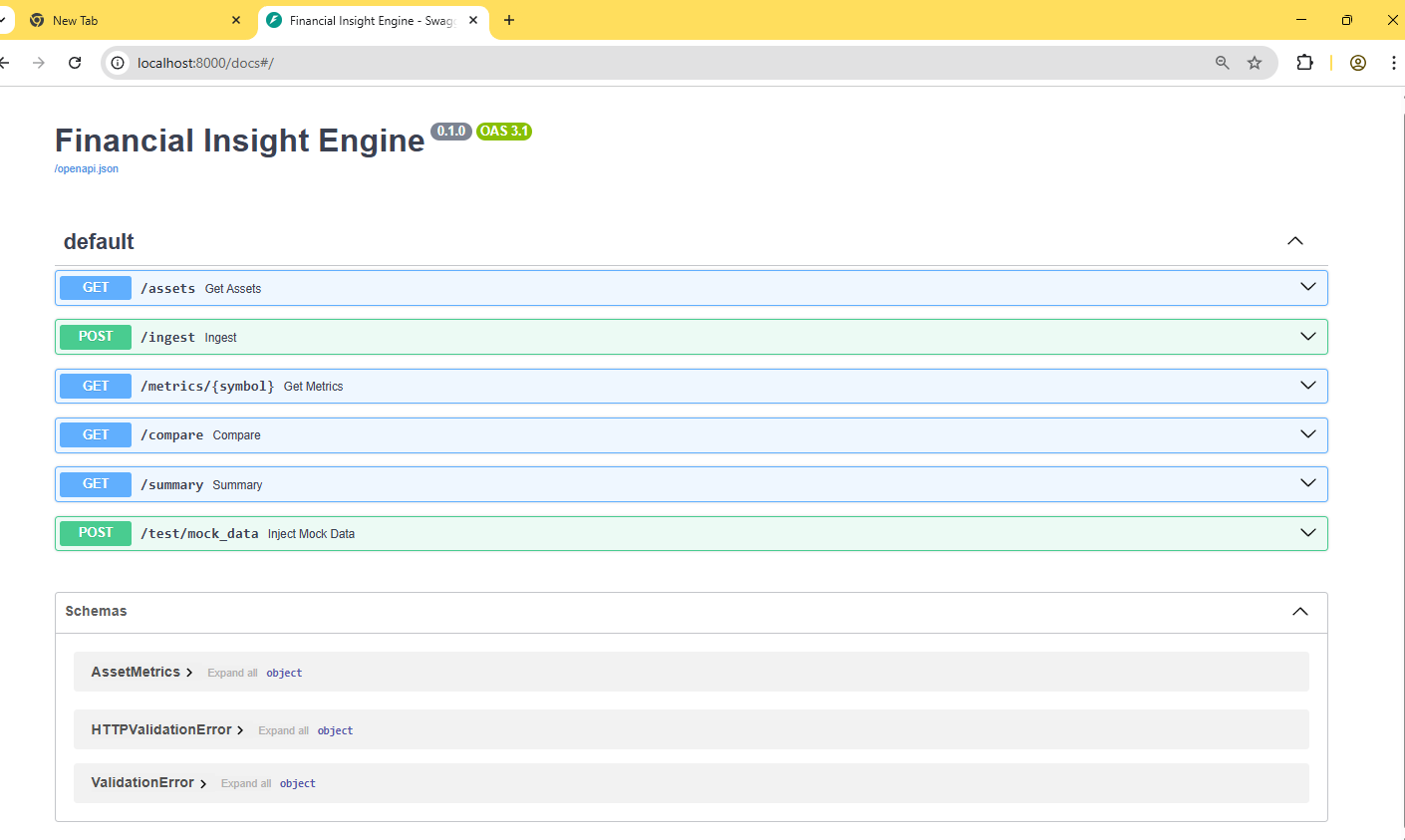
Financial Insight API - Testing Report

# 1. Project Overview

This document serves as a test report for the `financial\_insight\_api` project submitted as a part of the Senior Python Developer Take-Home Assignment. It includes execution results from the Swagger UI, unit tests, and verification of API endpoint behaviors.

