

FINANCIAL MARKET ANALYSIS OF S&P 500 TECH COMPANIES

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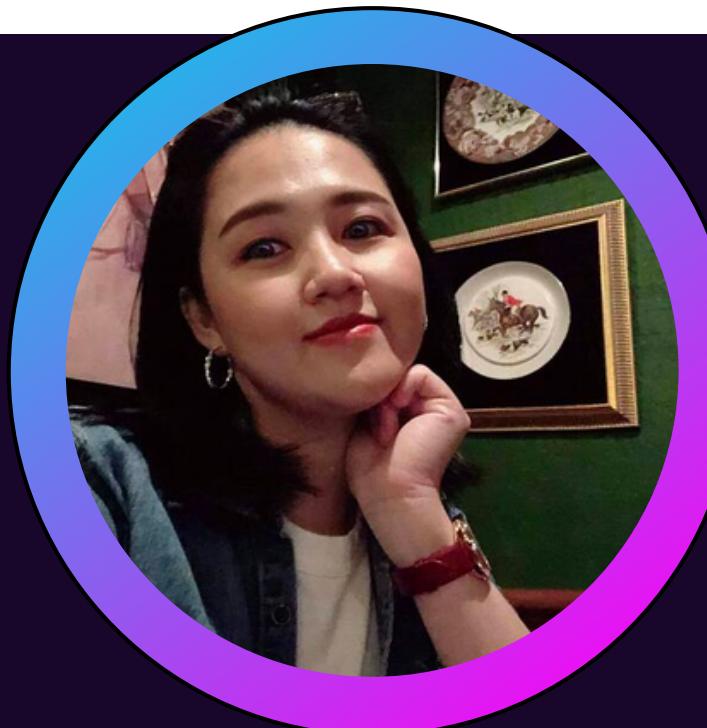


OUR TEAM

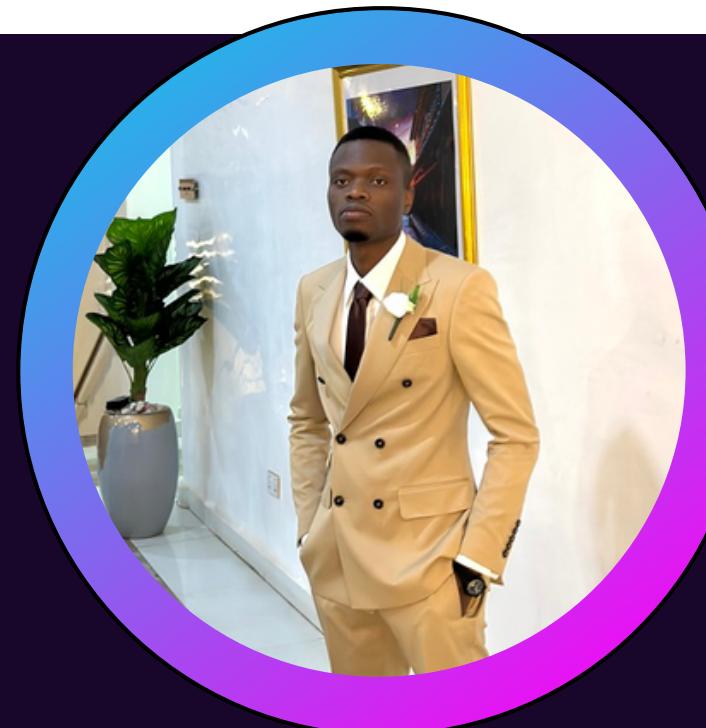
We are a diverse group from a multitude of backgrounds. From finance, to R&D to automotive manufacturing and beyond, it was clear from the start that we each brought a different perspective and approach to the project and that each provided value in our own ways.



