**Abstract**

Title: **3D Product Design Web Application**

The 3D Product Design web application is an innovative platform enabling users to interact with product designs in a three-dimensional perspective. This immersive experience allows users to examine and customize objects, such as t-shirts, by adjusting attributes like color and adding logos. The application employs cutting-edge technologies including React.js, three.js, framer Motion, and Tailwind CSS.

Key Features:

1. Interactive 3D Modeling: Users can load, create, and manipulate intricate 3D models and geometries, complete with dynamic lighting effects. The application facilitates a comprehensive understanding of the 3D environment, including camera controls and object positioning in space.

2. Modularity and Scalability: The project emphasizes code reusability and scalability, employing industry-standard practices like Higher Order Components (HOCs) to enhance maintainability and extend functionality.

3. Customization Options: Users can apply custom colors and upload files to personalize their designs, offering a high degree of creative freedom.

4. DALLE AI Integration: The application leverages DALLE AI to generate and utilize images, enhancing the visual representation of the product.

5. Downloadable Models: Users have the option to download the final rendered image of the customized product, ensuring accessibility and convenience.

6. Cross-Device Responsiveness: The application is optimized for responsiveness across various devices, providing a seamless user experience on desktops, tablets, and mobile phones.

7. Performance Optimization: Efforts have been made to enhance the site's performance, ensuring swift loading times and smooth interactions.

By combining the power of React.js, three.js, framer Motion, and Tailwind CSS, this web application offers a dynamic and intuitive platform for immersive 3D product design experiences. Users can effortlessly visualize and customize objects, making it an invaluable tool for product development and customization.

**Abstract**

Title**: Full Stack MERN AI Image Generation App**AI image generation, an exciting and rapidly evolving field in the realm of artificial intelligence. In recent years, there has been a significant advancement in the capabilities of machine learning algorithms, particularly in the area of generative models. With the development of deep learning techniques, researchers have been able to create powerful AI models that can generate images that are nearly indistinguishable from real images. These AI image generation models have numerous potential applications in various fields, including entertainment, design, and advertising.

This project was inspired by one of such powerful AI image generation models: OpenAI's DALL-E

This is a full-stack web application developed using the MERN stack. The application allows users to create AI-generated images using OpenAI's DALL-E API, based on their input text. The speciality of the developed application is, it offers a modern and minimal design with dynamic layouts, hover effects, and sharing options with the community.

Technology Stack:

- Client: HTML, TailwindCSS, JavaScript, React

- Server: NodeJS, Express, MongoDB, Cloudinary

- API: OpenAI's DALL-E