GenAI-Powered Financial Assistant

Minimalistic, Scalable, and AI-Driven Investment Guidance

1. Idea & Problem Statement

India has **hundreds of millions of new investors**, but financial literacy remains **low**. There is **no scalable way** to educate and guide these users. **Manual advisory is impractical**, and existing platforms focus on experienced investors.

Solution

We are building a **GenAI-powered Financial Assistant** that:

- **Answers investment-related questions** in simple language.
- **Guides users on financial literacy** without technical jargon.
- **Suggests suitable investment options** based on their needs.
- **Provides real-time market insights** using free Google tools.

This solution will be **free, cloud-based, and scalable** without requiring paid APIs or infrastructure.

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2. Technology Stack

Component	Google Free Tool Used	Purpose
Conversational AI	Google Gemini API	AI-powered chatbot for answering finance questions.
Chat Interface	Google Dialogflow CX	Manages structured conversations with users.
Hosting & Deployment	Google Firebase Hosting	Deploys the web & mobile app without server costs.
Backend Processing	Google Cloud Functions	Executes AI queries dynamically.
User Data Storage	Google Firestore	Stores user interactions, preferences, and chat history.
Market Insights	Google Sheets + Google Finance API	Retrieves live stock market & mutual fund data.
Data Analysis	Google Colab	Performs financial trend analysis using Python.
User Interaction Analytics	Google Analytics	Tracks user engagement & app performance.
Dashboard & Reports	Google Looker Studio	Creates reports for insights on user behavior.

3. Model Wireframe (User Flow & AI Processing)

User → Chatbot UI (Gemini + Dialogflow) → AI Processing (Cloud Functions) → Market Insights (Google Sheets + Finance API) → Response Sent Back to User

Wireframe Details

1 User Interaction Layer (Chatbot UI & Web App)

- Users can **ask financial questions** via text or voice.
- Powered by **Dialogflow CX** (Free) with a simple chat interface.

2 AI Processing & Data Retrieval

- **Gemini API (Free)** processes queries, understands context.
- **Google Finance API (Free)** provides live stock & fund data.
- **Google Colab (Free)** runs periodic financial trend analysis.

3 Storage & Insights

- **Firestore (Free)** saves chat history & preferences.
- **Looker Studio (Free)** generates insights & recommendations.

4 Response Back to User

- AI processes results & provides an **easy-to-understand** response.
- Users receive **personalized recommendations** based on inputs.

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4. Service Blueprint (Step-by-Step User Journey)

Phase 1: User Inquiry

- User types or speaks an **investment-related question**.
- Example: *"What is a mutual fund?"*

