Milestone 1 Documentation

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Problem Statement:

Electviz is data visualization project developed using power BI.

The purpose of this project is to transform large scale election data into interactive and informative dashboard that present clear analysis and insights from raw election data in an engaging manner , thereby improving clarity, transparency, and understanding.

Data Collection

The dataset used for this project was sourced from Kaggle, titled “Indian Election Dataset” by Nanadan Pandey

Dataset Description - This dataset contains detailed candidate-level data for elections to the lower houses of India’s national legislatures, i.e., the Lok Sabha .

The data span 1977-2015, with each row representing a candidate that ran for office in that state-year.

Attributes in Dataset are :

Name	Type	Description
st_name	Str	State Name
Year	Int	Year
Pc_no	Int	Parliamentary constituency number
Pc_name	Str	Parliamentary constituency name
Pc_type	Str	Parliamentary constituency Type
Cand_name	Str	Candidate Name
Cand_gender	str	Candidate Gender
Partyname	Str	Party Name

Partyabrre	Str	Party abbreviation
totvotpoll	Long	Votes received
electors	Long	Number of registered voters

DataSet Preprocessing Steps:

The Dataset contains 11 columns and 73080 rows

1) Checking Datatype:
   Datatype of all columns is already correct

2) Duplicate Rows:
   Dataset contains two duplicate rows . So I remove the two duplicate rows from it .

3) Renaming Columns:
   As the column names contain short form .So I rename it with more better name.

4) Removing null values:
   Column pctype there are 8070 null values . So I replaced null values with unknown.
   Coulmn candgender also contains 542 null values . So I replaced null values with unknown.

5) Standardisation of State and Party Name:
   The State Name and Party Name columns contain many duplicate entries with the same meaning.
   I replaced misspelled state names with their correct spellings.
   - Chattisgarh corrected to Chhattisgarh
   - Goa , Daman & Diu replaced to Goa
   - Goa Daman & Diu replaced to Goa
   - Odisa replaced to Orissa

- Uttaranchal replaced to Uttarakhand
- Pondicherry replaced to pundicherry
- Nct Of Delhi replaced to Delhi
- National Capital of territory to Delhi

I replaced misspelled words and short form with correct one in party name column

- Bharatiya Janta Party , BJP replaced to Bharatiya Janata Party
- Independents replaced to Independent
- Janata Pary replace to Janata Party
- Janta Party(JP) replaced to Janta Party
- BSP replaced to Bhahujan Samaj Party
- INC replaced to Indian National Congress
- SP replaced to Samajwadi Party
- Akhil Bharatiay Ramrajya Parishal replaced to Akhil Bharatiya Ramrajya parishad
- AAP replaced to Aam Aadmi Party
- Republician Party of India (Khobragade) corrected to Replublican Party Of India
- AASP replaced to Ashankya Samaj Party
- AIFB replaced to All India Forward Bloc
- AITC replaced to All India Trinamool Congress
- NCP replaced to Nationalist Congress of India
- IND replaced to Independent
- CPM replaced to Communist Party of India(Marxist)

6) Added Custom Column – Turnout%
   Custom Column turnout% is added to dataset
   Turnout%= (Votes received / Number of registered voters) * 100

By Performing above steps the dataset is converted into analysis ready format .

Dashboard Creation Steps:

Key Metrics and Measures

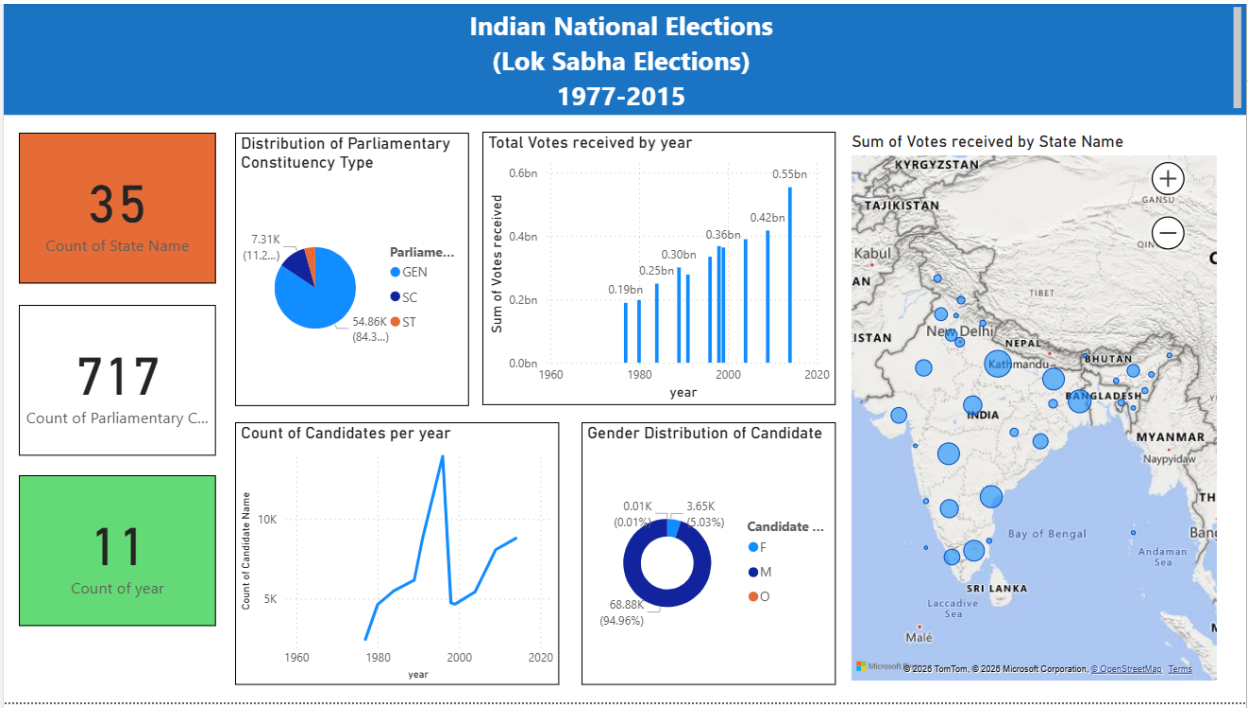
Dynamic calculations were implemented using DAX measures, including:

- Total number of parties
- Total number of candidates
- Total male and female candidates
- Winner identification based on maximum votes per constituency per year
- Average voter turnout (%)
- Maximum party votes per year
- Total No of Parliamentry Consituencies

These measures update automatically based on slicer selections.

Milestone 2

PAGE 1: Election Overview (1977–2015)



Page Objective

This page provides a **high-level overview of Indian Lok Sabha elections**, helping us understand the **scale, participation, and growth of elections over time** before going into deeper analysis.

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1. Card: Count of State Name (35)

What it shows:
This card shows the total number of states involved in elections.

Insight:
Elections are conducted across a wide geographic area, nationwide nature of Indian democracy.

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2. Card: Count of Parliamentary Constituencies (717)

What it shows:
Displays the total number of parliamentary constituencies covered in the dataset.

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3. Card: Count of Years (11)

What it shows:
Shows the total number of election years analyzed (1977–2014).

Insight:
This allows us to study long-term trends and changes in voting behavior and participation.

---

4. Pie Chart: Distribution of Parliamentary Constituency Type

What it shows:
Breakdown of constituencies into GEN, SC, and ST categories.

Insight:
Most constituencies are General, while SC and ST seats ensure constitutional representation for marginalized communities.

---

5. Column Chart: Total Votes Received by Year

What it shows:
Total votes polled in each election year.

Insight:
An increasing trend indicates rising voter participation and population growth over time.

---

6. Map: Sum of Votes Received by State

What it shows:
Geographical distribution of votes across Indian states.

Insight:
Larger states contribute significantly more votes, highlighting regional voting weight in national outcomes.

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7. Line Chart: Count of Candidates per Year

What it shows:
Number of candidates contesting elections in each year.

Insight:
A rise in candidates reflects increased political competition and democratic participation.

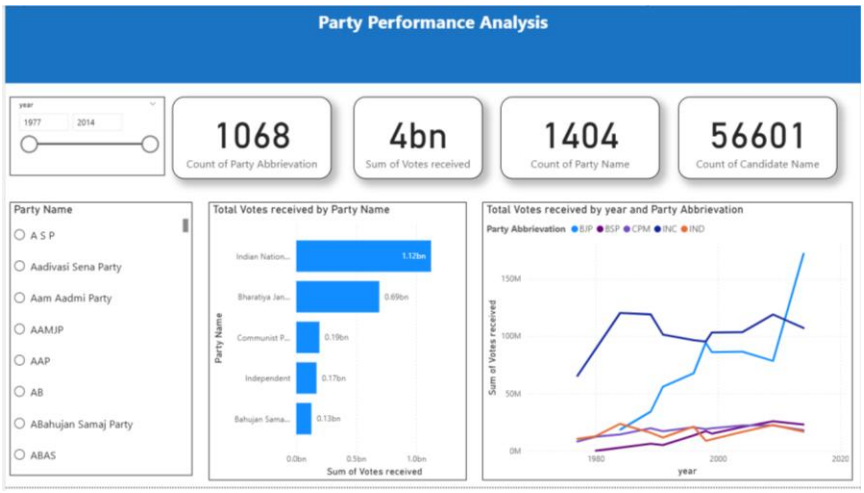
---

8. Donut Chart: Gender Distribution of Candidates

What it shows:
Proportion of male, female, and other candidates.

Insight:
Male candidates dominate elections, indicating gender imbalance and scope for improved female representation.

PAGE 2: Party Performance Analysis



Page Objective

This page focuses on how political parties performed, how votes were distributed among them, and how party strength evolved over time.

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1. Card: Count of Party Abbreviations (1068)

What it shows:
Total number of unique party abbreviations.

---

2. Card: Sum of Votes Received (4bn)

What it shows:
Total votes polled across all years.

Insight:
Demonstrates the massive scale of voter participation in Indian elections.

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3. Card: Count of Party Names (1404)

What it shows:
Number of political parties that contested elections.

