

NukeCore - 3D Model Report



Introduction

NukeCore is a futuristic weapon concept designed with a unique blend of sci-fi aesthetics and mechanical realism. Unlike traditional plasma-based energy weapons, NukeCore utilizes specially designed nuclear-core bullets, which resemble miniature nukes in both structure and destructive potential. The weapon's design incorporates high-energy plasma chambers along with mechanical firing mechanisms to bridge the gap between ballistic and energy-based firearms.

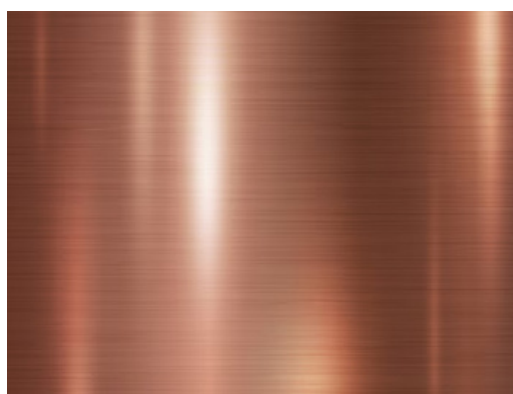
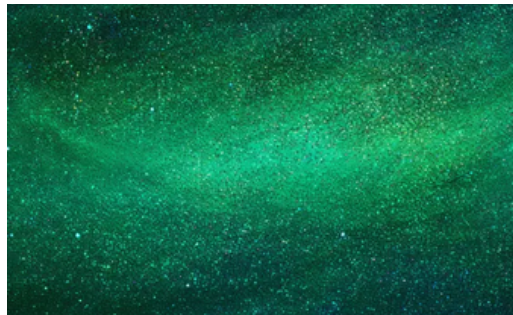
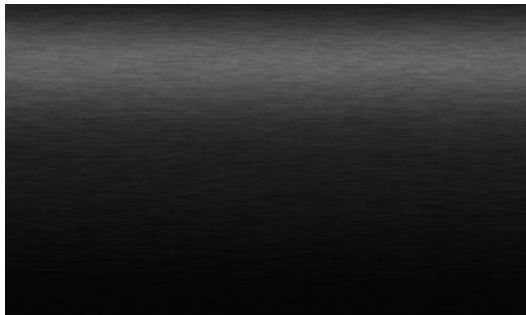
NOTE: THE UPLOADED MODEL IS PLANE, IT DONT HAVE ANY COLOURS.

SKETCHFAB LINK: <https://skfb.ly/pwPW0>

YOUTUBE VIDEO LINK:

https://youtu.be/RH_aYy33lLc

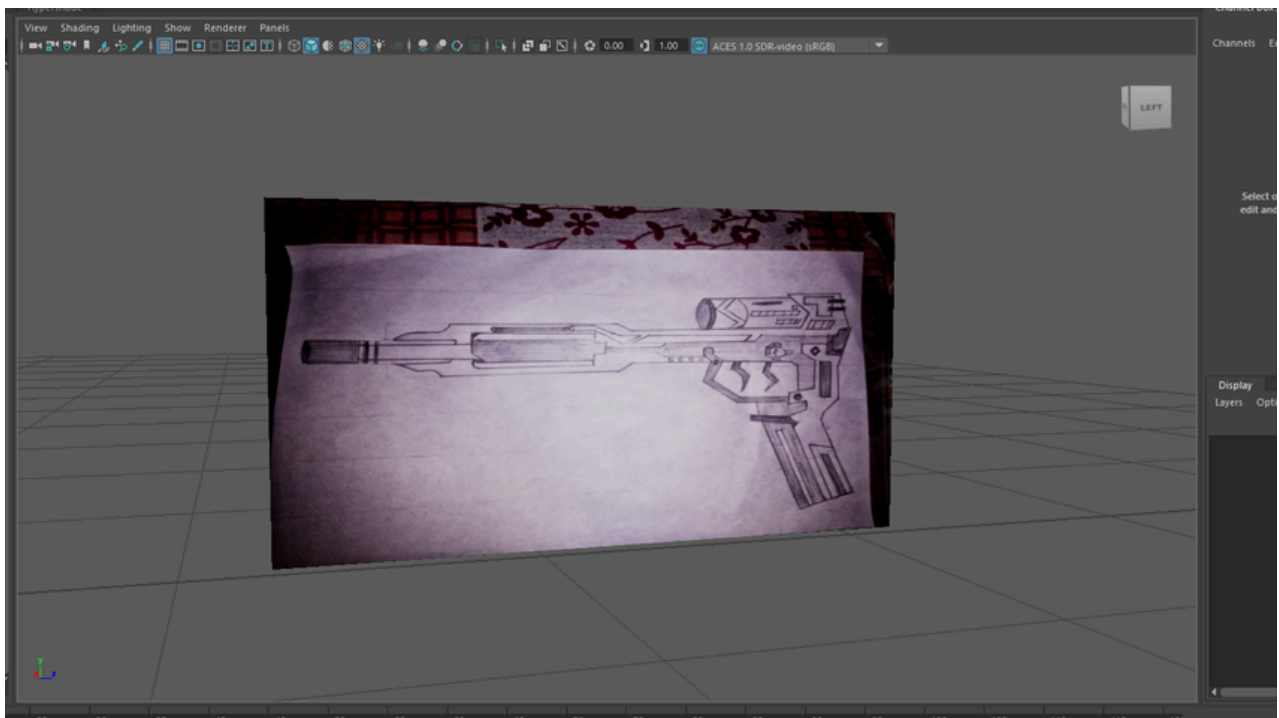
Here are the list of images, I used in different shaders.



