CSC301 AI Assignment Report Template

Team Name	WeWantTwo	Sub-Team Name	LovableFrontend
Sub-Team Members	Kevin Lee, Sophie Miao, Barron Jiang, Abu Zahed		
Video Presentation Link	https://youtu.be/SHyPuBpogRU		
PR Link	AI Assignment Frontend integrate Lovable to enhance UI/UX by heibaihaiermao · Pull Request #10 · csc301-2025-y/6-SEOSearchEngine		
README Link	6-SEOSearchEngine/README.md at frontend-ai · csc301-2025-y/6-SEOSearchEngine		

Please take each bullet point and turn it into a complete section. Add explanations to flesh out each idea, then make a presentation video.

Part 1 – Planning:

1. Identifying the problem/improvement

The original UI lacked visual clarity and modern appeal, which made it difficult for users to quickly understand and engage with the platform's AI-powered features. Key actions like "Create Your First Blog" didn't stand out, and the overall design felt generic and unpolished, especially in conveying the advanced nature of the product.

To address this, we used Lovable, an AI-powered UI/UX tool, to enhance layout, contrast, and user flow. The AI helped automate visual hierarchy adjustments, improve CTA visibility, and recommend cleaner spacing and font treatments to guide user attention more effectively. This resulted in a more polished and engaging interface that better communicates value and encourages user interaction.

2. Criteria, Research, Selection

Our main criteria for selecting an AI solution were ease of integration, visual design enhancement, automation of UI decisions, and support for both light and dark modes. We considered tools like Uizard, Galileo AI, and Lovable. After comparing options, we chose Lovable for its strong performance in UI analysis, speed, and minimal setup requirements. Unlike model-heavy frameworks, Lovable didn't require custom model training or large datasets, making it more feasible within our development timeline.

Lovable integrates smoothly with modern frontend tech stacks like React and Tailwind CSS, which we already use. Since our focus was improving UX, we did not require custom data pipelines or ethical bias mitigation. However, Lovable's design suggestions are based on best practices and user-centric heuristics, aligning well with our goal of enhancing clarity and

usability. Its low resource demands and actionable recommendations made it the most practical and impactful choice.

Part 2 – Implementation:

We chose Lovable for its AI-powered design capabilities and also because one of our partners provided access to a Lovable Pro account, giving us full access to its premium features at no extra cost. A major advantage was the ability to link our GitHub repository directly to Lovable, eliminating the need to manually take and upload screenshots. This made it easy to generate real-time UI suggestions within our existing development flow. Since Lovable is a design tool rather than a traditional model, we didn't need to set up data pipelines, APIs, or manage infrastructure.

To implement the improvements, we synced our project with Lovable, reviewed AI-generated design recommendations, and incorporated those changes into our React and Tailwind CSS codebase. The main challenge we faced was adapting some layout suggestions to match our reusable component structure. We resolved this by carefully adjusting utility classes and testing changes in our dev environment to maintain responsiveness and design consistency across pages.

Part 3 – Impact Analysis:

To measure the impact of Lovable's AI-driven UI improvements, we combined qualitative feedback with structured survey data. Although we didn't track quantitative metrics like click-through rate due to project limitations, user testing revealed clearer navigation and more intuitive interaction, particularly around key elements like the "Create Your First Blog" CTA. Team members and testers consistently noted that the updated UI looked more professional and was easier to use. To further evaluate effectiveness, we created a 5-star rating survey across key categories and administered it to 15 individuals (friends and family). Each participant evaluated both the original (Pre-AI) and the updated (Post-AI) versions of the site, allowing us to directly compare user perceptions before and after the AI enhancements.

Survey results:

	Ease of use	Creativity	Speed	Design/Layout	Completeness
Pre-AI	3.4	3.5	4	4.1	2.5
Post-AI	4.5	4.2	4.1	4.3	4

As seen in the table above, the Post-AI version received consistently higher scores across all categories, with the most significant improvement in Completeness, followed by Ease of Use. While Creativity and Design/Layout also improved, we note that this category remained relatively constrained due to our instruction for Lovable to closely follow the original site's structure and layout.