TRAINING THE STREET

2023 Free Learning Series

Financial Dashboards with Python and ChatGPT

October 2023

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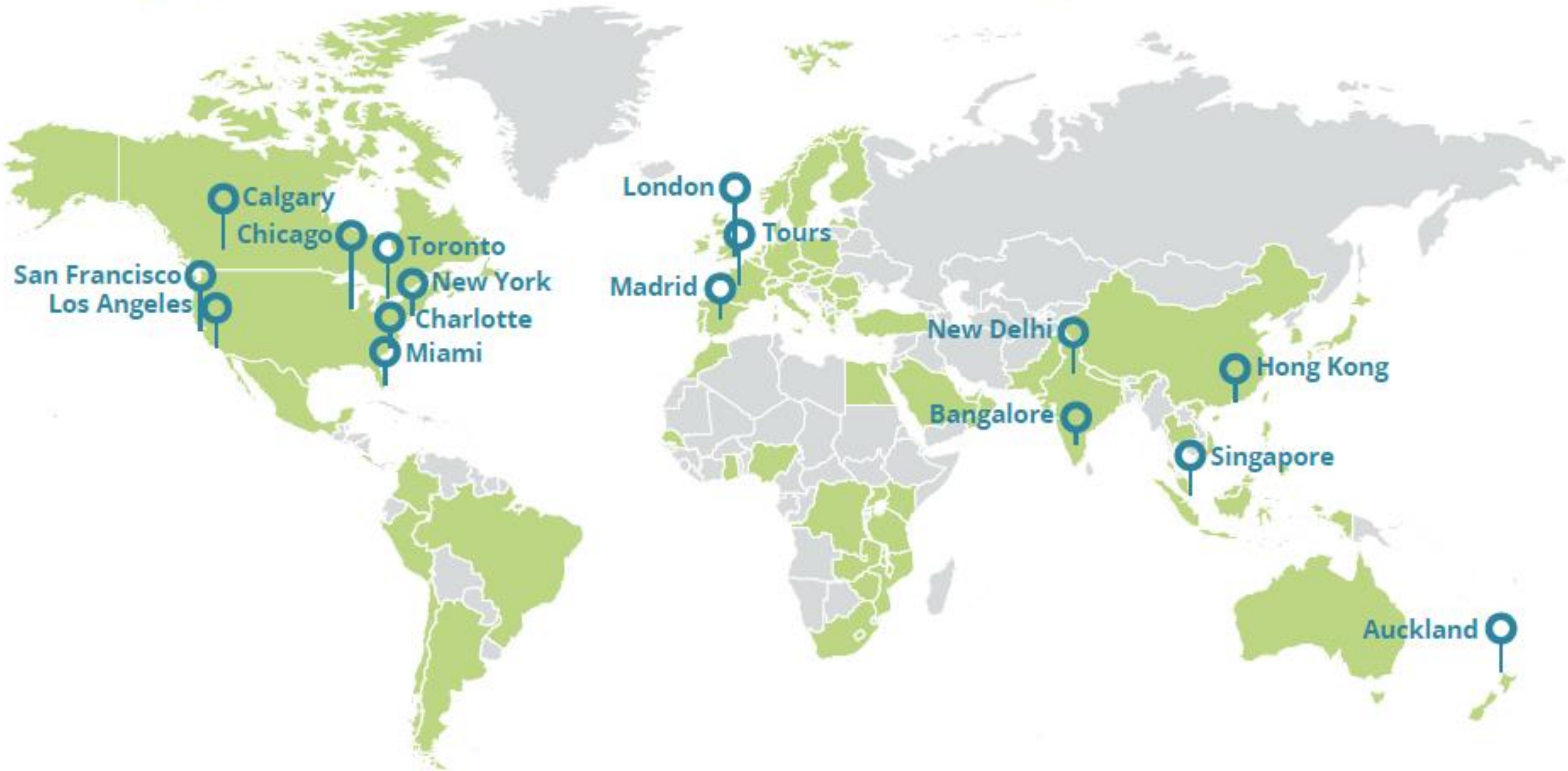
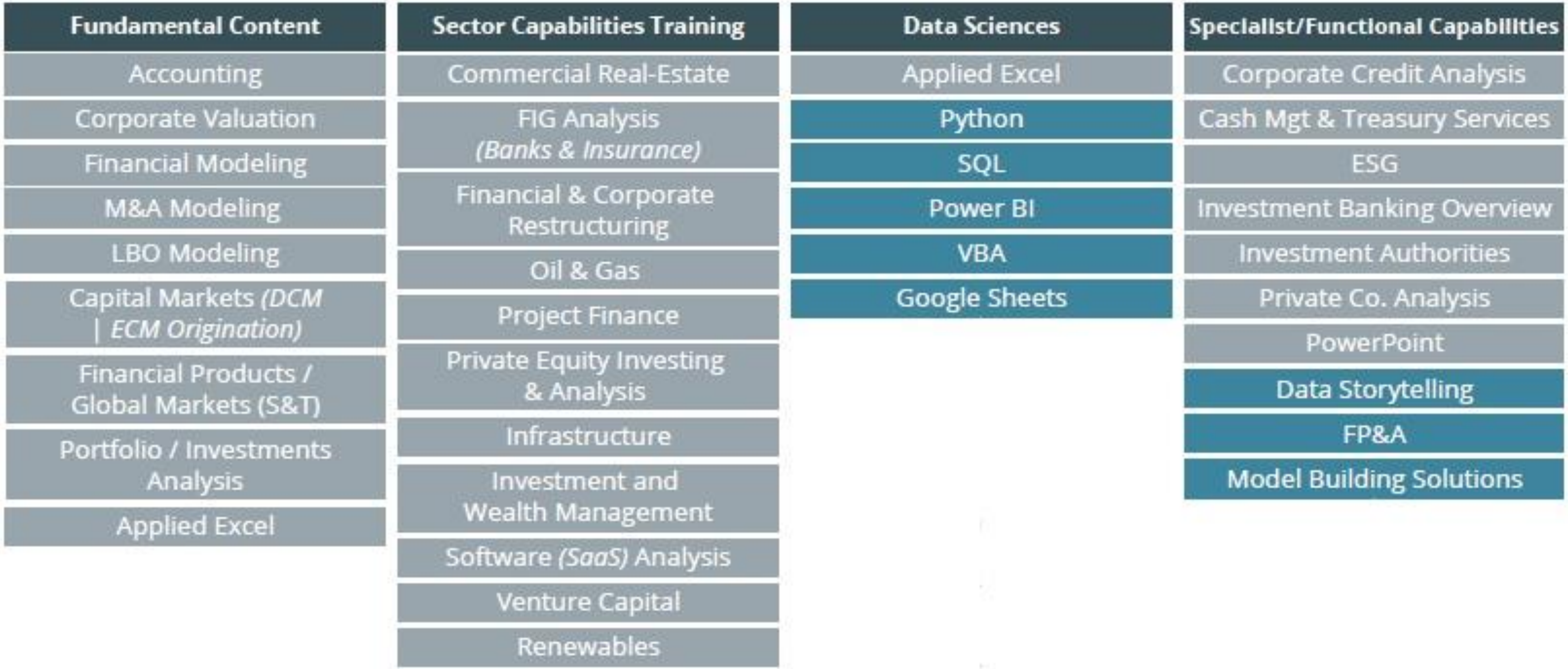
Global Footprint

