A
Project Report
On
"Indian General Election 2024 Result Analysis"

Prepared by

22CE050 (Nirmal Kaneriya)

Under the Supervision of

Prof. Martin Parmar

Submitted to

Charotar University of Science & Technology (CHARUSAT)
for the Partial Fulfilment of the Requirements for the
Degree of Bachelor of Technology (B.Tech.)
in U & P U. Patel Department of Computer Engineering (CE)
for B.Tech Semester 7

Submitted at

U&PU. PATEL DEPARTMENT OF COMPUTER ENGINEERING

Chandubhai S. Patel Institute of Technology (CSPIT)

Faculty of Technology & Engineering (FTE), CHARUSAT

At: Changa, Dist.: Anand – 388421

October 2025

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(CE452 – Minor Project)

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Accredited with Grade A+ by NAAC

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At: Changa, Dist.: Anand, Pin: 388421.
October 2025

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CERTIFICATE

This is to certify that the report entitled "**Indian Election 2024 Analysis**" is a Bonafide work carried out by **Nirmal Kaneriya (22CE050)** under the guidance and supervision of **Prof. Martin Parmar** for the subject Minor **Project (CE452)** of 7th Semester of Bachelor of Technology in **Computer Engineering** at Faculty of Technology & Engineering (CSPIT), Faculty Of Technology & Engineering (FTE) – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate himself, has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner(s).

Under the supervision of,

Prof. Martin Parmar
U. & P. U Patel Dept. of Computer Engg.
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Dr. Nikita Bhatt
Head - U & P U. Patel Department of Computer Engineering,
CSPIT, FTE, CHARUSAT, Changa, Gujarat.

Chandubhai S Patel Institute of Technology (C.S.P.I.T.)

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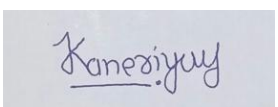
At: Changa, Ta. Petlad, Dist. Anand, Pin: 388 421. Gujarat.

DECLARATION BY THE CANDIDATES

I hereby declare that the project report entitled "**Indian Election 2024 Analysis**" submitted by me to Chandabai S. Patel Institute of Technology, Changa in partial fulfilment of the requirements for the award of the degree of **B.Tech Computer Engineering**, from U & P U. Patel Department of Computer Engineering, CSPIT, FTE, is a record of Bonafide CE452 Minor Project carried out by me under the guidance of **Prof. Martin Parmar.** I further declare that the work carried out and documented in this project report has not been submitted anywhere else either in part or in full and it is the original work, for the award of any other degree or diploma in this institute or any other institute or university.



(Nirmal Kaneriya – 22CE050)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Dr. Nikita Bhatt
Head
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Abstract

The Indian General Election 2024 Result Analysis project delivers a comprehensive, data-driven perspective on India's democratic process. Using technologies such as Power BI, Python, and SQL, the project transforms raw election data into meaningful insights covering national, state, and constituency-level outcomes.

The system collects official data from the Election Commission of India and trusted media sources, cleans and structures it through SQL pipelines, and visualizes performance metrics like total seats won, vote share percentage, turnout, party-wise trends, etc.

Interactive Power BI dashboards allow users to explore the results dynamically through slicers, filters, and drill-downs.

This analytical approach uncovers regional voting behaviour, highlights emerging parties, and reveals the correlation between demographics and political trends. The project demonstrates how modern analytics promotes transparency, accountability, and informed decision-making in large-scale democratic systems.

Acknowledgement

The successful completion of this project, Indian General Election 2024 Result Analysis, represents not just Analytical achievement but the culmination of guidance, support, and encouragement from numerous individuals who deserve our heartfelt gratitude.

First and foremost, I Nirmal Kaneriya (22CE050) wish to express my profound appreciation to My internal guide, Prof. Martin Parmar, whose expertise and patient guidance were instrumental in shaping both the Analytical and theoretical foundations of this project. His insightful feedback and continuous encouragement helped me overcome numerous challenges throughout the development process.

I am also indebted to the open-source community and technology providers whose tools formed the backbone of this solution. In particular, I acknowledge Microsoft for SQL Server and SQL Server Management Studio, the Power BI team for an exceptionally flexible BI platform.

A heartfelt thank-you goes to My family for their constant support and motivation. Their patience and belief in my ability provided the stability I need to focus on this project through long hours of development and testing.

Also, I would like to thank My friends and classmates who offered both moral support and technical insights—from brainstorming data-model schemas to reviewing Project. Their camaraderie and constructive critiques enriched this endeavour immeasurably. Any oversights or shortcomings in this work are entirely My own. This project stands as a testament to collaborative learning, community-driven innovation, and the power of mentorship in shaping academic and professional growth.

I also thank the **U. & P. U. Patel Department of Computer Engineering, CHARUSAT**, for providing the resources and academic environment to complete this work.

Table of Contents

Chapter 1 Introduction

1.1 Project Summary

The Indian General Election 2024 was one of the world's largest democratic events, spanning over 900 million eligible voters. The project analyses data from this election to present factual insights on party performance, voter turnout, and state-wise outcomes.
Using **Power BI** for visualization, **SQL Server** for storage, and **Python (Pandas + Matplotlib)** for data processing, the project builds a unified platform to explore the election dynamically.

1.2 Purpose

To create an **interactive analytical system** that provides transparent, unbiased insight into India's 2024 election results — empowering researchers, journalists, and citizens to understand voting patterns and regional variations easily.

1.3 Scope

The system covers:

- National-level vote and seat analysis
- State and constituency-level breakdowns
- Visualization of turnout and gender participation
- Comparative metrics between alliances (NDA, I.N.D.I.A bloc, Others)

1.4 Objectives

- Build an end-to-end data pipeline from CSV sources to Power BI dashboards.
- Identify high-performing states and regions for each party.
- Correlate voter turnout with seat conversion ratios.
- Demonstrate the impact of data analytics on electoral transparency.

1.5 Technology and Literature Review

- **Microsoft SQL Server 2019** – for structured storage and cleaning of large datasets.
- **Python (Pandas, Matplotlib)** – for preprocessing, outlier removal, and chart generation.
- **Power BI** – for interactive dashboards and DAX-based calculations.
- Studies from Election Commission reports and open data archives were reviewed to design KPIs such as **vote share**, **turnout ratio**, and **percentage**.

Chapter 2 Project Management

2.1 Project Planning

A waterfall + iterative testing approach was used:
1. Data Collection → 2. Cleaning → 3. Visualization → 4. Validation → 5. Documentation.

2.1.1 Effort, Time & Cost Estimation

Task	Effort (hrs)	Duration
Requirements Gathering & Data Source Identification	36	Week 1
Data Cleaning & Schema Design in SQL Server	64	Weeks 2–3
Power BI Data Modeling & Dashboard Layout	72	Weeks 4–5
Data Analysis & Insight Generation in Python	52	Weeks 6–7
Testing, Verification & Report Validation	40	Week 8
Dashboard Deployment & Integration	28	Week 9
Documentation, Report Writing & Final Presentation	24	Week 10
Total	**316**	**10 Weeks**

2.1.2 Roles & Responsibilities

- **Developer / Analyst**: Nirmal Kaneriya – responsible for ETL, Power BI dashboards, Python scripting
- **Guide**: Prof. Martin Parmar – mentor for technical validation and analytical correctness.
- **Quality Assurance:** Self-conducted unit tests, data-quality checks, and user-acceptance scenarios.

2.1.3 Dependencies & Risk Mitigation

- Used verified official data to avoid misinformation.
- Maintained backup versions for all datasets and dashboards.

2.2 Project Schedule (Gantt Overview)

Phase	Weeks	Deliverables
Requirements & Data Sourcing	**Week 1**	Finalized **Data Schema** (ERD), **Data Sources** acquired (CSV files), initial **Data Quality Check** and cleaning in Power Query.
SQL & Data Preparation	**Week 2**	**SQL Server/Database Setup**, all necessary SQL scripts written (for derived views/datasets), **Party Alliance** column creation (NDA/INDIA/Other).
BI Data Modeling & DAX	**Week 3**	**Power BI Data Model** established (Star Schema/Hybrid), all **Core DAX Measures** created (Total Seats, NDA/INDIA Seats, Winning Alliance, Runner-up Candidates).
Dashboard Development (I)	**Week 4**	**Overview Analysis** dashboard complete, **State Demographic Analysis** dashboard complete, **Details Grid** created for Drill-Through.
Dashboard Development (II)	**Week 5**	**Political Landscape by State** dashboard complete, **Constituency Analysis** dashboard complete, **Landing Page** navigation implemented.
Interactivity & Refinement	**Week 6**	**Drill-Through** and **Bookmark Actions** finalized across all dashboards, final visual adjustments and formatting applied.
Testing & Validation	**Week 7**	Validation of key metrics against official sources, **User Acceptance Testing (UAT)** and feedback incorporation.
Deployment & Training	**Week 8**	**Deployed Solution** to Power BI Service, conducted stakeholder and user training/walkthrough.
Documentation & Closure	**Week 9**	**Final Project Report**, DAX/SQL code documentation, and **User Guide** for navigation.

Chapter 3 System Requirements Study

3.1 Data Sources & User Characteristics

Data Sources :

The project uses publicly available, constituency-level data from the Election Commission of India (ECI) reports, formatted into multiple interconnected tables.

Data Source	Format	Key Information	Purpose in Project
Constituency Wise Details	CSV	Detailed candidate-level votes: EVM Votes, Postal Votes, and Candidate Name for each constituency.	Feature engineering for Runner-up/Second Runner-up logic and vote analysis.
Constituency Wise Results	CSV	Winning Candidate, Total Votes, Margin of Victory, and unique Constituency ID for all 543 seats.	Primary Fact Table for core metrics and joining all dimension tables
Party Wise Results	CSV	Party Name, Seats Won, and unique Party ID.	Used to calculate overall Alliance totals and to enrich constituency data with Party Alliance (NDA/INDIA).
Statewise Results	CSV	Leading Candidate, Trailing Candidate, and State ID for all constituencies.	Bridge table to connect Constituency-level data to the State table for geographical analysis.
States	CSV	Unique State ID and State Name.	Dimension table for geographical slicing and state-wise analysis on maps.
DAX Measures	Power BI	Calculated metrics like Winning Alliance, Runner-up Candidate, and Seat Share %.	Used to integrate complex business logic and provide dynamic metrics in dashboards.

