STOCK MARKET ANALYSIS

Introduction

HELLO I' M RITIK RAHI AN ASPIRING DATA ANALYST SHOWCASING MY SQL AND POWER BI SKILLS THROUGH THIS PROJECT

Objective

The main objective of this project is to analyze stock market data and extract valuable insights. SQL has been used to store, process, and query the data, while Power BI has been utilized for data visualization. This project aims to understand stock performance trends, price fluctuations, and market patterns to assist in data-driven decision-making.

About This Project

The stock market is highly dynamic, with prices fluctuating based on various factors such as demand-supply, global events, and investor sentiment. Analyzing stock market data helps traders and investors make informed decisions. This project leverages SQL for efficient data management and Power BI for interactive visualizations to uncover patterns in stock price movements.

Tools Used

SQL(MySQL) : For data extraction, transformation, and analysis
Power BI: For creating dashboards and visualizing stock trends
Excel: For initial data cleaning and preprocessing

Key Insights & Features

Trend analysis of stock prices over time
Comparison of different stocks based on performance metrics
Volume analysis to identify high-trading stocks
Moving averages and volatility analysis for investment insights

Conclusion

This project demonstrates how SQL and Power BI can be effectively used for stock market analysis. By leveraging data analytics, investors can gain better insights into market trends, minimize risks, and make data-driven investment decisions.

QUESTIONS

1. Find the highest and lowest Close price for each company
2. Count the total number of records for each company
3. Find the average Volume traded for all companies
4. Retrieve data for the last 5 trading days for GOOGLE
5. Find the total Volume traded for each company in the last month(APRIL)
6. Calculate daily price change for each stock
7. List the days where the Close price was greater than the Open price for each stock
8. Calculate the daily percentage change in Close price for each company
9. Calculate the 7-day moving average of the Close price for each company
10. Find the most volatile stock in the past three months
11. Find the rank of each company based on total Volume traded in descending order
12. Identify the maximum High price for each company and rank them
13. Calculate the cumulative Volume traded for each company over time

FIND THE HIGHEST AND LOWEST CLOSE PRICE FOR EACH COMPANY

```sql
-- Find the highest and lowest Close price for each company
select ticker,max(close) as Highest_Close_Price,min(close) as Lowest_Close_Price
from stocks
group by ticker
```

ticker	Highest_Close_Price	Lowest_Close_Price
APPLE	173.5700073	145.3099976
MICROSOFT	310.6499939	246.2700043
NETFLIX	366.8299866	292.7600098
GOOGLE	109.4599991	89.34999847

COUNT THE TOTAL NUMBER OF RECORDS FOR EACH COMPANY

```
1    -- Count the total number of records for each company
2    select ticker,count(*) as Total_Records
3    from stocks
4    group by ticker
```

	ticker	Total_Records
▶	APPLE	62
	MICROSOFT	62
	NETFLIX	62
	GOOGLE	62

FIND THE AVERAGE VOLUME TRADED FOR ALL COMPANIES

```sql
-- Find the average Volume traded for all companies
select ticker,round(avg(volume),0) as Average_Value_Traded
from stocks
group by ticker
```

	ticker	Average_Value_Traded
▶	APPLE	60282958
	MICROSOFT	30848353
	NETFLIX	6471732
	GOOGLE	30725373

RETRIEVE DATA FOR THE LAST 5 TRADING DAYS FOR GOOGLE

```sql
--  Retrieve data for the last 5 trading days for GOOGLE
select * from stocks
where ticker='Google'
order by date desc
limit 5
```

	Ticker	Date	Open	High	Low	Close	Adj Close	Volume
▶	GOOGLE	2023-05-05	105.3199997	106.4400024	104.7389984	106.2149963	106.2149963	20705300
	GOOGLE	2023-05-04	106.1600037	106.3000031	104.6999969	105.2099991	105.2099991	19780600
	GOOGLE	2023-05-03	106.2200012	108.1299973	105.6200027	106.1200027	106.1200027	17116300
	GOOGLE	2023-05-02	107.6600037	107.7300034	104.5	105.9800034	105.9800034	20343100
	GOOGLE	2023-05-01	107.7200012	108.6800003	107.5	107.7099991	107.7099991	20926300

FIND THE TOTAL VOLUME TRADED FOR EACH COMPANY IN THE LAST MONTH (APRIL)

```sql
-- Find the total Volume traded for each company in the last month(APRIL)
select ticker,sum(volume) as Total_Volume
from stocks
where date >= '2023-04-01' and date <= '2023-04-30'
group by ticker
```

ticker	Total_Volume
APPLE	969709700
MICROSOFT	551497100
NETFLIX	127984500
GOOGLE	461648200

IDENTIFY THE MAXIMUM HIGH PRICE FOR EACH COMPANY AND RANK THEM

```sql
-- Identify the maximum High price for each company and rank them
select ticker,max(High) As Max_High,
dense_rank() over ( order by max(High) desc) As High_Rank
from stocks
group by ticker
```

ticker	Max_High	High_Rank
NETFLIX	373.8299866	1
MICROSOFT	311.9700012	2
APPLE	174.3000031	3
GOOGLE	109.6299973	4

LIST THE DAYS WHERE THE CLOSE PRICE WAS GREATER THAN THE OPEN PRICE FOR EACH STOCK

```sql
-- List the days where the Close price was greater than the Open price for each stock
select ticker,date,close,open
from stocks
where close > open
```

ticker	date	close	open
APPLE	2023-02-07	154.6499939	150.6399994
APPLE	2023-02-10	151.0099945	149.4600067
APPLE	2023-02-13	153.8500061	150.9499969
APPLE	2023-02-14	153.1999969	152.1199951
APPLE	2023-02-15	155.3300018	153.1100006
APPLE	2023-02-16	153.7100067	153.5099945
APPLE	2023-02-17	152.5500031	152.3500061
APPLE	2023-02-22	148.9100037	148.8699951
APPLE	2023-02-27	147.9199982	147.7100067
APPLE	2023-02-28	147.4100037	147.0500031
APPLE	2023-03-02	145.9100037	144.3800049
APPLE	2023-03-03	151.0299988	148.0399933
APPLE	2023-03-06	153.8300018	153.7899933
APPLE	2023-03-08	152.8699951	152.8099976
APPLE	2023-03-13	150.4700012	147.8099976
APPLE	2023-03-14	152.5899963	151.2799988

CALCULATE THE DAILY PERCENTAGE CHANGE IN CLOSE PRICE FOR EACH COMPANY

```sql
-- Calculate the daily percentage change in Close price for each company
select ticker,date,
((close - open)/open * 100) As Daily_Percentage_Change
from stocks
```

ticker	date	Daily_Percentage_Change
APPLE	2023-02-07	2.6619719304114686
APPLE	2023-02-08	-1.2737240951309456
APPLE	2023-02-09	-1.8923161156897967
APPLE	2023-02-10	1.0370585645102854
APPLE	2023-02-13	1.9211720831774324
APPLE	2023-02-14	0.709967022606084
APPLE	2023-02-15	1.4499387311738958
APPLE	2023-02-16	0.13029262404149414
APPLE	2023-02-17	0.13127469116655072
APPLE	2023-02-21	-1.1451406361513798
APPLE	2023-02-22	0.026874858142581524
APPLE	2023-02-23	-0.4597257758743761
APPLE	2023-02-24	-0.27190122926285837
APPLE	2023-02-27	0.14216470819508872
APPLE	2023-02-28	0.24481509174480695
APPLE	2023-03-01	-1.0352136357461983
APPLE	2023-03-02	1.0597026929454105
APPLE	2023-03-03	2.0197282054321706
APPLE	2023-03-06	0.026015021615843327
APPLE	2023-03-07	-1.3662920249544914

CALCULATE THE 7-DAY MOVING AVERAGE OF THE CLOSE PRICE FOR EACH COMPANY

```sql
-- Calculate the 7-day moving average of the Close price for each company
Select Ticker, Date, Close,
       avg(Close) Over (Partition by Ticker Order by Date Rows Between 6 Preceding and current row) As Moving_Average
From stocks
```

Ticker	Date	Close	Moving_Average
APPLE	2023-02-07	154.6499939	154.6499939
APPLE	2023-02-08	151.9199982	153.28499605000002
APPLE	2023-02-09	150.8699951	152.47999573333334
APPLE	2023-02-10	151.0099945	152.11249542500002
APPLE	2023-02-13	153.8500061	152.45999756
APPLE	2023-02-14	153.1999969	152.58333078333334
APPLE	2023-02-15	155.3300018	152.97571235714284
APPLE	2023-02-16	153.7100067	152.84142847142857
APPLE	2023-02-17	152.5500031	152.93142917142856
APPLE	2023-02-21	148.4799957	152.5900006857143
APPLE	2023-02-22	148.9100037	152.290002
APPLE	2023-02-23	149.3999939	151.65428597142858
APPLE	2023-02-24	146.7100067	150.72714451428575
APPLE	2023-02-27	147.9199982	149.6685725714286

