MAKING LAMBORGHINI COMMERCIAL USING BLENDER

Introduction

There are many steps involved in the development process of a Car commercial when it comes to using blender to develop it. Here are the basics that are required to make one;

- 3D modelling and Scene Creation
- Knowing how to work around the viewport and know how to use different windows
- Animation Basics (like timing, key -framing etc)
- Lighting
- And finally rendering.

As a Group of **4 members** we decided to split the tasks and give each other different roles in the production of the car commercial.

Below is a table that is describing the roles taken by each group member.

Name	Role
[redacted]	3D modelling and Scene Creation
[redacted]	Animation (especially camera movements)
[redacted]	Car Rigging
Nyasha Mpinda	Rendering and Video Production

NB: At least every one had a chance to modal something;

3D MODELLING AND SCENE CREATION

Prior to utilizing Blender, first of all we needed to organize our advertisement:

- **Storyboard:** Sketch out important scenes that we would like to include in our final render.
- **Concept:** Select the general look (Luxurious, sports, modern etc)
- **Sound:** Select audio tracks and sound effects that will go well with the animation.
- **References:** We also utilized a software called **pureRef** which is a software used to help organize different reference photos to help use come up with a commercial.
- **Tutorials:** We also used YouTube videos to help us too.

After going through that thought process than we needed to obtain the following resources

- **A car Model:** We obtained a high-quality model of a Lamborghini from the following site https://sketchfab.com/3d-models/urus-absoluttm-914bbca2f7f54783a00062a695bae0ea

- **A Lamborghini logo:** We also obtained a logo from the following site https://sketchfab.com/3d-models/lamborghini-logo-26bc413ea507492893f1cad03939c23c

- **An HDRI:** We used an HDRI in our commercial to help produce a more realistic lighting for the environment where our Lamborghini was going to be placed in, we used the following link to obtain a high-quality HDRI, https://polyhaven.com/a/venice_dawn_1.

After obtaining the following resources it was now time to start creating some 3d models that will help compliment our commercial and also develop the 3d environment where our shots will take place. Our Car commercial consisted of two scenes namely;

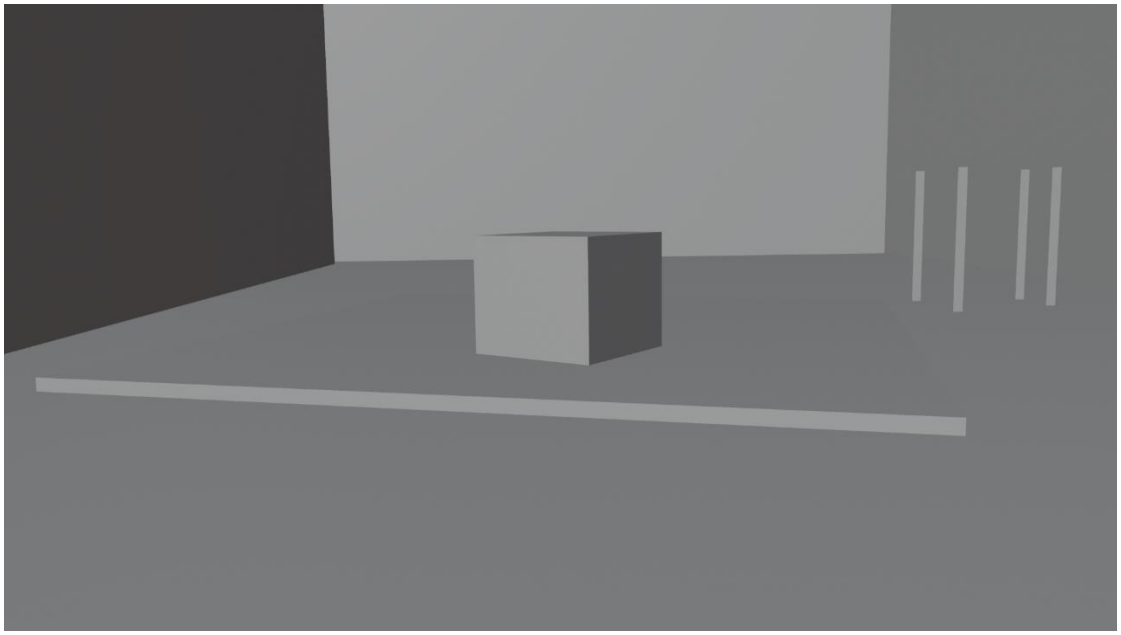
- **The Show Room Scene:** In this scene we modelled a scene where our car is going to be placed, in order to show off the car using dynamic camera movements and lighting effects,

- **The City Scene:** In this scene we utilized a special advanced blender addon in blender called **City Generator**, which is used to create dynamic cities on the fly but at the cost of heavy computational power, as well as well as we utilized HDRI to help create a photo-realistic lighting.

The Modelling Process

Before we modelled the show-room scene we first of all had to get a basic idea of what we wanted the show room to look like first. We used a technique called **BLOCK-OUT** this technique helps 3d – Artist to have a basic feel of the environment they want to make by utilizing basic primitive shapes like blocks to help block-out the environment.

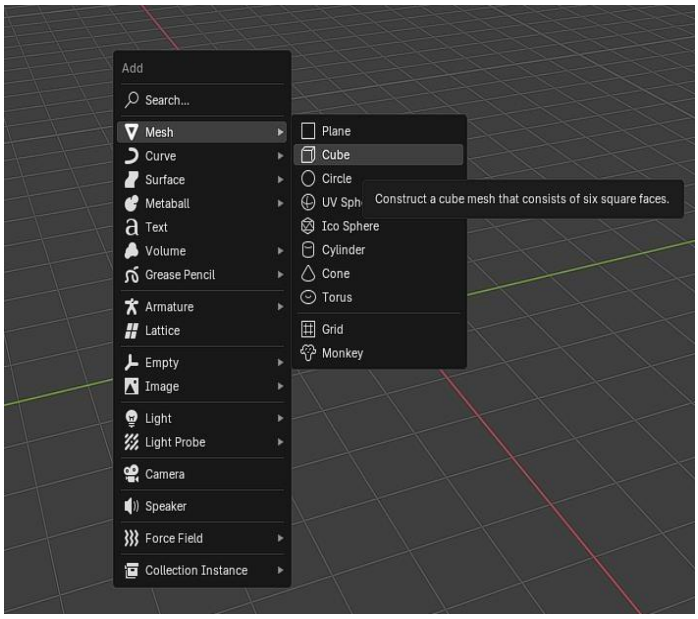
Below is a screenshot of how basically blocked out our environment;

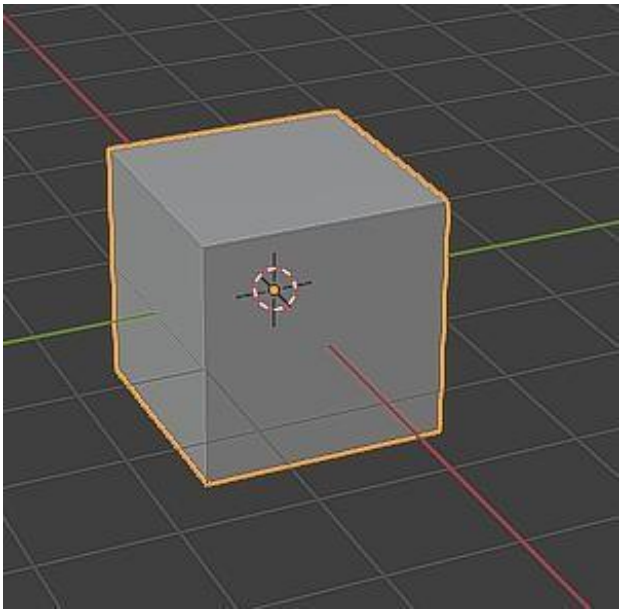


The figure above is show-casing an enclosed space made for basic cubes to help symbolize the showroom;

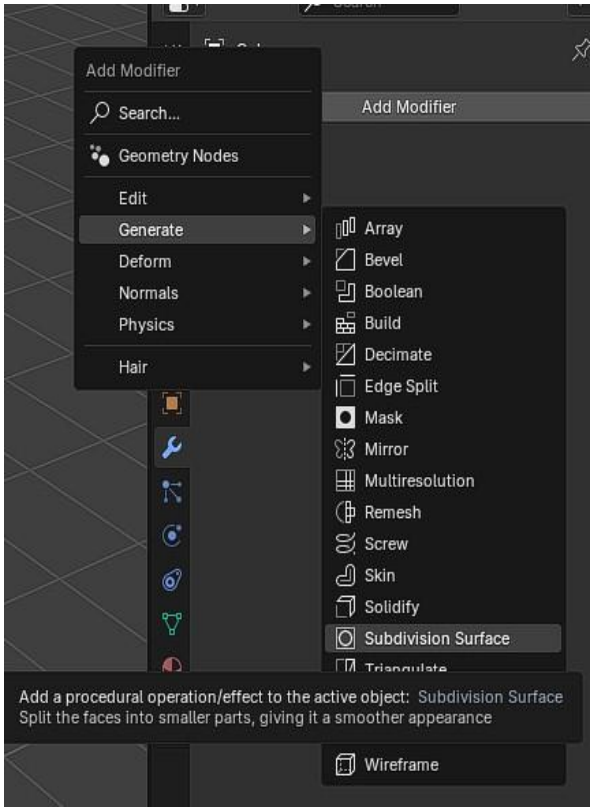
After, creating the block-out we than started to model some lamps that will be placed at the back-wall to help illuminate the scene.

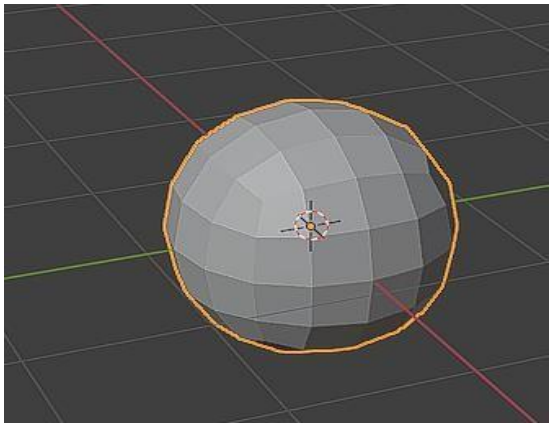
We first selected a basic cubic using the hotkey **shift+A** .

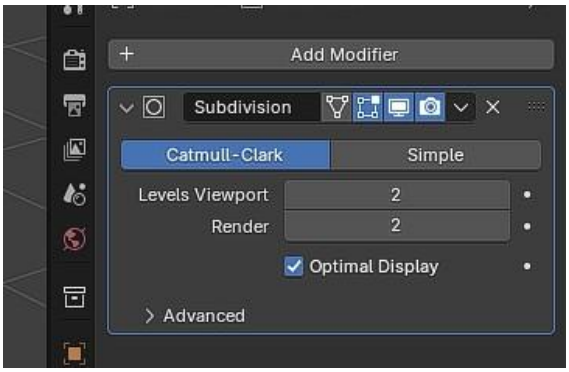




Then we used the **sub-division surface modifier** in order to split the cube into more smaller surfaces so that we can have a more circular shape for our lamps.



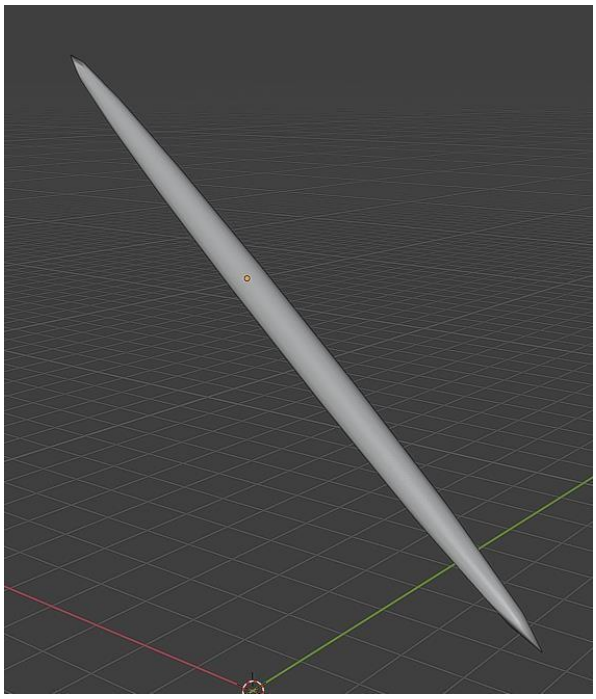




Then after adding the modifier make sure to **apply** the modifier.

After we applied the modifier, we than scaled the object along the **X, Y** and **Z** axes to help us get some fluorescent-tube shape than after that we **shed smooth** the object to smoothen out the flat faces.

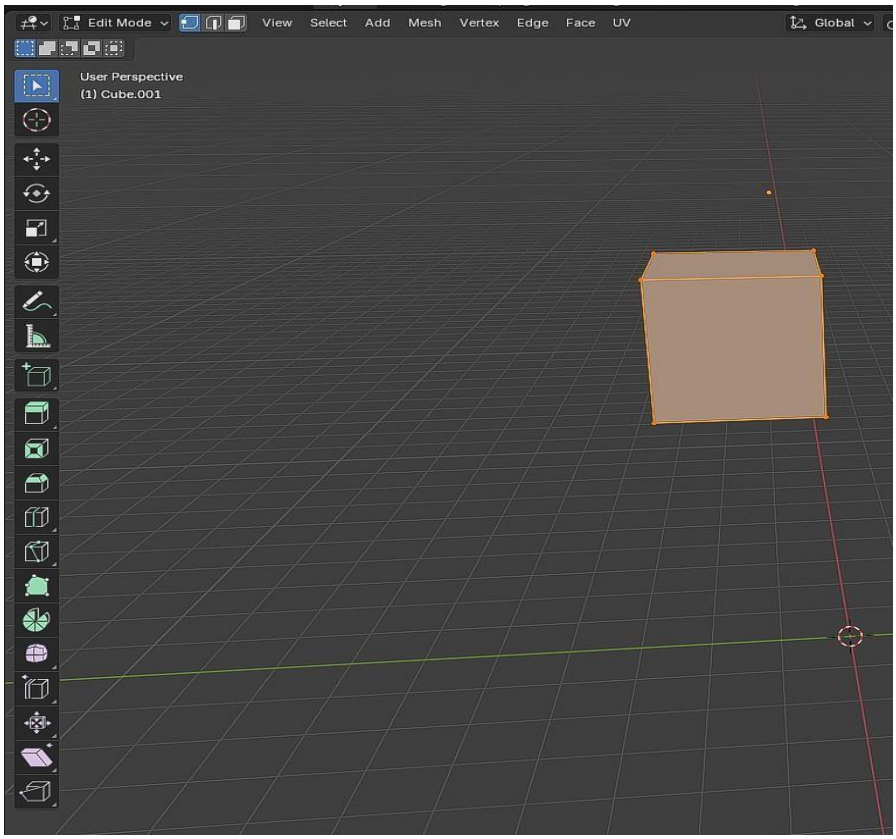
Below is the diagram of the described object;



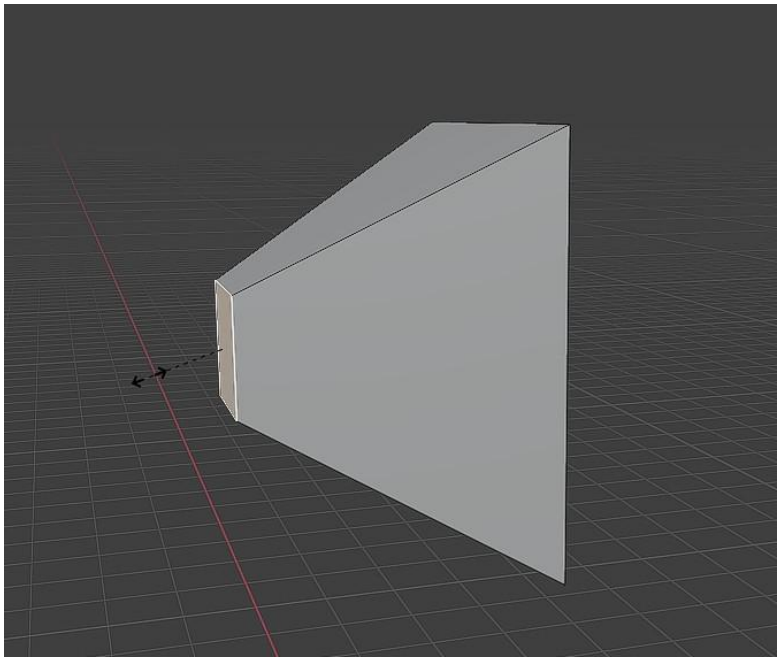
Then after that we also modelled a tall lamp stand to help illuminate the car from the side.

We added another cube into the viewport, from there navigated to the **edit mode** section with the **tab** button.

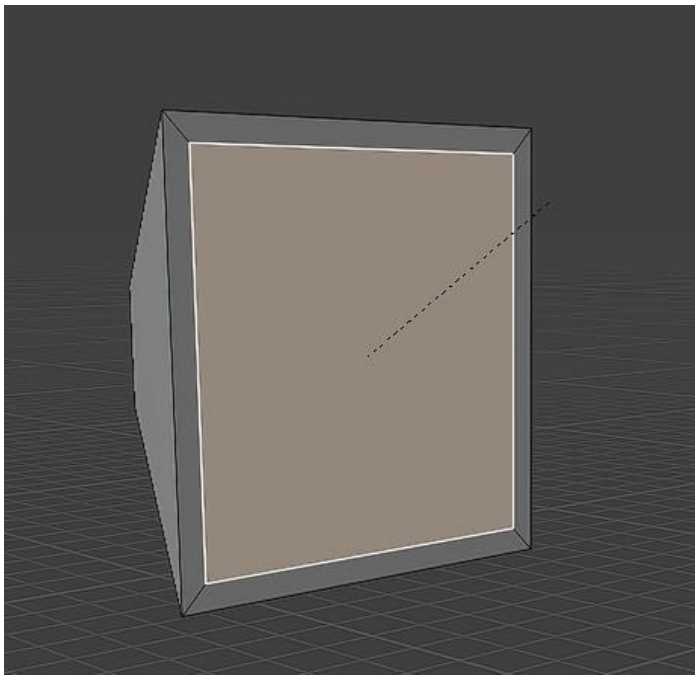
Below is a figure showing us in the **edit-mode** section.



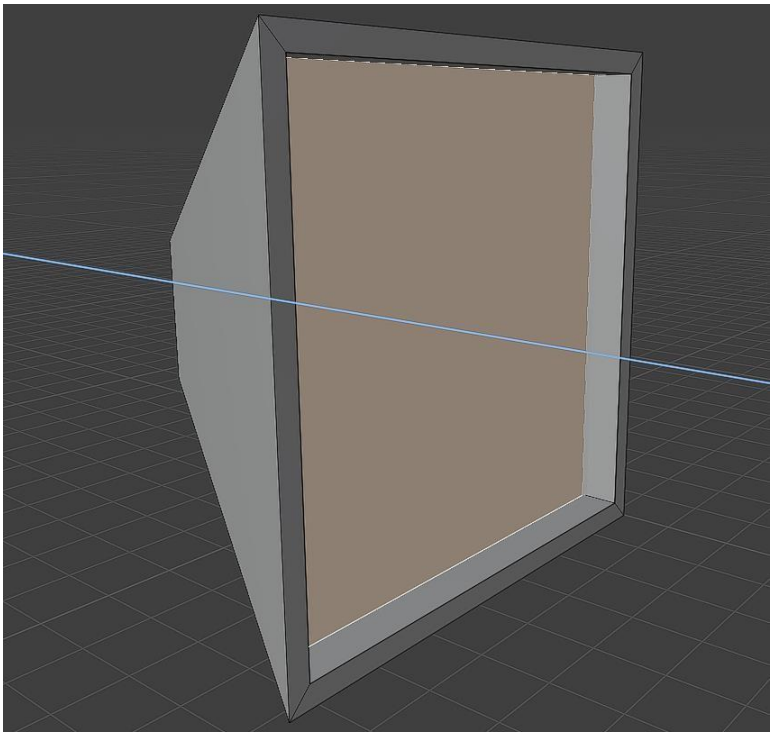
After that we selected a single face of the cube and scaled it down to help us create a cone-like shape to help represent the head of the lamp.



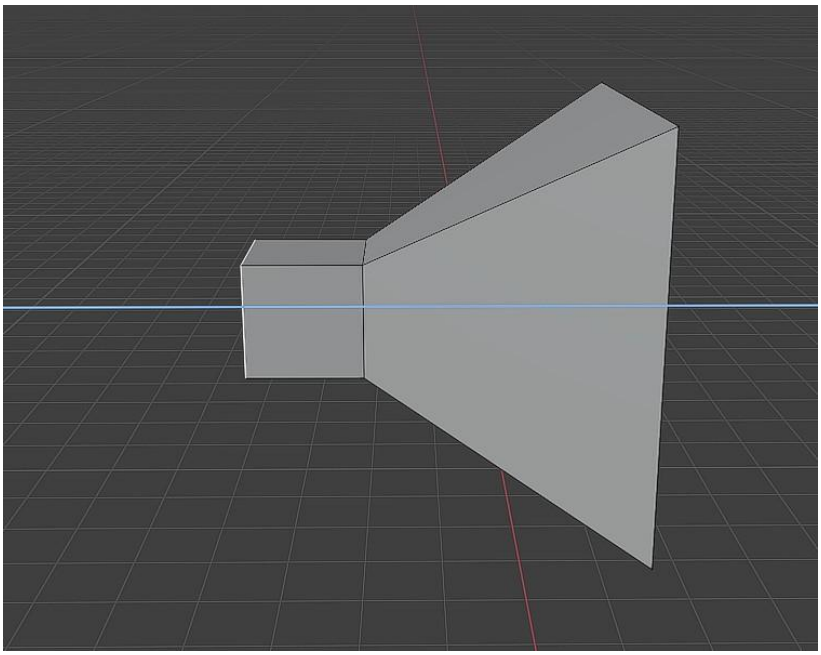
After, that we also inserted a face in the middle of the opposite face using the hotkey " **I** ".



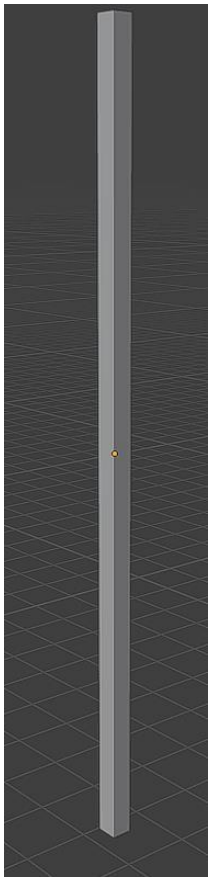
Then we did an inner extrude on the newly formed faced in order to create a small hole in it we used the hotkey "**E**" for extrude;



After that we extruded a small face at the back of the lamp head.



