Infosys Springboard Virtual Internship 6.0

Project Completion Report

Team Details

Team Name: Team A
Team Members: Swayam Bana, Vaibhav Pawar, Nandhini B, Sharmika Shri R, Diksha Palliwal
Mentor Name: Mrs. Nithyasri S J
Internship Duration: [Internship Duration]

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1. Project Title

ElectViz – Election Data Visualization for Media

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2. Project Objective

The primary objective of this project is to analyze Indian election data from multiple years and present meaningful insights through interactive dashboards. The project aims to:

- Understand election outcomes beyond raw vote counts
- Analyze party performance, electability, demographic influence, and trends
- Identify key winning factors influencing seat conversion
- Enable data-driven storytelling for political analysis, media interpretation, and public awareness

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3. Project Description

3.1 Project Overview

Indian elections involve complex dynamics such as vote share distribution, constituency-wise competition, demographic diversity, and candidate profiles. Raw datasets often fail to convey these complexities clearly.

ElectViz is a Power BI–based analytical solution designed to transform raw election data into interactive dashboards. It provides a structured, visual, and data-driven approach to understanding electoral trends, competitiveness, and winning strategies across elections conducted between 2009 and 2021.

The project emphasizes clarity, accuracy, and insight generation through advanced data modeling and visualization techniques.

3.2 Project Approach & Dashboard Modules

The project follows a systematic data analytics lifecycle:

1. **Data Collection**
    - The project uses the **State Level Assembly Constituencies Dataset**.
    - The dataset was sourced from **Kaggle**, a publicly available and reliable data platform.
    - The data covers Indian Assembly Election results for the period **2009 to 2021**.
    - It includes information on candidates, constituencies, states, parties, votes, and election outcomes.

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2. **Data Cleaning and Transformation**

    - Removed duplicate and irrelevant records to maintain data accuracy.

- Handled missing and inconsistent values such as party names, candidate details, and vote counts.
- Standardized column formats (text, numeric, date) using Power Query.
- Created derived columns such as winning margin, vote share, age groups, and contest type.

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3. Data Modeling

- Designed a relational data model by defining relationships between fact and dimension tables.
- Connected key tables such as elections, candidates, parties, states, and constituencies.
- Ensured proper cardinality and filter flow to support accurate cross-filtering across dashboards.

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4. Measure Creation using DAX

Developed dynamic measures using DAX to calculate:

- Total Votes
- Seats Won
- Vote Share Percentage
- Winning Margin Percentage
- Close Contest Rate
- Repeat Candidate Rate
- Trend-based and comparative KPIs

Measures were optimized to respond correctly to slicers and filters.

5. Dashboard Design and Insight Generation

- Created interactive dashboards using appropriate visualizations such as bar charts, line charts, maps, scatter plots, and KPI cards.
- Implemented slicers for Year, State, Party, and Constituency to enable focused analysis
- Designed dashboards to highlight trends, patterns, performance comparisons, and key winning factors in elections.
- Generated actionable insights for understanding election outcomes, voter behavior, and party performance.

Below are the dashboard modules developed in this project:

1) Election Overview Dashboard

- Provides a high-level summary of the election dataset
- Displays key metrics such as total votes, candidates, constituencies, and seats won
- Visualizes party-wise seat distribution and state-wise performance
- Helps users quickly understand the overall election outcome

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2) Party Performance Analysis

- Analyzes year-wise and state-wise party performance
- Compares vote trends and seat conversion efficiency
- Examines candidate age group influence on seat wins
- Highlights party dominance and regional strengths

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3) Gender Distribution Analysis

- Evaluates gender participation in elections
- Compares male and female candidates in terms of participation and success rate

- Analyzes voter turnout patterns across genders
- Highlights representation imbalance in Indian elections

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4) Candidates Demographic Analysis

- Studies candidate-level attributes such as age, repeat participation, and constituency presence
- Identifies frequently winning candidates
- Analyzes regional voting behavior and turnout variations
- Helps understand demographic influence on election outcomes

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5) Electability Analysis

- Focuses on the competitiveness of elections
- Measures close contest rate and winning margins
- Identifies highly competitive constituencies
- Explains how smaller margins influence seat outcomes

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6) Trend Analysis

- Examines long-term election trends across multiple years
- Tracks changes in party dominance and competition levels
- Analyzes the relationship between close contests and winning margins
- Helps understand how electoral dynamics evolve over time

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7) Election Outcome and Winning Factor Analysis

- Identifies key factors contributing to election victories
- Analyzes repeat candidate success, winning margins, and seat conversion
- Compares parties on strategic efficiency rather than just vote share
- Explains why some parties win more seats despite similar vote shares

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3.3 Technologies Used

- **Power BI Desktop** – Data visualization and dashboard development
- **Power Query** – Data cleaning and transformation
- **DAX (Data Analysis Expressions)** – Measure and KPI creation
- **Microsoft Excel / CSV** – Data storage and preprocessing
- **Github** – Version control, code collaboration, and project repository management
- **GitLab** – Source Code management, CI/CD pipelines and team collaboration.