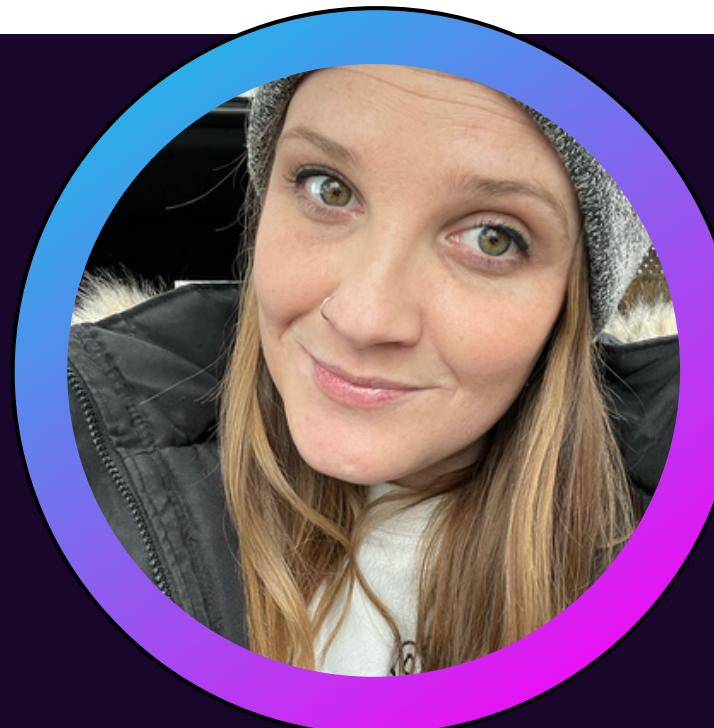
Arefin Shamsil



Rita Nguyen



Uwagboe Olusoga



Ellis Zimmer

OBJECTIVES

Objective 1

To research and analyze select groups from the top, middle and bottom companies of the S&P 500 index, with a focus on the technological sector.

Objective 2

To identify the affect of the pandemic on the S&P 500 index and how each company reacts and adjusts.

Objective 3

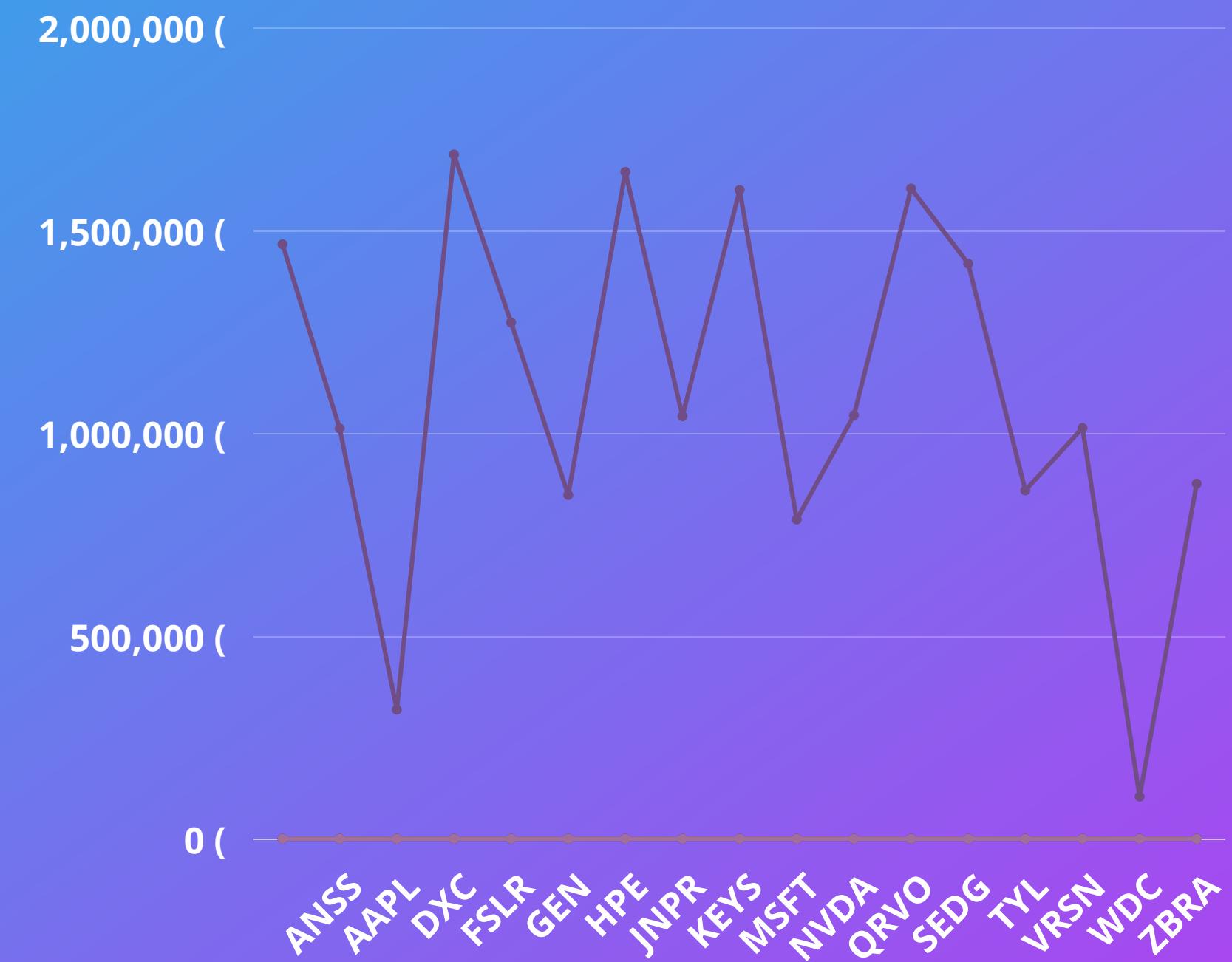
To create an interactive and visual dashboard that provides the tools to compare the data retrieved from the S&P 500 index.

OVERVIEW

In this project, different technology companies were analysed on the S & P 500 markets. These companies represent different classes based on their volume and market capitalization. They are grouped into three categories (high, middle and low).

Data was sourced on the official webpage of yahoo finance. ([Top Technology Services Sector List | Screener - Yahoo Finance](#))

Our team analysed each company's performance over the course of 5 years to determine what impact, if any the COVID-19 pandemic had on the index. The graphical representations are available for visualization on the dashboard created.





STEPS:

- 01 **Collection of data**
- 02 **Data cleaning**
- 03 **Database creation**
- 04 **Data Analysis**
- 05 **Dashboard Creation & Interaction**



LIST OF ANALYZED COMPANIES

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HIGH

- Apple Inc. (AAPL)
- Amazon.com, Inc. (AMZN)
- Alphabet Inc. (GOOGL)
- Meta Platforms, Inc. (META)
- Microsoft Corporation (MSFT)
- NVIDIA Corporation (NVDA)
- Tesla, Inc. (TSLA)

MIDDLE

- ANSYS, Inc. (ANSS)
- General Electric Company (GE)
- Hewlett Packard Enterprise Company (HPE)
- Keysight Technologies, Inc. (KEYS)
- Mettler-Toledo International Inc. (MTD)
- Zimmer Biomet Holdings, Inc. (ZBH)

LOW

- DXC Technology Company (DXC)
- F5, Inc. (FFIV)
- Juniper Networks, Inc. (JNPR)
- Qorvo, Inc. (QRVO)
- SolarEdge Technologies, Inc. (SEDG)





DATA EXTRACT TRANSFORM LOAD (ETL)



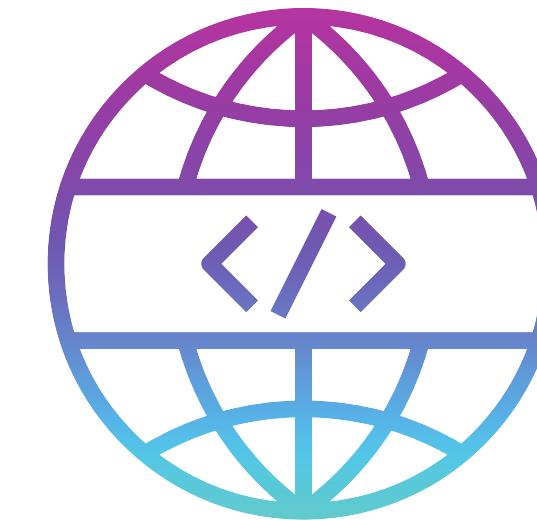
1. Web scraping from yahoo finance
2. Produce CSV files
3. Use SQLITE to combine the CSV files into one database
4. Run a FLASK app to unpack the database and create a jsonified dataset
5. Obtain an URL from the FLASK app which shows the dataset.
6. Insert this URL to the app.js javascript file to deliver/deploy the data to the dashboard app

