ElectViz
Election Data Visualization on for Media

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SUMMARY

The ElectViz: Election Data Visualization (Media Dashboard) project focuses on analyzing and visualizing **India's General Election** data by integrating both historical **Lok Sabha results (1962–2019)** and the **General Elections India 2024** dataset. The project aims to provide an interactive, insightful, and media-ready **Power BI dashboard** that helps users explore party performance, vote share trends, and voter turnout across years and states.

The dashboard is designed to serve as a data-driven storytelling tool for media professionals, researchers, and analysts. It allows users to compare historical and **current election results**, identify political trends, and gain a deeper understanding of **India's evolving electoral landscape.**

The project involved several key phases — **data collection**, **cleaning**, **transformation**, modeling, visualization, and analysis. Datasets were obtained from authentic sources such as the **Election Commission of India** (ECI) and **Kaggle**, then processed using Power Query and modeled in a Star Schema structure with dimension tables for **Party**, **State**, and **Year**.

Interactive visuals such as **maps**, **line charts**, **bar charts**, **cards**, and funnel visuals were created using Power BI. DAX measures were developed for Seats Won, Total Votes, Vote Share %, Turnout %, and Winning Party, ensuring **dynamic and accurate insights**. The dashboard also integrates party logos, colors, and filters for **improved** clarity and **user experience.**

Through this project, comprehensive insights were generated, including:

- **Shifts in party dominance** across different election years.
- **Trends in voter turnout** and participation.
- **Comparative analysis of 2024 results** with past elections.
- **Regional variations** in voting behavior.

In conclusion, ElectViz successfully delivers a **unified and interactive platform** that **simplifies complex election data** into meaningful **visual insights.** It enhances **transparency**, supports informed decision-making, and serves as a valuable analytical resource **for media reporting** and political research.

Tools Used: Power BI Desktop, Power BI Service, Excel/CSV, GitHub

Datasets: Lok Sabha Election Data (1962–2019) and General Elections India 2024

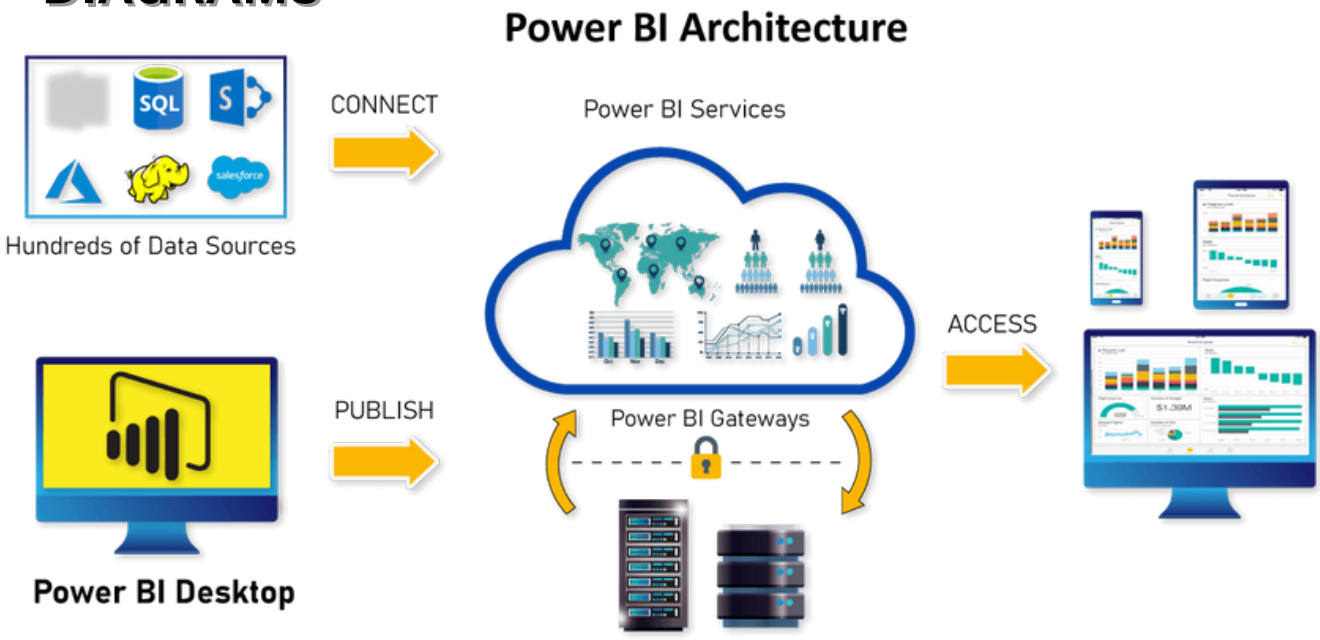
PROBLEM STATEMENT

India's General Election data spans decades and covers thousands of constituencies, parties, and candidates. However, this information is often **dispersed across multiple sources, unstructured**, and **difficult to analyze**, especially for media professionals who need quick, data-driven insights during election reporting.

