Indian General Elections 2024 - Power BI Data Analysis Report

PROJECT OVERVIEW

This repository contains a complete, production-oriented Power BI analytics project for the **Indian General Elections 2024**. The deliverables and structure replicate the organization used in the referenced HR Power BI example so that a reviewer or instructor finds the same polished layout, reproducible pipeline, and documentation style.

Primary goals:

- Provide an interactive Power BI report with state- and constituency-level analysis.

- Compute key election KPIs: seats by alliance, vote share, margins, swing analysis (2019 → 2024).

- Offer reproducible data cleaning and modeling notebooks and a ready-to-open .pbix skeleton.

OBJECTIVE

- Provide an interactive, drillable Power BI solution to analyze constituency-level and alliance-level results for the 2024 Lok Sabha elections.

- Capture KPIs such as seat counts by alliance (NDA, I.N.D.I.A., Others), vote shares, winning margins, swing constituencies, and demographic/state-level breakdowns.

- Enable constituency profiling using clustering algorithms and enable exportable data-grid for downstream use.

TECH STACK

- Data storage: CSV / SQLite / PostgreSQL

- Data prep & analytics: Python (pandas, NumPy, scikit-learn), Power Query (M)

- Visualization: Power BI Desktop (PBIX)

- Mapping: geoJSON constituency boundaries + Power BI shape map or ArcGIS visual

- Dev environment: Jupyter Notebook for reproducible scripts

DATASETS (RECOMMENDED SOURCES)

- Constituency-level results (2024): winner, party, alliance, total votes, EVM votes, postal votes, margin, turnout, candidates list, state, district, constituency id

- Demographics: State-level population, voter gender split by constituency

- GeoJSON: constituency boundaries for map visuals

- https://drive.google.com/drive/folders/16j_esR-c-_Q5tsJKOXaNAEhHrdlTAL6o

DATA PREPARATION & ETL

1. **Raw ingestion**: Combine authoritative sources (ECI/Kaggle/IndiaVotes) into a canonical results_YYYY.csv with consistent column names.

2. **Normalization**:

   - Standardize party names and map each to an Alliance column (NDA, I.N.D.I.A., Other/Independent).

   - Ensure numeric columns are numeric and handle missing postal/EVM splits.

   - Create Total_Votes = Votes_EVM + Votes_Postal if not already present.

3. **Derived columns**:

   - Vote_Share = Total_Votes / State_Total_Votes or national level as needed.

   - Margin = WinnerVotes - RunnerUpVotes (ensure Winner flag exists).

   - Margin_pct = Margin / Total_Votes.

   - Incumbent flag using historical winners.

4. **Load into Power BI**: Use Power Query to apply the above transformations and set proper data types.

DATA MODEL (RECOMMENDED)

- Fact table: ElectionResults (one row per candidate per constituency per year)

- Dimension tables:

  o Constituency (id, name, state, district, GIS centroid)

  o Party (party, alliance, logo path)

  o Year (year)

- Set relationships: Many-to-one from ElectionResults to each dimension.

KEY DAX MEASURES (KPIS)

- Total Seats = CALCULATE(DISTINCTCOUNT(ElectionResults[Constituency_ID]), ElectionResults[Rank] = 1)

- Seats by Alliance = CALCULATE([Total Seats], Party[Alliance] = "NDA") (use ALL/VALUES as needed)

- Total Votes = SUM(ElectionResults[Total_Votes])

- Vote Share (%) = DIVIDE(SUM(ElectionResults [Total_Votes]), CALCULATE(SUM(ElectionResults [Total_Votes]), ALL (ElectionResults [Party])))

- Winning Margin = CALCULATE(SUM(ElectionResults [Margin]), FILTER (ElectionResults, ElectionResults [Rank] = 1))

- Swing = [Vote Share 2024] - [Vote Share 2019] (requires relationships or lookup by Year)

- Incumbent Win Flag = IF([Incumbent] = 1 && ElectionResults [Rank] = 1, 1, 0)

DASHBOARD PAGES (DETAILED)

-DASHBOARD 1: OVERVIEW ANALYSIS--

The India General Election Results – 2024 dashboard aims to provide a comprehensive overview of the election outcomes with a focus on seat distribution among key alliances and independent candidates. The dashboard will help political analysts, researchers, and the general public gain insights into the election performance of major political groups.

➢ **KPI's**

1. **NDA Performance**
   - Total seats won by the NDA alliance.
   - Percentage of total seats secured by NDA.
   - Bookmark: A grid matrix details table showing all seats won by the NDA Alliance.

2. **I.N.D.I.A. Performance**
   - Total seats won by the I.N.D.I.A. alliance.

- Percentage of total seats secured by I.N.D.I.A.

- Bookmark: A grid matrix details table showing all seats won by the I.N.D.I.A. Alliance.

3. **Independent & Other Parties Performance**

- Total seats won by independent candidates and smaller

  parties.

- Percentage of total seats won by this group.

- Bookmark: A grid matrix details table showing all seats won by Independent and Other

  Parties.

➢ NDA Alliance Analysis

- Identify all parties within NDA that won seats.

- Display each party's seat count along with their party logos.

➢ I.N.D.I.A. Alliance Analysis

- Identify all parties within I.N.D.I.A. that won seats.

- Display each party's seat count along with their party logos.

-DASHBOARD 2: STATE DEMOGRAPHIC ANALYSIS-

The India General Election Results – 2024 dashboard provides an in-depth state-wise and constituency-wise analysis of the election outcomes. It offers a geographical breakdown of seat distributions, winning parties, and candidates, helping analysts, policymakers, and citizens understand the political landscape at different levels.

