Project 3 – Group 8

Facebook (Meta), Apple, Amazon, Netflix, Google (FAANG)

Discovering their Hidden Value and Influence through Data Visualisation

Project Outline

- Team Members

- Project Objective

- Data Sources

- Technology Used

- The Genesis for our Analysis – Richard

- Data tells the story – Suvi Tao

- Data visualisation demonstration – Akif and Graham

- Conclusion

- Limitations

Team Members

- Richard Soos

- Tao Ma

- Suraksha Regmi

- Akif Hasan

- Graham Meadon

Project Objective

- Investigate how FAANG stocks skew their respective Global Industry Classification Standard (GICS) sector behavior. This analyses will consider a **t-test / p-value** for each stock against the selected sectors.

- Identify correlations and patterns between the performance of FAANG stocks and market indices to gain insights into their influence on the SP500.

- Visualize the performance and impact of each FAANG stock by analysing its price changes and trade volumes an interactive dashboard.

Data Sources

Polygon.io (API call in Python)

Marketaux News (API call & web scraping in JavaScript)

AlpAlpha Vantage (API call in JavaScript)

Technology Used

Data management and visualizations using these tools:

- Python – for cleaning the data
- Postgres SQL – converting the data into database
  - *Dataset with at least 180 records*
- Python Flask-powered API - a resting API for data access
- JavaScript
  - Libraries used:
    - *D3.js*
    - *Plotly.js*
    - *Chart.js (new library as required in project outline)*

- HTML/CSS/Bootstrap

The Genesis for our Analysis
Richard

- How do FAANG stocks align with their GICS sector classification?

- Do these stocks exhibit the traits of another GICS sectors?

- What are the trends of FAANG stocks in terms of price changes and trade volumes when compared to the specified index sectors?

- How do these FAANG stocks influence the overall market?

The Genesis for our Analysis
Richard

Apple (AAPL) items are a discretionary purchase, but not by exchange listing

- Facebook (FB) (Meta) - Communication Services
- Apple (AAPL) - Information Technology
- Amazon (AMZN) – Consumer Discretion
- Netlfix (NFLX) - Communication Services
- Google (GOGG) (GOOGL) - Communication Services

Questions

- *Do these stock skew the behaviour of their sector?*
- *If we were to rationally categorise them, where would they fit?*

The Genesis for our Analysis
Richard

🐍 Using the S&P 500 listings, we can categorise stock

	A	B	C	D	E	F	G	H	I
1	symbol	security	sec_filings	gics_sector	sub_industry	headquarters	date_added	cik	founded
2	MMM	3M	reports	Industrials	Industrial Conglomerate	Saint Paul, Minnesota	9/08/1976	66740	1902
3	AOS	A. O. Smit	reports	Industrials	Building Products	Milwaukee, Wisconsin	26/07/2017	91142	1916
4	ABT	Abbott	reports	Health Care	Health Care Equipment	North Chicago, Illinois	31/03/1964	1800	1888
5	ABBV	AbbVie	reports	Health Care	Pharmaceuticals	North Chicago, Illinois	31/12/2012	1551152	2013 (1888)
6	ABMD	Abiomed	reports	Health Care	Health Care Equipment	Danvers, Massachusetts	31/05/2018	815094	1981

FAANG stock were kept separate and API calls were then made to Polygon.io for start and end dates across a year.

{"status":"OK","from":"2022-04-04","symbol":"AAPL","open":174.57,"high":178.49,"low":174.44,"close":178.44,"volume":7.6545983e+07,"afterHours":178.36,"preMarket":174.18}

STANDARD &POOR'S

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Data tells the story
Suvi and Tao

- ## Data Extraction

  - 4 x GICS Sector files

  - 5 x FAANG stocks files

  - 1 x t_test files for each stock

	Name	Date modified	Type
☐	Communication_Services	16/06/2023 10:23 AM	Microsoft Excel Com...
☐	Consumer_Discretionary	16/06/2023 10:23 AM	Microsoft Excel Com...
☐	Consumer_Staples	16/06/2023 10:23 AM	Microsoft Excel Com...
☐	Information_Technology	16/06/2023 10:23 AM	Microsoft Excel Com...
☐	ttest	16/06/2023 10:23 AM	Microsoft Excel Com...
☐	FAANG	16/06/2023 10:17 AM	Microsoft Excel Com...

- ## Data Transformation

  - Combined 4 x GICS Sector files and 5 x FAANG stocks files into one Four_sector_stocks file

    - ***Contains 8 column_names and 188 rows***

  - Cominbed the FAANG_t_test file

  - See EDM on the next page

Database Design – EDM
Suvi and Tao

Database connection with Python Flask API
Graham

Conclusion

- The application is designed to provide a trader with an analyses of the FAANG stocks relevant to key sectors of the SP500.

  - Apple (APPL) is a stock that trades at a level comparable with certain sectors that were analysed e.g., Communication Services or Consumer Staples. It thus is a stock that can heavily impact its designate GICS sector of Information Technology and by scale the SP500

  - Amazon (AMZN) is a stock that does not influence any of the GICS sectors thus it can be questioned why it is grouped with the other technology stocks

- The application is also designed to provide a trader with the current FAANG stock closing price and volumes traded, along with current news articles to ensure the trader is on top of what is happening with these stocks

Limitations and Areas for Development

- **Data sources**
  - We only analyzed one year's data for these stocks and their sectors – *update the application to allow user to access a data window of their choice*
  - We only focused on four sectors which comprises 46.6% of the SP500 stocks – *update the application to allow user to analyse all the SP500*

- **Time**
  - Had the team more time further analyses could have been undertaken on how the FAANG stocks behave across a broader time frame and different indices e.g., Nasdaq
  - Members of the team have other personal commitments so could spend limit time on developing the application

- **Resources**
  - There were costs associated with accessing the API's that would normally be covered by a business as normal part of operations