SpendSense

Your AI-Powered Financial Coach

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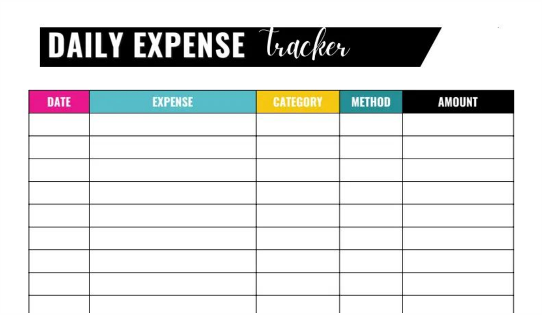
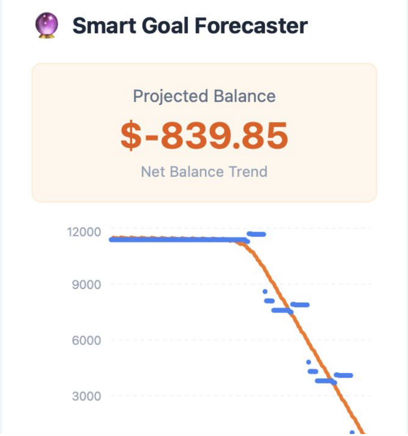
Problem and Solution



DAILY EXPENSE tracker

DATE	EXPENSE	CATEGORY	METHOD	AMOUNT

- Tracking every expense manually is tedious and unscalable.
- Only offer static charts that fail to inspire lasting behavioral change.
- Users lack visibility into their financial future, leaving them unaware of wasteful habits until it’s too late.



Smart Goal Forecaster

Projected Balance

$-839.85

Net Balance Trend

- Replaces manual entry with seamless aggregation through plaid API
- Shifts focus from "what happened" to "what will happen" using **Prophet ML model**.
- Transforms raw data into personalized behavioral nudges using **Generative AI**.

Architecture and Tech Stack

A RESTful Client-Server Architecture

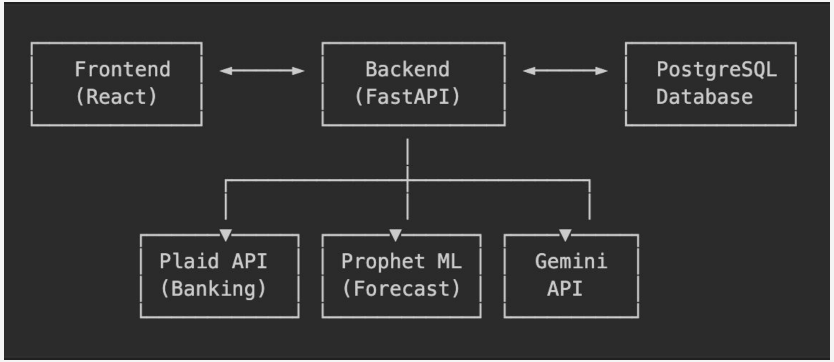
Frontend: React (Vite) + **Tailwind CSS** for responsive UI; **Recharts** for data visualization.

Backend: FastAPI (Python) for high-performance async orchestration.

Machine Learning: Facebook Prophet for time-series forecasting.

AI Agent: Google Gemini 2.5 Flash for generative insights.

Integrations: Plaid API for secure banking data aggregation.



Frontend (React)

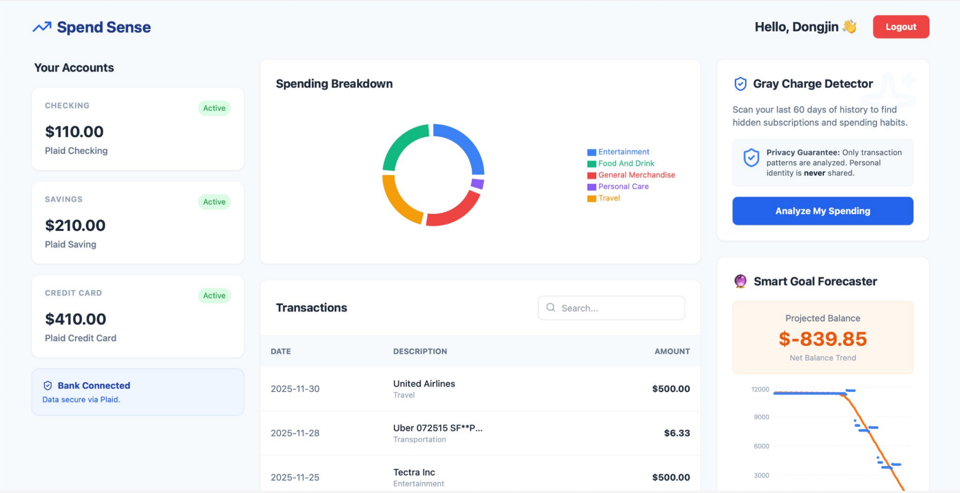
Backend (FastAPI)

PostgreSQL Database

Plaid API (Banking)

Prophet ML (Forecast)

Gemini API



Your Accounts

CHECKING Active
$110.00
Plaid Checking

SAVINGS Active
$210.00
Plaid Saving

CREDIT CARD Active
$410.00
Plaid Credit Card

Bank Connected
Data secure via Plaid.

Spending Breakdown

Transactions

DATE	DESCRIPTION	AMOUNT
2025-11-30	United Airlines Travel	$500.00
2025-11-28	Uber 072515 SF**P... Transportation	$6.33
2025-11-25	Tectra Inc Entertainment	$500.00

Gray Charge Detector

Scan your last 60 days of history to find hidden subscriptions and spending habits.

Privacy Guarantee: Only transaction patterns are analyzed. Personal identity is **never** shared.

Smart Goal Forecaster

Projected Balance
$-839.85
Net Balance Trend

Demo

Challenges and key learnings

Challenges:

- Plaid only provides current balances—reconstruct history balance by reversing transactions
- Linear Regression inadequate for account balance patterns—changed to Prophet
- Sequential API calls (Plaid → Prophet → Gemini) = high response time, identified need for async processing and caching for production

Key learning:

- Prioritizing scope, managing time constraints, and executing under pressure are critical
- Gained deeper understanding of trust, security, and privacy—sensitive data requires encryption, minimization, and thoughtful architecture

Thank you