**AI CHATBOT SUMMARY**

**How it Works**

The chatbot is designed to process user queries related to financial data from a specified DataFrame (csv file). It follows these steps:

1. **Query Preprocessing:** The chatbot converts the user query to lowercase and splits it into words.
2. **Company Extraction:** It iterates through the words to identify the company name by checking if it exists in the 'Company' column of the DataFrame.
3. **Year Extraction:** It extracts any numerical values from the query that match the 'Year' column values.
4. **Query Analysis:** The chatbot determines the user's intent based on keywords in the query (e.g., "total revenue", "net income", "compare").
5. **Data Retrieval:** Using the extracted company and year information, the chatbot retrieves relevant data from the DataFrame.
6. **Response Generation:** The chatbot generates a response based on the user's intent and the retrieved data.

**Predefined Queries**

The chatbot can respond to queries related to the following financial metrics:

* **Total Revenue:** Returns the total revenue for a specific company in a given year.
* **Total Assets:** Returns the total assets for a specific company in a given year.
* **Total Liabilities:** Returns the total liabilities for a specific company in a given year.
* **Cash Flow:** Returns the cash flow for a specific company in a given year.
* **Net Income:** Returns the net income for a specific company in a given year.
* **Change in Net Income:** Calculates the change in net income for a specific company between two years.
* **Average Revenue Growth:** Calculates the average revenue growth for a specific company.
* **Comparison:** Compares two companies based on their average revenue or net income.

We can further extend its working by adding the rest of the parameters to the comparison, and calculating more financial terms that are frequently used and incorporating them into the code.

**Limitations**

The chatbot has the following limitations:

* **Data Dependency:** The chatbot relies on the accuracy and completeness of the data in the DataFrame.
* **Query Understanding:** It may struggle to understand complex or ambiguous queries.
* **Limited Functionality:** It can only provide information based on the predefined metrics.
* **Lack of Context:** It does not maintain context across multiple interactions.

To improve the chatbot's capabilities, it could be enhanced to handle more complex queries, integrate with external data sources, and incorporate machine learning techniques for better query understanding and response generation. We can also further use Flask (a library in python) and other web development tools to display the chatbot in a more visually appealing and user friendly format.