

Reflection Document – Omar Allam

Reflection on Enhancing a Calculator UI Using Aider and Gemini Pro

Initial Expectations:

I expected Aider to greatly reduce the effort involved in modifying an unfamiliar codebase, particularly for tasks like applying a dark theme to the UI. I was looking forward to a smooth, AI-assisted experience with minimal manual coding.

Process Reflection:

The setup phase came with a few technical challenges. Installing Aider and configuring the development environment required attention to detail. Git needed to be manually installed and added to the system PATH. Once everything was in place, including the Gemini API key, Aider functioned effectively. The tool's interface allowed me to interact using natural language, and the suggestions it provided were generally accurate and easy to apply with Git-based version control.

AI in the Development Workflow:

Using Gemini Pro through Aider turned out to be a valuable experience. It generated CSS rules for the dark theme, managed Git diffs automatically, and clearly explained its reasoning behind code changes. It also provided fallback suggestions when necessary and used structured SEARCH/REPLACE blocks, which made it easy to verify edits. I found that the quality of results depended heavily on how clearly the instructions were phrased, reinforcing the importance of effective communication with AI tools.

Challenges and Lessons Learned:

One limitation I encountered was rate-limiting during extended use, which eventually led me to continue the task manually. Additionally, Aider struggled when working with empty files or incomplete code, requiring manual re-prompts or clarification. Despite these issues, the experience taught me that while AI tools can enhance productivity, having a solid understanding of the codebase remains crucial, especially when AI assistance is limited or unavailable.

Conclusion:

Aider, combined with the Gemini Pro model, proved to be a powerful assistant for UI improvements and code refactoring. Although the setup required some effort and there were occasional limitations, the tool significantly accelerated the development process. This assignment offered meaningful insights into the strengths and current limitations of integrating AI into software development workflows.