Phase 2: AI Processing

- **Dialogflow** detects user intent (Education, Advice, Market Data).
- **Gemini API** fetches a response.
- If market data is needed, it queries **Google Finance API (via Sheets)**.
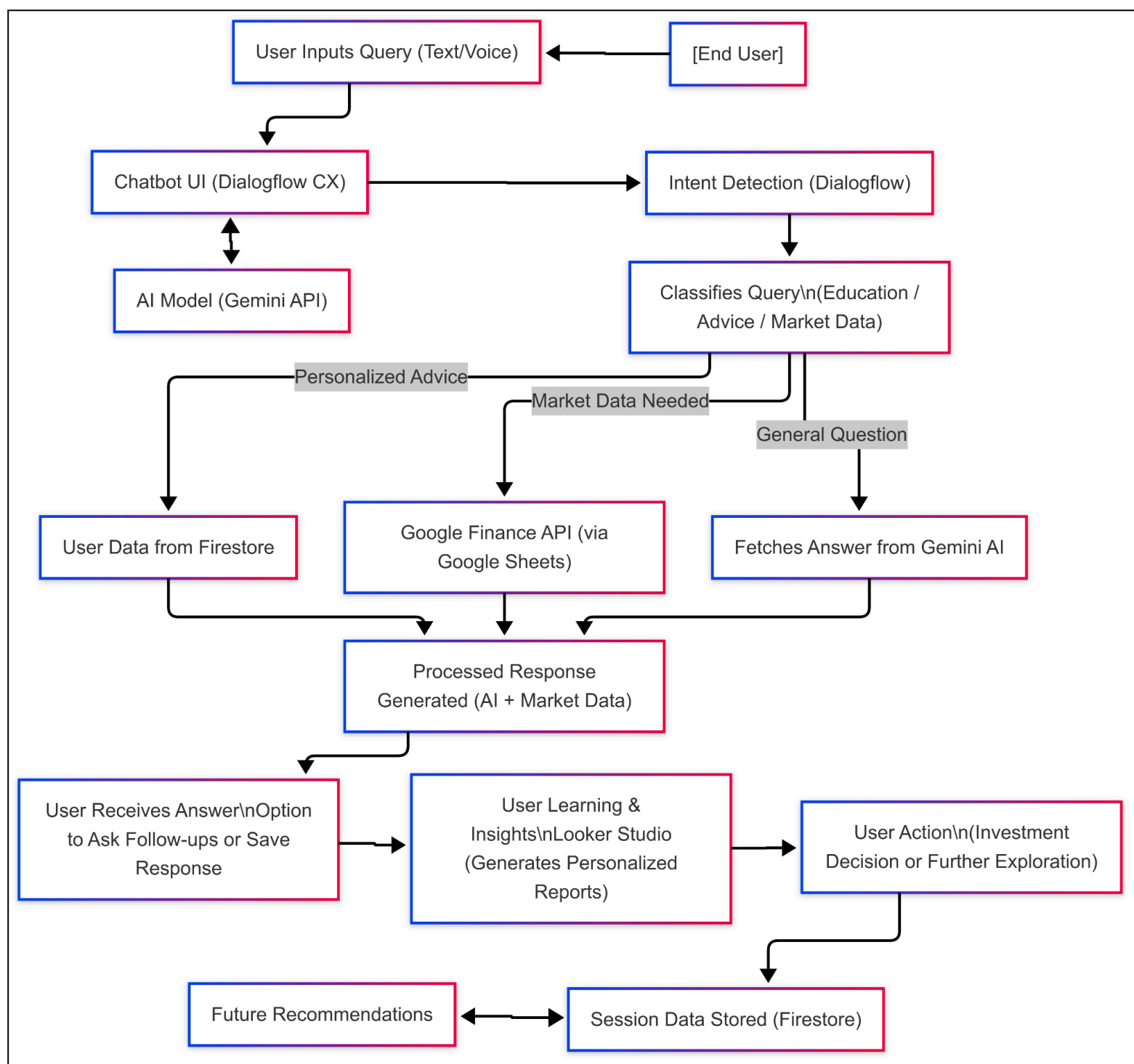
Phase 3: AI Response

- AI sends a **simplified answer** in text + optional charts.
- Example: *"A mutual fund pools money from many investors to invest in stocks and bonds. Here are 3 options for beginners: ..."*

Phase 4: Personalized Investment Suggestions

- If the user **wants recommendations**, AI fetches options based on risk profile.
- Example: *"Low-risk options: HDFC Liquid Fund, SBI Debt Fund, etc."*

Phase 5: User Insights & Learning

- User can **save the chat** (stored in Firestore for history).
- Looker Studio provides **insights on their learning path**.

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User Inputs Query (Text/Voice) ◄─────────── [End User]
            │
            ▼
Chatbot UI (Dialogflow CX) ──────────► Intent Detection (Dialogflow)
            ▲                                       │
            ▼                                       ▼
    AI Model (Gemini API)              Classifies Query\n(Education /
                                            Advice / Market Data)

        Personalized Advice      Market Data Needed      General Question
            │                          │                      │
            ▼                          ▼                      ▼
User Data from Firestore    Google Finance API (via    Fetches Answer from Gemini AI
                              Google Sheets)
            │                          │                      │
            └──────────────┬──────────┴──────────────────────┘
                           ▼
            Processed Response
            Generated (AI + Market Data)
                           │
            ┌──────────────┘
            ▼
User Receives Answer\nOption ──► User Learning &          ──► User Action\n(Investment
to Ask Follow-ups or Save        Insights\nLooker Studio       Decision or Further Exploration)
Response                         (Generates Personalized
                                 Reports)
                                                                       │
                                                                       ▼
        Future Recommendations ◄──────► Session Data Stored (Firestore)
```

5. Minimalistic & Scalable Tech Approach

✅ **100% Free Google Tools** – No payments required, forever scalable.
✅ **Serverless Deployment** – No hosting cost using Firebase.
✅ **Real-time Market Insights** – Using Google Finance API.
✅ **Multi-Language Support** – Gemini AI understands local languages.
✅ **Privacy Focused** – No sensitive data stored beyond chat history.

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6. Future Expansion

🚀 **WhatsApp Integration** – AI chatbot on WhatsApp (via Dialogflow Webhooks).
🚀 **Google Assistant Support** – Voice-based finance queries.
🚀 **Automated Financial Alerts** – Users receive free stock alerts via Sheets.