INDIAN ELECTION ANALYSIS

A PROJECT REPORT

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for

20ADC33 DATA ANALYSIS

DEPARTMENT OF ARTIFICIAL INTELLIGENCE

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI,ERODE – 638 060

DECEMBER 2022

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20ADC33 – DATA ANALYSIS PROJECT REPORT

Signature of course in-charge

Signature of the HOD

Submitted for the continuous Assessment viva voice examination held on _____

EXAMINER I

EXAMINER II

ABSTRACT

Elections in India are often seen as a celebration of the democratic approach to government and the importance of a constitutional society. Elections are a means of expressing the idea referred to in the preamble that power rests with "we, the people." The "people" will establish themselves a democratic republic that not only protects their rights and persons, but also ensures that the principles of justice and fairness are always practiced, as stipulated by the Charter known as the Constitution of India. The Bible of Rights thus ensures that the power of government rests with the people, and the concept of free and fair elections is one means of ensuring this. Since independence, there have been many landmark changes to electoral law, but the importance of fair, impartial and free elections cannot be overemphasized.

There is so much confusion in the current system that the parties and candidates struggle to understand the election results and classify the votes they received in order to conduct a thorough study and perform effectively in next elections. There isn't a clear result report available to the general public that allows the public to view all the specifics of the election in which he exercised his right to vote. Candidates who run for office in distinct districts or areas also lack the resources necessary to obtain sufficient information about the results of the election, making it impossible for them to determine the predominance of a particular cast or group of people.

By utilising Power Bi, which is particularly effective at producing a clear analysis for the election, this significant problem can be resolved. This tool is used to evaluate the data by producing creative bar, pie, and other charts which on visualised, provide greater understanding for people. Additionally, this is used to make a variety of predictions and display them in a visual model, including the number of votes a party received, the percentage of male voters who chose a party.This tool is used to evaluate the improved performance of parties in the Assembly and Parliamentary Constituency and to examine the part that caste and community played in each election throughout the years and it is used to evaluate the more effective candidate who ran for office continuously each year in both elections

TEXT OF THE CHAPTER

CHAPTER -1

INTRODUCTION

1.1 INTRODUCTION

The central government and the states each have a certain amount of power in India's constitutional parliamentary system. The ceremonial Head of State and Commander-in-Chief of the whole Indian Self-Defence Forces is the President of India. In national elections for the House of Commons, the Prime Minister of India—the head of a political party or coalition—actually holds the majority. The executive branch of the Indian government is led by the Prime Minister. The Prime Minister serves as the President of India's Senior Advisor and is also the Chairman of the Federation Council of Ministers.

India is geographically divided into states (and union territories), each with a governor serving as the head of state, although the de facto executive power is held by the prime minister, the party leader, or the winning political coalition. It involves obtaining a majority in local elections, usually referred to as state legislature elections, and using the state's executive branch. Each state's prime minister is in charge of the state's executive branch and consults with the prime minister of India or one of his ministers on issues that affect both the state and the federal government.

More elections type :

Elections are held in the Republic of India for the following offices:

- the Indian President,
- Indian Vice President,
- Members of the Rajya Sabha and Lok Sabha of Parliament,
- Member of the State Legislature,
- State Legislative Assembly member,
- a member of the local government.

Analyze data with Power BI tools

A group of software services, programmers, and connectors known as Power BI combine to provide interactive, understandable information from disparate data sources. An Excel spreadsheet or a combination of on-premises and cloud-based data repositories could contain the data. Connecting to data sources, visualizing and learning valuable information, and disseminating it globally are all made simple by Power BI. power Bi additionally includes two additional components:

- To create paginated reports and share them in the Power BI service, use the Power BI Report Builder.

- After you generate Power BI reports in Power BI Desktop, you may publish them to Power BI Report Server, a local report server.

Power BI Workflow

Connecting to a data source in Power BI Desktop and generating a report are the first steps in a typical Power BI workflow. Then, from Power BI Desktop, publish and share this report to the Power BI service so that business users can read it and interact with it there or on mobile devices. This sample workflow exemplifies how Power BI's three key components function best together.

Here is a brief comparison of the Power BI service and the Power BI desktop.

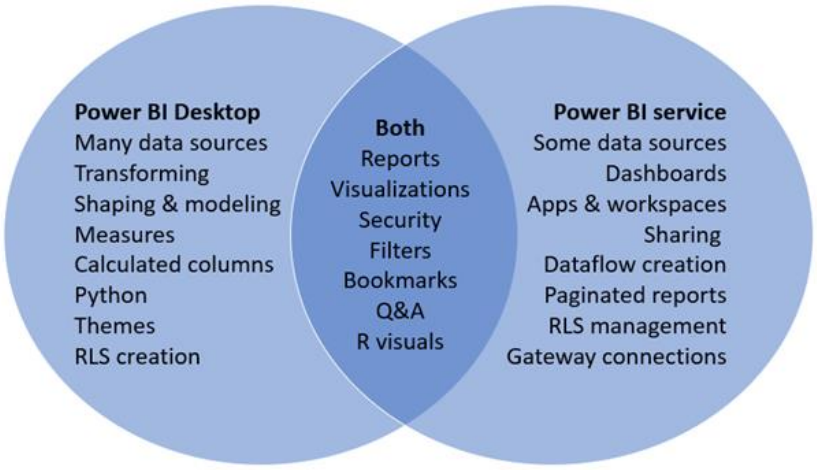

Figure-1.1 Power bi desktop and service comparison

1.2 DATA COLLECTION

*Link:*https://www.kaggle.com/datasets/awadhi123/indian-election-dataset

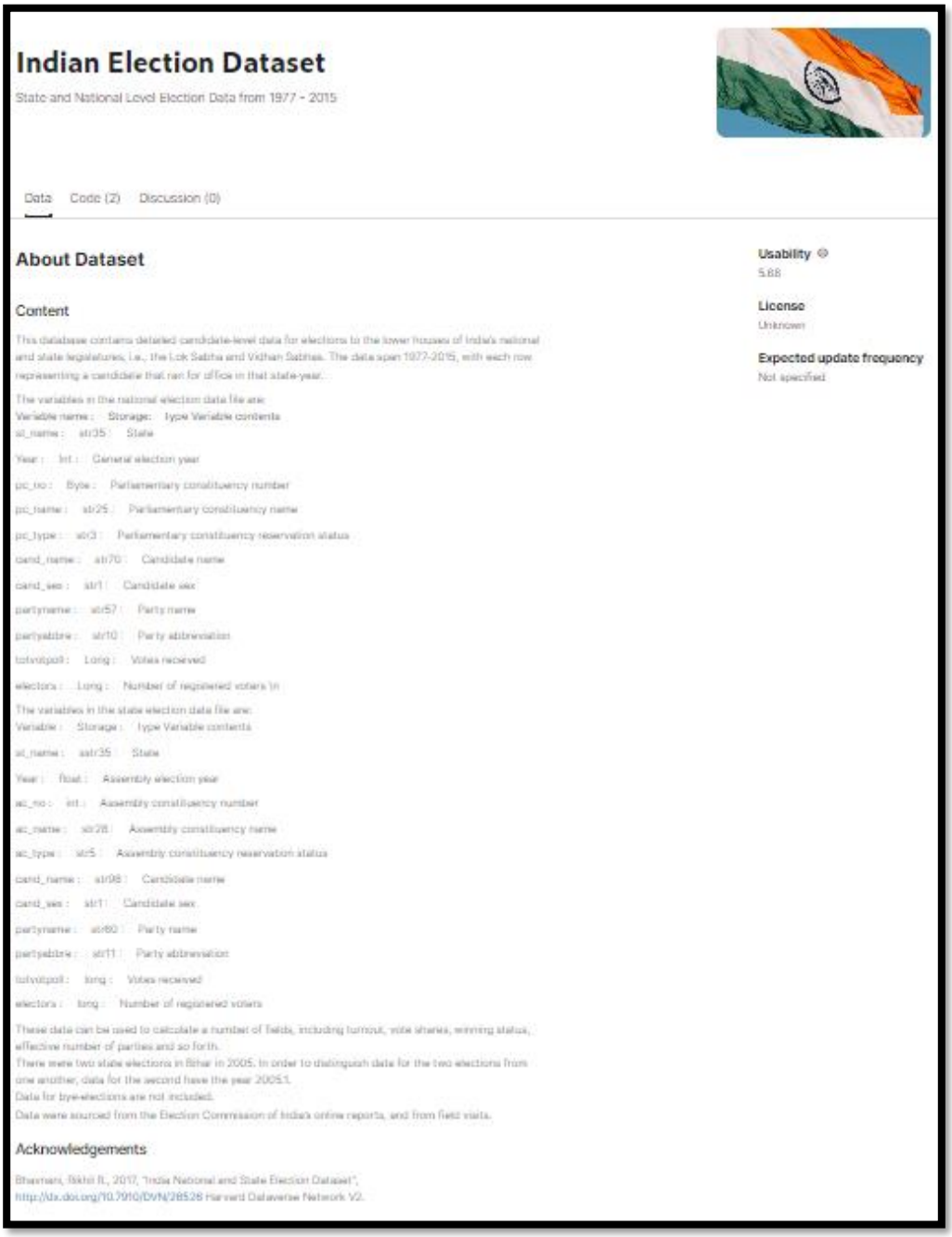

Figure-1.2Dataset

Content

For elections for the Lok Sabha and Vidhan Sabhas, the national and state legislatures of India, this database contains specific information about the candidate level statistics. Each row represents a candidate running in the state that year for the period 1977 to 2015 covered by the data.

Parliament Constituency

First of all, parliamentary or parliamentary government is the same, there is no big difference. A system of government in which the actual executive power is vested in a cabinet consisting of members of the legislature who are individually and collectively accountable to the legislature has an elected parliamentary government democracy.

Assembly Constituency

The Constituent Assembly (also known as the constitutional assembly, the constitutional assembly, or the constitutional parliament) is a body assembled for the purpose of drafting or amending a constitution. Members of the constitutional assembly may be elected by popular vote, by lot, by appointment, or by a combination of these methods.

