Sri Lankan Presidential Election Results 2024

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Introduction

This report presents an in-depth analysis of the 2024 Sri Lankan Presidential Election, demonstrating the use of modern data analytics and visualization tools to gain valuable insights into electoral outcomes. The project begins with structured data modeling in SQL, integrating information on candidates, districts, and polling stations. SQL queries were used to extract and analyze key metrics, such as vote distributions, leading and trailing candidates, and voter turnout across districts.

The analysis is further enhanced with Power BI dashboards, which provide a visual representation of the data through interactive maps, charts, and KPI indicators. These dashboards illustrate district-wise leading candidates, voter engagement, and overall election trends, allowing stakeholders to explore and interpret the data effectively.

By combining SQL and Power BI, this project showcases the potential of data-driven decision-making, providing a foundation for future applications in elections and beyond. It aims to serve as a guide for leveraging analytics to simplify complex datasets and deliver meaningful insights.

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1) Tables

1. Candidatewise details

- o Columns: CandidateID, CandidateName, PartyName, PartySymbol, Experience
- Purpose: Stores essential information about each candidate, including their political affiliation and background details.

2. CandidateWise Results

- Columns: CandidateID, PartyName, CandidatewiseTotalVotes,
 CandidatewisePreferential, CandidatewiseTotal (calculated as the sum of CandidatewiseTotalVotes and CandidatewisePreferential)
- Purpose: Captures the total votes for each candidate based on different voting methods. We can calculate the percentage of total votes in queries.

3. District

- o Columns: DistrictID, DistrictName , Province, Country
- o **Purpose:** Define each district for referencing in other tables.

4. Districtwise_results

- Columns: LeadingCandidateID, TrailingCandidateID, LeadingCandidateEVM, LeadingCandidatePostal, LeadingCandidatePreferential, LeadingCandidateTotal, DistrictID, DistrictName
- Purpose: Summarizes the results for each district, including vote counts by method for the leading candidate. We can also calculate the percentage of votes for the leading candidate during queries.

5. PollingStationwise_Details

- Columns: PollingStation, PollingStationID, DistrictID, WinningCandidateID, NoRegisteredElectors, TotalNoValidVotes, NoRejectedVotes, NoVotesPolled, DistrictName
- Purpose: Stores details about each polling station, including the winning candidate and voter turnout statistics.

2) Meaning of Each Column

2.1 Candidatewise_details

Primary Key: CandidateID

Columns:

- o CandidateID (VARCHAR): Unique identifier for each candidate (Primary Key).
- o CandidateName (STRING): Full name of the candidate.
- o PartyName (STRING): Name of the candidate's political party.
- PartySymbol (STRING): Symbol representing the candidate's party.
- Experience (INTEGER or STRING): Candidate's experience, such as years in politics or related roles.

2.2 CandidateWise Results

Primary Key: CandidateID

Columns:

- CandidateID (VARCHAR): Unique identifier linking to each candidate (Primary Key, Foreign Key to Candidatewise Details).
- PartyName (STRING): Name of the candidate's political party.
- o CandidatewiseTotalVotes (INTEGER): Total general votes received by each candidate.
- CandidatewisePreferential (INTEGER): Total preferential votes received by each candidate.
- o CandidatewiseTotal (INTEGER): Combined total of general and preferential votes.

2.3 District

Primary Key: DistrictID

Columns:

- o DistrictID (VARCHAR): Unique identifier for each district (Primary Key).
- DistrictName (STRING): Name of each district.

- Country (STRING)
- Province (STRING)

2.4 Districtwise_results

Primary Key: DistrictID

Columns:

- DistrictID (VARCHAR): Unique identifier linking to each district (Primary Key, Foreign Key to District).
- LeadingCandidateID (VARCHAR): Unique identifier of the leading candidate in each district (Foreign Key to Candidatewise_Details).
- TrailingCandidateID (VARCHAR): Unique identifier of the trailing candidate in each district (Foreign Key to Candidatewise_Details).
- LeadingCandidateEVM (INTEGER): Total votes received by the leading candidate through EVM.
- LeadingCandidatePostal (INTEGER): Total postal votes received by the leading candidate.
- LeadingCandidatePreferential (INTEGER): Preferential votes received by the leading candidate.
- LeadingCandidateTotal (INTEGER): Total votes received by the leading candidate, combining all voting types.
- DistrictName (STRING): Name of each district.