Existing representations are **largely static and text-based**, offering limited scope for interactive analysis or trend visualization. This makes it **challenging** to **compare historical and current election results**, track voter turnout, or identify shifts in party performance over time.

To address this challenge, the Infosys ElectViz project **aims** to develop an **interactive Power BI dashboard** that integrates Lok Sabha Election data (1962–2019) and the General Elections India 2024 dataset. The solution provides a unified, visual, and **media-friendly platform** for exploring party performance, vote share trends, and voter participation patterns across years and states.

DIAGRAMS



T**he Power BI Architecture** enables **seamless** data transformation and **visualization** through Power BI Desktop for modeling, Power BI Service for cloud publishing and sharing, and Power BI Mobile for **real-time access** to **interactive dashboards.**

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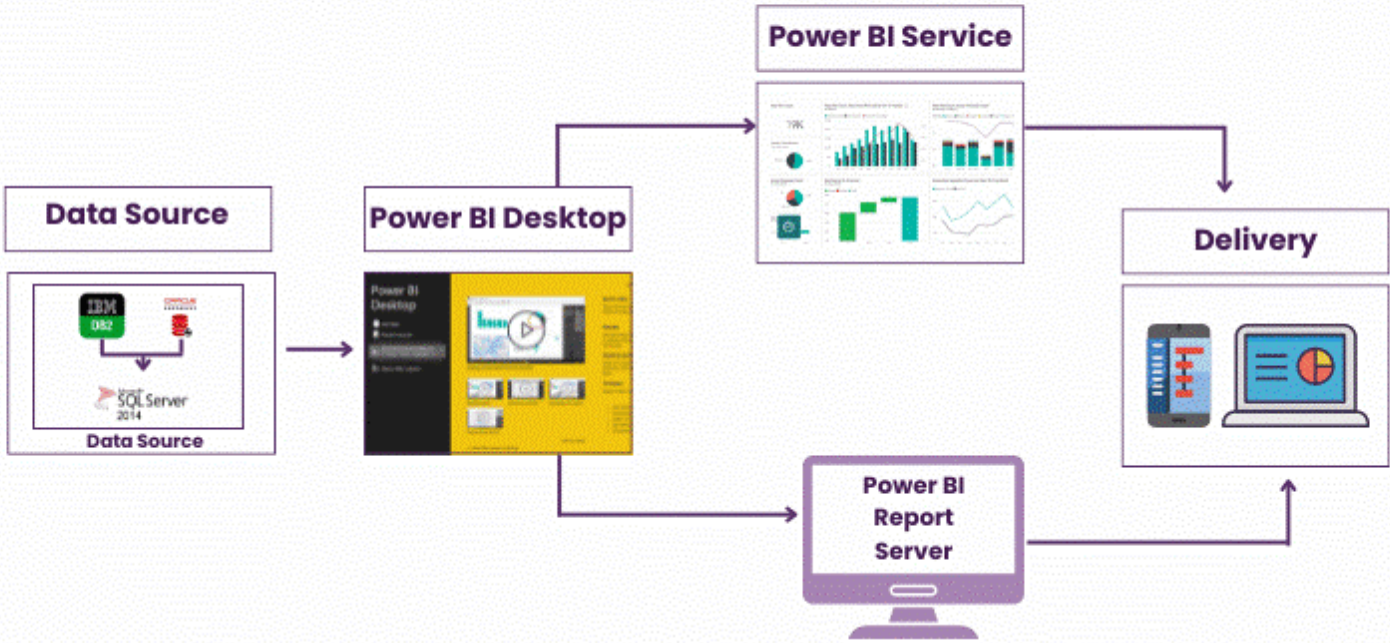
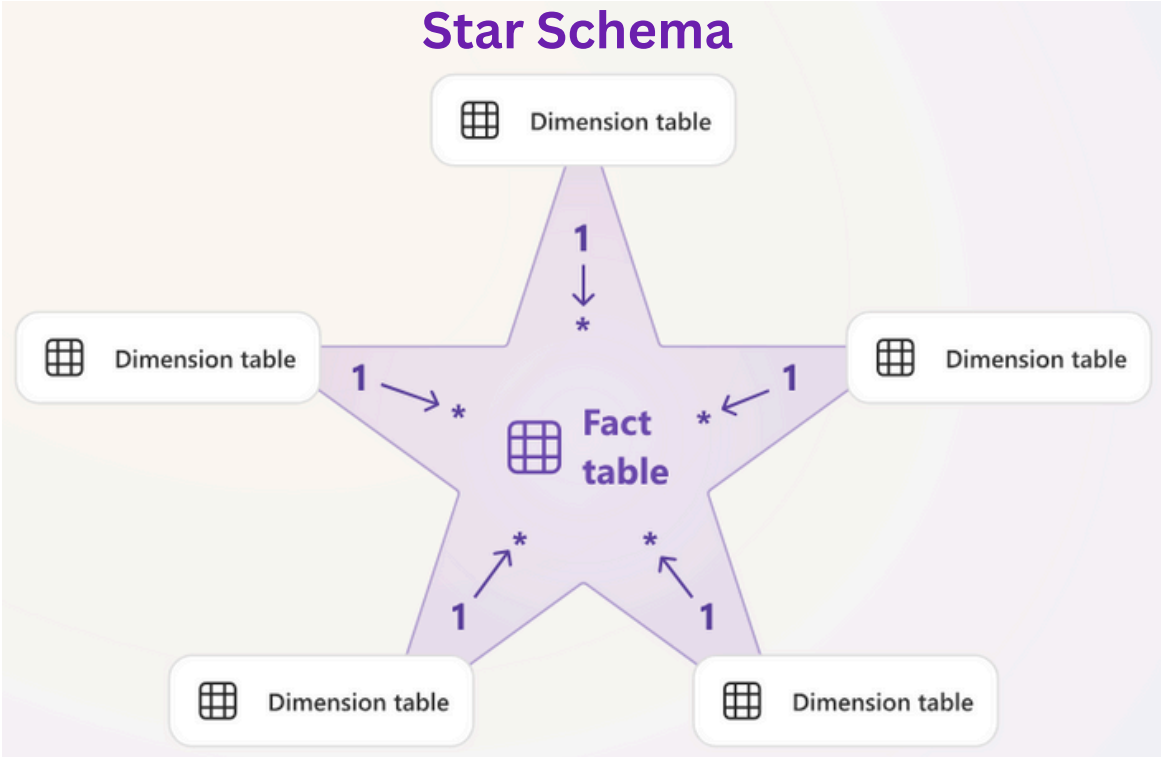
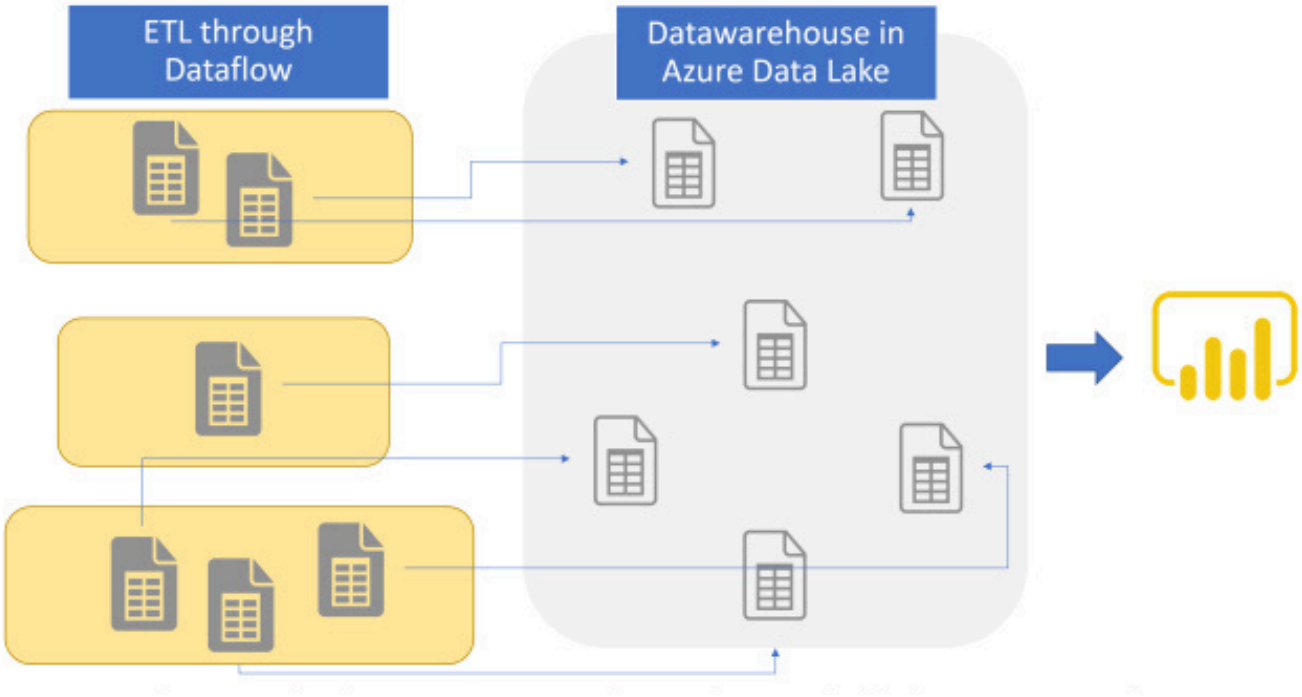
Working of Power BI Architecture



The **working** of Power BI Architecture starts with **importing and transforming** data in Power BI Desktop, then **publishing** it to the Power BI Service **for cloud storage**, sharing, and refresh. Users access **interactive reports** via Power BI Mobile or the web for **real-time insights.**



The **Star Schema** is a **Power BI data model** with a central **Fact Table** (e.g., votes, seats) connected to **Dimension Tables** (e.g., Party, State, Year), simplifying analysis and improving performance. It **provides a clear structure** for building efficient and interactive dashboards.