# 2. API Endpoints Overview

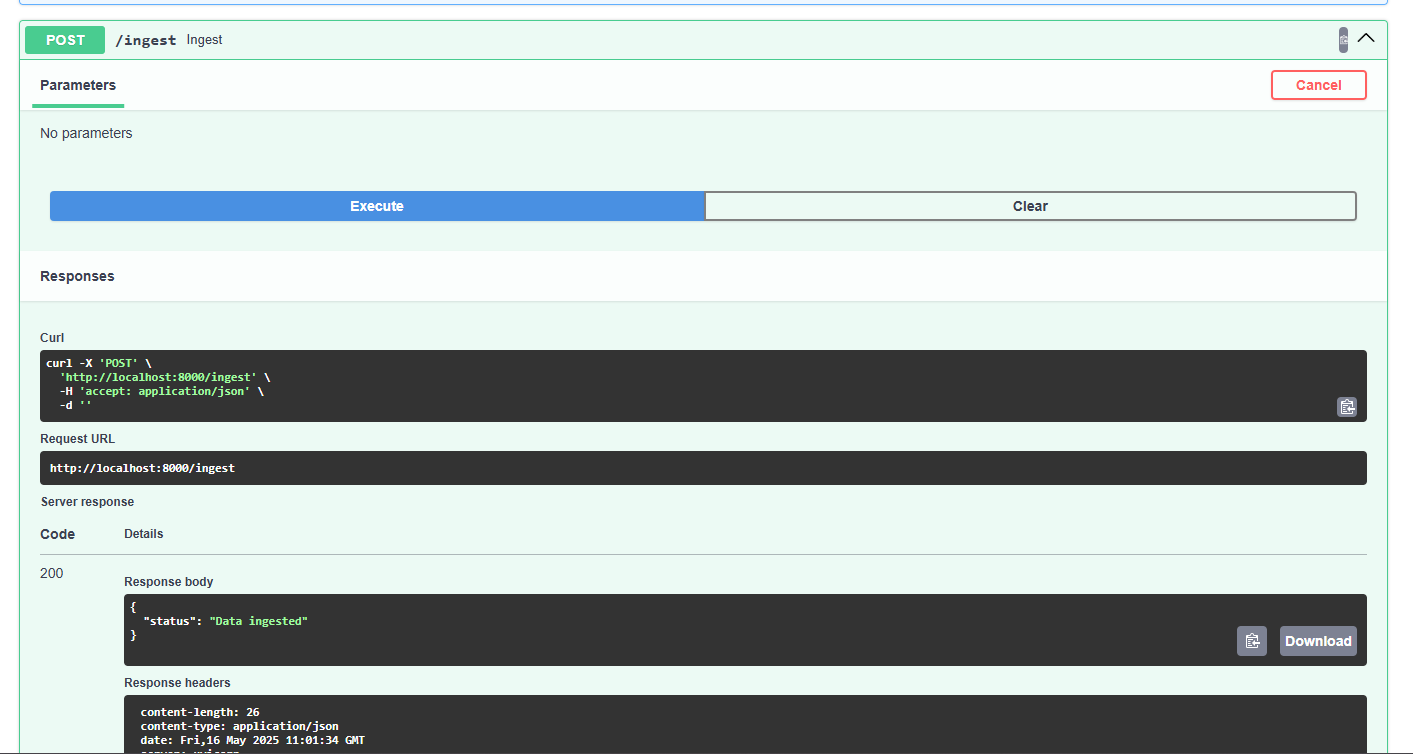
Below are the available endpoints exposed by the FastAPI application:



# 3. Swagger-Based Endpoint Tests

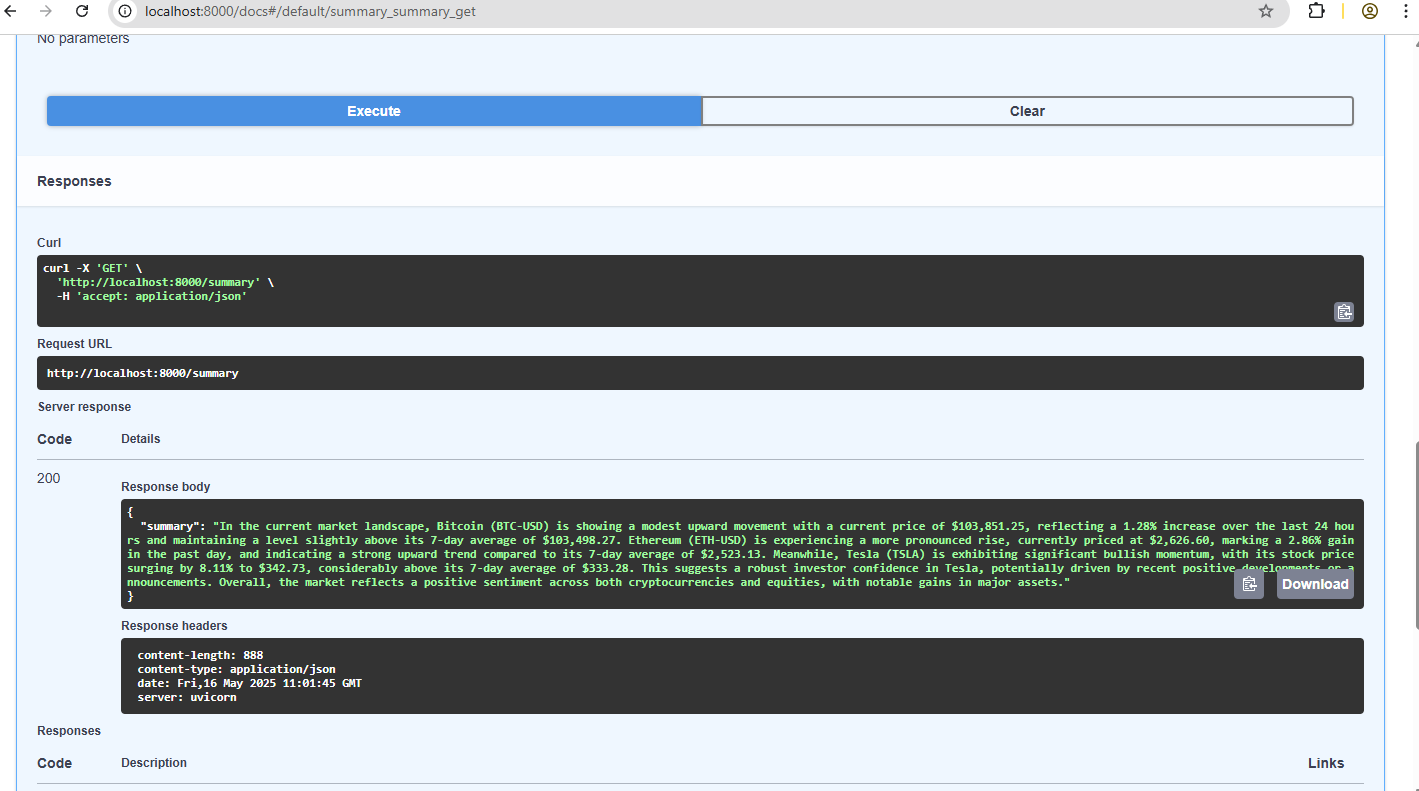
## 3.1 POST /ingest - Data Ingestion

Successfully triggered manual data ingestion.