2.5 PollingStationwise_Details

Primary Key: PollingStationID

Columns:

- PollingStationID (VARCHAR): Unique identifier for each polling station (Primary Key).
- o PollingStation (STRING): Name of the polling station.
- DistrictID (VARCHAR): Identifier linking to the district of the polling station (Foreign Key to District).
- WinningCandidateID (VARCHAR): Identifier of the winning candidate at this polling station (Foreign Key to Candidatewise_Details).
- NoRegisteredElectors (INTEGER): Number of registered electors at the polling station.
- o TotalNoValidVotes (INTEGER): Total number of valid votes cast at the polling station.
- NoRejectedVotes (INTEGER): Number of votes rejected.
- NoVotesPolled (INTEGER): Total number of votes polled at the station, including both valid and rejected votes.
- DistrictName (STRING): Name of each district.

3) Primary Keys and Foreign Keys

Primary Keys:

- o CandidateID in Candidatewise Details and Candidatewise Results.
- o DistrictID in District.
- o PollingStationID in PollingStationwise Details.

Foreign Keys:

- CandidateID in Candidatewise_Results, and LeadingCandidateID and
 TrailingCandidateID in Districtwise_Results linking to Candidatewise_Details.
- DistrictID in PollingStationwise_Details and Districtwise_Results linking to the District table.
- WinningCandidateID in PollingStationwise_Details linking to Candidatewise Details.

4) <u>Fact Table & Dimension</u> <u>Tables</u>

4.1 Fact Table

CandidateWise Results

• Reason for Fact Table:

- This table contains the core quantitative data to be analyzed, specifically the vote counts (CandidatewiseTotalVotes, CandidatewisePreferential, CandidatewiseTotal) for each candidate.
- Fact tables in data models typically store measurable data with foreign keys referencing dimensions. Here, CandidateWise Results provides the essential measurable elements for analysis (vote counts per candidate).
- As the central fact table, it enables aggregation and filtering by various dimensions, such as party, district, and polling station.

• Columns:

- CandidateID (Foreign Key to link to candidate details)
- o Party Name
- CandidatewiseTotalVotes
- CandidatewisePreferential
- CandidatewiseTotal

4.2 Dimension Tables

Each of the following tables serves to add descriptive or contextual information to the model. Dimension tables store qualitative data and provide context for the quantitative data in the fact table.

4.2.1 Candidatewise_details

• Reason for Dimension Table:

- This table contains descriptive attributes of each candidate, such as CandidateID,
 CandidateName, PartyName, PartySymbol, and Experience.
- Dimension tables typically hold descriptive details, useful for adding context without increasing the complexity of fact tables.
- This dimension allows slicing and dicing of fact table data by candidate attributes (e.g., analyzing votes by candidate's party or experience). Primary Key:
 CandidateID, which links to CandidateWise Results.
- **Primary Key:** CandidateID, which links to CandidateWise Results.

4.2.2 District

• Reason for Dimension Table:

- The District table provides geographic context, aiding in the analysis of votes by location.
- Dimension tables often represent entities like locations, time, or categories.
 District is a location category dimension, offering valuable filtering options without storing redundant location information directly in the fact table.
- Primary Key: DistrictID, which is used to link with district-level or constituency-level tables.

4.2.3 Districtwise_Results

Reason for Dimension Table:

- This table summarizes the results at the district level, with attributes like LeadingCandidateID, TrailingCandidateID, LeadingCandidateEVM, LeadingCandidatePostal, LeadingCandidatePreferential, and LeadingCandidateTotal, DistrictName
- It provides valuable context on candidate performance in each district, enabling analysis by leading and trailing results without adding complexity to the main fact table.
- This table serves as a useful summary of district performance, enhancing the detail available in regional analysis.
- Primary Key: DistrictID (Foreign Key to District), with LeadingCandidateID and TrailingCandidateID linking to candidates in Candidatewise Details.

4.2.4 PollingStationwise_Details

• Reason for Dimension Table:

- This table provides details on each constituency, including PollingStation, PollingStationID, DistrictID, WinningCandidateID, NoRegisteredElectors, TotalNoValidVotes, NoRejectedVotes, NoVotesPolled, DistrictName
- By adding context on voter registration and turnout at the constituency level, this table allows for a granular analysis of voting behavior by region.
- This data enhances the analysis of voter engagement and candidate success at the local level.
- **Primary Key**: PollingStationID, which links to constituency-specific data and provides regional context for the fact data.