Dataflow in Power BI is a **cloud-based ETL** (Extract, Transform, Load) process that allows users **to collect, clean, and transform data** from multiple sources before loading it into Power BI datasets. It **enables reusable, centralized data** preparation, supports scheduled refreshes, and **allows multiple reports** and dashboards **to use the same processed data** for consistency and efficiency.

TECH STACK

- **Power BI**

Power BI is used for importing, cleaning, modeling, and visualizing election data. It allows the creation of interactive dashboards, maps, charts, and KPIs, making it easier to explore historical and current election trends. DAX (Data Analysis Expressions) is used within Power BI to perform calculations such as Seats Won, Vote Share %, and Turnout %.

- **GitHub**

GitHub is used for project documentation, version control, and collaboration. It helps maintain a central repository of project files, track changes, and ensure all team members have access to the latest updates and resources.

MODULES

The ElectViz Dashboard is divided into **five main modules**, each corresponding to a dashboard page in Power BI, providing focused insights into election data:

1. **Overview Module:**
   - **Displays overall metrics** such as total seats, total votes, turnout %, and top-performing parties.
   - Provides a high-level snapshot of election results for quick understanding.
2. **Map Module:**
   - Shows state-wise and constituency-wise performance using **geographical visualizations.**
   - Enables users to identify regional patterns and party dominance across India.
3. **Trends Module:**
   - Illustrates **historical and current election trends** using line and area charts.
   - Highlights changes in vote share, seats won, and party performance over time.
4. **Candidate Module:**
   - Provides detailed **insights** into **individual candidates**, their constituencies, party affiliation, and performance.
   - Useful for analyzing candidate-level results and comparisons.
5. **Media Module:**
   - Designed **specifically for media professionals**, featuring KPIs, funnel charts, and interactive visuals.
   - Allows quick access to key insights for reporting and storytelling.

Each module is interactive, visually intuitive, and linked with the underlying data model, ensuring that users can explore election data dynamically across multiple perspectives.

ADVANTAGES OF THE PROJECT

1. **Interactive Visualization:**
   - Provides dynamic dashboards with maps, charts, and KPIs for easy exploration of election data.
2. **Historical and Current Comparison:**
   - Integrates Lok Sabha historical data (1962–2019) with GE India 2024 results, enabling trend analysis and comparisons.
3. **Data-Driven Insights:**
   - Supports media professionals, researchers, and analysts in identifying patterns, shifts in party dominance, and voter behavior.
4. **Centralized Data Platform:**
   - Consolidates data from multiple sources (ECI, Kaggle, CSVs) into a single, structured, and accessible platform.
5. **Reusability and Scalability:**
   - Modular design and Power BI architecture allow easy updates and addition of new datasets or metrics.

DISVANTAGES OF THE PROJECT

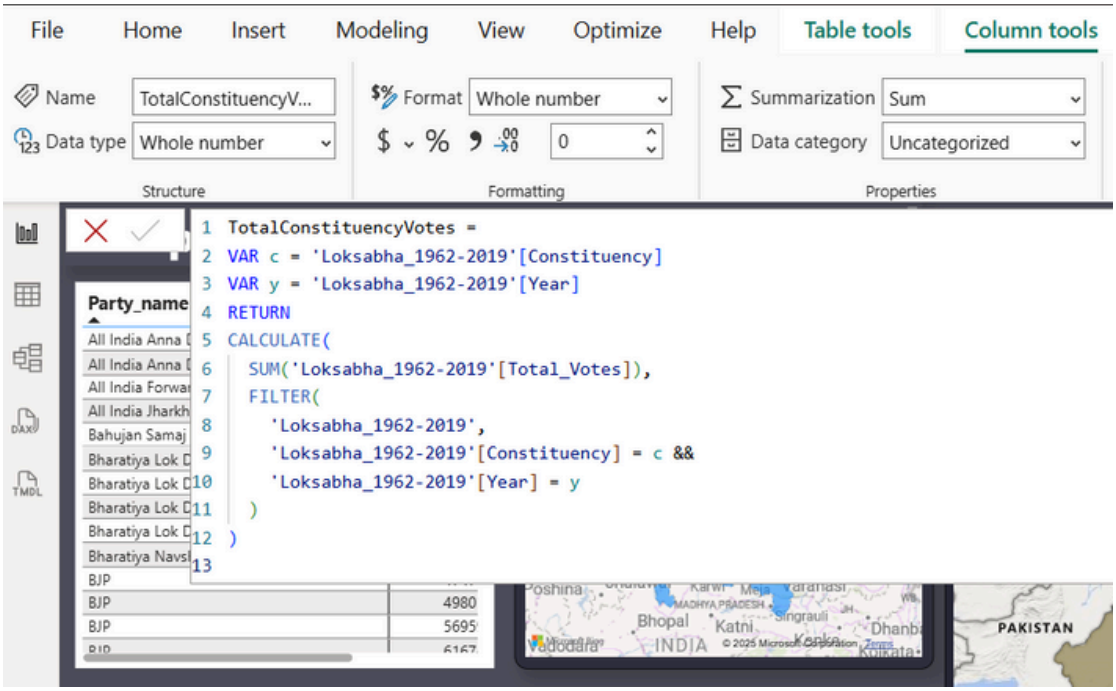
1. **Dependency on Data Quality:**
   - Provides dynamic dashboards with maps, charts, and KPIs for easy exploration of election data.
2. **Limited Predictive Capabilities:**
   - Integrates Lok Sabha historical data (1962–2019) with GE India 2024 results, enabling trend analysis and comparisons.
3. **Performance with Large Datasets:**
   - Supports media professionals, researchers, and analysts in identifying patterns, shifts in party dominance, and voter behavior.
4. **Limited Offline Access:**
   - Consolidates data from multiple sources (ECI, Kaggle, CSVs) into a single, structured, and accessible platform.
5. **Technical Skill Requirement:**
   - Modular design and Power BI architecture allow easy updates and addition of new datasets or metrics.

