An ‘Intelligent’ Stock Market Dashboard

Team 7
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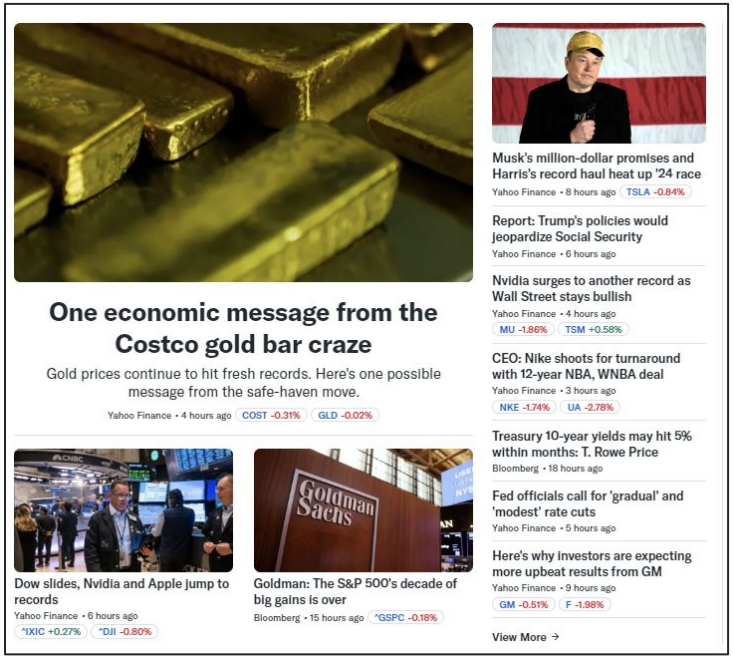
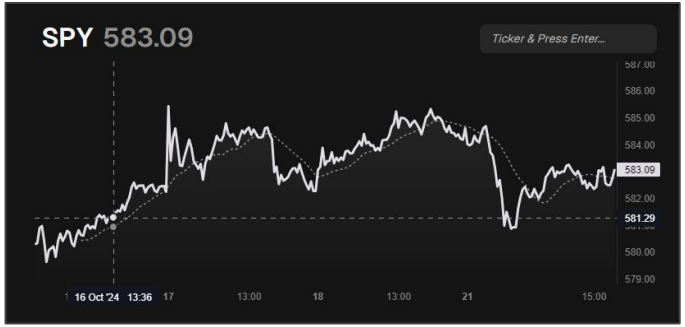
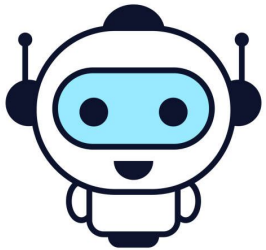
Objective

