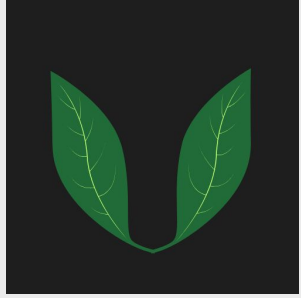


**Ahmedabad
University**

ENR497: B.Tech. Engg. Project

School of Engineering & Applied Science

(Winter 2024)



Udgam: A Community-Driven Organic Marketplace

Aditya Dave (AU2140100)

Duration:

Start date of project (Jan 2025)

End date of project (April 2025)

Outline of Presentation

- Motivation
- Literature survey
- Overall objectives of the project
- Methodology for implementing the project
- Novelty in the project
- Gantt chart for the project
- Who will benefit from your work
- Main outcomes of the project

Motivation

- **Why Organic?**

Food is a basic need, but chemical farming harms health and soil in the long run.

- **Consumer vs Farmer Dilemma**

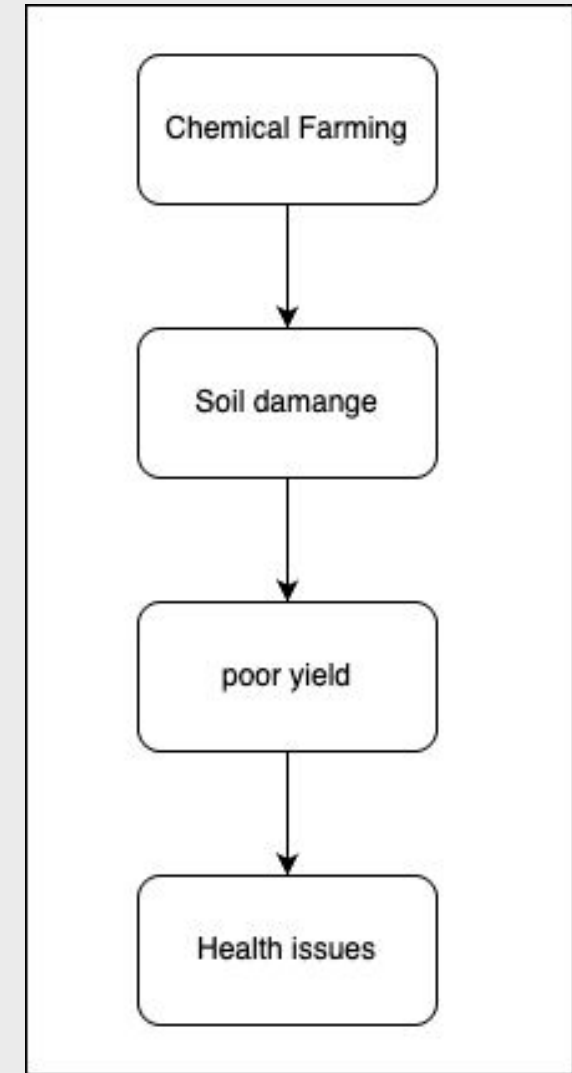
Consumers avoid organic due to high price; farmers avoid it due to high effort, cost, and low early yield.

- **Real Farmer Insight**

Farmer Vardha Rajan (Pune) shared challenges like high labor, animal upkeep, and low production.

- **Project Direction**

With Sir's agri experience, we chose organic farming for our BTEP after multiple idea discussions.



Literature survey

App name	Region Focus	Features	Drawbacks
FarmRise	India	Crop disease, news, mandi prices.	complicated UI
KissanAI	India	Regional LLM help	still evolving
Farmer.chat	USA	Farming chatbot	Costly and not india-focused

