

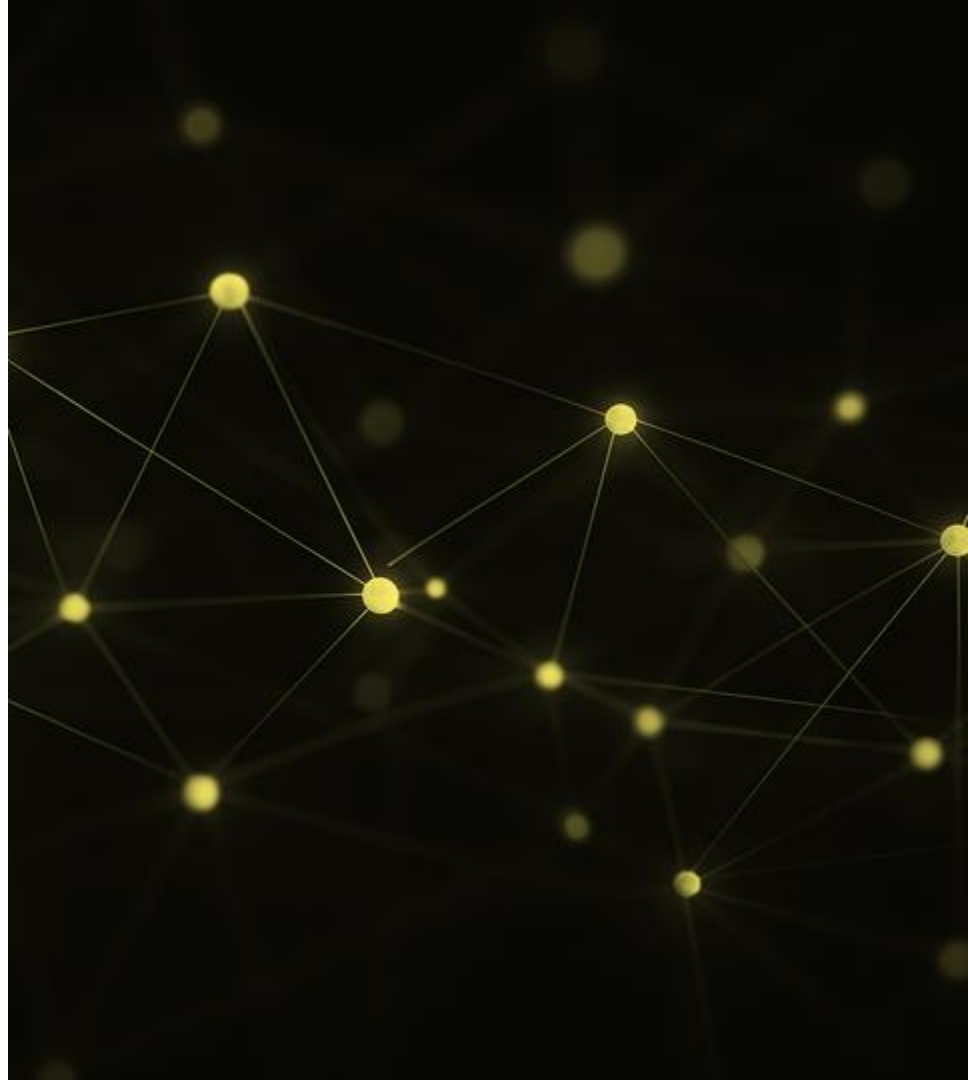
# Final Project - Agentic AI Financial Analysis System

Project Outcome & Future Prospects

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# Summary

## Autonomous multi-agent research

The System coordinates multiple reasoning agents to plan, retrieve, and analyse financial data in real time.

### Key Learning Demonstrated:

1. Creating of Agent
2. Testing Multiple Steps
3. Applying Concepts :
  - Agentic AI
  - Prompt Engineering
  - Connecting and Building APIs
  - Agent Orchestration

Overall this has been a good Experience to apply Agentic AI Concepts



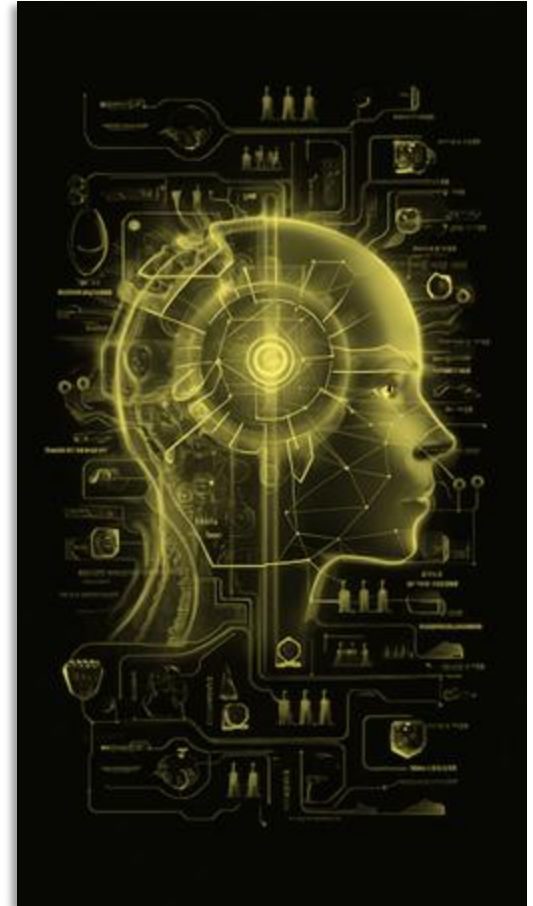
# Problem & Objectives

## Challenge

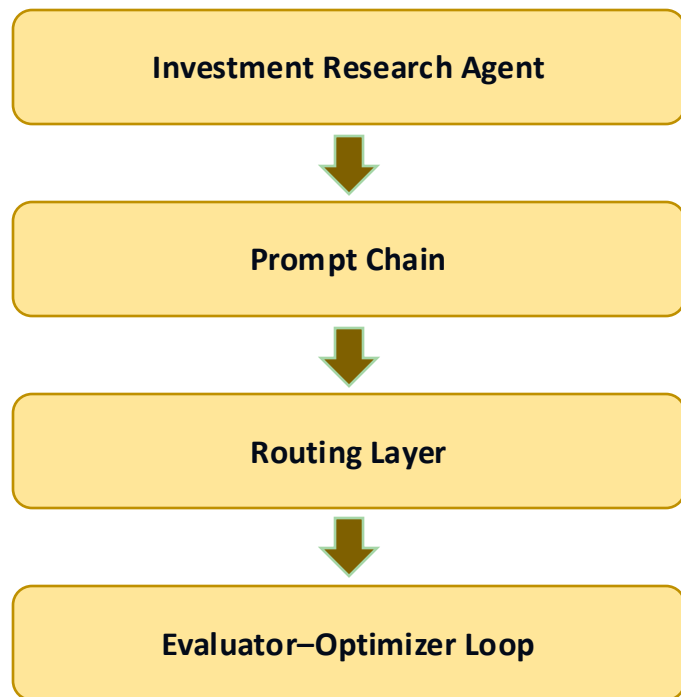
Financial markets generate vast unstructured data streams which are difficult to interpret manually. Traditional pipelines lack autonomy, adaptability and self-evaluation.

## Solution:

- Plan autonomous research workflows
- Retrieve and analyse real-time prices, news & macro data
- Classify and summarise financial news
- Critique and refine its own analysis
- Learn iteratively via memory



# Architecture & Methodology



## **Prompt Chaining**

Sequentially preprocess, classify & summarise news streams.

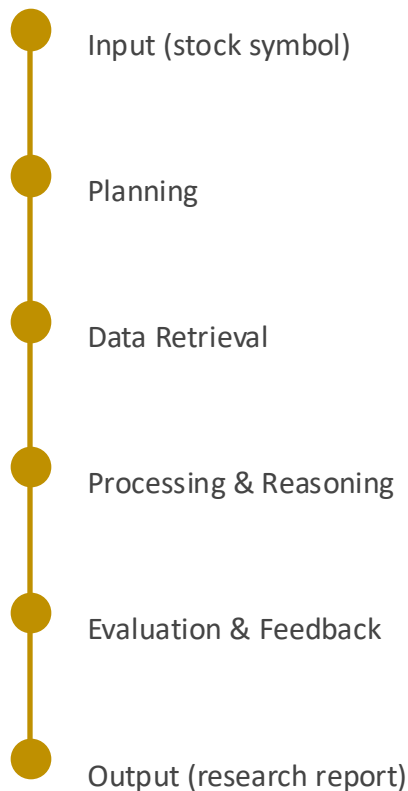
## **Routing**

Dispatch data to specialised analyzers (earnings, macro, sentiment).

## **Evaluator-Optimizer**

Critique outputs and iteratively refine the analysis until it meets quality thresholds.

# Workflow & Tech Stack



Category	Tools & Libraries
Core	Python, Pandas, NumPy, Requests
Agentic Framework	LangChain, LangGraph, OpenAI API
Finance APIs	Yahoo Finance, NewsAPI, FRED, Alpha Vantage
Storage	JSON, SQLite
Visualisation	Matplotlib, Plotly

# Use Case Validation

Use Case	Analysis Type	Sentiment	Time (s)	Context Q.	Report Q.
Quick Technical (AAPL)	Technical / Quick	Bearish (65%)	8.54	0.74	0.88
Comprehensive (MSFT)	Comprehensive	Neutral (65%)	14.88	0.63	0.85
Deep Earnings (GOOGL)	Earnings / Deep	Neutral (75%)	13.50	0.15	0.73
Risk Assessment (TSLA)	Risk / Long	Bearish (75%)	11.96	0.45	0.90

# Insights & Discussion

## Quick Technical Analysis

- Fast Day Trading Reports
- Get a pulse check before trading
- Useful Companion

## Comprehensive Analysis

- Balanced integration of price, news, macro and fundamentals yields
- Unbiased Analysis of Agent useful to look from all possible angles

## Deep Earnings Analysis

- Better Fundamental Analysis
- High confidence despite limited context shows adaptability
- Data scarcity reduces contextual richness but not usefulness. (better APIs can help)

## Risk Assessment

- Highest report quality by focusing on risk factors;
- The risk related assessments are not average . The volatile environments and long-horizon scenarios, social political analysis and additional parameters should be added in future.

# Future Enhancements



Integrate social media sentiment, SEC filings & analyst reports and High quality APIs



Identify Risks in Unbiased by studying Govt, policies and Proprietary datasets



Incorporate real-time streaming data for live monitoring and decision making functions like buy, sell and hold



Enable portfolio-level analysis & optimisation



Develop interactive visual dashboards







# Thank you!

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