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# SQL DATA ANALYST PROJECT INDIA GENERAL ELECTIONS 2024

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# SQL ANALYSIS  - INDIA GENERAL ELECTIONS -2024

## Overview

This project provides an in-depth analysis of the **India General Election Results 2024** using SQL. It includes queries for understanding constituency-wise details, party performance, state-wise trends, and voter turnout statistics.

## Database Structure

The database consists of multiple tables:

- **constituencywise_details**: Contains information about candidates, parties, and votes in each constituency.
- **constituencywise_results**: Stores election results, including winning candidates and margin of victory.
- **partywise_results**: Provides details about the number of seats won by each party.
- **states**: Includes state-wise constituency mapping.
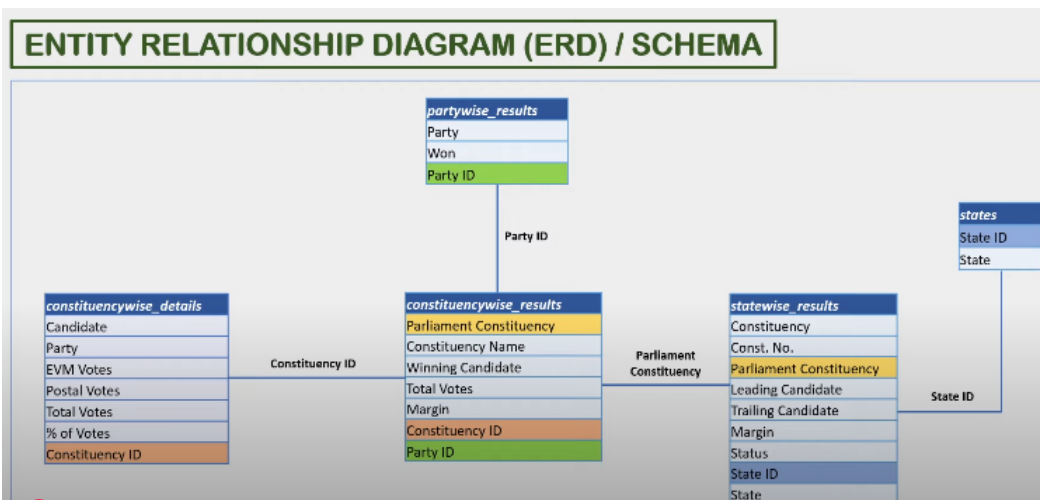
DatabaseName :  Indiaelection

**Tables 1.**
constituencywise_details

```
Columns
[S_N]
[Candidate]
[Party]
[EVM_Votes]
[Postal_Votes]
[Total_Votes]
[of_Votes]
[Constituency_ID]
```

**Tables 2.**
constituencywise_results

```
Columns

 [S_No]
[Parliament_Constituency]
 [Constituency_Name]
[Winning_Candidate]
 [Total_Votes]
 [Margin]
[Constituency_ID]
  [Party_ID]
```

**Tables 3.** partywise_results

```
Columns   [Party]  ,[Won]
     ,[Party_ID]
```

**Tables 4.** [states]

```
Columns   [State_ID]
,[State]
```

**Tables 5**.
[Statewise_results]

```
Columns   [Party] ,[Won]
```

**Understanding Database Structure**

1. How many tables are there in the **Indiaelection** database, and what are their relationships?

```sql
SELECT table_name
FROM information_schema.tables

WHERE table_schema = 'Indiaelection';
```

2. What are the **primary keys** and **foreign keys** in each table?
3. How do the **Constituency_ID** and **Party_ID** link different tables?
4. What is the data type for each column in the tables?

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**Basic Data Exploration**

5.      How many unique constituencies are there in the constituencywise_details table?

SELECT COUNT(DISTINCT Constituency_ID) AS Total_Constituencies
FROM constituencywise_details;

6.      What are the total votes in each constituency?

select
cd.Constituency_ID,cr.Constituency_Name, sum(cd.Total_Votes) as total_votes
from constituencywise_details cd
join constituencywise_results cr on cd.Constituency_ID = cr.Constituency_ID
group by cd.Constituency_ID , cr.Constituency_Name
order by total_votes

SELECT Constituency_ID, SUM(Total_Votes) AS TotalVotes
FROM constituencywise_details
GROUP BY Constituency_ID
ORDER BY TotalVotes DESC;

7.      Which political parties are present in the dataset, and how many candidates does each party have?

SELECT Party, COUNT(DISTINCT Candidate) AS Total_Candidates
FROM constituencywise_details
GROUP BY Party;

8.      How many constituencies exist in each state?

select state, count(Const_No) as constituencies

from stateswise_results

group by state

---

**Candidate and Constituency Analysis**

9. Who won in each constituency, and what was their winning margin?

SELECT Constituency_Name, Winning_Candidate, Margin
FROM constituencywise_results

ORDER BY Margin DESC;

10. What is the percentage of total votes won by each candidate in their constituency?

SELECT Candidate, Constituency_ID,
    (Total_Votes / SUM(Total_Votes) OVER(PARTITION BY Constituency_ID)) * 100 AS Vote_Percentage

    FROM constituencywise_details;

11. How many total votes were cast using **EVM vs. Postal votes** for each constituency?

SELECT Constituency_ID, SUM(EVM_Votes) AS Total_EVM, SUM(Postal_Votes) AS Total_Postal
FROM constituencywise_details

    GROUP BY Constituency_ID;

12. Which constituency had the **highest** voter turnout?

SELECT Constituency_Name, MAX(Total_Votes) AS Highest_Votes
FROM constituencywise_results
GROUP BY Constituency_Name
ORDER BY Highest_Votes DESC

    LIMIT 1;

13. Which constituency had the **lowest** voter turnout?

SELECT Constituency_Name, MIN(Total_Votes) AS Lowest_Votes
FROM constituencywise_results
GROUP BY Constituency_Name Sunday, 23 February 2025

    ORDER BY Lowest_Votes ASC

---

**Party Performance Analysis**

14. How many seats did each political party win in the election?

```
SELECT *
        FROM [Indiaelection].[dbo].[partywise_results]
```

15. Which party received the highest total votes across all constituencies?

```
SELECT Party, SUM(Total_Votes) AS Total_Votes

FROM constituencywise_details

GROUP BY Party

ORDER BY Total_Votes DESC

LIMIT 1;
```

16. What is the **win percentage** of each party based on the number of constituencies contested?

```
SELECT Party_ID,
    (COUNT(*) * 100.0 / (SELECT COUNT(*) FROM constituencywise_results)) AS Win_Percentage
FROM constituencywise_results

        GROUP BY Party_ID;
```

17. Which party had the **highest average margin of victory** across all constituencies?

```
SELECT Party_ID, AVG(Margin) AS Avg_Margin
FROM constituencywise_results
GROUP BY Party_ID

        ORDER BY Avg_Margin DESC;
```

---

**State-Wise Election Analysis**

18. What is the total number of constituencies in each state?
19. Which state had the highest number of winning candidates from a single party?
20. What is the state-wise distribution of winning margins?

```
SELECT s.State, COUNT(DISTINCT c.Constituency_ID) AS Total_Constituencies
FROM constituencywise_results c
JOIN states s ON c.Constituency_ID = s.State_ID
GROUP BY s.State;

SELECT s.State, Party_ID, COUNT(*) AS SeatsWon
FROM constituencywise_results c
JOIN states s ON c.Constituency_ID = s.State_ID
GROUP BY s.State, Party_ID
```

```sql
ORDER BY SeatsWon DESC
LIMIT 1;

SELECT s.State, AVG(Margin) AS AvgWinningMargin
FROM constituencywise_results c
JOIN states s ON c.Constituency_ID = s.State_ID
GROUP BY s.State

        ORDER BY AvgWinningMargin DESC;
```