Formula used : Total no of parties = DISTINCTCOUNT('indian-national-level-election'[Party Name])

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4. Card: Count of Candidates (56,601)

What it shows:
Total candidates who contested elections.

Formula used Total no of candidate = DISTINCTCOUNT('indian-national-level-election'[Candidate Name])

---

5. Bar Chart: Total Votes Received by Party Name

What it shows:
Comparison of votes received by major parties.

Insight:
National parties like INC and BJP dominate vote share, but regional parties still play a significant role.

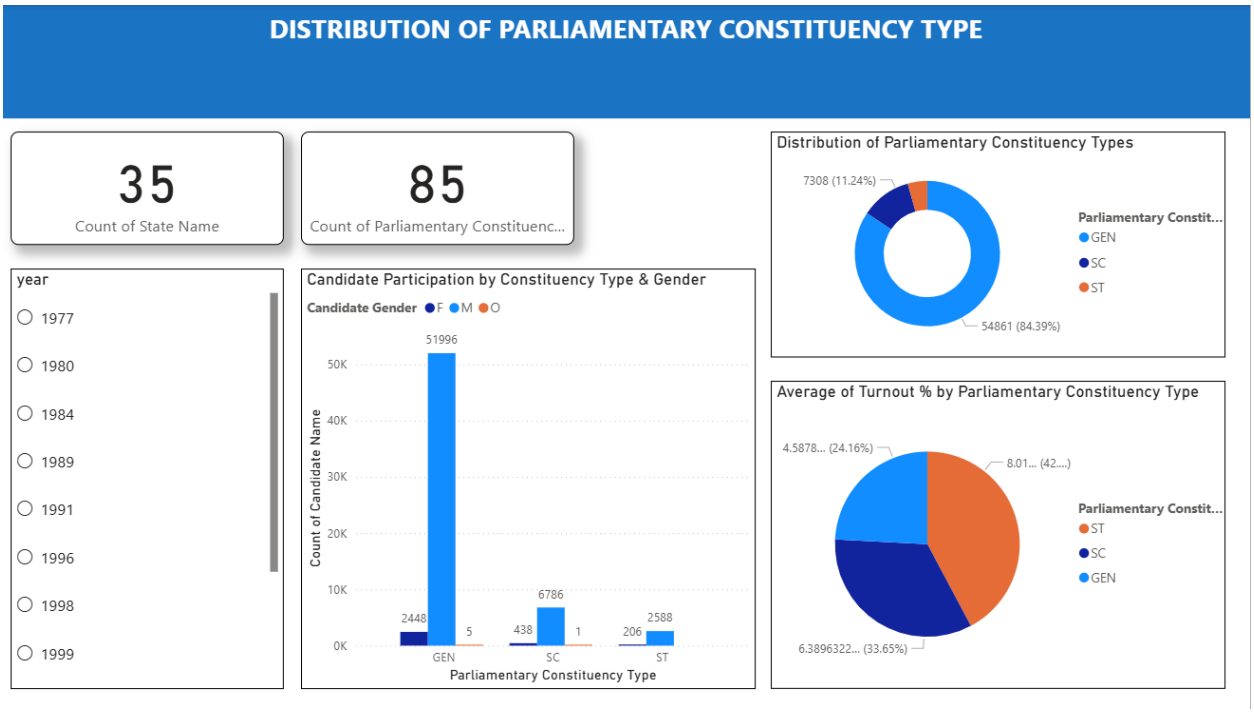
---

6. Line Chart: Total Votes by Year and Party

What it shows:
Trend of votes received by major parties over time.

Insight:
Reveals shifts in political dominance, emergence of new parties, and decline of others.

PAGE 3: Distribution of Parliamentary Constituency Type



Page Objective

This page analyzes how constituency types differ in terms of count, candidate participation, gender representation, and voter turnout.

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1. Card: Count of State Name (35)

What it shows:

Number of states included for constituency-type analysis.

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2. Card: Count of Parliamentary Constituencies (85)

(Filtered view based on selection)

What it shows:
Total constituencies under current slicer selection.

---

3. Donut Chart: Distribution of Parliamentary Constituency Types

What it shows:
Proportion of GEN, SC, and ST constituencies.

Insight:
Confirms that reservation policies are consistently applied across election years.

---

4. Clustered Column Chart: Candidate Participation by Constituency Type & Gender

What it shows:
Number of male, female, and other candidates contesting in each constituency type.

Insight:
Male dominance exists across all constituency types, while female participation remains limited, even in reserved seats.

---

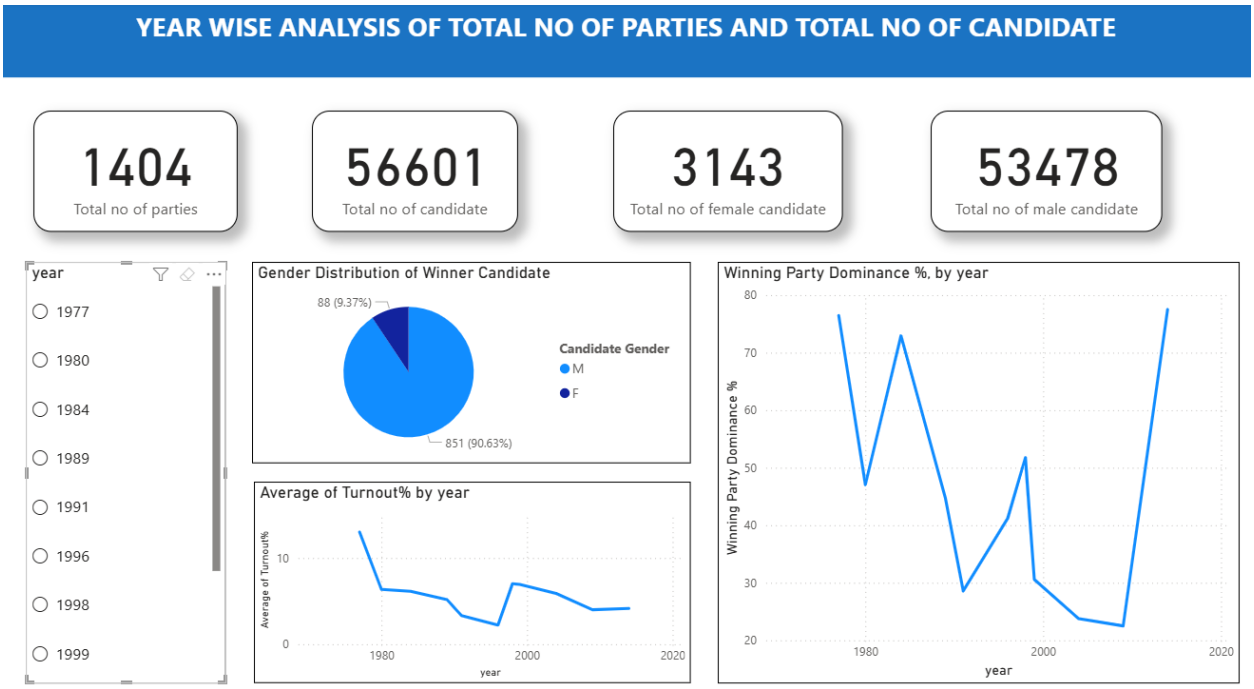
5. Pie Chart: Average Turnout % by Constituency Type

What it shows:
Average voter turnout in GEN, SC, and ST constituencies.

Insight:
ST constituencies often show higher turnout, indicating strong voter engagement in reserved regions.

Milestone 3

PAGE 4: Year Wise Analysis



Page Objective

This page analyzes year wise analysis Total number of parties and Total number of candidate

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1. Card: Count of Total number of parties

What it shows:

Represent Total no of parties present in the dataset and varies year by year.

Formula used: Total no of female candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-election'[Party Name])

---

2. Card: Count of Total number of candidate

What it shows:
Represent Total no of candidates present in the dataset and varies year by year.

Formula used: Total no of candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-election'[Candidate Name])

---

3. Card: Count of Total number of female candidate

What it shows:
Represent Total no of female candidates present in the dataset out of total candidate and varies year by year

Formula used: Total no of female candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-election'[Candidate Name]),'indian-national-level-election'[Candidate Gender]="F")

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4. Card: Count of Total number of male candidate

What it shows:
Represent Total no of male candidates present in the dataset out of total candidate and varies year by year

Formula used: Total no of female candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-

election'[Candidate Name]),'indian-national-level-election'[Candidate Gender]="M")

---

5. Gender Distribution of Winner Candidate (Pie Chart)

What it shows:
Displays the proportion of male and female winning candidates.

Insight:
Highlights gender imbalance in election outcomes.

---

6. Average Turnout Percentage by Year (Line Chart)

What it shows:
This chart shows average Turnout % in each year

Shows trends in voter participation across election years.

Insight:

There was the highest turnout % in 1977 then it kept on decreasing and lowest in 1996 then it increased from 1998 and then became stable in 2014.

Helps analyze changes in public engagement over time.

---

7. Winning Party Dominance% (Line Chart):

What it shows:
This chart shows the Winning Party Dominance Index, which measures the percentage of constituencies won by the top party in each election year.

The tooltip/card highlights which party held that dominance, allowing us to clearly distinguish single-party dominance from coalition eras.

Formula used:

Winning Party Dominance % = DIVIDE([Top Party Seats],[Total Constituencies],0) * 100

Top Party Seats = MAXX(VALUES('indian-national-level-election'[Party Name]),[Seats Won])