Description Of Data Set

Indian Election Dataset

The variables in the National Election data files are

- st_name : str35 : State
- Year : Int : General election year
- pc_no : Byte : Parliamentary constituency number
- pc_name : str25 : Parliamentary constituency name
- pc_type : str3 : Parliament constituency reservation
- cand_name : str70 : Candidate name
- cand_sex : str1 : Candidate sex
- partyname : str57 : Party name
- partyabbre : str10 : Party abbreviation
- totvotpoll : Long : Votes received
- electors : Long : Number of registered voters

The variables in the state election data files are

• st_name :	sstr35 :	State
• Year :	float :	Assembly election year
• ac_no :	int :	Assembly constituency number
• ac_name :	str28 :	Assembly constituency name
• ac_type :	str5 :	Assembly constituency reservation
• cand_name :	str98 :	Candidate name
• cand_sex :	str1 :	Candidate sex
• partyname :	str60 :	Party name
• partyabbre :	str11 :	Party abbreviation
• totvotpoll :	long :	Votes received
• electors :	long :	Number of registered voters

1.3PROBLEM STATEMENT

The parties and candidates face a problem in getting clearance in the election result and they couldn't classify the votes gained by them in their requirements for better analysis and to perform well in upcoming elections. Even the public individuals cannot have a clear result report where he can view every detail of the election in which he has voted with all rights.

The candidates who stand for vote in separate district or area also lack in clearance in getting a knowledge about the election result where he couldn't know the cast dominance, lacking area in vote and other sources which will be helpful for him to succeed in next election.

1.4 BUSINESS OBJECTIVE

1. To compare and analyses both the elections of Parliamentary and Assembly Constituency.

2. To analyze the better performance of parties in both the Parliamentary and Assembly Constituency.

3. To analyze the role played by Caste and Community in both the election in various years.

4. To analyze the better performing candidate who performed in both the election consistently for every year.

CHAPTER -2

DATE PREPARATION AND MODELLING

2.1 DATA CLEANING

Most projects seek to build up data that appears Clean and Transforms Data in order to properly prepare it for use in Microsoft Power BI.

centralizes data in this way:

- There are numerous internal data storage sites where data is stored.
- Data transformation
- data centralization
- importing data for Microsoft Business Intelligence

The steps below provide a brief explanation of data cleaning and transformation.

Dax Formulae

Don't be deceived by the moniker Data Analysis Expressions (DAX), which may initially sound a little scary. The fundamentals of DAX are simple to grasp. First of all, DAX is not a programming language. A formula language is called DAX. Dax can be used to create custom calculations for computed columns and measures (also known as calculated fields).

Creating Calculated Columns

Create a calculated column in Power BI by combining two or more already existent data elements. Additionally, calculations can be used to combine two columns to define new measurements or add additional columns to an existing table. It is also possible to add calculated columns to link tables together. Additionally, it can be applied to create a relationship between two tables..

Make Calculated Tables

In Data Modelling in Power BI, create a new sheet. To build a new table, go to the Data View tab on the left side of the screen, then select Modelling from the menu at the top.

A new table is made using the DAX expression. A new table's name should be entered to the left of the equal sign, and the DAX formula to do the computation to create the table is located to the right of the equal sign. A new table appears in the Fields pane of your model once the calculation is finished.

2.2 DATA TRANSFORMING

The data can be cleaned and transformed in a variety of ways. Some people desire to remove data from Microsoft BI and replace it with new data. However, the process can take a while. The first choice is to manually delete the data in Microsoft Business Intelligence (BI) using the capable Query Editor.

To manually clear data, follow these steps:

1. Speculate on the imported data. This means ensuring that all headers make sense, columns are as expected, and tables do not contain error symbols. Parse values that appear as "Null" and check the first and last rows.

2. Verify the data type is the appropriate one. A classification that specifies the type of a variable's value is known as a data type. The data type enables manipulation of this data point without leading to mistakes.

3. Integer is a common data type that denotes a class of integers. Data types are automatically applied to data points as data is imported into Power BI Your data points must be correct before proceeding.

4. Make sure field names are distinct; Power BI may apply category names that it recognizes as appropriate when importing records that may have nameless fields.

5. It's possible that there are duplicate field names when Power BI discovers two records with comparable structures. Before using the data in Power BI, be sure that each field name is distinct.

Using automated software known as ETL is the second method of cleaning the data.

ETL

ETL is a system that processes a lot of data so that it may be used in a warehouse.

ETL involves three primary phases.:

- Extraction: This process copies the data to the new environment after reading it from its original place.
- Transform: In order to use the retrieved data in Power BI, this step alters it. This could entail graphing numbers, eliminating duplicate values, and arranging items alphabetically.
- Load: The changed data is loaded into the data store in this stage.

ETL is superior to manual data rectification in many ways since it decreases errors' sources and saves time.

Steps

1. Load the dataset on the Power BI desktop.

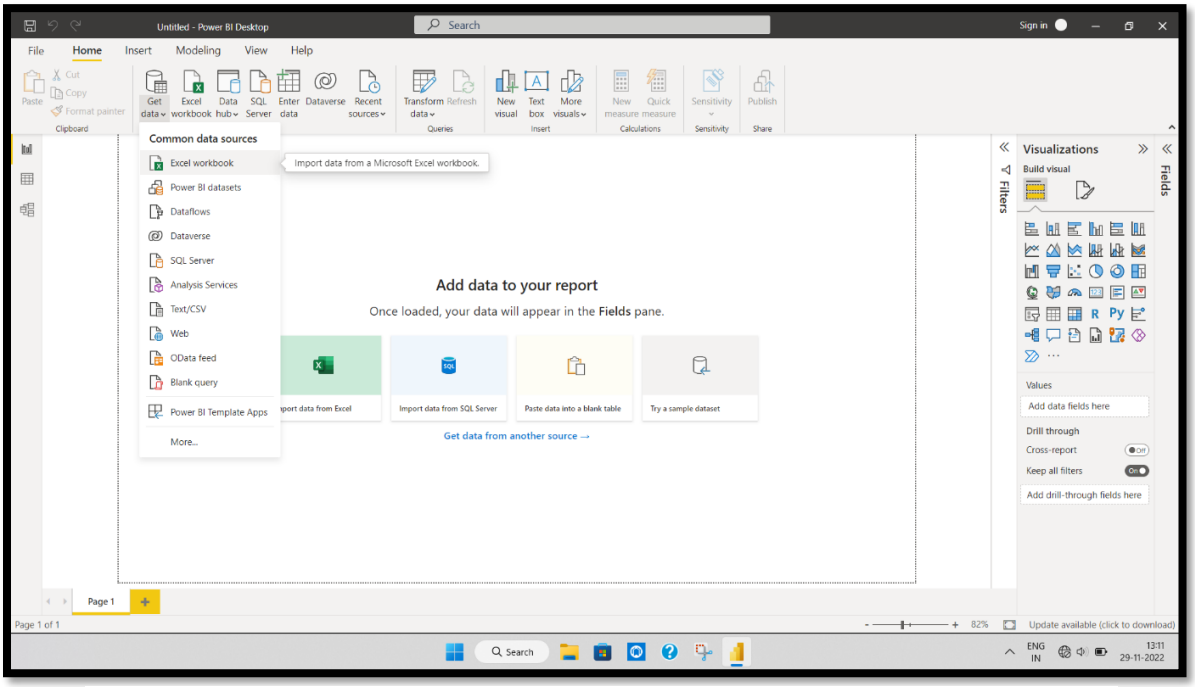

Figure: 2.1 Adding Data to Power Bi

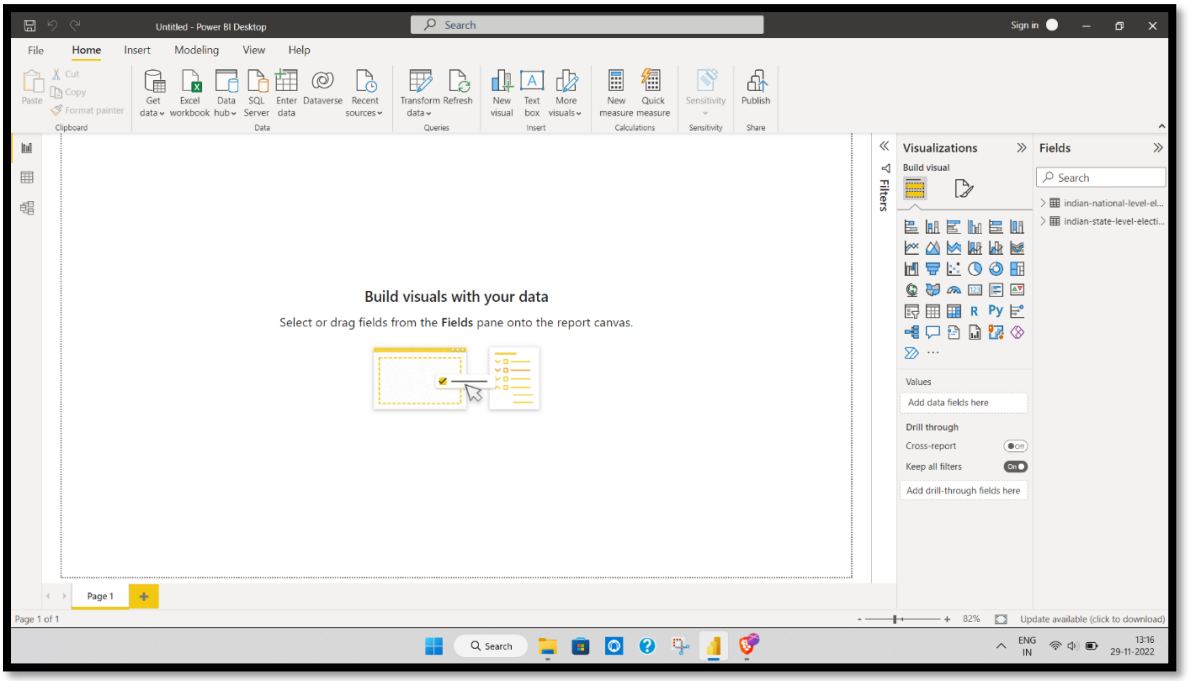

Figure : 2.2 Data set loaded.