Modeling Approach

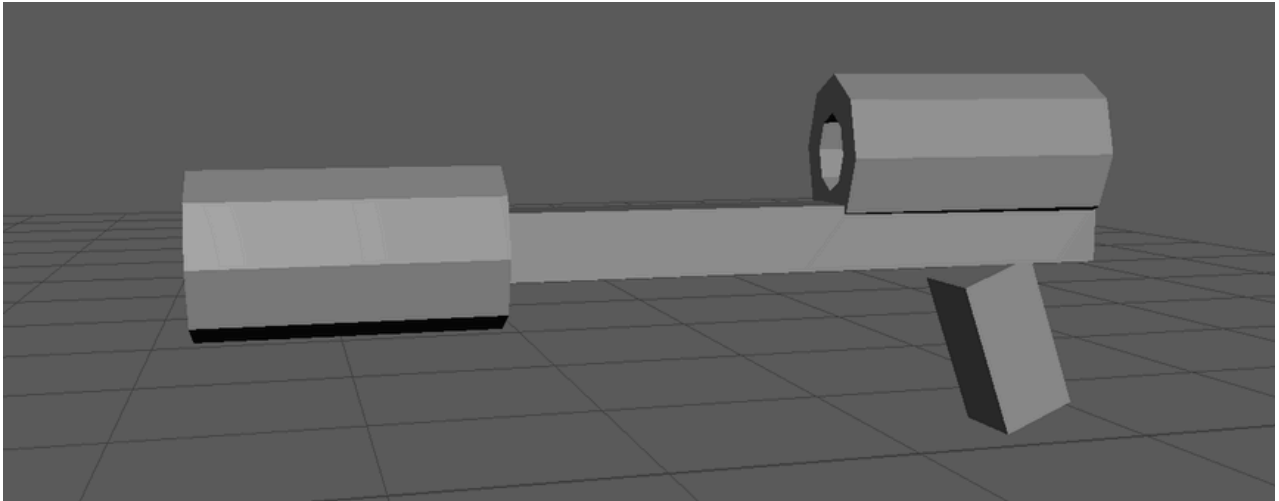
Step 1:

Modeling of NukeCore was done in Autodesk Maya. I followed multiple steps, starting with a paper sketch for inspiration. This helped me visualize my idea in Maya, though the sketch was rough, and I made several changes in the design later. However, it served as a useful guide for building the base of the NukeCore weapon. I then imported this image into Maya as a reference, as shown below.



Step 2:

In the second step, I created a simple outline of NukeCore using cube polygons.