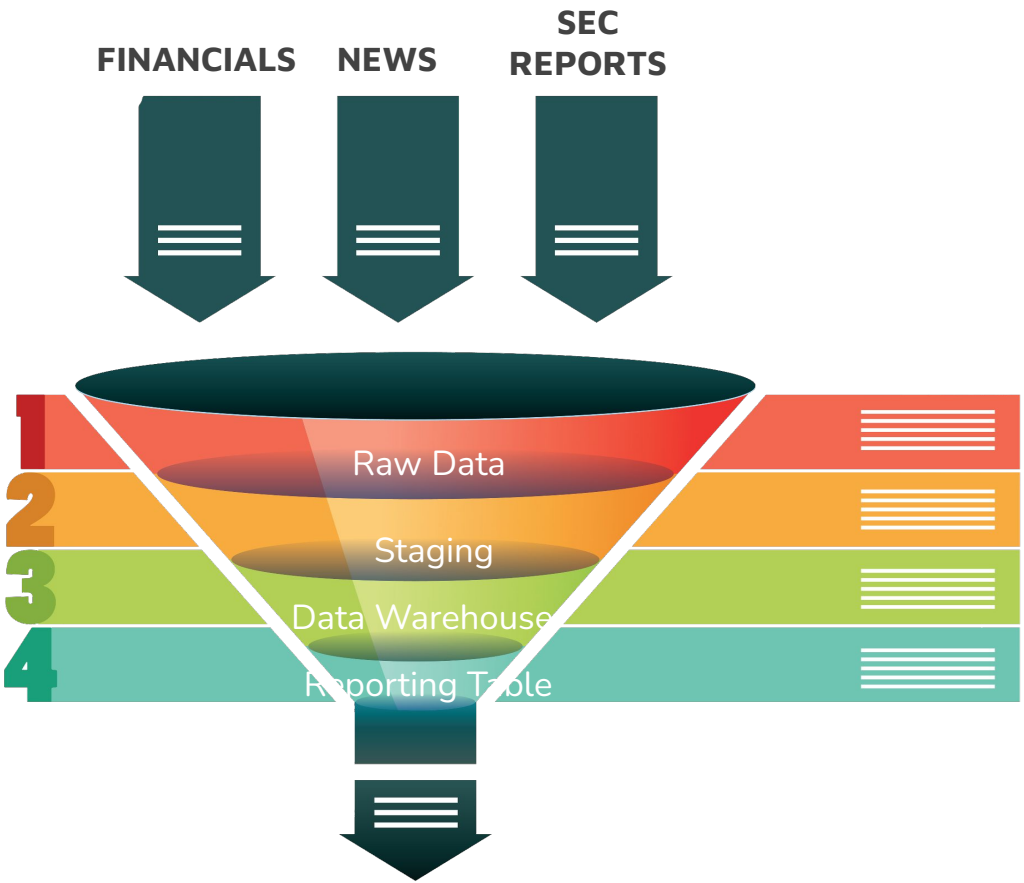




Apple (AAPL) likely to be hit with an antitrust lawsuit this week!

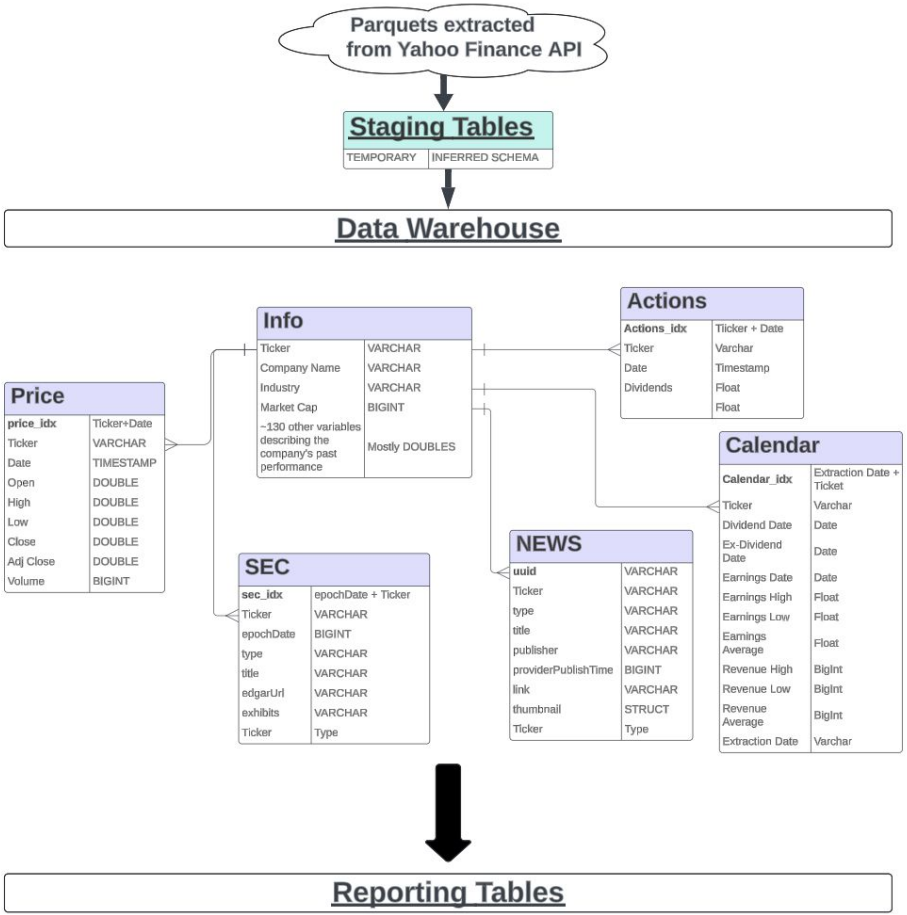


GenAI



Smart Dashboard
(w/ GenAI based Analysis & Alerts)