3.4 Key Insights from the Dashboard

- Vote share does not directly translate into seat wins
- Geographical distribution and constituency-level margins play a critical role
- Elections are becoming increasingly competitive over time
- Repeat candidates have a higher probability of winning
- Middle-aged candidates dominate seat victories
- Gender representation remains significantly skewed

3.5 Real-World Impact for Media and Public Communication

- Enables journalists to interpret election results accurately
- Helps the public understand why outcomes differ from popular vote perception
- Supports political analysts in identifying competitive regions
- Encourages data-driven discussions rather than opinion-based narratives

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4. Timeline Overview

Week	Activities Done	Activities Summary
Week 1	Dataset collection and understanding	Collected relevant election datasets, reviewed data sources, understood data structure, variables, and overall scope of analysis.
Week 2	Data cleaning and transformation	Cleaned raw data by handling missing values, correcting inconsistencies, standardizing formats, and transforming data using Power Query.
Week 3	Data modeling and DAX measure creation	Designed data relationships, built an optimized data model, and created DAX measures for KPIs, voter metrics, and analytical insights.
Week 4	Dashboard development and optimization	Developed interactive dashboards with filters and visuals, optimized performance, and improved usability and layout for better insights.
Week 5	Insight validation and documentation	Validated analytical results, cross-checked insights, prepared documentation, and finalized explanations for dashboard interpretation.

5. Project Execution

5.1 Key Milestones

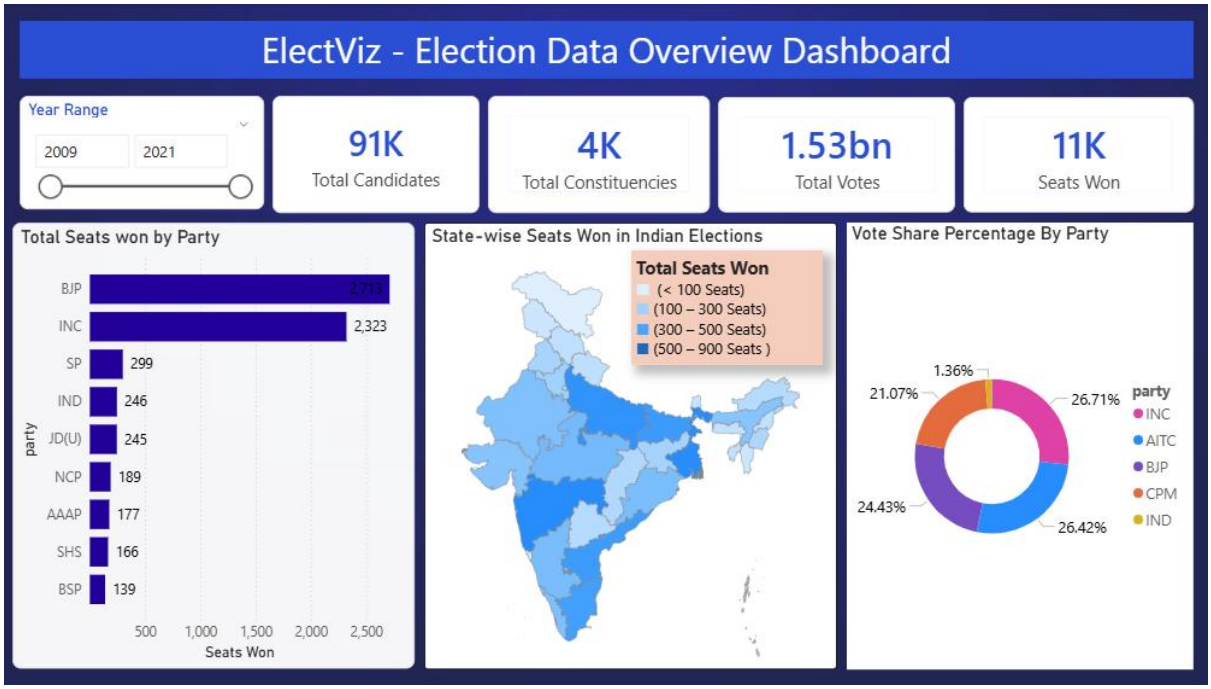
Name	Description	Date Achieved
Milestone 1	Data understanding, dataset exploration, data cleaning, and initial data modeling in Power BI.	9/1/2026
Milestone 2	Development of core dashboards including Election Overview, Party Performance, and Gender Distribution analysis.	16/1/2026
Milestone 3	Creation of advanced dashboards covering Candidate Demographics and Electability analysis with custom DAX measures.	23/1/2026
Milestone 4	Implementation of Trend Analysis and Election Outcome & Winning Factor analysis, final insights, and project documentation.	30/1/2026