2. Right click the dataset in the fields to reveal the power query tab.

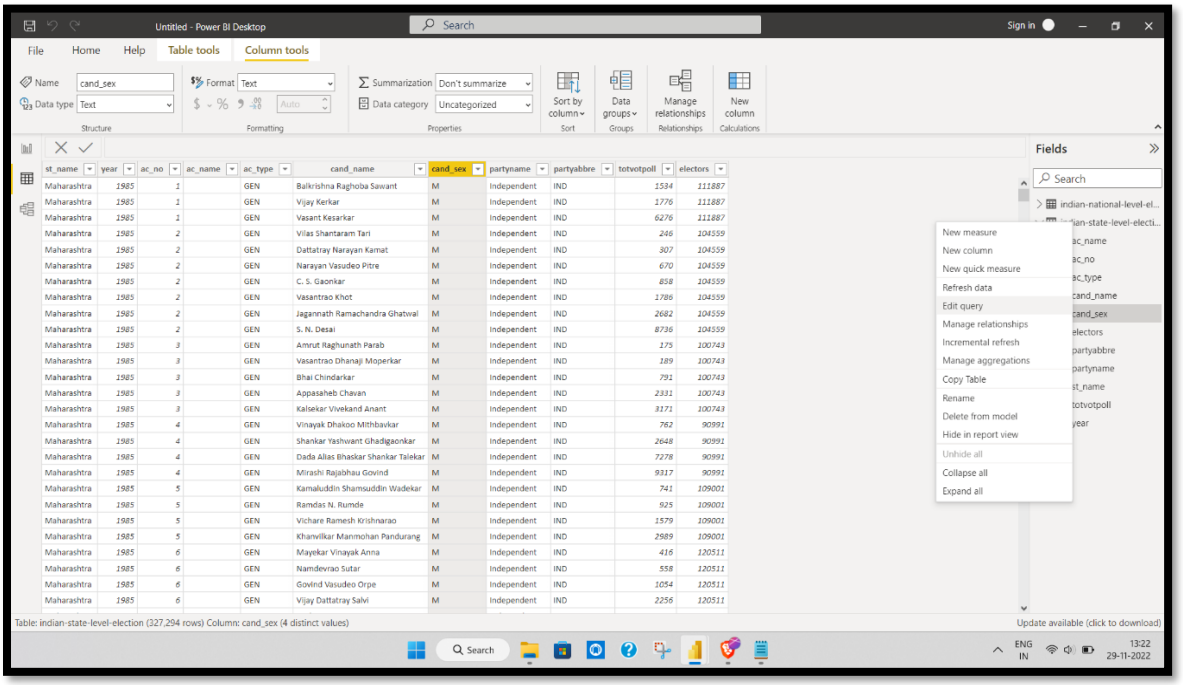

Figure : 2.3 Opening edit query tab

3. The query editor will be opened in the new tab and cleaning and transformation of the data set.

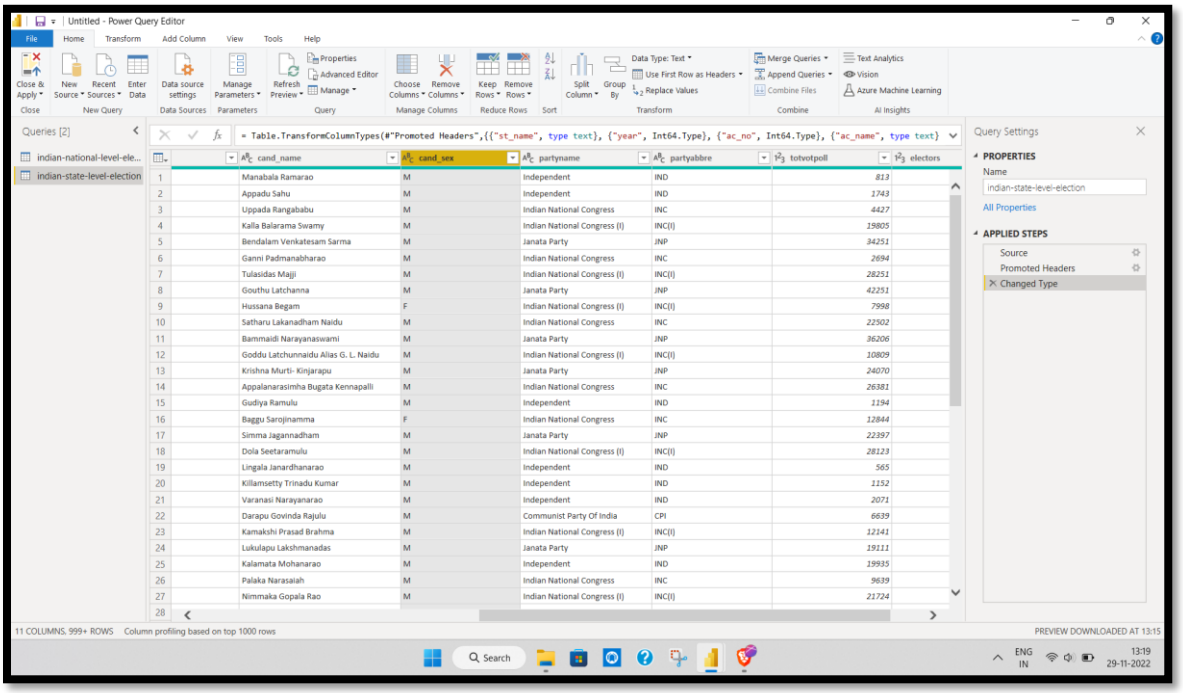

Figure : 2.4 Filtering the contents

4. The Data set named Indian-State election and Indian-National election is selected for transform and modelling.

- The column name cand_sex had the values in names of M and F which is replaced as Male (M) and Female(F).
- Dax = Table.ReplaceValue(#"Replaced Value","F","Female",Replacer.ReplaceText,{"cand_sex"})
- Dax= Table.ReplaceValue(#"Replaced Value","M","Male",Replacer.ReplaceText,{"cand_sex"})

