RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

MARKETING CAMPAIGN

OF OUR GAME

A MINI-PROJECT REPORT

Submitted by

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RAJALAKSHMI ENGINEERING COLLEGE CHENNAI – 602105 BONAFIDE CERTIFICATE

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ABSTRACT

This car animation video showcases the seamless integration of Maya and Unreal Engine to create a high-quality, realistic automotive simulation. The video features a dynamic car model navigating through various environments, demonstrating intricate details in both vehicle design and environment interactions. The animation emphasizes smooth, lifelike motion through realistic physics simulations, including accurate suspension movements, tire friction, and realistic driving behavior. In Maya, the car model is meticulously created, rigged, and animated, with precise attention given to the vehicle's movement, material properties, and lighting. The animation incorporates advanced techniques such as keyframe animation, inverse kinematics, and dynamics to ensure the car reacts naturally to different terrains and driving conditions. Once the car animation is ready, Unreal Engine is used for real-time rendering and environmental immersion. The engine's powerful lighting system, advanced textures, and visual effects bring the scenes to life, while the car's motion is enhanced with Unreal's physics engine for real-time interaction with the world. The combination of Maya’s animation capabilities and Unreal

Engine’s rendering power creates an engaging, visually stunning experience that showcases both the artistry of the vehicle design and the technical prowess behind its motion and environment.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Welcome to this exciting car animation showcase! In this project, we've combined the powerful 3D modeling and animation capabilities of Maya and Blender with real-time rendering from Unreal Engine to bring a dynamic and realistic car animation to life. The car model was carefully crafted in Maya and Blender, with attention to every detail, from the bodywork to the intricate components under the hood. Using both software platforms, we employed advanced rigging and animation techniques to create fluid, lifelike movements of the vehicle, such as acceleration, suspension dynamics, and steering adjustments. The car moves smoothly across different terrains, capturing the essence of real-world physics. After animating the car in Maya and Blender, the scene transitions into Unreal Engine, where we bring the environment to life with real-time lighting, effects, and textures. The Unreal Engine's powerful capabilities allow us to showcase the car's movements in a fully immersive, interactive world, ensuring the animation flows seamlessly. This animation demonstrates not only the artistic and technical skill behind vehicle modeling and animation but also the integration of multiple platforms to achieve high-quality, visually stunning results. Sit back and enjoy this fusion of design, technology, and motion!

CHAPTER 2
LITERATURE REVIEW

2.1) CarX Drift Racing focuses its marketing on gameplay clips, showcasing its drifting mechanics, car customization, and realistic physics through YouTube, Twitch, and social media. While this approach effectively attracts fans of the genre, it lacks broader marketing efforts like influencer partnerships or large-scale campaigns, limiting longterm community engagement.

2.2) Need for Speed, in contrast, relies on high-quality cinematic trailers that generate excitement with action-packed visuals and street racing themes. However, while these trailers create pre-launch buzz, the franchise lacks strong community-driven engagement, missing opportunities for sustained interaction through user-generated content or influencer campaigns. This limits its ability to maintain long-term player involvement.

CHAPTER 3

SOFTWARE USED (AUTODESK MAYA 2025 & BLENDER 4.0)

This project was created using a combination of Autodesk Maya 2025 and Blender 4.0, two of the most widely used 3D animation software tools in the industry. Autodesk Maya was chosen for modeling and animation, as it provides advanced rigging tools. Given that the animation relies heavily on posture rather than detailed facial expressions, Maya's flexibility helped in achieving the desired effect. Blender was utilized for environmental modeling, texturing, and final rendering. Its Cycles rendering engine was particularly useful in creating the lighting transitions that visually represent emotional change. The contrast between the character's metallic black form and the vibrant surroundings was enhanced using Blender's shading tools.

AUTODESK MAYA 2025

BLENDER 4.0

ADOBE ILLUSTRATOR

CHAPTER 4 PRESENT TECHNOLOGY

Evolution of 3D Modeling, Animation & Game Development

Advancements in Autodesk Maya, Blender, and Unreal Engine continue to redefine creativity, realism, and efficiency in digital content creation.