FIND THE MOST VOLATILE STOCK IN THE PAST THREE MONTHS

```sql
-- Find the most volatile stock in the past three months
select ticker,
round(stddev(high - low),0) as volatility
from stocks
group by ticker
order by volatility desc
limit 1
```

	ticker	volatility
▶	NETFLIX	3

FIND THE RANK OF EACH COMPANY BASED ON TOTAL VOLUME TRADED IN DESCENDING ORDER

```sql
-- Find the rank of each company based on total Volume traded in descending order
select ticker,
sum(volume) As Total_Volume,
rank() over( order by sum(volume) desc) As Volume_Rank
from stocks
group by ticker
```

ticker	Total_Volume	Volume_Rank
APPLE	3737543400	1
MICROSOFT	1912597900	2
GOOGLE	1904973100	3
NETFLIX	401247400	4

LIST THE DAYS WHERE THE CLOSE PRICE WAS GREATER THAN THE OPEN PRICE FOR EACH STOCK

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APPLE	2023-02-14	153.1999969	152.1199951
APPLE	2023-02-15	155.3300018	153.1100006
APPLE	2023-02-16	153.7100067	153.5099945
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APPLE	2023-03-06	153.8300018	153.7899933
APPLE	2023-03-08	152.8699951	152.8099976

CALCULATE THE CUMULATIVE VOLUME TRADED FOR EACH COMPANY OVER TIME

```sql
-- Calculate the cumulative Volume traded for each company over time
select ticker,date,volume,
sum(volume) over ( partition by ticker order by date) As Cumulative_Volume
from stocks
```

ticker	date	volume	Cumulative_Volume
APPLE	2023-02-07	83322600	83322600
APPLE	2023-02-08	64120100	147442700
APPLE	2023-02-09	56007100	203449800
APPLE	2023-02-10	57450700	260900500
APPLE	2023-02-13	62199000	323099500
APPLE	2023-02-14	61707600	384807100
APPLE	2023-02-15	65573800	450380900
APPLE	2023-02-16	68167900	518548800
APPLE	2023-02-17	59144100	577692900
APPLE	2023-02-21	58867200	636560100
APPLE	2023-02-22	51011300	687571400
APPLE	2023-02-23	48394200	735965600
APPLE	2023-02-24	55469600	791435200
APPLE	2023-02-27	44998500	836433700