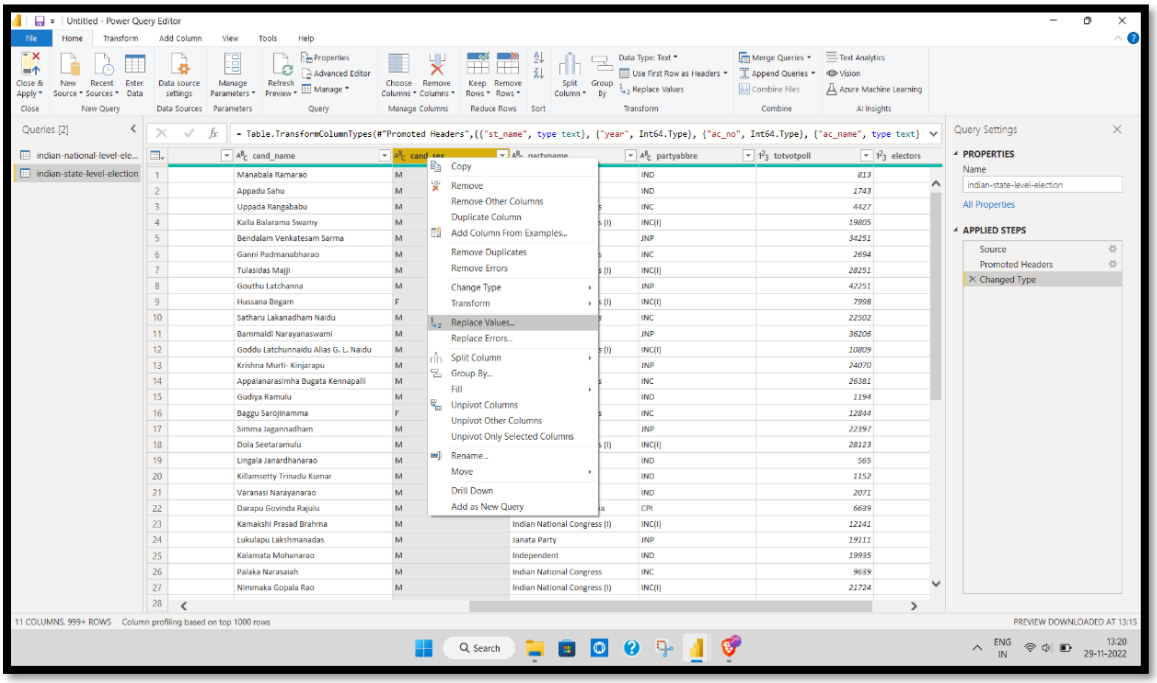

Figure : 2.5 Selecting Replace values

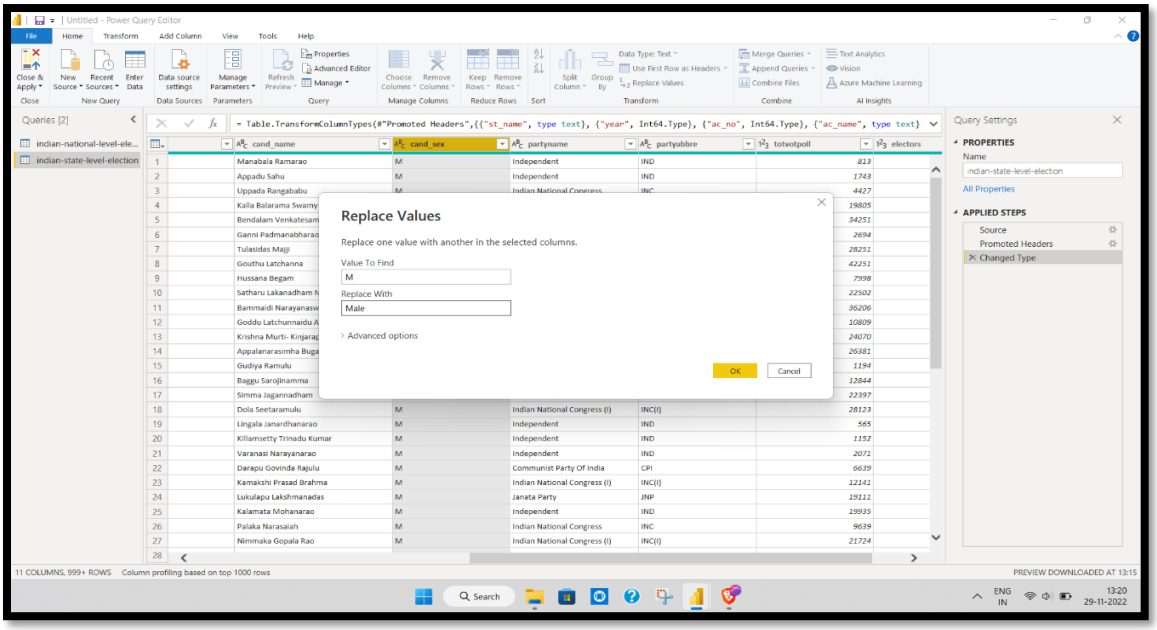

Figure : 2.6 Replacing M to Male

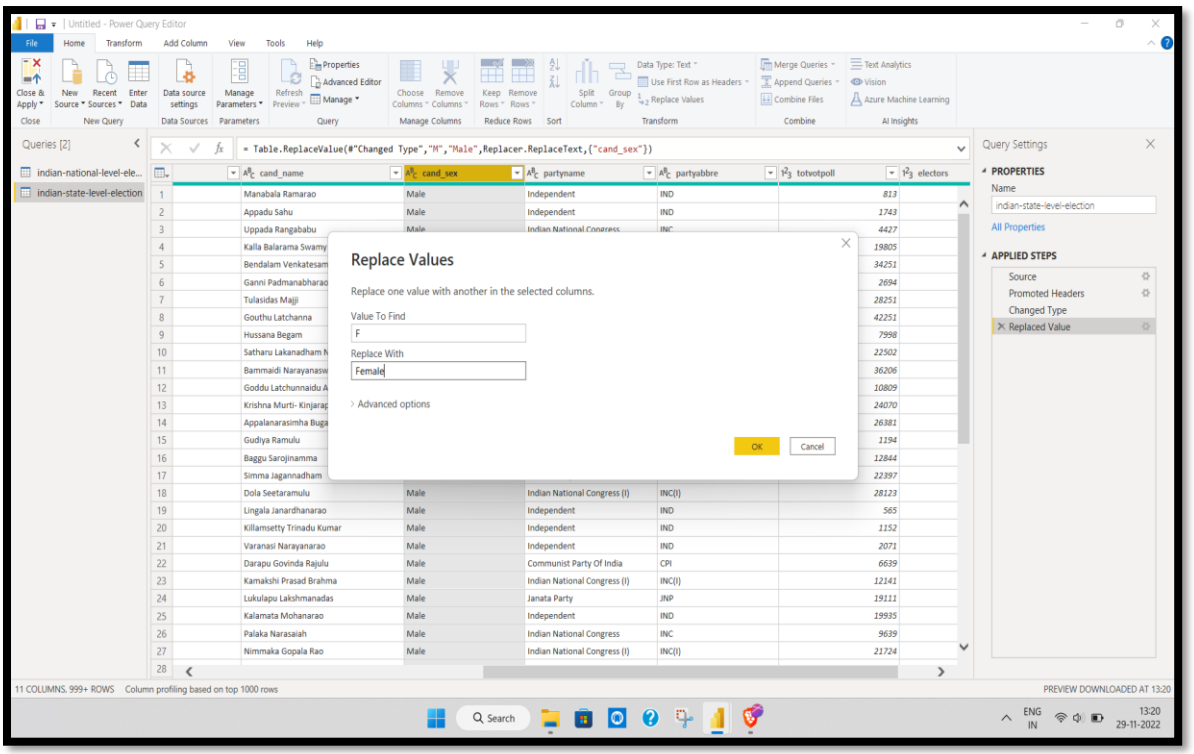

Figure : 2.7 Selecting Replace values

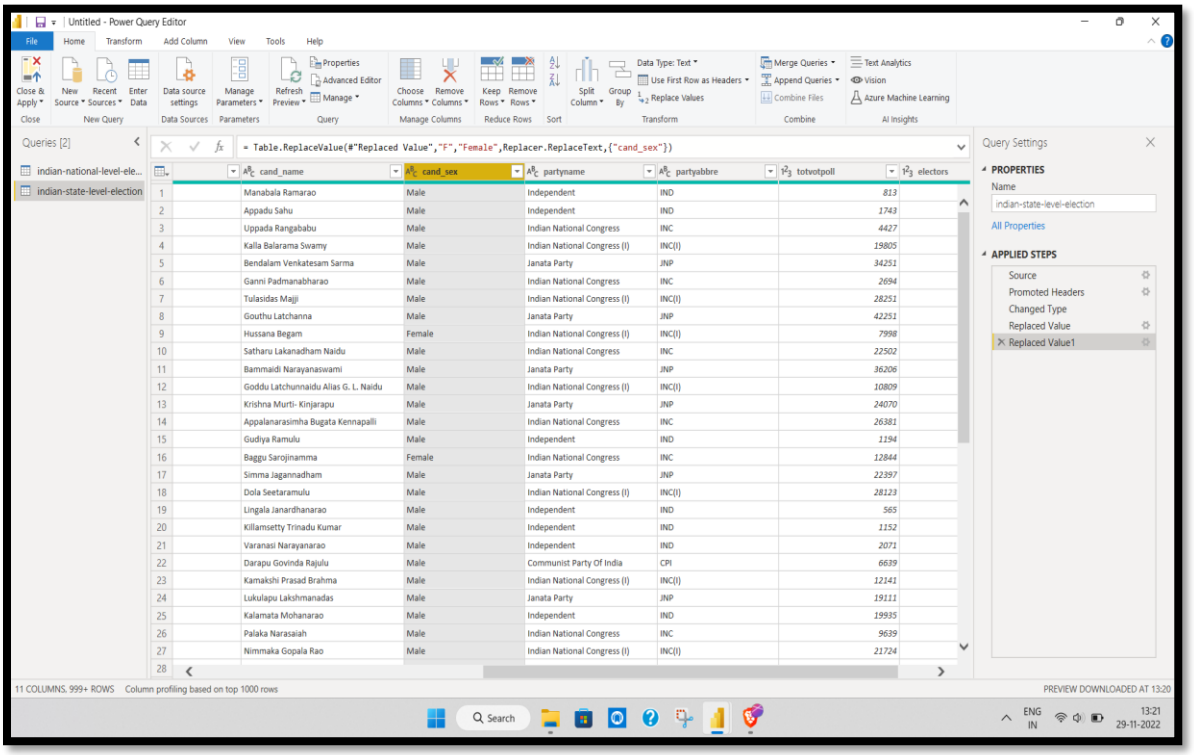

Figure : 2.8 Changing F to Female

- The Values are replaced M as Male and F as Female perfectly.

5. The attributes in the State level dataset and National level dataset are similar hence it has to be changed.
    - Changing the column name as SL_'Column name' in State level dataset for betting understanding.
    - DAX= Table.RenameColumns(#"Removed Columns",{{"st_name", "SL_stname"}, {"year", "SL_year"}, {"ac_no", "SL_acno"}, {"ac_name", "SL_acname"}, {"ac_type", "SL_actype"}, {"cand_name", "SL_candname"}, {"cand_sex", "SL_candsex"}, {"partyname", "SL_partyname"}, {"partyabbre", "SL_partyabbre"}, {"totvotpoll", "SL_totvotpoll"}, {"electors", "SL_electors"}})

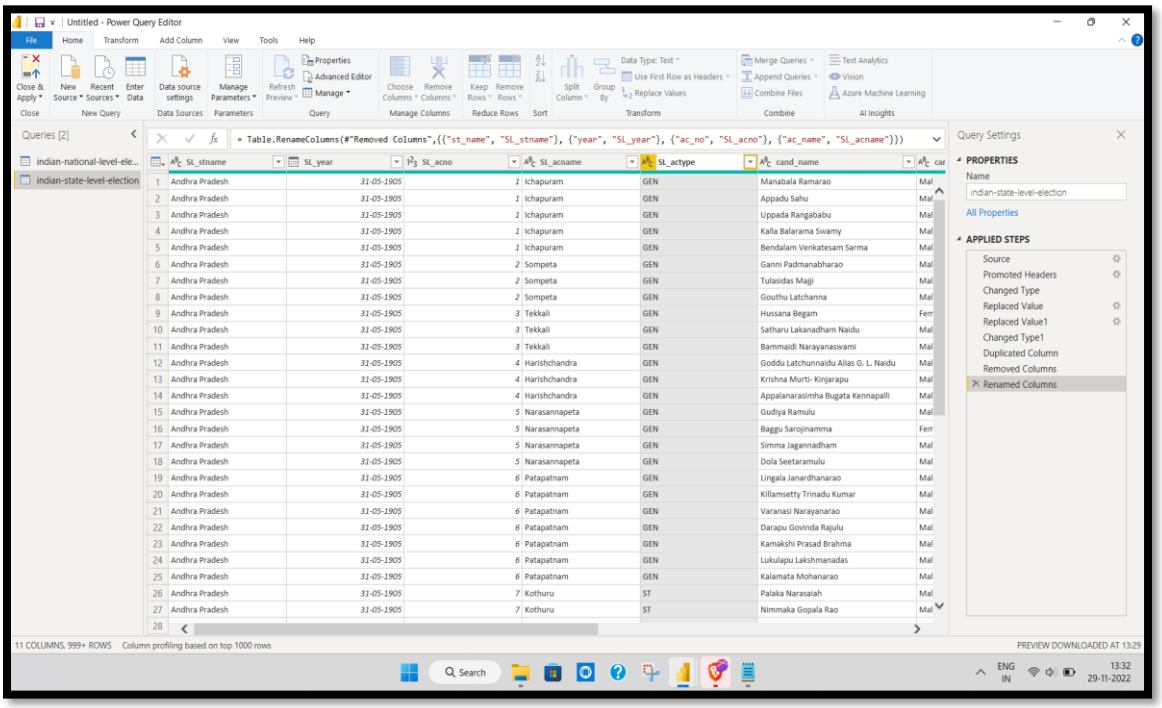

Figure : 2.9 Changing column name

- Changing the column name as NL_'Column name' in State level dataset for betting understanding.
- DAX= = Table.RenameColumns(#"Renamed Columns1",{{"year", "NL_year"}, {"st_name", "NL_stname"}, {"pc_no", "NL_pcno"}, {"pc_name", "NL_pcname"}, {"pc_type", "NL_pctype"}, {"cand_sex", "NL_candsex"}, {"partyname", "NL_partyname"}, {"partyabbre", "NL_partyabbre"}, {"totvotpoll", "NL_totvotpoll"}, {"electors", "NL_electors"}})

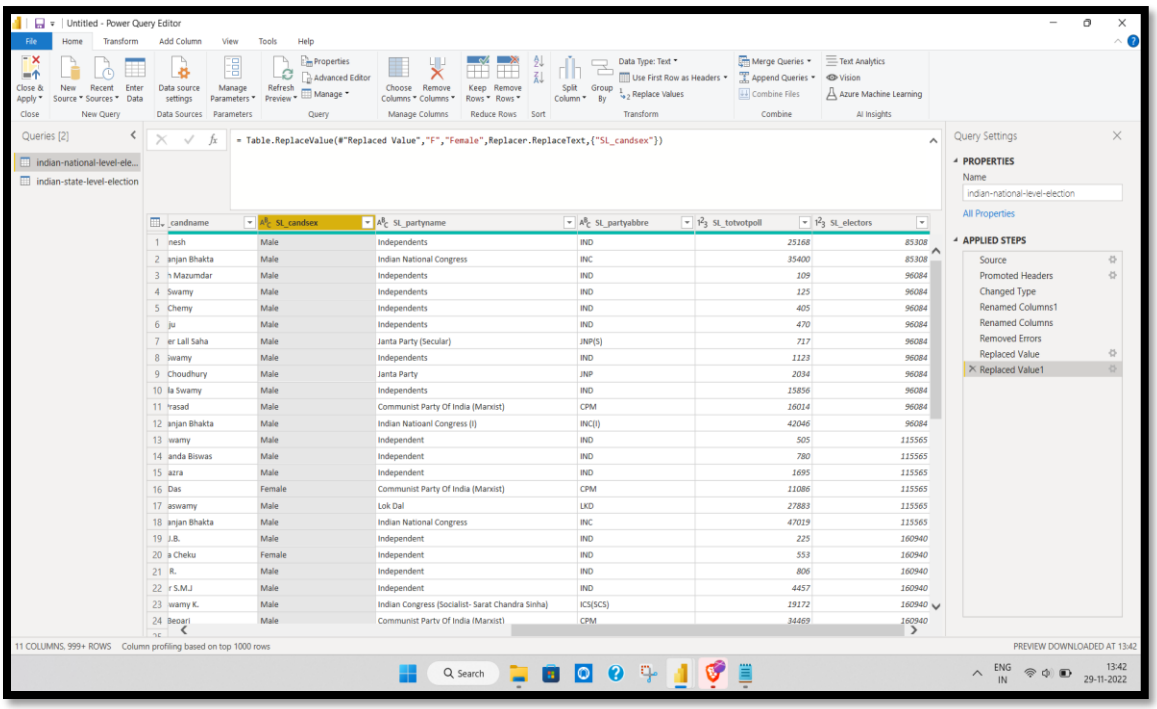

Figure : 2.10 Changing column name

6. The column named pc_type has errors in both the datasets which is removed.

- Right click on the column name and give remove errors.

- DAX= = Table.RemoveRowsWithErrors(#"Renamed Columns", {"pc_type"})

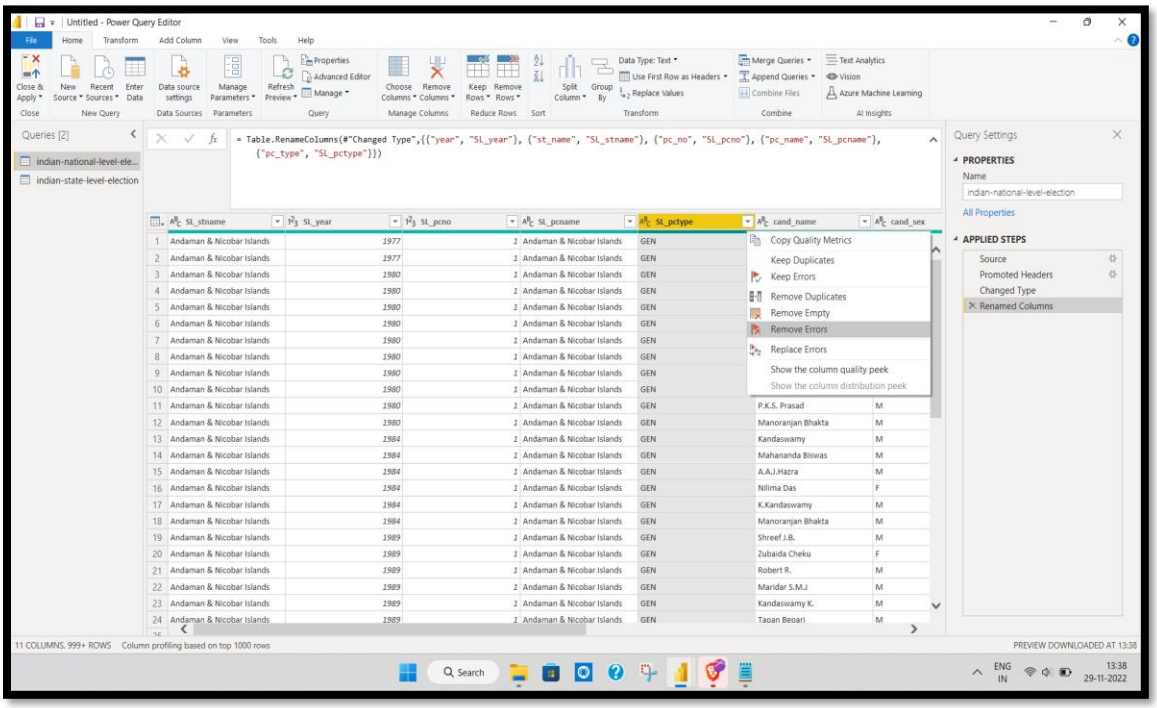

Figure : 2.11 Removing Errors

7. The year in the datasets is given in the format of whole numbers and are changed into date format.

    - Right click on the year column and select change type and click on date data type
    - DAX = = Table.TransformColumnTypes(#"Replaced Value1",{{"year", type date}})

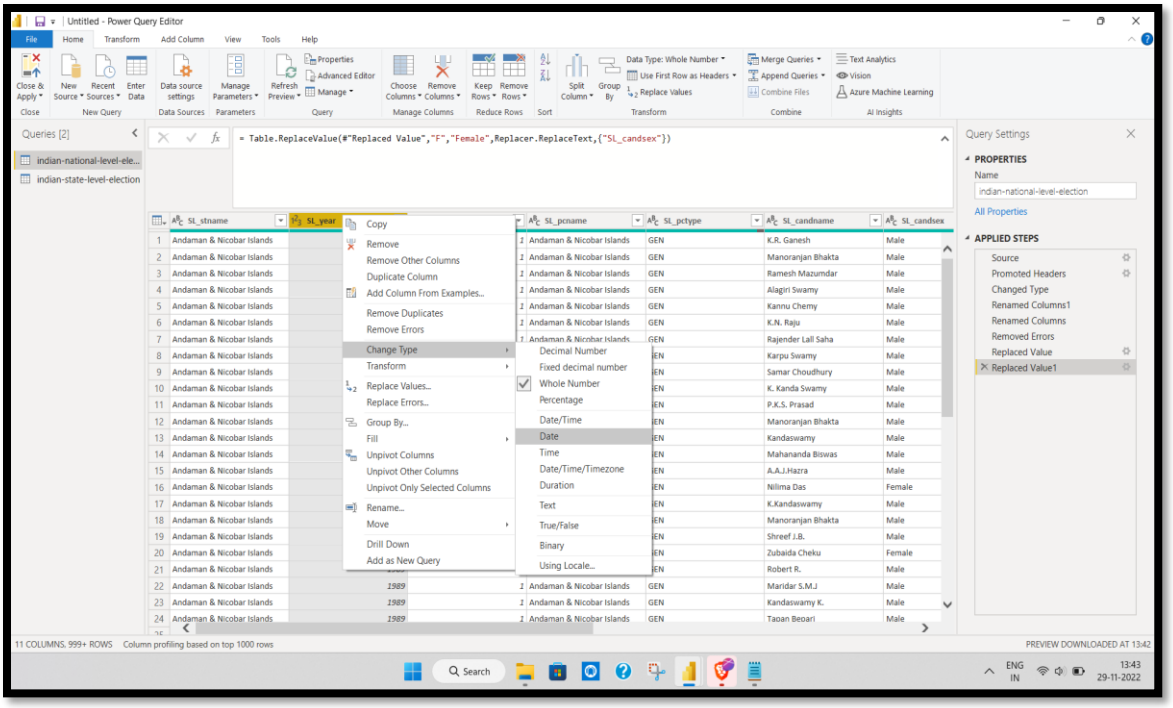

Figure : 2.12 Changing the Data type

8. The data type of both the datasets are viewed from Dax formulae after transformation for verification.

    DAX = = Table.TransformColumnTypes(#"Promoted Headers",{{"st_name", type text}, {"year", Int64.Type}, {"ac_no", Int64.Type}, {"ac_name", type text}, {"ac_type", type text}, {"cand_name", type text}, {"cand_sex", type text}, {"partyname", type text}, {"partyabbre", type text}, {"totvotpoll", Int64.Type}, {"electors", Int64.Type}})

