Cosc 3p98 final Project

Animation: is it a ball

Armstrong Isunuoya

Tools

Autodesk Maya

Adobe Premiere Pro

Concept

The concept of the animation came from the basic tutorial for any beginner animator. That is the concept of a bouncing ball. The aim was to take a simple concept and turn it into something more. I wanted the ball to be a character of its own that interacts with its environment and almost gives it a mind of its own. I wanted the ball to feel alive and the video to have a sense of creepiness to it.

Story

The ball bounces into seeming to have a direction it is going to then gets interrupted by a glass that falls from nowhere. It then tries to go through it but fails. So, the ball tries to go in the direction it came from, but another glass wall drops and blocks that way. Shocked, it then tries to jump up and another grass wall drops covering the top too. While at the same time two glass walls come from the bottom and cover the remaining open sides around the ball. This is when this changes and the title "is it a ball" comes into play here. The ball gradually floats at the same time increasing its size. The ball then warps into a different disfigured shape and disappears.

The process

Animation software

First, I had to decide if I wanted a 2d animation or a 3d animation and what software I would use for it. I chose 3d animation because of how I wanted to manipulate the ball and the feeling I wanted the audience to get I could portray that through a 3d animation. Also, I recently learnt 3d animation and I wanted to try my hands on it. The software I used for the 3d this was Autodesk Maya which I found easier to manipulate and animate.
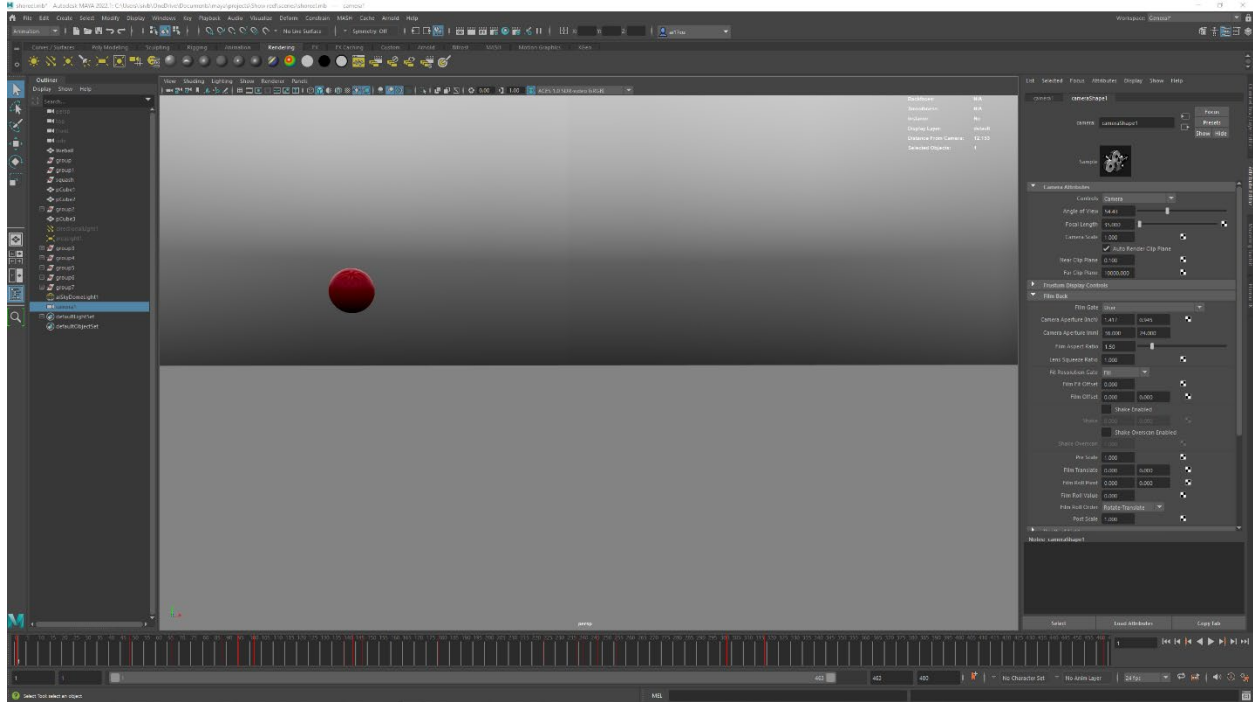
The "ball"
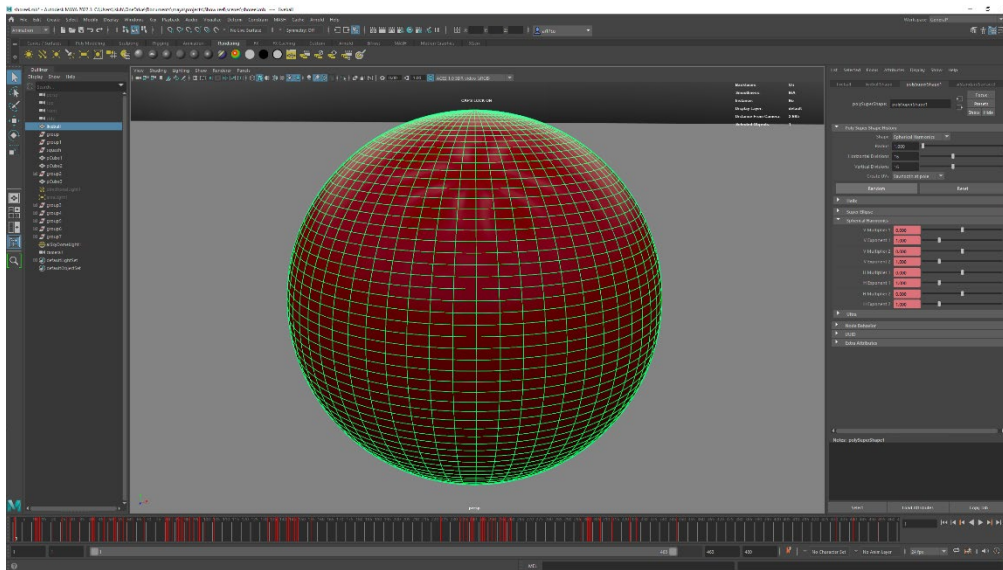
The next step was to step my polygon for the ball. Before that, I first create a base for the animation then proceed to the ball. The ball is the center of everything for the animation. At first, I used a regular polygon sphere, but I later realized that for what I wanted to do, a regular sphere polygon would not work. Although a regular sphere polygon can be used to perform the bouncing ball animation it couldn't be manipulated as I wanted. So, I researched other options, and I found out that Maya had super shapes that can be heavily manipulated. And they have 3 options, the super ellipse, spherical