60+ experienced instructors across major markets
5,000+ training days per year[1]

🟦 TTS and Marquee instructor presence
🟩 Region of delegates trained



Core Areas of Focus



Fundamental Content	Sector Capabilities Training	Data Sciences	Specialist/Functional Capabilities
Accounting	Commercial Real-Estate	Applied Excel	Corporate Credit Analysis
Corporate Valuation	FIG Analysis *(Banks & Insurance)*	Python	Cash Mgt & Treasury Services
Financial Modeling	Financial & Corporate Restructuring	SQL	ESG
M&A Modeling	Oil & Gas	Power BI	Investment Banking Overview
LBO Modeling	Project Finance	VBA	Investment Authorities
Capital Markets *(DCM | ECM Origination)*	Private Equity Investing & Analysis	Google Sheets	Private Co. Analysis
Financial Products / Global Markets (S&T)	Infrastructure		PowerPoint
Portfolio / Investments Analysis	Investment and Wealth Management		Data Storytelling
Applied Excel	Software *(SaaS)* Analysis		FP&A
	Venture Capital		Model Building Solutions
	Renewables		

**New Content with Marquee Acquisition

Presenter Bio

BOGDAN TUDOSE – Director, Co-Head of Data Science

- **Professional Experience:** Bank of Montreal (BMO) – Investment Banking; Anson Funds – Hedge Fund
- **Education:** The Schulich School of Business at York University – Bachelor of Business Administration, with concentrations in Finance and Information Systems
- **Email:** bogdan.tudose@trainingthestreet.com

Following the integration of The Marquee Group into TTS, Bogdan assumed the role of Co-Head of Data Science to focus on the growth of the Data Science business within TTS by developing new content, training instructors, and running training programs in data science. Prior to that, he was a Principal and Instructor of Marquee with a specialization on programming courses, having joined in 2017 to teach VBA and develop several new data science courses, including four day-long sessions on Python for Finance Professionals and new technical content for various bank training programs.

