

The Oval Office Prediction

2024 U.S. Election Prediction

COGNIFY



AGENDA

01

Introduction

Overview of the project and its goals

02

Data Collection

Details about sources, cleaning, and preprocessing.

03

Exploratory Data Analysis

Key insights and trends observed in the data.

04

Modelling and Evaluation

Algorithms used and performance metrics

05

Deployment and Challenges

Different challenges faced and deployment.

06

Conclusion

Conclusion and Potential improvements.

01 Introduction

2024 U.S. Election

Global Impact:

- International relations, National security concerns, trade agreements, economic policies, economic policies, social dynamics, etc.



Kamala D. Harris

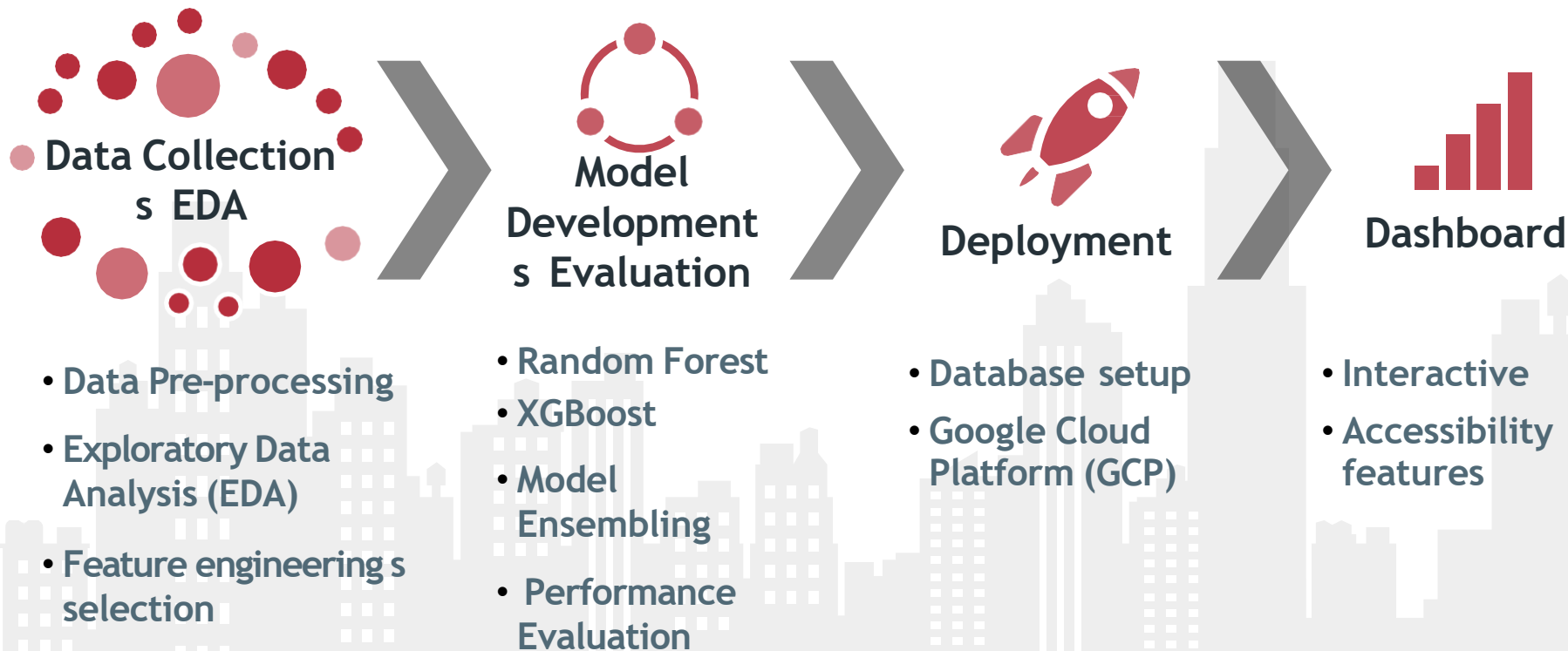
OBJECTIVE

- A machine learning model that can accurately predict the winning party based on census - demographics, socioeconomic indicators, and polling data.
- The insights generated can help stakeholders, including campaign strategists, analysts, and policymakers, make informed decisions.



