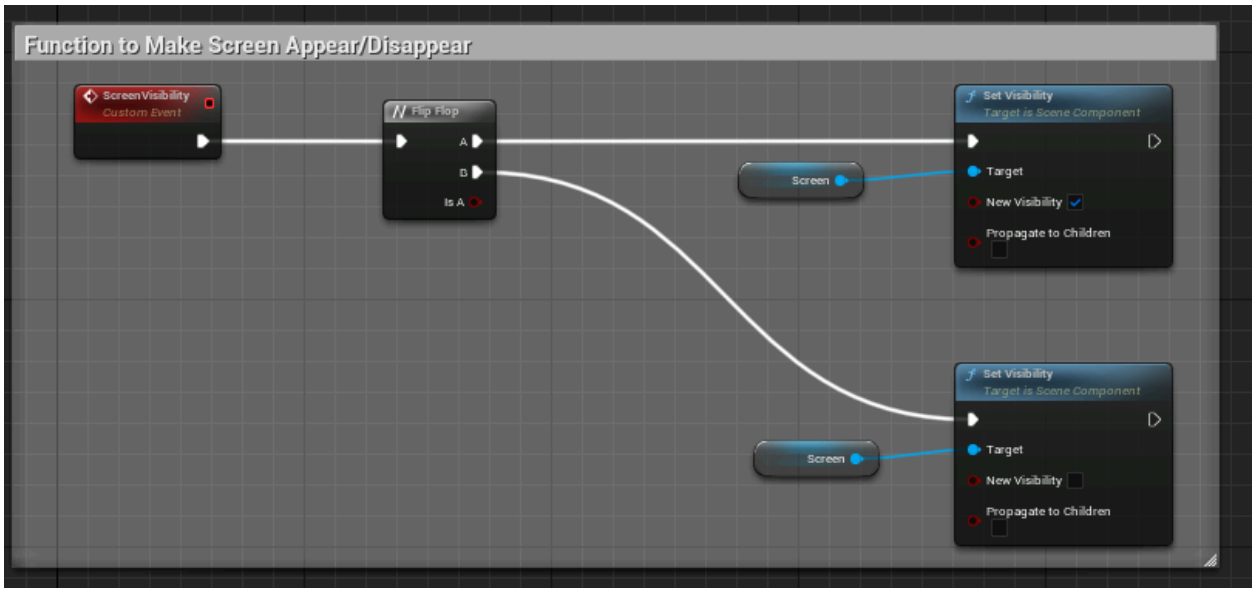

- **Ensure Accessibility:**
  - Haptic feedback has been added when the user interacts with buttons.
  - To ensure easy navigation for users, we have added introductory slides in the form of a widget to inform the user of the interaction mechanism available in the virtual environment.

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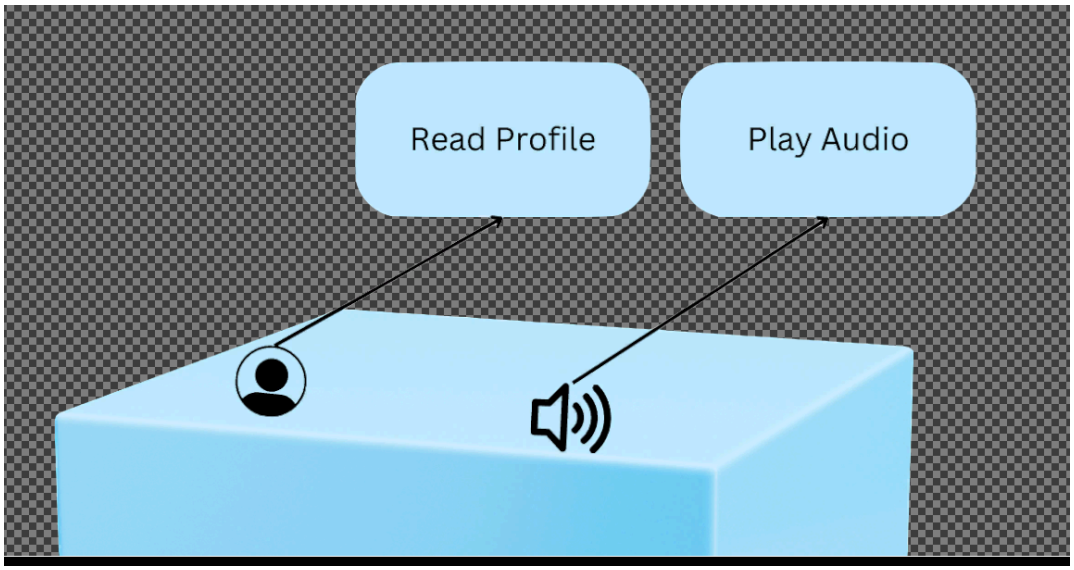

- **Expand Content Curation:**
    - Currently, the museum will showcase students from 12 different areas of study. Each student and their background can be found here. Student pictures, audios and profiles can be found here. (in progress) They will be implemented into the game with the use of the prefab.