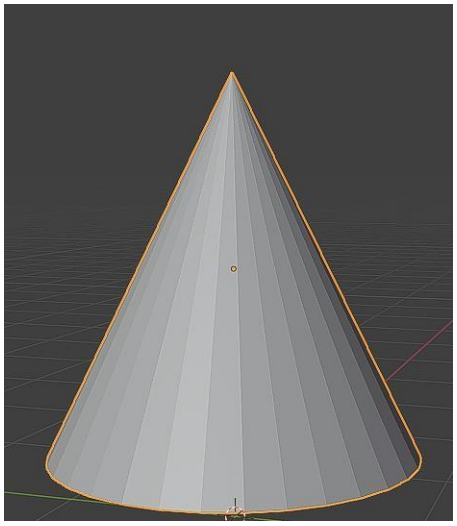
So that was it for the lamp's Head now it was time to make the lamp stand. So we will add another cube and just make it thinner and longer by using the Scale Transform. The end result should look like this.



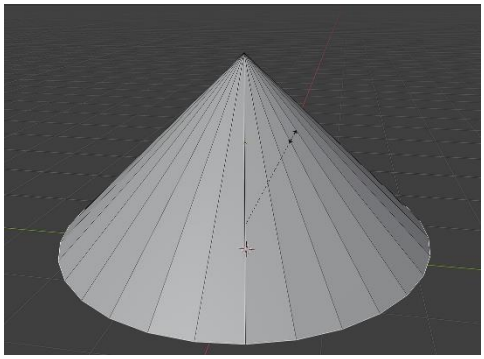
This will act like the body for the lamp stand.

After Modelling the both the head and body its time to model the lamp stand.

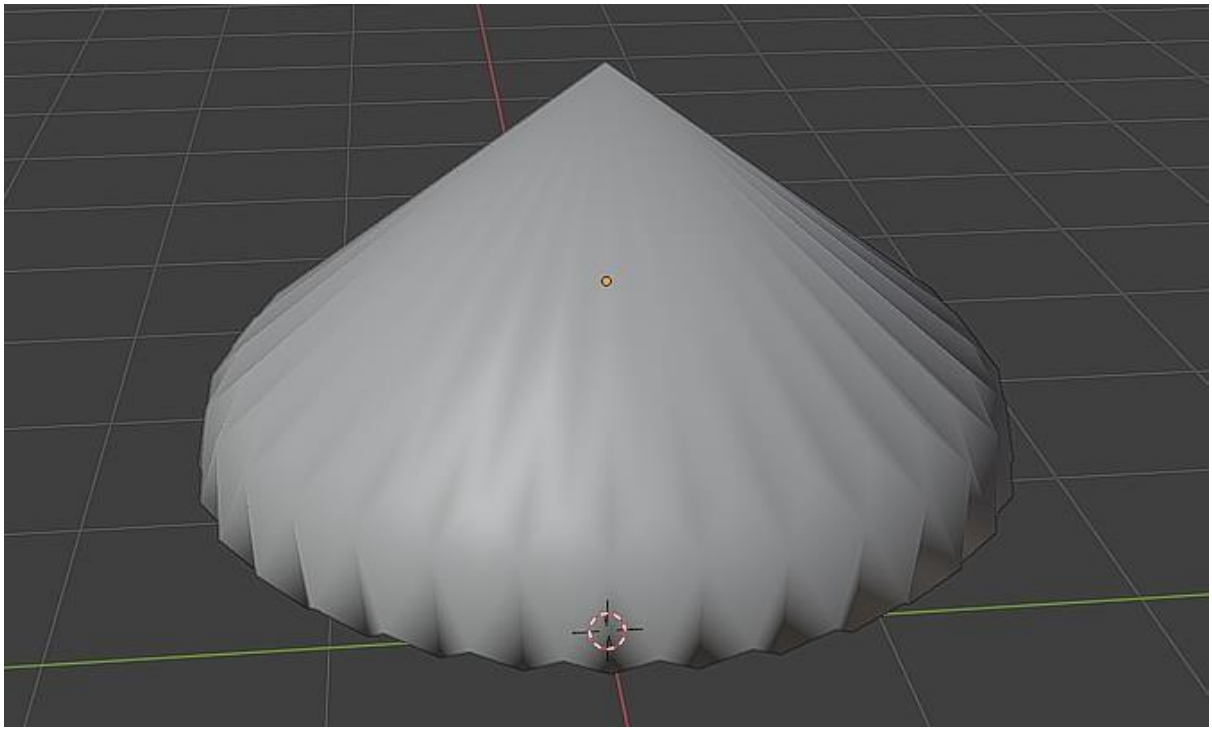
This time we will insert a cone to act as the stand of the lamp.



After Inserting the cone, we need to go to the edit-mode tab and select the bottom face of the cone and scale it up a bit. Like the picture below.

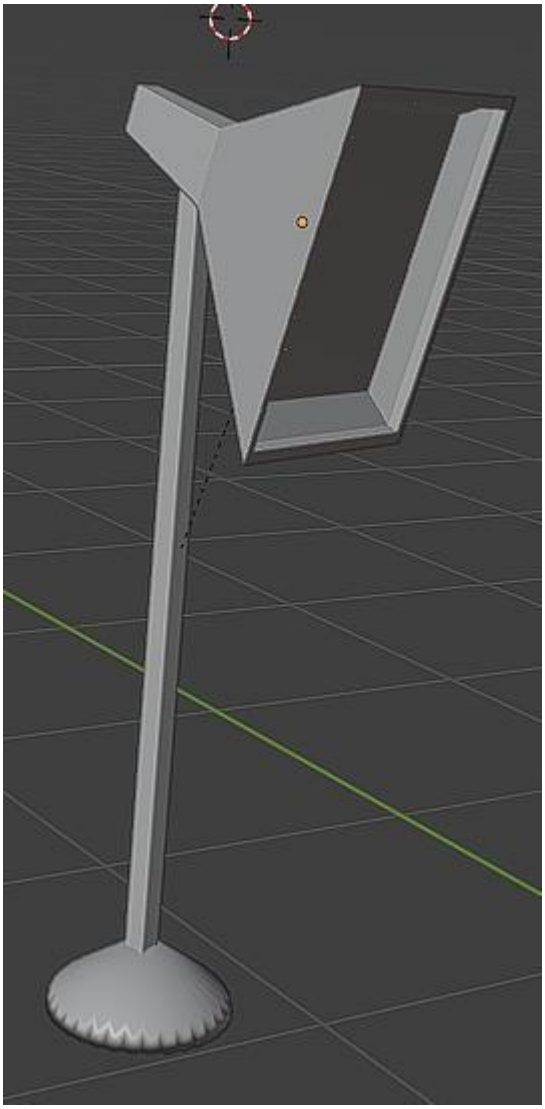


Then after doing that we added a sub-division surface modifier and applied a shed smooth on the cone, and here are the results of the stand.



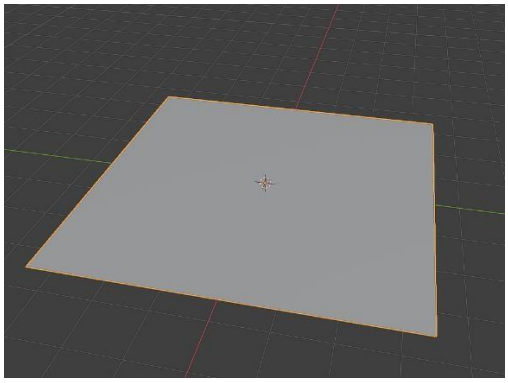
Finally, we had to assemble all the individual pieces together, to help make one object which in this case is the lamp object and here are the results.

This Figure is showing the lamp fully assembled to form a single lamp object to help illuminate the vehicle in the show-room.

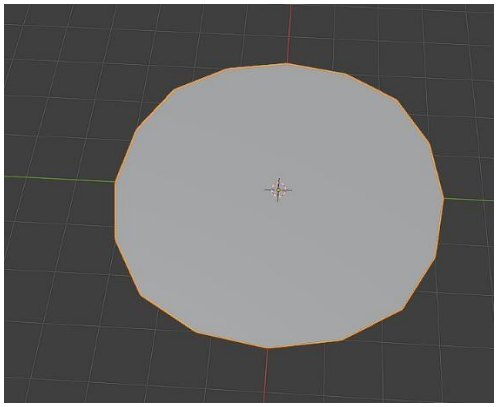


After modelling the lamp and the Wall light we also modelled the car stand or the car platform.

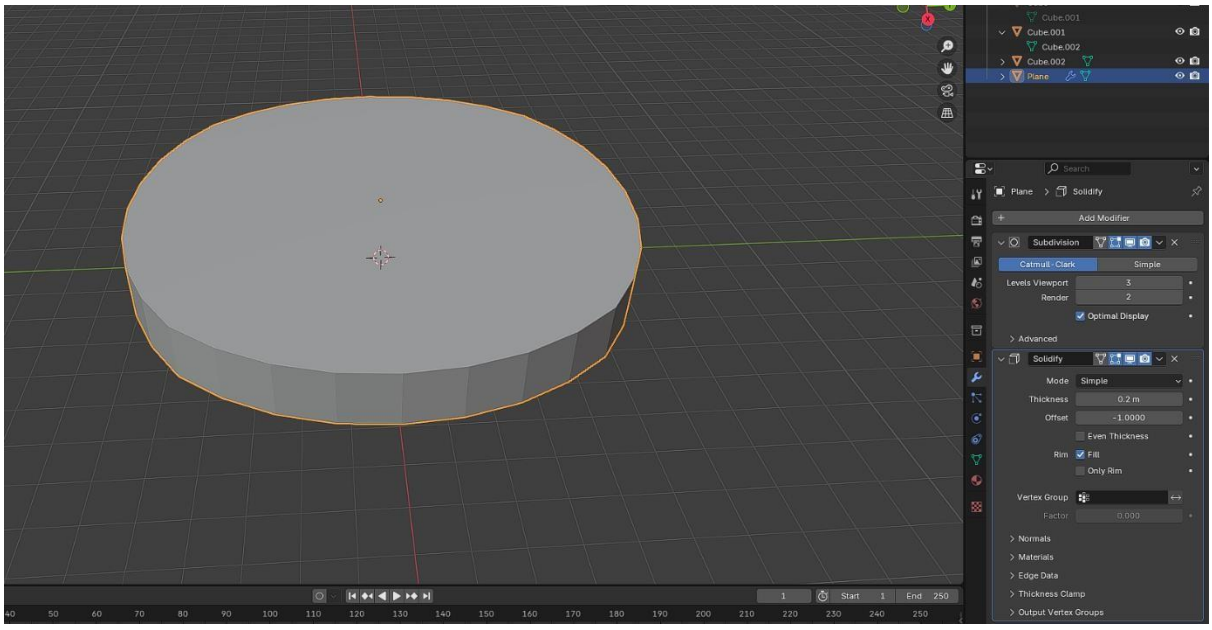
So, we started off with adding a plane into the scene and than after we applied the sub-division surface modifier. We than also added a **solidify** modifier to add some thickness or some volume to the plane.



Adding a plane into the viewport.



