FinMate – Generative AI Financial Assistant

Contents

Objective

FinMate is a Generative AI–powered financial companion that helps individuals understand their money, not just track it. It analyzes transactions, identifies spending trends, predicts risks, adapts to user emotions and explains everything in simple language. For the hackathon, we built a fully working RAG + AI + analytics MVP with elder-friendly mode, goal planning, wellness scoring and personalized conversations. In the future, FinMate will connect with banks via the Account Aggregator framework and provide multilingual, real-time, trustworthy financial guidance.

Problem Statement

1. People struggle with financial clarity

Most banking apps show raw numbers (transactions, balances), but **do not explain what they mean** or how users should act on them.
Users cannot easily answer:

- "Am I overspending?"

- "Can I afford a vacation?"

- "How do I reduce debt?"

2. Young professionals, freelancers and families face unique challenges

- Irregular income

- Growing expenses

- EMIs, bills, subscriptions

- No time or financial expertise

- Anxiety around money

3. Elderly users find digital finance complex

- Small UI, complex screens

- Lack of clear explanations

- Hard to interpret statements

4. Traditional banking apps lack personalization

- They give **data**, not **actionable guidance**.
- They don't identify patterns, risks, or opportunities.

5. Finance is emotional

Users worry about:

- running out of money

- managing EMI

- saving for future

But apps are emotionless.

Proposed Solution – FinMate (Your Product)

FinMate is a **Generative AI–powered personal financial assistant** that acts like a **trusted advisor**, not just a tracker.

Core Idea

"What if your financial app could talk to you like a human advisor who understands your spending behavior, income patterns, emotions and goals?"

FinMate transforms raw financial data into:

- clear insights

- personalized recommendations

- actionable steps

- empathetic conversation

- explanations you can understand

How FinMate Solves the Problem

1. Conversational Financial Coach (with RAG)

Users can ask:

- "Can I afford a vacation?"
- "Why is my spending high this month?"
- "How to reduce debt?"

The assistant:

- Retrieves your transactions + knowledge base
- Generates a personalized conversational answer
- Explains *why* it gives that answer
- Adapts tone (reassuring | neutral | encouraging)

2. Automatic Categorization & Insights

FinMate instantly analyzes:

- Income vs spend
- Dining overspend
- Subscription leakage
- Debt/EMI pressure
- Utilities/bills
- Cashflow risks

These insights are shown clearly with explanations.

3. Savings Goal Planner

User enters:

- Goal amount
- Target date
- Current savings

FinMate tells:

- Required monthly savings

- Feasibility
- Suggested plan

4. Money Wellness Score (0–100)

Based on:

- Savings rate
- Spending habits
- Subscription load
- Dining ratio
- Debt presence
- Surplus/deficit trends

Gives:

- Score
- Clear explanation
- Improvement steps

5. Elder-Friendly Mode

- Larger text
- Simplified summary
- Gentle tone
- Easy navigation
  Perfect for elderly family members.

6. Bank/UPI Connect (Simulated in MVP)

Allows **importing real bank statements or connecting to sample data**.
In production:

- Integrate via India Account Aggregator (AA) APIs.

Full Explainability

Unlike black-box AI, FinMate shows:

- Which transactions it used
- Which KB notes it used

- What insights triggered

- Why it generated a specific recommendation

This builds **trust**.

Why This Solution is Important

- **Makes finance accessible to everyone**
  - Regardless of education, age, or income.
- **Converts raw numbers into personalized advice**
  - The biggest gap in today's fintech apps.
- **Designed for multilingual, diverse Indian user base**
- **Emotion-aware**
  - Understands user's tone (worried, confident, neutral).
- **Perfect blend of AI + analytics + explainability**
  - The AI does not give random suggestions—it's grounded in data.

How It Works (Simple Workflow)

1. User uploads bank CSV or uses sample data

2. System categorizes transactions

3. Insights are generated

4. User asks a financial question

5. TF-IDF retriever finds relevant context

6. If LLM available → OpenAI generates answer

7. Else → deterministic fallback generates advice

8. System shows:

   - Answer

   - Practical steps

   - Explanation of how it concluded

Technical Architecture (MVP)

- **UI: Streamlit**

   Interactive dashboard + conversational interface.

- **Backend Logic: Python**

   Cleaning, categorization, insights, scoring, planning.

- **RAG: TF-IDF + Cosine Similarity**

  Retrieves relevant financial context.

- **GenAI: OpenAI GPT**

  Provides personalized conversational answers.

- **Storage: Streamlit session_state**

  In-memory, no database needed for hackathon.

Security (MVP + Production)
MVP

- No persistent data

- Local execution

- No sensitive data stored

- API keys in .env file

Production

- Encrypted PII

- Bank integration through Account Aggregator (AA)

- JWT-based auth

- Governed LLM boundaries

Scalability (Production Path)

- Move to FastAPI microservices

- PostgreSQL + TimescaleDB

- Vector DB (FAISS / Weaviate)

- Kubernetes scaling

- Redis caching

- Background tasks with Celery/RQ

Github Link
https://github.com/nithyavv/FinMate

Demo Video Link

https://drive.google.com/file/d/19VoexdJ1R0cLP7FLYcPmQLiF8Mqnpb71/view?usp=sharing

Conclusion

FinMate brings clarity, confidence and simplicity to personal finance using Generative AI. It transforms raw transactions into personalized insights, actionable guidance and empathetic conversations. With its explainable AI, elder-friendly design and smart analytics, FinMate empowers users to make better financial decisions every day. This MVP proves how AI can turn financial stress into financial strength, making money management truly accessible for everyone.