

ECONOMIC DATA DASHBOARD

Project 3 - Group 7

Team Members

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Data Exploration



Question:

- How is the Economy?
- Connection between Institutional Economic Data and Individual Economic Data
- “Big Business” vs the Average Person

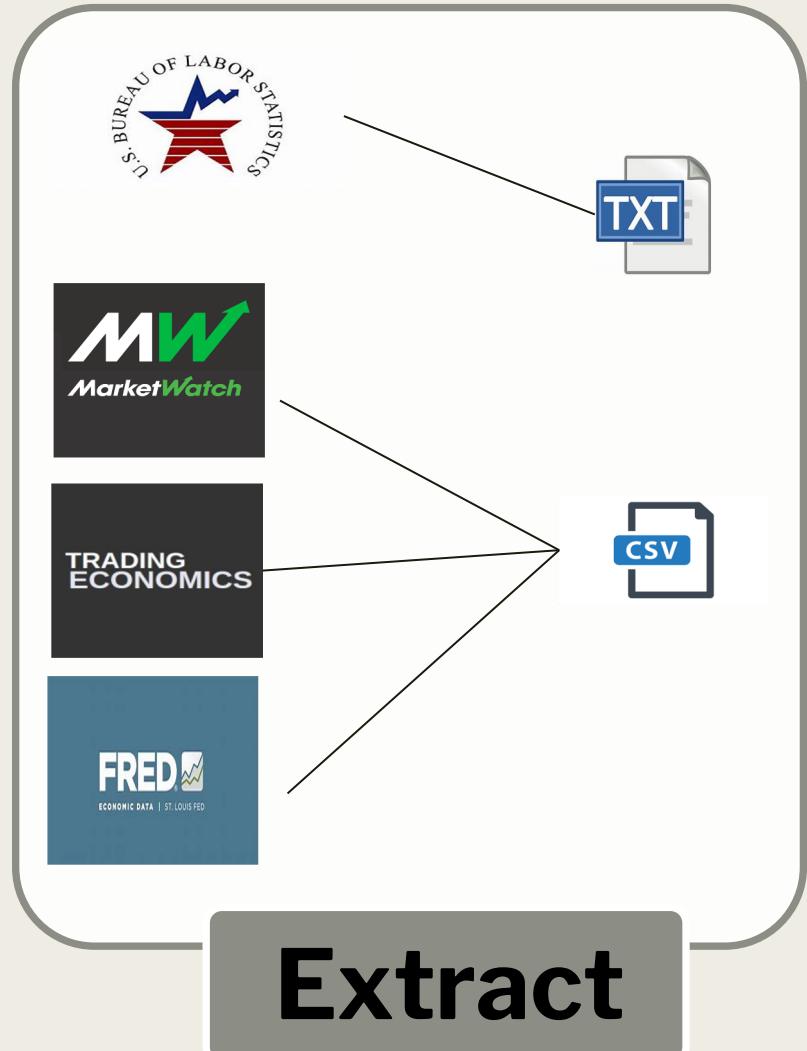
Data:

- Unemployment
- Inflation
- Stock Prices
- Interest Rates
- Money Supply
- Housing Inventory

Visualization:

- Dashboard
 - Charts
 - Financial News
- Unemployment Map
- Link to API Service

ETL Process



Transform

- Read csv files in Pandas
- Convert format of Date column
- Filter rows to only include 5 years of data
- Calculate difference of values and add column
- Create new csv files for monthly average formula