Scene and Interaction Design

Our museum is situated in a virtual reality space within a prospective campus building. This unique setting has been chosen for its expansive layout, providing an ideal canvas to showcase mini-exhibits dedicated to each student. Not only does this space symbolize the future, anticipated to host cutting-edge technology for virtual reality exploration, but it also embodies the forward-thinking potential of OSU students in advancing civilization.

To ensure a seamless and immersive experience, we've incorporated collision mechanisms within the virtual room, preventing users from accidentally exiting the museum area. Leveraging Datasmith, we've selectively imported relevant portions of the building to maintain focus on the museum content, establishing crucial connections to enhance the overall experience while concealing non-imported areas.

The museum serves as a lens into the diversity of OSU, allowing users to explore a curated selection of student exhibits. Each exhibit is presented on pedestals, and in future iterations, will be equipped with buttons that trigger the display of a student profile and a narrative explaining the significance of the showcased object. *With the use of Prefab we have*

been able to introduce interactive elements, enabling users to interact with the objects; fostering a more hands-on and engaging learning experience.

Object, Material, and Lighting Selection

The objects showcased in each mini-exhibit play a pivotal role as they are integral to the narrative of each student. These personally selected items provide a glimpse into the individual stories of the OSU students. Additionally, the inclusion of supporting elements such as pedestals and buttons is essential in crafting a holistic and immersive museum experience.

To ensure a cohesive and aesthetically pleasing virtual environment, we meticulously chose materials using Quixel Bridge and applied them with Dataprep. Drawing inspiration from successful museum designs online, we opted for stucco cream walls to maintain a visually unobtrusive backdrop that allows the exhibits to take center stage. The off-white/cream color of the walls serves a dual purpose by enabling users to distinguish between the walls and the central white curved screen.

Deliberately selecting simple wood materials for the beams and floors contributes to maintaining focus on the exhibits, and avoiding unnecessary distractions. This strategic use of materials aligns with the design principles observed in reputable museum layouts.

The lighting design incorporates natural light from windows and artificial lighting within the room. The brightness ensures that users can comfortably perceive and engage with the exhibits, fostering an optimal viewing experience without any visibility challenges. This thoughtful approach to lighting contributes to the overall ambiance, enhancing the user's immersion in the virtual museum environment.

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Functional relevance

The meticulous selection of the building structure, materials, objects, and lighting was driven by a singular goal—to immerse the user in a virtual museum. By adopting stucco cream walls and simple wood materials, we aimed to create an unobtrusive environment, allowing the user to focus exclusively on the exhibits without unnecessary distractions. The off-white/cream color palette was chosen purposefully to facilitate clear differentiation between the walls and the central white curved screen, emphasizing visual clarity.

The inclusion of personally selected objects in each mini-exhibit serves a dual purpose of storytelling and engagement. These objects are carefully curated to offer a glimpse into the unique narratives of OSU students, aligning seamlessly with the thematic objective of the museum.

In terms of lighting, both natural light from windows and artificial lighting within the room were chosen to optimize visibility. The brightness ensures that users can comfortably perceive and engage with the exhibits, directly enhancing the intended user experience. Furthermore, the inclusion of ambient audio serves to heighten immersion, simulating the atmospheric sounds of a real museum and contributing to the overall authenticity of the virtual environment.

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In summary, each element within our 3D scene, from static meshes to lighting and sound, has been carefully considered and implemented to align with the project's goals of providing an immersive, distraction-free, and thematically cohesive virtual museum experience.

Technical Skills and Deliverables

- **Use the Static Mesh Editor**:
  - During the development of this prototype we imported static meshes of various objects(cube and cylinder acting as plinth for displaying objects) for the museum displays. We also added plants, a rug, and a bench to add ambiance to the room.
- **Import 3D Models**:
  - To create the building we imported a model using Datasmith. In addition we added a statue of Benny the beaver to help the user recognize it as a school building.