DATABASE DESIGN

Tools and languages we used include:

Flask-Framework

VS Code

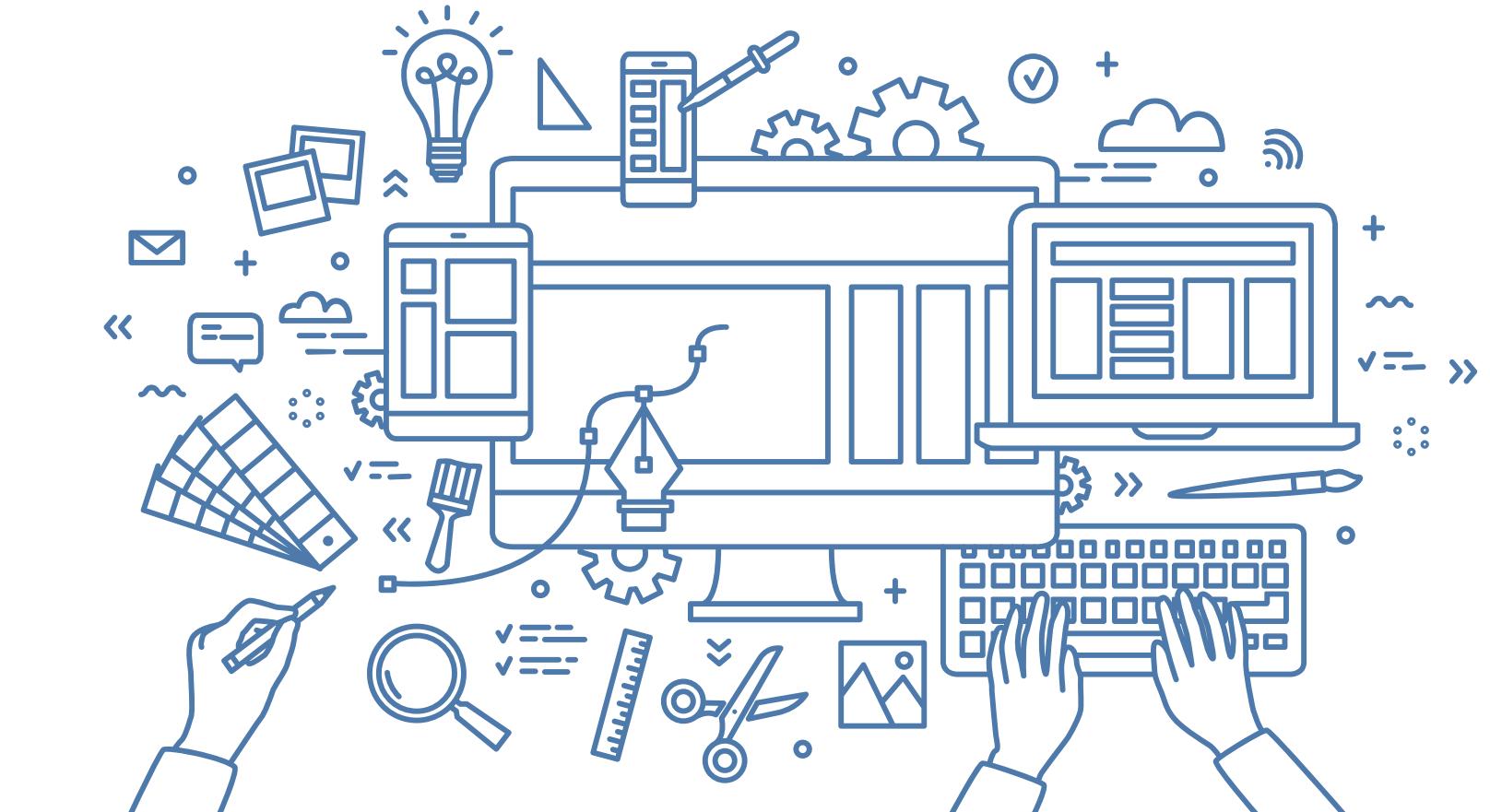


HTML

Java Script

CSS

Dashboard Design



- 01 Identify the key metrics and provide the dataset
- 02 Tell a story with the dataset
- 03 Select the right types of charts for visualization
- 04 Apply essential Dashboard Design Principal
- 05 Iterate and evolve



Chart Selection

Bubble Chart

Presents multi-dimensional data and demonstrates the volume and price of stock implicated over a period of time