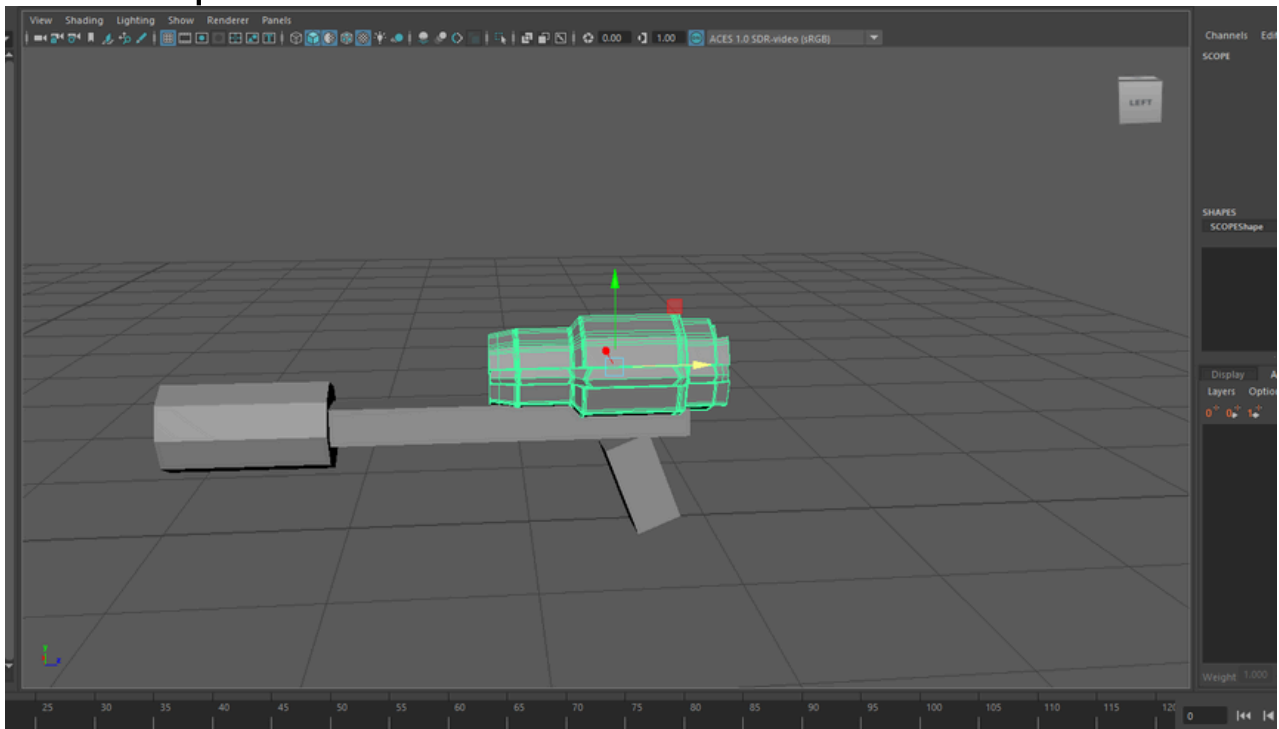


Step 3:

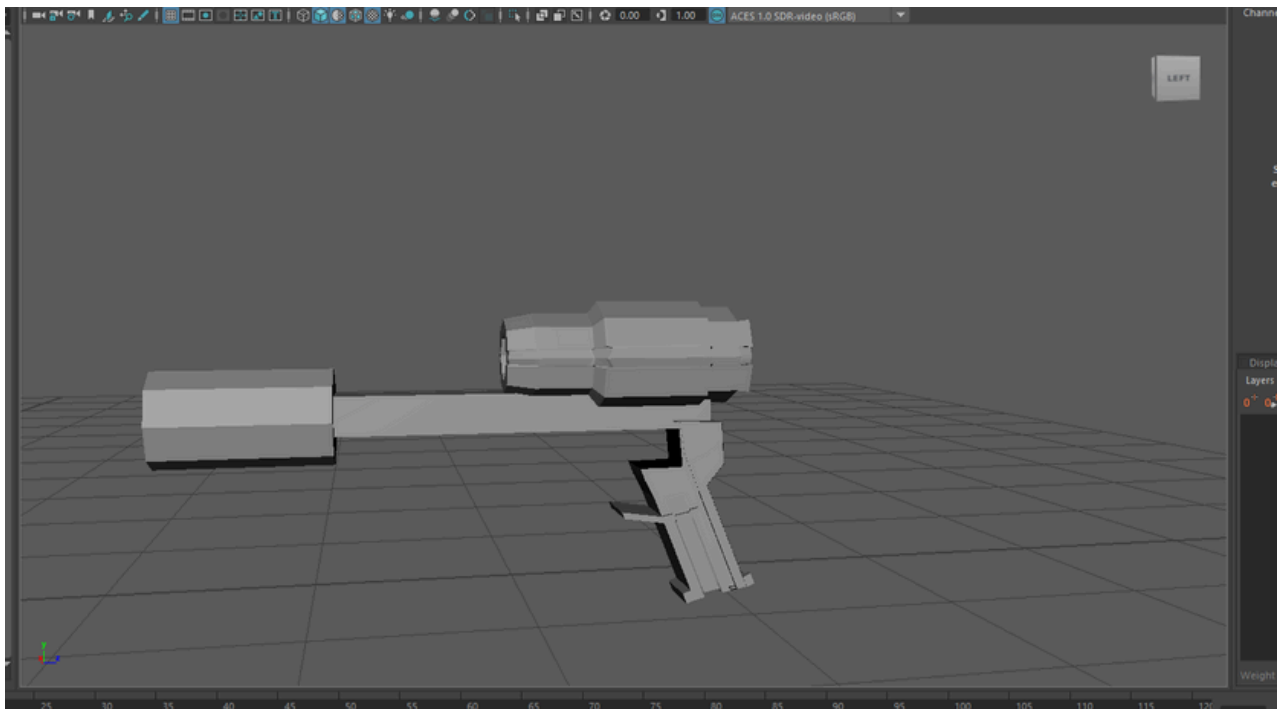
- After the initial blockout, I refined each part individually, ensuring correct proportions and details.
- I used the Extrude tool by selecting faces, vertices and edges (changing from Object Mode to Face Mode, Vertices Mode, Edge Mode) to extend and shape different sections.
- The Cutting Edge Tool (Multi-Cut Tool) was used to create additional edges, improving the structure for better modeling.