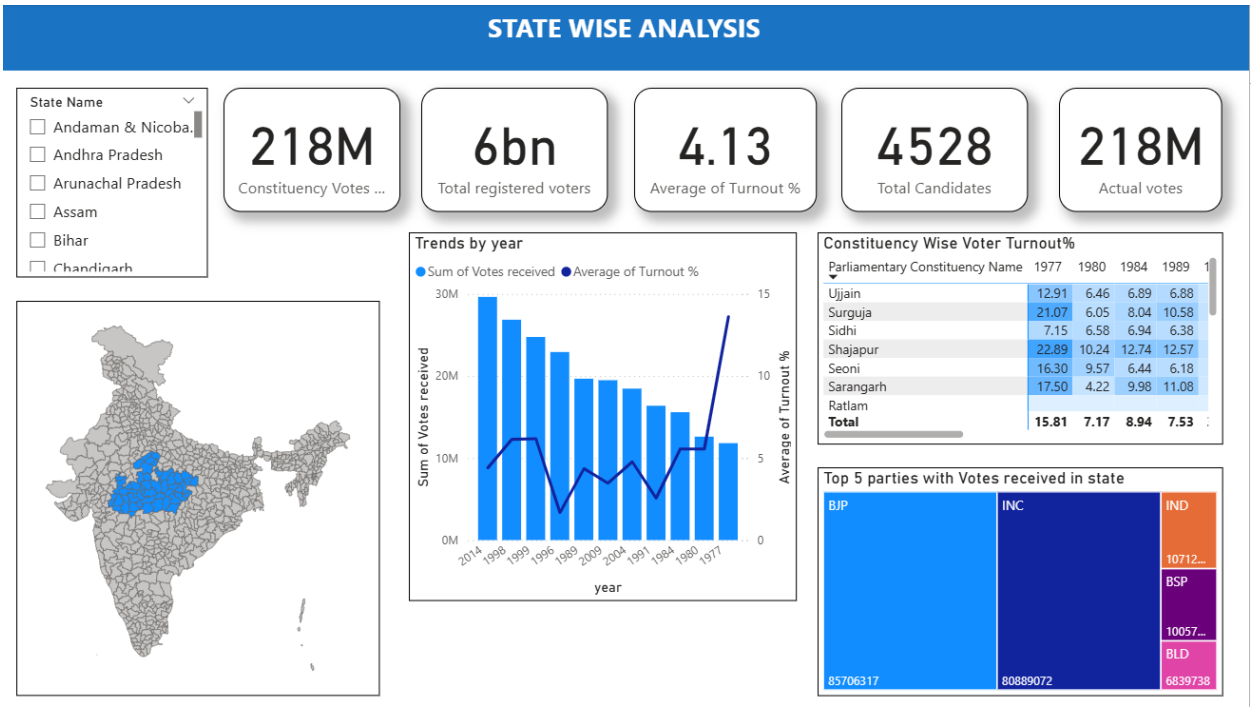
Seats Won = SUM('indian-national-level-election'[Winner])

Total Constituencies = DISTINCTCOUNT('indian-national-level-election'[Parliamentary Constituency Number])

Insight:
Higher values indicate a dominant single-party system, while lower values reflect coalition-based politics .

When observed alongside the number of participating parties, it clearly highlights the transition from dominance to coalition eras.

PAGE 5: State Level Analysis



Page Objective

This page analyzes State wise performance of party

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1. Card: Total Constituencies Votes

What it shows:
Represent Total Constituencies Votes

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2. Card: Total registered voters

What it shows:
Represent Total no of registered voters as well as present in specific state.

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3. Card: Average of turnout %

What it shows:
Represent Total average of turnout% as well as avergae turnout% of specific state.

---

4. Card: Total Candidates

What it shows:
Represent Total no of candidates as well as total candidates present in specific state.

5. Card: Actual Votes

What it shows:
Represent Total no of Actual Votes as well as present in specific state.

---

6. Shape Map – Geographical State Selection

What it shows:
An interactive map of India allowing users to filter the entire dashboard by selecting a specific state (e.g., Andhra Pradesh).

Helps users visualize the geographical context of the data being analyzed.

Selected regions are highlighted to show the physical distribution of constituencies

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7. Treemap – Sum of Votes Received by Party

What it shows:
Illustrates the distribution of the total votes received across different political parties.

The size of each rectangle represents the party's vote share, making it easy to identify dominant parties like INC and TDP.

Useful for comparing the relative strength of multiple parties simultaneously.

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8. Combination Chart (Line and Stacked Column) – Trends by Year

What it shows:
Displays the Sum of votes received as bars and the Average of voters_turnout_% as a line over different election years.

Ideal for identifying correlations between the volume of votes and the percentage of voter participation over time.

Dual axes allow for the comparison of two different scales (millions of votes vs. percentage) in one visual.

Insight:
This graph compares total votes received with the average voter turnout percentage across election years. It shows that increases in total votes do not consistently align with higher turnout percentages, indicating no clear positive relationship between voter participation and total votes.