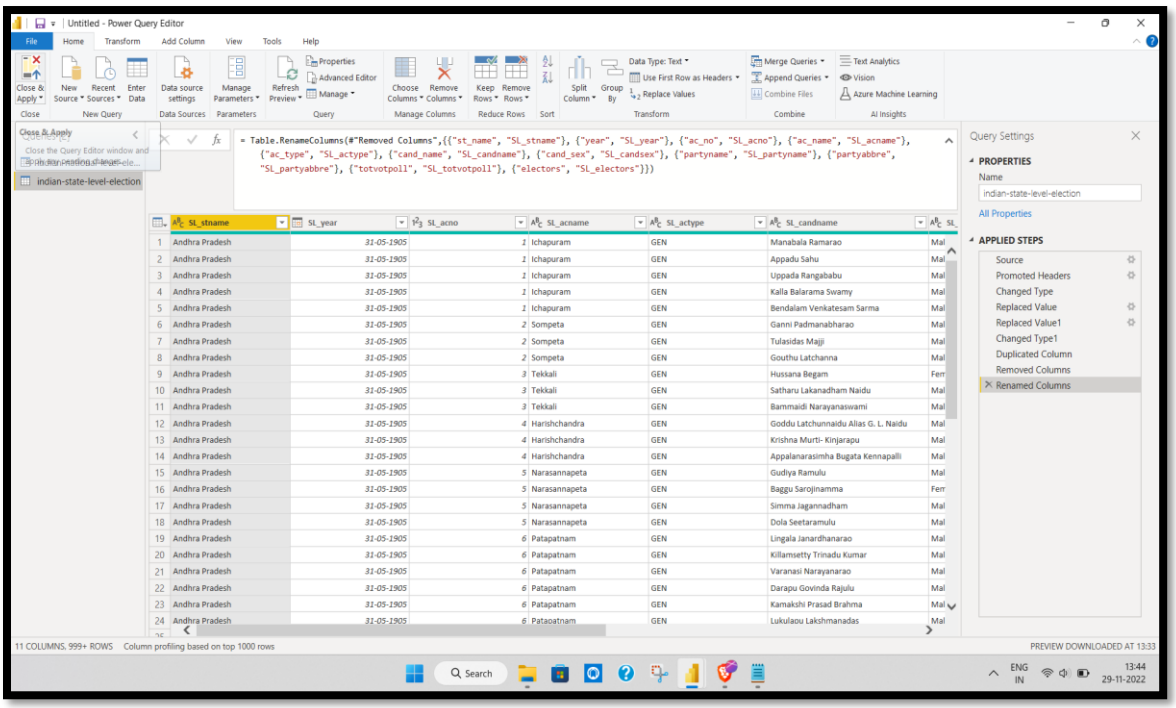

Figure : 2.13 Viewing Datatypes

9. To save adjustments, click on close and apply in the power bi report's upper-left corner after each transformation.

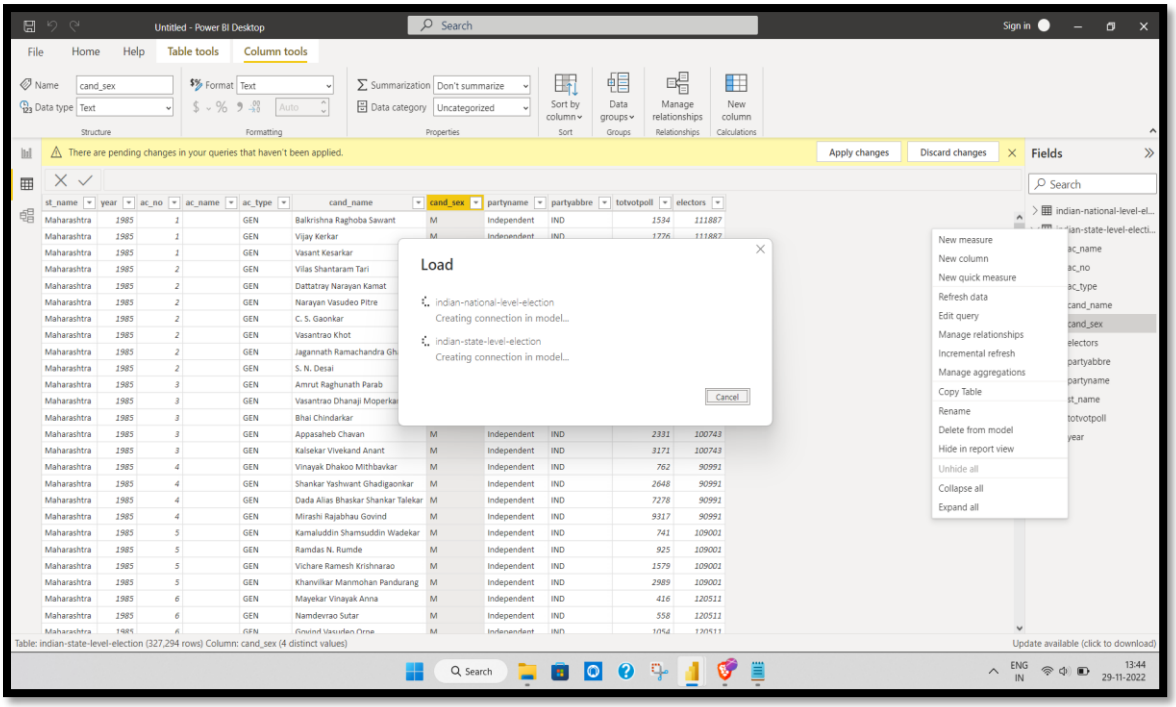

Figure : 2.14 Loading the dataset

2.3 MODELING DATA

The act of visually expressing the relationships between data structures using information about each attribute contained in the data structures is known as data modelling. When talking about data modelling in general, one of the most common terms is star schema. This is a common approach for designing data warehouses and relational databases, and the recommended approach for Power BI.

Using a star schema has two main advantages:

Ease of use: Star schemas make the data model cleaner and clearer, and reports easier to use.

Performance: Star schemas allow reports to easily scale to very large amounts of data. DAX metrics are also calculated faster and Power BI reports refresh faster overall.

After loading up the Dataset after performing transformation data model is viewed for modelling. The Many to Many relationships has been built between two attributes of the datasets.

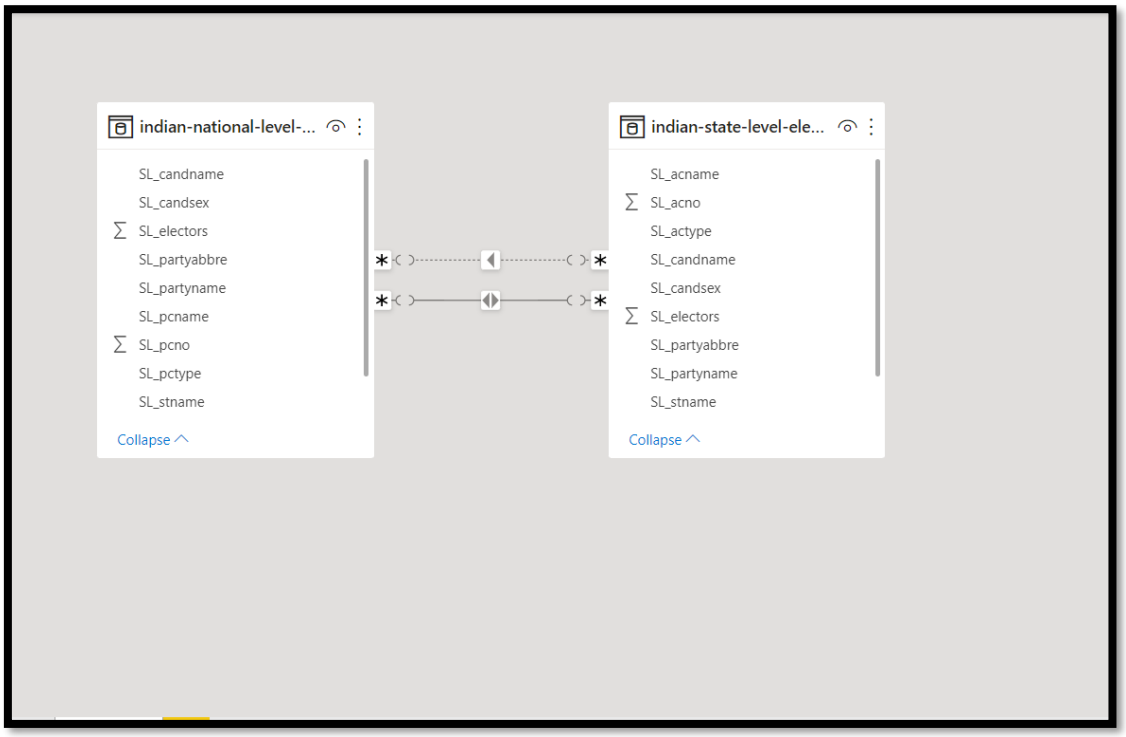

Figure : 2.15 Creating a Data model by making relationship

SECTION 3

ANALYSIS AND INTERPRETATION OF DATA

3.1 ANALYSIS OF DATA

Insight Performed

Parliamentary Constituency Analysis

1. Which is the dominant category in parliamentary constituency reservation.
2. List Top five parties in the Parliamentary constituency based on votes.
3. Compare the increase/decrease in the performance of top five parties in 1905.
4. List the parties with higher female candidates.
5. Count the votes gained by top 10 cities.

Assembly Constituency Analysis

1. List 10 female candidates who have secured higher votes from 2000 to 2015
2. Live top three candidates of Tamilnadu who have better performed based on years.
3. List every party name with their abbreviations in appropriate chart.
4. Which gender category received highest vote count.
5. List out top 5 states secured higher vote count in appropriate chart.

Comparison On Both Election

1. Compare the parties with Maximum votes on both the elections based on years.
2. Analyze the average votes gained in both the election based on years.
3. List top Female candidates in Parliamentary and Assembly constituency.
4. Compare the total no of votes gained in both the constituencies based on the year.
5. Find the parties secured maximum votes in both the constituencies.
6. List out top 5 states based on total votes secured.
7. Compare the gender category enrolment count in both the parliamentary and assembly constituency
8. List top 10 candidates on Tamil Nadu who had performed better in both the Constituencies.