harmonics, and ultra shape. I went with the spherical harmonics because it had exactly what I needed to manipulate the ball the way I wanted.

The ball animation

The ball animation is done using keyframes and considering the principles of animation. One of the best things in Maya is being able to keyframe almost anything in the software. I animated the ball by using the keyframes which hold the poses and then filling in the other frames after. For more editing and easing the ball, I used the graph editor to do that. After that, I add in the squash and stretch to give the ball life. Then, I added anticipation and exaggeration for reactions and effects. I encountered a challenge when applying the squash and stretch. The ball was not squashing to the ground, but it was squashing to the center. To fix this I moved the pivot of the ball to the bottom to fix.

Next was to keyframe the transformation of the ball and disappear. This is where the ball being a spherical harmonic comes into play. The disappearing is done by shrinking the ball to a size that can not be easily seen.

The walls
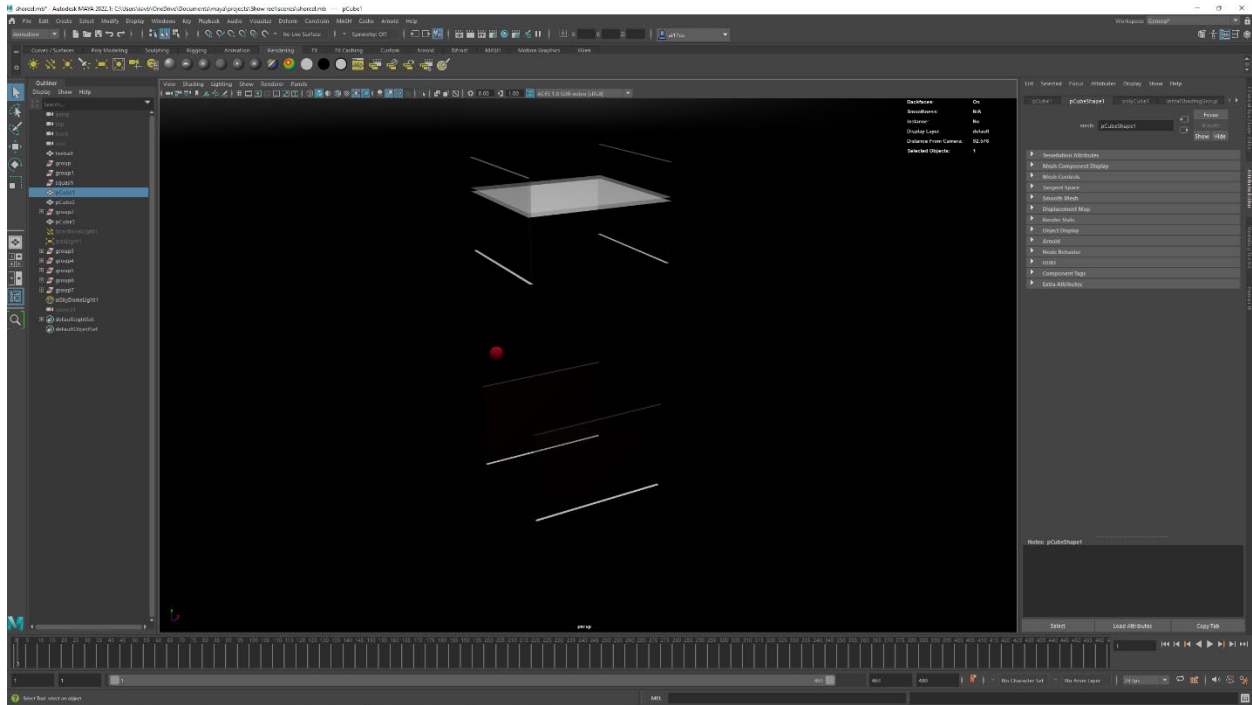
The walls were modelled using the polygon cube and transformed to look like walls. Next, I positioned each wall to where the ball collides with them. Then I keyframe the wall to fall at the right time and enclose the ball. The walls are hidden before they appear. The first three walls to appear which are the front back and top was hidden at the top then the left and right were hidden under the floor.