Line Chart

Indicates the difference of open and closed price to show the price gap

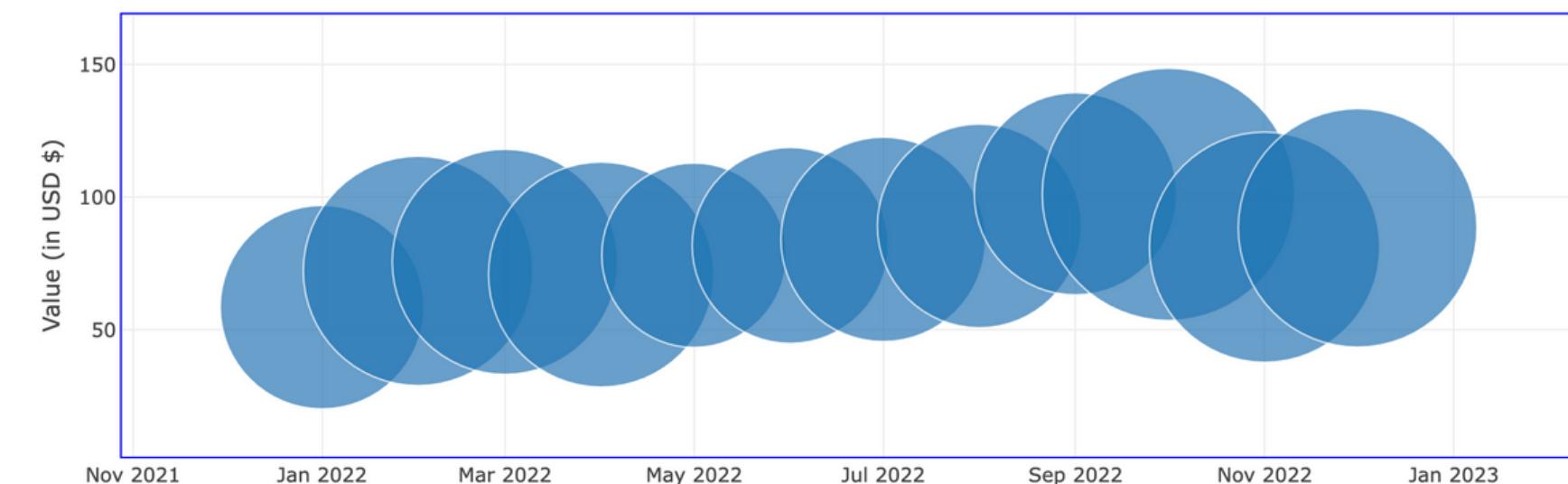
Candlestick Chart

Illustrates the price of stock movement from month to month

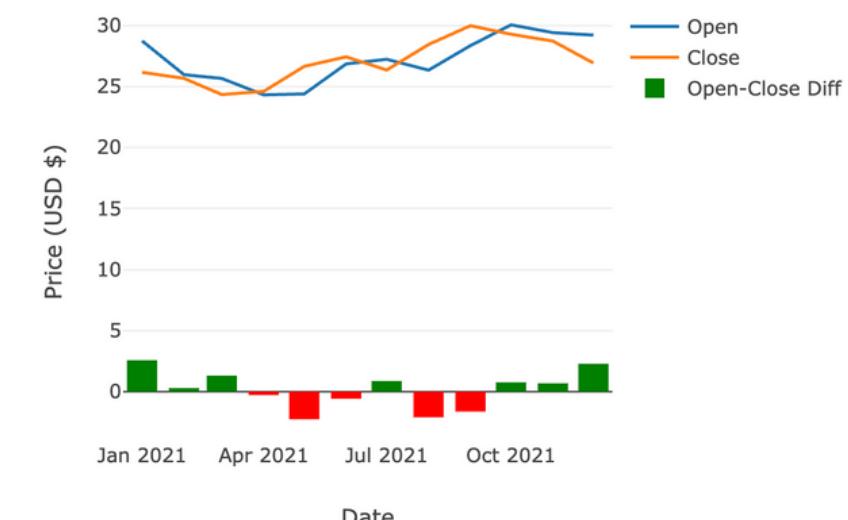
Bar Chart

Displays the volume of stock throughout the year

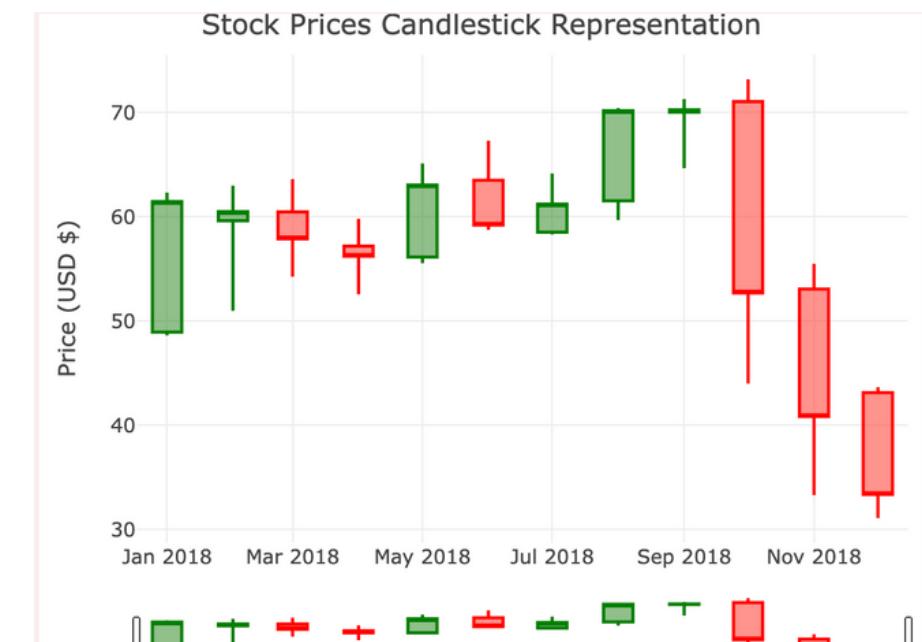
Stock Data Bubble Chart