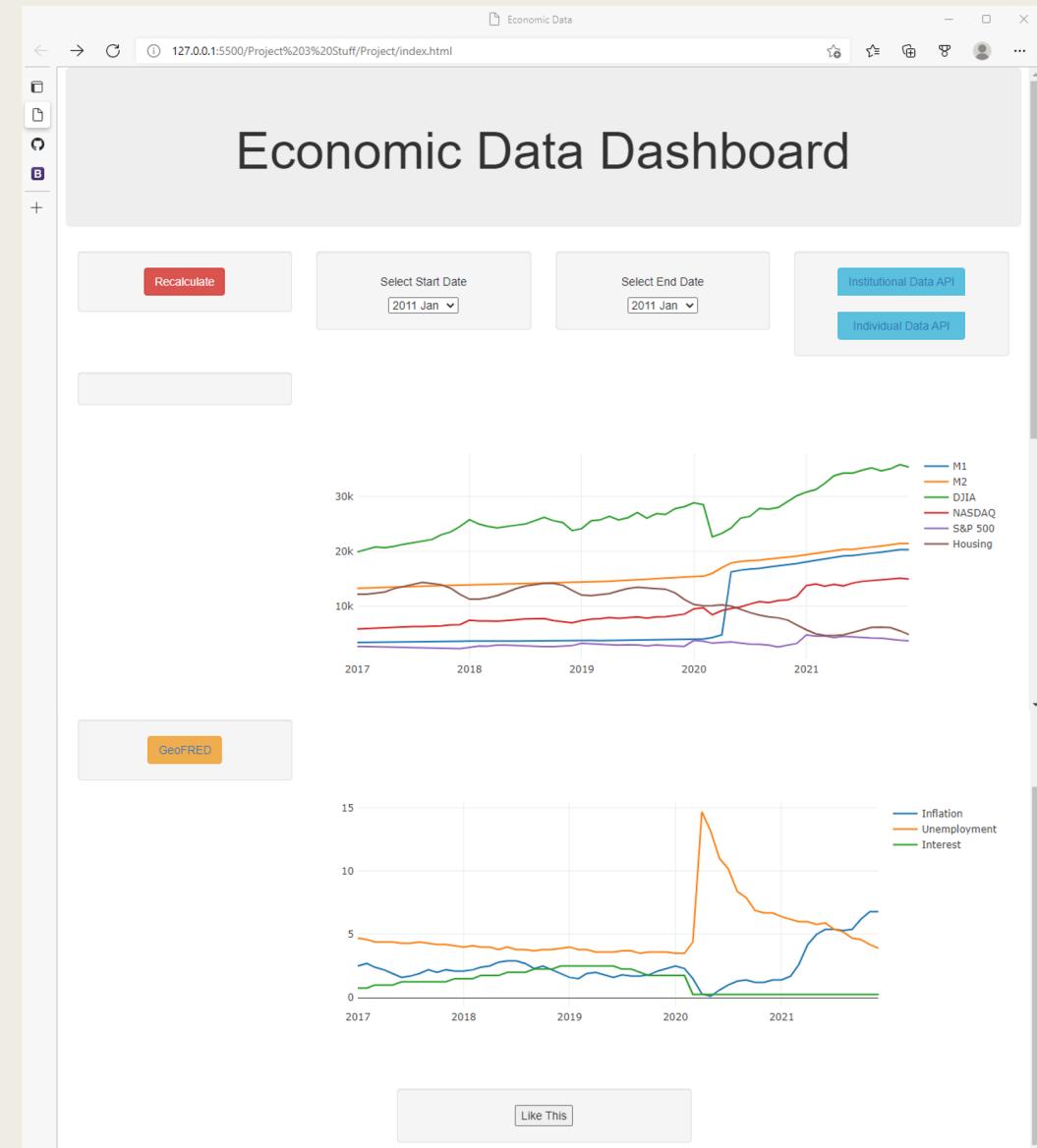
- Conversion from csv to json
- Available .js to read with d3 library

Load

```
import pandas as pd  
  
import sqlalchemy  
from sqlalchemy.ext.automap import automap_base  
from sqlalchemy.orm import Session  
from sqlalchemy import create_engine, inspect  
from sqlalchemy.exc import IntegrityError  
  
from datetime import datetime  
import math
```