Summary of Structure

Fact Table:

 CandidateWise Results: This table captures the primary quantitative metrics (vote counts) that you want to analyze.

Dimension Tables:

- o **Candidatewise_details**: Attributes related to candidates.
- District: Attributes related to districts.
- Districtwise_results: Summary data that provides context for district-level performance.
- o **PollingStation_Details**: Attributes related to constituencies and voter statistics.

Why This Structure?

• Ease of Analysis:

This structure allows you to perform complex queries and analyses easily. For example, you can analyze how different candidates performed in various districts and constituencies.

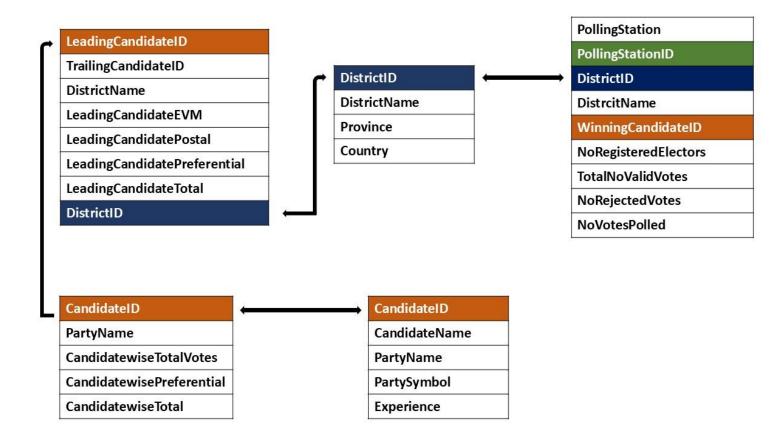
• Flexibility:

It provides flexibility in reporting and visualization, enabling you to slice and dice the data based on candidates, regions, and voter behavior.

Performance:

In a star schema, querying is generally faster because the fact table contains the metrics of interest, while dimension tables hold the attributes that can be joined to filter or categorize those metrics.

5) Structure of the Tables



6) SQL Data Analysis

1. Which candidate received the highest total votes overall?

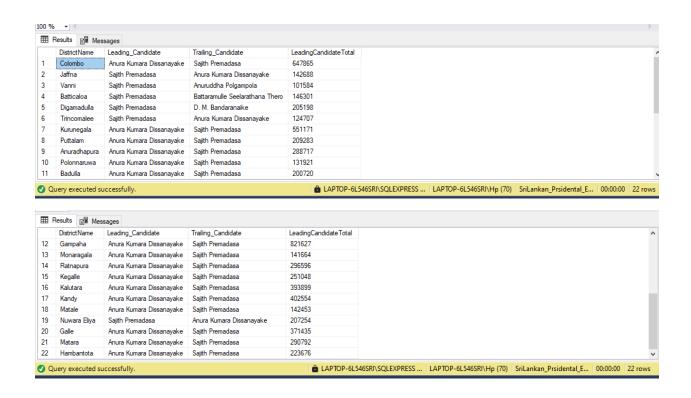
• This query combines the Candidatewise_details and CandidateWise Results tables to find the candidate with the highest total votes.



2. What is the leading and trailing candidate in each district?

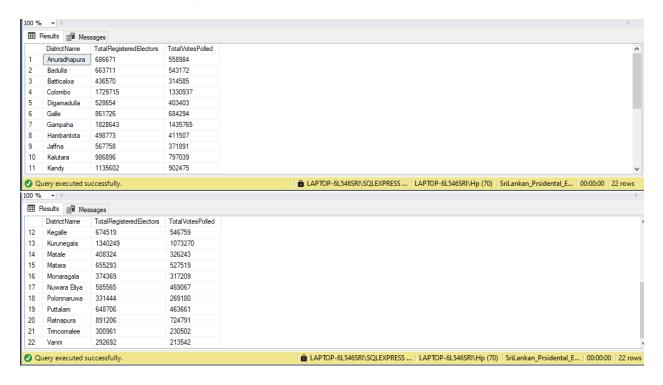
 This query combines Districtwise_results, Candidatewise_details, and District tables to show the leading and trailing candidates for each district.

```
SELECT
     d.DistrictName,
     lc.CandidateName AS Leading_Candidate,
     tc.CandidateName AS Trailing Candidate,
     dr.LeadingCandidateTotal
FROM
     Districtwise Results AS dr
JOIN
     Candidatewise_Details AS lc
           ON
                 dr.LeadingCandidateID=lc.CandidateID
JOIN
     Candidatewise Details AS to
           ON
                 dr.TrailingCandidateID=tc.CandidateID
JOIN
     District AS d
           ON
                 dr.DistrictID=d.DistrictID;
```