5.2 Project Execution Details

- Cleaned raw datasets using Power Query
- Created calculated columns for margins, age groups, and contest types
- Designed KPIs and measures using DAX
- Built interactive dashboards with slicers and filters
- Validated results with logical and statistical consistency checks

6. Snapshots / Screenshots

6.1 Election Overview Dashboard



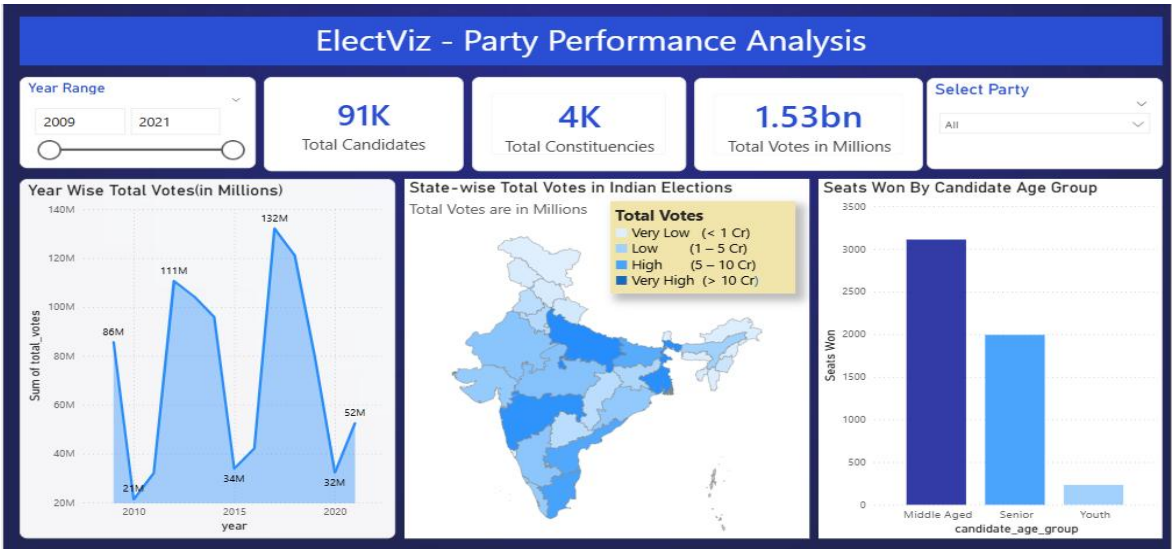
Purpose:
To provide a high-level summary of election participation and overall voting patterns across states and years.

Visuals Used:
KPI cards, shape/filled map, bar charts, slicers (Year, State).

Key Insights:

- Voter turnout varies significantly across states.
- Certain regions consistently show higher electoral participation.
- Overall participation trends change across election years.