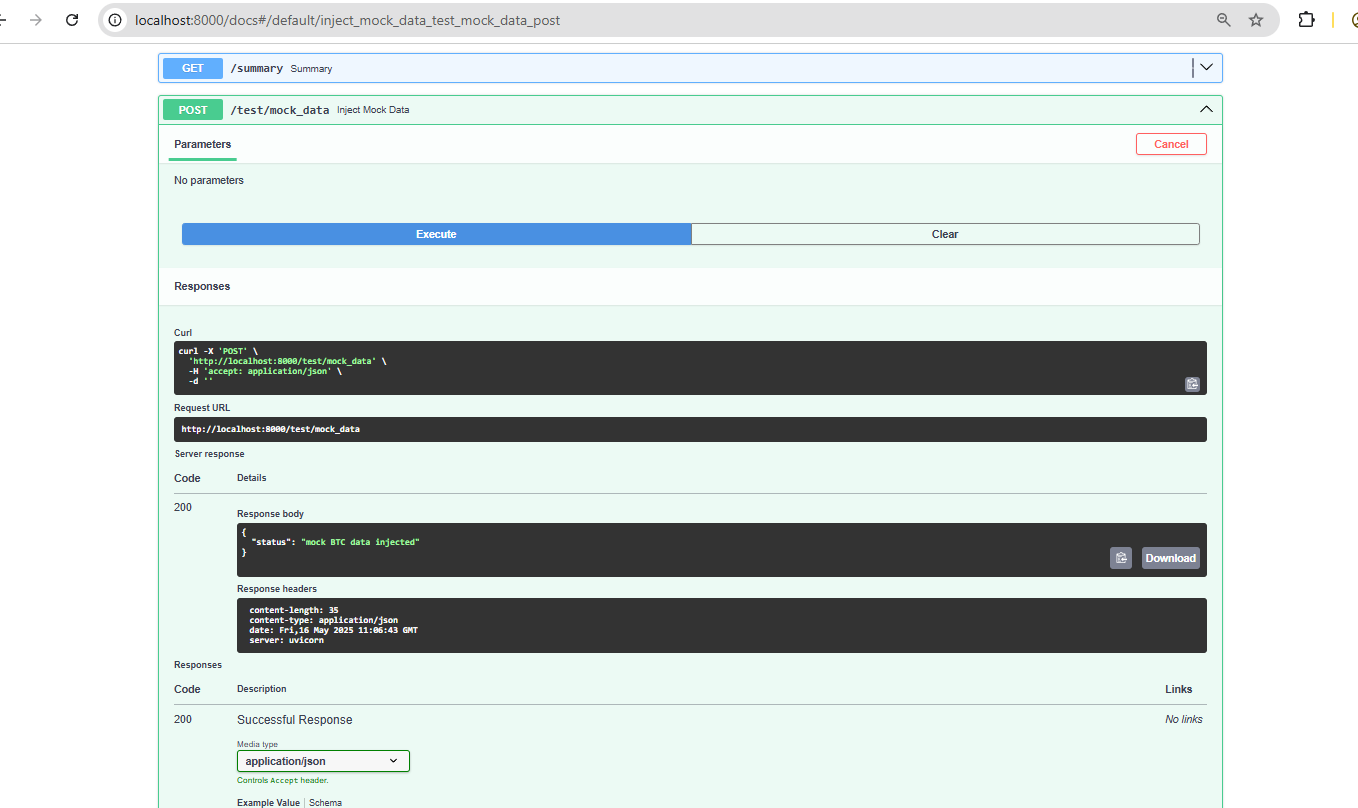
## 3.2 GET /summary - GenAI Summary

Generated a financial summary from the latest ingested data using LangChain and mocked OpenAI.



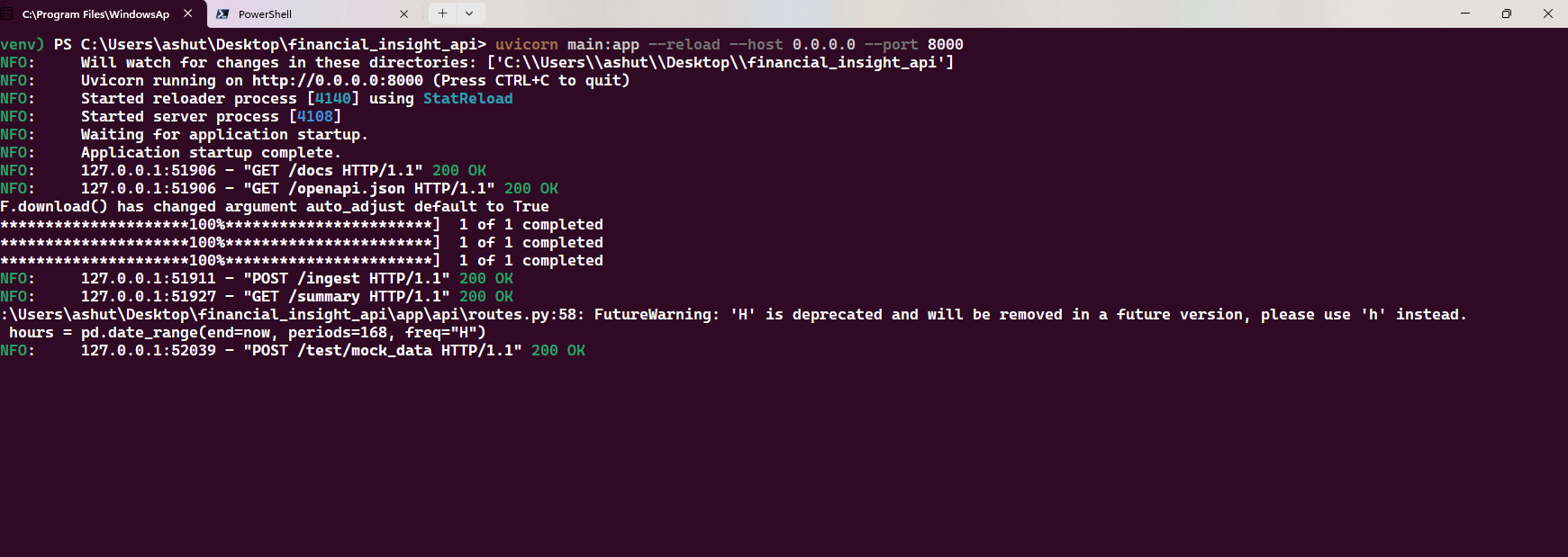
## 3.3 POST /test/mock\_data - Inject Mock Data

Successfully injected mock BTC data in development mode for testing analytics logic.



