

Challenges Faced & Learnings

+ Debugging :

1. Git and Version Control

- **Challenge:** Faced major issues with branch synchronization between local and remote repositories, which led to overwritten files and data loss.
- **How I solved it / learned:** Understood the importance of branch protection, and making frequent commits. Rebuilt the project from scratch, which helped me deeply understand each component and flow.

2. Docker and Service Integration

- **Challenge:** The Docker Compose setup initially failed to connect the backend and Qdrant services correctly.
- **How I solved it / learned:** Learned how container networking works, and tested services individually using Docker Engine. Eventually ran Qdrant and backend manually to ensure functionality.

3. Testing (Pytest & Integration)

- **Challenge:** Unit tests failed due to missing mock data and incorrect environment configurations.
- **⛔ Didn't solve:** Switched to integration testing by connecting real services (Qdrant and OpenAI API). This helped me understand the difference between isolated unit tests and end-to-end validation. But still there was an issue which I couldn't resolve due to time constraint and also lack of exposure in pytest.

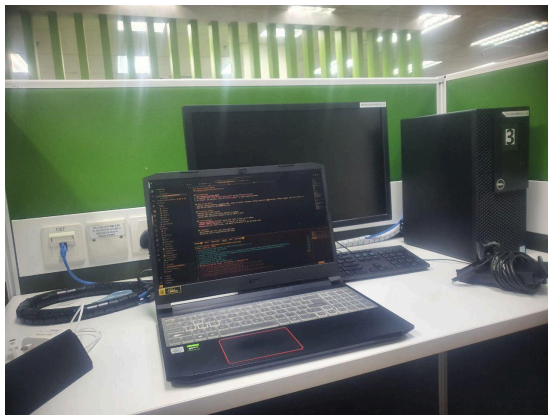
4. System Architecture Understanding

- **Challenge:** Initially struggled to understand the interaction between components — frontend, backend, Qdrant, and OpenAI API.
 - **How I solved it / learned:** Mapped out the architecture, understood the RAG (Retrieval-Augmented Generation) pipeline, and documented the workflow in the README.
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Challenges 🙄:

1. External Constraints

- **Challenge:** Unexpected power blackouts in my area affected my development schedule.
- **How I solved it / learned:** Continued my work by moving to local shops and libraries to stay productive — often working late nights to ensure progress. This experience reinforced my focus, discipline, and ability to adapt under challenging conditions.



Picture : Local library



Picture : Local shop