User Characteristics :

User Role	Responsibilities	Key Skills Required
Data Engineer	Responsible for ETL operations in SQL Server, performing initial data cleaning, ensuring data model integrity, and creating/managing the production tables and views used for initial import into Power BI.	SQL Server, MSSQL/MySQL, Data Cleansing, Data Modelling (ERD).
BI Developer / Analyst	Primary owner of the project. Builds the five Power BI dashboards, develops all DAX measures, and implements advanced features like Drill-Through and Bookmarks for interactive analysis.	Power BI Desktop, Power Query, Advanced DAX, UI/UX Design.
Political Analyst / Stakeholder	Consumes Power BI dashboards to draw political insights. Focuses on state-wise performance, alliance dominance, and vote margin analysis to identify key trends and surprises from the election results.	Domain Knowledge (Indian Politics), Data Interpretation, Decision-Making.

3.2 Hardware and Software Requirements

Hardware Requirements :

Environment	Component	Recommended Specification
Development Machine	CPU	Quad-core 3.0 GHz or higher (i5/Ryzen 5 equivalent)
	RAM	16 GB (Minimum 8 GB)
	Storage	256 GB SSD (for fast application and report loading)
Deployment Server (Power BI Gateway)	CPU	4-8 cores
	RAM	8-16 GB
	Storage	Sufficient SSD space for database hosting

Software Requirements :

Category	Tool / Component	Version
Database & ETL	Microsoft SQL Server / MySQL	Latest Community/Developer Edition (as demonstrated in video)
	SQL Server Management Studio (SSMS)	Latest version
BI & Reporting	Power BI Desktop	Latest version (Crucial for New Card Visual, modern features)
	Power BI Service	Pro or Premium license
Documentation	Word / Markdown	For project documentation and analysis narrative

3.3 Assumptions & Dependencies

Assumptions

- Data Consistency: The initial CSV data files are assumed to be a clean snapshot from the Election Commission of India (ECI) with minimal data errors, requiring only basic Power Query transformation (e.g., column splitting for party abbreviations).
- Alliance Mapping: The list of parties belonging to the NDA and INDIA alliances is static for the duration of the analysis, allowing for the stable creation of the Party Alliance calculated column.
- Geographical Data: The State and Constituency names are accurately mapped and recognized by Power BI's built-in geographical services for map visualizations.

Dependencies

- Data Availability: The five core CSV data files must be available and locally accessible to the Power BI developer.
- Database Connection: A stable connection to the SQL Server/MySQL database is required during the initial data model setup in Power BI.
- Power BI Updates: The developer must ensure their Power BI Desktop version is up-to-date to ensure compatibility with advanced features like the New Card Visual and Bookmark actions demonstrated in the project.

Chapter 4 System Analysis

4.1 Current Process & Challenges

In the existing environment for analyzing election data, relying on static or manually consolidated reports presents the following challenges:

- **Fragmented Data Sources:** Detailed candidate-level votes (EVM/Postal), constituency-wise results, and party affiliation information often reside in disparate flat files (CSVs) sourced from the Election Commission of India (ECI), complicating integrated analysis.
- **Manual Reporting:** Core electoral metrics, such as vote share per alliance or state-wise majority winners, are often calculated ad hoc in spreadsheets, leading to delays and potential calculation errors.
- **Lack of Deep Drill-Down Capability:** Static reports hinder the essential **exploration of results** by specific factors like the vote breakdown by EVM vs. Postal votes, or runner-up performance across all constituencies.
- **Siloed Alliances and Metrics:** It is time-consuming to dynamically classify all parties into their respective alliances (NDA, INDIA, Other) and instantly calculate metrics like the total seats won by the INDIA alliance in Maharashtra.
- **Visual Limitations:** Basic reporting tools fail to provide **intuitive geographical context** (maps) or interactive controls (Drill-Through, Bookmarks) needed for rapid analysis by political stakeholders.

4.2 Requirements for the Election Analysis System

To address these gaps, the new system must fulfill the following technical and analytical requirements.

4.2.1 Functional Requirements

- Automated Data Ingestion: Ingest all CSV source files (Constituency Details, Results, Party Data, States) into a relational database (SQL Server/MySQL) for central storage and integrity checking.
- SQL Views for BI Consumption: Prepare and consolidate key tables using SQL to establish the core Fact and Dimension tables for the final data model.
- Interactive Dashboards: Develop multi-page Power BI reports (Overview, Demographics, Constituency Analysis) featuring filters, slicers, and advanced Drill-Through and Bookmark actions for dynamic data exploration.
- Geographical Analysis: Implement accurate Map Visuals to display results at both the State Level (majority alliance) and Constituency Level (bubble maps).
- Data Export & Drill-Down: The dedicated Details Grid page must support one-click data export and serve as the target for Drill-Throughs from state and party visuals.
- Power BI Data Modelling & DAX: Establish a robust Star Schema data model and define advanced DAX measures for complex analysis, including:
  - Winning Alliance (State-wise majority).
  - Runner-up Candidate Name.
  - EVM vs. Postal Vote %.
  - Dynamic calculation of total seats for NDA, INDIA, and Others.

4.2.2 Non-Functional Requirements

- Performance**:** Power BI visuals should render quickly (under **5 seconds**) for complex filters, leveraging the optimized data model for performance.

- Security**:** Implement standard security and access controls in the Power BI Service to ensure only authorized political analysts and stakeholders can view the detailed results.

- Reliability**:** The report must consistently maintain an active connection to the database/source files to ensure data accuracy upon refresh.

- Maintainability**:** The solution must rely on **modular DAX** and **clearly defined table relationships** to facilitate easy updates should new ECI data files be released.

4.3 Feasibility Study

4.3.1 Alignment with Business Objectives

Business Objective	Alignment
Strategic Insight	Enables political parties to proactively analyse winning margins, voter behaviour (EVM vs. Postal), and the efficacy of alliances in specific constituencies.
Operational Efficiency	Automates the entire reporting process from raw ECI data to final dashboards, reducing reliance on manual spreadsheet analysis.

4.3.2 Technical & Budget Constraints

- Technical Feasibility: The project is highly feasible, relying on readily available election data and leveraging the standard, robust tool stack of SQL and Power BI.

- Budget Impact: Minimal incremental costs are expected, as the project uses widely available developer editions of SQL and standard Power BI Pro licenses.

4.3.3 Integration with Existing Systems

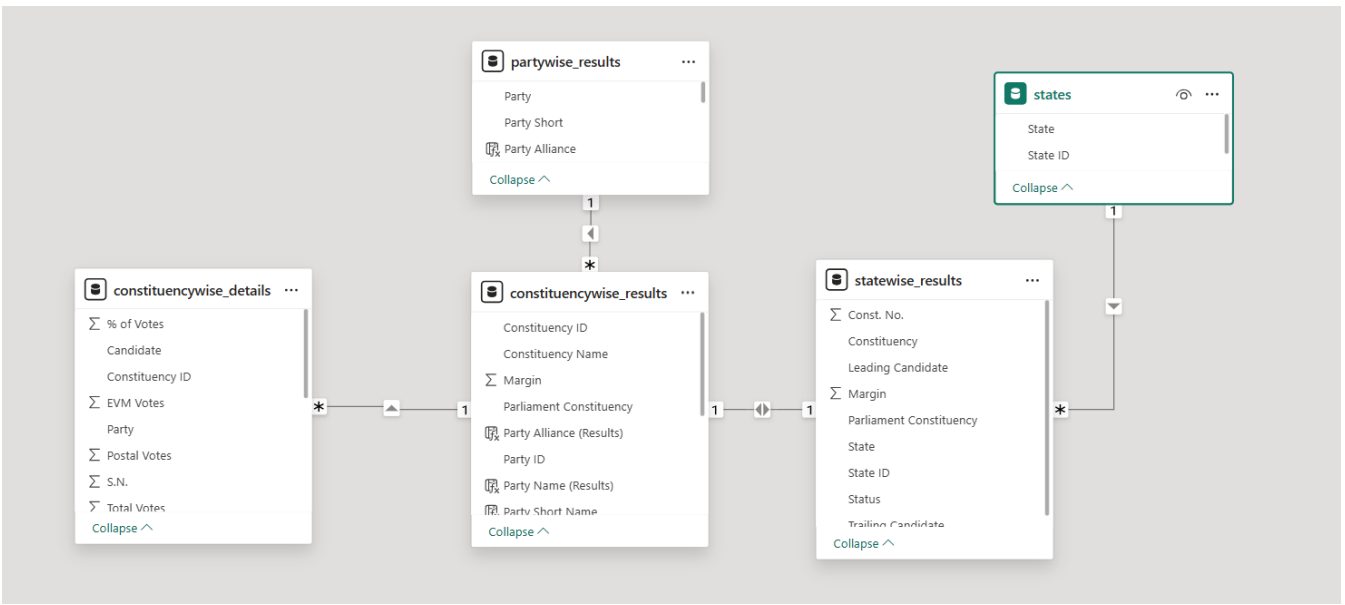
- Standard Tool Stack: The solution uses industry-standard Microsoft tools (SQL Server, Power BI), ensuring seamless integration into any existing enterprise data environment.

