Project 4 – Task 1

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Selected API

- API Name: Binance Spot Price API
- Documentation URL: https://binance-docs.github.io/apidocs/spot/en/#symbol-price-ticker
- Notes: The Binance public ticker endpoint returns real-time price data as JSON and does not require authentication for basic queries.

Mobile Application Concept

The mobile app lets users monitor major cryptocurrency price, showing 24-hour change from Binance. Users can configure price alerts so the app notifies them when a threshold is crossed.

Console Screenshots

1. Binance Price Fetch Demo

```
❯ java -cp target/task1-demo-1.0-SNAPSHOT-jar-with-dependencies.jar edu.cmu.project4.task1.Fetc
hBinancePrice BTCUSD
Base URL: https://api.binance.us/api/v3/ticker/price
Symbol: BTCUSD
Price: 103893.21000000
Retrieved at: 2025-11-06T04:23:34.044269Z
```

Figure 1: Binance API console output

2. MongoDB Atlas Read/Write Demo

```
❯ java -cp target/task1-demo-1.0-SNAPSHOT-jar-with-dependencies.jar \
    edu.cmu.project4.task1.MongoStringDemo
11月 05, 2025 11:46:48 下午 com.mongodb.internal.diagnostics.logging.Loggers shouldUseSLF4J
警告: SLF4J not found on the classpath.  Logging is disabled for the 'org.mongodb.driver' comp
nent
Enter a string to store in MongoDB: Hello World
Stored document with id: 690c283cf6948535e66316ed

Strings currently persisted:
- Binance Demo
- Hello World
```

Figure 2: MongoDB Atlas insert result

Execution Summary

- `FetchBinancePrice`: Run with `BINANCE_API_BASE=https://api.binance.us/api/v3/ticker/price` to fetch pair `BTCUSD`, printing the price and timestamp.

```
) java -cp target/task1-demo-1.0-SNAPSHOT-jar-with-dependencies.jar \
    edu.cmu.project4.task1.MongoStringDemo
11月 05, 2025 11:46:26 下午 com.mongodb.internal.diagnostics.logging.Loggers shouldUseSLF4J
警告: SLF4J not found on the classpath.  Logging is disabled for the 'org.mongodb.driver' compo
nent
Enter a string to store in MongoDB: Binance Demo
Stored document with id: 690c2826a1b833225b3cc839

Strings currently persisted:
- Binance Demo
```

Figure 3: MongoDB Atlas collection view

- **MongoStringDemo**: Connects to Atlas using `MONGODB_URI`, prompts for a string, writes it to the collection `project4.task1Strings`, and prints all stored strings.