6.2 Party Performance Analysis



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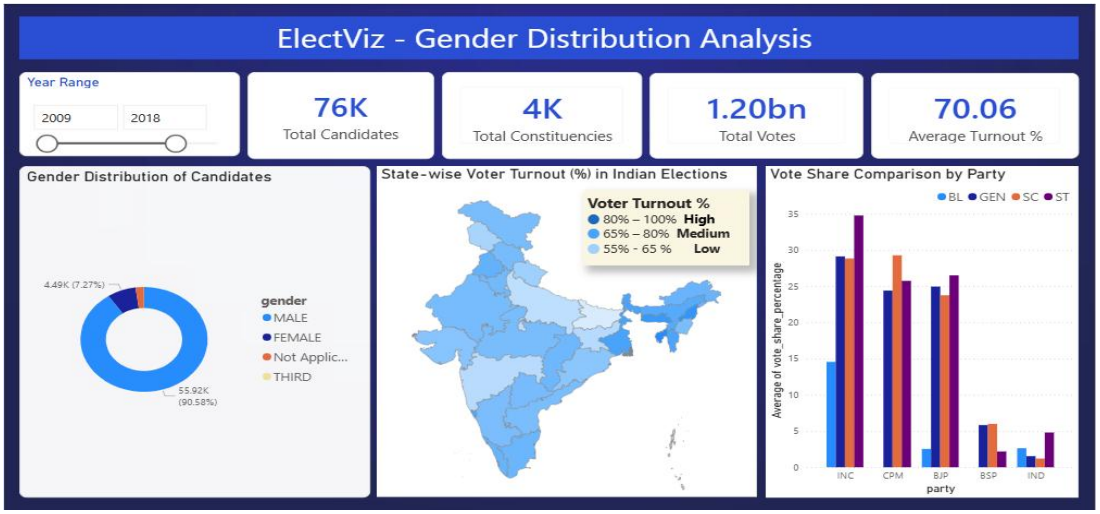
6.3 Gender Distribution Analysis



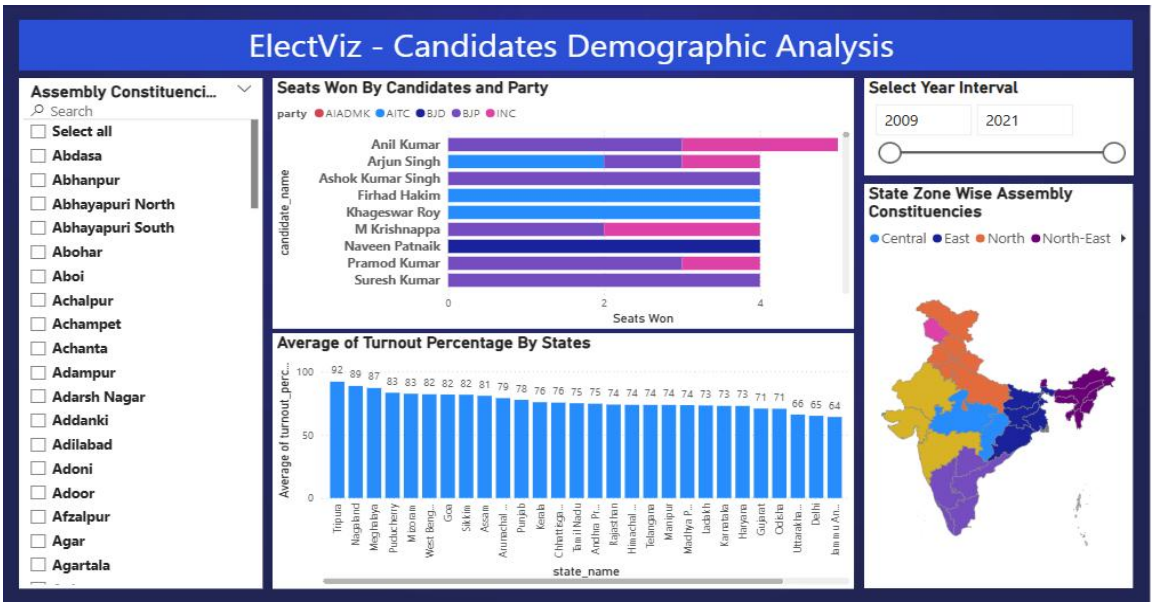
Purpose:
To evaluate party-wise performance in terms of seats won and vote share across elections.

Visuals Used:
Bar charts, stacked bar charts, KPI cards, party slicer.

Key Insights:

- Major parties dominate seat share across multiple years.
- Vote share does not always directly translate into seats won.
- Party performance varies across regions and election cycles.

