

text2chart

Transforming natural language
to charts

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Outline

- Motivation
- Then vs now
- How is it useful?
- What is under the hood?
- Architecture
- Examples
- Demo
- Limitations

Motivation

- In 2018/2019 a developer in the team, I was in spent ~6-8 months to write the code to let users create graphs of their choosing
- AI comes in -> can be done in a day

Select vars
Executed code	
<i>Enter type of charts to generate (line, bar, etc.)</i>	
Output...	

Then (months of dev) vs Now (1 day)

Select vars

... . . .

Executed code

Enter type of charts to generate (line, bar, etc.)

Output...



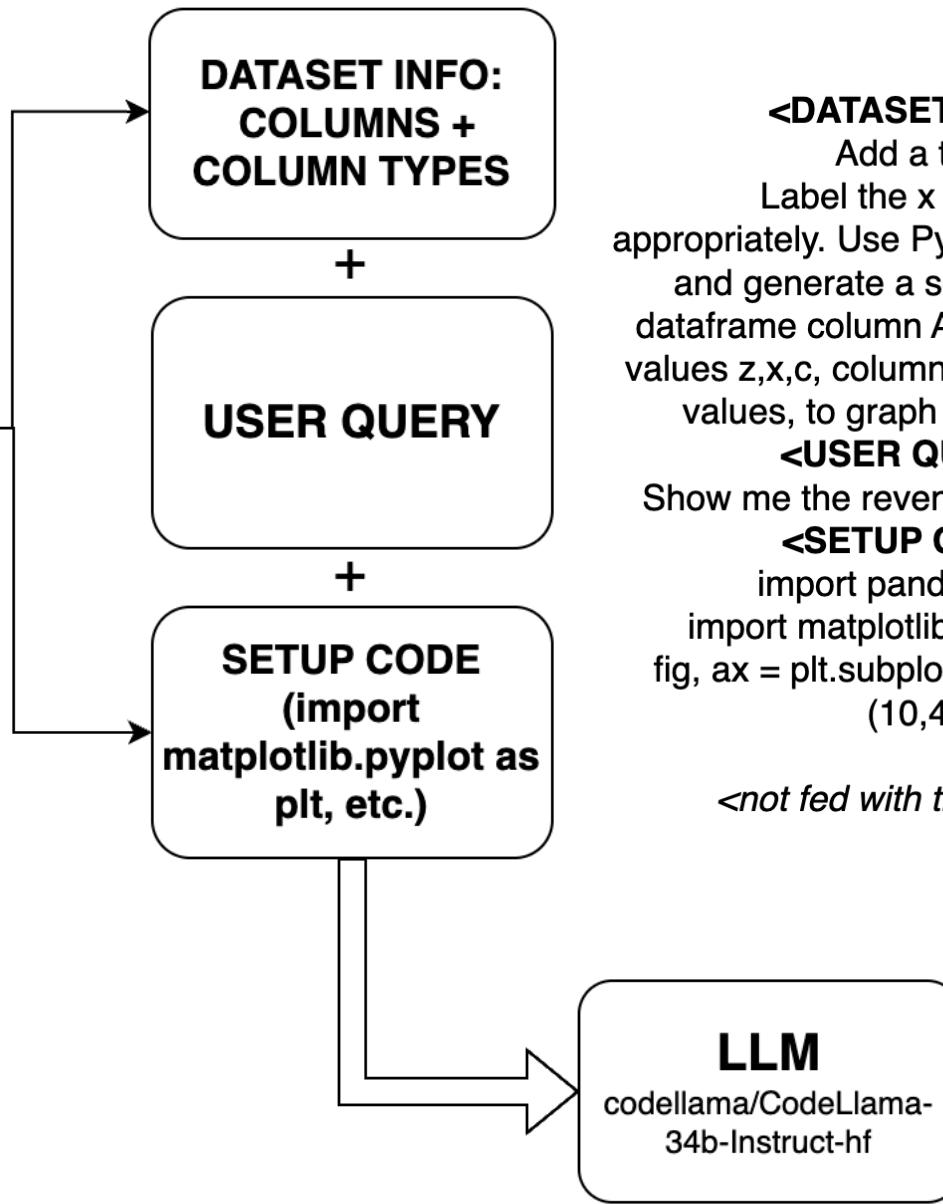
How is it useful?

- Easy visualization for any dataset
- Freedom to create
- Stakeholders can use it out-of-the-box
- Quick prototyping for such and similar applications

What is under the hood?

