Aim: Develop a scene in Unity that includes: i. a cube, plane and sphere, apply transformations on the 3 game objects. ii. add a video and audio source.

Theory:

1. Game Objects:

Game objects are fundamental entities in Unity that represent any element or interactive item within a scene. They can be 2D or 3D, and their properties can be modified to create a wide range of visual and interactive elements. Game objects include not only geometric shapes like cubes, planes, and spheres but also characters, lights, cameras, and more. Each game object has a Transform component that defines its position, rotation, and scale within the 3D space of the scene.

2. Transformations:

Transformations are operations that modify the position, rotation, and scale of game objects. These transformations allow you to manipulate the appearance and behavior of objects in your scene.

- Translation: This involves changing the position of a game object in the 3D space, allowing it to move from one location to another. You can apply translation by modifying the object's position values.
- Rotation: Rotation changes the orientation or angle of a game object. It is achieved by adjusting the object's rotation values, specifying how it should face or turn.
- Scaling: Scaling alters the size of a game object. You can increase or decrease its dimensions along the X, Y, and Z axes by modifying the scale values. This is particularly useful for resizing objects or creating variations.

3. Video and Audio Sources:

Unity supports multimedia integration, enabling you to incorporate video and audio content into your scenes.

- Video Sources: Video sources are used to play video clips. You need to import a video clip into your project's assets. Then, you can create a GameObject, attach a Video Player component to it, and assign the video clip to the Video Player component. This allows you to play videos within the scene.

- Audio Sources: Audio sources are used for audio playback. Similar to videos, you need to import an audio clip into your project. You can create a GameObject, add an Audio Source component to it, and assign the audio clip to the Audio Source. The audio source can be used for background music, sound effects, or any other audio-related elements in the scene.

Procedure:

1.Creating the Scene:

- Open Unity and create a new 3D project.

- In the Hierarchy panel, right-click and choose "3D Object" to create a cube, plane, and sphere.

2. Transformations:

- Select the cube, plane, and sphere in the Hierarchy panel.

- In the Inspector panel, modify the Transform component to apply position, rotation, and scale changes. You can do this by manually entering values or dragging the objects in the Scene view.

3. Adding a Video Source:

- To add a video source, you need a video clip. Import the video clip into the Assets folder in Unity.

- Create a GameObject, right-click in the Hierarchy panel, and choose "Create Empty" to serve as the video source.

- Select the new GameObject and add a Video Player component from the Inspector panel.

- In the Video Player component, assign the imported video clip to the "Video Clip" field.

4. Adding an Audio Source:

- Similar to video, import an audio clip into the Assets folder.

- Create another GameObject for the audio source and add an Audio Source component.

- In the Audio Source component, assign the imported audio clip to the "Audio Clip" field.

5. Scene Setup:

- Place the cube, plane, sphere, video source, and audio source in your scene as desired.

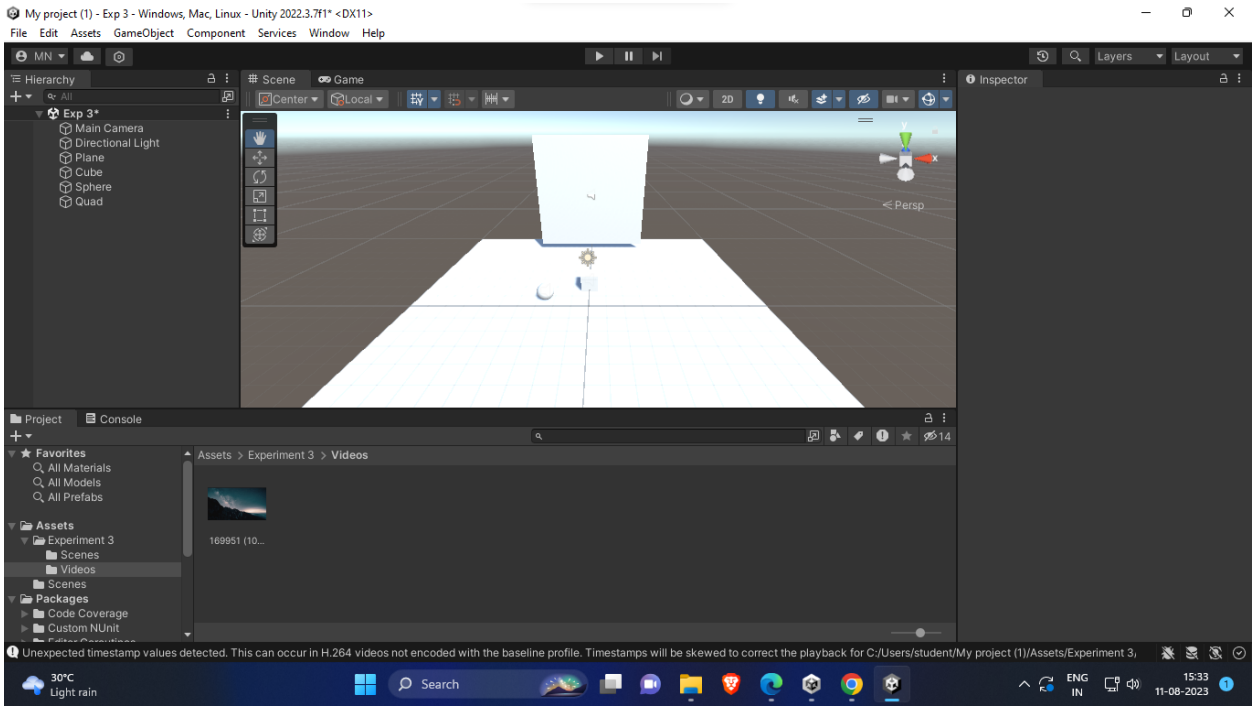
6. Scripting (Optional):