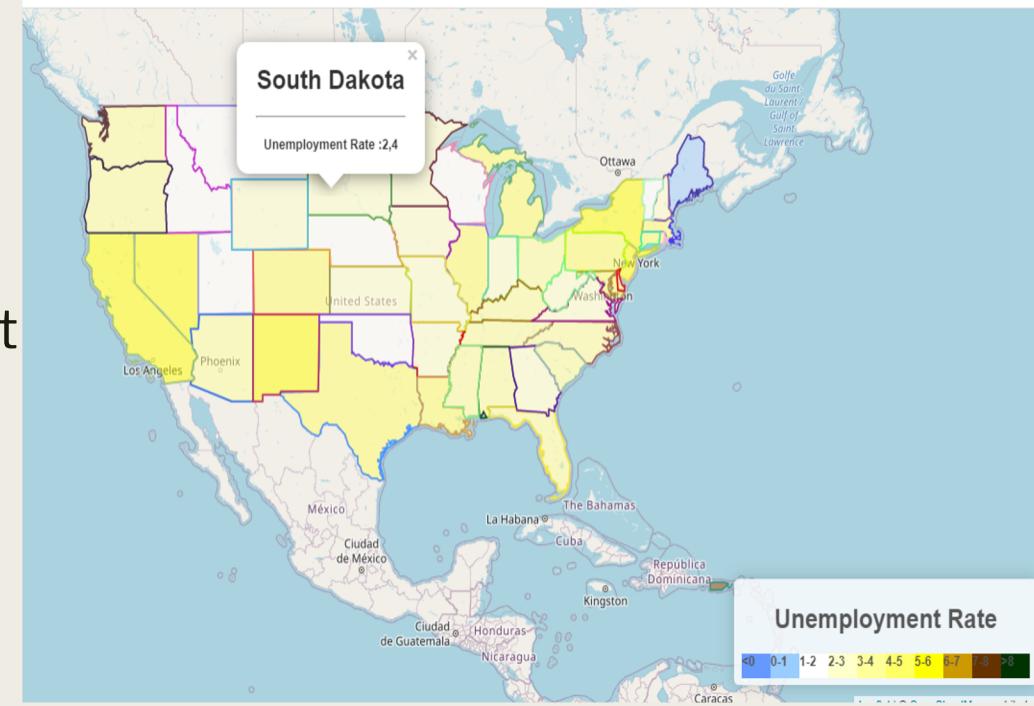
Dashboard

- HTML/CSS
 - *BootStrap Framework*
- JavaScript
 - *Plotly*
 - *D3*
 - *Axios*
 - *Leaflet*
 - *React*
- Python
 - *Flask*



Unemployment Map

- States are displayed using a geo json file.
- The data for the individual states is fetched from the bls.gov using api and stored in individual files for each state.
- The JS loads those files to calculate the latest unemployment rate.
- Leaflet renders the color coding on the map using the latest updated unemployment average
- A popup is bound to the features (state) to display the unemployment value.



Challenges

ETL

- Data was limited
- Had to convert daily data to monthly data (Had to find the averages)
- Data overall - financial data unavailable due to fee being associated with viewing information