Useful Links

- Live Dashboard: https://chatgpt-python-dashboard.streamlit.app/
- ChatGPT Convo: https://chat.openai.com/share/9a47b226-92d2-49b9-a1cf-cdf731a0d430
- Python Code: https://github.com/dbogt/chatGPTStreamlit/
- Streamlit Documentation: https://docs.streamlit.io/
- Streamlit Cloud: https://streamlit.io/cloud
- Python in Excel Demo:
  - LinkedIn Post: https://bit.ly/PythonExcelDemo (link to Excel file in post)

ChatGPT – Simple Demo

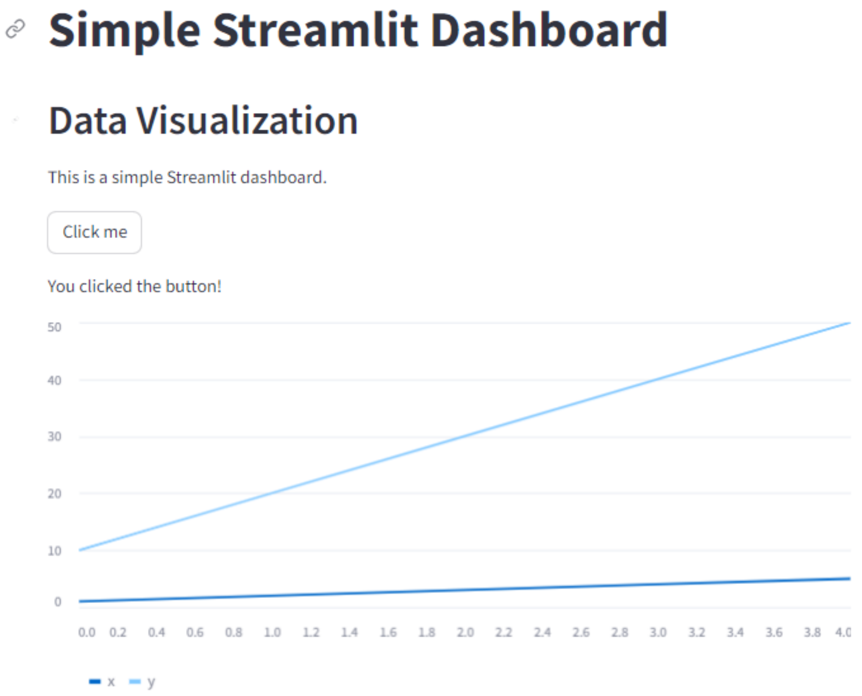
ChatGPT Prompt:

"Can you help me create a simple dashboard with streamlit?"

Solution:

- simple demo includes an interactive chart and a button

https://chatgpt-python-dashboard.streamlit.app/Simple_Demo



Simple Streamlit Dashboard

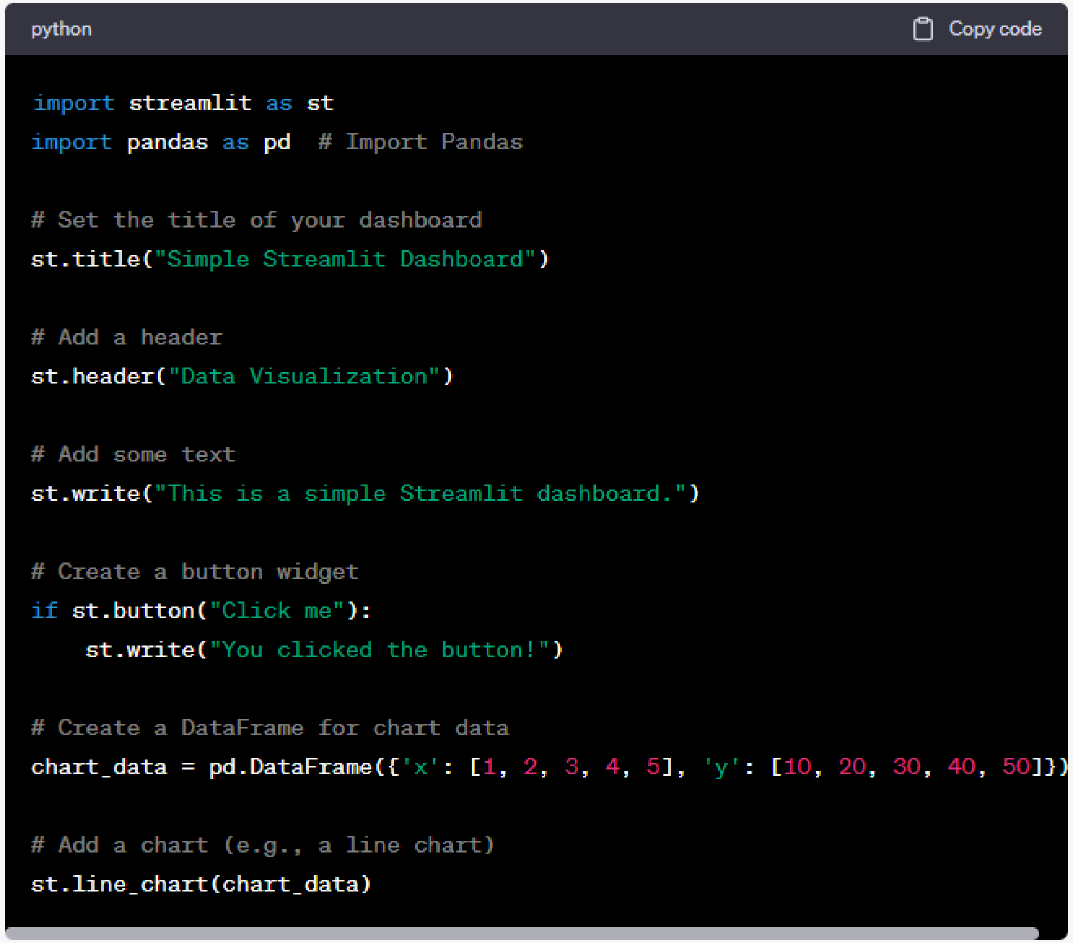
Data Visualization

This is a simple Streamlit dashboard.

Click me

You clicked the button!

ChatGPT's Solution



```python
import streamlit as st
import pandas as pd  # Import Pandas

# Set the title of your dashboard
st.title("Simple Streamlit Dashboard")

# Add a header
st.header("Data Visualization")

# Add some text
st.write("This is a simple Streamlit dashboard.")

# Create a button widget
if st.button("Click me"):
    st.write("You clicked the button!")

# Create a DataFrame for chart data
chart_data = pd.DataFrame({'x': [1, 2, 3, 4, 5], 'y': [10, 20, 30, 40, 50]})

# Add a chart (e.g., a line chart)
st.line_chart(chart_data)
```

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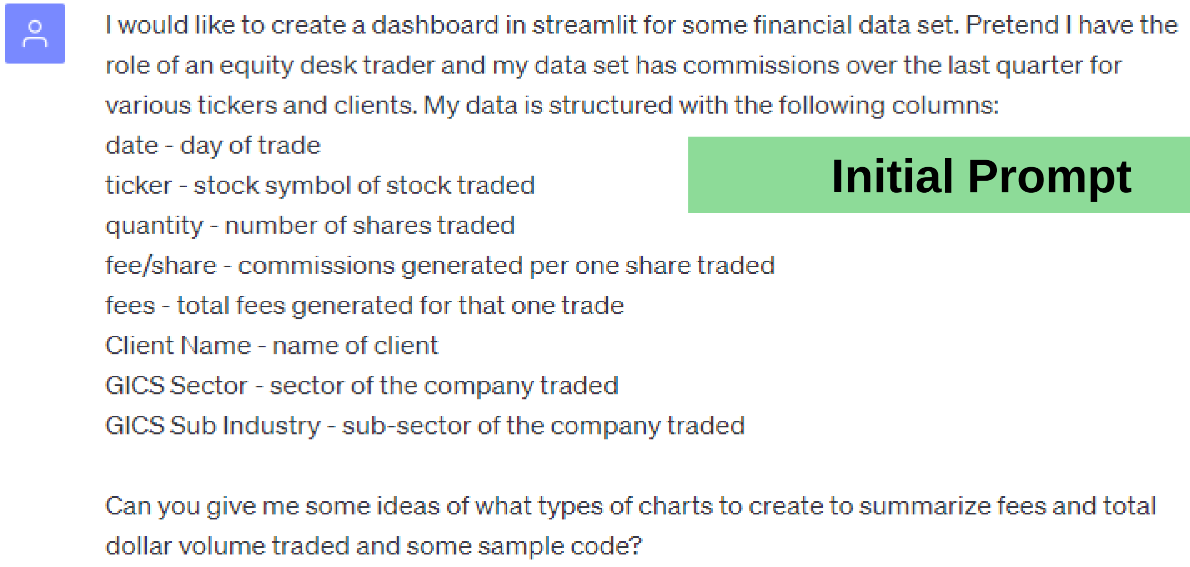
ChatGPT – Financial Dashboard

Tips:

- be as detailed as you can with your initial prompt, include descriptions and header names of your columns in data set
- ChatGPT can provide suggestions not only on the code but also types of outputs to create
- Can ask follow-up questions and ChatGPT will “remember” previous answers