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91
Volatility

8bn
Sum of Volume

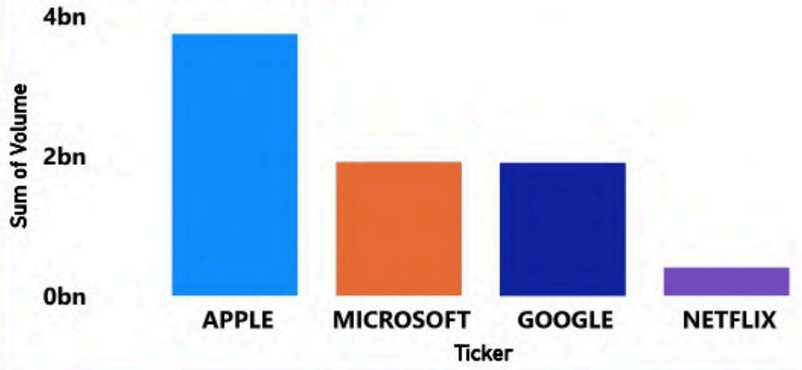
226
Moving_Avg

Month: All

Day: All

Ticker: All

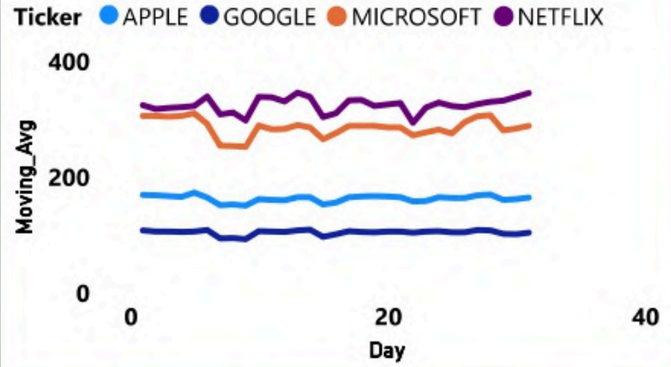
Sum of Volume by Ticker



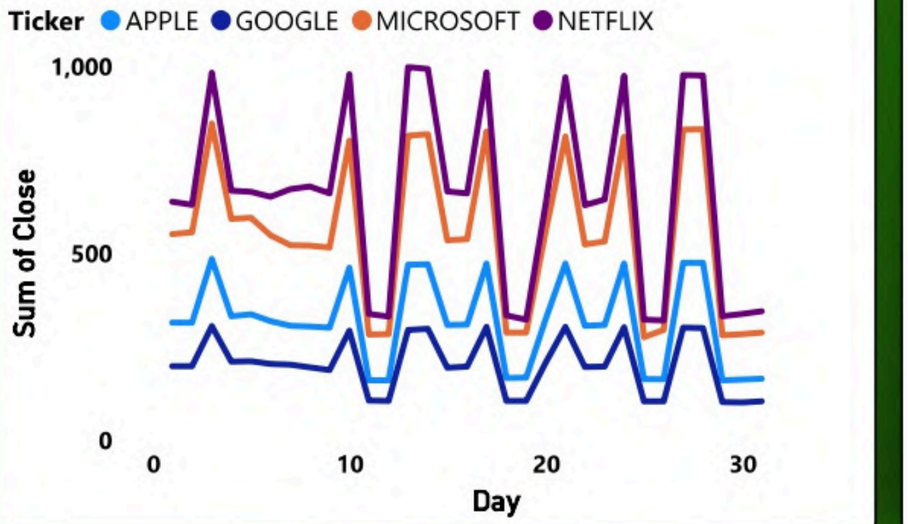
Sales Model

Ticker	Date	Open	Close	Sum of
APPLE	Friday, May 05, 2023	170.98	173.57	113
GOOGLE	Friday, May 05, 2023	105.32	106.21	20
MICROSOFT	Friday, May 05, 2023	305.72	310.65	28
NETFLIX	Friday, May 05, 2023	323.61	322.76	3
APPLE	Thursday, May 04, 2023	164.89	165.79	81
GOOGLE	Thursday, May 04, 2023	106.16	105.21	19
Total				**7956**

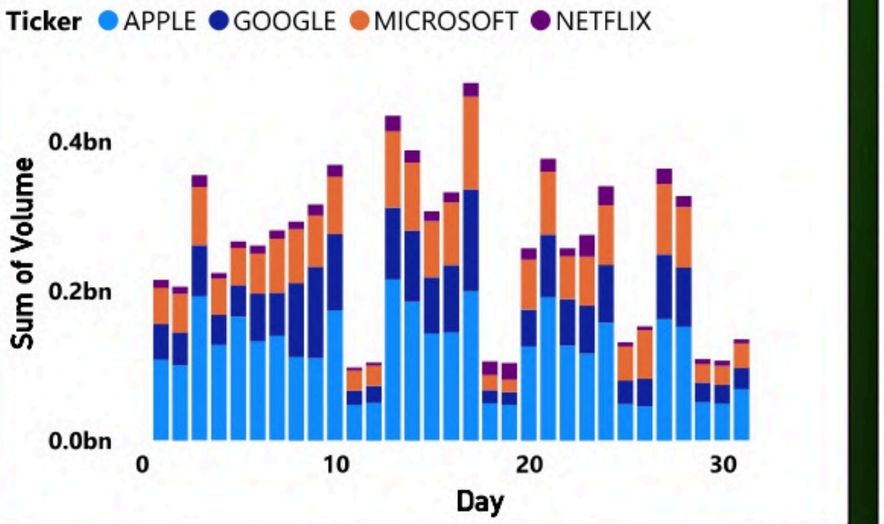
Moving_Avg by Day and Ticker



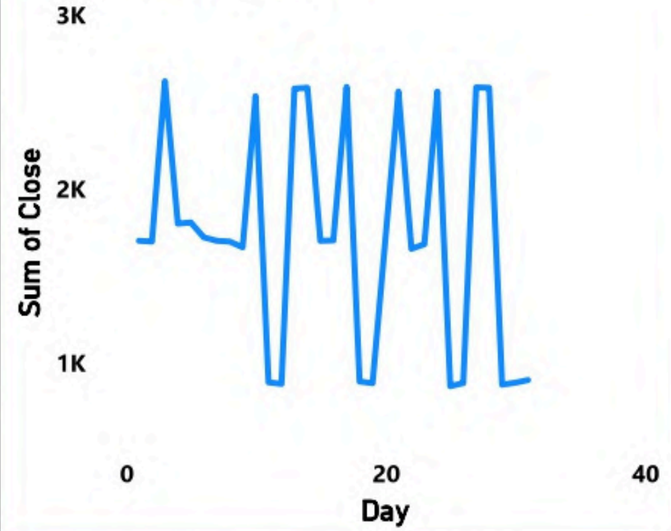
Sum of Close by Day and Ticker



Sum of Volume by Day and Ticker



Sum of Close by Day



THANK YOU!