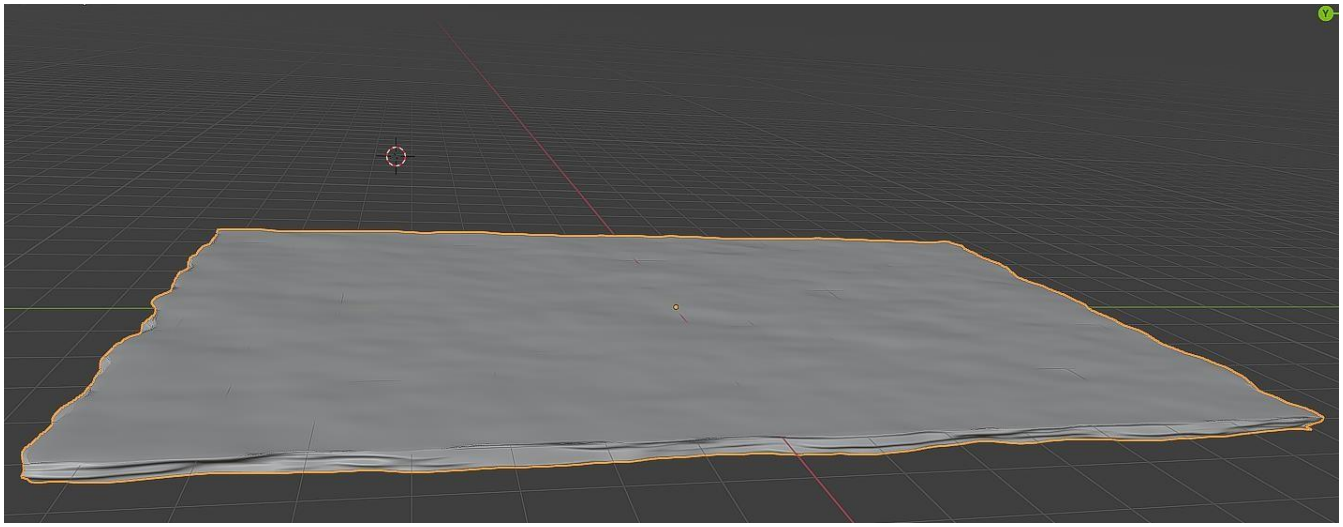
Applying the sub-division surface modifier to created a more rounded out platform for the car to sit on.



This is the final result after applying the modifiers now we have our car stand ready to Go!

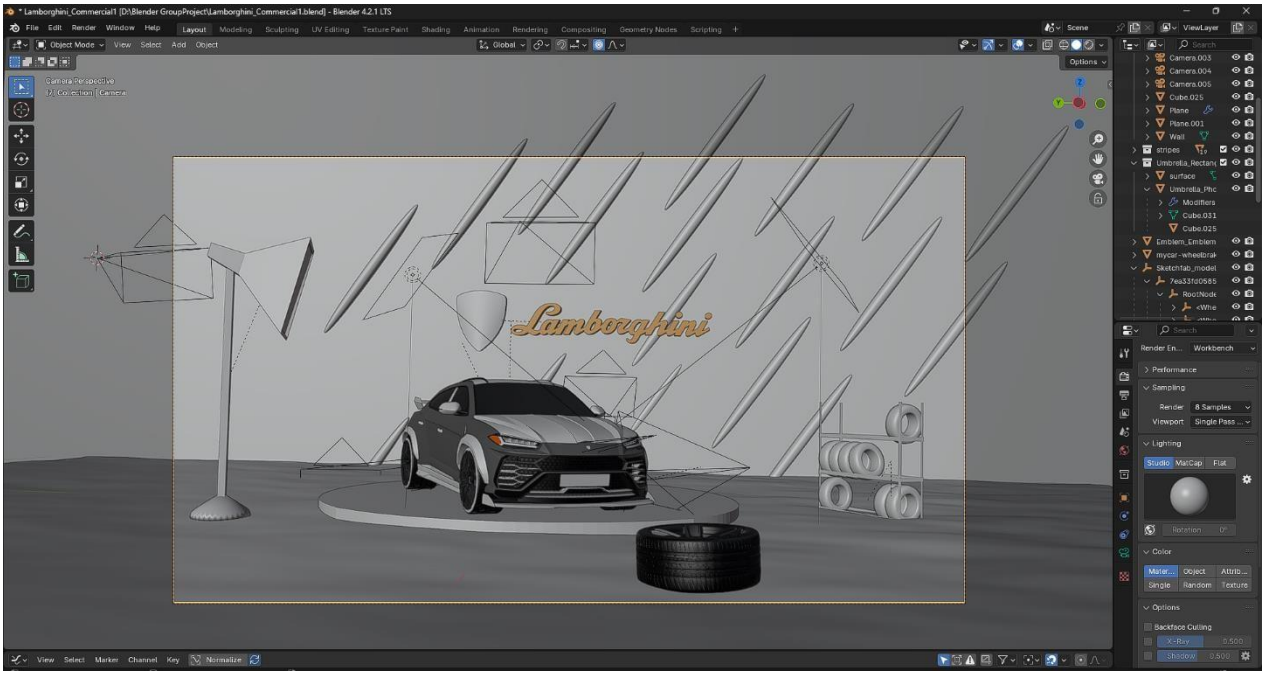
Now it is time to model the floor, we start by adding another plane and scaling it a bit and solidifying it. After that we can add a bit of unevenness to the floor by adding another modifier known as the **displace** which is under the **deform** section.

After that apply a **clouds texture**, to create an unevenness to the floor, hence the final result should look like this.



SCENE 1: THE SHOW -ROOM

Once, every model is ready to be used we can now put them altogether to compose a scene that looks visually stunning. So as a result of continuous **trial and errors** we settled for the scene below.



Scene Lighting and Materials

We added an **emissive material** to the fluorescent-light lamps instead of the traditional **principled BSDF** we made earlier, we made the material on the object emissive so that it can provide light in our dark environment setup plus we also decreased the strength of the world settings so that the world can be totally dark.

After we composed the basic layout of the car show room, we than began to start adding some materials to our objects as well as adding lights into our scene and after adding all the materials to our objects we came up with the final still render in **cycles**.

The following picture below has been rendered using the **cycles engine** to produce a more realistic scene of the **Lamborghini show room.**

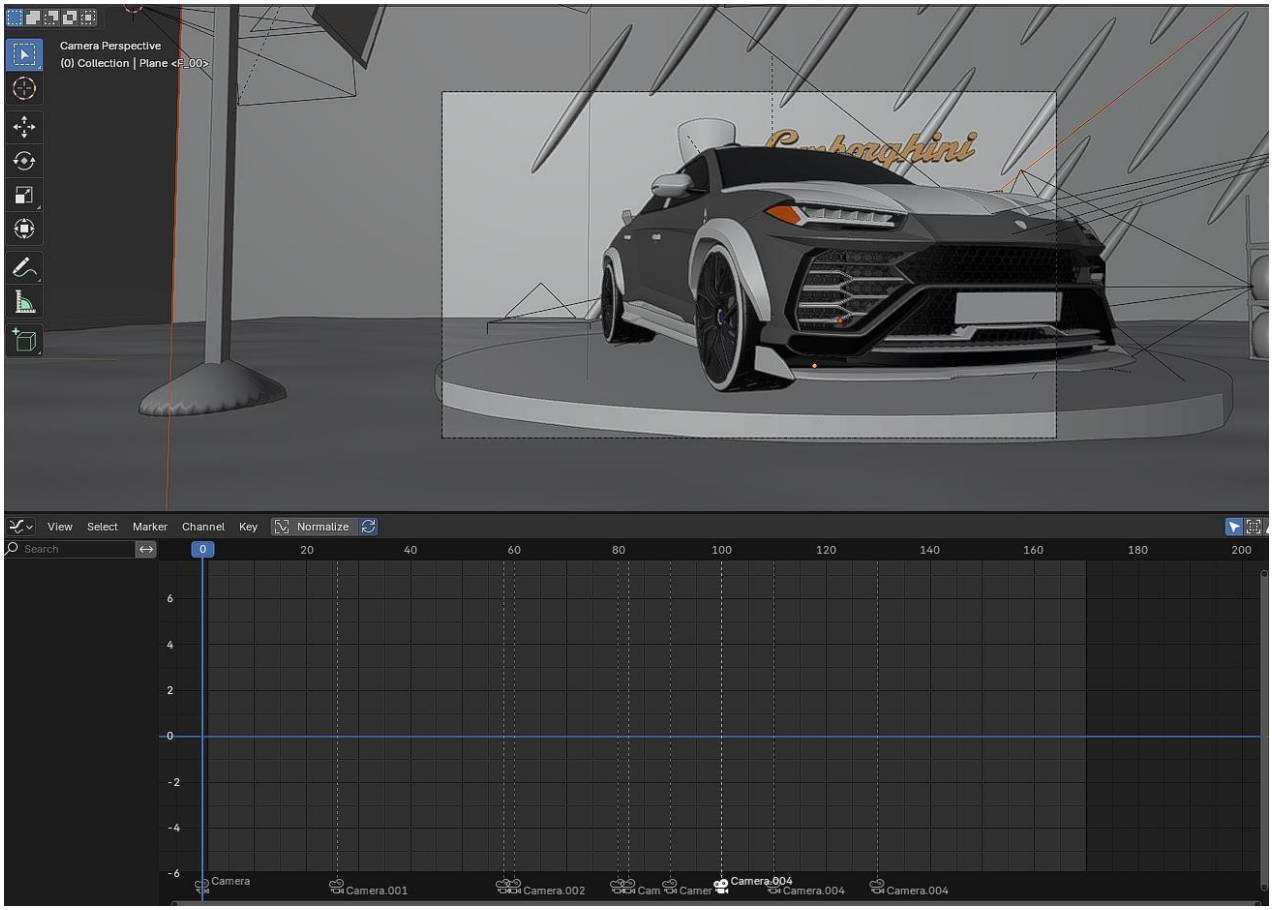
NB: We also added some **Area Lights** to help produce the **green-orange effect** on the final still render.

CREATING DYNAMIC CAMERA ANIMATIONS

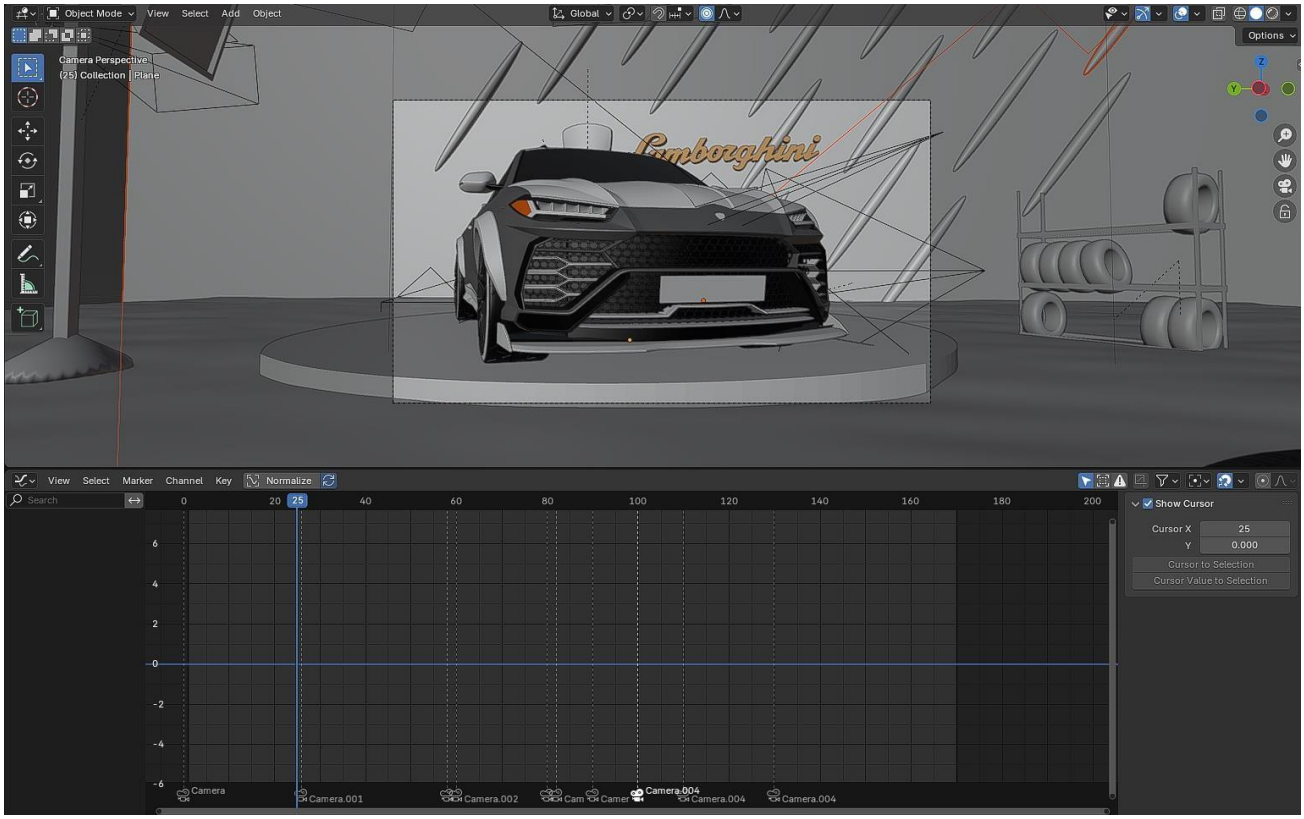
Since this scene is of a still car, will apply the basic animation principles on the camera since it is also considered an object in blender to manipulate.

