

# Financial Data Chatbot Documentation

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## Overview

The Financial Data Chatbot is a simple web-based application built using Python's Flask framework. It is designed to respond to a predefined set of financial queries about major companies (Microsoft, Tesla, Apple) for the year 2023. Users can input queries through a user-friendly web interface, and the chatbot will return relevant financial data based on the input.

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## How It Works

1. **Flask Backend:** The chatbot is powered by a Flask server that handles incoming requests from the frontend (web page). The server uses a basic predefined logic to match user queries to specific responses.
  2. **Frontend:** The user interacts with the chatbot through a simple web interface, where they can type their financial questions into a text box. After submitting the query, the Flask server processes it and returns an appropriate response, which is then displayed on the web page.
  3. **Predefined Query Matching:** The backend contains a function called `simple_chatbot()` that checks if the user's query matches any of the predefined questions. If a match is found, the corresponding financial information is returned. If no match is found, the chatbot informs the user that it can only respond to predefined queries.
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## Predefined Queries

The chatbot can respond to the following predefined queries:

1. **Total Revenue:**

- "What is the total revenue for Microsoft in 2023?"
  - "What is the total revenue for Tesla in 2023?"
  - "What is the total revenue for Apple in 2023?"
2. **Net Income Change:**
- "How has net income changed for Microsoft from 2022 to 2023?"
  - "How has net income changed for Tesla from 2022 to 2023?"
  - "How has net income changed for Apple from 2022 to 2023?"
3. **Total Assets Trend:**
- "What is the trend in total assets for Microsoft from 2021 to 2023?"
  - "What is the trend in total assets for Tesla from 2021 to 2023?"
  - "What is the trend in total assets for Apple from 2021 to 2023?"
4. **Cash Flow from Operating Activities:**
- "What is the cash flow from operating activities for Microsoft in 2023?"
  - "What is the cash flow from operating activities for Tesla in 2023?"
  - "What is the cash flow from operating activities for Apple in 2023?"
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## Limitations

- **Predefined Queries Only:** The chatbot is limited to the predefined queries mentioned above. If a user asks a question that is not predefined, the chatbot will respond with: "Sorry, I can only provide information on predefined queries."
  - **Static Data:** The financial data provided by the chatbot is static and based on predefined responses for the year 2023. It does not perform real-time data retrieval from external APIs or databases.
  - **Simple Logic:** The chatbot uses basic if-else conditions to match queries, making it unsuitable for handling complex or natural language processing (NLP)-based queries.
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## Usage Instructions

1. Visit the web interface hosted on the local Flask server.
2. Type a predefined financial question into the input box.

3. Press the "Ask" button or hit "Enter" to submit your query.
4. View the chatbot's response displayed below the input box.

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This chatbot serves as a starting point for financial data interaction and can be expanded to include more sophisticated data handling techniques, such as integration with real-time financial APIs and advanced NLP capabilities.