6.4 Candidates Demographic Analysis



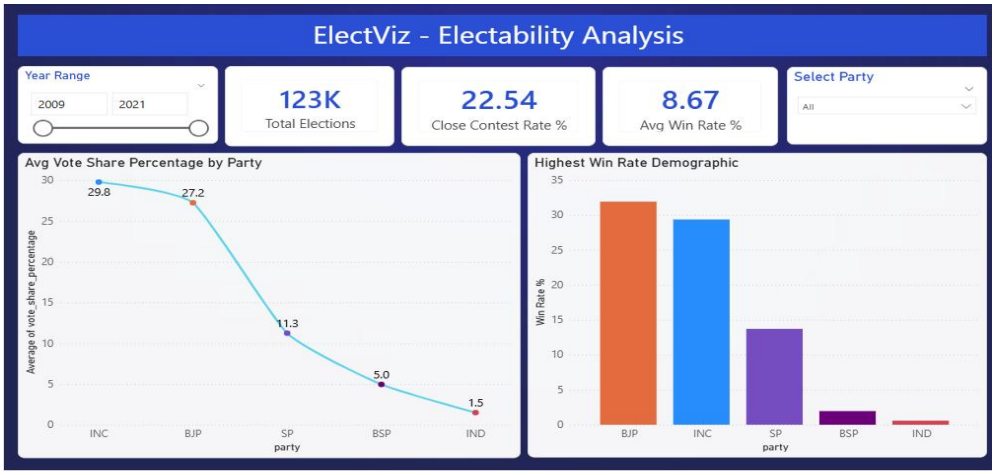
Purpose:
To analyze gender representation among candidates and elected representatives.

Visuals Used:
Bar charts, percentage KPIs, filters by year and state.

Key Insights:

- Male candidates significantly outnumber female candidates.
- Female representation remains limited across most states.
- Gradual improvement is visible in recent election years.

6.5 Electability Analysis



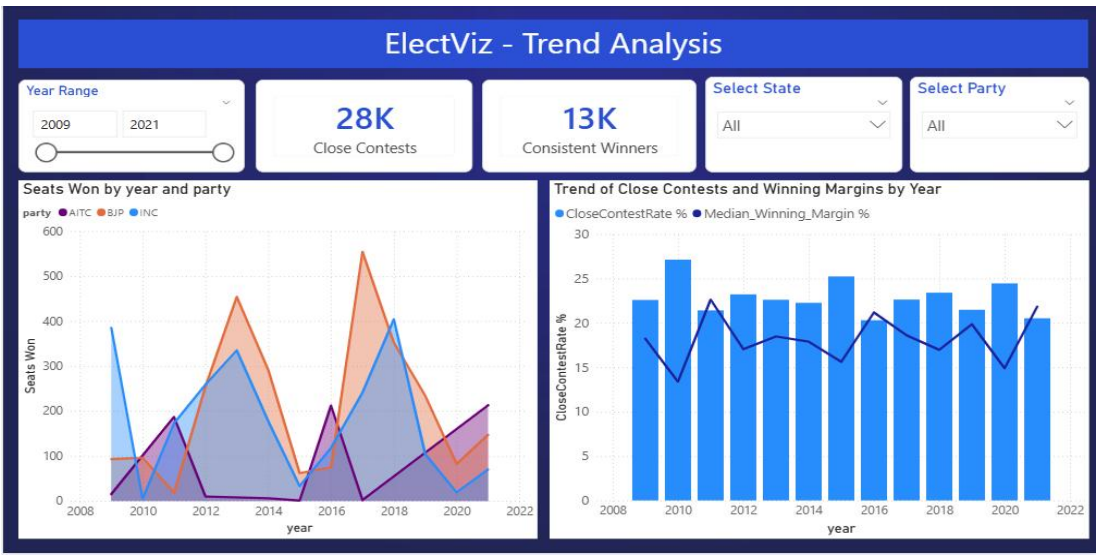
Purpose:
To assess factors influencing a candidate's probability of winning elections.

Visuals Used:
Scatter plots, KPI cards, bar charts, party and state slicers.

Key Insights:

- Higher winning margins often indicate strong candidate dominance.
- Parties may win more seats with lower average margins.
- Close contests reduce overall winning certainty.