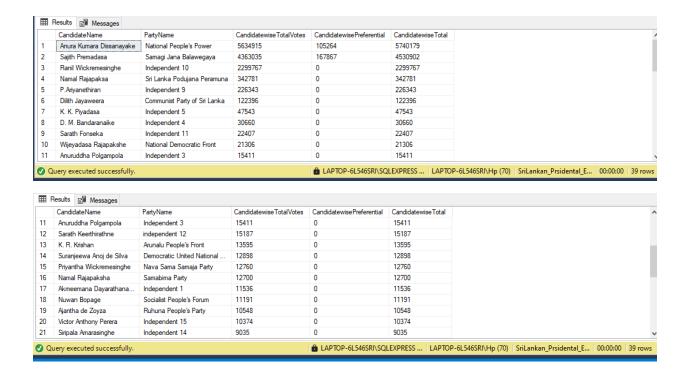
3. What is the total number of registered electors and votes polled per district?

 This query combines the PollingStation_Results and District tables to get the total number of electors and votes polled by district.



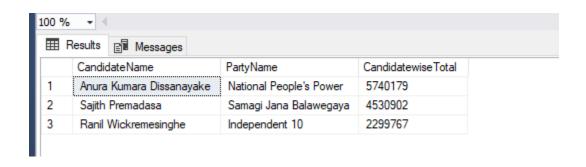
4. What is the vote distribution by type (EVM, Postal, Preferential) for each candidate?

 This query will provide details on each vote type for every candidate, combining Candidatewise_details and CandidateWise Results.



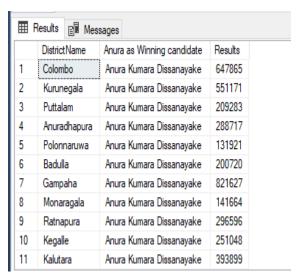
	CandidateName	PartyName	Candidatewise Total Votes	Candidatewise Preferential	CandidatewiseTotal				
22	Siritunga Jayasuriya	United Socialist Party	8954	0	8954				
23	Battaramulle Seelarathana	People's Welfare Front	6839	0	6839				
24	Abubakar Mohamed Infaz	Democratic Unity Alliance	6531	0	6531				
25	Mahinda Deawage	Socialist Party of Sri Lanka	5338	0	5338				
26	Keerthi Wickremeratne	Our People's Power Party	4676	0	4676				
27	Pani Wijesiriwardena	Socialist Equality Party	4410	0	4410				
28	Oshala Herath	New independent Front	4253	0	4253				
29	Roshan Ranasinghe	Independent 11	4205	0	4205				
30	P. W. S. K. Bandaranayake	National Development Front	4070	0	4070				
31	Ananda Kularatne	Independent 2	4013	0	4013				
32	Lalith de Silva	United National Freedom Front	3004	0	3004				
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		PartyName	CandidatewiseTotalVotes	▲ LAPTOP-6L546SRI\SQ CandidatewisePreferential 0	CandidatewiseTotal	OP-6L546SRI\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 r
= 1	Results Messages CandidateName Roshan Ranasinghe	Independent 11		CandidatewisePreferential	CandidatewiseTotal	OP-6L546SRI\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 r
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29 30 31	Results	Independent 11 National Development Front Independent 2	4205 4070 4013	CandidatewisePreferential 0 0 0	CandidatewiseTotal 4205 4070 4013	OP-6L546SR\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 r
29 30 31 32	Results	Independent 11 National Development Front Independent 2 United National Freedom Front	4205 4070 4013 3004	CandidatewisePreferential 0 0 0	CandidatewiseTotal 4205 4070 4013 3004	OP-6L546SR\\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 r
29 30 31 32 33	Results Messages CandidateName Roshan Ranasinghe P. W. S. K. Bandaranayake Ananda Kularatne Lalith de Silva Sidney Jayarathna	Independent 11 National Development Front Independent 2 United National Freedom Front Independent 13	4205 4070 4013 3004 2799	CandidatewisePreferential 0 0 0 0 0	CandidatewiseTotal 4205 4070 4013 3004 2799	OP-6L546SR\\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 r
29 30 31 32 33 34	Results Messages CandidateName Roshan Ranasinghe P. W. S. K. Bandaranayake Ananda Kularatne Lalith de Silva Sidney Jayarathna Janaka Ratnayake	Independent 11 National Development Front Independent 2 United National Freedom Front Independent 13 United Lanka People's Party	4205 4070 4013 3004 2799 2405	Candidatewise Preferential 0 0 0 0 0 0 0	CandidatewiseTotal 4205 4070 4013 3004 2799 2405	OP-6L546SRI\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 ri
29 30 31 32 33 34 35	Results	Independent 11 National Development Front Independent 2 United National Freedom Front Independent 13 United Lanka People's Party Independent 7	4205 4070 4013 3004 2799 2405 2138	CandidatewisePreferential 0 0 0 0 0 0 0 0 0	CandidatewiseTotal 4205 4070 4013 3004 2799 2405 2138	OP-6L546SR\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 ru
29 30 31 32 33 34 35 36	Results	Independent 11 National Development Front Independent 2 United National Freedom Front Independent 13 United Lanka People's Party Independent 7 New Sinhala Heritage	4205 4070 4013 3004 2799 2405 2138 1911	CandidatewisePreferential 0 0 0 0 0 0 0 0 0 0	CandidatewiseTotal 4205 4070 4013 3004 2799 2405 2138 1911	OP-6L546SR\Hp (70)	SriLankan_Prsidental_E	00:00:00	39 ra