4.4 Data Modelling

4.4.1 Data Dictionary :

Column name	Data Type
Constituency_Name	Varchar(50)
Winning_Candidate	Varchar(50)
Party_ID	INT
Runner_up_candidate	Varchar(50)
Party_Allience	Varchar(50)
EVM_votes	INT
Postal_votes	INT
State	Varchar(50)
Total_votes	INT
Margin	INT
Candidate	VARCHAR(100)
Party	VARCHAR(50)
% of votes	INT
Constituency_ID	VARCHAR(50)
Parliament Constituency	VARCHAR(50)
Won	INT
State_ID	VARCHAR(50)
Constituency Number	INT
Status	VARCHAR(50)

4.4.2 Model View :



Chapter 5 ETL & Database Design

5.1 Data Quality Checks & Cleaning :

1. Total Seats

```
SELECT
   DISTINCT COUNT(Parliament_Constituency) AS Total_Seats
FROM
   constituencywise_results;
```

	Total_Seats
1	543

2. Total Number of Seats Available for Elections in Each State

```
SELECT
   s.State AS State_Name,
   COUNT(cr.Constituency_ID) AS Total_Seats_Available
FROM
   constituencywise_results cr
JOIN
   statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
JOIN
   states s ON sr.State_ID = s.State_ID
GROUP BY
   s.State
ORDER BY
   s.State;
```

	State_Name	Total_Seats_Available
1	Andaman & Nicobar Islands	1
2	Andhra Pradesh	25
3	Arunachal Pradesh	2
4	Assam	14
5	Bihar	40
6	Chandigarh	1
7	Chhattisgarh	11
8	Dadra & Nagar Haveli and Daman & Diu	2
9	Delhi	7
10	Goa	2
11	Gujarat	26
12	Haryana	10
13	Himachal Pradesh	4
14	Jammu and Kashmir	5
15	Jharkhand	14
16	Karnataka	28
17	Kerala	20
18	Ladakh	1
19	Lakshadweep	1
20	Madhya Pradesh	29
21	Maharashtra	48
22	Manipur	2
23	Meghalaya	2
24	Mizoram	1
25	Nagaland	1
26	Odisha	21
27	Puducherry	1
28	Punjab	13
29	Rajasthan	25
30	Sikkim	1
31	Tamil Nadu	39
32	Telangana	17
33	Tripura	2
34	Uttar Pradesh	80
35	Uttarakhand	5
36	West Bengal	42

3. Total Seats Won by NDA Alliance

```
SELECT
   SUM(
      CASE
         WHEN party IN (
            'Bharatiya Janata Party - BJP',
            'Telugu Desam - TDP',
            'Janata Dal (United) - JD(U)',
            'Shiv Sena - SHS',
            'AJSU Party - AJSUP',
            'Apna Dal (Soneylal) - ADAL',
            'Asom Gana Parishad - AGP',
            'Hindustani Awam Morcha (Secular) - HAMS',
            'Janasena Party - JnP',
            'Janata Dal (Secular) - JD(S)',
            'Lok Janshakti Party(Ram Vilas) - LJPRV',
            'Nationalist Congress Party - NCP',
            'Rashtriya Lok Dal - RLD',
            'Sikkim Krantikari Morcha - SKM'
         )
         THEN [Won]
         ELSE 0
      END
   ) AS NDA_Total_Seats_Won
FROM
   partywise_results;
```

Results | Messages

	NDA_Total_Seats_Won
1	292

4. Seats Won by NDA Alliance Parties

```
SELECT
   party AS Party_Name,
   won AS Seats_Won
FROM
   partywise_results
WHERE
   party IN (
      'Bharatiya Janata Party - BJP',
      'Telugu Desam - TDP',
      'Janata Dal (United) - JD(U)',
      'Shiv Sena - SHS',
      'AJSU Party - AJSUP',
      'Apna Dal (Soneylal) - ADAL',
      'Asom Gana Parishad - AGP',
      'Hindustani Awam Morcha (Secular) - HAMS',
      'Janasena Party - JnP',
      'Janata Dal (Secular) - JD(S)',
      'Lok Janshakti Party(Ram Vilas) - LJPRV',
      'Nationalist Congress Party - NCP',
```

```
    PRJCE025
      'Rashtriya Lok Dal - RLD',
      'Sikkim Krantikari Morcha - SKM'
  )
ORDER BY
  Seats_Won DESC;
```

	Party_Name	Seats_Won
1	Bharatiya Janata Party - BJP	240
2	Telugu Desam - TDP	16
3	Janata Dal (United) - JD(U)	12
4	Shiv Sena - SHS	7
5	Lok Janshakti Party(Ram Vilas) - LJPRV	5
6	Janata Dal (Secular) - JD(S)	2
7	Janasena Party - JnP	2
8	Rashtriya Lok Dal - RLD	2
9	Sikkim Krantikari Morcha - SKM	1
10	Nationalist Congress Party - NCP	1
11	Hindustani Awam Morcha (Secular) - ...	1
12	Asom Gana Parishad - AGP	1
13	AJSU Party - AJSUP	1
14	Apna Dal (Soneylal) - ADAL	1

5. Total Seats Won by I.N.D.I.A. Alliance

```
SELECT
  SUM(
    CASE
      WHEN party IN (
        'Indian National Congress - INC',
        'Aam Aadmi Party - AAAP',
        'All India Trinamool Congress - AITC',
        'Bharat Adivasi Party - BHRTADVSIP',
        'Communist Party of India (Marxist) - CPI(M)',
        'Communist Party of India (Marxist-Leninist) (Liberation) - CPI(ML)(L)',
        'Communist Party of India - CPI',
        'Dravida Munnetra Kazhagam - DMK',
        'Indian Union Muslim League - IUML',
        'Jammu & Kashmir National Conference - JKN',
        'Jharkhand Mukti Morcha - JMM',
        'Kerala Congress - KEC',
        'Marumalarchi Dravida Munnetra Kazhagam - MDMK',
        'Nationalist Congress Party Sharadchandra Pawar - NCPSP',
        'Rashtriya Janata Dal - RJD',
        'Rashtriya Loktantrik Party - RLTP',
        'Revolutionary Socialist Party - RSP',
        'Samajwadi Party - SP',
        'Shiv Sena (Uddhav Balasaheb Thackrey) - SHSUBT',
        'Viduthalai Chiruthaigal Katchi - VCK'
      )
      THEN [Won]
      ELSE 0
    END
  ) AS INDIA_Total_Seats_Won
FROM
  partywise_results;
```

6. Seats Won by I.N.D.I.A. Alliance Parties

```
SELECT
   party AS Party_Name,
   won AS Seats_Won
FROM
   partywise_results
WHERE
   party IN (
      'Indian National Congress - INC',
      'Aam Aadmi Party - AAAP',
      'All India Trinamool Congress - AITC',
      'Bharat Adivasi Party - BHRTADVSIP',
      'Communist Party of India (Marxist) - CPI(M)',
      'Communist Party of India (Marxist-Leninist) (Liberation) - CPI(ML)(L)',
      'Communist Party of India - CPI',
      'Dravida Munnetra Kazhagam - DMK',
      'Indian Union Muslim League - IUML',
      'Jammu & Kashmir National Conference - JKN',
      'Jharkhand Mukti Morcha - JMM',
      'Kerala Congress - KEC',
      'Marumalarchi Dravida Munnetra Kazhagam - MDMK',
      'Nationalist Congress Party Sharadchandra Pawar - NCPSP',
      'Rashtriya Janata Dal - RJD',
      'Rashtriya Loktantrik Party - RLTP',
      'Revolutionary Socialist Party - RSP',
      'Samajwadi Party - SP',
      'Shiv Sena (Uddhav Balasaheb Thackrey) - SHSUBT',
      'Viduthalai Chiruthaigal Katchi - VCK'
   )
ORDER BY
   Seats_Won DESC;
```

	Party_Name	Seats_Won
1	Indian National Congress - INC	99
2	Samajwadi Party - SP	37
3	All India Trinamool Congress - AITC	29
4	Dravida Munnetra Kazhagam - DMK	22
5	Shiv Sena (Uddhav Balasaheb Thackrey) - SHSUBT	9
6	Nationalist Congress Party Sharadchandra Pawar - ...	8
7	Rashtriya Janata Dal - RJD	4
8	Communist Party of India (Marxist) - CPI(M)	4
9	Aam Aadmi Party - AAAP	3
10	Indian Union Muslim League - IUML	3
11	Jharkhand Mukti Morcha - JMM	3
12	Jammu & Kashmir National Conference - JKN	2
13	Communist Party of India - CPI	2
14	Communist Party of India (Marxist-Leninist) (Liber...	2
15	Viduthalai Chiruthaigal Katchi - VCK	2
16	Rashtriya Loktantrik Party - RLTP	1
17	Revolutionary Socialist Party - RSP	1
18	Bharat Adivasi Party - BHRTADVSIP	1
19	Kerala Congress - KEC	1
20	Marumalarchi Dravida Munnetra Kazhagam - MDMK	1

7. Add New Column for Party Alliance Classification

```
ALTER TABLE partywise_results
ADD party_alliance VARCHAR(50);
```

8. Update Party Alliance – I.N.D.I.A. Bloc

```
UPDATE partywise_results
SET party_alliance = 'I.N.D.I.A'
WHERE party IN (
    'Indian National Congress - INC',
    'Aam Aadmi Party - AAAP',
    'All India Trinamool Congress - AITC',
    'Bharat Adivasi Party - BHRTADVSIP',
    'Communist Party of India (Marxist) - CPI(M)',
    'Communist Party of India (Marxist-Leninist) (Liberation) - CPI(ML)(L)',
    'Communist Party of India - CPI',
    'Dravida Munnetra Kazhagam - DMK',
    'Indian Union Muslim League - IUML',
    'Jammu & Kashmir National Conference - JKN',
    'Jharkhand Mukti Morcha - JMM',
    'Kerala Congress - KEC',
    'Marumalarchi Dravida Munnetra Kazhagam - MDMK',
    'Nationalist Congress Party Sharadchandra Pawar - NCPSP',
    'Rashtriya Janata Dal - RJD',
    'Rashtriya Loktantrik Party - RLTP',
    'Revolutionary Socialist Party - RSP',
    'Samajwadi Party - SP',
    'Shiv Sena (Uddhav Balasaheb Thackrey) - SHSUBT',
    'Viduthalai Chiruthaigal Katchi - VCK'
);
```

9. Update Party Alliance – NDA Bloc

```
UPDATE partywise_results
SET party_alliance = 'NDA'
WHERE party IN (
    'Bharatiya Janata Party - BJP',
    'Telugu Desam - TDP',
    'Janata Dal (United) - JD(U)',
    'Shiv Sena - SHS',
    'AJSU Party - AJSUP',
    'Apna Dal (Soneylal) - ADAL',
    'Asom Gana Parishad - AGP',
    'Hindustani Awam Morcha (Secular) - HAMS',
    'Janasena Party - JnP',
    'Janata Dal (Secular) - JD(S)',
    'Lok Janshakti Party(Ram Vilas) - LJPRV',
    'Nationalist Congress Party - NCP',
    'Rashtriya Lok Dal - RLD',
```

```
  'Sikkim Krantikari Morcha - SKM'
);
```

10. Update Remaining as ‘OTHER’ Alliance

```
UPDATE partywise_results
SET party_alliance = ‘OTHER’
WHERE party_alliance IS NULL;
```