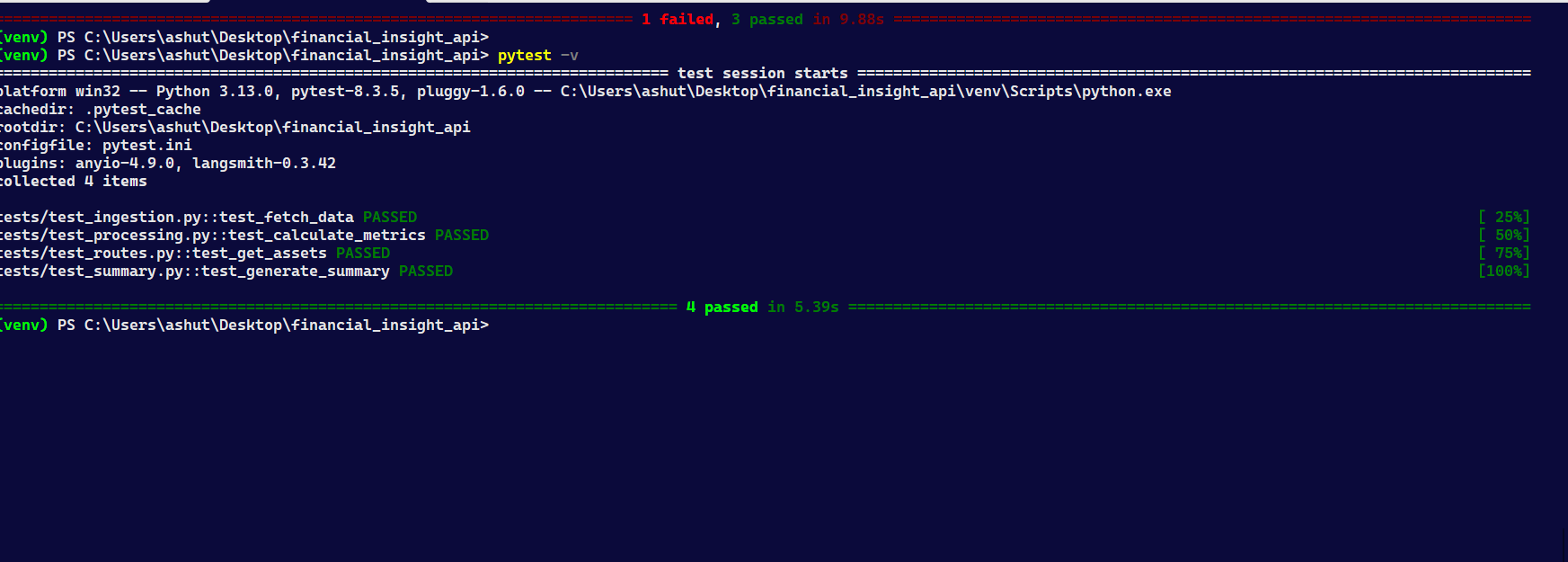
# 4. Application Run Confirmation

Confirmed the application was successfully launched and logs captured for endpoint calls.



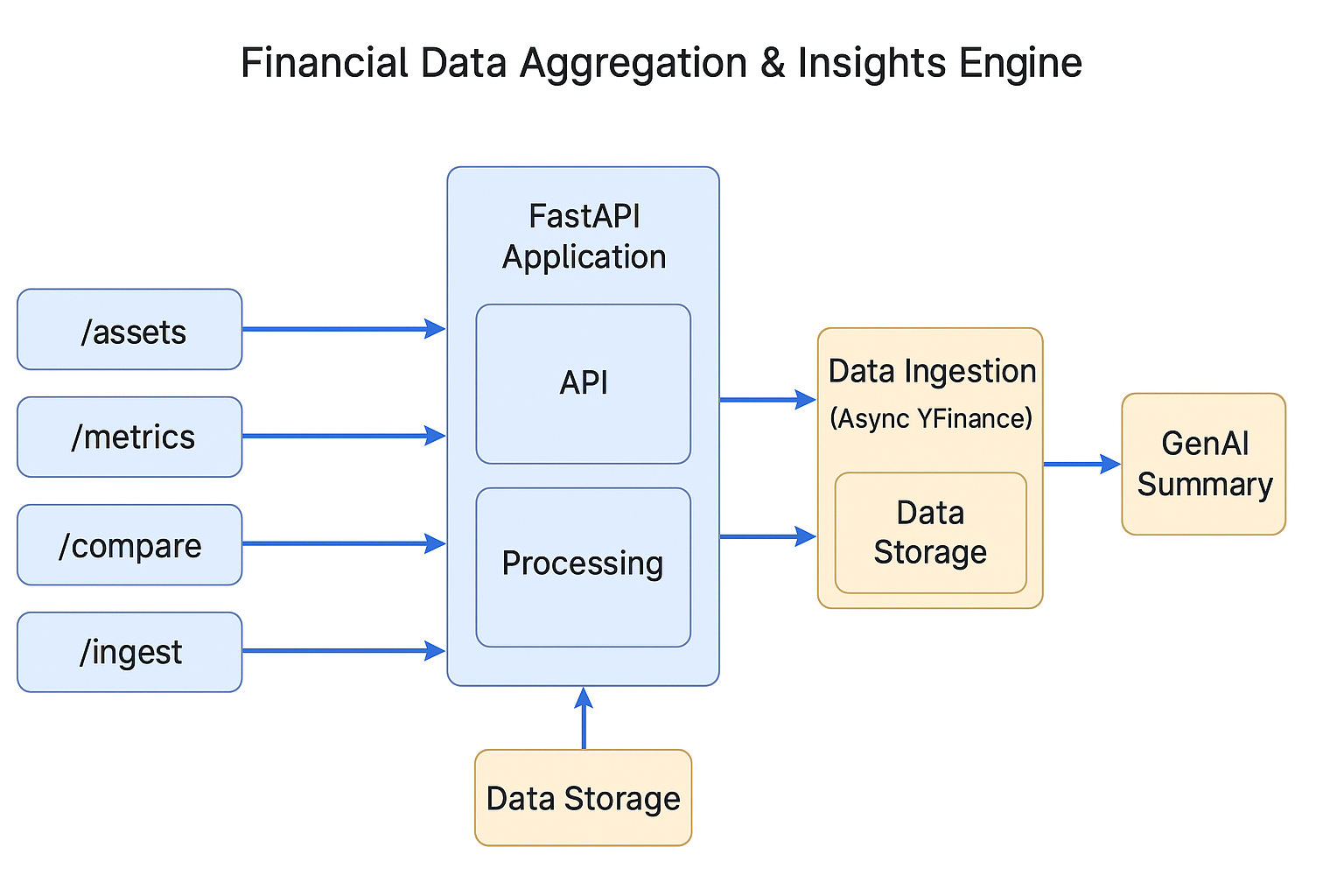
# 5. Pytest Unit and Integration Test Results

