Project Title: Data Visualization of Electoral Trends Using ElectViz
Milestone 3

1. Project Overview and Milestone Objectives

The third milestone of the **ElectViz** project represents the critical transition from data foundational work to high-level analytical storytelling. Following the successful data modeling and initial DAX implementation in Milestone 2, this phase focuses on the delivery of the specialized dashboard pages outlined in the final project scope. The primary objectives for this milestone included the development of comparative analysis views, gender-based participation metrics, and a rigorous testing protocol to ensure that the findings presented to stakeholders are both accurate and interactive.

Based on the finalized project requirements, three primary analytical modules were developed to provide a comprehensive 360-degree view of the Indian electoral landscape:

A. Parliamentary Constituency Analysis (National Level)

This module was designed to identify broad political trends and national party performance.

- **Trend Identification:** Visualizations were created to track the dominance of political parties across multiple election years, highlighting shifts in the national mandate.
- **Geographic Insights:** Analysis of leading cities and regional strongholds was integrated to show where specific parties maintain the highest influence.
- **Demographic Participation:** Special visuals were added to track female participation in national elections, moving beyond simple vote counts to represent candidate diversity.

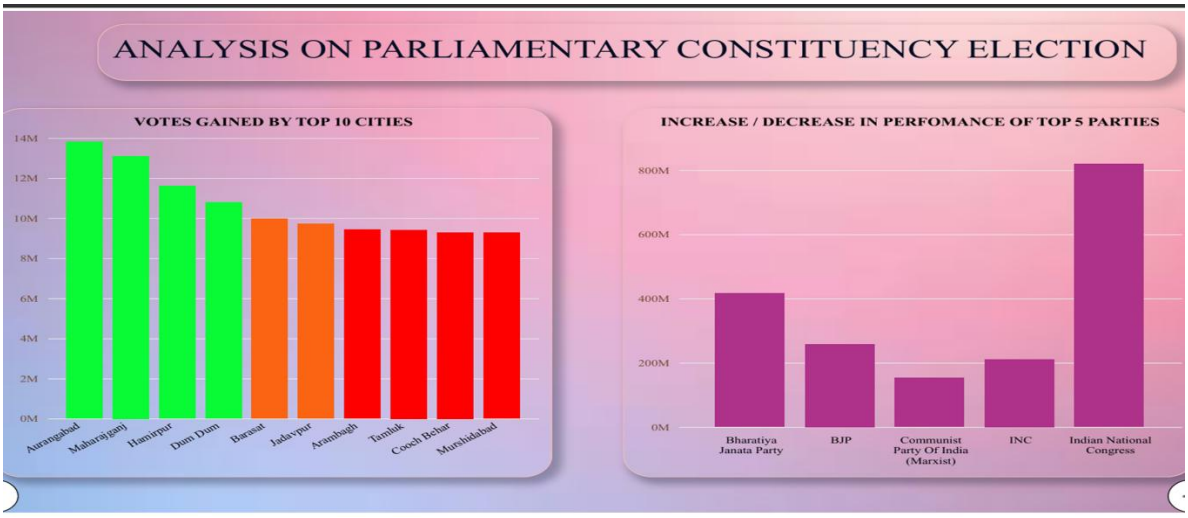

Figure 1: *Parliamentary Constituency Dashboard featuring City-wise Vote Distribution and Party Performance Trends.*

B. Assembly Constituency Analysis (State Level)

This page focuses on localized trends and regional political dynamics, providing a more granular view than the national dashboard.

- **Regional Performance:** A deep-dive analysis was conducted for specific states, such as Tamil Nadu, to identify candidates who have consistently secured high vote shares across successive terms.
- **State-Wise Distribution:** Charts were implemented to compare the total votes secured across different states, allowing for a quick identification of high-engagement regions.
- **Gender-Wise Distribution:** State-level data was analyzed to visualize the gender distribution of votes, helping to understand regional voter behavior patterns.