4.1) Autodesk Maya: Advanced Animation & Simulation

Maya remains a leading choice for animation studios, offering powerful tools for character rigging, procedural workflows, and simulations. Bifrost, its node-based system, enables realistic effects for water, smoke, and fire. Machine learning-based tools streamline rigging and animation tasks, automating weight painting and motion capture cleanup. USD (Universal Scene Description) support enhances cross-platform collaboration, ensuring smooth integration with other 3D software.

4.2) Blender: Open-Source Innovation & Real-Time Rendering

Blender's open-source model and continuous updates have made it a favorite among independent creators and professionals. Eevee enables real-time rendering, while Cycles X improves path-tracing efficiency for photorealistic visuals. Geometry Nodes automate procedural modeling, and VR sculpting allows immersive 3D creation. Community-driven development ensures constant innovation through add-ons and enhancements.

4.3) Unreal Engine: Real-Time Graphics & Virtual Production

Unreal Engine has transformed game development, film production, and architectural visualization with real-time rendering. Nanite technology handles billions of polygons without performance loss, while Lumen enhances lighting realism. It also leads virtual production through LED volume-based digital sets. MetaHuman Creator simplifies high-fidelity character design, and Blueprint scripting enables game development without extensive coding knowledge.

Adobe Illustrator: Precision & Versatility in Design

Adobe Illustrator remains a premier vector-based design tool, offering precision, scalability, and seamless workflow integration.

4.4) Precision & Scalability

Vector-based graphics allow designs to scale infinitely without quality loss, essential for branding elements like logos and promotional materials.

4.5) Advanced Typography

Illustrator provides robust typography tools, facilitating font pairing, text manipulation, and typographic hierarchy—ideal for ID cards, certificates, and marketing designs.

4.6) Intuitive Drawing Tools

The Pen Tool and Shape Builder make intricate designs effortless, supporting detailed artwork, logos, calendars, and posters.

4.7) Efficient Workflows

Seamless integration with Photoshop, After Effects, and other Adobe Creative Cloud applications enhances productivity and design consistency.

