

Financial Chatbot Documentation

1. Overview

The AI-Driven Financial Chatbot is a rule-based chatbot designed to answer financial queries about Apple, Microsoft, and Tesla. It provides insights into total revenue, net income, assets, liabilities, cash flow, and growth trends based on financial data.

This chatbot operates in two modes:

- CLI Mode: Users can interact via the command line.
- API Mode: Users can access the chatbot via a REST API.

2. How It Works

The chatbot processes user queries by:

1. Validating user input (Company name & Fiscal Year).
2. Fetching financial data from final-data-report-task1.csv for specific years.
3. Retrieving year-over-year growth trends from growth_report.csv.
4. Matching predefined queries to generate appropriate responses.

3. Available Queries

Single-Year Financial Data Queries

- What is the total revenue?
- What is the Net Income?
- What is the sum of total assets?
- What is the sum of total liabilities?
- What is cash flow from operating activities?
- What is the revenue growth(%) ?
- What is the net income growth(%) ?
- What is the assets growth(%) ?
- What is the liabilities growth(%) ?
- What is the cash flow from operations growth(%) ?

Multi-Year Growth Trends Queries

- What is the year by year average revenue growth rate(%)?
- What is the year by year average net income growth rate(%)?
- What is the year by year average assets growth rate(%)?
- What is the year by year average liabilities growth rate(%)?
- What is the year by year average cash flow from operations growth rate(%)?

4. Usage Guide

CLI Mode:

Run the chatbot in the terminal:

```
python main.py
```

Example interaction:

Enter 'Hi' to start the chatbot session; type 'exit' to quit: *Hi*

Hello! Welcome to AI-Driven Financial Chatbot!

Available companies: Apple, Microsoft, Tesla

Enter company name: *Microsoft*

Enter the fiscal year: *2023*

Enter your query: *What is the total revenue?*

Response: The Total Revenue for Microsoft in 2023 is \$198,270.00

API Mode

Start the API server:

```
python api.py
```

Access the chatbot using API calls:

```
http://127.0.0.1:5000/chat?query=What%20is%20the%20total%20revenue?&company=Apple&year=2023
```

Example Response:

```
{
  "response": "The Total Revenue for Apple in 2023 is $383,285.00"
}
```

5. Limitations

- Fixed Predefined Queries: The chatbot only responds to predefined queries. It does not understand custom financial questions.
- Static Data: The chatbot relies on static CSV files and does not pull live financial data.
- No NLP Processing: It matches user input exactly—typos or paraphrased queries may not be recognized.
- Limited Companies: Only supports Apple, Microsoft, and Tesla.

6. Future Enhancements

- Support for More Companies & Real-Time Data API Integration
- Natural Language Processing (NLP) to Understand User Queries
- Interactive UI for Better User Experience
- Multi-Year Comparisons & Predictive Financial Insights

Try it out and let us know if you have any feedback or feature requests!