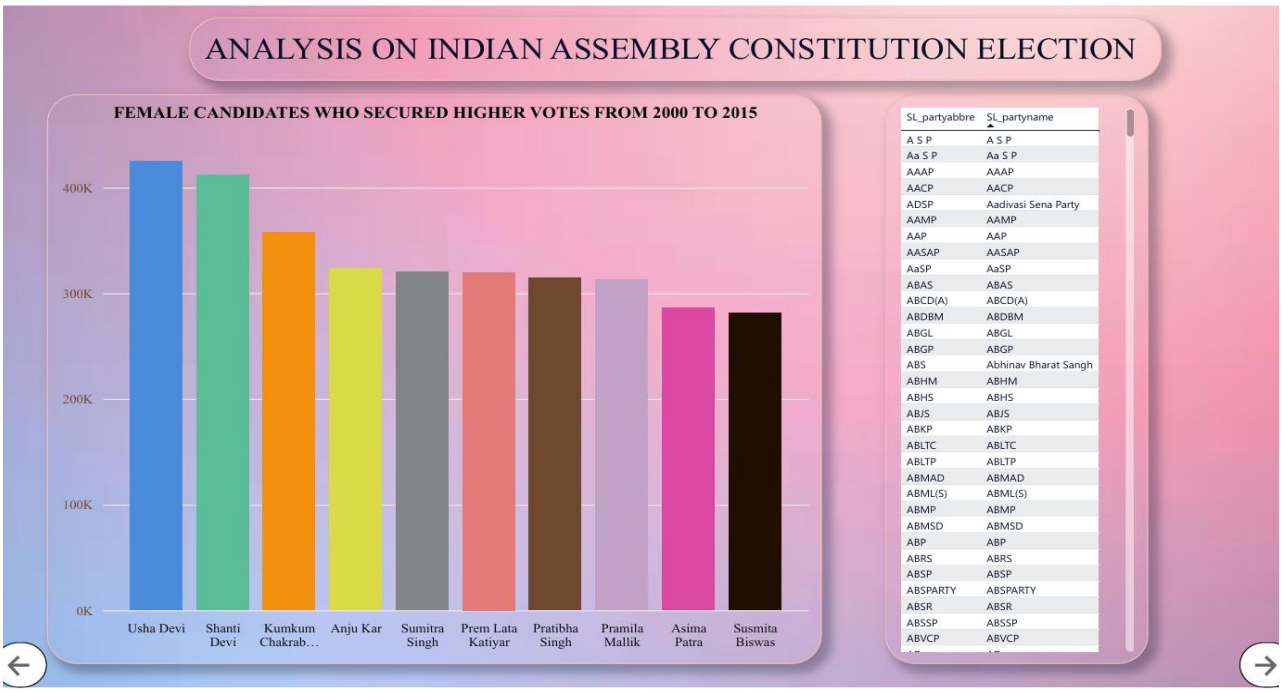

Figure 2: Assembly Constituency Analysis focusing on Female Candidate Performance and Party Standardization

C. Comparative Election Study

A dedicated page was developed to bridge the gap between national and state-level data.

- **Voting Pattern Variance:** This section evaluates how voter behavior differs between Parliamentary and Assembly elections.

- **Metric Comparison:** Key Performance Indicators (KPIs) such as average votes per year and total party dominance were compared side-by-side.
- **Interaction Logic:** Integrated slicers allow users to toggle between election types to see how a single party's performance fluctuates depending on the level of government being elected.