Here are the few ScreenShots of each part.

- Scope



- Grip



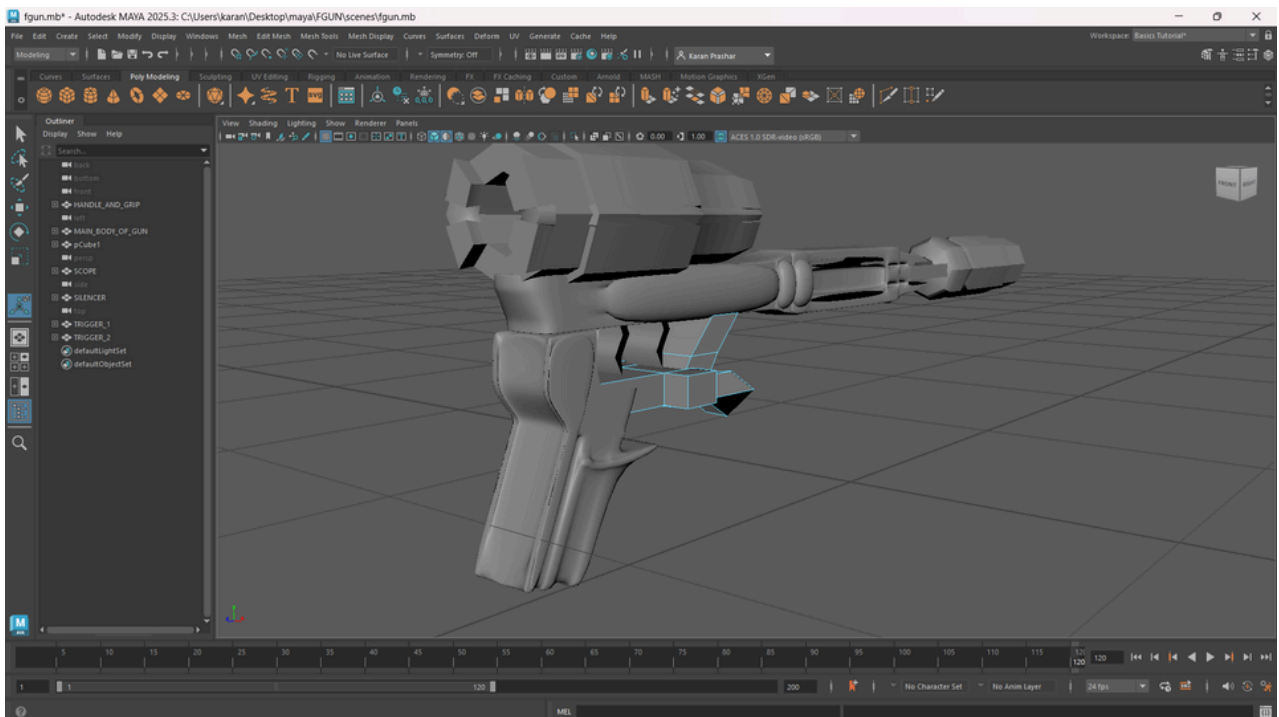
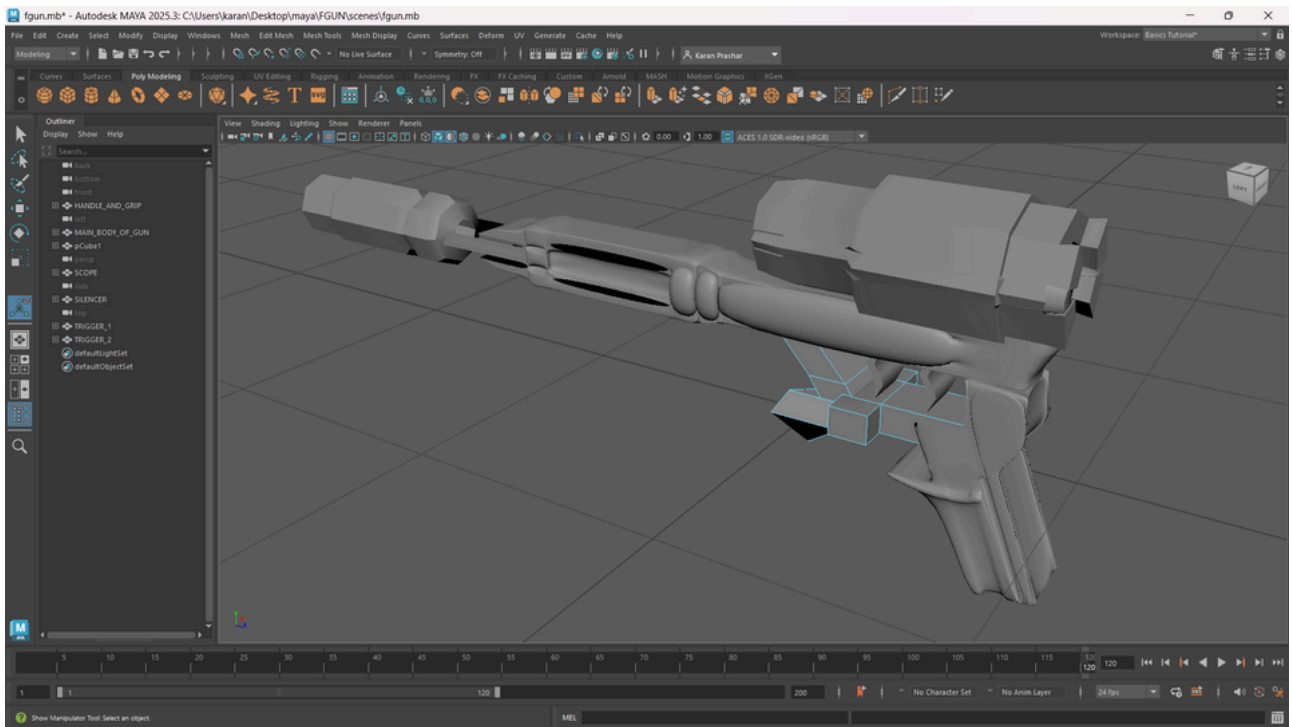
- Main Body