Data Model


Parquets extracted from Yahoo Finance API
Staging Tables
TEMPORARY
INFERRED SCHEMA
Data Warehouse
Price
price_idx
Ticker+Date
Ticker
VARCHAR
Date
TIMESTAMP
Open
DOUBLE
High
DOUBLE
Low
DOUBLE
Close
DOUBLE
Adj Close
DOUBLE
Volume
BIGINT
Info
Ticker
VARCHAR
Company Name
VARCHAR
Industry
VARCHAR
Market Cap
BIGINT
~130 other variables describing the company's past performance
Mostly DOUBLES
SEC
sec_idx
epochDate + Ticker
Ticker
VARCHAR
epochDate
BIGINT
type
VARCHAR
title
VARCHAR
edgarUrl
VARCHAR
exhibits
VARCHAR
Ticker
Type
Actions
Actions_idx
Ticker + Date
Ticker
Varchar
Date
Timestamp
Dividends
Float
Float
NEWS
uuid
VARCHAR
Ticker
VARCHAR
type
VARCHAR
title
VARCHAR
publisher
VARCHAR
providerPublishTime
BIGINT
link
VARCHAR
thumbnail
STRUCT
Ticker
Type
Calendar
Calendar_idx
Extraction Date + Ticker
Ticker
Varchar
Dividend Date
Date
Ex-Dividend Date
Date
Earnings Date
Date
Earnings High
Float
Earnings Low
Float
Earnings Average
Float
Revenue High
BigInt
Revenue Low
BigInt
Revenue Average
BigInt
Extraction Date
Varchar
Reporting Tables