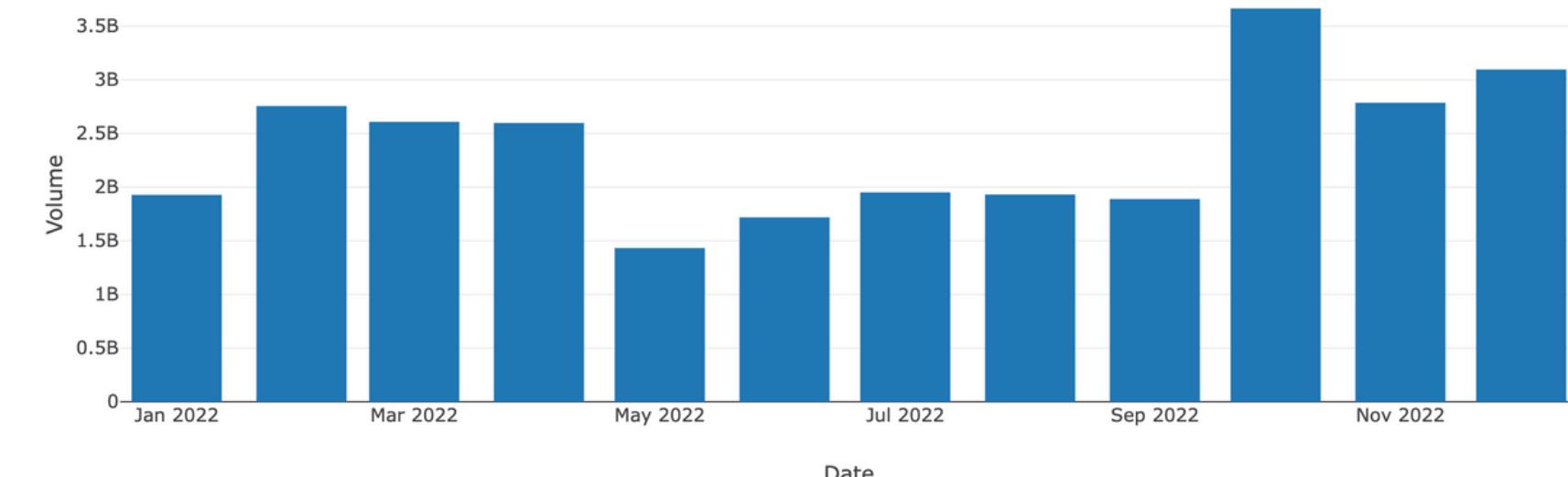
Stock Prices and Their Differences



Stock Prices Candlestick Representation



Volume Over Time



IT Sector Stocks History (2018-2023)

Ticker: NVDA Year: 2020

Company Info



TICKER: NVDA
COMPANY: Nvidia
SUB_SECTOR: Semiconductors
HEADQUARTERS: Santa Clara, California
DATE ADDED: 2001-11-30
FOUNDED: 1993