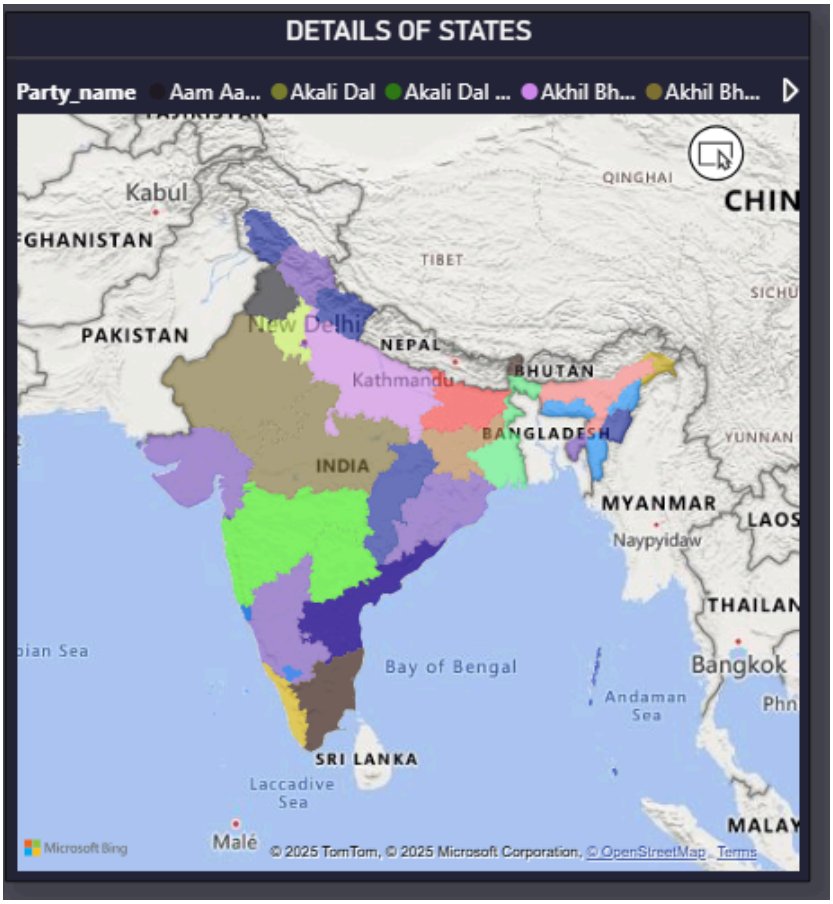
FUTURE ENHANCEMENTS

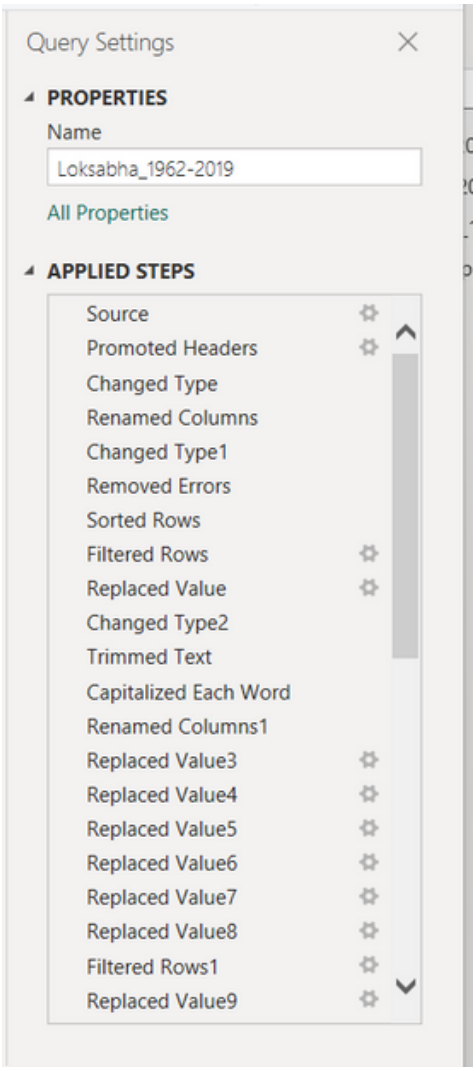
The ElectViz Dashboard can be further enhanced to provide more advanced insights and improved user experience:

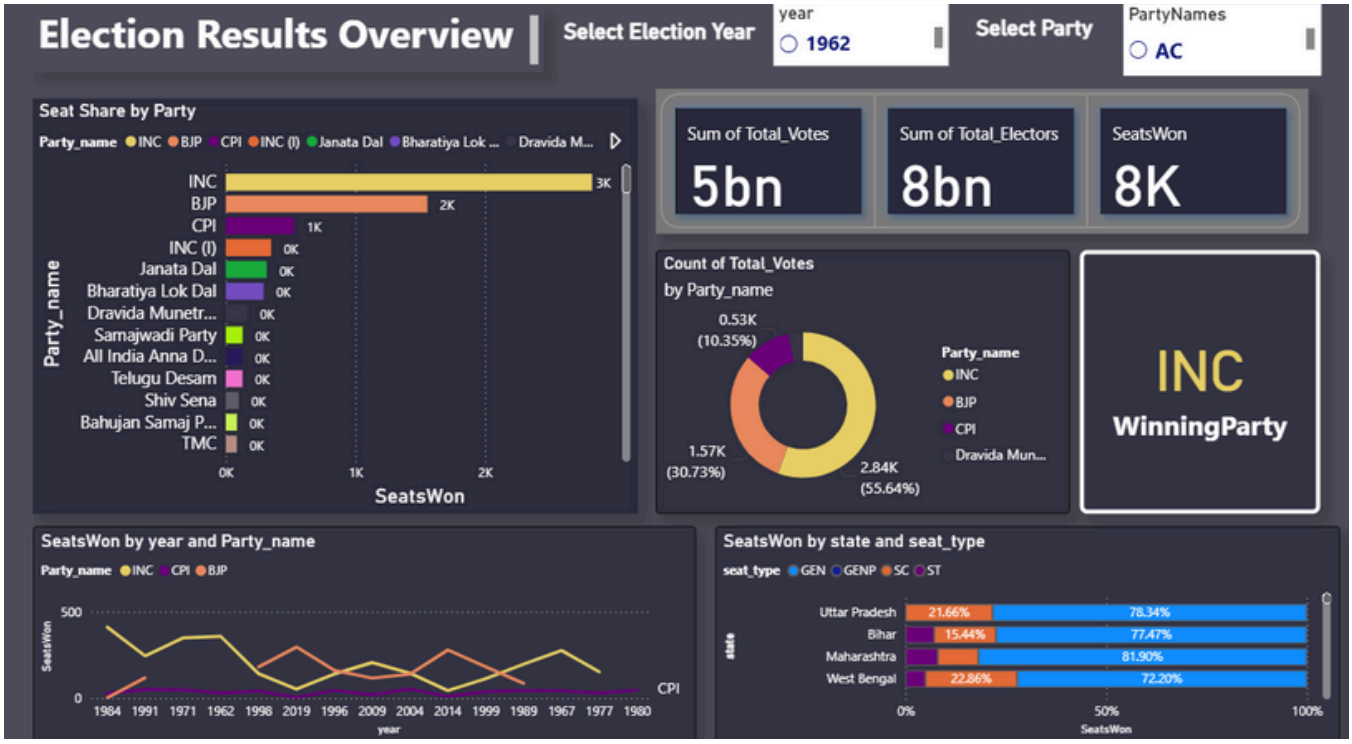
1. **Real-Time Data Integration:**
   - Connect directly to live election APIs to provide real-time updates during elections.
2. **Predictive Analytics:**
   - Implement machine learning models to forecast vote share, seat distribution, and voter turnout trends.
3. **Advanced Visualizations:**
   - Add heatmaps, Sankey diagrams, and interactive timelines to offer deeper insights into electoral patterns.
4. **Mobile-Friendly Design:**
   - Optimize dashboards for mobile and tablet devices, ensuring accessibility for journalists and analysts on the go.
5. **Enhanced User Interactivity:**
   - Introduce features like dynamic filtering, drill-through reports, and what-if analysis for more flexible exploration of election data.
6. **Multi-Language Support:**
   - Incorporate regional language support to cater to a wider audience across India.
7. **Integration with External Media Platforms:**
   - Enable embedding dashboards in media websites or news portals for direct public access and engagement.

