AI Investment Adviser

A Project Deep Dive: Your Personal Analyst for Smarter Investing

The Problem: Drowning in Data

Information Overload

Conflicting, high-velocity noise from charts, news, and social media.

Analysis Paralysis

Complex, contradictory, and time-consuming data interpretation.

Inaccessible Tools

Expensive professional tools; basic free tools lack "prosumer" depth.

Emotional Decisions

Investors fall prey to fear (panic selling) and greed (FOMO) without clear guidance.

The Solution: Actionable Wisdom

The Pitch

An intuitive web application that cuts through the noise by aggregating, analyzing, and synthesizing market data into a clear, personalized investment report.

Core Value

- Aggregates market data (yfinance) and news (NewsAPI).

- Analyzes quantitative trends (RSI, SMA) and qualitative mood (NLTK Sentiment).

- Synthesizes all variables into a single, human-readable report (Google Gemini AI).

- Makes accessible sophisticated, dual-engine analysis to everyone.

Core Feature: The Analyzer Dashboard

Input a ticker (e.g., AAPL) and your risk profile to instantly generate an all-in-one dashboard.
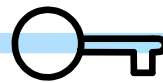
Interactive Charts

Candlestick Charts built with Plotly.

Technical Indicators

RSI, MACD, SMAs computed by ta library.

Key Metrics

P/E, Market Cap, Div. Yield from yfinance.

Curated News & Sentiment

NewsAPI feed & NLTK Sentiment Score.

Core Features: Discover & Chat

"Discover" Explorer

Browse the entire S&P 500, categorized by sector, to find new opportunities.

"InvestaBot" Chat

Ask follow-up questions in plain English and get instant, context-aware answers from a Gemini-powered financial assistant.

Technical Architecture: 3-Tier System

Presentation Layer

Built with Streamlit & Plotly (main_app.py) for clean UX, data visualization, and interactive components.

Logic Layer (The Brain)

Python modules (analyzer.py, adviser.py, chatbot.py) handle calculations, analysis, and AI communication.

Data Layer (The Gateway)

Modules (data_fetcher.py, discover.py) source data from external APIs (yfinance, NewsAPI) and web scrapes.

The Analysis Pipeline

1. Input

User enters Ticker & Risk Profile in main_app.py.

2. Fetch & Analyze

Gathers data (data_fetcher.py) & runs dual-analysis (analyzer.py) on Technicals + Sentiment.

3. AI Synthesis

All data points sent (adviser.py) to Google Gemini API for comprehensive report.

4. Output

Final dashboard and AI-generated report rendered in main_app.py.

The "Secret Sauce": Dual-Analysis AI

Combining the "Art" and "Science" of investing.

The Scientist (Quant)

Technical analysis (ta library) identifies trends, momentum, and overbought/oversold conditions (RSI, SMA).

The Journalist (Qual)

Sentiment analysis (NLTK VADER) reads news headlines to understand market mood, hype, and concerns.
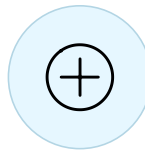
The Synthesizer (Gemini AI)

Expert analyst (gemini-2.5pro) weighs all evidence to create a nuanced, context-aware report.
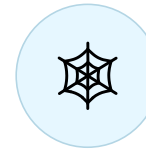
Future Roadmap

Phase 1: Enhance

Full Portfolio Tracking, User Accounts & Watchlists, and Realtime Price Alerts.

Phase 2: Expand

Integrate new asset classes (Cryptocurrencies, ETFs), introduce a "Freemium" model, and develop proprietary ML models.

Phase 3: Dominate

Launch native Mobile Apps (iOS/Android) and offer API access for third-party developers.

Thank You

Technically Robust

Scalable 3-tier architecture.

Analytically Powerful

Unique dual-analysis engine (Quant + Qual).

Commercially Viable

Addresses a clear "prosumer" gap in the market.

Questions?