Below is the screenshot of 4 test cases (3 unit tests + 1 integration test) executed using pytest. All tests passed successfully.



✅ test\_ingestion.py::test\_fetch\_data  
✅ test\_processing.py::test\_calculate\_metrics  
✅ test\_routes.py::test\_get\_assets  
✅ test\_summary.py::test\_generate\_summary

# 6. HLD Architecture Diagram



# 

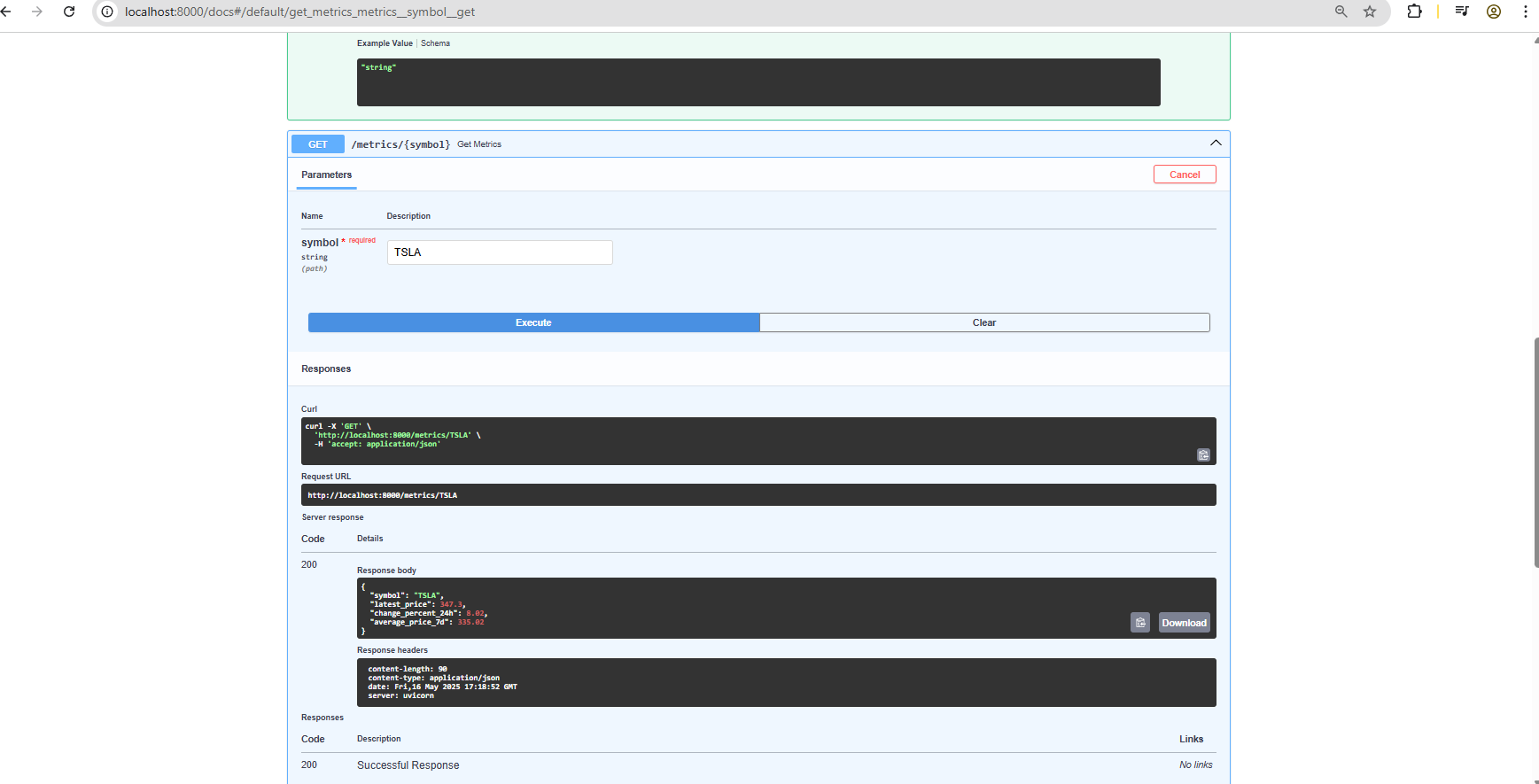
# 7. Conclusion

All required endpoints were verified successfully via Swagger UI and Python unit tests. Real-time ingestion via