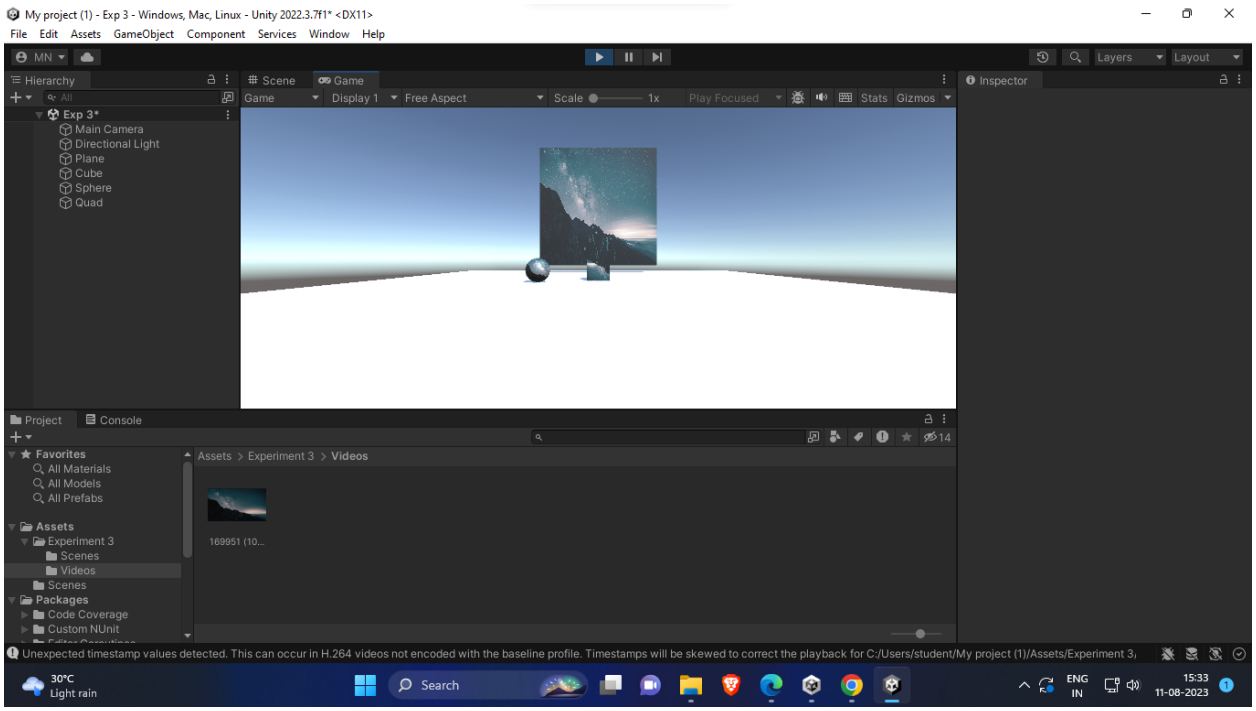
- If you want to apply transformations programmatically, you can write C# scripts and attach them to the game objects. For instance, you can create a script to animate the cube's rotation.

7.Testing and Playback:

- Press the Play button to test your scene. You should see the cube, plane, and sphere with applied transformations and hear the audio, and see the video playing from the video source.

Results:





Conclusion:

In conclusion, the development of a scene in Unity, incorporating game objects with transformations, and the integration of video and audio sources, showcases the versatility and capabilities of this powerful game development platform. Unity provides a user-friendly environment for creating 2D and 3D interactive experiences.The theory behind game objects and transformations highlights the fundamental principles that enable the creation of visually dynamic scenes. Game objects, with their Transform components, allow for precise control over an object's position, rotation, and scale, paving the way for the construction of diverse and interactive elements.The addition of video and audio sources enriches the scene, offering the potential for immersive multimedia experiences. Whether it's rendering video content or enhancing the environment with audio, Unity's support for multimedia elements enhances the depth and engagement of the scene.