Product Requirements Document (PRD): EquityPulse

1. Executive Summary

EquityPulse is a SaaS-based, AI-powered equity analysis platform designed to provide professional-grade investment intelligence to retail and semi-professional investors. By leveraging the **Gemini 3.0** model, the platform mimics a professional investment committee's evaluation process, combining fragmented data into structured, explainable reasoning.

2. Product Overview

2.1 Problem Statement

Retail and semi-professional investors currently face significant hurdles in the equity market:

- **Fragmented Data:** Price, fundamentals, news, and sector information are scattered across multiple platforms.
- **Generic Analysis:** Most tools provide "one-size-fits-all" analysis that ignores sector-specific nuances.
- **Information Overload:** Investors are often overwhelmed with data but lack actionable, transparent insights.

2.2 Product Vision

To act as an AI-driven investment intelligence system that transforms raw data into structured insight and clear decisions, maintaining full explainability at every step.

2.3 Target Audience

Segment	Description
Retail Investors	Intermediate to advanced individuals seeking deeper insights.
Long-term Investors	Those focused on fundamental equity growth.
Analysts & Enthusiasts	Finance professionals or hobbyists requiring structured data.
Advisors	Non-institutional financial advisors looking for analysis tools.

3. Scope Definition

3.1 In-Scope (v1.0 MVP)

- **Discovery:** Stock search and discovery via ticker or company name.
- **Data Ingestion:** Automated fetching of price, fundamentals, and news.
- **Analysis Modules:** Technical, Fundamental, Sectoral, and Management/Governance.
- **Recommendations:** AI-generated Buy/Hold/Sell signals with confidence scores.
- **Explainability:** Detailed reasoning for every recommendation.

3.2 Out-of-Scope (v1.0)

- Direct trade execution.
- Portfolio management and tracking.
- Proprietary or real-time intraday trading signals.
- Personalized financial advice or wealth management.

4. Data & External Dependencies

4.1 Data Ownership & Strategy

EquityPulse functions strictly as an **analysis and reasoning layer**. It does not own or fabricate financial data.

- **Source:** All numerical and news data is sourced from external APIs.
- **Strategy:** Provider-agnostic design allowing for API replacement without code refactors.
- **Resilience:** Rate-limit aware and fail-safe design.

4.2 External Data Categories

Category	Examples
Market Data	Price, volume, corporate actions.
Financial Data	Income statements, balance sheets, cash flow.
Ratios	P/E, P/B, ROE, ROCE, PEG, EPS.
Sector Data	Sector indices, peer benchmarks.
News	Earnings reports, management commentary, regulatory updates.

5. Functional Requirements

5.1 Stock Search & Overview

- **Search:** Users can search by company name or ticker.
- **Dashboard:** Display historical price charts, market cap, sector classification, and a valuation snapshot.

5.2 Analysis Modules

A. Technical Analysis

- **Inputs:** Historical prices, volume, and technical indicators.
- **Outputs:** Trend status (Bullish/Neutral/Bearish), momentum/volatility assessment, and a confidence-scored recommendation.

B. Fundamental Analysis

- **Inputs:** Financial statements, valuation ratios, and growth metrics.
- **Focus:** Profitability, growth consistency, valuation vs. growth, and capital efficiency.
- **Outputs:** Fundamental strength score and sector-adjusted interpretation.

C. Sectoral Analysis

- **Purpose:** Contextualize metrics relative to sector behavior (e.g., NIM for Banks, Attrition for IT).
- **Outputs:** Sector tailwind/headwind status and relative performance insights.

D. Management & Governance

- **Focus:** Promoter quality, capital allocation, governance red flags, and track record.
- **Outputs:** Management trust score and governance risk level.

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6. AI & Multi-Agent Architecture

6.1 Core Model

The platform utilizes **Gemini 3.0** exclusively for reasoning, interpretation, and synthesis of data.

6.2 Multi-Agent Design

Agent	Responsibility
Orchestrator	Controls the overall flow and context management.
Technical Agent	Specializes in price and momentum analysis.
Fundamental Agent	Evaluates financial health and ratios.
Sector Agent	Applies sector-specific modulation to the analysis.
Management Agent	Assesses governance and leadership quality.
Aggregator	Synthesizes all agent outputs into a final decision.

7. Recommendation Framework

7.1 Logic & Output

- **Weighted Aggregation:** Final recommendations are based on a weighted average of all modules, adjusted for the specific sector.
- **Conflict Detection:** The system identifies and discloses if different modules provide conflicting signals.
- **Final Verdict:** Provides an overall Buy/Hold/Sell signal, time-horizon suitability, and a risk summary.

8. Non-Functional Requirements

- **Performance:** Combined API and AI response time under 10 seconds.
- **Reliability:** Graceful degradation if external APIs fail; zero tolerance for hallucinated numbers.
- **Explainability:** Every recommendation must be accompanied by a clear rationale.
- **Security:** Secure API key storage and no storage of sensitive user data.

9. Risks & Mitigations

Risk	Mitigation
API Rate Limits	Implementation of caching and fallback providers.
Data Gaps	Confidence score downgrades and default "HOLD" signals.
Model Overconfidence	Explicit uncertainty logic in prompts.
Regulatory Concerns	Prominent display of clear financial disclaimers.

10. Success Metrics & Future Roadmap

10.1 Success Metrics (MVP)

- Percentage of users viewing full analysis reports.
- Recommendation consistency score.
- User trust and feedback ratings.
- Session duration and repeat usage.

10.2 Future Enhancements

- Portfolio-level insights and scenario analysis.
- Earnings preview and post-mortem reports.
- Real-time alerting system.
- Integration of paid premium data sources.