5.Retrieve each candidate's name, party, and total votes only for candidates whose party received more than 500,000 votes overall.



 Retrieve each district's name and the total votes of the Leading candidate, only for districts where the Leading candidate's name starts with "A" and their total votes exceed 100,000.

```
SELECT
     d.DistrictName,
     cd.CandidateName AS 'Anura as Winning candidate',
     dr.LeadingCandidateTotal AS Results
FROM
     District AS d
JOIN
     Districtwise_Results AS dr
           ON
                d.DistrictID=dr.DistrictID
JOIN
     Candidatewise_Details AS cd
           ON
                dr.LeadingCandidateID=cd.CandidateID
WHERE
     cd.CandidateName LIKE 'A%'
     AND dr.LeadingCandidateTotal > 100000;
```



	Results 📳 Me	ssages	
	District Name	Anura as Winning candidate	Results
6	Badulla	Anura Kumara Dissanayake	200720
7	Gampaha	Anura Kumara Dissanayake	821627
8	Monaragala	Anura Kumara Dissanayake	141664
9	Ratnapura	Anura Kumara Dissanayake	296596
10	Kegalle	Anura Kumara Dissanayake	251048
11	Kalutara	Anura Kumara Dissanayake	393899
12	Kandy	Anura Kumara Dissanayake	402554
13	Matale	Anura Kumara Dissanayake	142453
14	Galle	Anura Kumara Dissanayake	371435
15	Matara	Anura Kumara Dissanayake	290792
16	Hambantota	Anura Kumara Dissanayake	223676

7. Find the top three candidates in terms of total votes across all polling stations, along with their polling station details

```
SELECT
     CandidateName,
cd.
     cd.PartyName,
     pr.PollingStation,
     pr.TotalNoValidVotes
FROM
     PollingStationwise_Results AS pr
JOIN
     Candidatewise_Details AS cd
           ON
                pr.WinningCandidateID=cd.CandidateID
WHERE
     pr.TotalNoValidVotes
     ΙN
                (SELECT TOP 5 TotalNoValidVotes FROM
                PollingStationwise Results ORDER BY
                TotalNoValidVotes DESC)
ORDER BY
TotalNoValidVotes DESC;
```

	CandidateName	PartyName	PollingStation	TotalNoValidVotes
1	Sajith Premadasa	Samagi Jana Balawegaya	Nuwara-Eliya-Maskeliya	280273
2	Anura Kumara Dissanayake	National People's Power	Homagama	161728
3	Anura Kumara Dissanayake	National People's Power	Kaduwela	150692
4	Anura Kumara Dissanayake	National People's Power	Tissamaharama	148211
5	Sajith Premadasa	Samagi Jana Balawegaya	Batticaloa	147738