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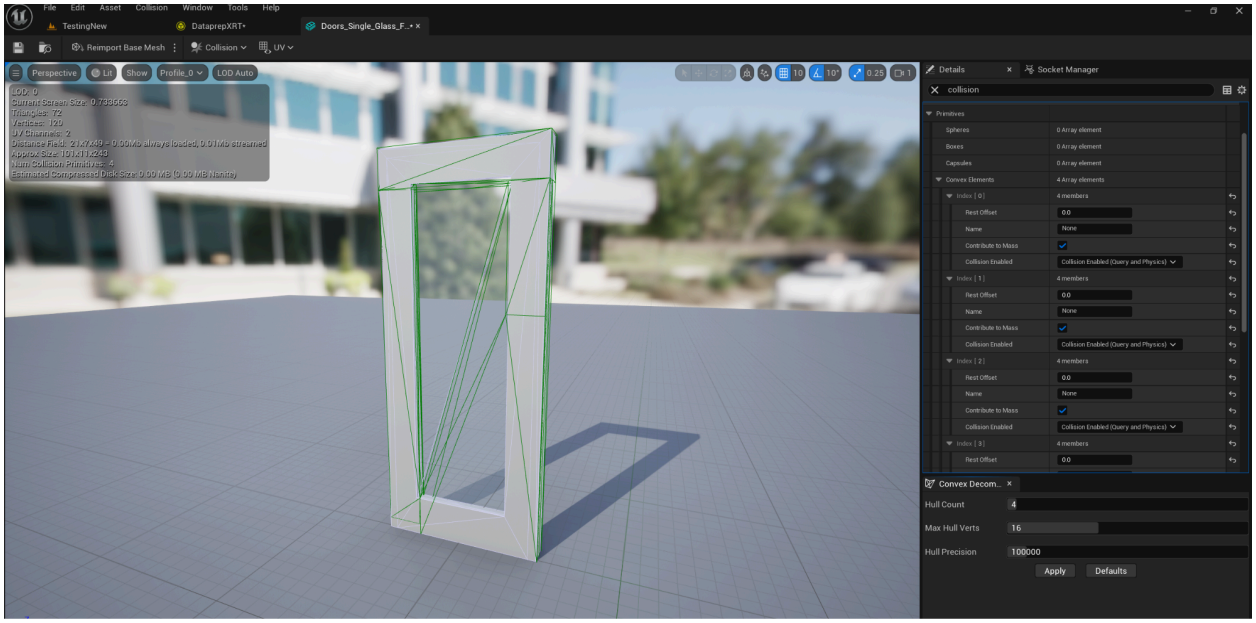
- **Assign Collision Hulls**:
  - Collisions have been added to the room so the player must stay in the room, will not fall through the floor and cannot walk through any of the objects.

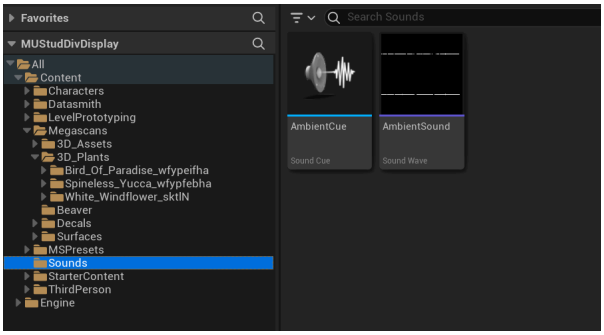


- **Place Static Mesh Actors**:
  - The objects in the room have been strategically placed enabling the player to walk around the room and view each exhibit, exactly like one would in a museum. There is a clear path to follow and nothing obstructs the user.
- **Modify Static Mesh Actors**:
  - All of the pedestals in the room are the cube static mesh. They have been reshaped and various marble materials have been added to create some diversity. In addition, the other objects in the room have been resized in order to fit the room.

- **Configure Collision Responses**:
  - The appropriate responses have been set since the collision keeps the user in the museum and prevents them from walking through objects.
- **Lighting**:
  - The lighting in the room ensures that the user has a clear view of all the museums. There is natural light from the windows which comes from Skylight, and directional light. Spot lights that have been added to create a well lit room and keep the users attention on the exhibit.
- **Physically Based Rendering (PBR)**:
  - Each object that has been placed casts a shadow based on the lighting in the room creating a realistic appearance. The material for the beaver was changed because the original import's material does not reflect light properly.