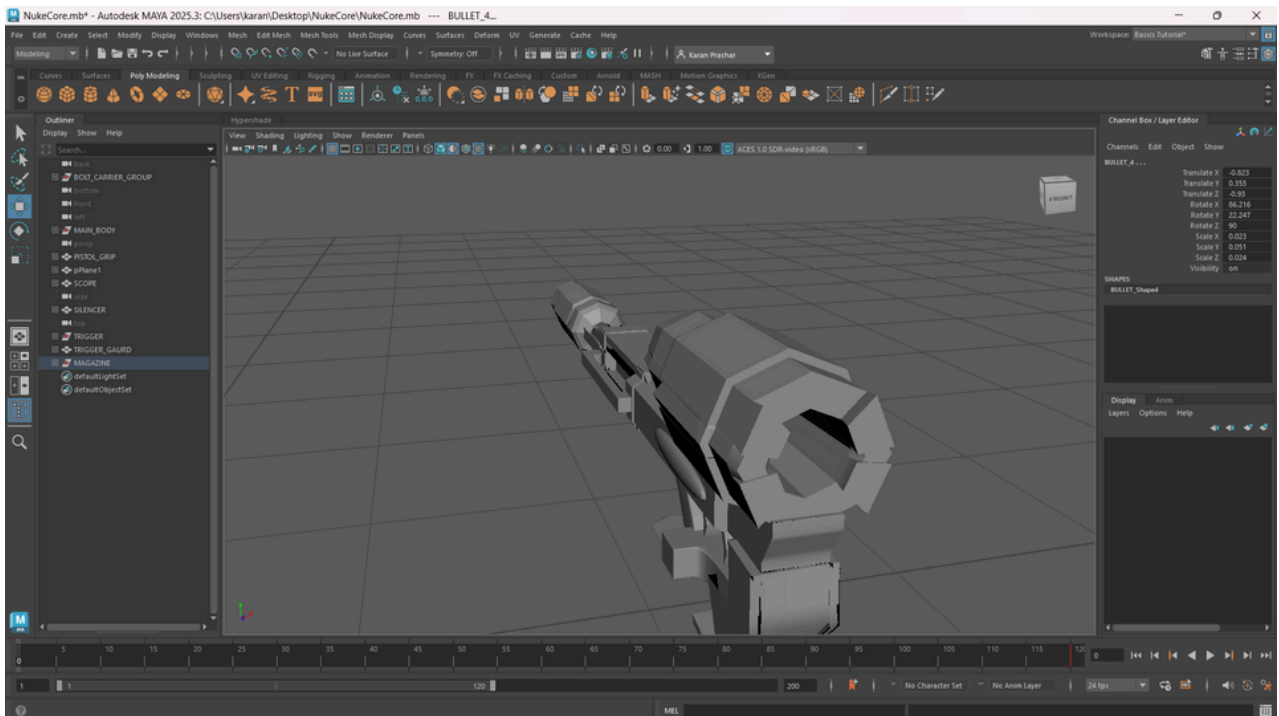
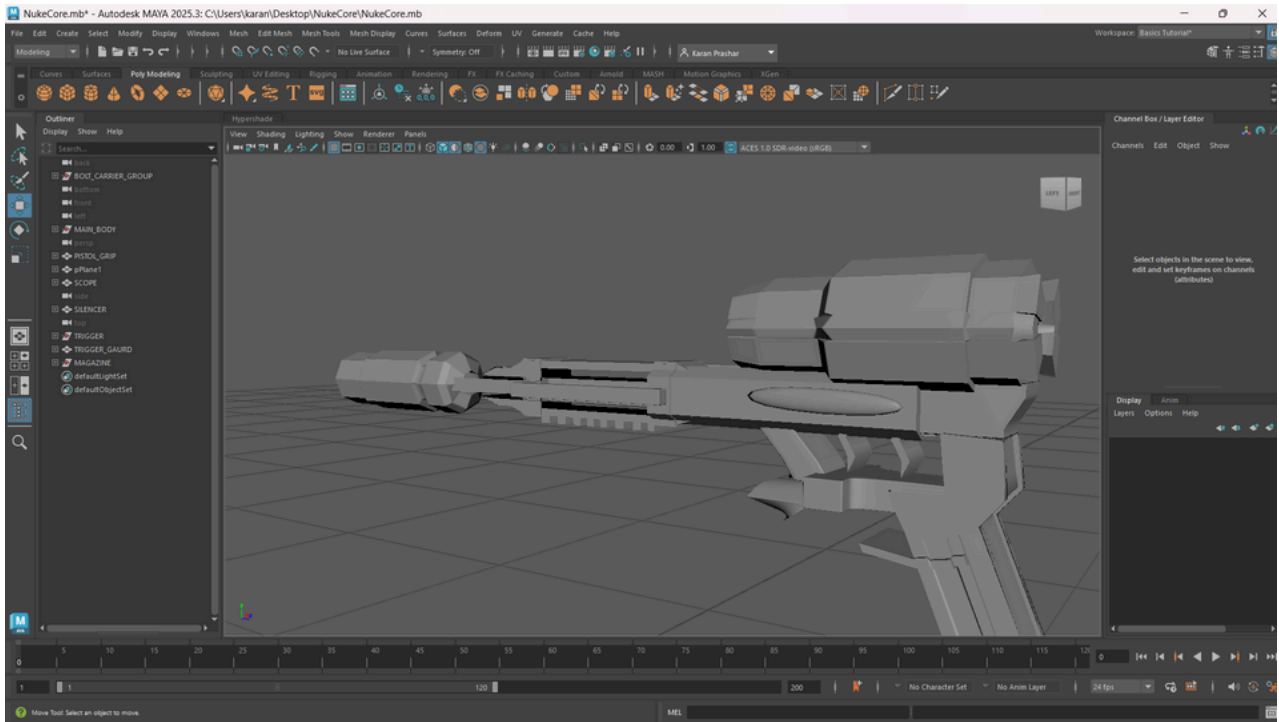
- Silencer