1. Total Seats, Alliance with Majority Seats, NDA Seats and I.N.D.I.A. Seats by State

- Displays Total Seats, Alliance with Majority Seats, NDA Seats, and I.N.D.I.A. Seats at the

  state level.

- Visual Representation:

  - Map Chart by State

  - Tooltip includes Total Seats, Majority Alliance, NDA Seats, and I.N.D.I.A.

    Seats per state.

■ Drill-through to a grid details table showing all underlying data per state.

2. Winning Candidate & Party by Constituency

- Displays Winning Candidate, Winning Party, Total Votes, and Total Margin per constituency.
- Visual Representation:
  - Bubble Map Chart o   Each Bubbles represent a constituency. o   Color-coded bubbles to distinguish NDA, I.N.D.I.A., and OTHER seats.
  - Drill-through to a grid details table showing all underlying constituency data.

3. State with the Maximum Seats won by either the NDA Alliance or the I.N.D.I.A. Alliance

- Identifies the state where either NDA or I.N.D.I.A. won the most seats.
- Visual Representation:
  - State-wise Map Chart
  - Color-coded states based on the majority alliance in each state.
  - Drill-through to a grid details table showing all underlying seat data for that state.

-DASHBOARD 3: POLITICAL LANDSCAPE BY STATE-

The State Analysis dashboard provides a state-wise breakdown of the India General Election 2024 results. It enables users to analyze the performance of different political alliances and parties within a selected state, helping with comparative analysis, decision-making, and trend identification.

➢ **KPI's**

1. **Dynamic Selection:** Users can select a specific state from a filter.
   - Key Metrics Display:
     - Seats won by I.N.D.I.A. Alliance
     - Seats won by NDA Alliance
     - Seats won by Independent & Other Parties

➢ **Charts & Visualizations**

1. **State Map Chart:**

   - Displays the selected state with its constituency boundaries.

   - Highlights the distribution of seats across constituencies.

2. **Party-wise Result (Grid View):**

   - Displays all parties that won seats in the selected state.

   - Includes the alliance affiliation of each party (NDA, I.N.D.I.A., or Independent).

3. **Party-wise Seat Share (Donut Chart):**

   - Represents the percentage share of total seats won by each party in the selected state.

   - Provides a visual comparison of party dominance within the state.

-DASHBOARD 4: CONSTITUENCY ANALYSIS-

The Constituency Analysis dashboard provides an in-depth analysis of election results for a selected constituency, allowing users to examine voter turnout, candidate performance, and seat outcomes. This dashboard helps political analysts, researchers, and citizens gain insights into the competitive landscape at the constituency level.

➢ KPI's

1. Primary (Overall Election Metrics for the Selected Constituency)
   - Total Votes cast in the constituency.
   - Total EVM Votes recorded.
   - Total Postal Votes counted.
   - Total Candidates participating in the elections for that constituency.

2. Secondary (Candidate Performance Overview)
   - **Winning Candidate:**
     - State
     - Winning Candidate Name

- Party Name
- Total Votes Secured
- Vote Share (%)
- **Runner-up Candidate:**
  - State
  - Candidate Name
  - Party Name
  - Total Votes Secured
  - Vote Share (%)
- **2nd Runner-up Candidate**
  - State
  - Candidate Name
  - Party Name
  - Total Votes Secured
  - Vote Share (%)

-DASHBOARD 5: DETAILS GRID-

The Details Grid dashboard provides a comprehensive tabular view of the election results at the constituency level. It serves as a data exploration tool, allowing users to drill through from other dashboards and export election data for further analysis.

➢ Grid View Fields

The grid will display the following fields:

- Constituency Name
- Winning Candidate
- Runner-Up Candidate
- Party Name (Winning Party)
- Party Alliance (NDA, I.N.D.I.A., or Independent)
- EVM Votes (Electronic Voting Machine Votes)
- Postal Votes (Postal Ballots Counted)
- Total Votes (Sum of EVM + Postal Votes)
- Margin (Vote difference between Winner & Runner-Up)

➢ **Functionalities**

1. **Drill-Through Capability**

   • Users can drill through from other dashboards (State Analysis, Constituency Analysis, etc.) to view the detailed underlying data for a specific state or constituency.

2. **Data Export Option**

   • The grid should allow users to export the data as an Excel file for further external analysis.

3. **Show All Data Button (Using Bookmark)**

   • A **button will be provided** to refresh the grid and display **all relevant data** after filters are applied and drill-through actions are performed.

-DASHBOARD 6: LANDING PAGE-

The Landing Page serves as the central navigation hub for the India General Election Results 2024 dashboard. It allows users to seamlessly navigate between different analytical dashboards and ensures a user-friendly experience with easy access to all key insights.

1. Dashboard Navigation Menu

The landing page will provide clickable buttons/cards to navigate to the following dashboards:

• Overview Analysis

• State Demographics

• Political Landscape by State

• Constituency Analysis

Each button will be designed to provide quick access to the respective dashboard with a clear label and relevant icon.

2. Home Button on Each Dashboard

• Each dashboard will include a Home Button that allows users to quickly return to the Landing Page with a single click.

3. Interactive UI Elements

• Minimalist & Clean Design for easy readability.

- Icons & Color Coding for better visualization and quick recognition.

- Hover Effects to highlight active selections.

4. Responsive Layout

- The landing page will be optimized for different screen sizes, ensuring a smooth experience on desktops, tablets, and large screens.

<u>SUMMARY</u>

This project exemplifies advanced data modeling, analytical, and visualization capabilities in Power BI, providing stakeholders with actionable insights and a dynamic, professional reporting experience for India's general election results.