8. Calculate the total number of registered electors, valid votes, and rejected votes for each district, only for districts where the total registered electors exceed 100,000.

```
SELECT
       d.DistrictName,
       SUM(pr.NoRegisteredElectors) AS 'Total No. Registered Electors',
       SUM(pr.TotalNoValidVotes) AS 'Total No. Valid Votes',
       SUM(pr.NoRejectedVotes) AS 'Total No. Rejected Votes',
       SUM(pr.NoVotesPolled ) AS 'Total No. Polled Votes'
FROM
       PollingStationwise_Results AS pr
JOIN
       District AS d
               ON
                       pr.DistrictID=d.DistrictID
GROUP BY
       d.DistrictName
HAVING
       SUM(pr.NoRegisteredElectors) > 100000
ORDER BY
       d.DistrictName;
  Results Messages
      District Name
                   Total No. Registered Electors
                                            Total No. Valid Votes
                                                             Total No. Rejected Votes
                                                                                   Total No. Polled Votes
      Anuradhapura 686671
                                            550202
                                                              8782
                                                                                   558984
  2
                    663711
                                                              14736
       Badulla
                                            528436
                                                                                   543172
                    436570
                                                              8641
                                                                                   314585
  4
       Colombo
                    1729715
                                            1300200
                                                              30737
                                                                                   1330937
  5
                    528654
      Digamadulla
                                            397331
                                                              6072
                                                                                   403403
  6
      Galle
                   861726
                                            672680
                                                              11614
                                                                                   684294
  7
       Gampaha
                   1828643
                                            1407800
                                                              27965
                                                                                   1435765
  8
       Hambantota
                    498773
                                            405513
                                                              5994
                                                                                   411507
  9
                    567758
                                            347627
                                                              24264
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  10
                    986896
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       Kalutara
  11
                   1135602
                                            879816
                                                              22659
                                                                                   902475
       Kandy
                                                                           ♠ LAPTOP-6L546SRI\SQLEXPRE

    Query executed successfully.
```

	Ⅲ Results 📴 Messages						
	DistrictName	Total No. Registered Electors	Total No. Valid Votes	Total No. Rejected Votes	Total No. Polled Votes		
12	Kegalle	674519	537775	10984	546759		
13	Kurunegala	1340249	1075710	17560	1073270		
14	Matale	408324	318806	7437	326243		
15	Matara	655293	538425	9094	527519		
16	Monaragala	374369	311095	6116	317209		
17	Nuwara Eliya	585565	474960	14107	469067		
18	Polonnaruwa	331444	264590	4590	269180		
19	Puttalam	648706	455672	7991	463661		
20	Ratnapura	891206	710361	119642	724791		
21	Trincomalee	300961	224998	5504	230502		
22	Vanni	292692	204505	9037	213542		

Query executed successfully.

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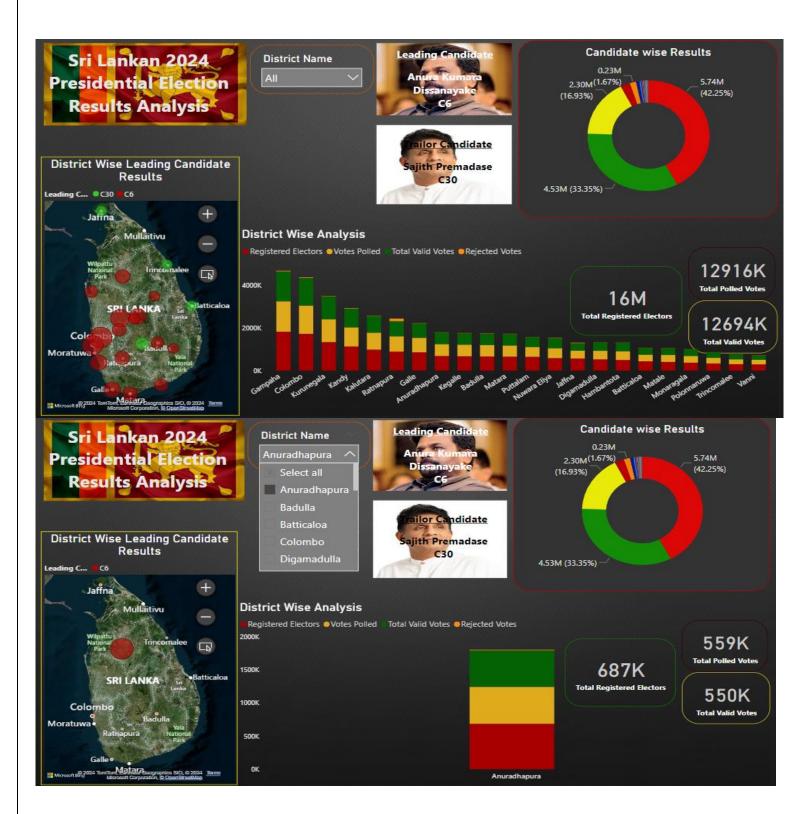
7) <u>KPI</u>