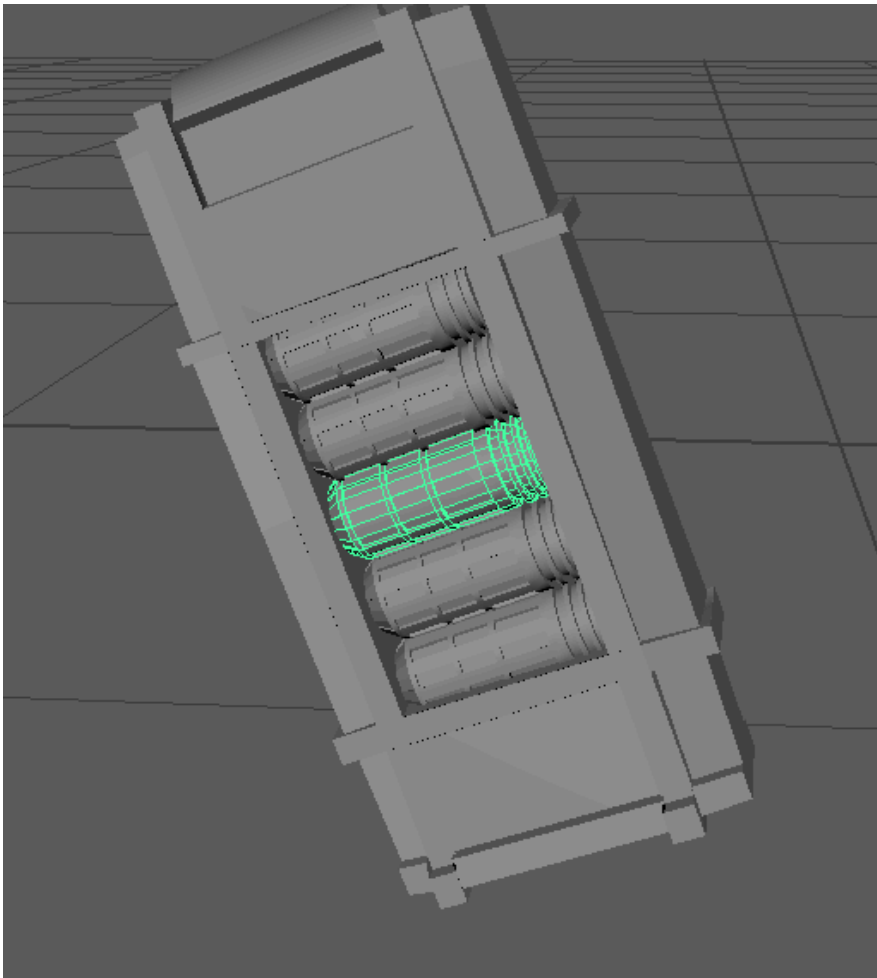
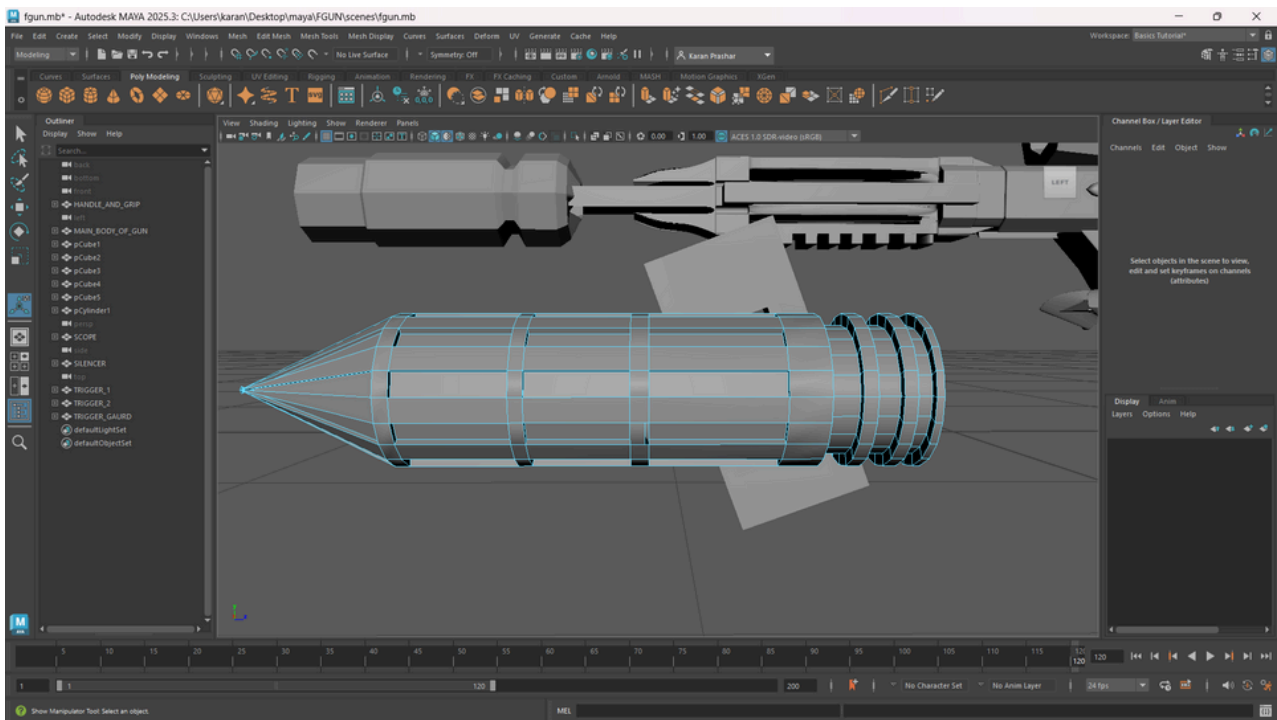
After all this our model looked like