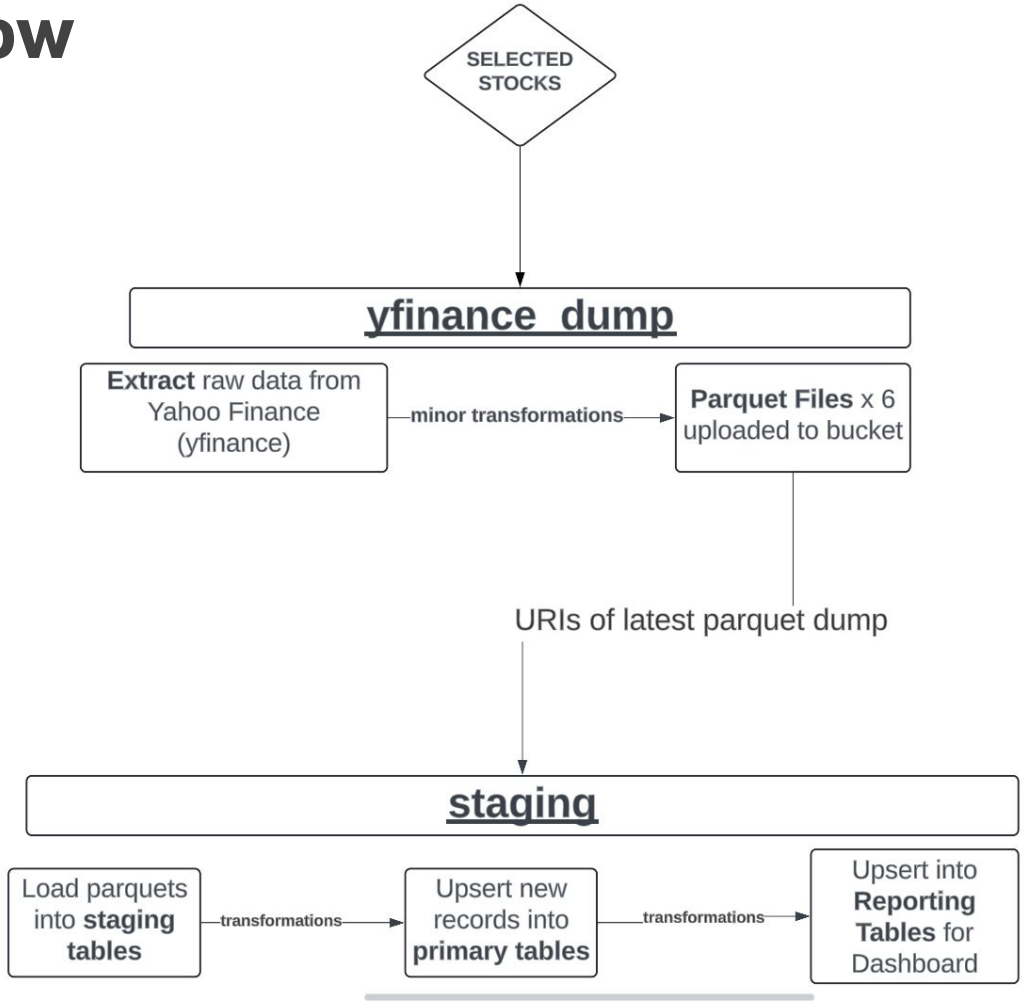
Data Model

Raw Data	Staging Tables	Data Warehouse	Reporting Tables
Consists of parquet files retrieved from Yahoo Finance API	Created and populated based on data from parquet files	Primary tables updated with latest records from staging tables (upsert)	Created in MotherDuck using SQL and designed for use in Superset for data visualization and analysis
Contains structured but unprocessed stock price, fundamental, and text data	Schema inferred from parquet file set during extraction stage	Allows efficient ingestion of parquet files and loads data into a more query-friendly format	Contain measurable, quantitative data and include dimension tables with descriptive attributes for analysis across various dimensions