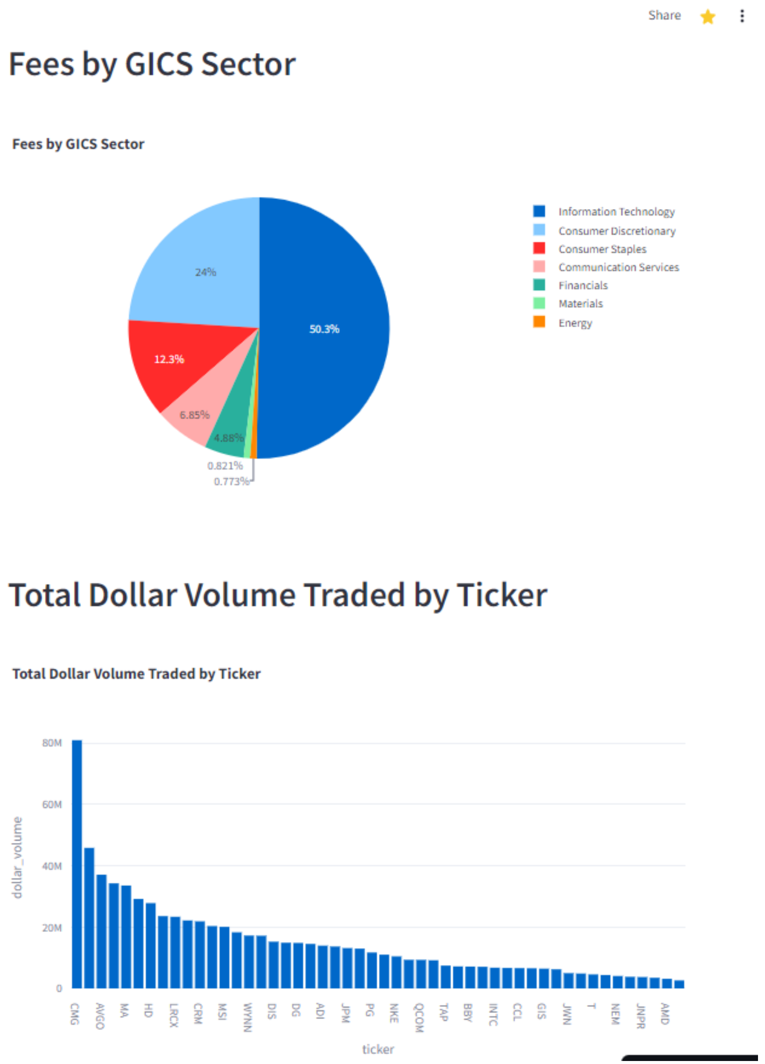


I would like to create a dashboard in streamlit for some financial data set. Pretend I have the role of an equity desk trader and my data set has commissions over the last quarter for various tickers and clients. My data is structured with the following columns:

date - day of trade
ticker - stock symbol of stock traded
quantity - number of shares traded
fee/share - commissions generated per one share traded
fees - total fees generated for that one trade
Client Name - name of client
GICS Sector - sector of the company traded
GICS Sub Industry - sub-sector of the company traded

Can you give me some ideas of what types of charts to create to summarize fees and total dollar volume traded and some sample code?