11. Which Alliance (NDA, I.N.D.I.A, OTHER) Won the Most Seats Across India

```
SELECT
    p.party_alliance,
    COUNT(cr.Constituency_ID) AS Seats_Won
FROM
    constituencywise_results cr
JOIN
    partywise_results p ON cr.Party_ID = p.Party_ID
WHERE
    p.party_alliance IN ('NDA', 'I.N.D.I.A', 'OTHER')
GROUP BY
    p.party_alliance
ORDER BY
    Seats_Won DESC;
```

	party_alliance	Seats_Won
1	NDA	292
2	I.N.D.I.A	234
3	OTHER	17

12. Winning Candidate Details (For Specific State & Constituency)

```
SELECT
    cr.Winning_Candidate,
    p.Party,
    p.party_alliance,
    cr.Total_Votes,
    cr.Margin,
    cr.Constituency_Name,
    s.State
FROM
    constituencywise_results cr
JOIN
    partywise_results p ON cr.Party_ID = p.Party_ID
JOIN
    statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
JOIN
    states s ON sr.State_ID = s.State_ID
WHERE
    s.State = 'Uttar Pradesh'
```

```
AND cr.Constituency_Name = 'AMETHI';
```

	Winning_Candidate	Party	party_alliance	Total_Votes	Margin	Constituency_Name	State
1	KISHORI LAL	Indian National Congress - INC	I.N.D.I.A	539228	167196	AMETHI	Uttar Pradesh

13. EVM vs Postal Vote Distribution (Example: Mathura)

```
SELECT
   cd.Candidate,
   cd.Party,
   cd.EVM_Votes,
   cd.Postal_Votes,
   cd.Total_Votes,
   cr.Constituency_Name
FROM
   constituencywise_details cd
JOIN
   constituencywise_results cr ON cd.Constituency_ID = cr.Constituency_ID
WHERE
   cr.Constituency_Name = 'MATHURA'
ORDER BY
   cd.Total_Votes DESC;
```

	Candidate	Party	EVM_Votes	Postal_Votes	Total_Votes	Constituency_Name
1	HEMAMALINI DHARMENDRA DEOL	Bharatiya Janata Party	507535	2529	510064	MATHURA
2	MUKESH DHANGAR	Indian National Congress	216043	614	216657	MATHURA
3	SURESH SINGH	Bahujan Samaj Party	188152	265	188417	MATHURA
4	BHANU PRATAP SINGH	Independent	15640	25	15665	MATHURA
5	NOTA	None of the Above	4527	36	4563	MATHURA
6	RAKESH KUMAR	Independent	4492	2	4494	MATHURA
7	JAGDISH PRASAD KAUSHIK ADVOCATE	Rashtriya Samta Vikas Party	3567	8	3575	MATHURA
8	RAVI VERMA	Independent	2724	0	2724	MATHURA
9	SHIKHA SHARMA	Independent	2246	5	2251	MATHURA
10	KAMAL KANT SHARMA	Independent	1491	12	1503	MATHURA
11	YOGESH KUMAR TALAN	Independent	1491	2	1493	MATHURA
12	MONI FALHARI BAPU	Independent	1322	4	1326	MATHURA
13	KSHETRA PAL SINGH	Independent	1206	5	1211	MATHURA
14	DR. RASHMI YADAV	Independent	1183	6	1189	MATHURA
15	PRAVESHANAND PURI	Independent	1081	4	1085	MATHURA
16	SURESH CHANDRA VAGHEL	Rashtriya Shoshit Samaj Party	822	7	829	MATHURA

14. Party-Wise Seats Won in a Particular State (Example: Andhra Pradesh)

```
SELECT
   p.Party,
   COUNT(cr.Constituency_ID) AS Seats_Won
FROM
   constituencywise_results cr
JOIN
   partywise_results p ON cr.Party_ID = p.Party_ID
JOIN
   statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
```

```
JOIN
   states s ON sr.State_ID = s.State_ID
WHERE
   s.State = 'Andhra Pradesh'
GROUP BY
   p.Party
ORDER BY
   Seats_Won DESC;
```

	Party	Seats_Won
1	Samajwadi Party - SP	37
2	Bharatiya Janata Party - BJP	33
3	Indian National Congress - INC	6
4	Rashtriya Lok Dal - RLD	2
5	Aazad Samaj Party (Kanshi Ram) - ASPKR	1
6	Apna Dal (Soneylal) - ADAL	1

15. Seats Won by Each Alliance (NDA, I.N.D.I.A, OTHER) in Each State

```
SELECT
   s.State AS State_Name,
   SUM(CASE WHEN p.party_alliance = 'NDA' THEN 1 ELSE 0 END) AS NDA_Seats_Won,
   SUM(CASE WHEN p.party_alliance = 'I.N.D.I.A' THEN 1 ELSE 0 END) AS INDIA_Seats_Won,
   SUM(CASE WHEN p.party_alliance = 'OTHER' THEN 1 ELSE 0 END) AS OTHER_Seats_Won
FROM
   constituencywise_results cr
JOIN
   partywise_results p ON cr.Party_ID = p.Party_ID
JOIN
   statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
JOIN
   states s ON sr.State_ID = s.State_ID
WHERE
   p.party_alliance IN ('NDA', 'I.N.D.I.A', 'OTHER')
GROUP BY
   s.State
ORDER BY
   s.State;
```

	State_Name	NDA_Seats_Won	INDIA_Seats_Won	OTHER_Seats_Won
1	Andaman & Nicobar Islands	1	0	0
2	Andhra Pradesh	21	0	4
3	Arunachal Pradesh	2	0	0
4	Assam	10	3	1
5	Bihar	30	9	1
6	Chandigarh	0	1	0
7	Chhattisgarh	10	1	0
8	Dadra & Nagar Haveli and Daman & Diu	1	0	1
9	Delhi	7	0	0
10	Goa	1	1	0
11	Gujarat	25	1	0
12	Haryana	5	5	0
13	Himachal Pradesh	4	0	0
14	Jammu and Kashmir	2	2	1
15	Jharkhand	9	5	0
16	Karnataka	19	9	0
17	Kerala	1	19	0
18	Ladakh	0	0	1
19	Lakshadweep	0	1	0
20	Madhya Pradesh	29	0	0
21	Maharashtra	17	30	1
22	Manipur	0	2	0
23	Meghalaya	0	1	1
24	Mizoram	0	0	1
25	Nagaland	0	1	0
26	Odisha	20	1	0
27	Puducherry	0	1	0
28	Punjab	0	10	3
29	Rajasthan	14	11	0
30	Sikkim	1	0	0
31	Tamil Nadu	0	39	0
32	Telangana	8	8	1
33	Tripura	2	0	0
34	Uttar Pradesh	36	43	1
35	Uttarakhand	5	0	0
36	West Bengal	12	30	0

16. Top 10 Candidates with Highest EVM Votes

```
SELECT TOP 10
   cr.Constituency_Name,
   cd.Constituency_ID,
   cd.Candidate,
   cd.EVM_Votes
FROM
   constituencywise_details cd
JOIN
   constituencywise_results cr ON cd.Constituency_ID = cr.Constituency_ID
```

```
WHERE
   cd.EVM_Votes = (
      SELECT MAX(cd1.EVM_Votes)
      FROM constituencywise_details cd1
      WHERE cd1.Constituency_ID = cd.Constituency_ID
   )
ORDER BY
   cd.EVM_Votes DESC;
```

	Constituency_Name	Constituency_ID	Candidate	EVM_Votes
1	DHUBRI	S032	RAKIBUL HUSSAIN	1468549
2	INDORE	S1226	SHANKAR LALWANI	1223746
3	VIDISHA	S1218	SHIVRAJ SINGH CHOUHAN	1111556
4	BANGALORERURAL	S1023	DR C N MANJUNATH	1075553
5	RAIPUR	S268	BRIJMOHAN AGRAWAL	1047447
6	DIAMONDHARBOUR	S2521	ABHISHEK BANERJEE	1043493
7	NAVSARI	S0625	C R PATIL	1023366
8	GANDHINAGAR	S066	AMIT SHAH	999984
9	BANGALORENORTH	S1024	SHOBHA KARANDLAJE	982805
10	MALKAJGIRI	S297	EATALA RAJENDER	980712

17. Winner and Runner-up per Constituency (Example: Maharashtra)

```
WITH RankedCandidates AS (
   SELECT
      cd.Constituency_ID,
      cd.Candidate,
      cd.Party,
      cd.EVM_Votes,
      cd.Postal_Votes,
      (cd.EVM_Votes + cd.Postal_Votes) AS Total_Votes,
      ROW_NUMBER() OVER (
         PARTITION BY cd.Constituency_ID
         ORDER BY cd.EVM_Votes + cd.Postal_Votes DESC
      ) AS VoteRank
   FROM
      constituencywise_details cd
   JOIN
      constituencywise_results cr ON cd.Constituency_ID = cr.Constituency_ID
   JOIN
      statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
   JOIN
      states s ON sr.State_ID = s.State_ID
   WHERE
      s.State = 'Maharashtra'
)
SELECT
   cr.Constituency_Name,
   MAX(CASE WHEN rc.VoteRank = 1 THEN rc.Candidate END) AS Winning_Candidate,
   MAX(CASE WHEN rc.VoteRank = 2 THEN rc.Candidate END) AS Runnerup_Candidate
FROM
```

```
 RankedCandidates rc
JOIN
   constituencywise_results cr ON rc.Constituency_ID = cr.Constituency_ID
GROUP BY
   cr.Constituency_Name
ORDER BY
   cr.Constituency_Name;
```