---

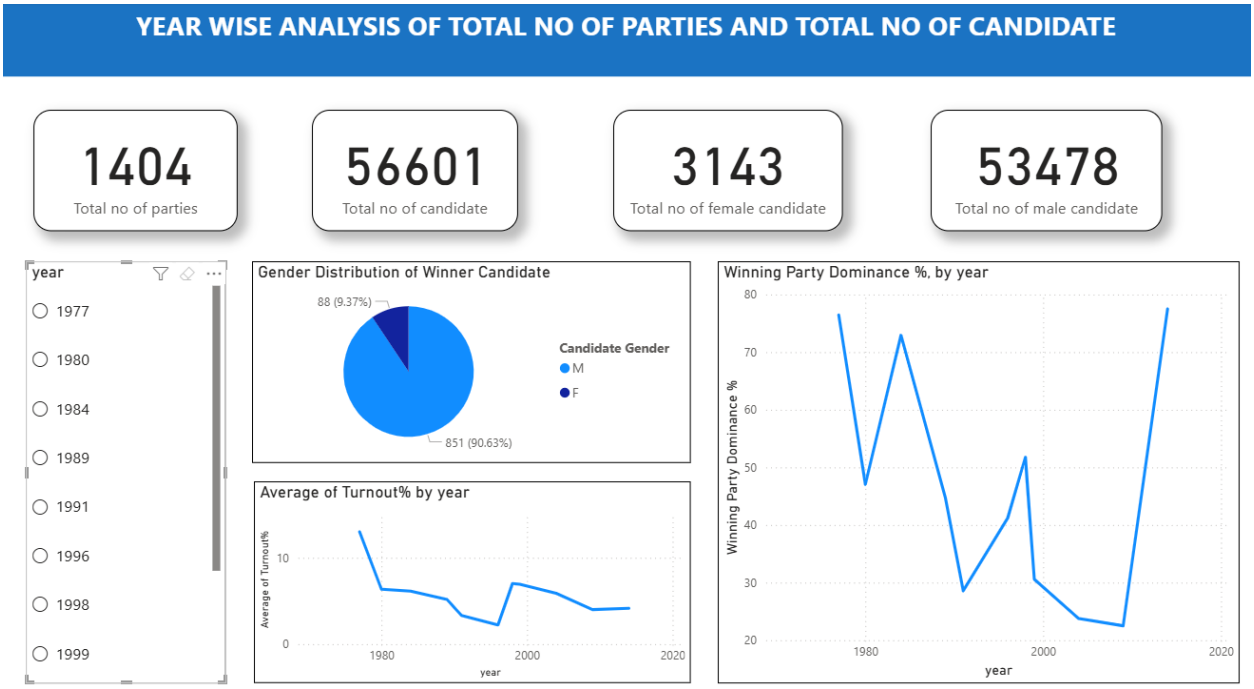
9. Matrix Table – Constituency Wise Voter Turnout

What it shows:
Provides a detailed breakdown of voter turnout percentages for each constituency (e.g., Adilabad, Amalapuram) across various years.

Allows for a deep dive into localized performance trends and historical comparisons.

Milestone 4

PAGE 6: Gender Wise Analysis



Page Objective

This page analyzes gender wise analysis

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1. Card: Count of Total number of candidate

What it shows:

Represent Total no of candidates present in the dataset and varies year by year.

Total no of candidate = DISTINCTCOUNT('indian-national-level-election'[Candidate Name])

---

2. Card: Count of Total number of female candidate

What it shows:

Represent Total no of female candidates present in the dataset out of total candidate and varies year by year.

Total no of female candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-election'[Candidate Name]),'indian-national-level-election'[Candidate Gender]="F")

---

3. Card: Count of Total number of male candidate

What it shows:
Represent Total no of male candidates present in the dataset out of total candidate and varies year by year.

Total no of male candidate = CALCULATE(DISTINCTCOUNT('indian-national-level-election'[Candidate Name]),'indian-national-level-election'[Candidate Gender]="M")

---

4. Gender-wise Votes Polled (Pie Chart)

Why used:
To compare **how votes are distributed** between male and female candidates.

What it presents:

- Male candidates receive the majority of votes
- Female candidates receive a much smaller share

This shows that lower participation of women also reflects in lower vote share.

---

5. Donut Chart: Gender Distribution of Candidates

What it shows:
Proportion of male, female, and other candidates.

Insight:
Male candidates dominate elections, indicating gender imbalance and scope for improved female representation.

---

6. State-wise Table

What it shows:
Tables are best when exact numbers matter.

What it presents:

- State-wise count of total candidates
- Number of male and female candidates in each state

This helps identify which states have relatively better or worse female representation.

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7. Male vs Female Candidates Over Time (Line Chart)

What it shows:
Line charts clearly show trends over time.

What it presents:

- Male candidate participation has increased over the years
- Female participation has improved slightly but remains very low