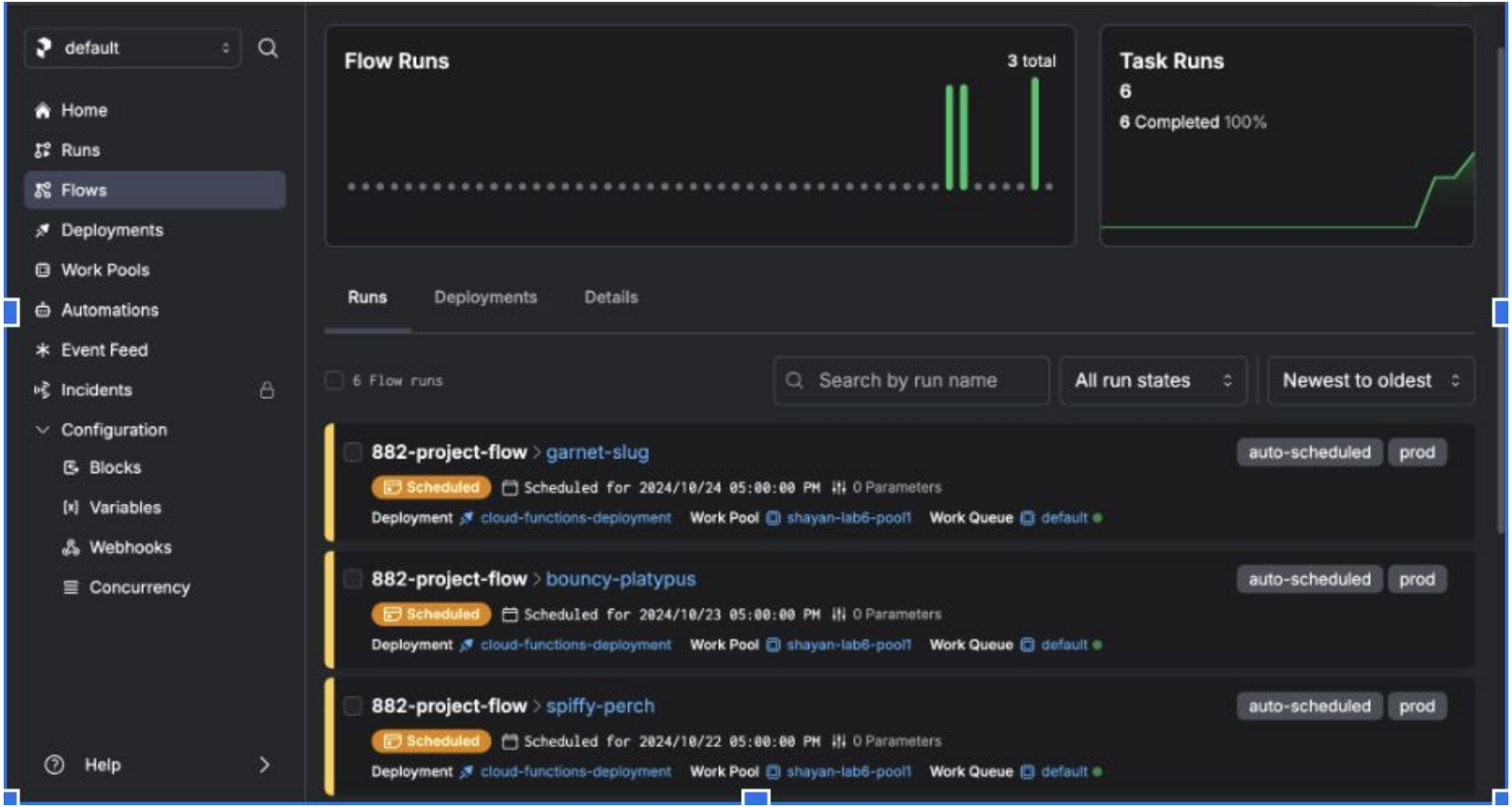
Pipeline Design

- **Schema Setup**: Designed to handle diverse data from Yahoo Finance (stock data, news, SEC filings).
- **Cloud Run Functions**: Manage schema creation, data extraction, and transformation stages.
- **MotherDuck**: Staging tables store processed data for further analysis.
- **Prefect Integration**: Centralized orchestration for seamless automation and scheduling.
- **Automated Workflow**: Scheduled to run at market close, ensuring timely updates.