	Constituency_Name	Winning_Candidate	Runnerup_Candidate
1	AHMEDNAGAR	NILESH DNYANDEV LANKE	DR. SUJAY RADHAKRISHNA VIKHEPATIL
2	AKOLA	ANUP SANJAY DHOTRE	ABHAY KASHINATH PATIL
3	AMRAVATI	BALWANT BASWANT WANKHADE	NAVNEET RAVI RANA
4	AURANGABAD	BHUMARE SANDIPANRAO ASARAM	IMTIAZ JALEEL SYED
5	BARAMATI	SUPRIYA SULE	SUNETRA AJITDADA PAWAR
6	BEED	BAJRANG MANOHAR SONWANE	PANKAJA GOPINATHRAO MUNDE
7	BHANDARAGONDIYA	DR. PRASHANT YADAORAO PADOLE	SUNIL BABURAO MENDHE
8	BHIWANDI	BALYA MAMA - SURESH GOPINATH MHATRE	KAPIL MORESHWAR PATIL
9	BULDHANA	JADHAV PRATAPRAO GANPATRAO	NARENDRA DAGDU KHEDEKAR
10	CHANDRAPUR	DHANORKAR PRATIBHA SURESH ALIAS BALUBHAU	MUNGANTIWAR SUDHIR SACCHIDANAND
11	DHULE	BACHHAV SHOBHA DINESH	BHAMRE SUBHASH RAMRAO
12	DINDORI	BHASKAR MURLIDHAR BHAGARE	DR. BHARATI PRAVIN PAWAR
13	GADCHIROLI-CHIMUR	DR. KIRSAN NAMDEO	ASHOK MAHADEORAO NETE
14	HATKANANGALE	DHAIRYASHEEL SAMBHAJIRAO MANE	SATYAJEET BABASAHEB PATIL (AABA) SARUDKAR
15	HINGOLI	AASHTIKAR PATIL NAGESH BAPURAO	BABURAO KADAM KOHALIKAR
16	JALGAON	SMITA UDAY WAGH	KARAN BALASAHEB PATIL - PAWAR
17	JALNA	KALYAN VAIJINATHRAO KALE	DANVE RAOSAHEB DADARAO
18	KALYAN	DR SHRIKANT EKNATH SHINDE	VAISHALI DAREKAR - RANE
19	KOLHAPUR	CHHATRAPATI SHAHU SHAHAJI	SANJAY SADASHIVRAO MANDLIK
20	LATUR	DR. KALGE SHIVAJI BANDAPPA	SUDHAKAR TUKARAM SHRANGARE
21	MADHA	MOHITE-PATIL DHAIRYASHEEL RAJSINH	RANJEETSINGH HINDURAO NAIK NIMBALKAR
22	MAVAL	SHRIRANG APPA CHANDU BARNE	SANJOG BHIKU WAGHERE PATIL
23	MUMBAINORTH	PIYUSH GOYAL	BHUSHAN PATIL
24	MUMBAINORTHCEN...	GAIKWAD VARSHA EKNATH	ADV UJWAL NIKAM
25	MUMBAINORTHEAST	SANJAY DINA PATIL	MIHIR CHANDRAKANT KOTECHA
26	MUMBAINORTHWEST	RAVINDRA DATTARAM WAIKAR	AMOL GAJANAN KIRTIKAR
27	MUMBAISOUTH	ARVIND GANPAT SAWANT	YAMINI YASHWANT JADHAV
28	MUMBAISOUTHCEN...	ANIL YESHWANT DESAI	RAHUL RAMESH SHEWALE
29	NAGPUR	NITIN JAIRAM GADKARI	VIKAS THAKRE
30	NANDED	CHAVAN VASANTRAO BALWANTRAO	CHIKHALIKAR PRATAPRAO GOVINDRAO
31	NANDURBAR	ADV GOWAAL KAGADA PADAVI	DR HEENA VIJAYKUMAR GAVIT
32	NASHIK	RAJABHAU (PARAG) PRAKASH WAJE	GODSE HEMANT TUKARAM
33	OSMANABAD	OMPRAKASH BHUPALSINH ALIAS PAVAN RAJENI...	ARCHANA RANAJAGJITSINH PATIL
34	PALGHAR	DR. HEMANT VISHNU SAVARA	BHARTI BHARAT KAMDI
35	PARBHANI	JADHAV SANJAY (BANDU) HARIBHAU	JANKAR MAHADEV JAGANNATH
36	PUNE	MURLIDHAR MOHOL	DHANGEKAR RAVINDRA HEMRAJ
37	RAIGAD	TATKARE SUNIL DATTATREY	ANANT GEETE
38	RAMTEK	Shyamkumar (Babalu) Daulat Barve	RAJU DEONATH PARVE
39	RATNAGIRI-SINDHU...	NARAYAN TATU RANE	VINAYAK BHAURAO RAUT
40	RAVER	KHADSE RAKSHA NIKHIL	SHRIRAM DAYARAM PATIL
41	SANGLI	VISHAL (DADA) PRAKASHBAPU PATIL	SANJAY (KAKA) PATIL
42	SATARA	SHRIMANT CHH UDAYANRAJE PRATAPSINHAMAH...	SHASHIKANT JAYVANTRAO SHINDE
43	SHIRDI	BHAUSAHEB RAJARAM WAKCHAURE	LOKHANDE SADASHIV KISAN
44	SHIRUR	DR. AMOL RAMSING KOLHE	ADHALRAO SHIVAJI DATTATREY
45	SOLAPUR	PRANITI SUSHILKUMAR SHINDE	RAM VITTHAL SATPUTE
46	THANE	NARESH GANPAT MHASKE	RAJAN BABURAO VICHARE
47	WARDHA	AMAR SHARADRAO KALE	RAMDAS CHANDRABHAN TADAS
48	YAVATMAL-WASHIM	SANJAY UTTAMRAO DESHMUKH	RAJSHRITAI HEMANT PATIL (MAHALLE)

18. Summary Metrics for Maharashtra

```
SELECT
    COUNT(DISTINCT cr.Constituency_ID) AS Total_Seats,
    COUNT(DISTINCT cd.Candidate) AS Total_Candidates,
    COUNT(DISTINCT p.Party) AS Total_Parties,
    SUM(cd.EVM_Votes + cd.Postal_Votes) AS Total_Votes,
    SUM(cd.EVM_Votes) AS Total_EVM_Votes,
    SUM(cd.Postal_Votes) AS Total_Postal_Votes
FROM
    constituencywise_results cr
JOIN
    constituencywise_details cd ON cr.Constituency_ID = cd.Constituency_ID
JOIN
    statewise_results sr ON cr.Parliament_Constituency = sr.Parliament_Constituency
JOIN
    states s ON sr.State_ID = s.State_ID
JOIN
    partywise_results p ON cr.Party_ID = p.Party_ID
WHERE
    s.State = 'Maharashtra';
```

	Total_Seats	Total_Candidates	Total_Parties	Total_Votes	Total_EVM_Votes	Total_Postal_Votes
1	48	1114	7	57179133	56969710	209423

5.2 ER Relationships:

From: table (column)	Relationship	To: table (column)	Status
constituencywise_details (Cons...	* — 1	constituencywise_results (Cons...	Active
constituencywise_results (Parli...	1 — 1	statewise_results (Parliament C...	Active
constituencywise_results (Party...	* — 1	partywise_results (Party ID)	Active
statewise_results (State ID)	* — 1	states (State ID)	Active

Chapter 6 Power BI Report Design

6.1 Measures & KPI Definitions

DAX formulas were used to create dynamic measures and KPIs:

(1) Runner up %vote share =

```
"Vote Share : " &
VAR maxvotes = MAX(constituencywise_details[% of Votes])
VAR secondmaxvotes =
MAXX(
        FILTER(constituencywise_details, constituencywise_details[% of Votes] < maxvotes),
        constituencywise_details[% of Votes]
)
RETURN
secondmaxvotes & "%"
```

(2) Runner up KPI =

```
VAR maxvotes = MAX(constituencywise_details[Total Votes])
VAR secondmaxvotes =
    MAXX(
        FILTER(constituencywise_details, constituencywise_details[Total Votes] < maxvotes),
        constituencywise_details[Total Votes]
    )
RETURN
    CALCULATE(
        MAX(constituencywise_details[Candidate]),
        constituencywise_details[Total Votes] = secondmaxvotes
    )
```

(3) Runner up Party =

```
VAR maxvotes = MAX(constituencywise_details[Total Votes])
VAR secondmaxvotes =
    MAXX(
        FILTER(constituencywise_details, constituencywise_details[Total Votes] < maxvotes),
        constituencywise_details[Total Votes]
    )
RETURN
    CALCULATE(
        MAX(constituencywise_details[Party]),
        constituencywise_details[Total Votes] = secondmaxvotes
    )
```

(4) Runner up votes =

```
"Total Votes : " &
VAR maxvotes = MAX(constituencywise_details[Total Votes])
VAR secondmaxvotes =
    MAXX(
        FILTER(constituencywise_details, constituencywise_details[Total Votes] < maxvotes),
        constituencywise_details[Total Votes]
```

```
)
RETURN
    secondmaxvotes
```

(5) second Runner up KPI =

```
VAR maxvotes = MAX(constituencywise_details[Total Votes])
VAR secondmaxvotes =
    MAXX(
        FILTER(constituencywise_details, constituencywise_details[Total Votes] < maxvotes),
        constituencywise_details[Total Votes]
    )
VAR Thirdmaxvotes =
    MAXX(
        FILTER(constituencywise_details, constituencywise_details[Total Votes] < secondmaxvotes),
        constituencywise_details[Total Votes]
    )
RETURN
    CALCULATE(
        MAX(constituencywise_details[Candidate]),
        constituencywise_details[Total Votes] = Thirdmaxvotes
    )
```

(6) State secondary KPI =

```
CALCULATE(SELECTEDVALUE(states[State], "No State"),
            FILTER(constituencywise_results, constituencywise_results[Constituency ID] = MAX
            (constituencywise_details[Constituency ID])
            )
)
```

(7) TOTAL votes KPI = "Total Votes :" & " " & MAX(constituencywise_details[Total Votes])

(8) Vote Share KPI = "Vote Share :" & " " & MAX(constituencywise_details[% of Votes]) & "%"

(9) INDIA Seats Count = CALCULATE(COUNT(constituencywise_results[Constituency Name]),partywise_results[Party Alliance] = "I.N.D.I.A.") + 0

(10) NDA Seats Count = CALCULATE(COUNT(constituencywise_results[Constituency Name]),partywise_results[Party Alliance] = "NDA") + 0

(11) OTHER Seats Count = CALCULATE(COUNT(constituencywise_results[Constituency Name]),partywise_results[Party Alliance] = "OTHER") + 0

(12) Wiining Alliance =

```
VAR NDAseats = CALCULATE(COUNT(constituencywise_results[Constituency Name]),partywise_results[Party
Alliance] = "NDA")
VAR INDIAseats = CALCULATE(COUNT(constituencywise_results[Constituency Name]),partywise_results[Party
Alliance] = "I.N.D.I.A.")
RETURN
IF(NDAseats >= INDIAseats, "NDA", "I.N.D.I.A.")
```

(13) % of INDIA Seats = DIVIDE([INDIA Seats], [Total Seats], 0)