PROJECT SCREENSHOTS

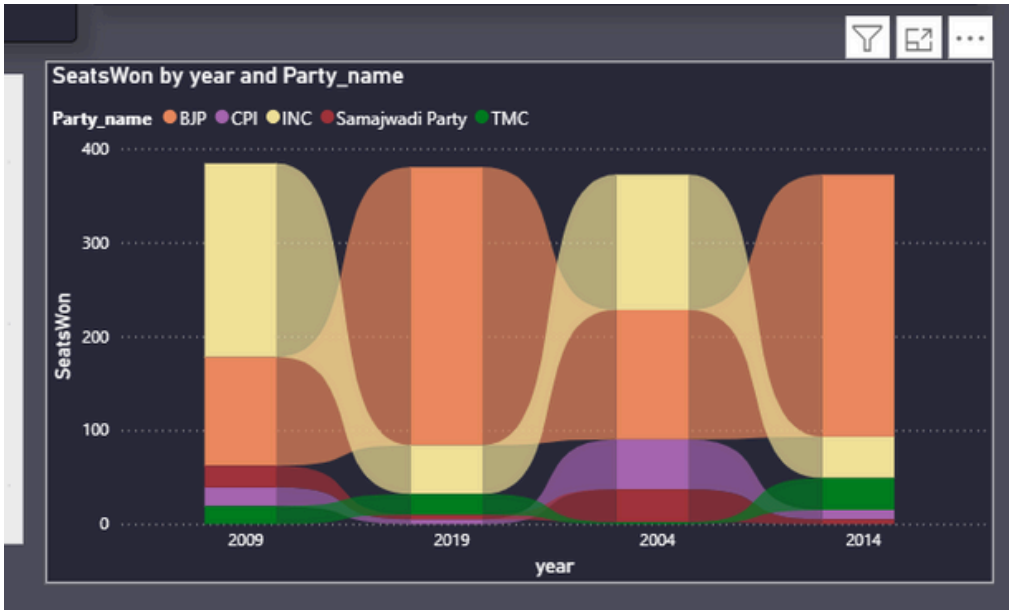


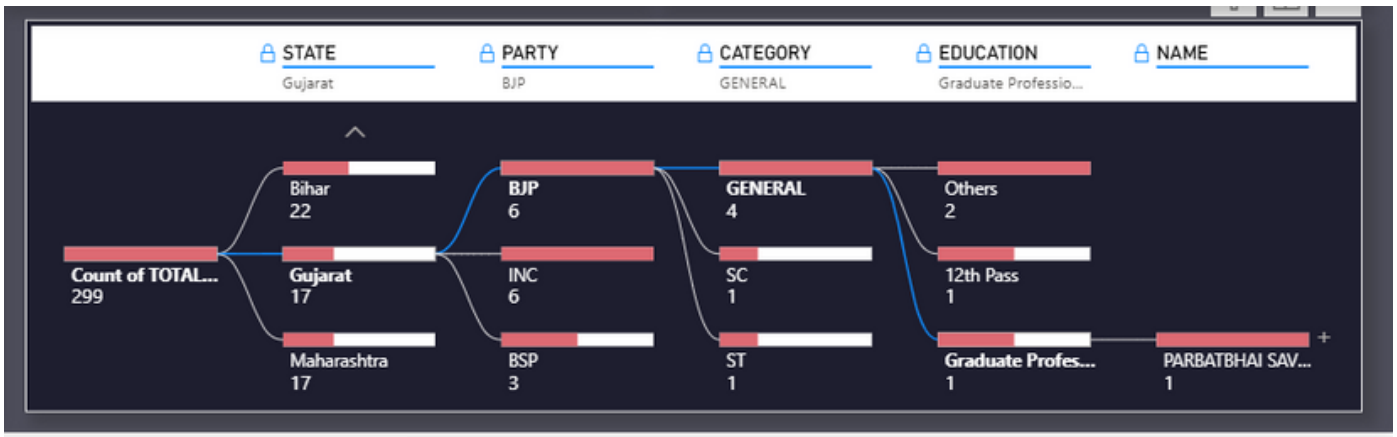






Party_name	Total_Votes	state
All India Anna Dravida Munnetra Kazhagam	578291	Tamil Nadu
All India Anna Dravida Munnetra Kazhagam	700195	Tamil Nadu
All India Forward Bloc	905208	West Bengal
All India Jharkhand Party	84699	Bihar
Bahujan Samaj Party	699687	Uttar Pradesh
Bharatiya Lok Dal	267704	Madhya Pradesh
Bharatiya Lok Dal	316256	Delhi
Bharatiya Lok Dal	378143	Uttar Pradesh
Bharatiya Lok Dal	498010	Bihar
Bharatiya Navshakti Party	84699	Dadra & Nagar Haveli
BJP	474770	Uttar Pradesh
BJP	498010	Gujarat
BJP	569597	Delhi
BJP	616741	Madhya Pradesh