Initial Prompt

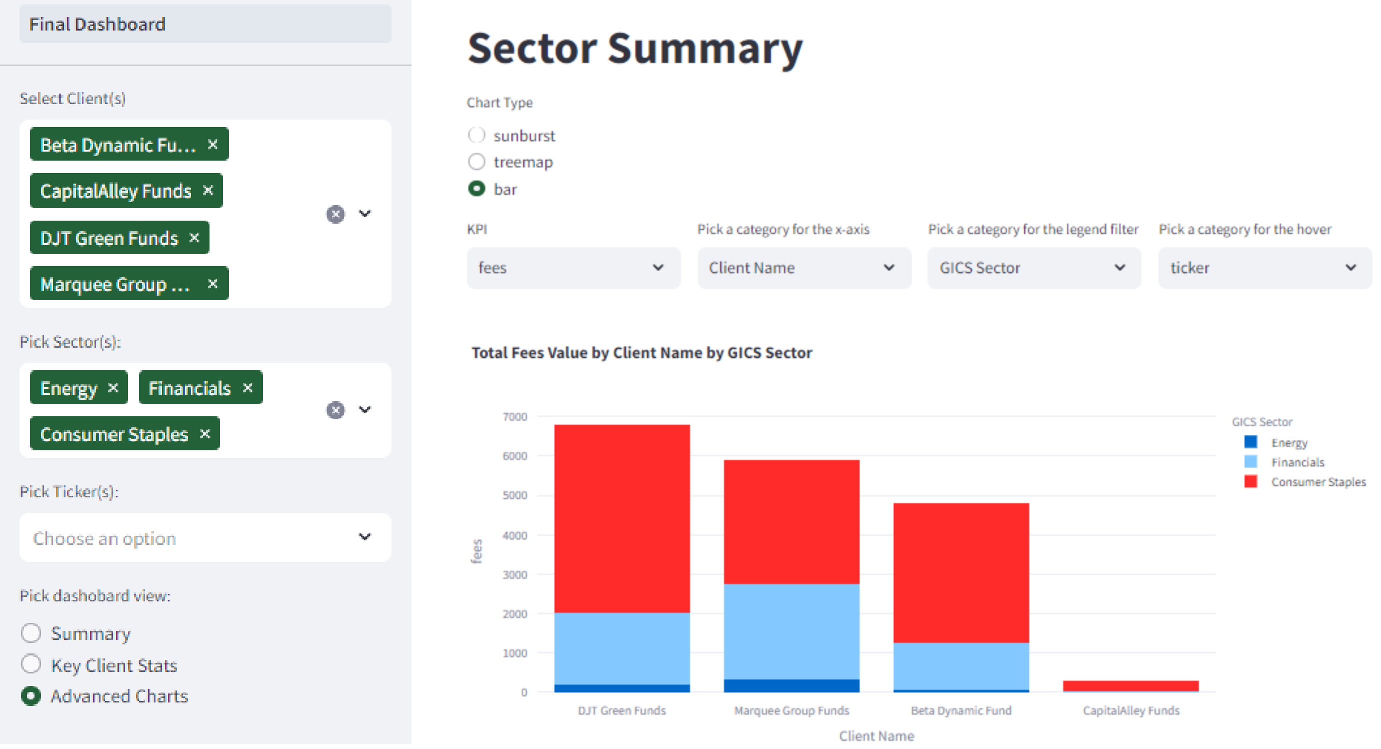


Fees by GICS Sector

Total Dollar Volume Traded by Ticker

Final Streamlit Dashboard

- Once you get some practice with the dummy code that ChatGPT provides you can start modifying the code and adding elements to the dashboard to create a more advanced dashboard
- Having some fundamental knowledge in Python is key here so you understand what the code is doing and how to debug any issues



Final Dashboard

Select Client(s)

Beta Dynamic Fu… × CapitalAlley Funds × DJT Green Funds × Marquee Group … ×

Pick Sector(s):

Energy × Financials × Consumer Staples ×

Pick Ticker(s):

Choose an option

Pick dashboard view:

○ Summary
○ Key Client Stats
● Advanced Charts

Sector Summary

Chart Type

○ sunburst
○ treemap
● bar

KPI

fees

Pick a category for the x-axis

Client Name

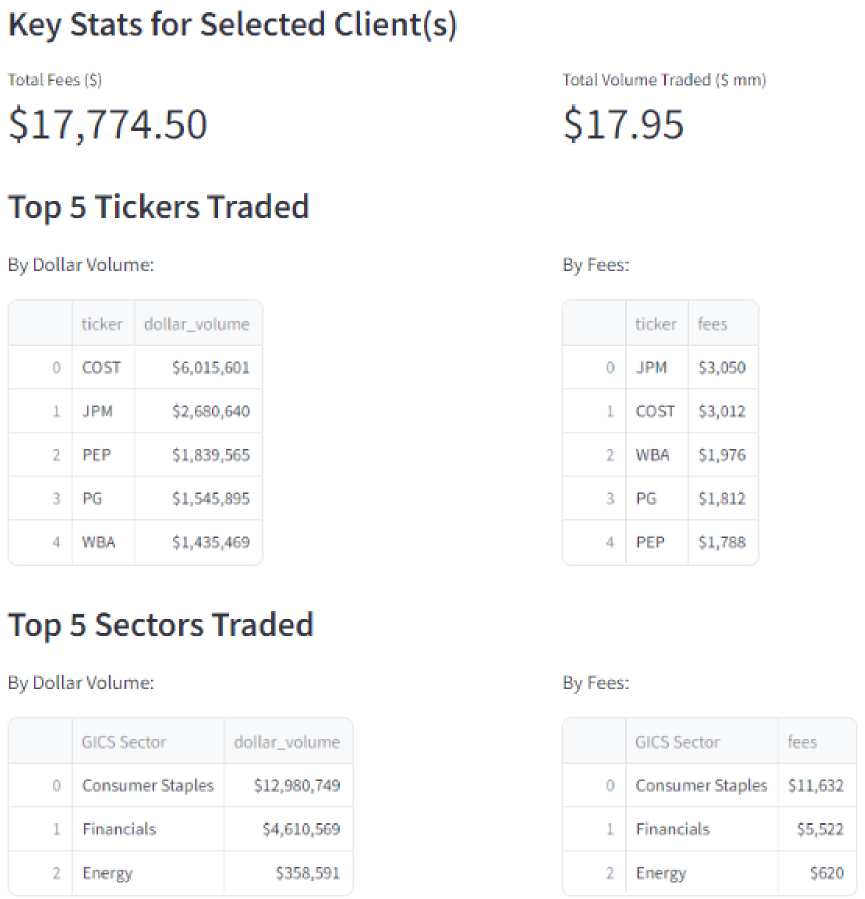
Pick a category for the legend filter

GICS Sector

Pick a category for the hover

ticker

Total Fees Value by Client Name by GICS Sector



Key Stats for Selected Client(s)