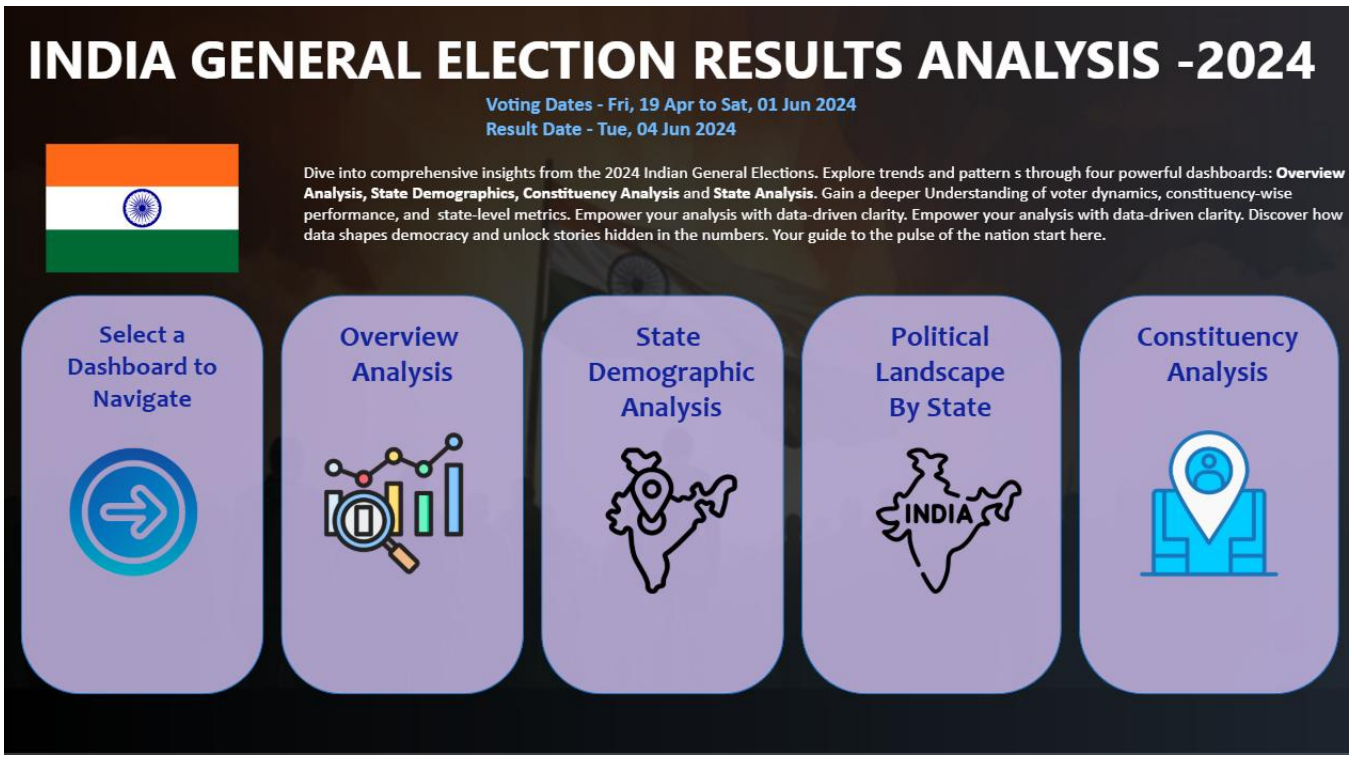
(14) % of NDA Seats = DIVIDE([NDA Seats], [Total Seats], 0)

```
(15) Total = [INDIA Seats] + [NDA Seats] + [OTHER Seats]

(16) Total Seats = SUM(partywise_results[Won])
```

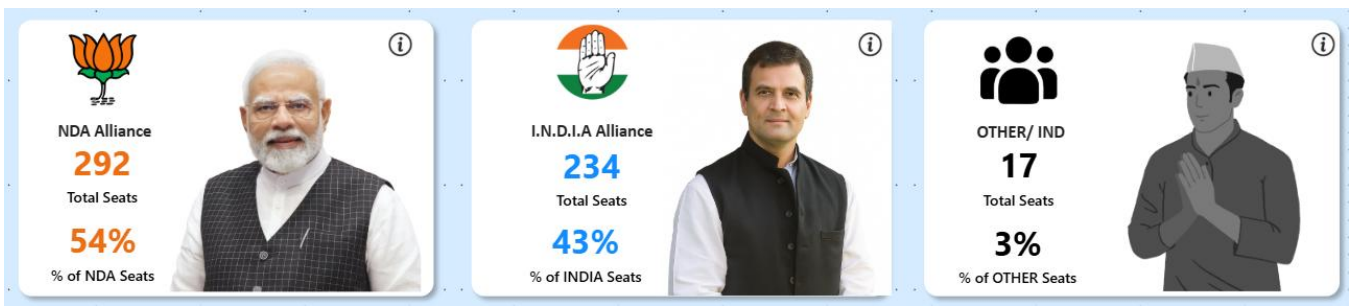
6.2 Dashboard Pages & Visualizations :

(1)



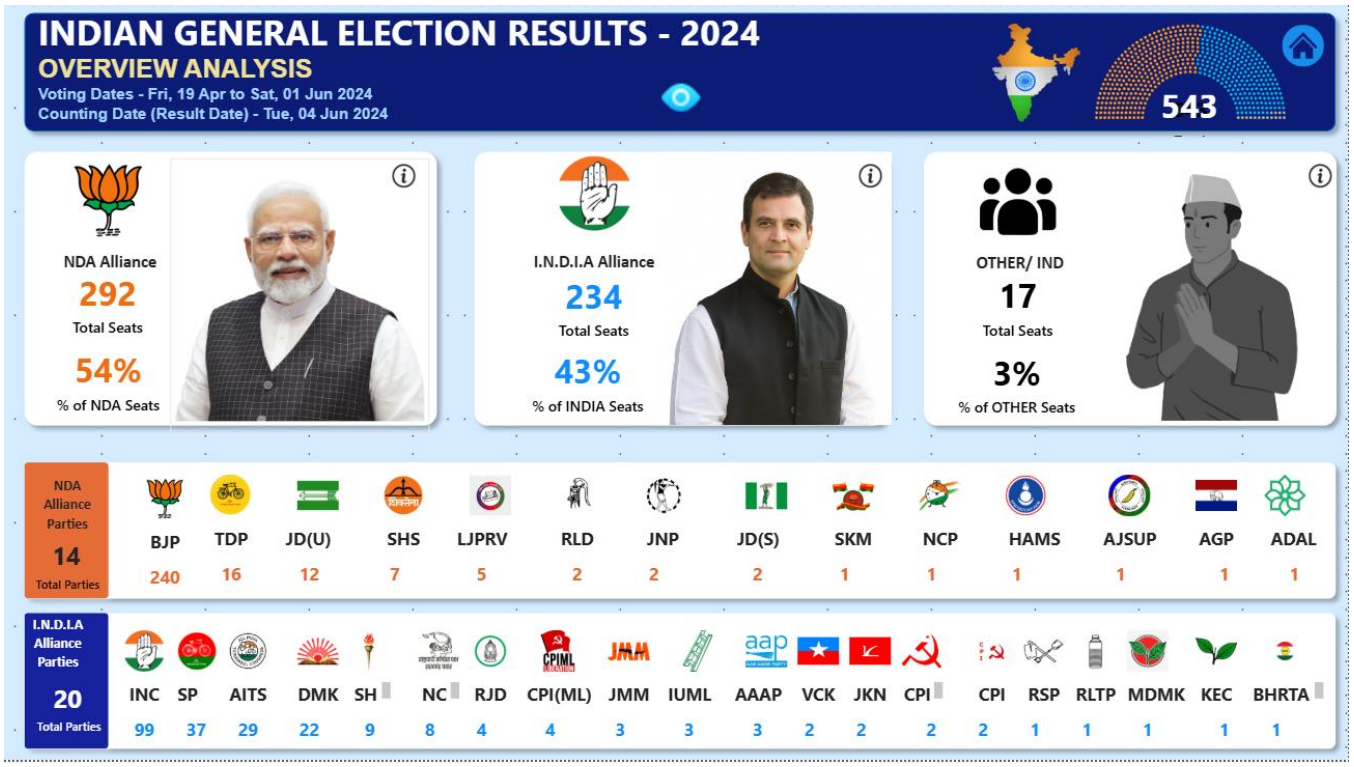
- This is the Landing Page of the India General Election 2024 Results Analysis Power BI project. It serves as the main menu, directing users to four detailed dashboards**: Overview Analysis** (national summary), **State Demographic Analysis** (geographical map), **Political Landscape By State** (deep state metrics), and **Constituency Analysis** (candidate-level details).

(2)



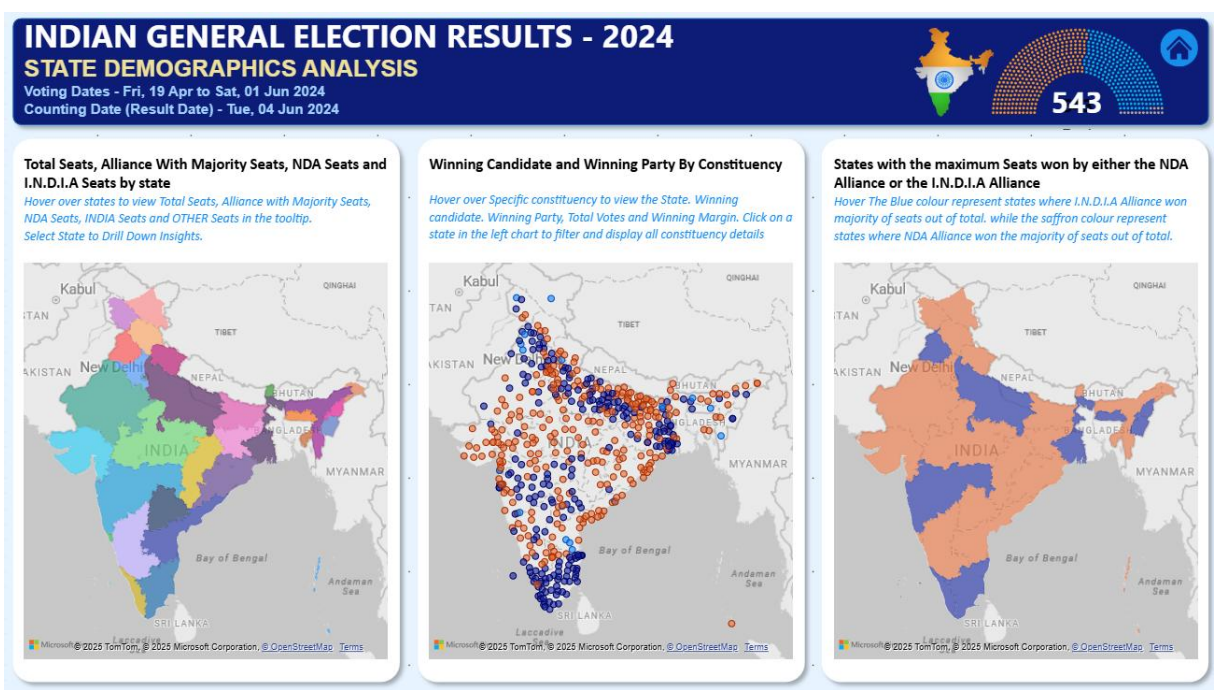
- This visual summarizes the India General Election 2024 results (Lok Sabha, 543 seats) across the three main political groups. It shows the **NDA Alliance** led by Narendra Modi secured **292 Total Seats (54%)** to form the government, while **the I.N.D.I.A Alliance** led by Rahul Gandhi won **234 Total Seats (43%)**, with **17 seats (3%)** going to **other candidates**.