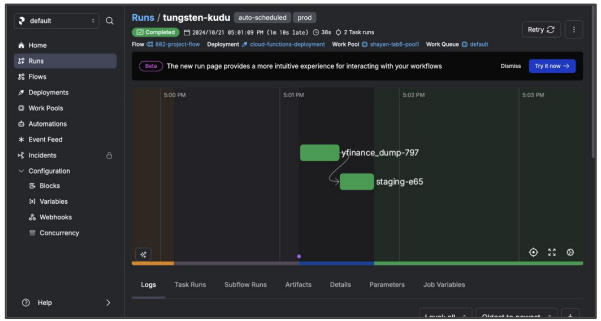
Prefect Flow



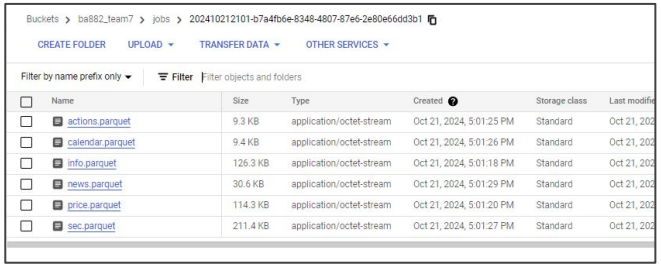
Prefect Flow



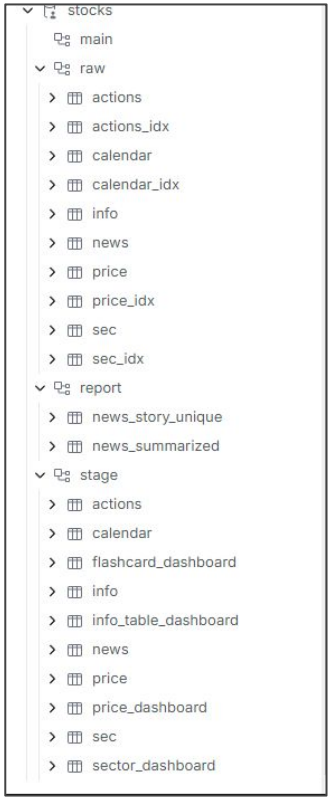
Prefect



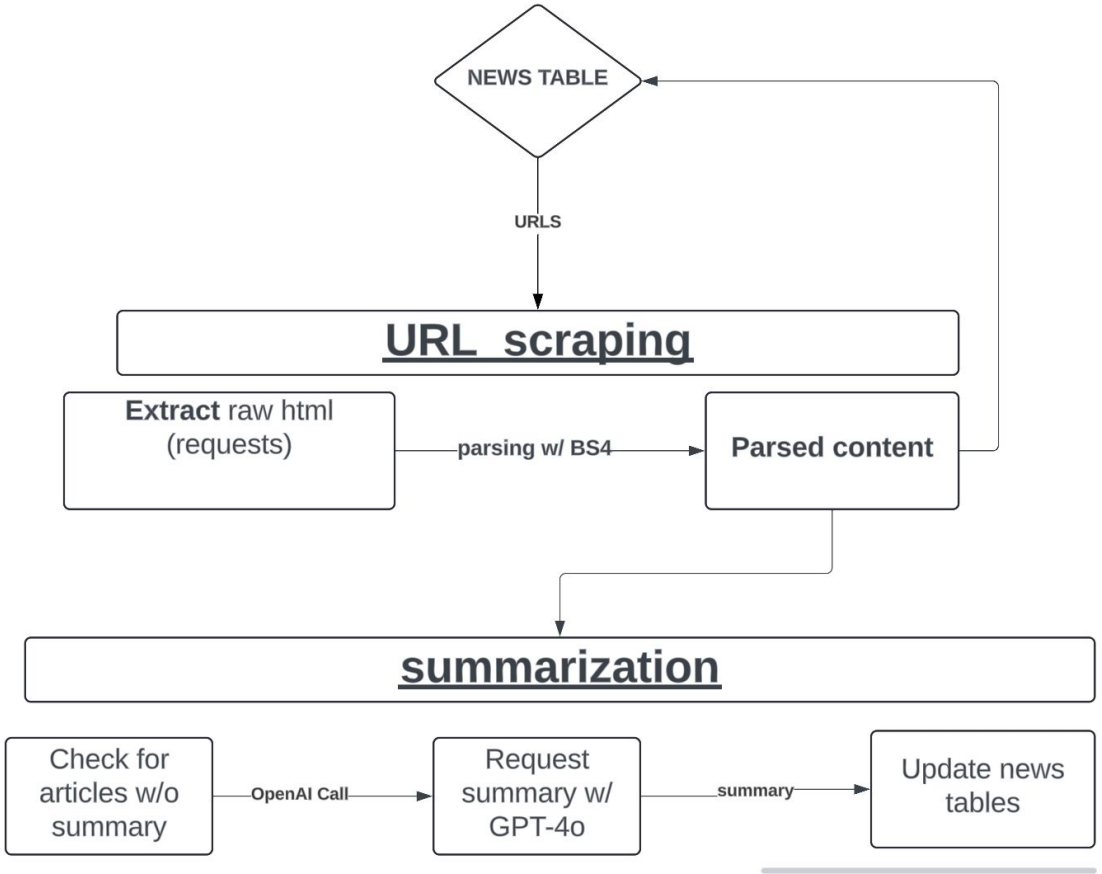
GCP Bucket



Motherduck



Analytics - GenAI Summary and Analysis



Example

Netflix Earnings Review: Still Winning the Streaming Wars?

~800 words

- **Summary**: Netflix's stock reaches record highs due to a strong Q3 2024 earnings report, exceeding expectations with $5.40 EPS and $9.83 billion revenue. The company added 5.07 million subscribers, surpassing forecasts. Netflix competes closely with Amazon Prime Video and faces challenges from Disney+. It plans growth through expanded content, including live events. With a valuation below its 10-year median, Netflix remains a profitable leader with a strategic focus on subscriber and content expansion.