WINNER
1

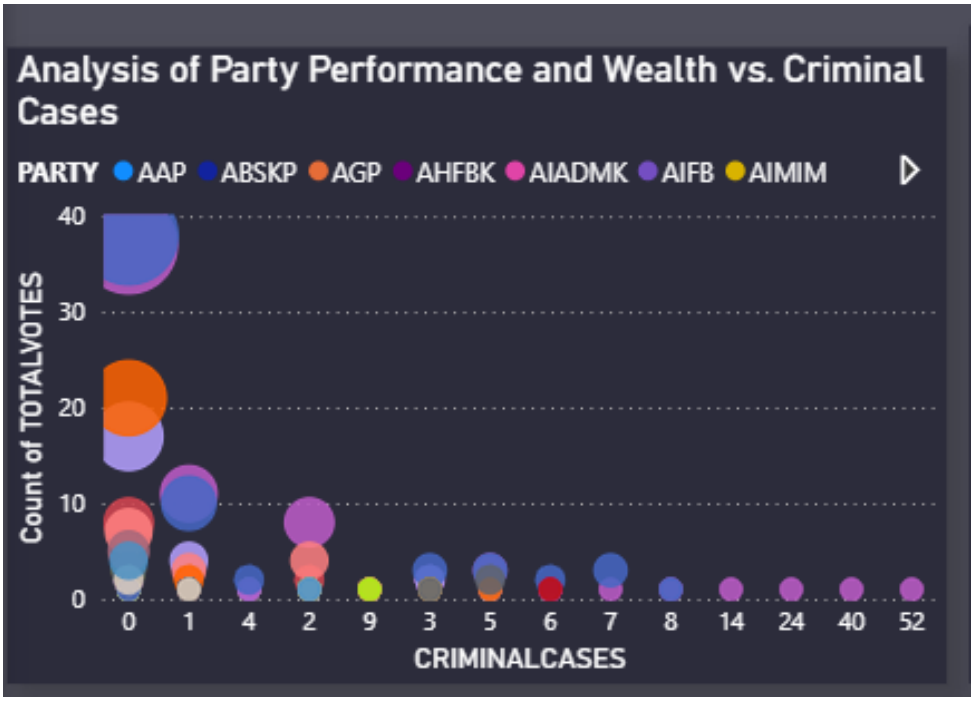
NO. OF STATES
21

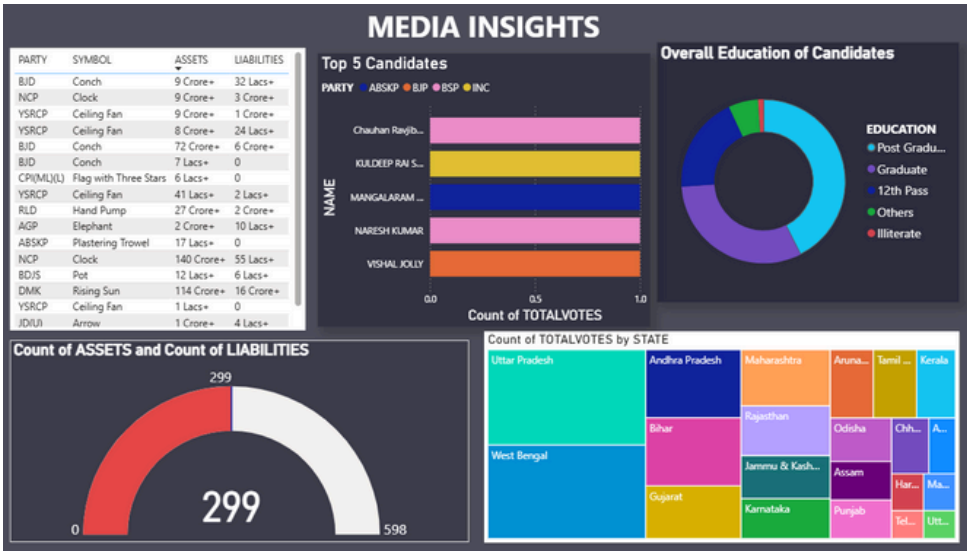
TOTAL NO. OF PARTIES
51

TOTAL CANDIDATES
299

TOTAL CRIMINALCASES
446

TOTAL CONSTITUENCY
80





CONCLUSION

The ElectViz: Election Data Visualization Dashboard successfully **transforms complex election datasets** into an interactive, insightful, and **media-friendly platform.** By integrating historical Lok Sabha data (1962–2019) with the General Elections India 2024 dataset, the project provides users with the ability to **analyze trends**, compare party performance, and **understand voter behavior** across years and regions.

The dashboard's modular design, featuring Overview, Map, Trends, Candidate, and Media pages, ensures that **users can explore data dynamically and efficiently**. The use of Power BI for data modeling, visualization, and **DAX measures** enhances accuracy and interactivity, while **GitHub maintains structured project** documentation and version control.

Overall, ElectViz serves as a **valuable analytical and reporting tool** for media professionals, researchers, and analysts, promoting data-driven insights and informed **decision-making** in the context of Indian elections. With potential future enhancements, the dashboard can evolve into a real-time, predictive, and widely accessible **election analytics platform.**