Textures

The animation consists of only 3 types of objects which are the ball, the walls and the floor and the floor does not have any texture or colour applied to it.

Ball: I used an ai standard surface with shine and the colour red. I used this texture because I wanted the ball to have a rubber look that can also translate to an almost liquid texture when transformed.

The wall: I made the walls glass walls. So that the viewer can see what happened to the ball when it is enclosed.
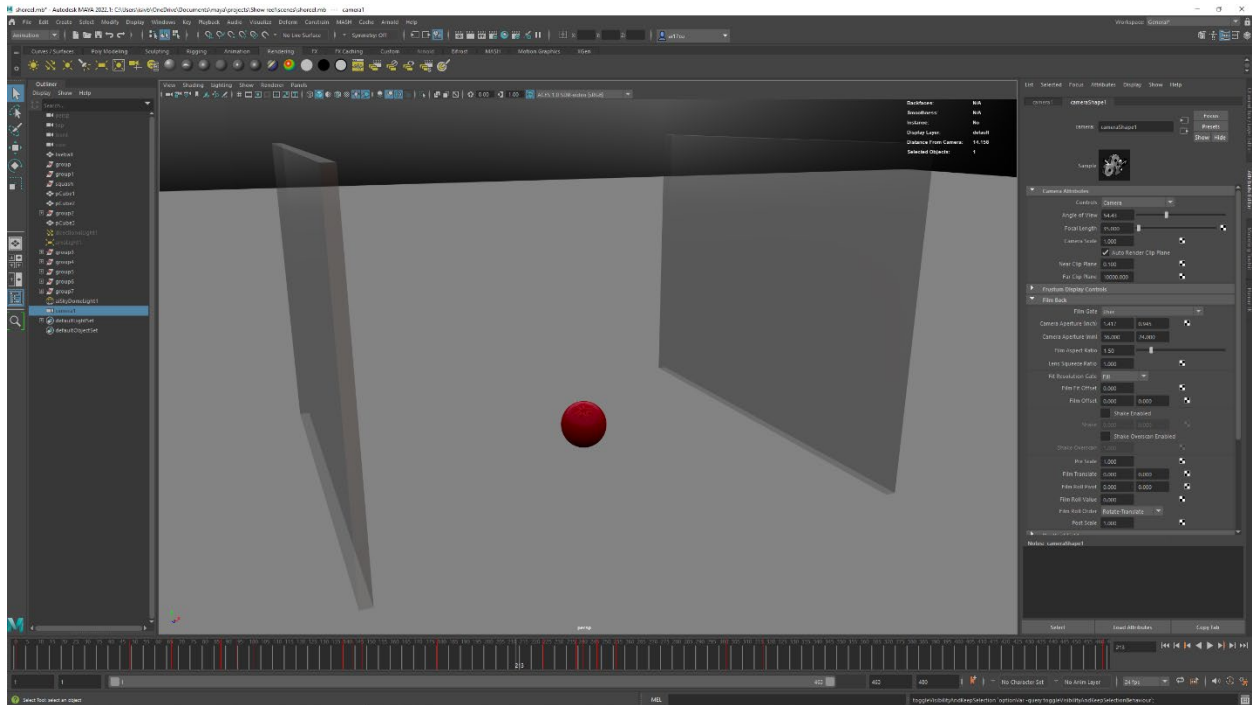

Lighting

This was one of the things that challenged me a lot. I tried different lighting styles and couldn't find exactly what I wanted. I tried the directional light, the area light and others but could not get the right lighting. I also tried combining different light sources. Then I used image-

based lighting that I paid for and downloaded online from "poliigon.com" which gave the scene a studio view.