Firstly, we had to add in a **new camera** into the scene and adjust it in the first position we wanted it to be placed and than we set a keyframe on that spot than we moved the timeline a little bit further and also adjusted the cameras' location along the x-axis to a new position showing a different view of the car.

Below is a screenshot of how we applied animation to one of the cameras in the scene.

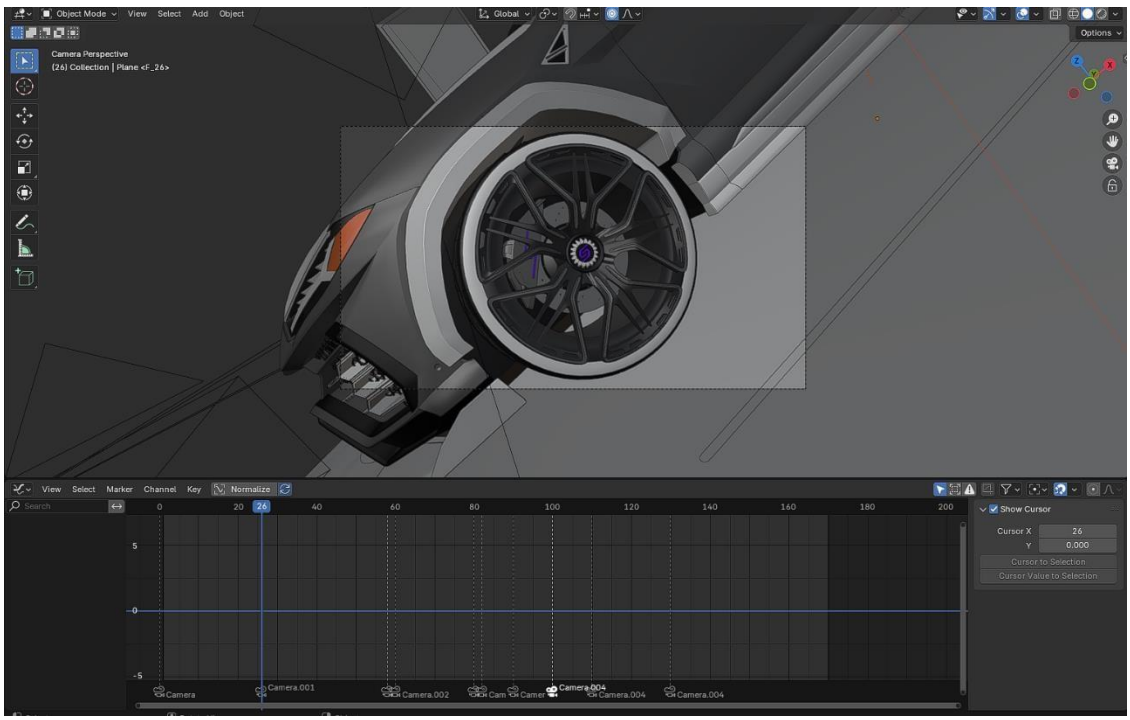


At Frame 0 – the camera was at that location.

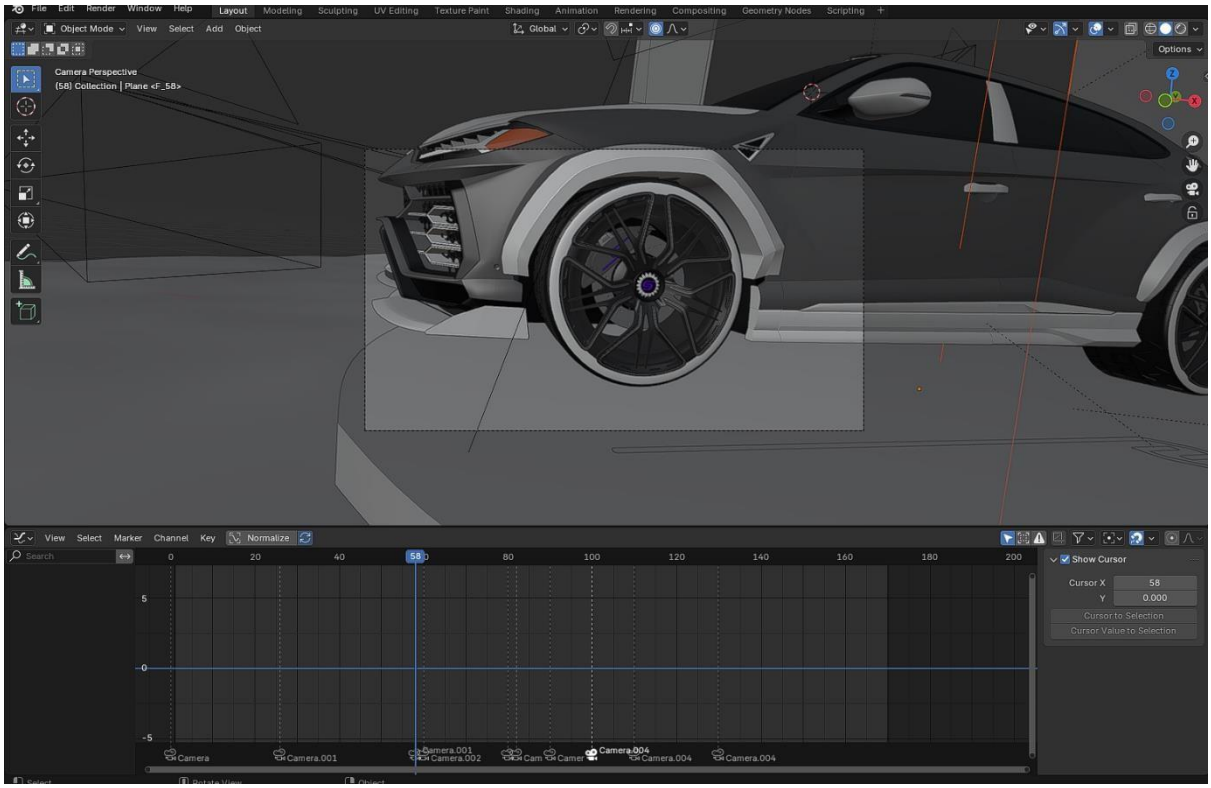


And at frame 25 -> The camera shifted to that new location hence known as translation.

Below is another screenshot show how we applied animation to satisfy ROTATION.



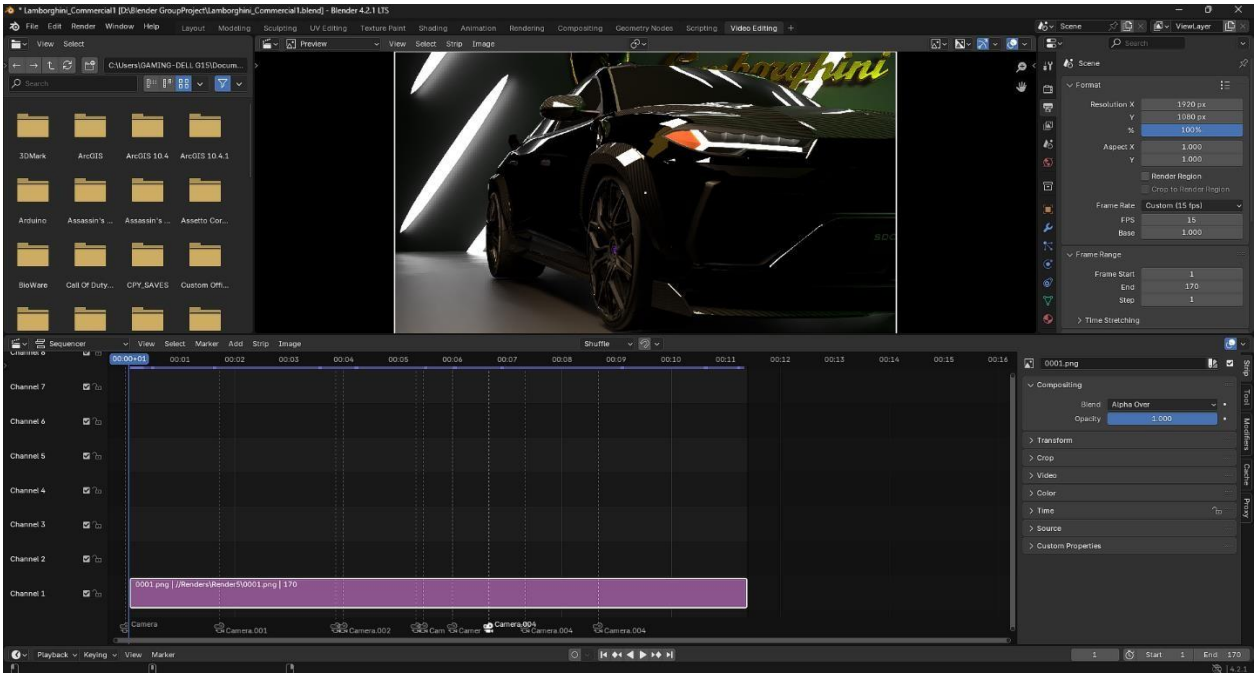
At keyframe 26 -> there was a switch to another camera in the scene that was responsible for applying rotation animation. So, at that particular frame the camera was tilted or slanted.



At hey frame 58 -> the Camera rotated it self back to normal.

After producing the animations for the show room scene, we went to the video editor window of blender to help us create a basic animation of this scene.

Below are screenshots that showing the workflow for making this first scene into a video for further video composition in software's like blender, Capcut and other video editing and composition softwares.



This is the video editing window used to produce the final animation in video form for the show-room scene.

Here we set the basic animation parameters like **frames per second (FPS)** as well as video output encoding e.g. Mpeg-4 or MP4.

Once, this is done we can now move onto the city scene, which shows the car moving as the camera follows it.

SCENE 02: CITY CREATION

Now for the city scene we utilized the following:

- City generator addon.
- Hdri (High dynamic range Image).
- Rigacar addon (for car animation)

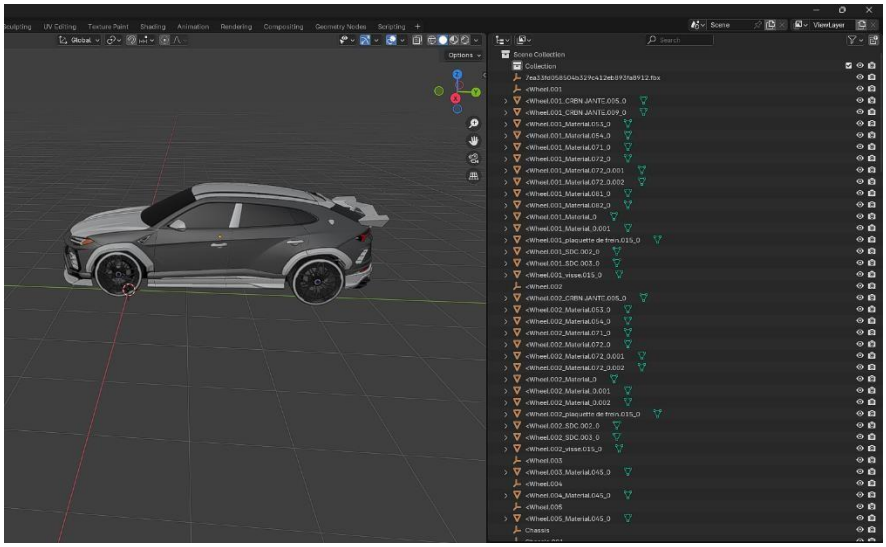
Firstly, we had to rig the car using the rigacar addon which can be found in the following url:

https://github.com/digicreatures/rigacar.