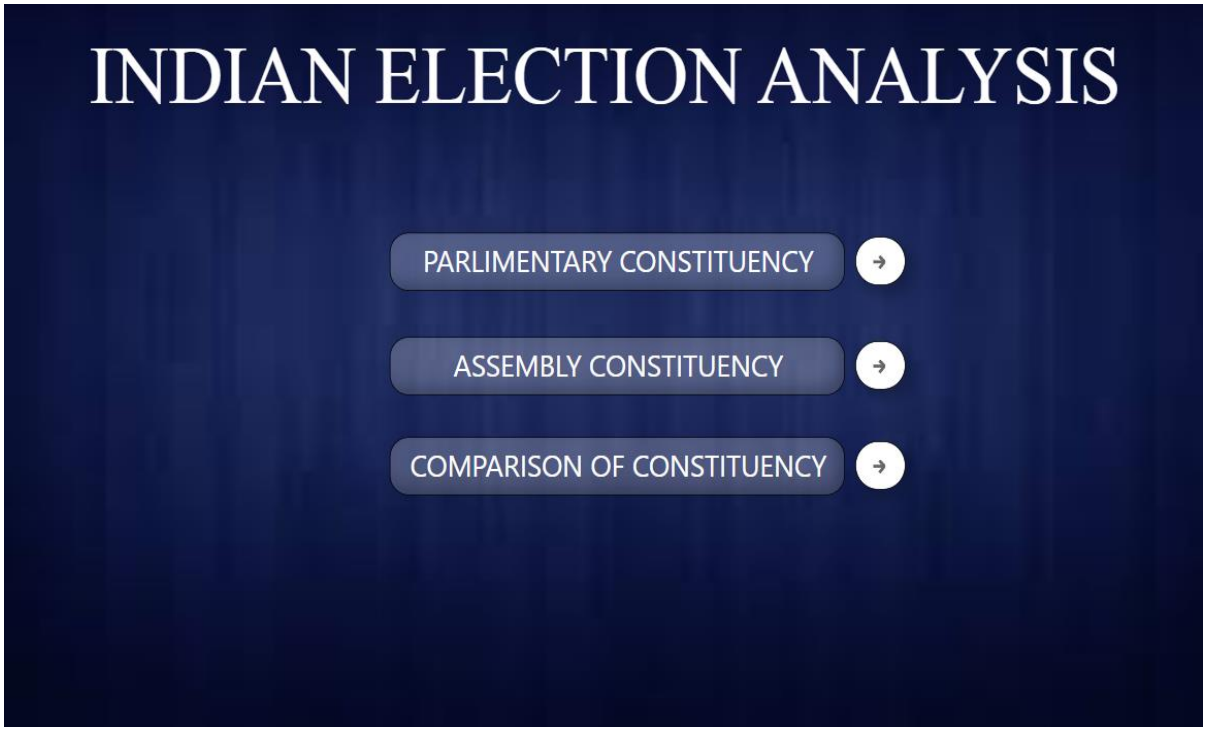

Figure : 3.1 Indian election analysis

Parliamentary Constituency

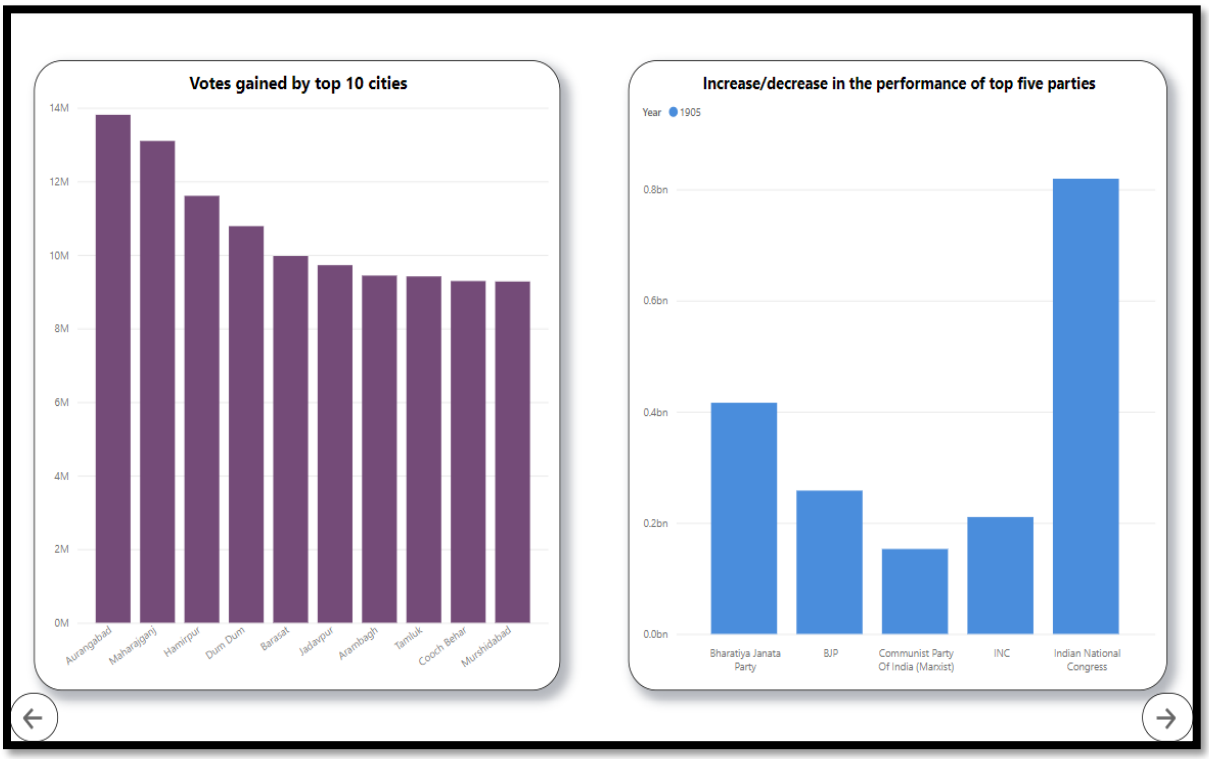

Figure : 3.2 Insight on parliamentary analysis

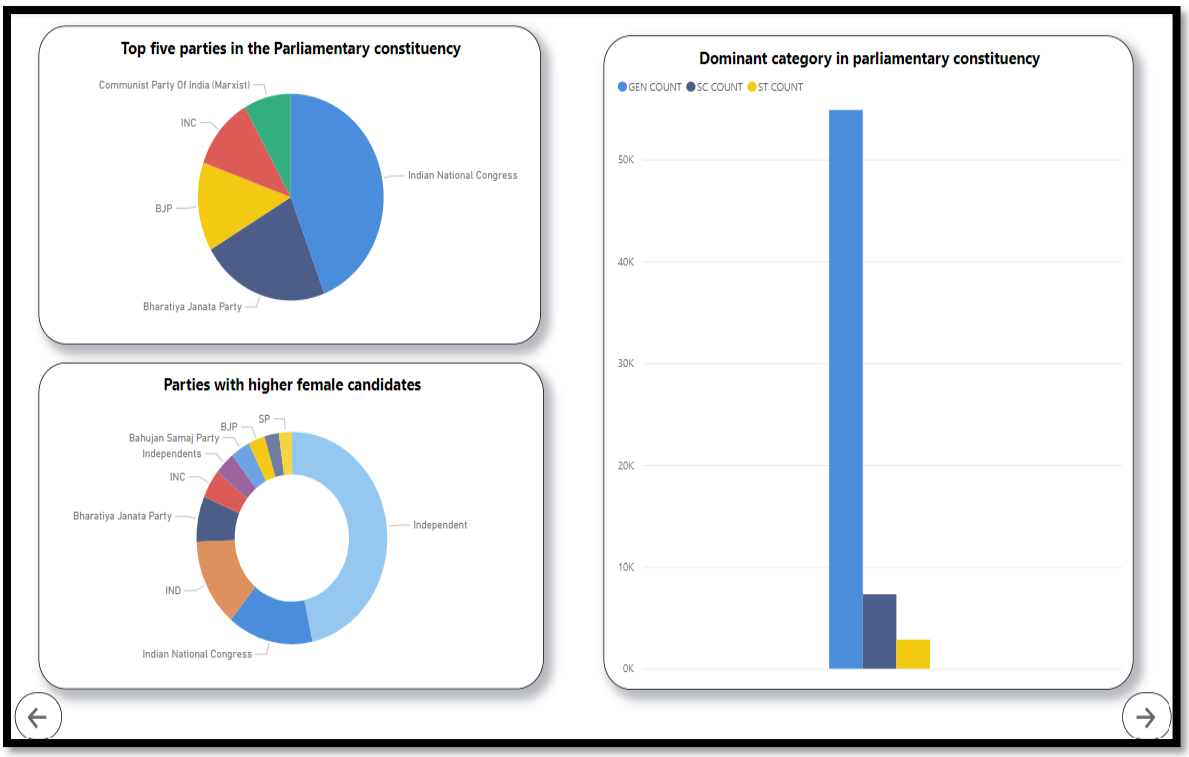

Figure : 3.3 Insight on parliamentary analysis

Assembly Constituency

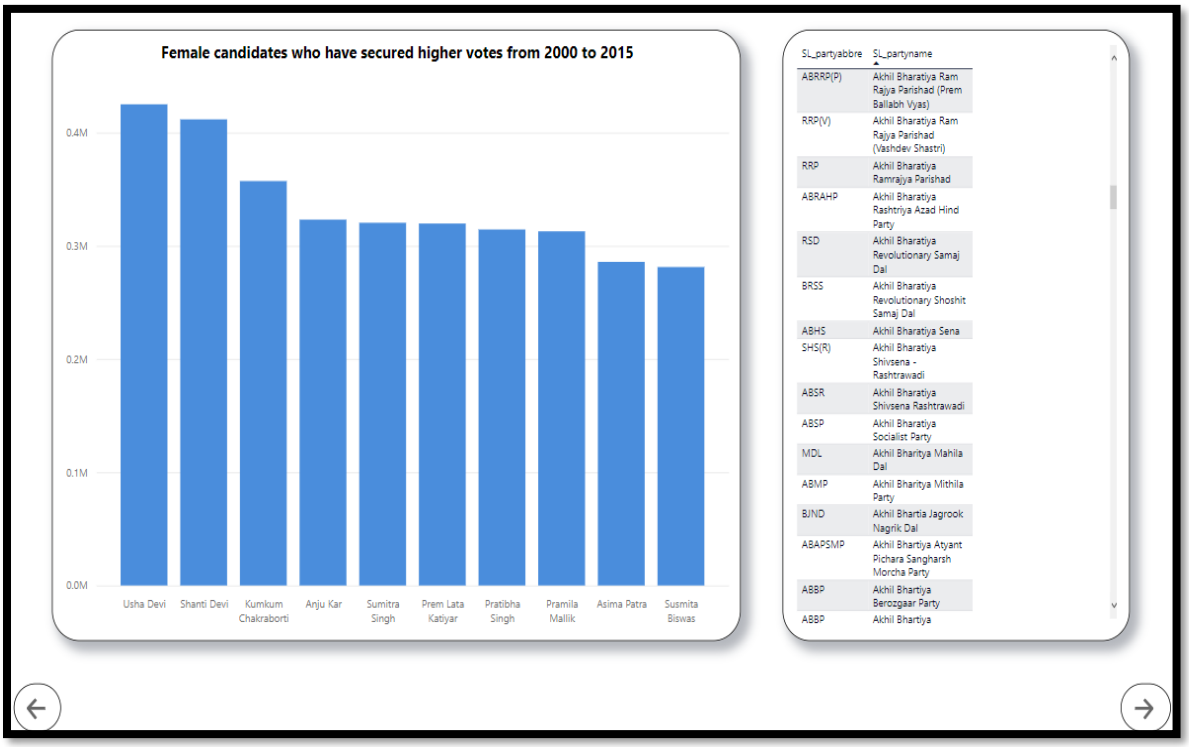

Figure : 3.4 Insight on assembly analysis