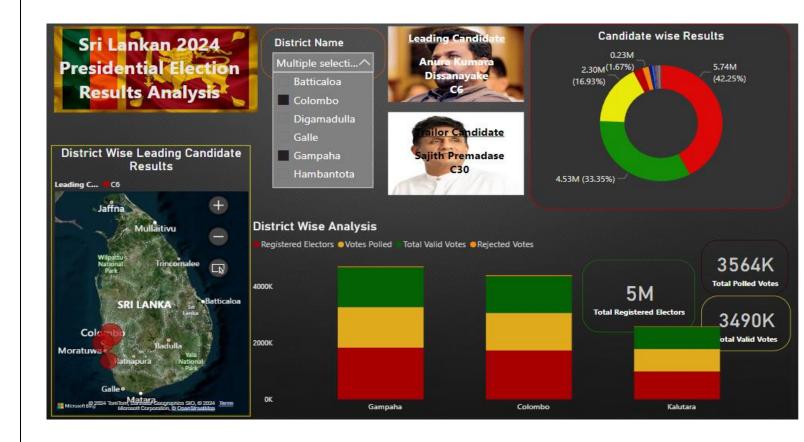
1) District-Wise Leading Candidate Analysis - Shows which candidate leads in each district, offering a visual overview of candidate dominance geographically.

2) Average District-Wise Voting Statistics:

- Average Registered Electors per District Average count of voters registered per district.
- Average Votes Polled per District Provides insight into voter turnout averages.
- Average Valid Votes per District Indicates how many votes counted as valid on average.
- Average Rejected Votes per District Shows the average rate of rejected votes, useful for assessing any issues in the voting process.
- 3) **Total Voter Metrics -** KPI cards showing overall turnout and participation:
 - Total Registered Electors Total number of people eligible to vote across all polling stations.
 - Total Polled Voters Total number of votes cast, indicating overall voter turnout.
 - Total Valid Votes Total valid votes cast across all polling stations, a measure of effective participation.
- **4) Candidate Performance Breakdown (Pie Chart) -** Displays vote distribution among candidates, providing insight into each candidate's share of the total vote.