yfinance was used for BTC-USD, ETH-USD, and TSLA. The summary generation feature uses LangChain and OpenAI (GPT-4o) to produce real-time textual insights. The project adheres to all specified requirements including modular structure, asynchronous workflows, real GenAI integration, and automated test coverage.

# 7. Additional Endpoint Verifications

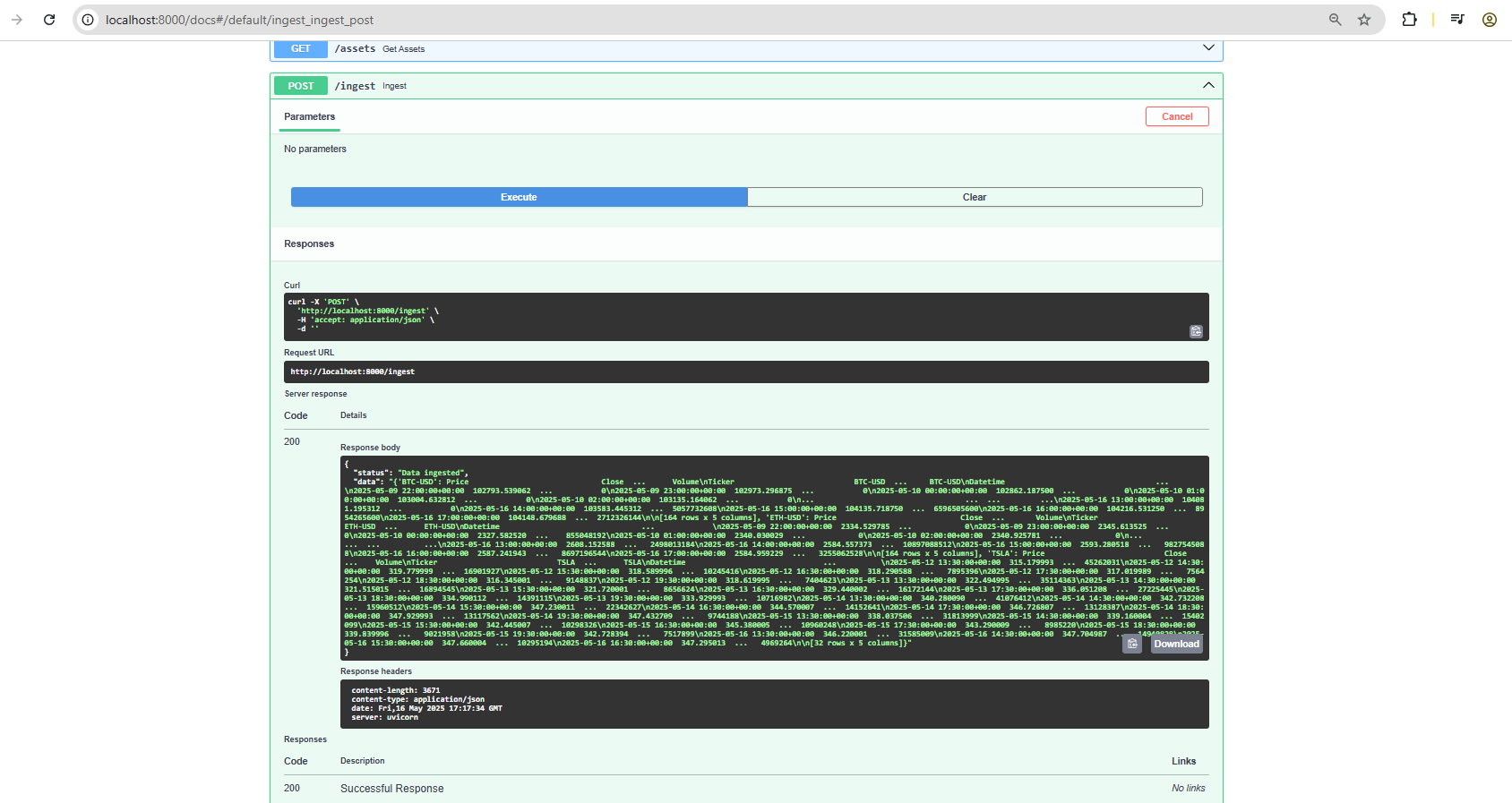
## 7.1 GET /metrics/{symbol} - TSLA

Verified the /metrics endpoint for the TSLA symbol using real-time data from yfinance.