6.6 Trend Analysis



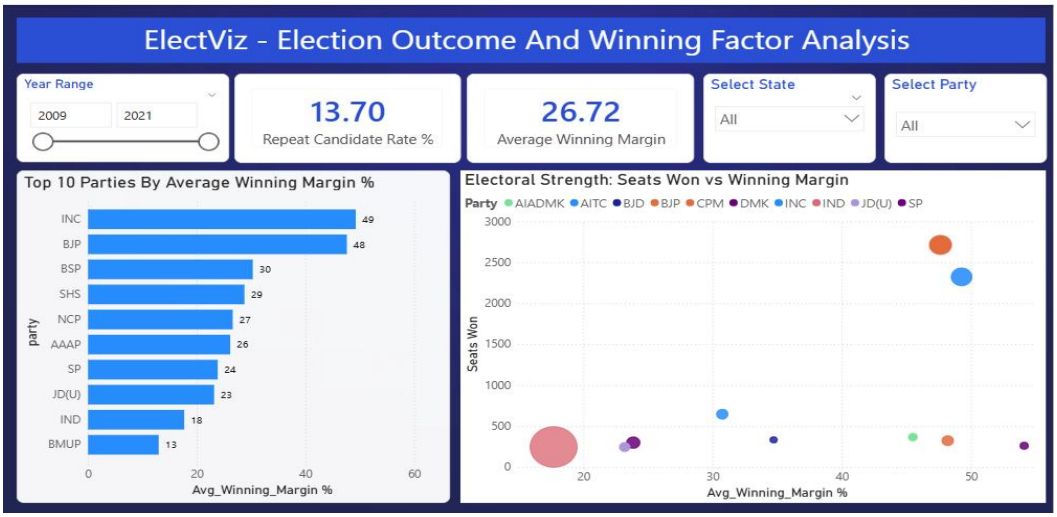
Purpose:
To identify long-term trends in voter turnout, winning margins, and close contests over time.

Visuals Used:
Line charts, combined bar-line charts, median-based KPIs.

Key Insights:

- Increase in close contests corresponds to declining winning margins.
- Electoral competition has intensified over the years.
- Margins are becoming narrower in recent elections.

6.7 Election Outcome and Winning Factor Analysis



Purpose:
To analyze election outcomes and identify key factors contributing to consistent wins.

Visuals Used:
Scatter plots, bar charts, reference lines, candidate-level analysis.

Key Insights:

- Some candidates show consistent winning patterns across elections.
- Parties may win fewer seats but with stronger margins.
- Winning outcomes depend on both party strength and candidate performance.

7. Challenges Faced

- Handling large and inconsistent election datasets
- Cleaning missing and duplicate records
- Creating accurate DAX measures for margins and rates
- Ensuring dashboard performance with multiple visuals
- Interpreting complex electoral relationships correctly

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8. Learnings & Skills Acquired

8.1 Technical Skills

- Power BI dashboard development
- Advanced DAX calculations
- Data modeling and optimization

8.2 Analytical and Problem-Solving Skills

- Electoral data interpretation
- Pattern recognition and trend analysis
- KPI-driven insight generation

8.3 Soft Skills and Team Collaboration

- Time management and planning
- Documentation and presentation skills
- Analytical storytelling

8.4 Domain Knowledge and Application

- Indian electoral system understanding
- Political data analytics
- Real-world application of business intelligence

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9. Testimonials from Team Members

Swayam Bana

"Contributed to the overall project design and development, focusing on data modeling, DAX measure creation, and dashboard development. Played a key role in building analytical dashboards, extracting insights, and coordinating documentation and final presentation."

Nandhini B

"Actively contributed to data cleaning, preprocessing, and validation to ensure data accuracy. Assisted in exploratory analysis and supported the creation of initial visualizations and insights."

Sharmika Shri R

"Worked on dashboard layout planning and visualization design. Contributed to KPI identification, chart selection, and improving dashboard usability and clarity for end users."

Vaibhav Pawar

"Supported analysis related to election trends and outcome patterns. Assisted in validating results, reviewing insights, and contributing to milestone documentation."

Diksha Palliwal

"Contributed to research, dataset understanding, and documentation. Assisted in interpreting insights and aligning the analysis with real-world election scenarios."

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10. Conclusion

The ElectViz project successfully demonstrates how data analytics and visualization can simplify complex election data. The dashboards provide clear insights into electoral behavior, competitiveness, and winning strategies, making the project valuable for media, analysts, and the general public.

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11. Acknowledgements

We sincerely thank **Infosys Springboard**, our mentor, and the internship coordinators for providing continuous guidance, valuable resources, and an excellent learning platform that enabled the successful completion of this project. The structured internship program and supportive environment helped us gain practical exposure and apply theoretical knowledge effectively.

We extend our heartfelt gratitude to the **Infosys Springboard Team** for organizing this valuable internship opportunity and to our mentor, **Nityashree Ma’am**, for her constant encouragement, constructive feedback, and technical guidance throughout the project. Her insights played a crucial role in shaping the project outcomes and improving our understanding of real-world data analytics practices.

We also express our sincere appreciation to our **teammates** for their collaboration, shared ideas, and mutual support during the project. This internship has been a significant milestone in our professional growth, strengthening both our technical skills and teamwork abilities, and has contributed positively to our overall learning journey.