---

**Advanced Analysis**

**21. Which parties performed better in postal votes compared to EVM votes?**

```sql
SELECT Party, SUM(Postal_Votes) AS PostalVotes, SUM(EVM_Votes) AS EVMVotes
FROM constituencywise_details
GROUP BY Party
HAVING SUM(Postal_Votes) > SUM(EVM_Votes)
ORDER BY PostalVotes DESC;
```

---

**22. Are there any constituencies where the runner-up lost by a very narrow margin (<1000 votes)?**

```sql
SELECT Constituency_Name, Winning_Candidate, Margin
FROM constituencywise_results
WHERE Margin < 1000;
```

---

**23. How does the percentage of votes for winning candidates compare to the total registered voters?**

```sql
SELECT cr.Constituency_Name, cr.Winning_Candidate,
    (cr.Total_Votes / SUM(cd.Total_Votes) OVER (PARTITION BY cr.Constituency_ID)) * 100 AS VoteShare
FROM constituencywise_results cr
JOIN constituencywise_details cd ON cr.Constituency_ID = cd.Constituency_ID;
```

---

**24. What is the correlation between voter turnout and margin of victory?**

```sql
SELECT CORR(Total_Votes, Margin) AS Turnout_Margin_Correlation
FROM constituencywise_results;
```

---

**25. Which party won the most seats in a single state?**

```sql
SELECT s.State, pr.Party, COUNT(*) AS SeatsWon
FROM partywise_results pr
JOIN constituencywise_results cr ON pr.Party_ID = cr.Party_ID
JOIN states s ON cr.Constituency_ID = s.State_ID
GROUP BY s.State, pr.Party
```

```
ORDER BY SeatsWon DESC
LIMIT 1;
```

## 26. Total Seats

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

## 27. What is the total number of seats available for elections in each state

```sql
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;
```

## 28. Total Seats Won by NDA Allianz

```sql
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
```

## 29. Seats Won by NDA Allianz Parties

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

## 30. Total Seats Won by I.N.D.I.A. Allianz

```sql
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',
            'Nat`Jammu & Kashmir National Conference - JKN',
            'Jharkhand Mukti Morcha - JMM',
            'Jammu & Kashmir National Conference - JKN',
            '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
```

## 31. Seats Won by I.N.D.I.A. Allianz 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',
            'Nat`Jammu & Kashmir National Conference - JKN',
            'Jharkhand Mukti Morcha - JMM',
            'Jammu & Kashmir National Conference - JKN',
            '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
```

## 32. Add new column field in table partywise_results to get the Party Allianz as NDA, I.N.D.I.A and OTHER

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

**I.N.D.I.A Allianz**

```
UPDATE partywise_results
SET party_alliance = 'I.N.D.I.A'
WHERE party IN (
    'Indian National Congress - INC',
    'Aam Aadmi Party - AAAP',
```

```sql
    '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'
);
```

**NDA Allianz**

```sql
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'
);
```

**OTHER**

```sql
UPDATE partywise_results
SET party_alliance = 'OTHER'
WHERE party_alliance IS NULL;
```

**Which party alliance (NDA, I.N.D.I.A, or OTHER) won the most seats across all states?**

```sql
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;
```

### 34. Winning candidate's name, their party name, total votes, and the margin of victory for a specific state and 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';
```

### 35. What is the distribution of EVM votes versus postal votes for candidates in a specific constituency?

```
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;
```

### 36. Which parties won the most seats in s State, and how many seats did each party win?

```
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;
```

## 37. What is the total number of seats won by each party alliance (NDA, I.N.D.I.A, and OTHER) in each state for the India Elections 2024

```
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')  -- Filter for NDA and INDIA alliances
GROUP BY
    s.State
ORDER BY
    s.State;
```

## 38. Which candidate received the highest number of EVM votes in each constituency (Top 10)?

```
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;
```

## 39. Which candidate won and which candidate was the runner-up in each constituency of State for the 2024 elections?

```sql
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;
```

Thanks & credits to : data tutorials Swapna jeet