(3)



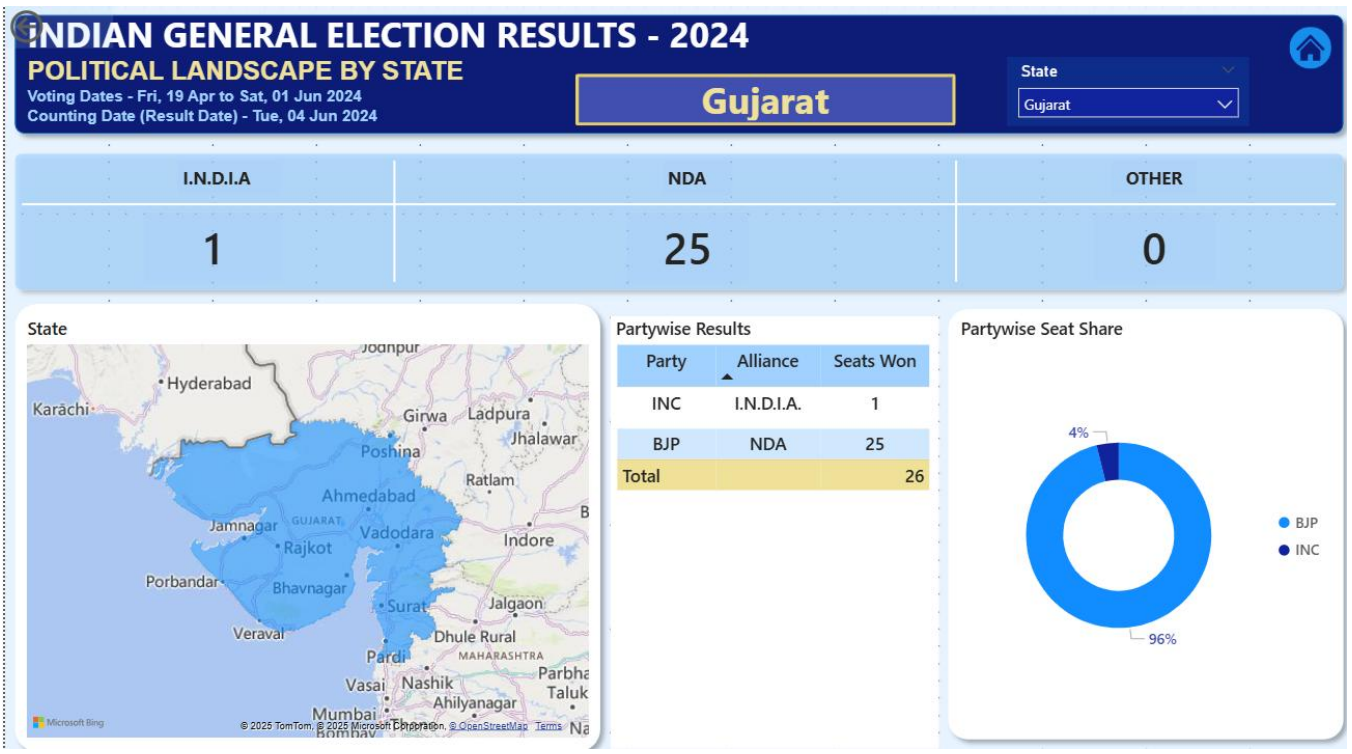
- This is provides the **Overview Analysis** of the **2024 Indian General Election results**, detailing the national seat tally (out of 543) and the performance of key alliances and their constituent parties. It highlights the NDA's majority (**292 seats, 54%**) and the strong opposition performance by the I.N.D.I.A. Alliance (**234 seats, 43%**), with a detailed breakdown showing the contribution of each major party to their respective alliance totals

(4)



- This visual presents the **State Demographics Analysis** of the 2024 Indian Election results using three interactive maps to show geographical voting patterns. The maps detail **State-wise Seat Distribution** by alliance majority, the location of every **Constituency Winner** (NDA in orange, I.N.D.I.A. in blue), and a final map highlighting the states where each major alliance secured the most seats.

(5)

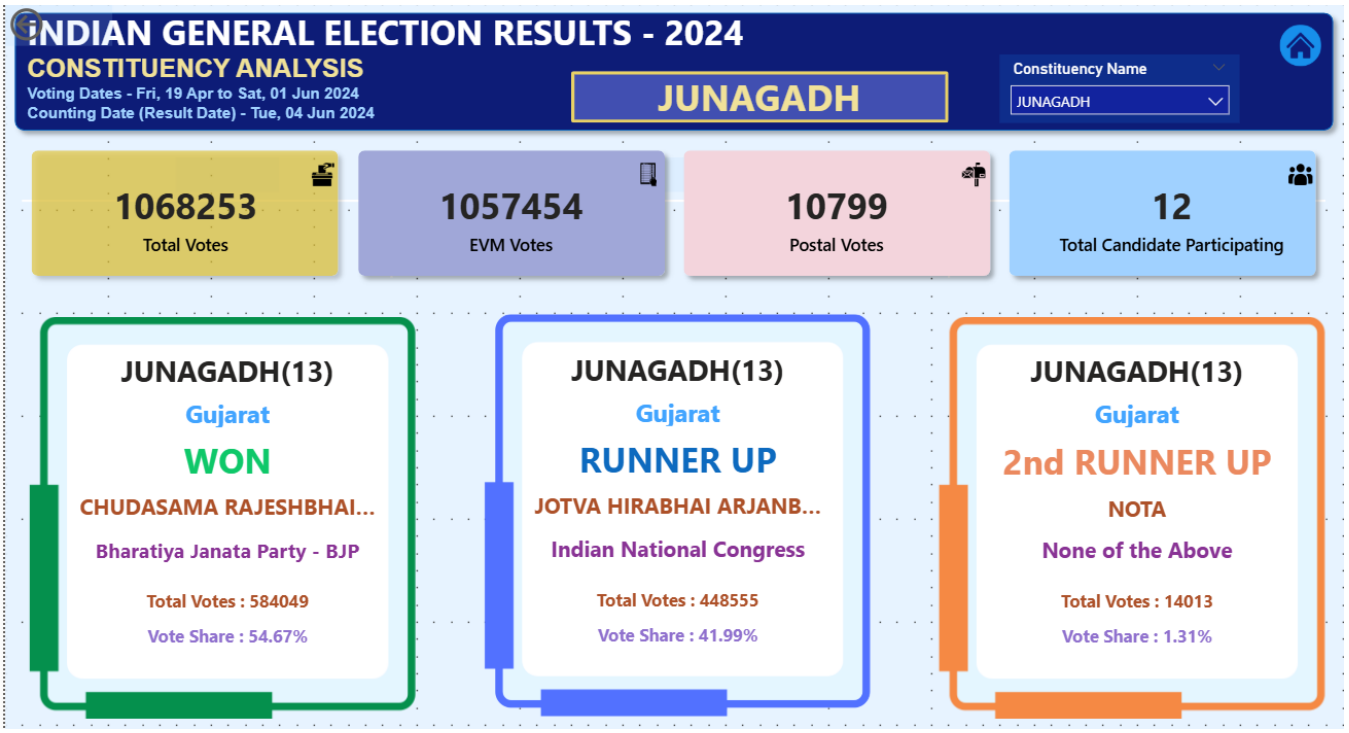


- The dropdown menu labeled **"State"** allows the user to **dynamically select any state to** analyzed the report. This action filters the entire dashboard—including the map, the Partywise Results table, and the Partywise Seat Share donut chart—to display metrics relevant only to the chosen state.

  For example, since **Gujarat** is currently selected, the dashboard shows:

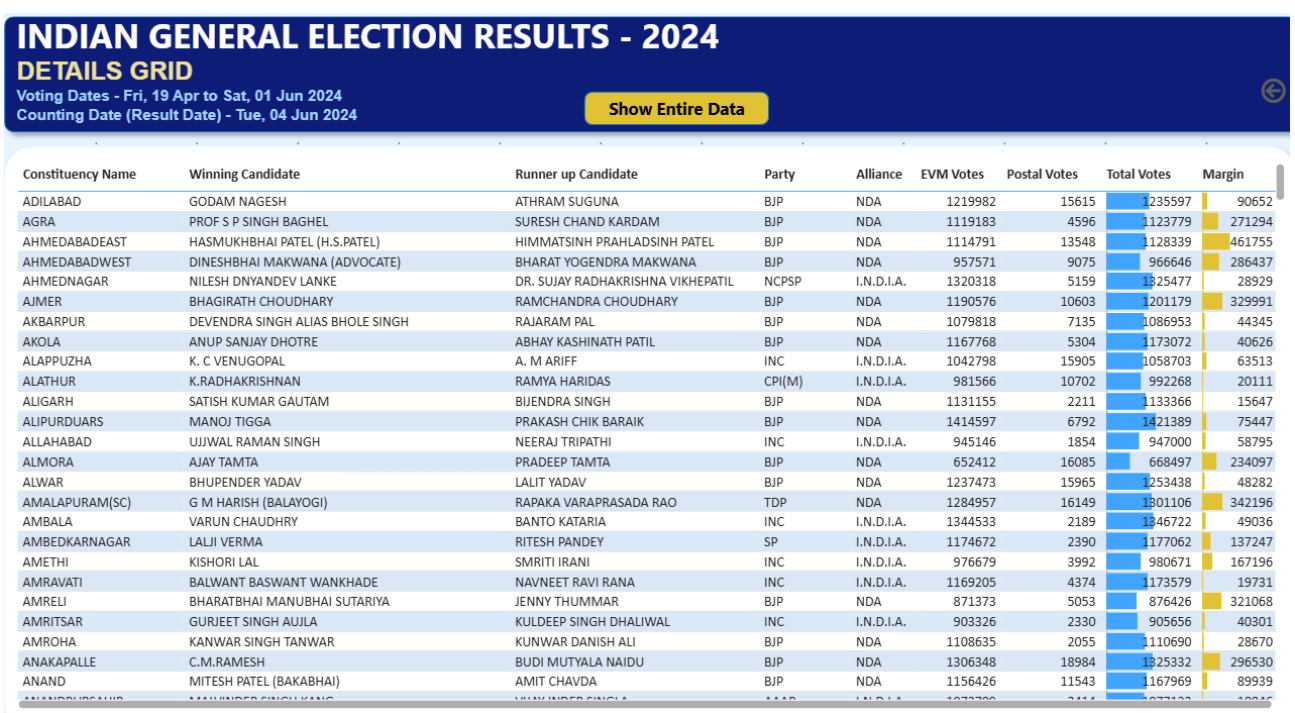
  1. **KPIs:** The seat breakdown for Gujarat (26 seats total: NDA 25, I.N.D.I.A 1).
  2. **Map:** The geographical outline of Gujarat is highlighted.
  3. **Table & Chart:** Only the parties that contested/won seats in Gujarat (BJP and INC) and their respective seat share (96% vs 4%) are displayed

(6)



- This visual is the **Constituency Analysis** dashboard, specifically showing the detailed results for the **Junagadh** Lok Sabha seat in Gujarat, where users can select different constituencies using the dropdown menu. It breaks down the total votes into **EVM Votes (1,057,454)** and **Postal Votes (10,799)**, and clearly identifies the top three performers: **Chudasama Rajeshbhai** (**WON** for BJP), **Jotva Hirabhai** (**RUNNER UP** for INC), and **NOTA** (**2nd RUNNER UP**).

(7)



Constituency Name	Winning Candidate	Runner up Candidate	Party	Alliance	EVM Votes	Postal Votes	Total Votes	Margin
ADILABAD	GODAM NAGESH	ATHRAM SUGUNA	BJP	NDA	1219982	15615	1235597	90652
AGRA	PROF S P SINGH BAGHEL	SURESH CHAND KARDAM	BJP	NDA	1119183	4596	1123779	271294
AHMEDABADEAST	HASMUKHBHAI PATEL (H.S.PATEL)	HIMMATSINH PRAHLADSINH PATEL	BJP	NDA	1114791	13548	1128339	461755
AHMEDABADWEST	DINESHBHAI MAKWANA (ADVOCATE)	BHARAT YOGENDRA MAKWANA	BJP	NDA	957571	9075	966646	286437
AHMEDNAGAR	NILESH DNYANDEV LANKE	DR. SUJAY RADHAKRISHNA VIKHEPATIL	NCPSP	I.N.D.I.A.	1320318	5159	1325477	28929
AJMER	BHAGIRATH CHOUDHARY	RAMCHANDRA CHOUDHARY	BJP	NDA	1190576	10603	1201179	329991
AKBARPUR	DEVENDRA SINGH ALIAS BHOLE SINGH	RAJARAM PAL	BJP	NDA	1079818	7135	1086953	44345
AKOLA	ANUP SANJAY DHOTRE	ABHAY KASHINATH PATIL	BJP	NDA	1167768	5304	1173072	40626
ALAPPUZHA	K. C VENUGOPAL	A. M ARIFF	INC	I.N.D.I.A.	1042798	15905	1058703	63513
ALATHUR	K.RADHAKRISHNAN	RAMYA HARIDAS	CPI(M)	I.N.D.I.A.	981566	10702	992268	20111
ALIGARH	SATISH KUMAR GAUTAM	BIJENDRA SINGH	BJP	NDA	1131155	2211	1133366	15647
ALIPURDUARS	MANOJ TIGGA	PRAKASH CHIK BARAIK	BJP	NDA	1414597	6792	1421389	75447
ALLAHABAD	UJJWAL RAMAN SINGH	NEERAJ TRIPATHI	INC	I.N.D.I.A.	945146	1854	947000	58795
ALMORA	AJAY TAMTA	PRADEEP TAMTA	BJP	NDA	652412	16085	668497	234097
ALWAR	BHUPENDER YADAV	LALIT YADAV	BJP	NDA	1237473	15965	1253438	48282
AMALAPURAM(SC)	G M HARISH (BALAYOGI)	RAPAKA VARAPRASADA RAO	TDP	NDA	1284957	16149	1301106	342196
AMBALA	VARUN CHAUDHRY	BANTO KATARIA	INC	I.N.D.I.A.	1344533	2189	1346722	49036
AMBEDKARNAGAR	LALJI VERMA	RITESH PANDEY	SP	I.N.D.I.A.	1174672	2390	1177062	137247
AMETHI	KISHORI LAL	SMRITI IRANI	INC	I.N.D.I.A.	976679	3992	980671	167196
AMRAVATI	BALWANT BASWANT WANKHADE	NAVNEET RAVI RANA	INC	I.N.D.I.A.	1169205	4374	1173579	19731
AMRELI	BHARATBHAI MANUBHAI SUTARIYA	JENNY THUMMAR	BJP	NDA	871373	5053	876426	321068
AMRITSAR	GURJEET SINGH AUJLA	KULDEEP SINGH DHALIWAL	INC	I.N.D.I.A.	903326	2330	905656	40301
AMROHA	KANWAR SINGH TANWAR	KUNWAR DANISH ALI	BJP	NDA	1108635	2055	1110690	28670
ANAKAPALLE	C.M.RAMESH	BUDI MUTYALA NAIDU	BJP	NDA	1306348	18984	1325332	296530
ANAND	MITESH PATEL (BAKABHAI)	AMIT CHAVDA	BJP	NDA	1156426	11543	1167969	89939

- These visual displays the **Details Grid** dashboard, which provides the raw, constituency-level results for the 2024 Indian General Election. The grid lists every constituency along with its **Winning Candidate**, **Runner-up Candidate**, their respective **Parties** and **Alliances**, and a full breakdown of **EVM Votes**, **Postal Votes**, **Total Votes**, and the **Margin** of victory. This dashboard is the target for the "Drill-Through" feature from other summary dashboards.

Chapter 8 Conclusion & Future Enhancements

8.1 Project Summary & Outcomes:

The primary objective of this project was to perform an in-depth, interactive analysis of the 2024 India General Election results using the combined power of **SQL** and **Power BI**. We successfully cleansed raw ECI data, established a robust Star Schema, and implemented complex DAX logic.

Key analytical outcomes achieved:

- **Identified Alliance Dominance:** Clearly quantified the final seat tally and percentage share for the NDA (winning) and I.N.D.I.A. (opposition) alliances, along with their primary constituent parties.
- **Localized Performance Insights:** Enabled stakeholders to drill down from national totals to state-specific results, identifying the majority-winning alliance and local party dynamics in every state.
- **Granular Constituency Data:** Successfully calculated and visualized crucial constituency-level metrics, including the **Runner-up Candidate**, the difference between **EVM vs. Postal Votes**, and the precise **Margin of Victory** for all 543 seats.
- **Provided Actionable Visual Insights:** Created an intuitive dashboard system (Landing Page, Overview, State Demographics, Constituency Analysis) that empowers political analysts and journalists to explore geographical and numerical data with speed and clarity.

8.2 Challenges & Lessons Learned

While executing the project, several challenges were encountered:

- **Data Consistency & Naming:** Inconsistent party names and abbreviations across the multiple raw CSV files required extensive preprocessing in Power Query and SQL to standardize all party records.
- **Complex DAX Logic:** Developing measures like the Runner-up Candidate and Winning Alliance per State required advanced use of DAX functions (e.g., CALCULATE, RANKX, and nested conditional logic) due to the multi-table data model.
- **Visualization Design:** Designing appropriate map visuals (e.g., creating the correct custom column for **Map Legends** based on Winning Alliance) and implementing seamless **Drill-Through** and **Bookmark** navigation required careful planning.

Lessons learned include:

- **Importance of Data Cleaning:** Thorough data preparation and standardization (especially alliance and party names) were critical to ensuring the reliability of the final DAX calculations.
- **Value of Iterative Design:** The optimal dashboard flow, navigation (Landing Page), and interactive elements (Bookmarks) required iterative testing and refinement to meet user experience goals.
- **Power of Combined Tools:** The project demonstrated the superior value of combining **SQL** (for robust data structuring and cleaning) with **Power BI** (for visualization and interactive analytics).

8.3 Limitations & Proposed Extensions

Limitations:

- Static Snapshot: The analysis is based on a static snapshot of the final ECI results, and does not capture any post-election alliances or subsequent shifts in political loyalties.

- Feature Limitations: The data is limited to vote counts, party performance, and alliances. Deeper analysis is restricted by the absence of demographic data (age, gender, caste breakdown) or historical trend data for comparison.

- No Predictive Element: This project is purely descriptive and diagnostic; it does not include predictive modeling (unlike the original telecom project).

Proposed Extensions:

• Integrate **Historical Data:** Expand the data model to include results from previous elections (e.g., 2019, 2014) to enable time-series and swing-vote analysis.

• Advanced **Geospatial Analysis:** Incorporate census or demographic data at the constituency level to analyse the relationship between voter characteristics (e.g., literacy, income) and voting patterns.

• Automate **Data Pipeline:** Set up a scheduled refresh process using the Power BI Gateway to automatically connect to a live ECI data feed or database, allowing for near-real-time updates.

8.4 References

• Election **Commission of India (ECI) Statistical Reports:** Primary source for all constituency, candidate, and vote data.

• Microsoft **Power BI Documentation:** Used for data modeling, DAX measure development, and report design best practices.

• SQL **Server/MySQL Documentation:** Used for database setup, initial data loading, and fundamental ETL operations.

• Publicly **Available Election Datasets:** (e.g., IndiaVotes, OpenCity, Wikipedia archives of 2024 results) utilized for cross-validation and initial data schema design.

Nirmal K

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