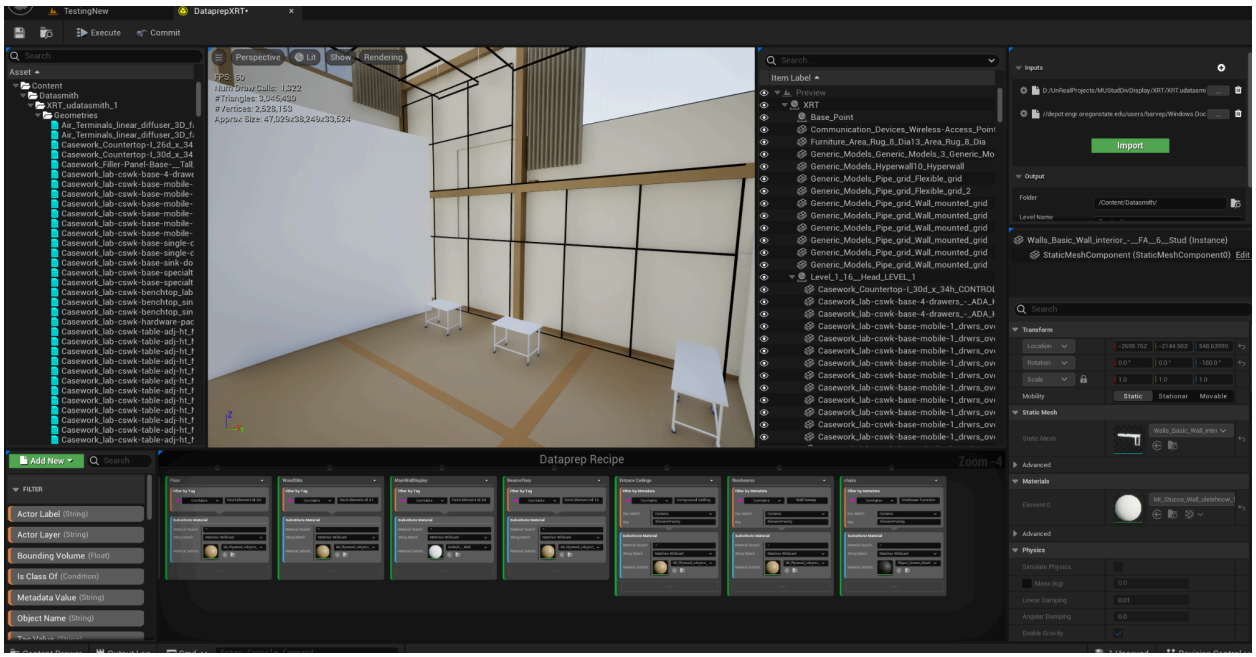
- **Material Editor**:
  - For the building we added materials with dataprep and modified the existing building materials. We also changed the material of the beaver since the original material was not reflecting light properly.
- **Textures**:
  - We imported textures from Quixel bridge; taking into account the aesthetics and user experience.
- **Sound Implementation**:

- Background Audio has been added to create the immersive experience of being in a museum. This audio has been sourced from publicly available [BBC's sound effects database] in WAV format.



- Sound will be added to the buttons on each display allowing the students stories to be heard.

- **Datasmith and Visual Dataprep Graph**:
  - The model of the building was Imported with Datasmith. Dataprep was used in order to add the materials to the building with ease.



- **Landscaping tool:**

    - The landscape can be viewed through the windows. It enhances the user experience by creating a more realistic room by giving the user something to look at.
- **Landscaping plugin**:
    - We use an HDRIBackdrop plugin to add the landscape.

- **Elevate Engagement:**
    - Engagement has been elevated with the creation of a prefab. The prefab is of the exhibit stands with buttons the user can engage with. There is one button for audio and one for the pop up profile for the students. The user is also able to pick up the objects on the display.
- **Ensure Accessibility:**
    - Haptic feedback had been added when the user interacted with each exhibit.
- **Expand Content Curation:**
    - Currently, the museum will showcase students from seven different areas of study. Each student and their background can be found here.
- **Widgets:**
    - A widget has been added that welcomes the user and displays a user guide. The guide explains the buttons for the displays.