Donald J. Trump

Approach



02 Data Collection



<https://census.gov>

Census data, voter registrations, age, employment status, etc were sourced from official government databases.
United States Census Bureau.



<https://fivethirtyeight.com>

Election forecasts were sourced from 538, a well-known political forecasting site.

03 Exploratory Data Analysis

Demographic Impact

Higher education and diversity trends suggest shifts towards Democratic preferences in key states.

Economic Factors

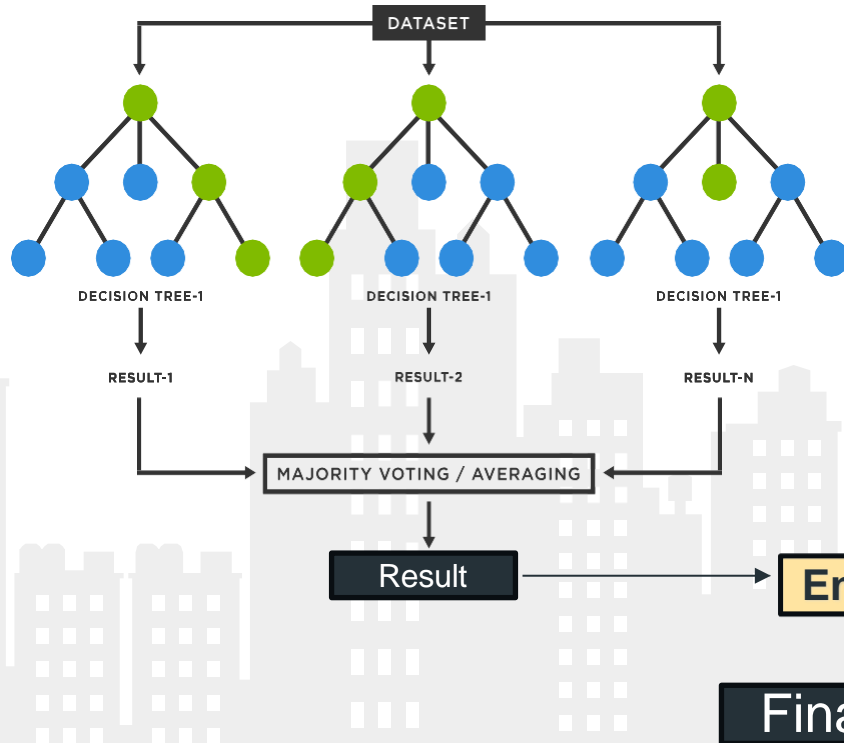
Middle-income groups lean towards Democrats, while high-income groups prefer Republicans.