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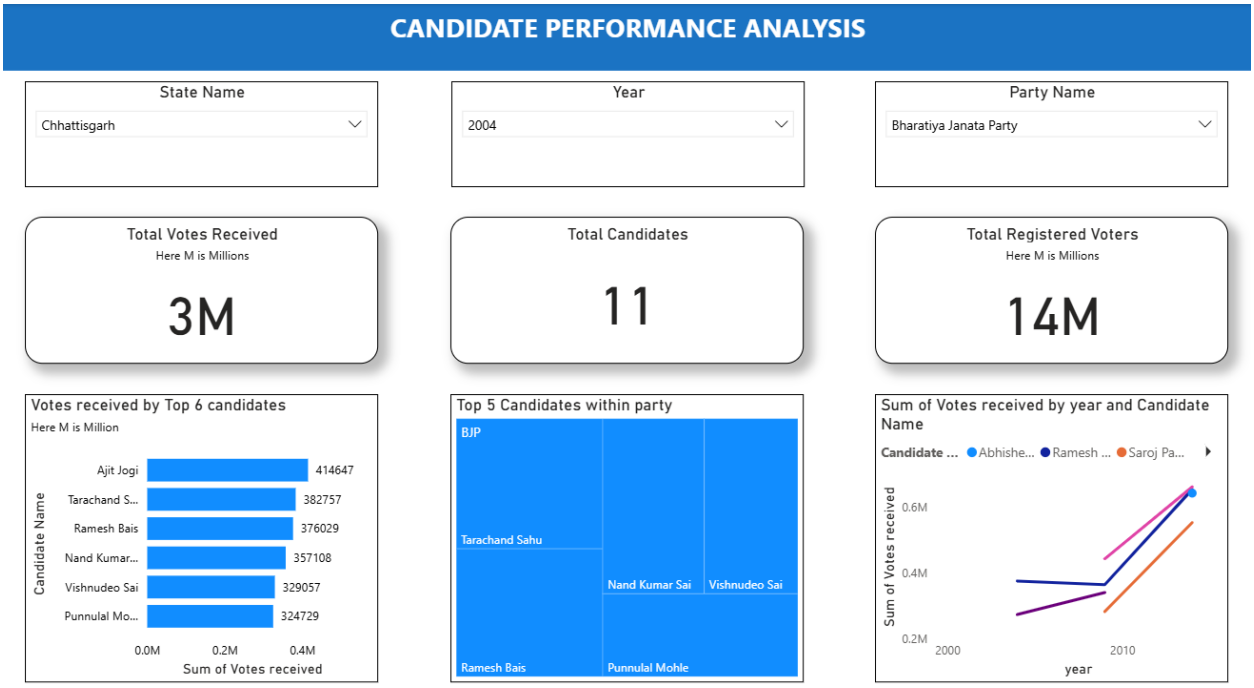
Conclusion:

This page clearly shows that Indian elections are heavily male-dominated.
While there is slow progress in female participation, gender imbalance remains a major challenge in electoral representation.

PAGE 7: Candidate Performance analysis



Page Objective

This page analyzes Candidate performance analysis

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1. Slicer: State

What it shows:

Allows to slice the entire dashboard according to any state

---

2. Slicer: Year

What it shows:
Allows to slice the entire dashboard according to any year

---

3. Slicer: Party Name

What it shows:
Allows to slice the entire dashboard according to any party.

---

4. Card: Total Votes Received

What it shows:
Represent Total Votes Received by party in specific year or state.

---

5. Card: Total Candidates

What it shows:
Represent Total number of candidates belong to that party in specific year or state

---

6. Card: Total Registered Voters

What it shows:
Represent Total Votes Registered voters in specific year or state.

---

6. Stacked Bar Chart : Votes received by Top 6 candidates

What it shows:
This chart shows that sum of votes received by Top 6 candidates

Insight:

Compares individual performance side-by-side using the sum of votes received.

---

7. Treemap – Sum of Votes Received by Party

What it shows:

his visual shows how votes are distributed among top candidates of the same party.
Larger blocks indicate candidates with higher vote share, making it easy to identify star performers.

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8. Line Chart – Votes Trend Over Years

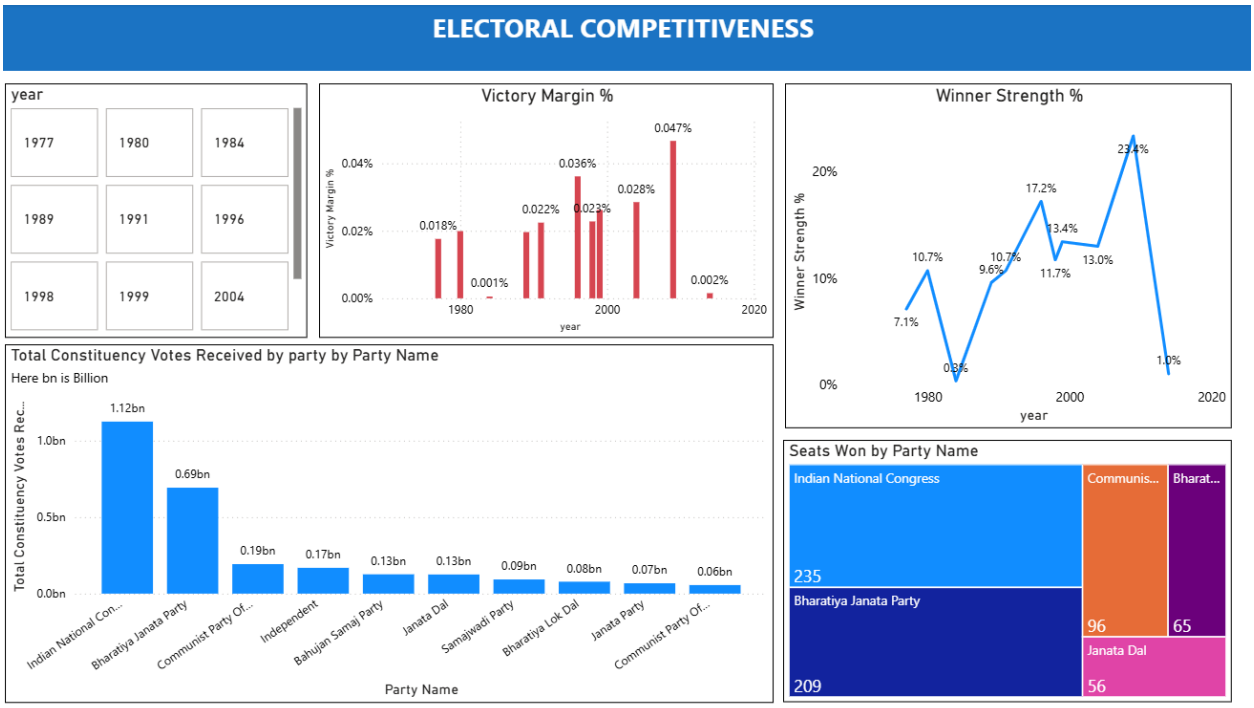
What it shows:

This line chart shows how votes for key candidates have changed over time.
It helps us understand consistency, growth, or decline in a candidate's popularity.

Conclusion:

Overall, this page shows that **candidate performance is not equal within a party**.
A small number of strong candidates drive most of the votes, while others play a supporting role.
This highlights the importance of **strong individual leaders in elections**, not just party strength.

PAGE 8: Electoral competitiveness analysis



Page Objective

Electoral competitiveness analysis uses victory margins to differentiate closely fought elections from landslide wins and reveals regional patterns of political dominance and voter behavior.

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1. Year slicer

What it shows:

It helps to filter the entire dashboard year wise.

---

2. Victory Margin % (Column Chart)

What it shows:

Represent How big was the win compared to all voters who participated?

Small % → highly competitive election

Large % → one-sided contest

Victory Margin % = DIVIDE([Winner Votes]-[RunnerUp Votes],'indian-national-level-election'[Total Valid Votes])

Total Valid Votes = CALCULATE(SUM('indian-national-level-election'[Votes received]),ALLEXCEPT('indian-national-level-election','indian-national-level-election'[year],'indian-national-level-election'[Parliamentary Constituency Number]))

Insight:
The victory margin percentage remains consistently low across most election years, indicating that Indian parliamentary elections are highly competitive. Several years show extremely small margins, highlighting closely contested constituencies where minor vote swings could change the outcome.

---

3. Winner Strength % (Line Chart)

What it shows:
Represent By what fraction did the winner outperform the runner-up?

Small % → narrow win

Large % → dominant win

Winner Strength % = DIVIDE([Winner Votes]-[RunnerUp Votes],[Winner Votes])

Winner Votes =

CALCULATE(

MAX('indian-national-level-election'[Votes received]),

'indian-national-level-election'[Winner] = 1,

ALLEXCEPT(

```
        'indian-national-level-election',
        'indian-national-level-election'[Parliamentary Constituency Number],
        'indian-national-level-election'[Year]
    )
)
RunnerUp Votes =
VAR WinnerVotes =
    CALCULATE(
        MAX('indian-national-level-election'[Votes received]),
        'indian-national-level-election'[Winner] = 1,
        ALLEXCEPT(
            'indian-national-level-election',
            'indian-national-level-election'[Parliamentary Constituency Number],
            'indian-national-level-election'[Year]
        )
    )
RETURN
    CALCULATE(
        MAX('indian-national-level-election'[Votes received]),
        FILTER(
            ALLEXCEPT(
                'indian-national-level-election',
```

```
            'indian-national-level-election'[Parliamentary Constituency
Number],
            'indian-national-level-election'[Year]
        ),
        'indian-national-level-election'[Votes received] < WinnerVotes
    )
)
```

Insight:
Winner strength fluctuates significantly across election years. Some years reflect dominant victories with high winner strength, while others show weak dominance, indicating fragmented voter preferences and strong opposition presence.

---

4. Total Constituency Votes received by party

What it shows:
Cumulative votes received by each political party across all constituencies and years.

Total Constituency Votes Received by party = CALCULATE(SUM('indian-national-level-election'[Votes received]), ALL('indian-national-level-election'[Candidate Name], 'indian-national-level-election'[Party Abbrievation]))

Insight:

National parties such as the Indian National Congress and Bharatiya Janata Party have received significantly higher total vote shares compared to regional parties, reflecting their broader national presence

and voter base. However, regional parties still contribute substantial vote volumes in specific regions.

---

5. Seats Won by Party

What it shows:
Total number of parliamentary seats won by each party.

It shows rise and fall of political parties.

Seats Won = SUM('indian-national-level-election'[Winner])

Insight

Seat distribution is uneven across parties. While a few major parties dominate in terms of seats won, smaller and regional parties maintain electoral relevance by securing representation in specific constituencies, indicating a multi-party democratic structure.

Conclusion:

Under the First Past the Post system, winning a seat depends on securing the highest votes in each constituency, not on overall vote share.
As a result, a party can win more seats even with fewer total votes, while another party may receive a large number of votes but win fewer seats.

For example BSP in 2014 received 23M votes but won 0 seats.