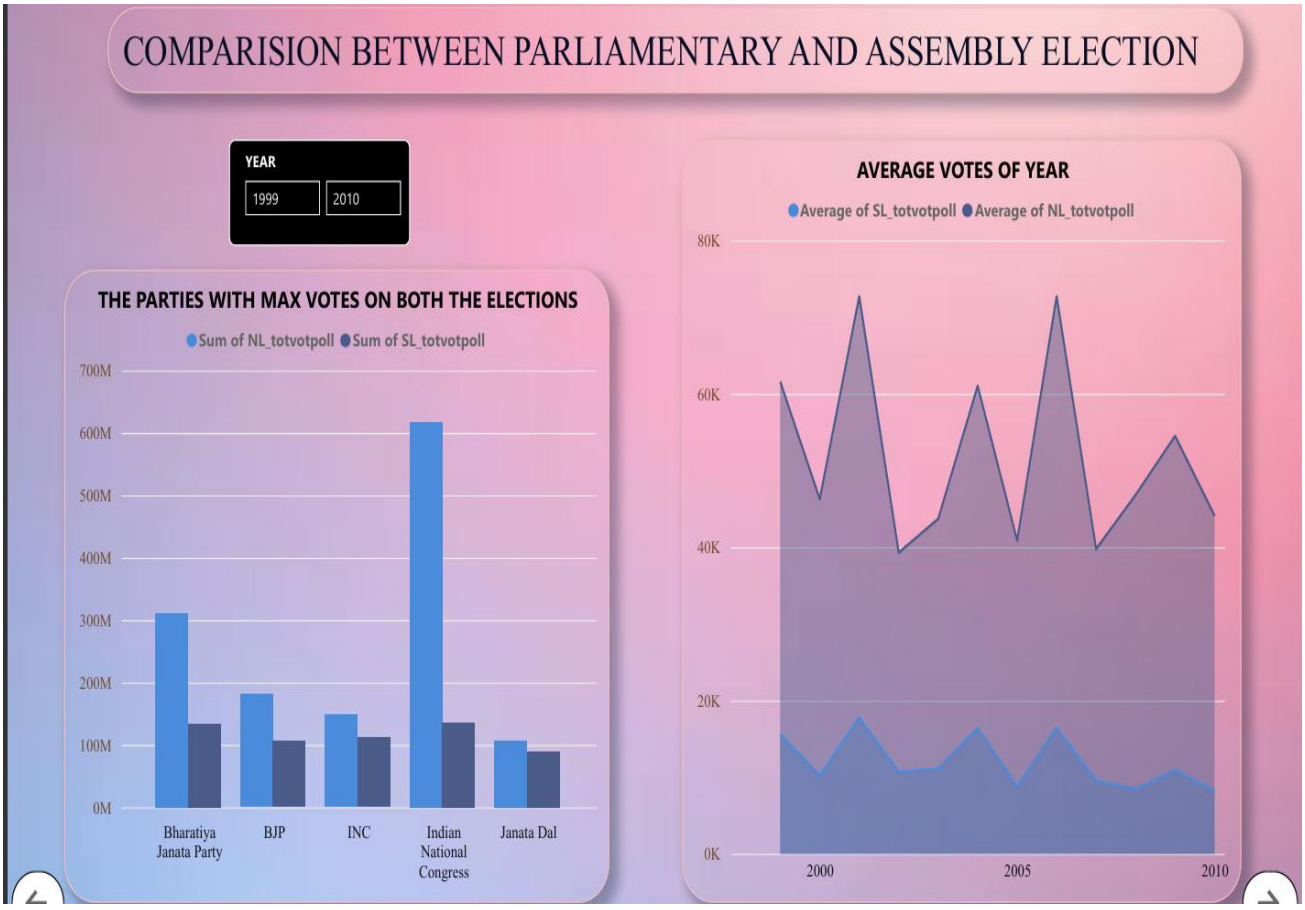

Figure 3: Comparative Study Dashboard showing synchronized trends between Parliamentary and Assembly Elections.

3. Technical Implementation & DAX Refinement

To support the visuals described in the final presentation, the following technical tasks were completed:

- **Gender Data Standardization:** During this phase, gender values were standardized (e.g., ensuring "M", "Male", and "MALE" are consolidated) to ensure participation charts reflect accurate percentages.
- **Advanced DAX Development:**

- **Turnout Metrics:** Calculations were finalized to compare "Total Electors" against "Total Votes" to determine participation rates.
- **Seat Count Logic:** Formulas were optimized to calculate the "Total Seats Won" by filtering positions where the candidate is marked as "Winner".
- **Yearly Averages:** Developed measures to calculate the average votes secured by parties across different election cycles to identify growth or decline trends.

4. Summary of Milestone 3

The completion of this milestone ensures that the raw election data has been fully transformed into an interactive, insight-driven dashboard. By integrating gender analysis, regional deep-dives, and comparative studies, the project now provides a comprehensive tool for understanding Indian electoral trends.

The project has moved beyond simple vote counts to provide specialized analytical layers that offer deeper context:

- **Gender Participation Analysis:** Rather than just listing names, the dashboard tracks female participation rates and success trends over time, highlighting demographic shifts in leadership and voter behavior.
- **Regional Deep-Dives:** By utilizing geographic granularity, the system identifies local "strongholds" and "swing regions," revealing how local issues and socio-economic factors influence specific constituencies differently from the national average.
- **Comparative Election Studies:** A critical feature of this milestone is the ability to contrast **Parliamentary** (national) versus **Assembly** (state) voter preferences. This highlights how the same electorate may prioritize different issues depending on the level of governance.

2. Interactive Decision-Support Features

The dashboard is no longer a collection of charts but a functional tool for strategic analysis:

- **Dynamic Interactivity:** Users can filter data by year, state, or party to instantly see shifts in voter loyalty or participation spikes, enabling "snapshots" of political sentiment at any given time.
- **Performance Metrics:** Integrated DAX measures (KPIs) like turnout percentages and winning margins provide immediate clarity on the competitiveness of various races.