CHAPTER 5

OUTPUT

Fig 1: 3D Car Modelling and Rigging in Blender

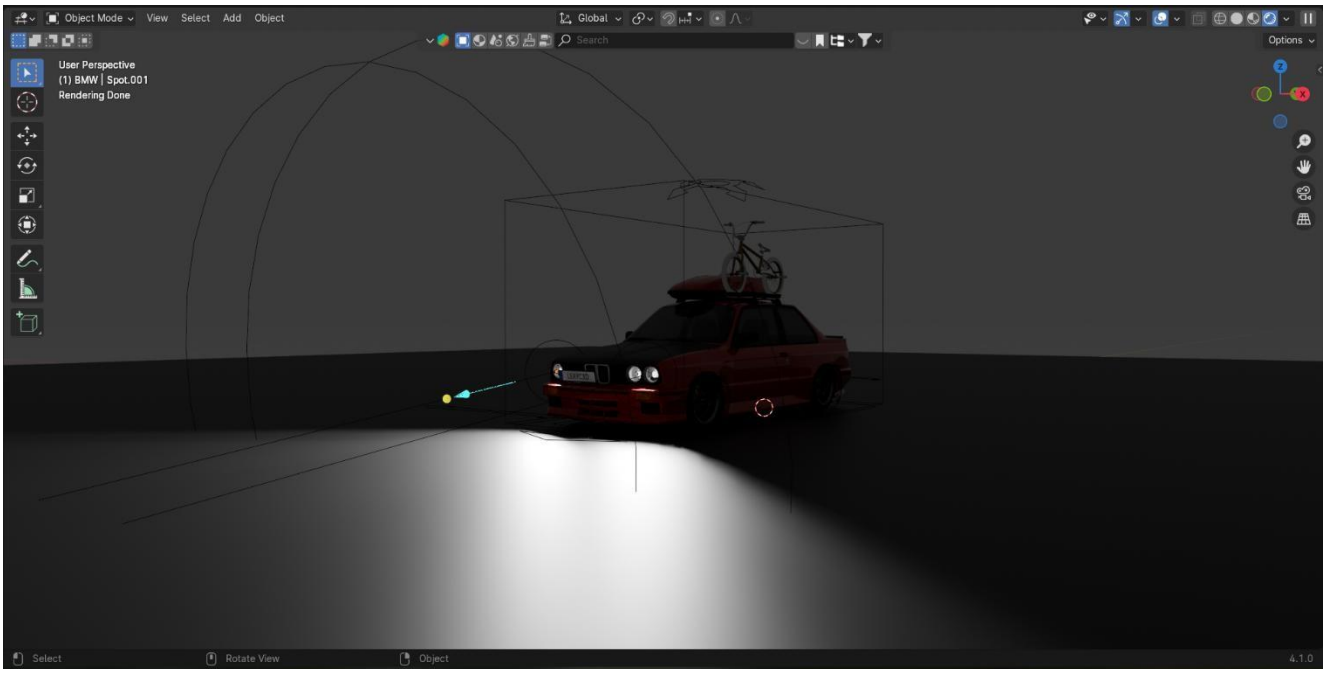

Fig 2: Rendered scene of Car Modelling and Rigging

Fig 3: Bridge Highway scene in Viewport

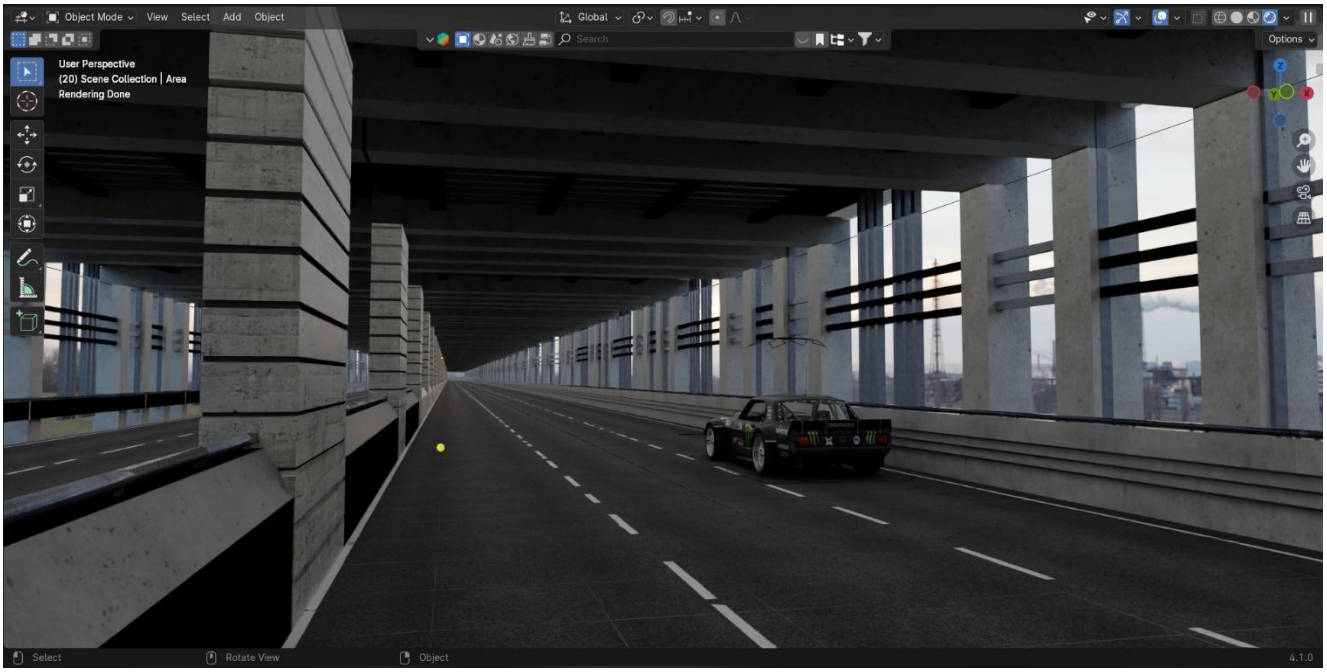

Fig 4: Render view of Bridge Highway scene

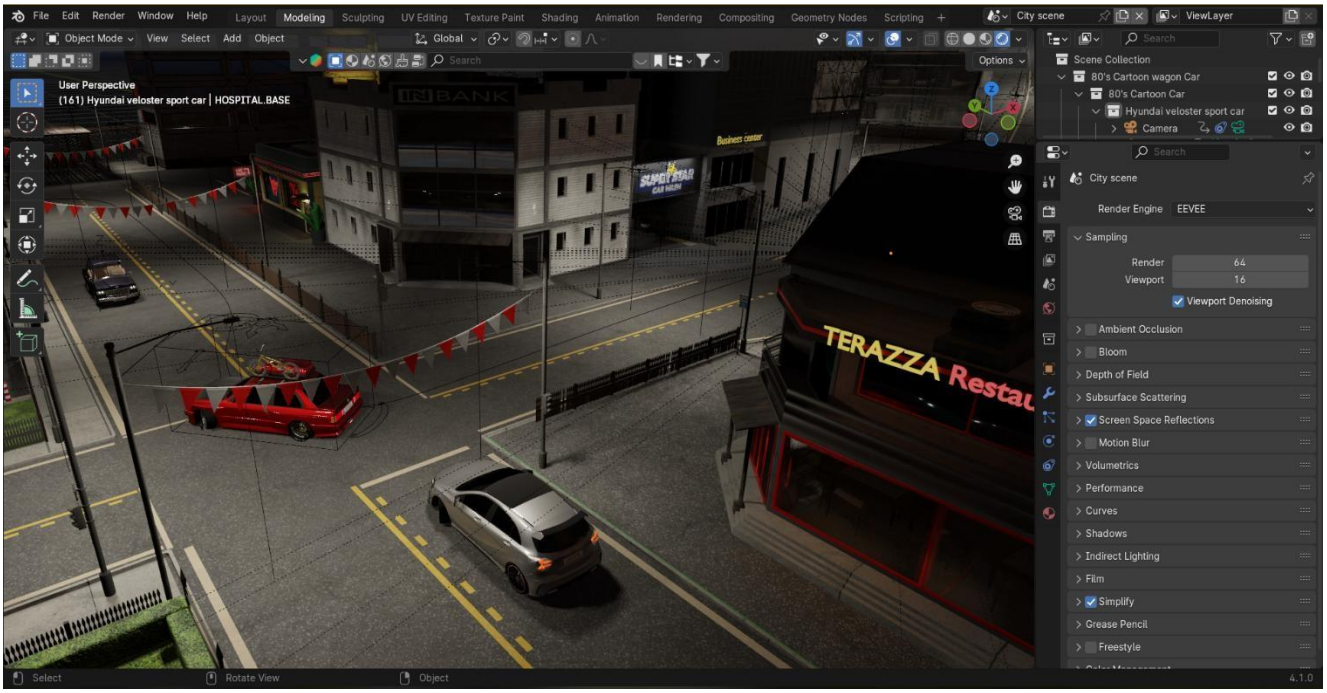

Fig 5: Key Shot1 from the trailer

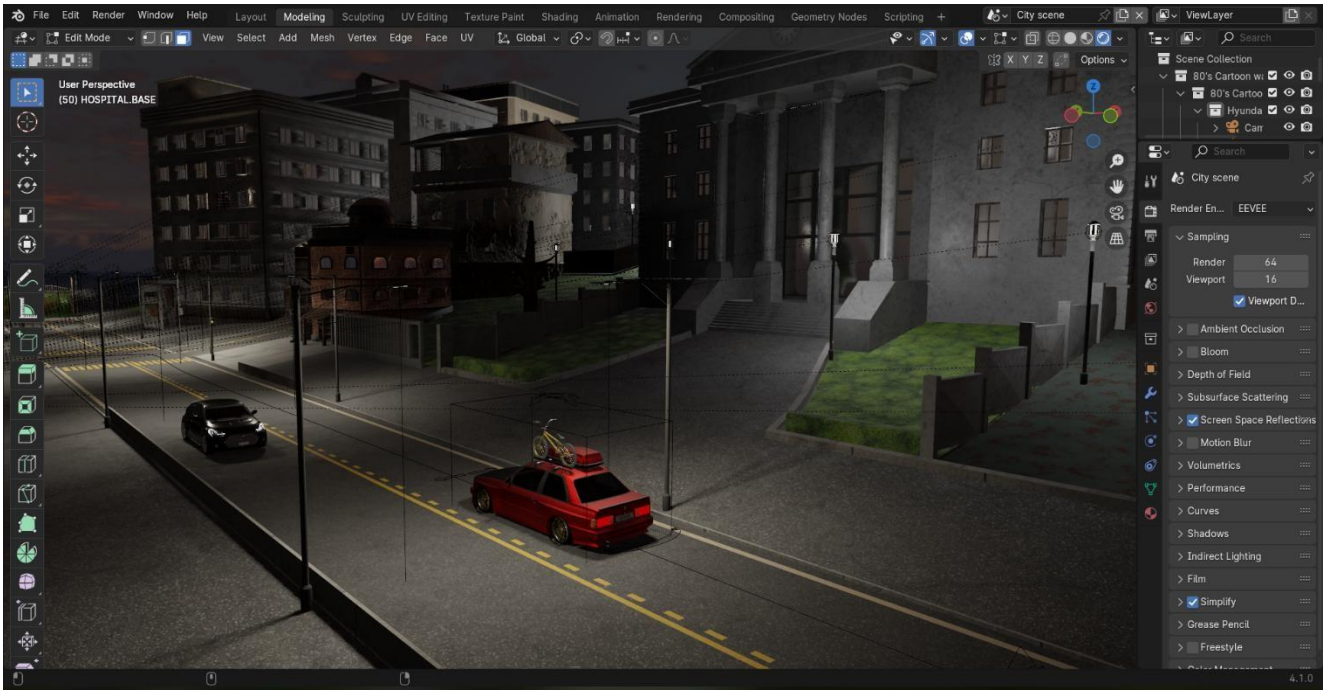

Fig 6: Key Shot2 from the trailer

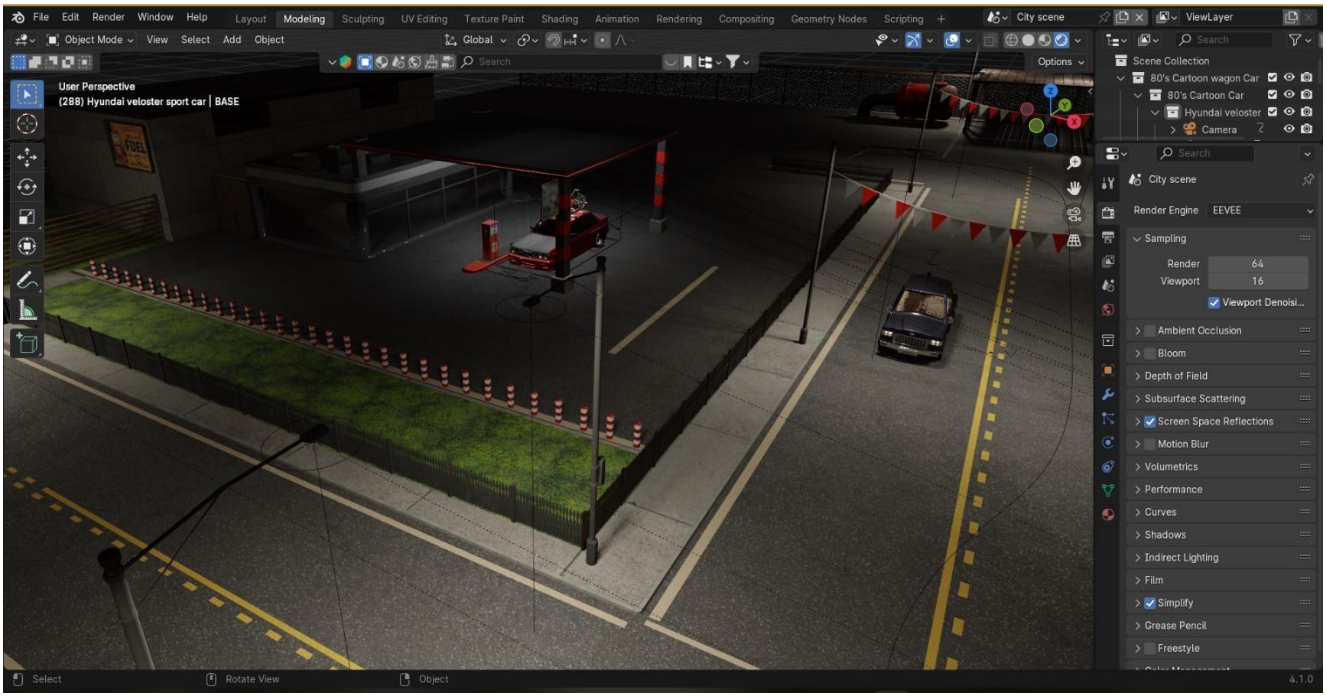

Fig 7: Key Shot3 from the trailer

Fig 8: Key Shot4 from the trailer

Fig 9: Game logo made in Illustrator

Fig 10: Merchandise made to promote the Game

CHAPTER 6

CHALLENGES AND LIMITATIONS

Rendering a video glimpse trailer for a car drifting game set in Japan presents several challenges and limitations, primarily in hardware constraints, rendering difficulties, and various environmental factors. One of the most significant obstacles is hardware limitations. High-quality rendering requires powerful GPUs with ample VRAM, highspeed CPUs, and sufficient RAM to handle complex scene processing. If the hardware is not up to par, rendering times can become excessively long, and real-time rendering may not be feasible, leading to compromised video quality or reduced frame rates.