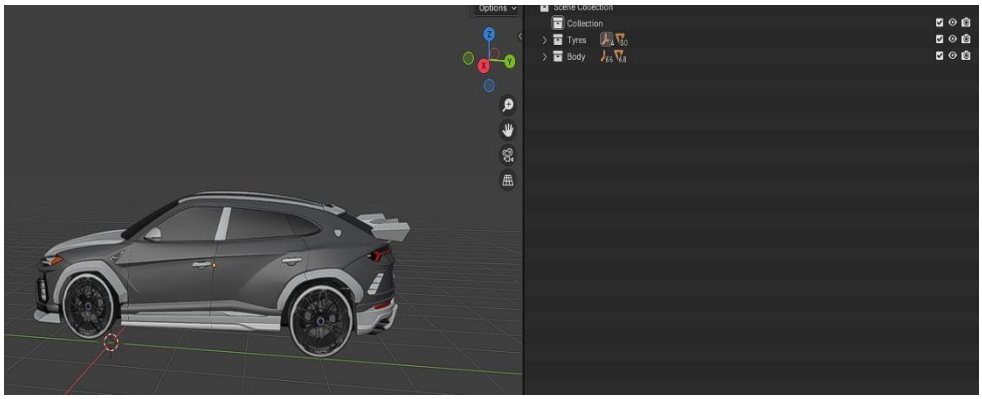
STEPS TO RIGGING THE CAR

1. Prepare the car Model for Rigging

   Before preparing:



After preparing:



In this process of preparing the car for Rigging we had to divide the car into two parts which are;

- The car Body.
- The Car Wheels.

We separated these two in order to avoid complications in the future when we are in the process of rigging.

2. Adding an Armature to the car

An armature is a set of bones added to an object in order to provide motion to it, its mostly used when we want to add motion to any object during the animation phase.

When adding an armature to the car model we first need to name the parts appropriately meaning that we need to group the wheels together and name each part accordingly as well as group the parts of the car body together as well.

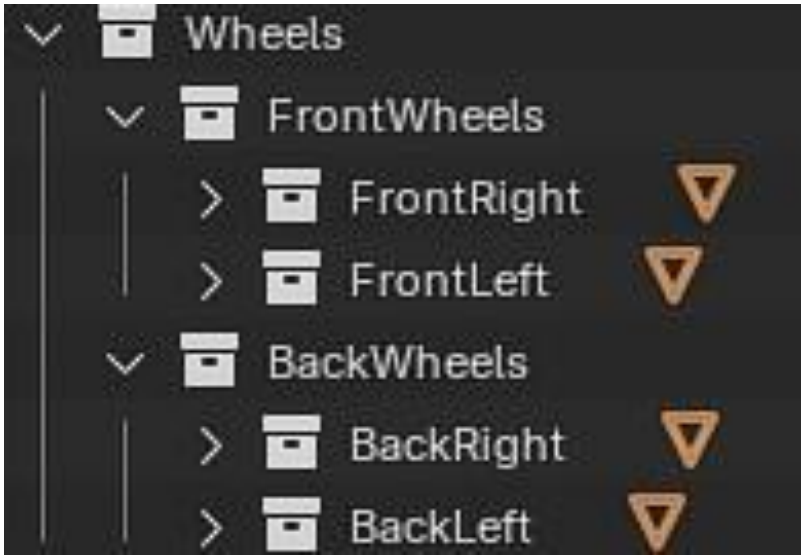
Below is an illustration;

Grouping the wheels

Before Organization

This diagram is showing an organized organization of the car tyres, basically you can' tell which wheel is of the right or left or front or back so that's what we need to do next.

After Organization

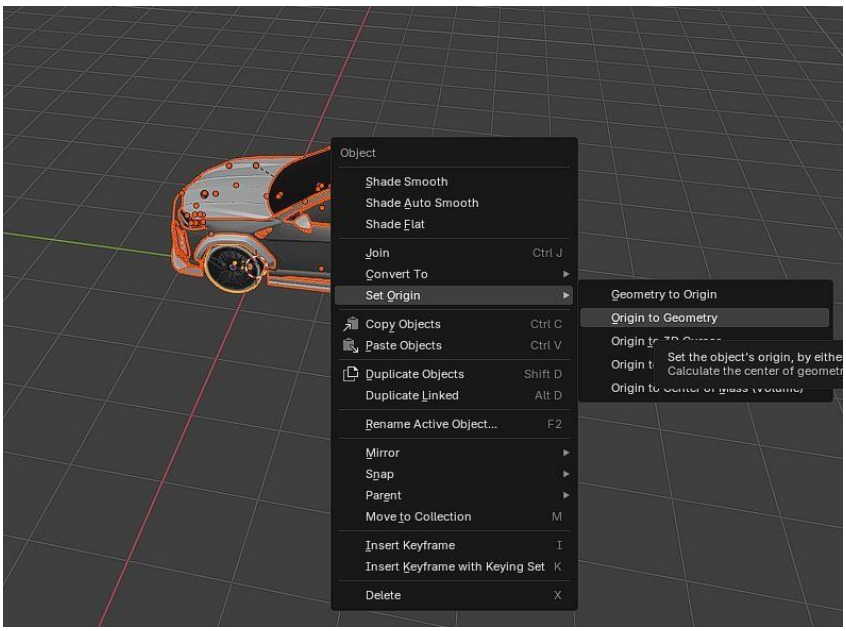


This diagram is showing all the wheels neatly organized this will make it easy for us when we are going to rig the car later on.

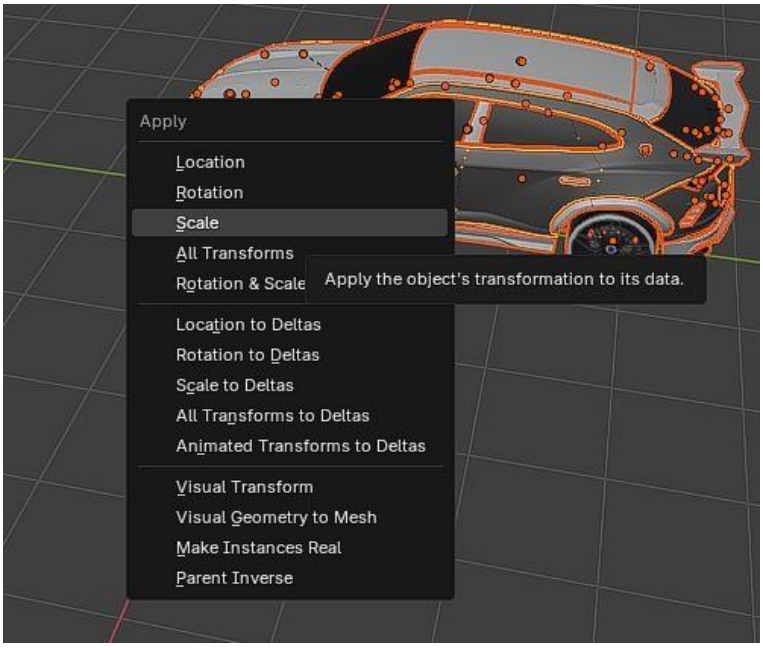
The same goes for the car body to.

Before we generate the armature, we need to make sure that we do the following:

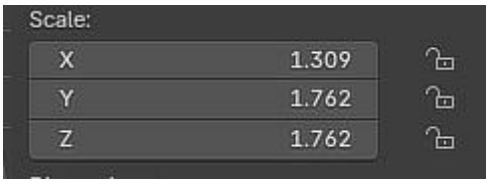
- Setting the Geometry to origin



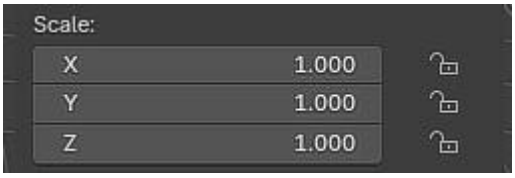
- Applying scale using the hotkey **ctrl + A.**



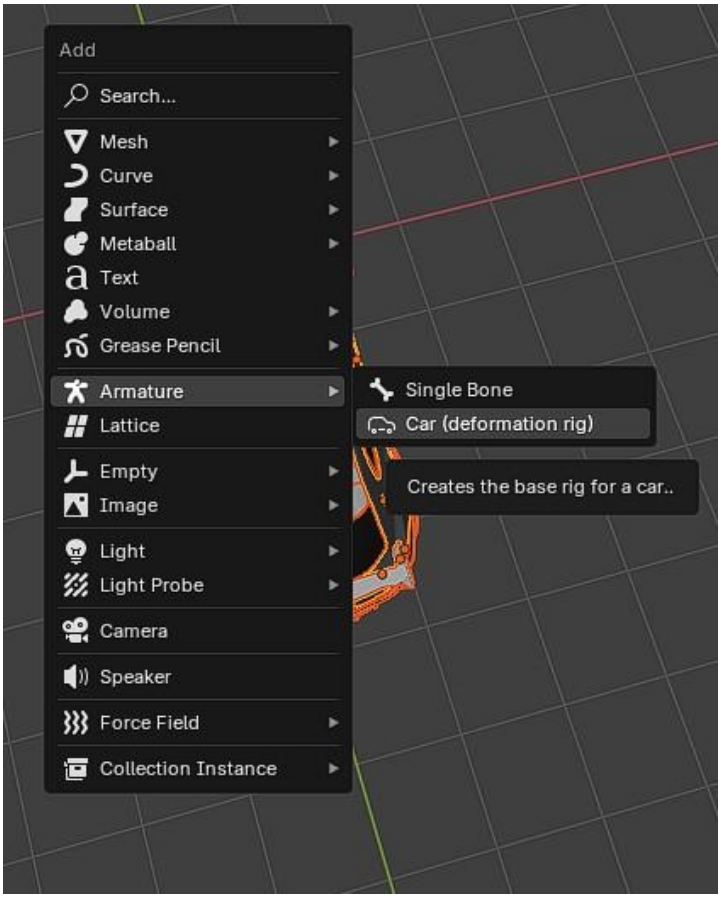
This is before we apply to scale:



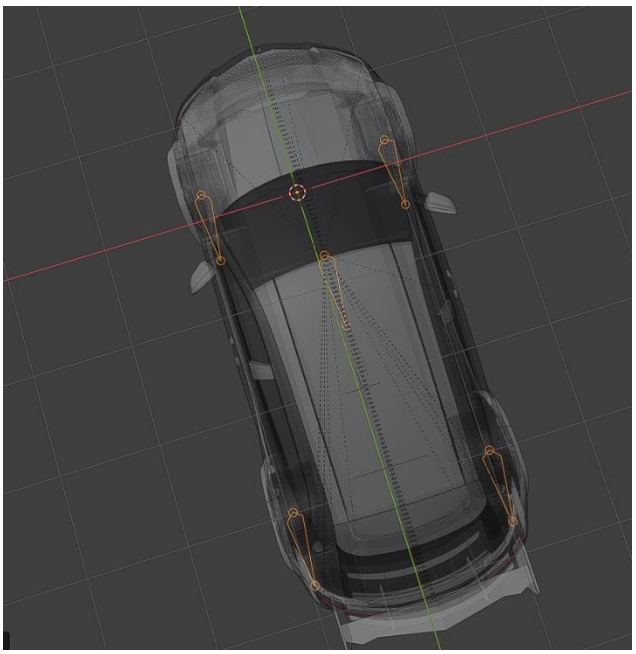
This is after we apply to scale:



Finally, we are now ready to apply the armature to our car. To do that we do **shift + A** then select the **car (deformation rig)** under the Armature section.