Total Fees ($)

$17,774.50

Total Volume Traded ($ mm)

$17.95

Top 5 Tickers Traded

By Dollar Volume:

	ticker	dollar_volume
0	COST	$6,015,601
1	JPM	$2,680,640
2	PEP	$1,839,565
3	PG	$1,545,895
4	WBA	$1,435,469

By Fees:

	ticker	fees
0	JPM	$3,050
1	COST	$3,012
2	WBA	$1,976
3	PG	$1,812
4	PEP	$1,788

Top 5 Sectors Traded

By Dollar Volume:

	GICS Sector	dollar_volume
0	Consumer Staples	$12,980,749
1	Financials	$4,610,569
2	Energy	$358,591

By Fees:

	GICS Sector	fees
0	Consumer Staples	$11,632
1	Financials	$5,522
2	Energy	$620

Dashboarding Overview

- There are two main competing packages for creating dashboards in Python:
  - Dash – designed by the same creators of plotly: https://plotly.com/dash/
  - Streamlit – designed by engineers from Google and Twitter: https://www.streamlit.io/
- Neither package comes pre-installed with Anaconda and will need to be downloaded and installed separately

Installation & Documentation

Package	Anaconda Prompt Code	Links
Dash	conda install -c conda-forge dash	Installation: https://anaconda.org/conda-forge/dash Documentation: https://dash.plotly.com/ Gallery: https://dash-gallery.plotly.host/Portal/
Streamlit	pip install streamlit	Installation: https://docs.streamlit.io/en/stable/installation.html Documentation: https://docs.streamlit.io/en/stable/ Gallery: https://www.streamlit.io/gallery

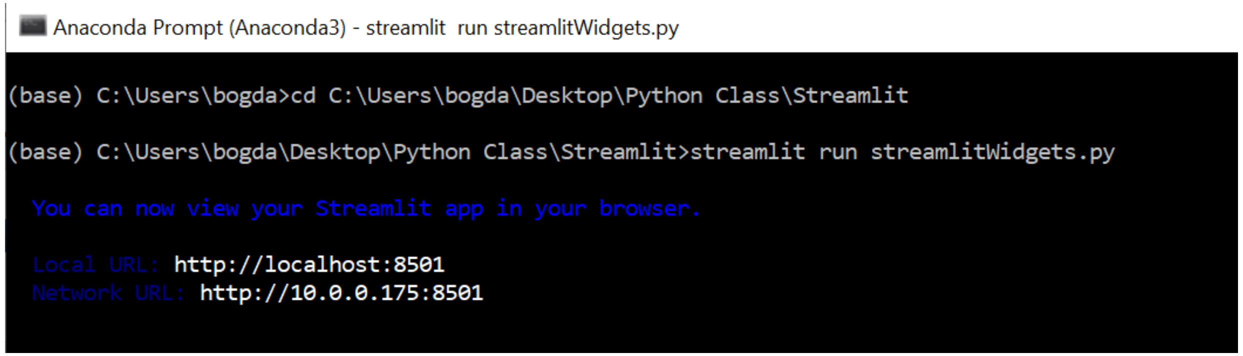
```
# %% Import Packages
import streamlit as st
```

Dashboarding Comparison

- Both Dash and Streamlit are similar in that:
  - They launch the dashboard as a new tab in your browser as a “web app”
  - They allow for creating interactive elements that will filter and update your charts and DataFrames on the fly, such as dropdowns, radio buttons, slidebars, checkboxes, buttons, etc.
  - The web app can be hosted locally on your computer or shared drive or can be uploaded to an online server (e.g. Amazon AWS, Google Collaborate, Microsoft Azure, etc.)
  - They allow for rapid deployment of a dashboard with very minimal or no web design experience
  - Both allow for “debugging” on the fly – being able to see the changes to the dashboard as changes are made in the code without having to relaunch the web app
  - Both have a strong community online where people can ask questions and get help
- Dash and Streamlit differ in that:
  - Dash allows for more customization and formatting; however, it is a bit more of a learning curve and requires some minimal knowledge of web design coding (HTML tags and CSS for styling)
  - Streamlit does not allow for as much customization in formatting; however, it is more streamlined and easier to use for coders with no web design knowledge or experience

Using Streamlit – Running the App

- The app needs to be run from the Anaconda Prompt window with the code:
  `streamlit run nameApp.py`
- The prompt directory needs to be set to the folder where the python file is located
  - This can be done with the code *cd folderPath*
  - The code will then create a link and launch the app automatically in a new browser, usually at: http://localhost:8501/