State Variations

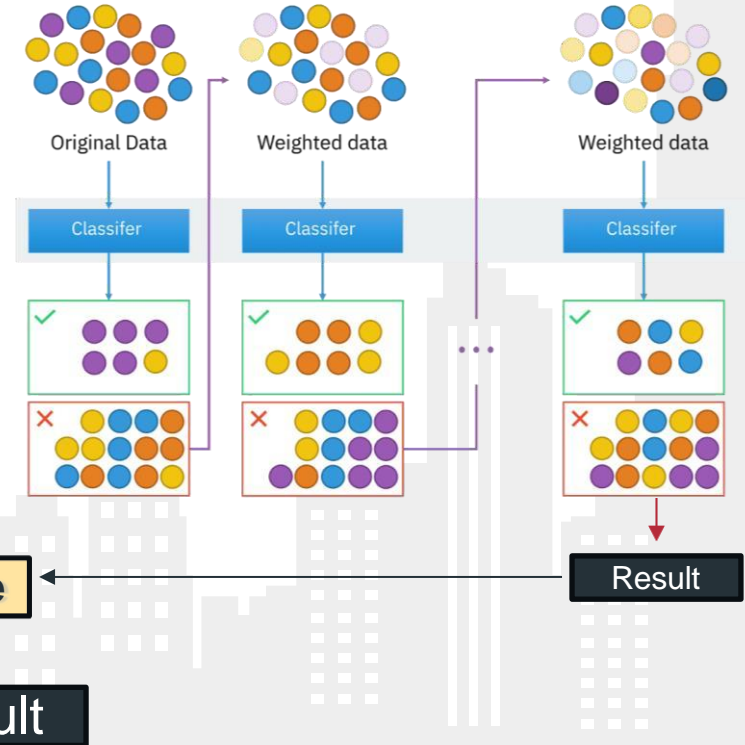
California dominates with Democratic support, while Florida and Texas are key battlegrounds.

Model Building

Random Forest Model



XGBoost Model

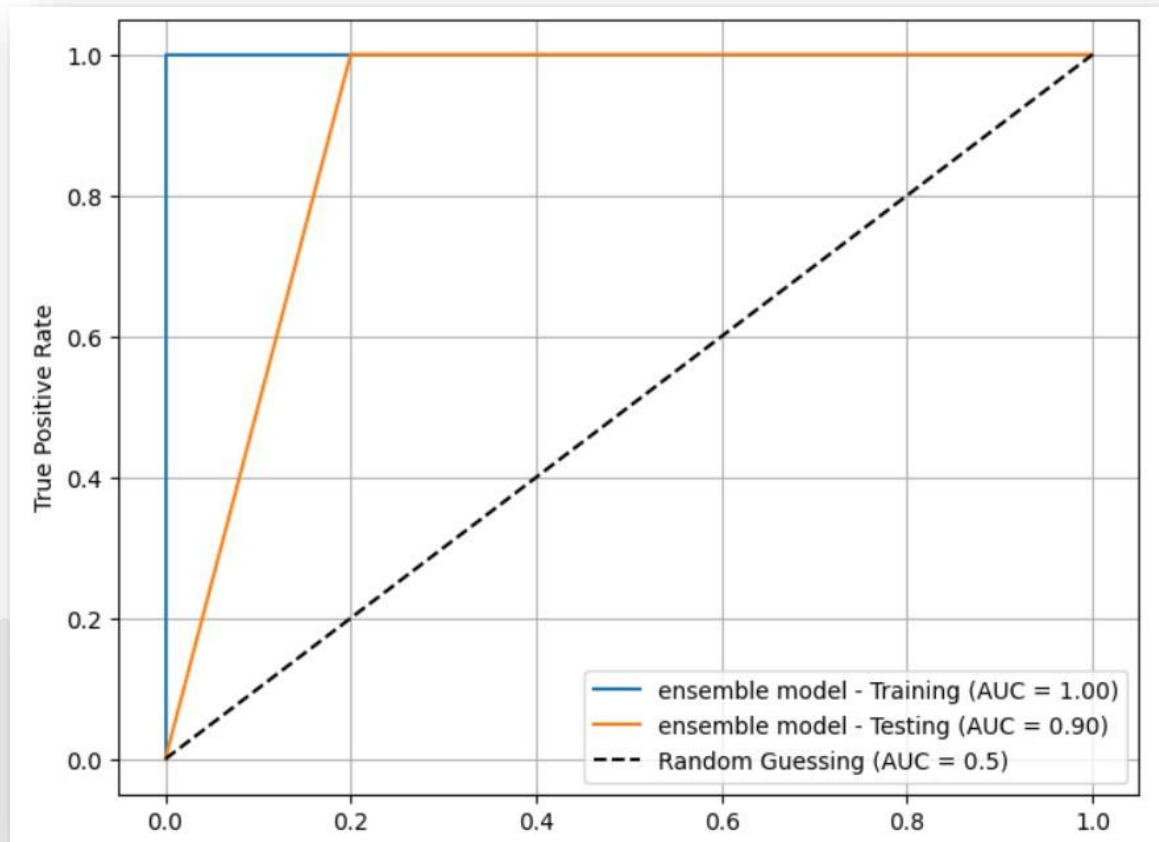
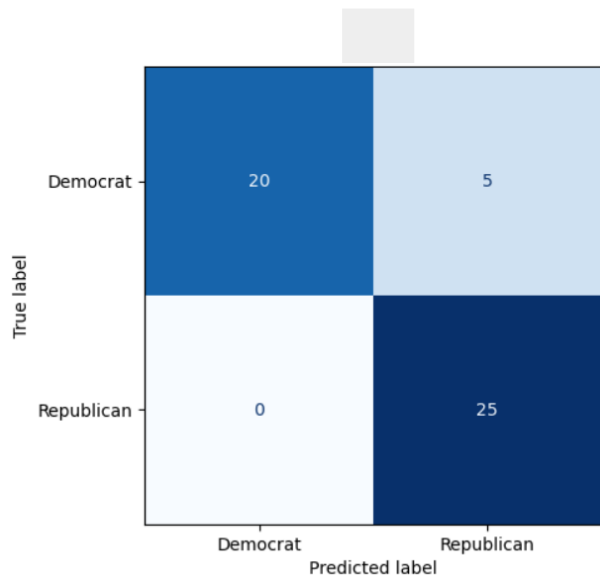


Performance Evaluation

Ensemble Model

Accuracy : **0.90**

F1- Score : **0.89**



Predicted Result (November 3 - G6% accuracy)

	party	electoral_college_seats
0	Democrat	236
1	Republican	302

Party	Difference
Democrat	+10
Republican	-10

Actual Result (November 5)

✓ Donald Trump wins
The AP has called this race



226

Harris

72,378,170 votes (48.1%)

270 to win

312

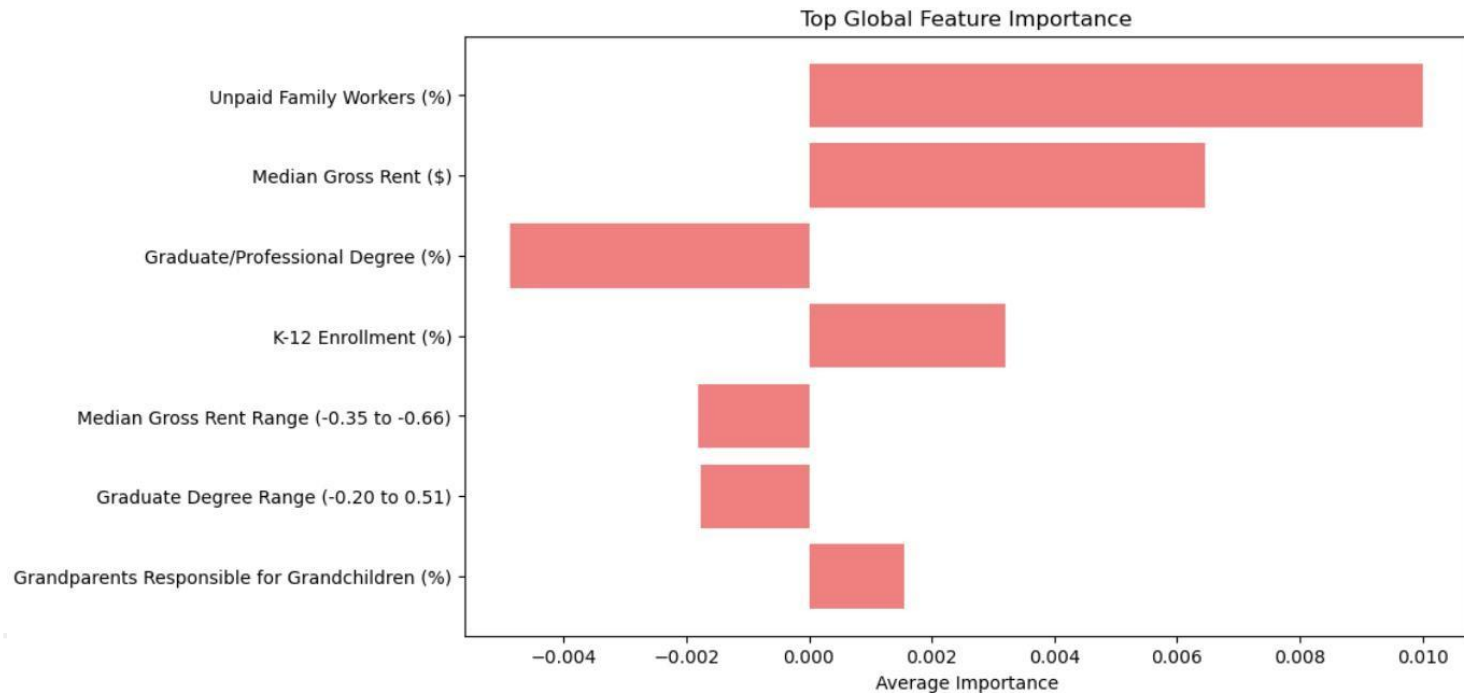
Trump



75,522,869 votes (50.2%)

PREDICTED

Important features

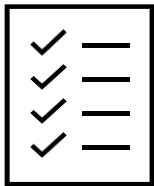


Model Robustness and Responsiveness



Unit Testing

Completed in 0.360 second, which means functionalities are stable and efficient.



Edge Case Testing

Model successfully handled potential edge cases like errors and empty datasets.

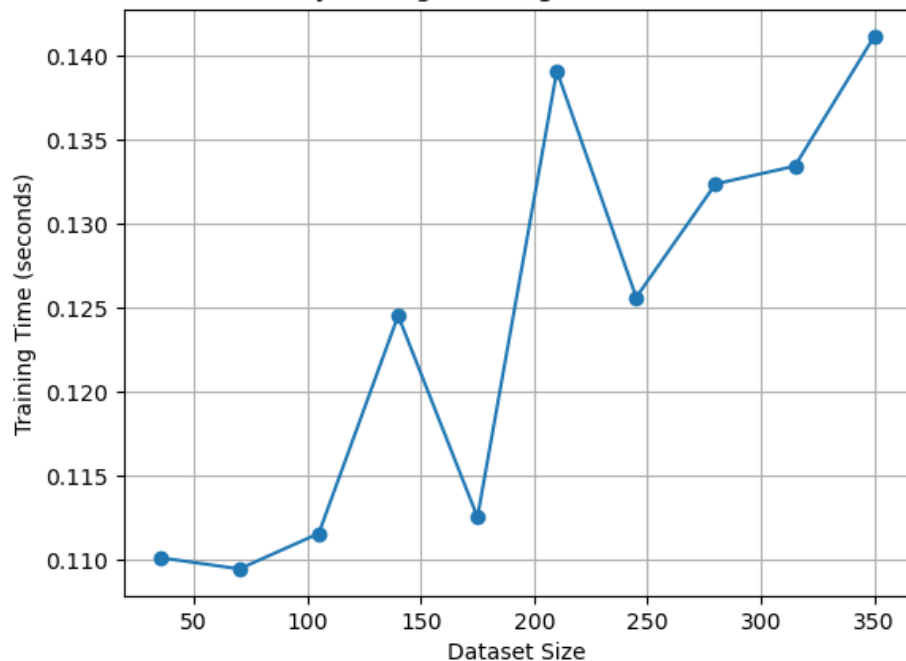


Speed/Latency

Training latency at 0.1269 seconds and single prediction latency at 0 seconds

Scalability and Extensibility

Scalability Testing: Training Time vs Dataset Size



Training Time

- Model was trained in 0.1611 seconds.

Load Testing

- Model handles 1000 calls in 5.0759 seconds.

05 Model Deployment

Google Cloud Platform (GCP)

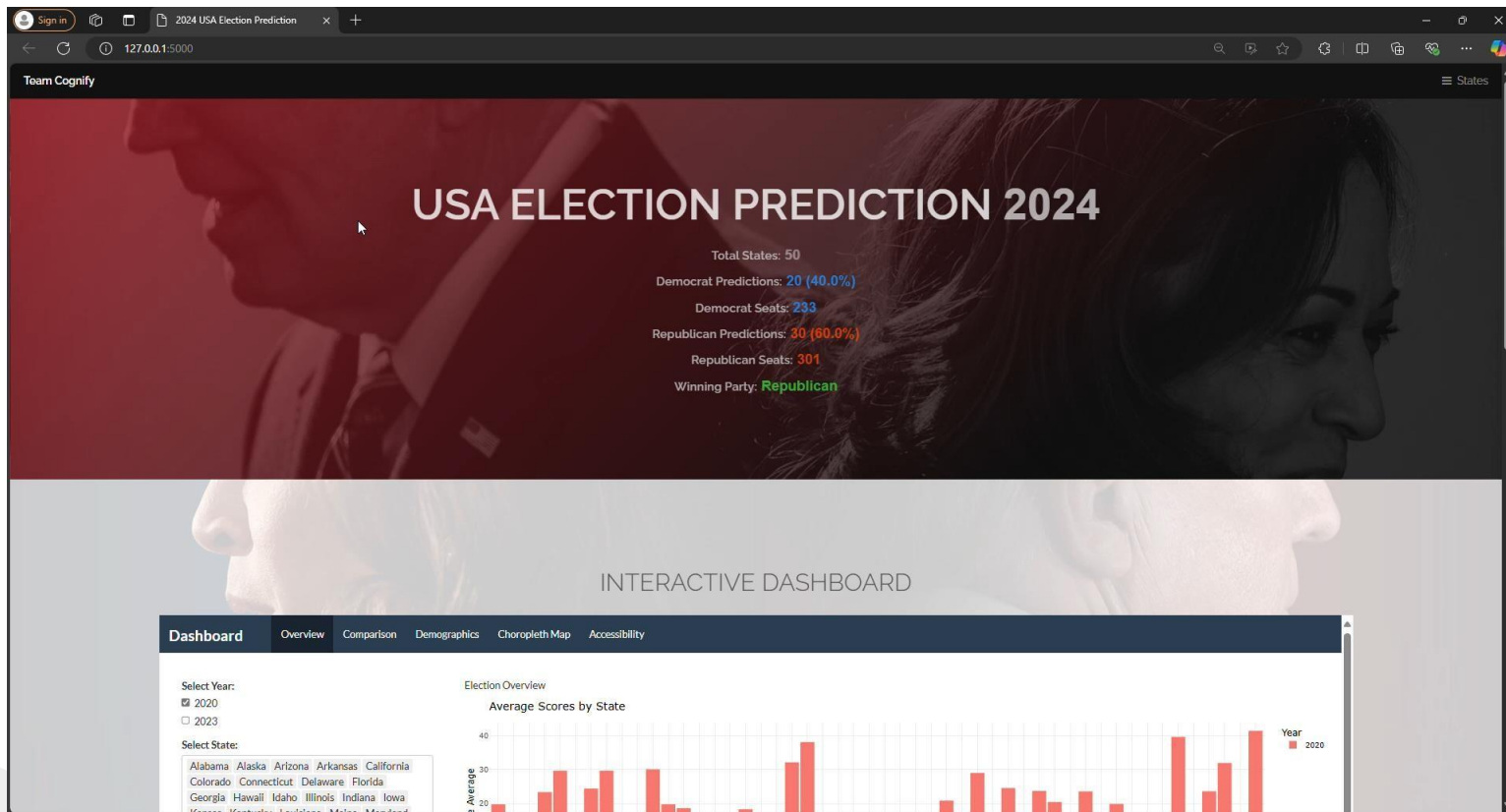
<https://ovalofficeproject.nn.r.appspot.com/>