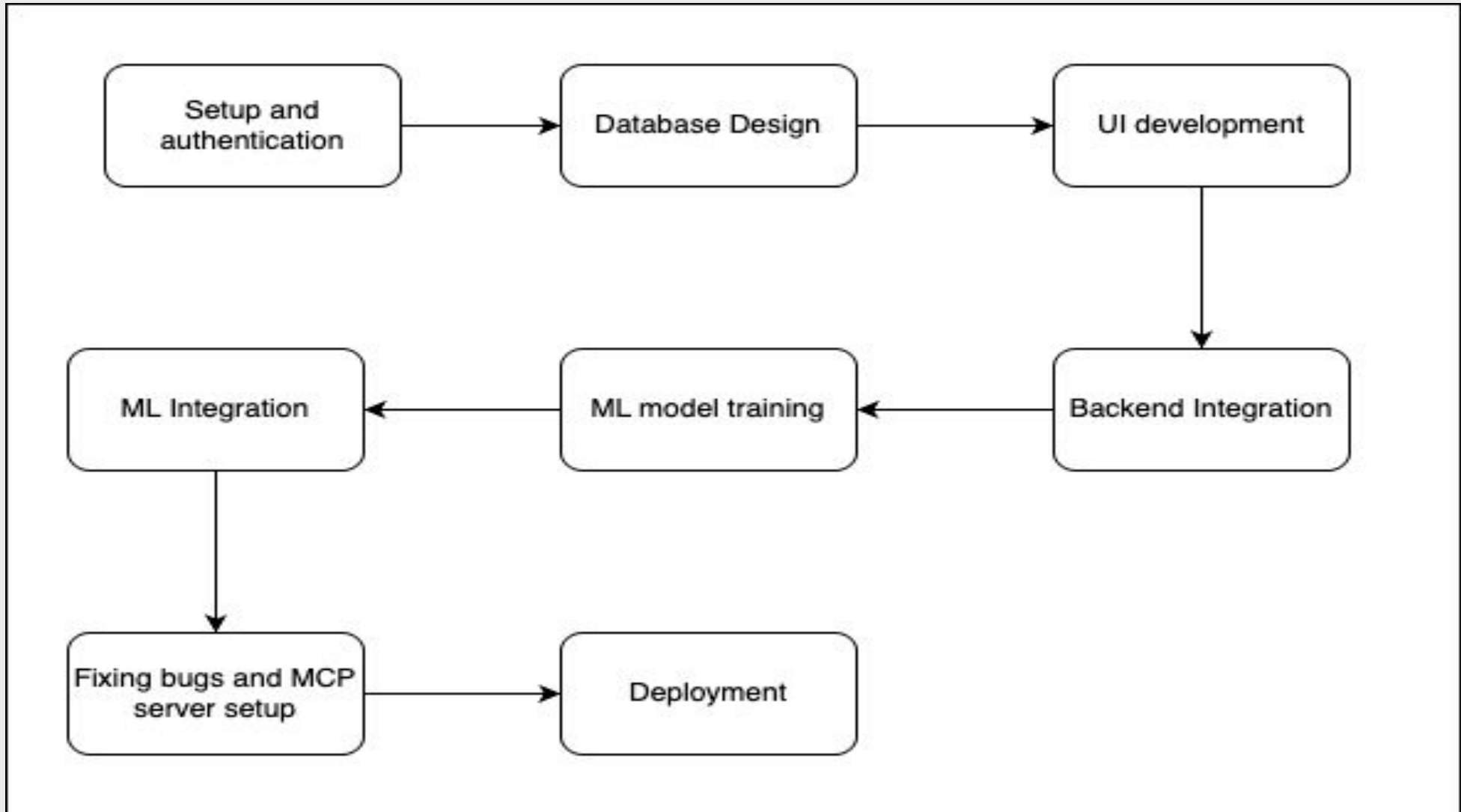
Relevant Tools and Technologies

- **Frontend & Backend:** Used **Flutter** for frontend; **Dart + Python** for backend.
- **Database:** Started with **Firebase**, later switched to **Supabase (PostgreSQL)** for better control.
- **APIs Used :** **News API** for agri updates, **Google Translate** for multilingual support, **ElevenLabs** for text-to-speech
- **Machine Learning :**Used **BERT**, **Matrix Factorisation**, and **Hugging Face Transformers** for personalization and text moderation.

Objectives of the project

- **Community for Awareness:** Build a platform where farmers & consumers interact, ask questions, and share organic farming knowledge.
- **Organic Marketplace:** Create a space to **buy/sell certified organic products**, solving availability issues.
- **Simple Farmer Onboarding:** Designed a smooth, 2-minute onboarding process so **any farmer** can join easily—unlike complex big platforms.
- **Personalised Experience:** Used ML for smart dashboards and **recommendations**, making the platform more helpful for each user.

Methodology



Novelty in the project

- **Community + Marketplace:** Combines organic farming discussions with sales platform.
- **AI Features:** BERT for text moderation, matrix factorization for recommendations.
- **Multilingual News:** Agriculture news with translation and text-to-speech.
- **Farmer Support:** Easy onboarding, sales analytics, and AI insights for small farmers.
- **Cross-Platform:** Flutter and Supabase for seamless, scalable app experience.

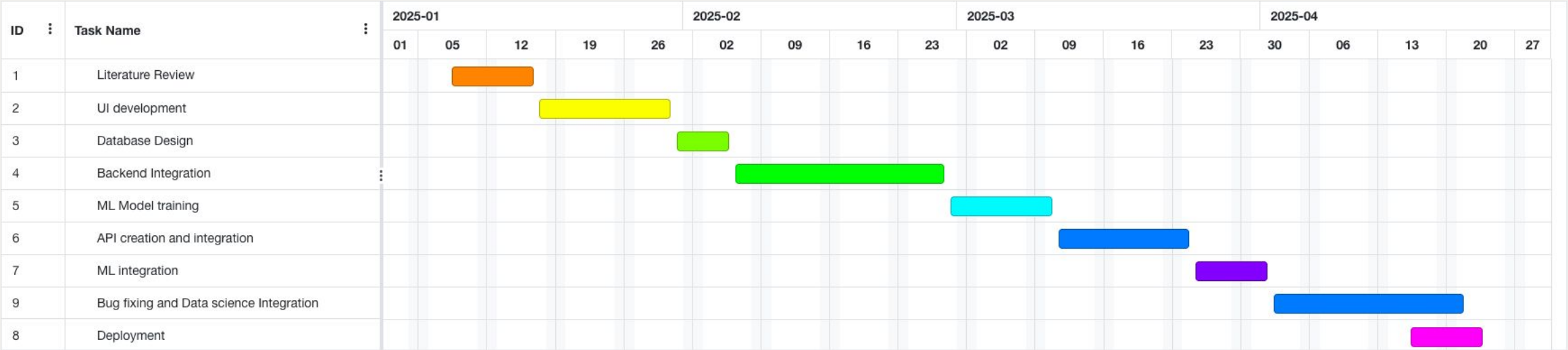
Learning outcomes

- Mastered **database management** with normalized PostgreSQL and RLS policies.
- Learned **API creation** using FastAPI with GET/POST requests.
- Gained expertise in **machine learning** with scikit-learn and matrix factorization.
- Applied **Flutter and Supabase** for cross-platform app development.
- Used contemporary technology like **MCP**.

Real-world Use Case:

- Is Udgam useful in the real world?
- If yes, then who can benefit from it?

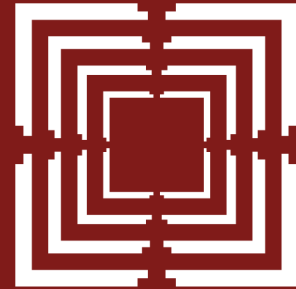
Gantt chart



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Project Outcomes

- Video Demo



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Thank You