The camera

Now that the animation is done and the texture and lighting are complete, the next thing is to set up the camera for the animation. I wanted the animation to be a scene from different angles and to
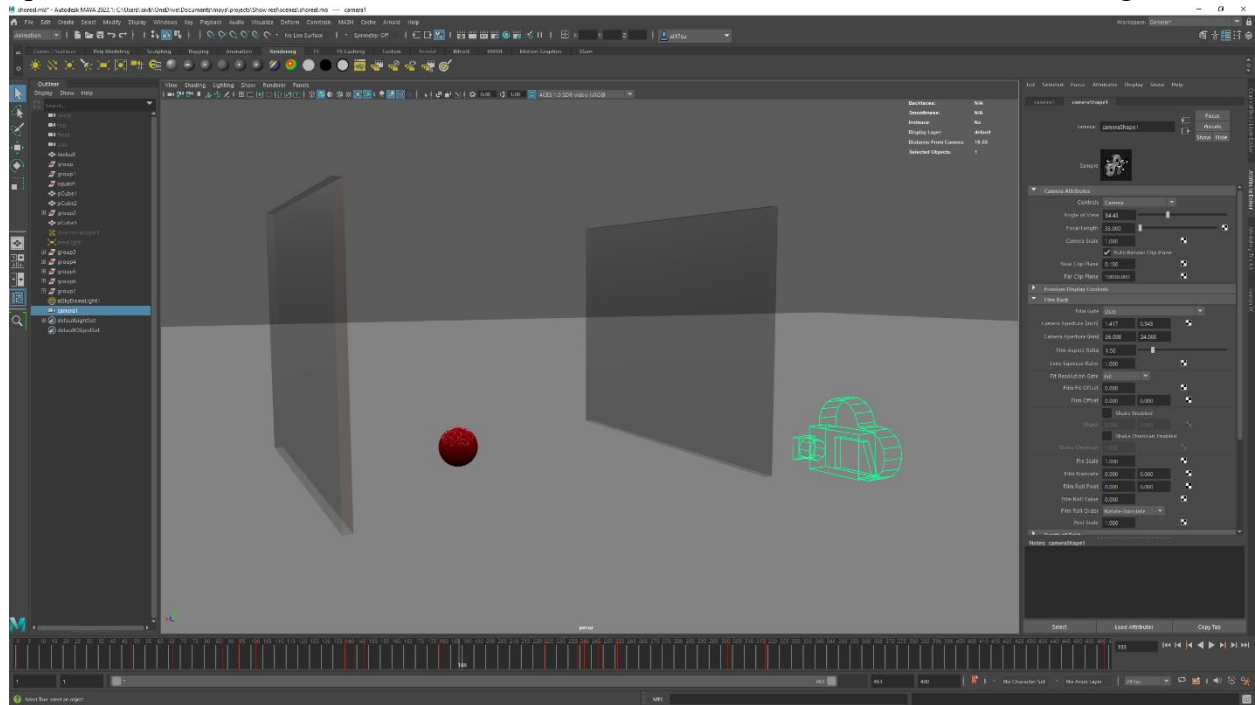
do that I did not use the perspective camera; I used a new camera that follows the ball and glass walls. This is done by keyframing the camera this same I keyed the ball and the glass walls. At first, I tried setting up multiple cameras to different angles and views, but I realized I could do that with just one camera.

Rendering

Now that everything is done the next step is to render using the Arnold renderer in Maya. This renders every frame one by one into a .png file of the number of frames I have for the animation. I made sure the settings were correct for the animation like the starting frame and ending frame,

the camera to use, the resolution and so much more. Then I rendered it. One thing I realized was the time it took to render each frame. It took about 5 to 10 mins per frame. And at a frame rate of

24 per second for a video with a minimum of 20 seconds, it took almost 2 full days for this animation to render. This is because of the rendering of glass, refraction, and reflections.

Animating in premier pro

After rendering the animation, the next thing is to input all the rendered frames into premier pro to make an animation. I also checked the frame rate to make sure it is the same as when I was rendering it in Maya. It is premier pro I added things like fade in and fades out.

Audio

The sound effects for the animation were gotten from "freesound.org". The sound effects are the bouncing of the ball, the landing of the glass, the impact of the ball with the glass and the transformation of the ball and disappearing. The sounds were added in premier pro and matched

with the video accordingly. The volume and the gain of the sounds were adjusted according to making the final complete video

Exporting the final video

Now, everything is complete and all that is left is to get the mp4 file from premiere pro by exporting the video. The good thing is this did not take as long as the rendering in Maya.

Conclusion

This was a challenging project, but I enjoyed it every step of the way and it made me appreciate 3d animation and animation in general.

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