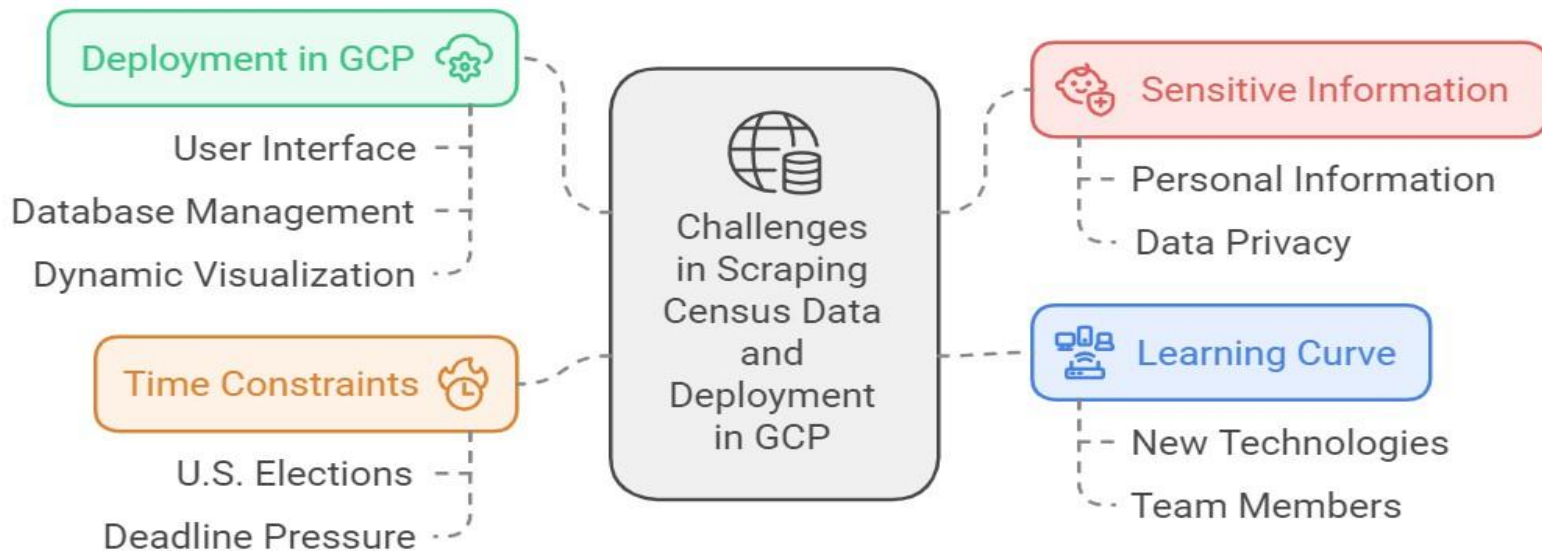
Deployed the election prediction model to provide real-time predictions, ensuring scalability, and ease of access.



The deployment utilizes Google App Engine for API hosting, and BigQuery for analyzing large datasets.



Challenges



06 Conclusion



Model Accuracy:

Achieved almost 97% accuracy in predicting the election results.



Future Potential:

With continuous improvements, the model can provide even more precise predictions.



Real-World Applications:

Offers valuable insights for future election forecasting and decision-making.

Resources



**Thank You
Any Q/A**