- ~100 lines of code
- 4 libraries
 - streamlit – create webapps using python and minimal effort
 - pandas – data manipulation and analysis
 - huggingface – provides access to pre-trained models for NLP (and other) tasks
 - langchain – provides utilities for building apps using language models

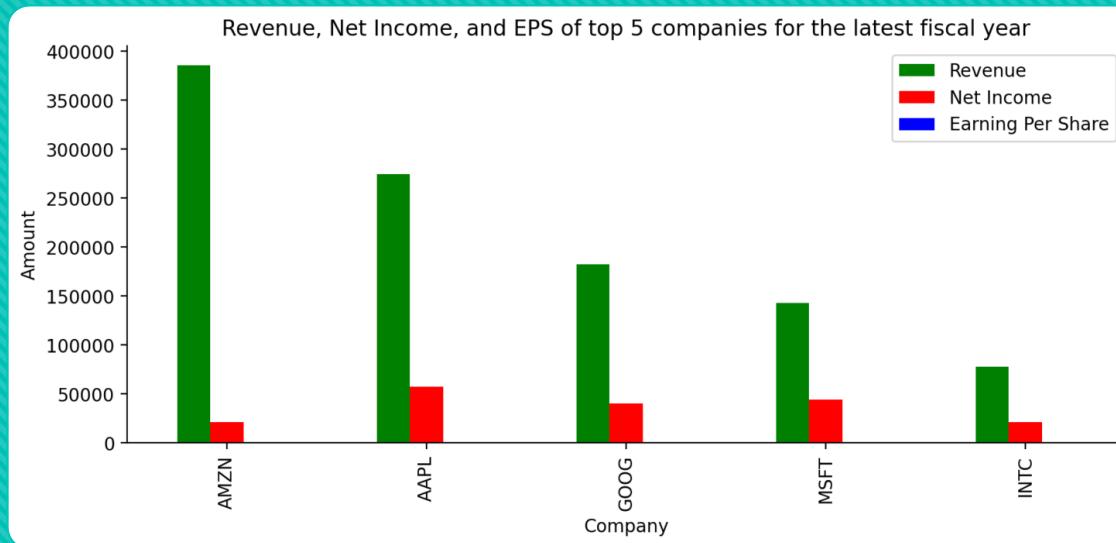
BASED ON
PRE-
SELECTED
DATASET



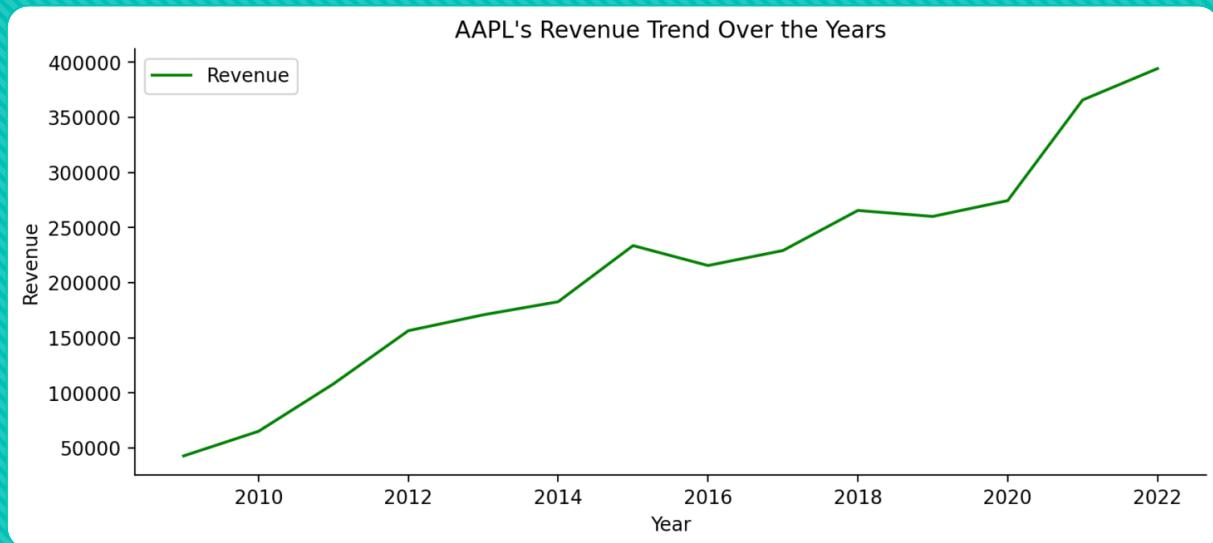
<DATASET INFO>
Add a title.
Label the x and y axes
appropriately. Use Python version 3.10
and generate a script using the
dataframe column A has categorical
values z,x,c, column B has numerical
values, to graph the following:
<USER QUERY>
Show me the revenues from X to Y
<SETUP CODE>
import pandas as pd
import matplotlib.pyplot as plt
fig, ax = plt.subplots(1, 1, figsize=
(10,4))
<not fed with the prompt>

Architecture

'Display the revenue, net income, and EPS of each top company for the latest fiscal year in separate vertical bar charts for easy comparison'



'Show me AAPL's revenue trend over the Years '



Examples

Demo

<https://text2chart.streamlit.app/>

Limitations

- The way the model sees the data
- Complicated charts (Sankey diagram, multi-axis line chart, radar chart, box and whisker)
- Only as good as the underlying LLM and pre-set prompt

Thank you ^^

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<https://github.com/divakaivan/text2chart>

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