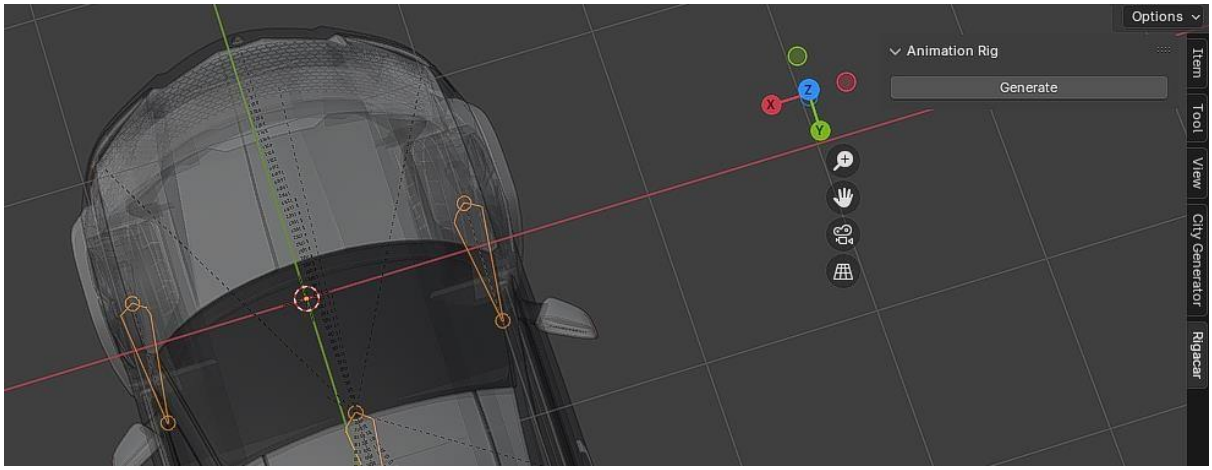
From there if everything was done successfully, we should see the following result;



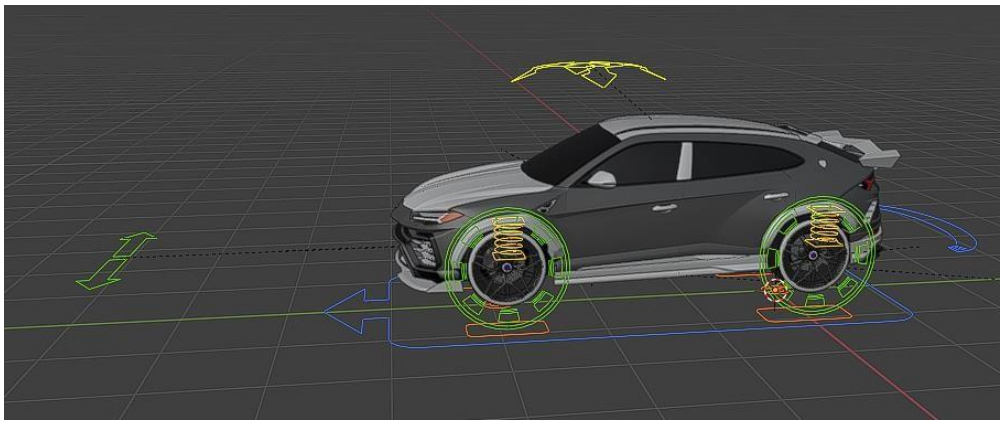
As shown on the image on the left that we have successfully managed to add the armature to the car.

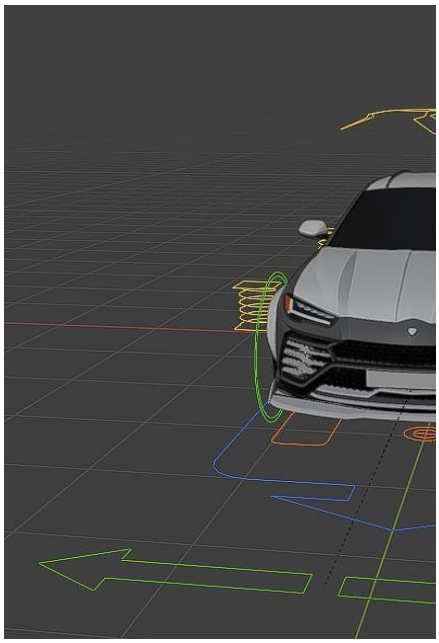
Now the car is ready for the final step of the rigging process which is Generating the rigs using the Rigacar plugin.

For us to apply the rig to the car we need to open the side bar using **N** as the hotkey and go to the rigacar tab, you should see a **Generate** button. Once you see this button click it but this button will not appear if you do not have the armature selected so make sure to have the armature selected before trying to generate the rig of the car.



Once you have placed the Generate button you should see a set of fancy gizmos now surrounding your car as shown below;





Each individual Gizmo is used for a specific purpose on the car e.g.

- Wheel Rotation
- Wheel Steering
- Wheel Brakes
- Suspension etc

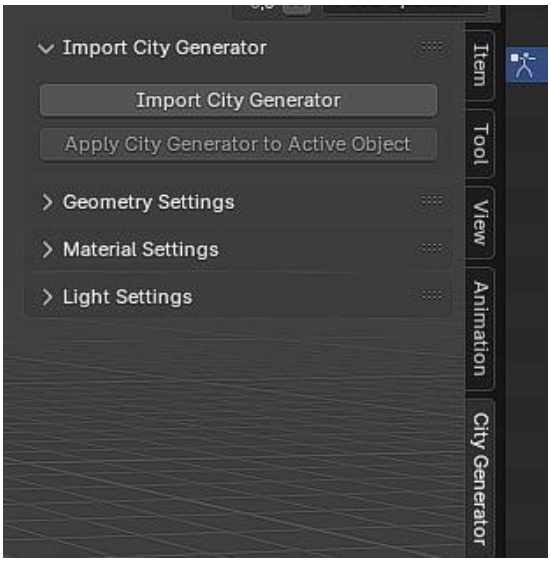
Finally, the car is now ready for animation!

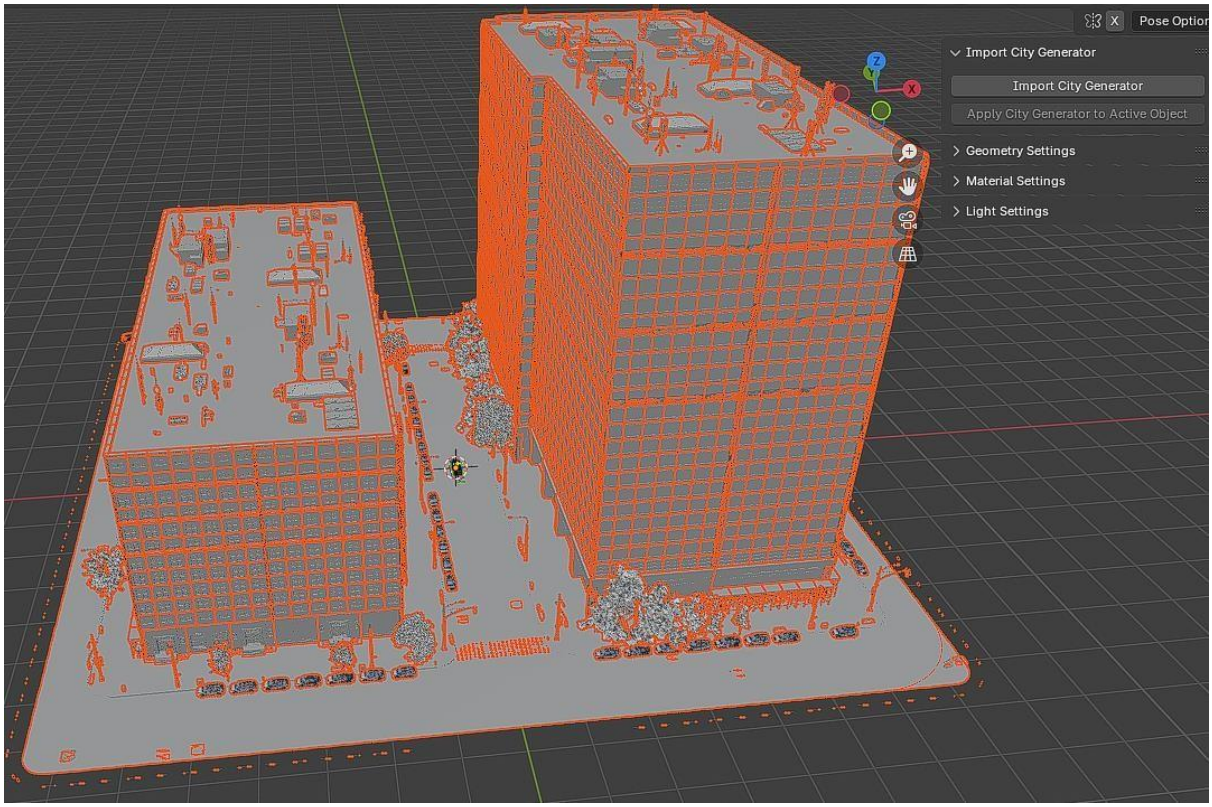
Before we animate the vehicle, we need it to be placed in a city for it to drive in, instead of modelling a whole entire city from scratch we opted for a more efficient means which was to find an addon that dealt with city generation and fortunately we found one, this add is called **city generator** addon.

The City Generator is an addon for Blender that enables users to create detailed city layouts, simulate traffic, and set up night scenes with procedural materials. It offers various customization options for town planning.

So, to utilize this addon we go the tool by pressing **N** and than we look for the tab named **City generator**,

Once there press the button titled **import City Generator**, once you click this button you should see a whole entire city generate in your viewport.



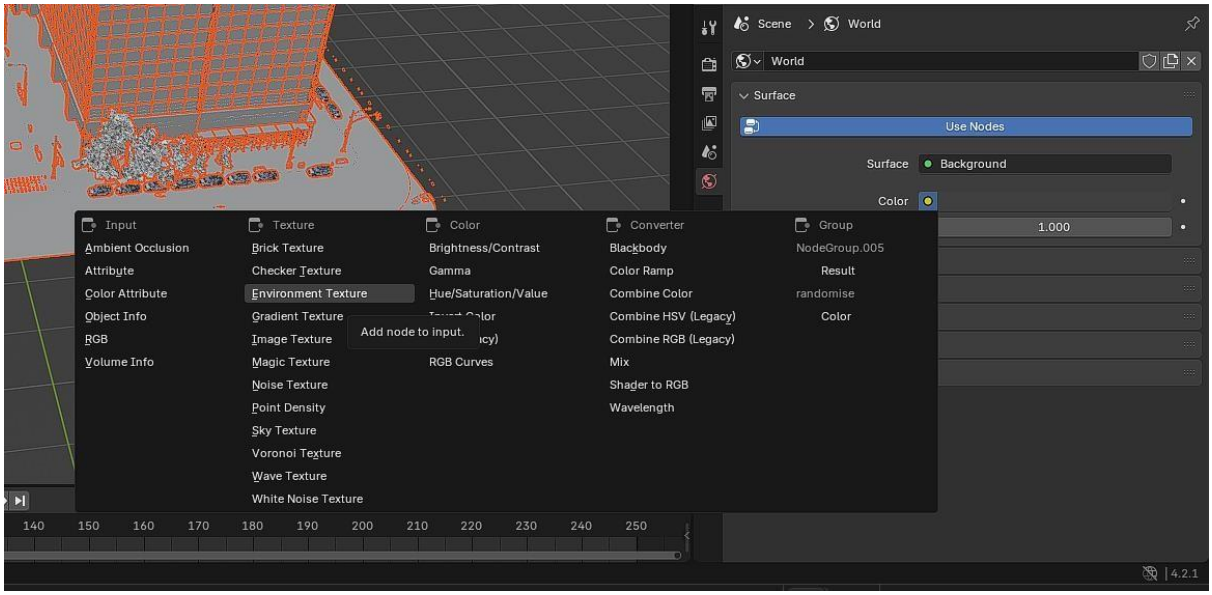


As you can see a whole entire customizable city has just been generated but take note this addon is computationally heavy so make sure to have a strong Workstation or PC with excellent specifications in order handle this addon.

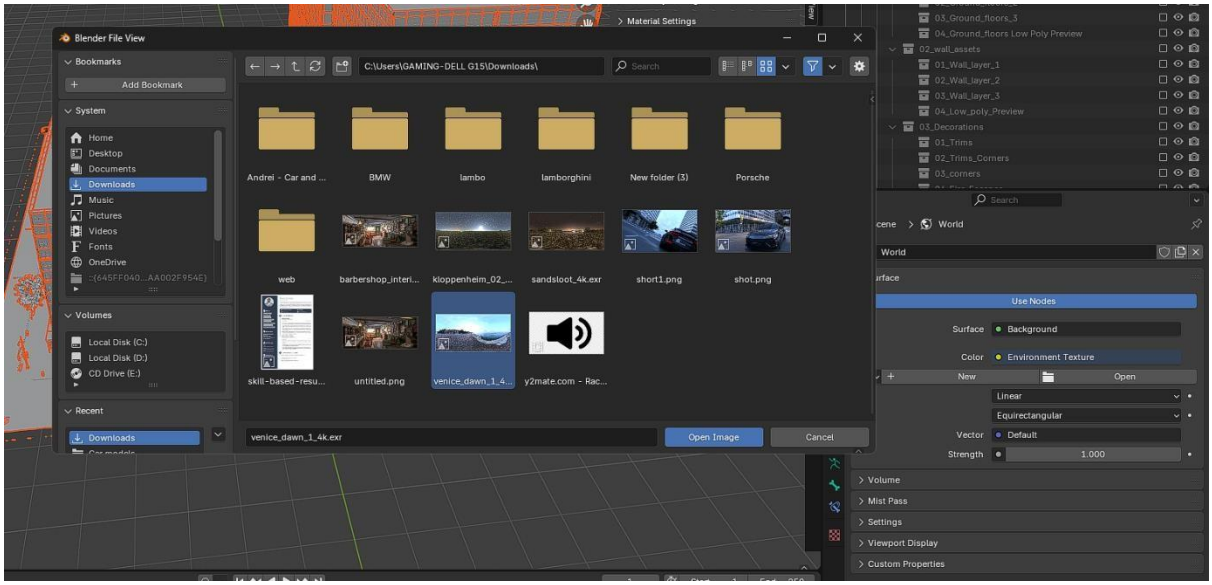
Now our environment city is also ready to.

ADDING THE HDRI

This process involves downloading an HDRI and going to the world settings in blender and clicking on the colour section and select the environment texture and simply selecting the HDRI we downloaded.



Then we navigate to the folder of our HDRI and than select it.



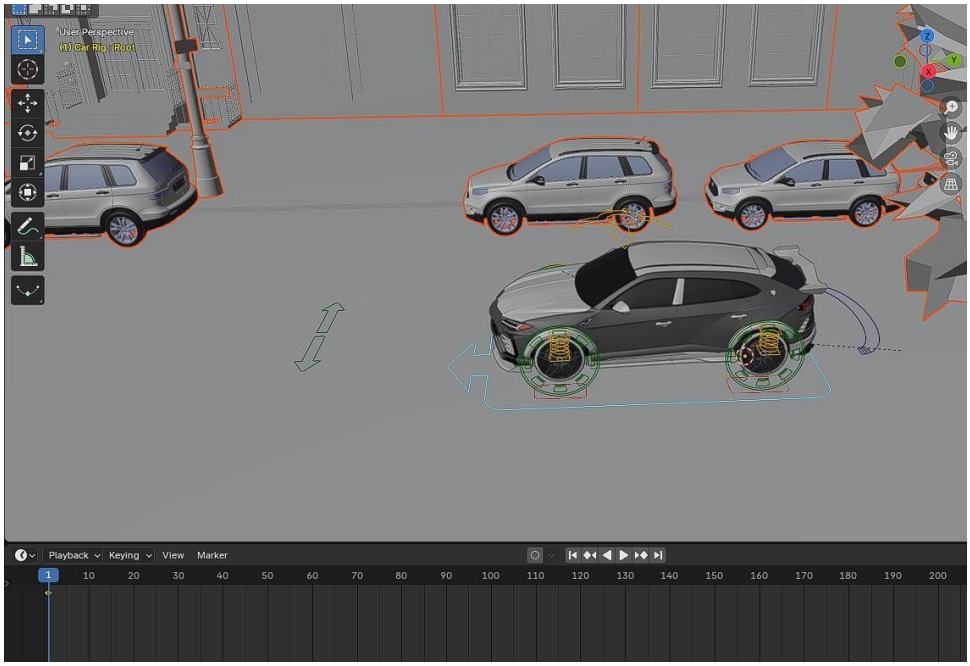
Voila! Our Environment is finally ready for our car to move on it.

CAR ANIMATION

For the car animation we will just place it in the midst of the generated city.

In this section will just animate the car to move a straight-line distance by changing its location from a certain frame to another frame.

Firstly, lets key frame the position of car first along the road,



Secondly, lets move the along the Y-axis and key frame that part again.

So, once you play the animation, we should see the car moving along the road with wheels rotation animated thanks to rigacar blender addon.

For the dynamic camera movements and animation this concept was already explained earlier in the documentation.

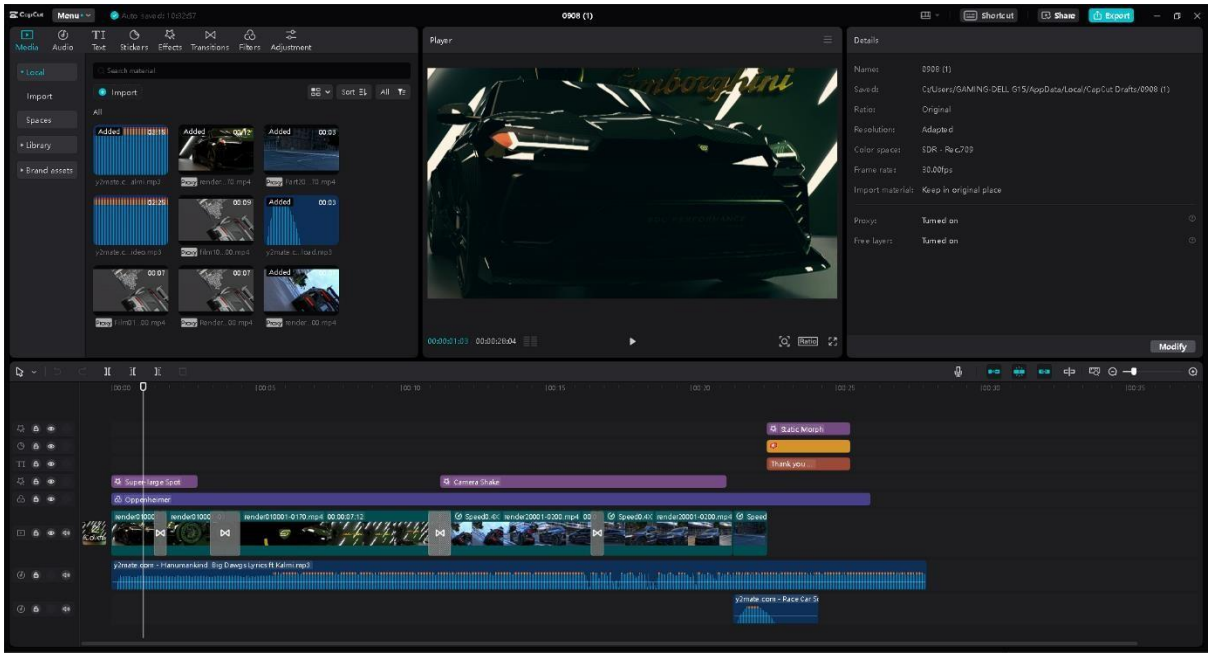
RENDERING AND VIDEO PRODUCTION

In this section we took the two videos that were made and composed in it in a famous video editor called **Capcut.**

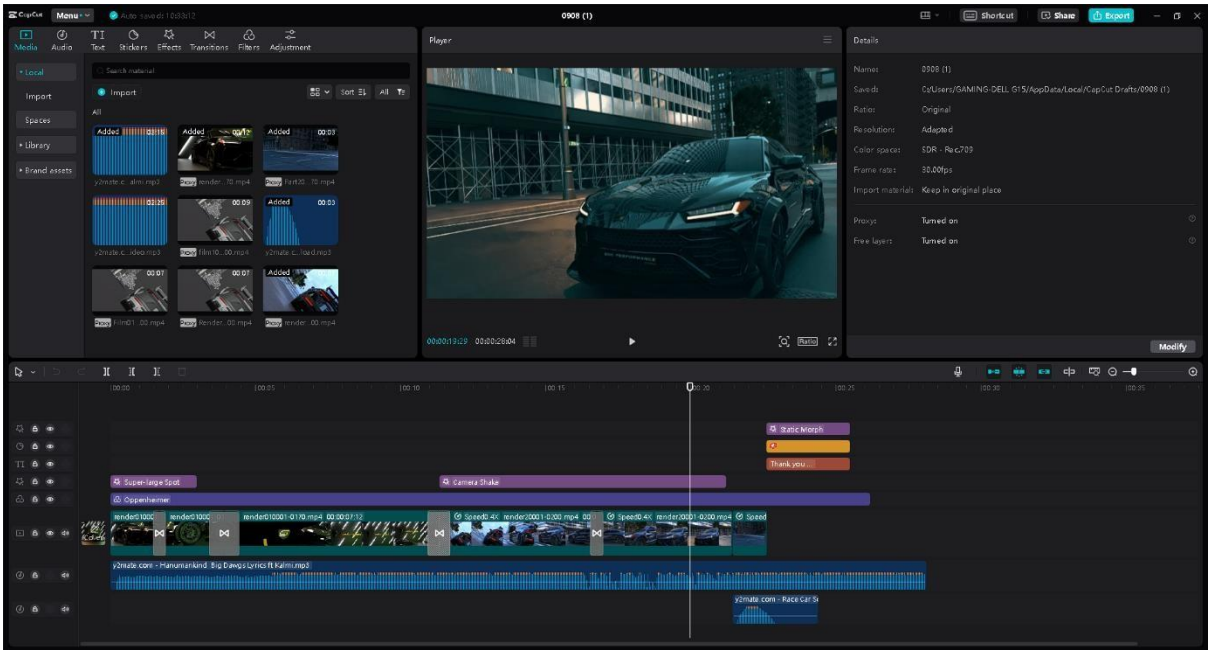
CapCut is a versatile video editing platform that offers tools for creating high-quality videos, available on various devices including smartphones and desktops.

Here is a sample of our car commercial being composed in capcut.

This is the show-room scene:



This is the City Scene:



CHALLENGES FACED

- It was a **steep learning curve** for everyone in the group but we still managed to pull it off.
- **Rendering** – This process took a while because we made sure to render it in cycles to help us achieve that high realistic Lamborghini car commercial.

CONCLUSION

In conclusion, this project was indeed a fun learning experience for everyone, and everyone indeed benefit a lot from this project and we now have a more in-depth understanding of some concepts in blender and how we can apply 3d-modelling techniques and animation basics to tackle real-world problems.

THANK YOU ...