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In [2]: import pandas as pd
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In [5]: df = pd.read_excel(r'C:\Users\SD\Downloads\BCGX_10k.xlsx')
```

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In [7]: data = {}
for _, row in df.iterrows():
    company = row['Company'].strip().lower()
    year = int(row['Year'])

    if company not in data:
        data[company] = {}

    data[company][year] = {
        'revenue': row['Total Revenue'],
        'income': row['Net Income'],
        'assets': row['Total Assets'],
        'liabilities': row['Total Liabilities'],
        'cash flow': row['Cash Flow From Operating Activities']
    }

print("💬 Financial Chatbot | Ask about Microsoft, Tesla, or Apple (2022-2024)")
print("🔚 Type 'exit' to quit\n")

while True:
    user_input = input("You: ").lower()
    if user_input == 'exit':
        print("👋 Goodbye!")
        break

    company = None
    year = None
    metric = None

    for c in data.keys():
        if c in user_input:
            company = c
            break

    for y in range(2022, 2025):
        if str(y) in user_input:
            year = y
            break

    keywords = {
        'revenue': ['revenue', 'total revenue'],
        'income': ['net income', 'income'],
        'assets': ['total assets', 'assets'],
        'liabilities': ['total liabilities', 'liabilities'],
        'cash flow': ['cash flow', 'operating cash', 'cash flow from operating acti
    }

    for key, variants in keywords.items():
        if any(v in user_input for v in variants):
            metric = key
```

```
        break

    if company and year and metric:
        try:
            value = data[company][year][metric]
            print(f"> {company.title()}'s {metric} in {year} was ${value:,} million")
        except KeyError:
            print("> Sorry, data not found for that combination.")
    else:
        print("> Sorry, I couldn't understand your question. Try asking about revenue")
```

Financial Chatbot | Ask about Microsoft, Tesla, or Apple (2022-2024)

END Type 'exit' to quit

```
> Tesla's revenue in 2023 was $96,773 million.
> Microsoft's revenue in 2024 was $245,122 million.
> Apple's assets in 2022 was $352,755 million.
> Microsoft's liabilities in 2022 was $198,298 million.
> Tesla's cash flow in 2024 was $14,923 million.
👋 Goodbye!
```

In []: