



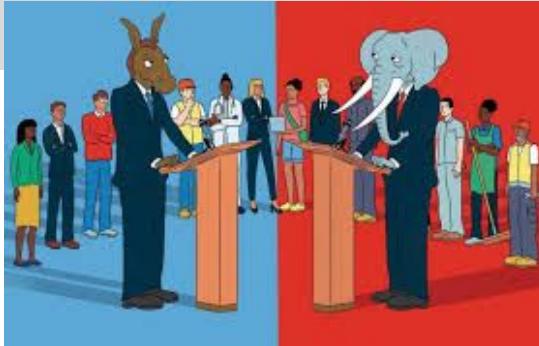
# **Analyzing the Relationship of Election Outcomes and United States Economics**

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CMPS 6790

# Problem + Question

- **Problem:** Both political parties often assert that their governance leads to better economic outcomes, but it can be challenging to discern which statements are credible or how economics impact their control of government. This project explores the relationship between economic indicators and U.S. presidential election outcomes.
- **Questions:**
  - Do economic and political factors **significantly** predict whether the next president will be Republican or Democrat?
  - Does either Democrat or Republican control lead to better economic outcomes? If so, in what areas?

NBC News: Decision 2024 WordBubbles



**Immigration, border control  
Economy and inflation  
Law and order Strong values  
Against abortion**

# Data Collection, Processing, and ETL



ECONOMIC DATA | ST. LOUIS FED

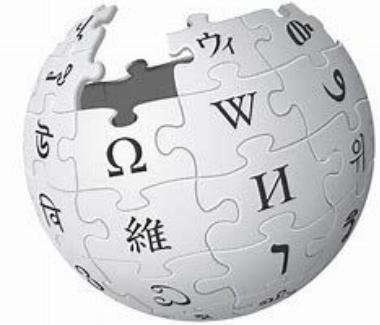


**FRED API** - Allowed us to grab the history of various economic indicators over the years. Included in this is the National GDP over the past 80 years.



**Britannica** - Allowed us to pull every president, their political party, and their term in office.

**Yahoo Finance** - Provided the daily S&P 500 values going back to its inception.

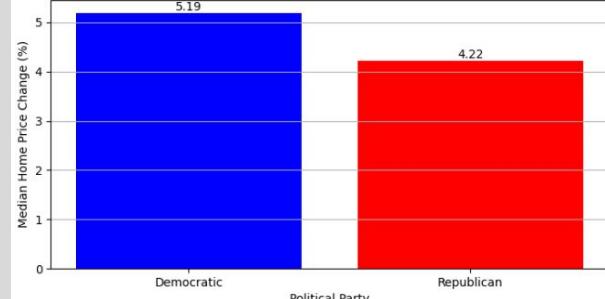


**Wikipedia**

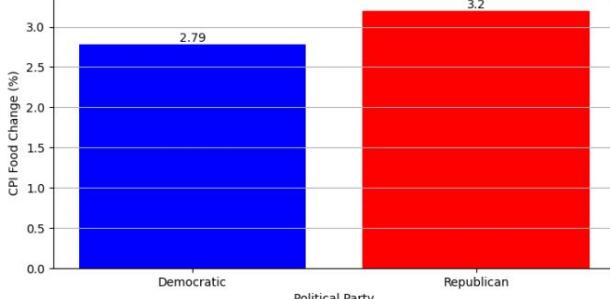
**Wikipedia** - Pulled other information including House and Senate party representation

# EDA Highlights

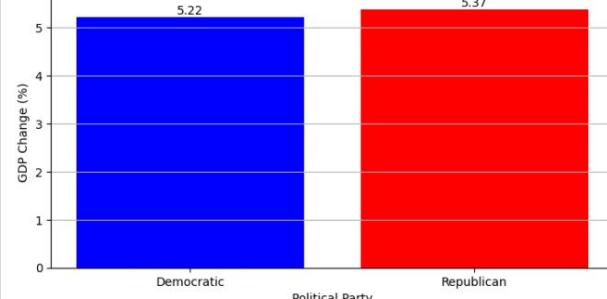
Average Median Home Price Change (%) by Political Party



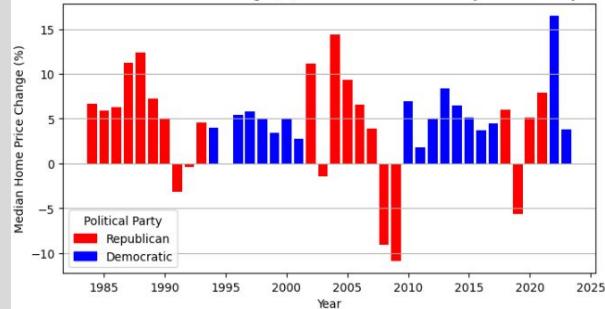
Average CPI Food Change (%) by Political Party



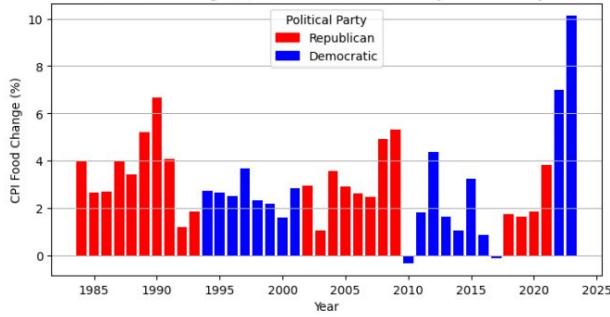
Average GDP Change (%) by Political Party



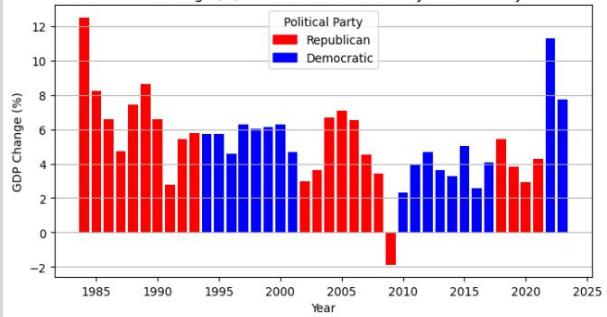
Median Home Price Change (%) and Presidential Terms by Political Party



CPI Food Change (%) and Presidential Terms by Political Party



GDP Change (%) and Presidential Terms by Political Party

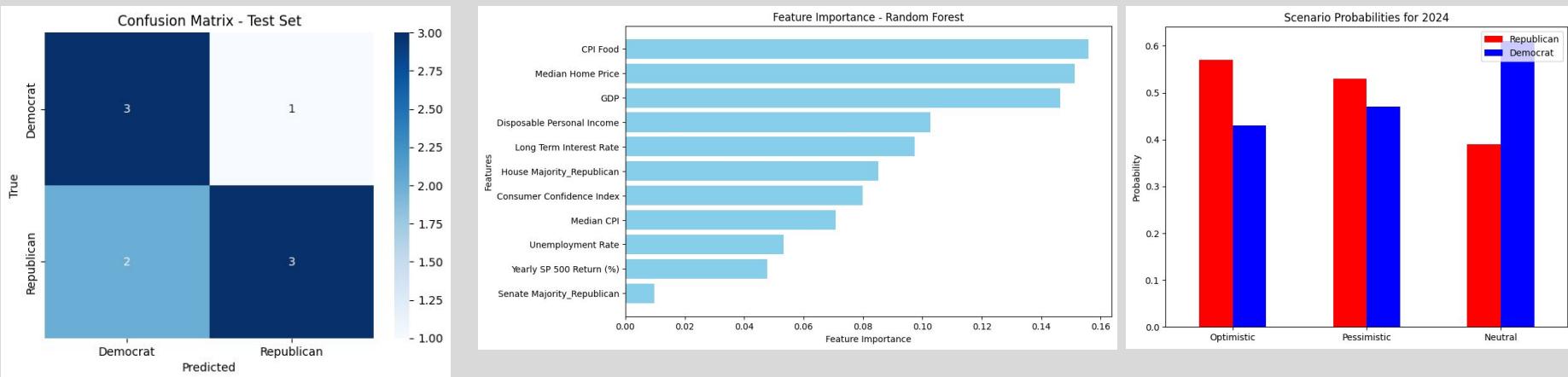


# Presidential Prediction Model

## Model Training

## Feature Importance

## Model Testing



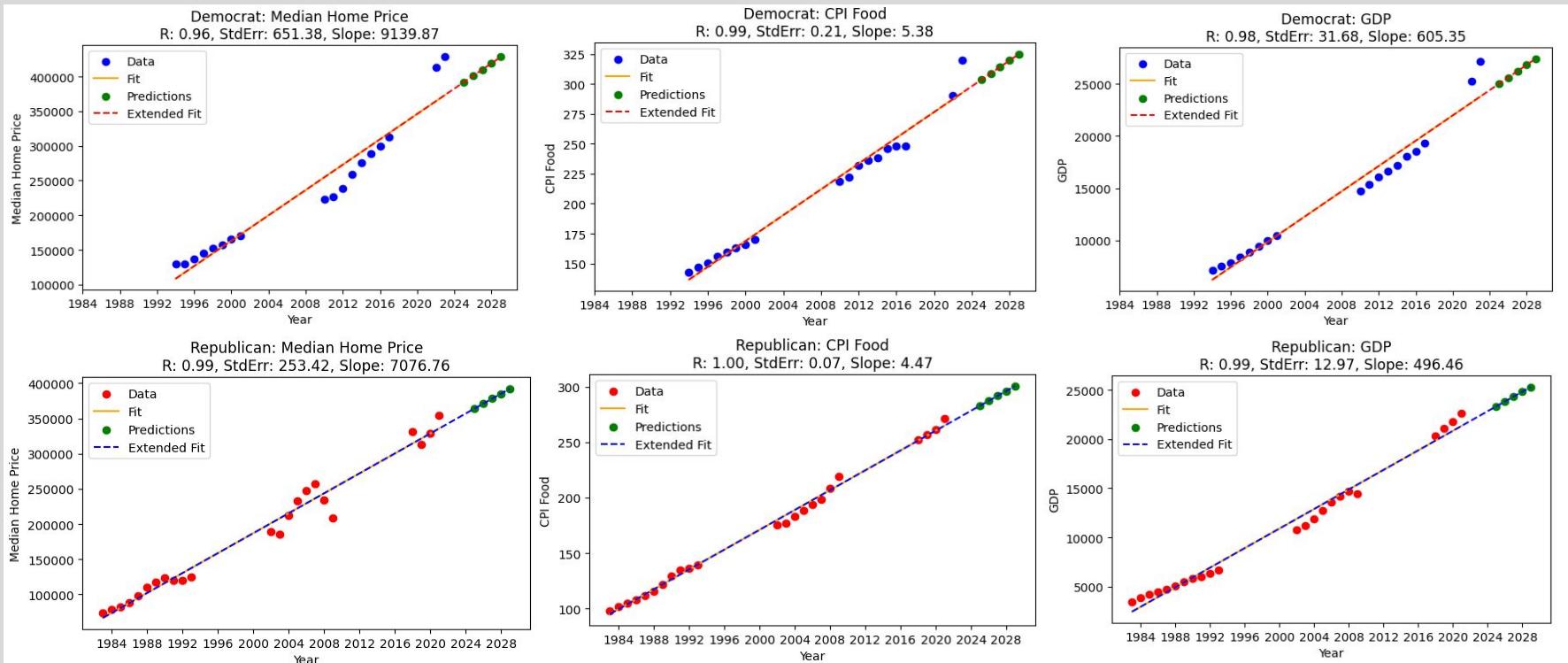
Cross-Validation Accuracy: 78.10%

The model we used is a Random Forest Model, with 100 trees and a max depth of 10.

We choose because:

- It's a classification model
- Feature Handling
- Resistance to overfitting

# Economic Future Model



Above is a simple linear regression model for Median Home Price, CPI Food, and GDP for Republicans and Democrats.

# Conclusions

- Out of all the economic factors, the most important factors were:
  - Median Home Price
  - CPI of Food
  - Current GDP
- Overall inflation was considered in our model, but it did not fall into the top categories of feature importance. Inflation (or CPI) as it related to food and home prices highly impacted our model, indicating that people care more about their ability to provide sustenance and shelter for their families.
- We **cannot reject the Null Hypothesis** ( $p\text{-value} = 0.272$ ) as despite our accuracy, our randomized model correctly predicted our target variable 27.2% of the time.
  - Another factor to consider, is that the perception of the economy, and not the reality, may have a huge effect on political outcomes, which some parties may take advantage of.
- **Challenges we faced:** Limited data in scope, as the earliest that the Federal Reserve had for some data was 1983
- **DISCLAIMER:** We fully Realize more factors than just economics affect a presidential election, such as past political experience.