Anaconda Prompt (Anaconda3) - streamlit run streamlitWidgets.py

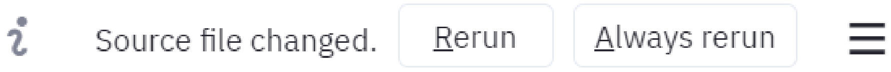
```
(base) C:\Users\bogda>cd C:\Users\bogda\Desktop\Python Class\Streamlit

(base) C:\Users\bogda\Desktop\Python Class\Streamlit>streamlit run streamlitWidgets.py

  You can now view your Streamlit app in your browser.

  Local URL: http://localhost:8501
  Network URL: http://10.0.0.175:8501
```

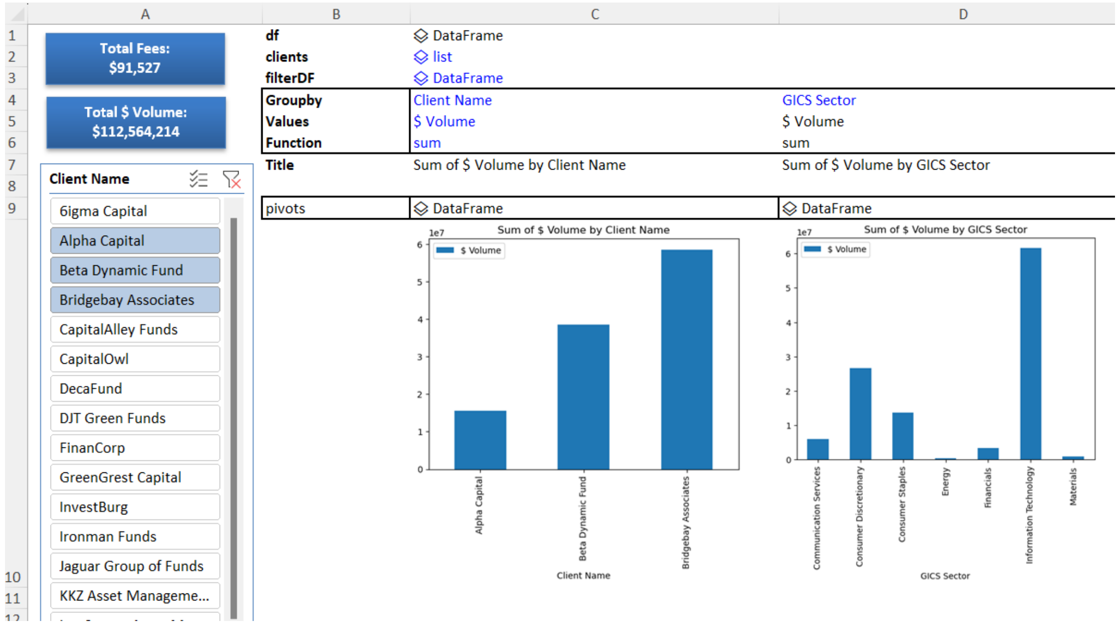
- If the source Python code is modified and saved while the dashboard is open, Streamlit will prompt you to rerun the app:



Source file changed.

Python in Excel

- Python available in Excel with Beta Channel
- Weekly demos on Bogdan’s LinkedIn profile
- Source Excel files: https://github.com/dbogt/PythonExcel
- Unfortunately, Microsoft doesn’t support Plotly or Streamlit packages yet
- However, you can create interactivity using Pivot slicers
- Python in Excel Demo: https://bit.ly/PythonExcelDemo



Total Fees:
$91,527

Total $ Volume:
$112,564,214

Client Name

- 6igma Capital
- Alpha Capital
- Beta Dynamic Fund
- Bridgebay Associates
- CapitalAlley Funds
- CapitalOwl
- DecaFund
- DJT Green Funds
- FinanCorp
- GreenGrest Capital
- InvestBurg
- Ironman Funds
- Jaguar Group of Funds
- KKZ Asset Manageme...

B	C	D
df	DataFrame	
clients	list	
filterDF	DataFrame	
Groupby	Client Name	GICS Sector
Values	$ Volume	$ Volume
Function	sum	sum
Title	Sum of $ Volume by Client Name	Sum of $ Volume by GICS Sector
pivots	DataFrame	DataFrame

Next Steps

- If you're interested in learning more about Python:

  bogdan.tudose@trainingthestreet.com
  https://bogdan.streamlit.app/Python_Resources
  https://www.linkedin.com/in/tudosebogdan/

Training The Street Python training:

- Open enrollment day-long webinars: https://trainingthestreet.com/python-training/
  - Python 1: Core Data Analysis
  - Python 2: Visualization and Analysis
  - Python 3: Web Scraping and Dashboarding
- Self-study online courses on our Self Study website:
  - Python Fundamentals
  - Applied Machine Learning
- Next open-enrollment Python 1 class on Nov 16, 2023, in NYC:
  - https://portal.trainingthestreet.com/s/viewevent?id=7014w000001aDaBAAU

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