After adding few more details, our model looked like



- Magazine and bullets



Step : 4

After completing the modeling process, I applied colors and materials using various shaders to achieve different surface properties. Instead of using UV unwrapping, I directly imported textures and images onto the model. The shaders used for different parts are as follows:

- **Silencer:** Combination of Phong and Blinn shaders for a balanced reflective and metallic look.
- **Main Body:** Used a mix of Lambert, PhongE, Phong, and Blinn to achieve different surface effects.
- **Scope:** Applied PhongE for a sleek, reflective finish.
- **Grip:** Used Lambert for a matte look and Phong for slight reflections.
- **Triggers:** Applied PhongE for a glossy, polished effect.
- **Magazine:** Used Lambert for a simple, non-reflective look.
- **Bullets:** Used Lambert to maintain a uniform, diffuse appearance.

Tools Used in NukeCore Modeling

Software:

- **Autodesk Maya** – 3D modeling, shading, and rendering
- **GIMP** – Image editing and texture creation
- **Krita** – Digital painting and texture adjustments
- **Sketchfab** – Uploading and previewing the 3D model

Modeling Techniques:

- **Extrusion** – Used to add depth and shape different parts
- **Edge Cutting (Multi-Cut Tool)** – To refine and add more detail
- **Face Selection & Manipulation** – Adjusting individual faces for better geometry
- **Beveling** – Smoothing out sharp edges for realism

Shaders & Materials Used:

- **Lambert** – Used for magazine, bullet, and grip (matte finish)
- **Blinn** – Applied to parts of the silencer and main body for reflections
- **Phong** – Used on the main body for a glossy effect
- **Phong E** – Applied to scope, triggers, and some main body parts for better specular highlights

Challenges Faced

- **Overwhelmed by Design Complexity:** Initially, the sheer amount of details and parts in NukeCore's design made it difficult to decide how to structure the model. Breaking it down into separate sections and focusing on one part at a time helped manage the workload.
- **Shader & Material Selection:** Choosing the right combination of Lambert, Blinn, Phong, and Phong E shaders for different parts required experimentation to achieve the desired look.
- **No UV Wrapping:** Since UV wrapping wasn't used, applying textures directly onto surfaces required careful placement and adjustments.

Final Product