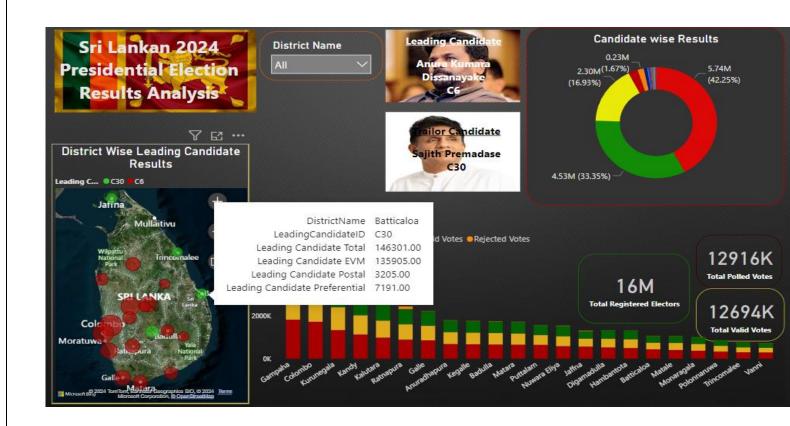
8) Power BI Visualization





1) District-Wise Leading Candidate Overview

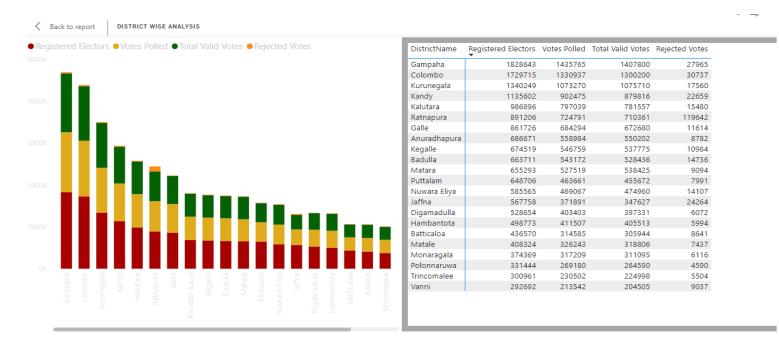
- Visualization: Filled Map
- Details: Displays the leading candidate per district using LeadingCandidateID, with color-coding for each candidate. Tooltips provide additional insights into each district's leading candidate.
- Purpose: Offers a geographic perspective of candidate performance, making it easy to see where each candidate holds the most support.

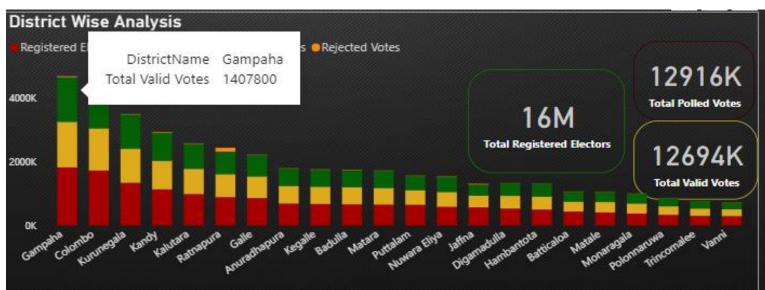




2) District-Wise Voting Statistics Analysis

- Visualization: Stacked Column Chart
- Details: Displays the average values of NoRegisteredElectors, NoVotesPolled,
 TotalValidVotes, and NoRejectedVotes for each district, giving a breakdown of voter engagement across districts.
- Purpose: Helps to visualize district-level engagement, including overall participation and rejected votes, highlighting areas with high or low voter turnout.





3) Total Voter Metrics

• Visualization: KPI Cards

- Details: The KPI cards show Total Registered Electors, Total Polled Voters, and Total Valid Votes from PollingStationwise_Results, providing an overall summary of key voter statistics.
- Purpose: Offers a quick overview of core metrics, summarizing voter turnout and participation across the election.

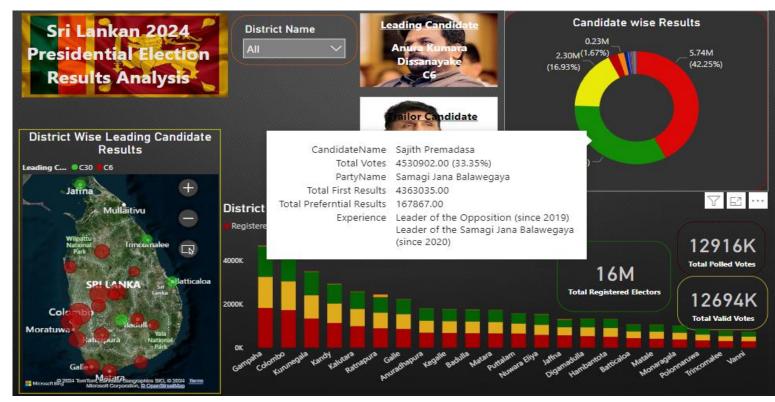
4) District Slicer

- Visualization: Slicer for District Name
- Details: Allows filtering of all visuals by District Name, enabling focused analysis on specific regions.
- Purpose: Enhances flexibility in data exploration by allowing users to drill down into district-specific details across all visualizations.

5) Candidate Vote Share

- Visualization: Pie Chart
- Details: Displays the percentage share of votes each candidate received, pulling data from CandidateWise_Results for a comprehensive overview of candidate popularity.
- Purpose: Provides a quick visual of each candidate's share of the total votes, highlighting the leading candidates in terms of vote percentage.







References for Data

https://elections.gov.lk/si/elections/PRE 2024 Results.html

 $\frac{https://results.elections.gov.lk/pre2024/division\ results.php?district=Colombo\&pd\ division=Postal%20Votes}{stal%20Votes}$

https://en.wikipedia.org/wiki/2024 Sri Lankan presidential election

https://en.wikipedia.org/wiki/Category:Candidates in the 2024 Sri Lankan presidential elect ion