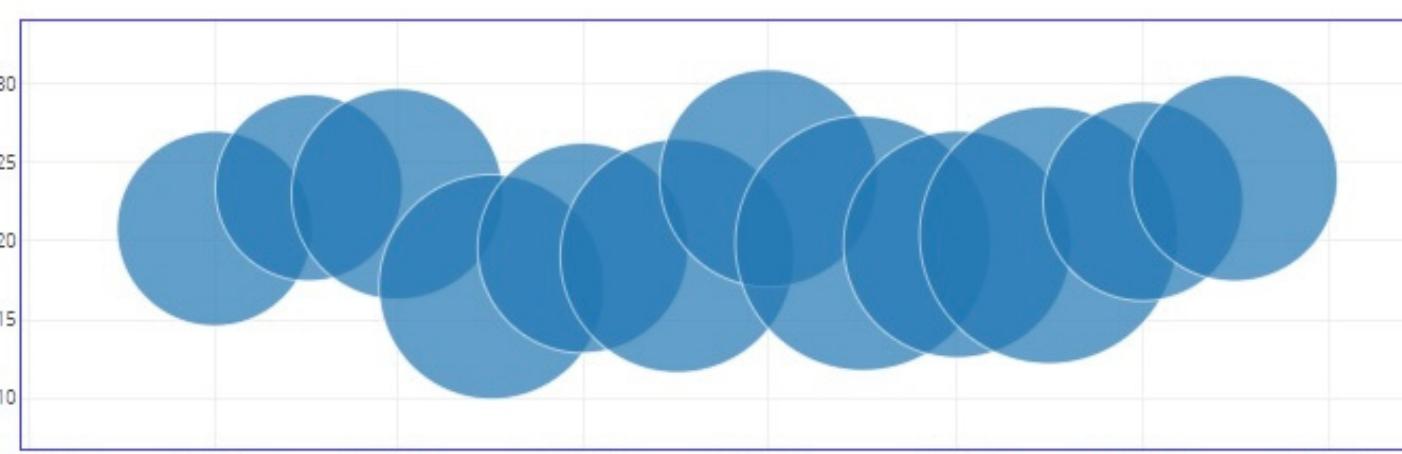
Dataset

Show 10 <input type="button" value="▼"/> entries					Search: <input type="text"/>
Date	Open	Close	High	Low	
2020-02-01	23.399999618530277	22.87066650390625	23.99933242797852	19.65066719055176	
2020-03-01	23.000667572021484	17.742000579833984	23.244667053222656	16.547332763671875	
2020-04-01	17.083999633789062	19.59333229064941	20.6333320617676	16.305999755859375	
2020-05-01	19.56733221435547	18.98200035095215	20.86599922180176	18.22800064086914	
2020-06-01	19.05733299255371	22.86333274841309	24.915332794189453	18.922666549682617	
2020-07-01	24.00466728210449	19.875999450683597	24.318666458129883	19.07533264160156	