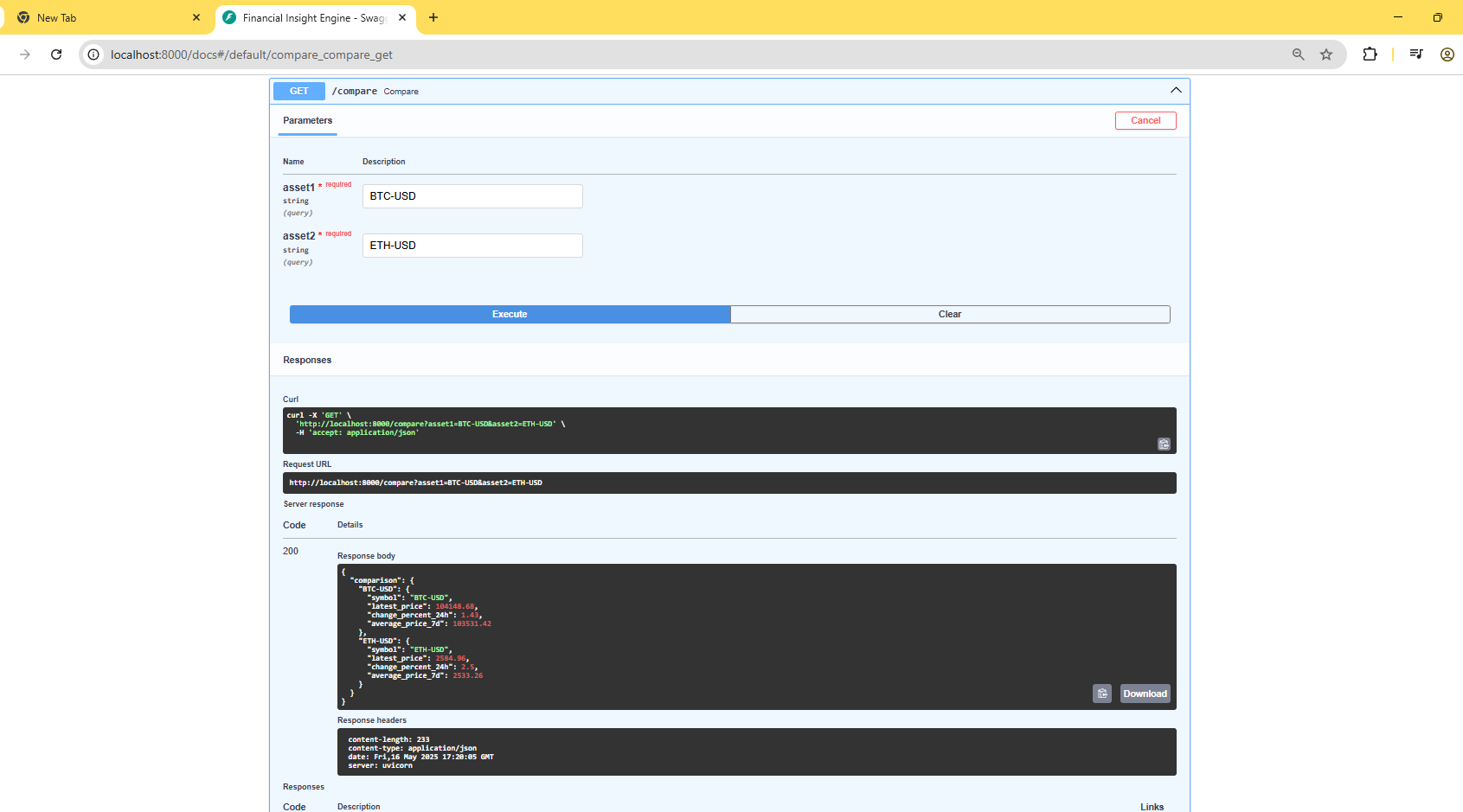
## 7.2 POST /ingest

Ingestion confirmed using POST /ingest, showing data was fetched and stored in-memory for BTC-USD, ETH-USD, and TSLA.



## 7.3 GET /compare

Compared BTC-USD and ETH-USD after real-time data ingestion. Comparison successful with valid metrics returned for both assets.



# 8. Real-Time Data Source Verification

The application uses the `yfinance` library to ingest real-time financial data. The below output confirms hourly data retrieval from Yahoo Finance for BTC-USD, ETH-USD, and TSLA.