- **Sentiment**: Positive

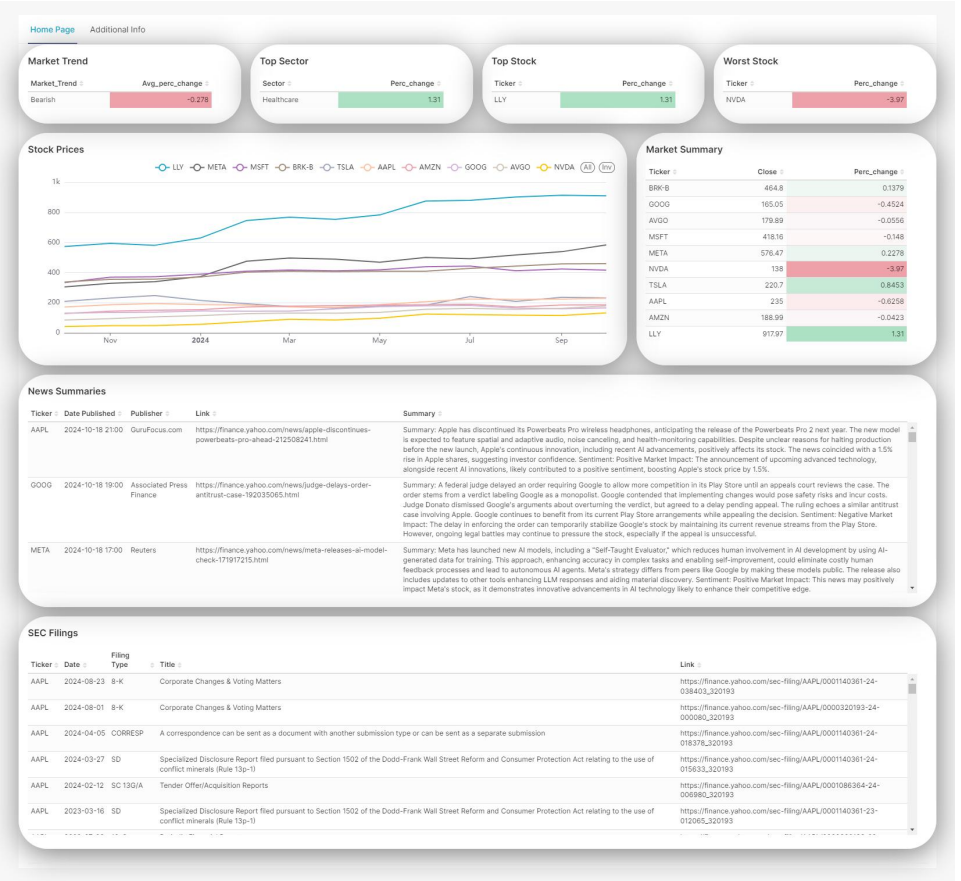
- **Market Impact**: The strong earnings report and subscriber growth likely boost Netflix's stock price, reinforcing investor confidence and attracting additional investment.

Prompt:

You are a helpful summarizer. You are given a news article, and will respond in this format:

- **Summary**: 100 words or less
- **Sentiment**: Pos/Neut/Neg
- **Market Impact**: Potential impact of news on stock price

Reporting



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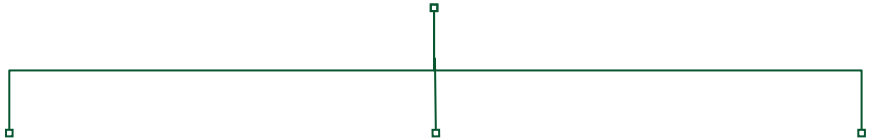
Next Steps

Holistic Stock Analysis



Data

- ❏ Expand to cover more stocks
- ❏ Include Sector Level Data
- ❏ Extract content from SEC Filings

Analysis

- ❏ Improve Summarization Process and Style using LLMs
- ❏ Provide Daily Recaps for Selected Stocks
- ❏ Provide Investment Advice Based on Text Data

Reporting

- ❏ Expand our Superset Dashboard
- ❏ Look Into Ways to Integrate Interactive Features in Dashboard (ex. Chatbot)

THANK YOU!