2020-08-01	19.86599922180176	20.11066627502441	25.83066749572754	19.21333312988281	
2020-09-01	19.79599952697754	17.65133285522461	20.99733526611328	16.816667556762695	
2020-10-01	20.384666442871094	22.488000869750977	23.143999099731445	16.51799964904785	
2020-11-01	22.55066680908203	23.365333557128903	24.450000762939453	21.666667938232425	

Showing 1 to 10 of 11 entries

Interactive Graphs

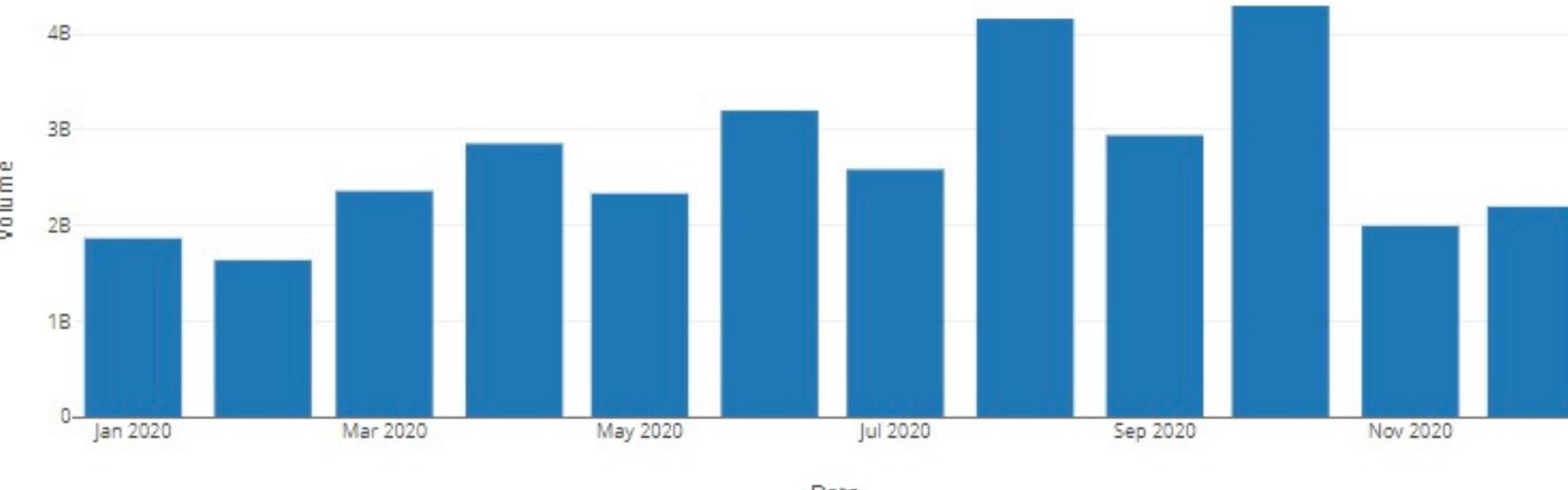
Stock Data Bubble Chart



Value (in USD \$) NVDA-open

Dates: Nov 2019, Jan 2020, Mar 2020, May 2020, Jul 2020, Sep 2020, Nov 2020, Jan 2021

Volume Over Time



Volume NVDA-open

Dates: Jan 2020, Mar 2020, May 2020, Jul 2020, Sep 2020, Nov 2020