Dashboard

- API calls through JavaScript- Axios (News API)
- Date selection dropdown

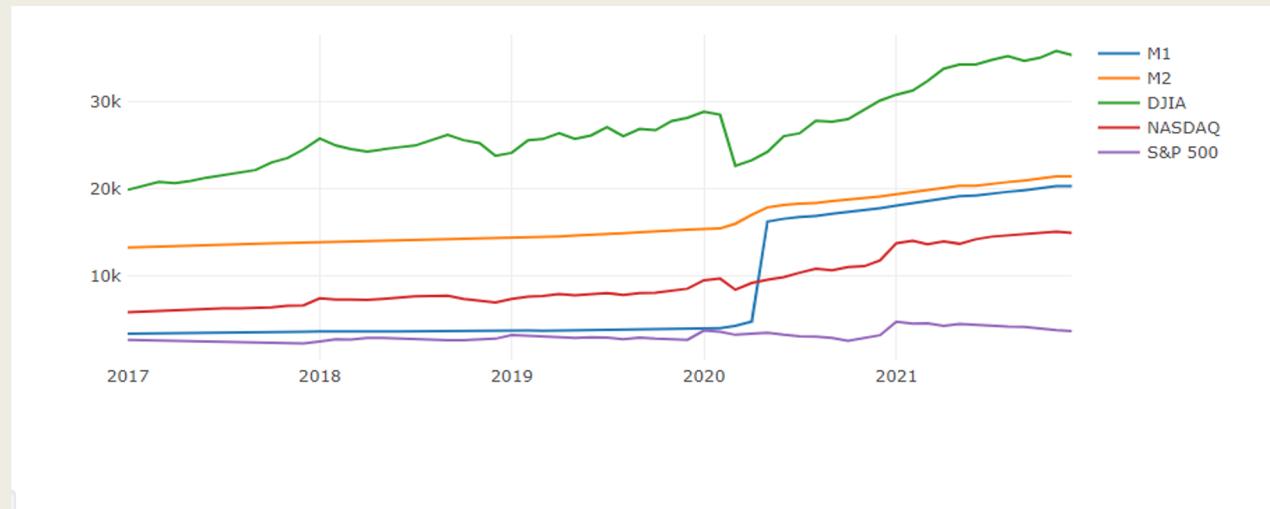
Map

- Javascript cannot use POST method for api fetches
- Values being undefined
- Had to ensure all data was fetched before rendering data

Conclusion: How is the Economy doing?

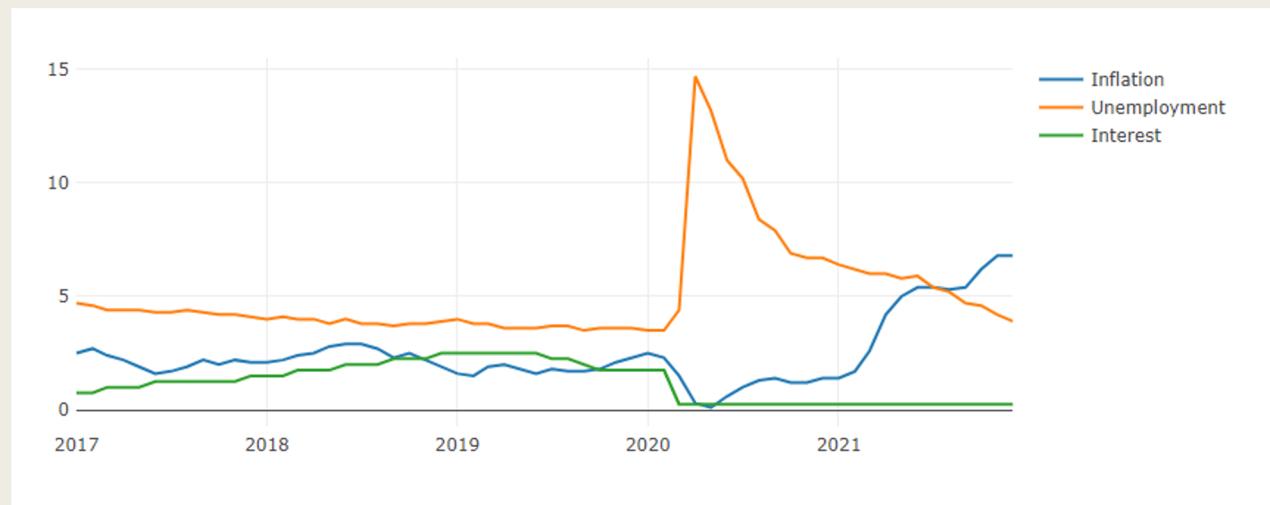
Institutional Economic Data:

- In 2017 through 2019 there was a steady trend in:
 - Stock Prices
 - Interest Rates
 - Money Supply (1), (2)
- Beginning of 2020 , we can see the gradual drop in most variables with the most significant being the
 - Dow Jones dropping by close to 6 points.
 - In contrast,
 - Money supply (1) increased.



Individual Economic Data:

- In 2017 through 2019 there was a steady trend in:
 - Unemployment
 - Inflation
 - Interest Rates
- Unemployment 2020:
 - Peaked in April from 4.4 to 14.7 percent.
 - By December 2021 it went back down to 3.9 percent.
- Inflation 2020:
 - In January , Inflation was at 2.5 percent and dropped to 0.25 percent and has gradually increased upward.
 - By December 2021 it has increased to 6.8 percent.
- Interest Rate: Beginning of 2020 we can see a drop of interest rates from 1.75 percent in February 2020 to 0.25 in March which has stayed pretty consistent up to today.



Questions?