Another major challenge is rendering difficulties, particularly when dealing with highspeed motion, dynamic reflections, and particle effects. Car drifting inherently involves rapid camera movements, tire smoke, and skid marks, all of which demand high-fidelity rendering to maintain realism. Ensuring smooth motion blur, accurate physics-based animations, and real-time reflections on car surfaces increases the computational load. Additionally, lighting plays a crucial role in setting the mood, especially for night-time or neon-lit street drifting scenes, requiring advanced techniques such as ray tracing or global illumination, which can further stress the rendering pipeline.

Optimizing textures and models is another challenge. To maintain an immersive experience, the game must feature detailed car models, realistic environments, and highresolution textures. However, excessive polygon counts and high-resolution assets can lead to memory overload, causing rendering delays or crashes. Balancing visual fidelity with performance efficiency requires meticulous optimization techniques such as level of detail (LOD) adjustments and texture compression.

Furthermore, post-processing effects such as motion blur, depth of field, bloom, and color grading add to the rendering complexity. These effects enhance the cinematic appeal of the trailer but also increase the rendering workload. Striking a balance between aesthetics and performance is crucial to achieving a visually compelling result without overburdening the rendering engine.

Another limitation comes from the software itself. Rendering engines have their own constraints, and depending on the software being used, certain effects or optimizations might not be available or may require workarounds that further extend the rendering time. Compatibility issues between rendering engines, video editing software, and hardware drivers can also lead to unexpected bottlenecks.

Lastly, the sheer file size of a high-quality trailer poses a storage and processing challenge. Rendering at resolutions such as 4K with high frame rates results in large output files, which can be difficult to store, edit, and upload efficiently. Compression techniques must be carefully employed to maintain video quality while keeping file sizes manageable.

Overall, rendering a high-quality video glimpse trailer for a drifting game set in Japan requires overcoming multiple challenges, from hardware limitations and rendering difficulties to software constraints and optimization concerns. Addressing these issues with careful planning, optimized assets, and efficient rendering workflows ensures a visually stunning and performance-friendly trailer that captures the essence of high-speed drifting in an immersive Japanese setting.

CHAPTER 7

CONCLUSION

From concept to completion, this animation showcases the seamless fusion of creativity and technology. Leveraging the power of Maya and Blender, every frame captures precision, motion, and realism, bringing the car to life with dynamic visuals and fluid animation. This project stands as a testament to the possibilities of 3D animation, pushing the boundaries of design and storytelling. In conclusion, creating a video glimpse trailer for a car drifting game set in Japan is a complex yet rewarding task that demands careful consideration of multiple technical and creative aspects. Hardware limitations, rendering difficulties, software constraints, and optimization challenges all contribute to the overall complexity of the project. By strategically balancing performance with visual fidelity, implementing efficient rendering techniques, and optimizing textures and effects, it is possible to create a visually stunning trailer that successfully captures the excitement of high-speed drifting. With a well-structured workflow and the right tools, overcoming these challenges becomes feasible, ultimately resulting in an engaging and immersive presentation of the game.

CHAPTER 8

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