Voter Turnout and Acceptance Prediction

This section includes scripts for analyzing voter turnout and ballot acceptance rates based on historical data. It uses machine learning models to predict voter turnout and acceptance rates for future elections.

Prerequisites

To run this project, you need the following installed on your system:

- Python 3.8 or later
- Required Python packages
- CSV files with election data in the expected format

Setup Instructions

1. Clone the Repository

bash

git clone <repository_url>

cd <repository_directory>

2. Install Dependencies

Use pip to install the required Python packages:

bash

pip install -r requirements.txt

3. Prepare Input Data

Place your input CSV files in the `data` directory or provide the correct file paths in the script. The expected input files are:

- `voter_turnout2016P.csv`
- `voter_turnout2018P.csv`
- `voter_turnout2020P.csv`
- Files for ballot acceptance (e.g., `18GenCombineFilingReport2018G_processed.csv`, `2016GenCombineFilingReport2016G_processed.csv`, etc.)

Running the Scripts

1. Predict Voter Turnout

The `vt_pr1.py` script predicts voter turnout and identifies the most preferred party for each age group. It also calculates and visualizes voter turnout percentages.

Steps:

- Run the script using:

bash

python vt_pr1.py

Output :

Processed data with Total Accepted Votes saved.

Overall Most Preferred Party: Rv

Predicted Voter Turnout Percentage: 21.69%

Actual Voter Turnout Percentage: 22.72%

- Key visualizations:

- Bar chart showing voter turnout percentage by age group.

2. Calculate Ballot Acceptance Rates

The `ballot_acceptance_rate_calculation.py` script calculates total and predicted acceptance rates using ballot data.

Steps:

- Run the script using:

bash

python ballot_acceptance_rate_calculation.py

Output files:

Total Acceptance Rate (All Data Combined): 98.72%

Predicted Total Acceptance Rate (All Houses Combined): 93.97%

Metrics calculated:

- Total acceptance rate

- Predicted total acceptance rate

Project Structure

```
project_root/
├── data/                    # Directory for input CSV files
├── csv_outputs/             # Directory for output CSV files
├── vt_pr1.py  # Script for voter turnout analysis
├── ballot_acceptance_rate_calculation.py # Script for ballot acceptance analysis
└── README.md                # Project documentation
```