

Key Learnings

This project was a hands-on learning experience that provided me with a strong understanding of several core concepts in modern web development and software architecture.

1. Full-Stack Frameworks and the ORM

- I learned how to use a full-stack framework (Frappe) that provides a comprehensive toolkit for building web applications quickly.
- I gained practical experience with an **Object-Relational Mapper (ORM)**, which allowed me to interact with the MariaDB database using Python objects rather than raw SQL queries. This is crucial for building maintainable and secure applications.

2. Server-Side Business Logic

- I learned the importance of **server-side validation** and business logic. By implementing the invoice calculation in Python, I ensured that the data is always correct before it is saved to the database.
- I understood the concept of **hooks** and **events**, which are fundamental to building automated and reactive systems.

3. Deployment and Infrastructure

- I gained hands-on experience with **cloud deployment** on Google Cloud Platform (GCP).
- I learned how to debug and manage an application in a Linux environment, including resource management (swap files, disk resizing) and process management (honcho, tmux).

4. Low-Code/No-Code Capabilities

- I discovered the power of **low-code development**. I was able to build the data model (DocTypes), UI, and even simple reports and dashboards using graphical tools, dramatically speeding up the development process.
- This experience taught me when to use a low-code approach (for simple calculations and UI) and when to write custom code (for complex business logic).

5. Security and Permissions

- I learned how to implement a **role-based access control (RBAC)** system. By configuring