Figure : 3.5 Insight on assembly analysis

Comparison Between Parliamentary and Assembly Constituency

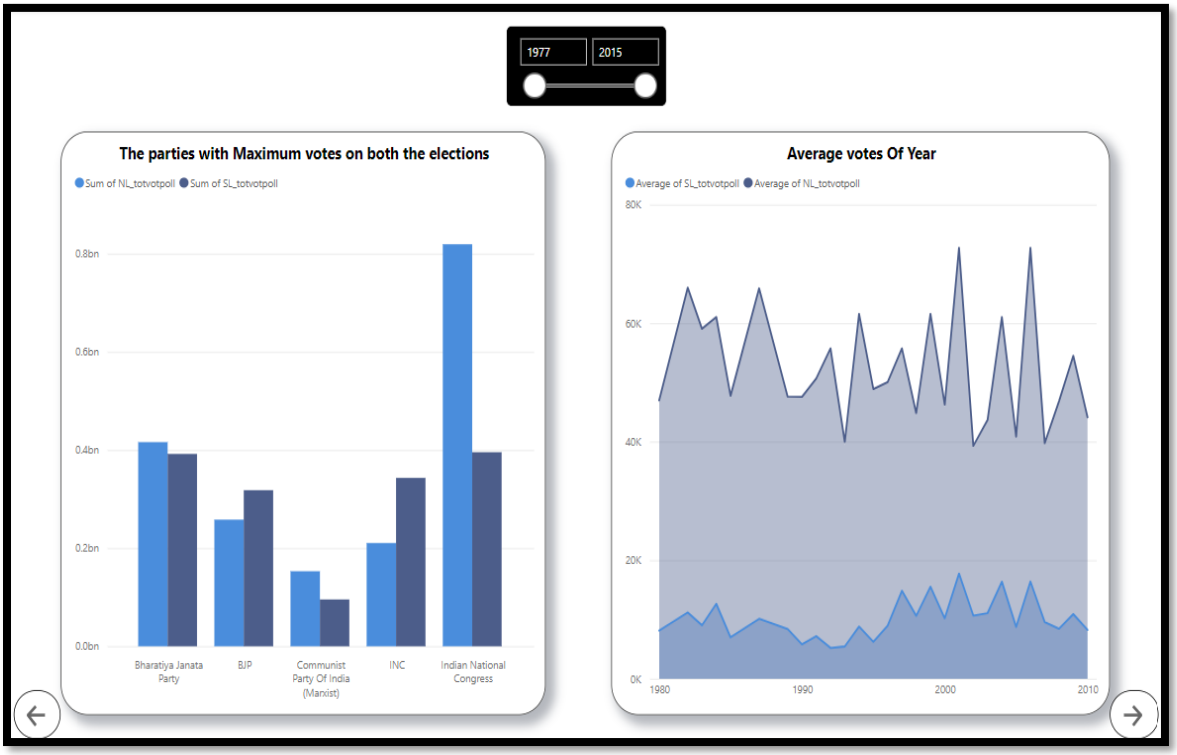

Figure : 3.6 Comparison based on years

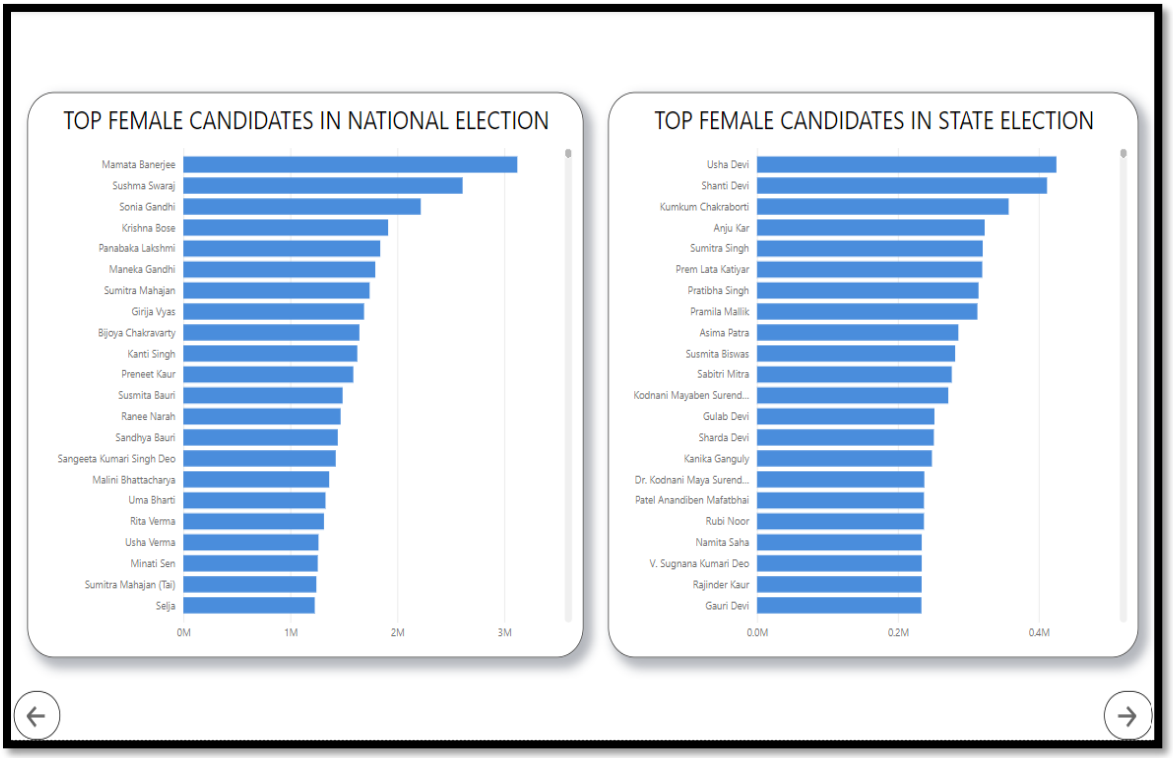

Figure : 3.7 Comparison based on gender

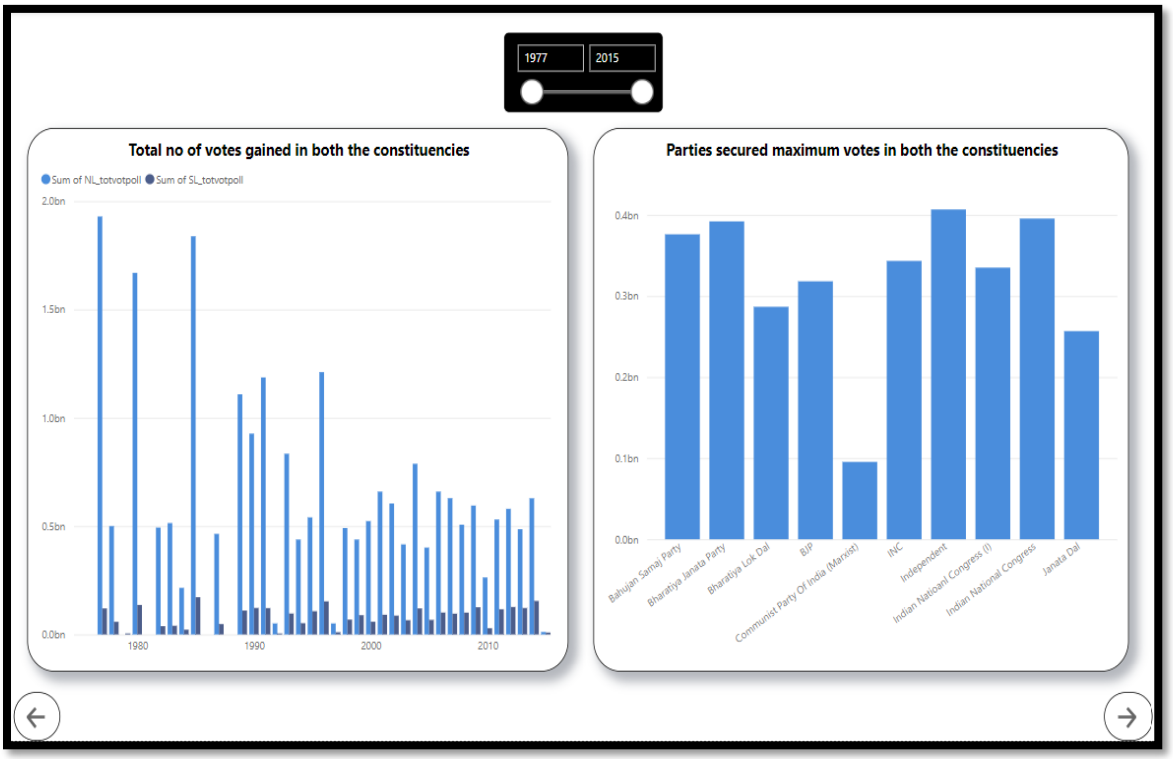

Figure : 3.8 Comparison based on votes

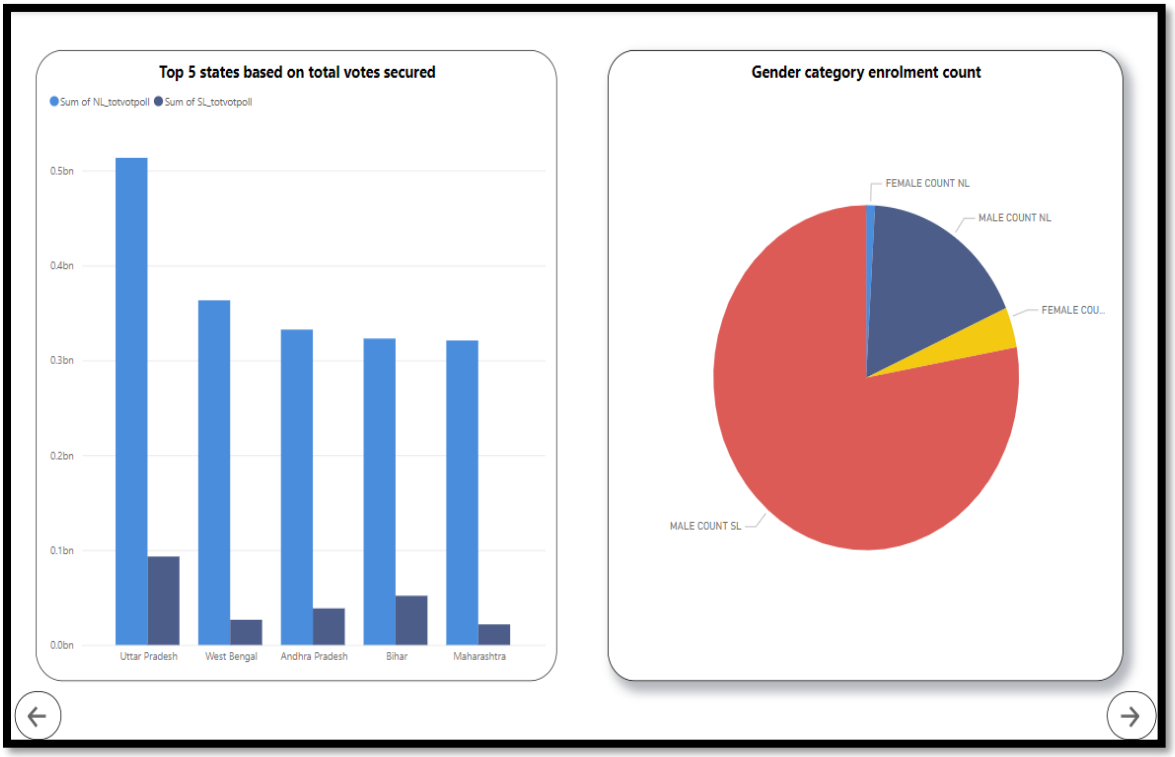

Figure : 3.9 Comparison based on states

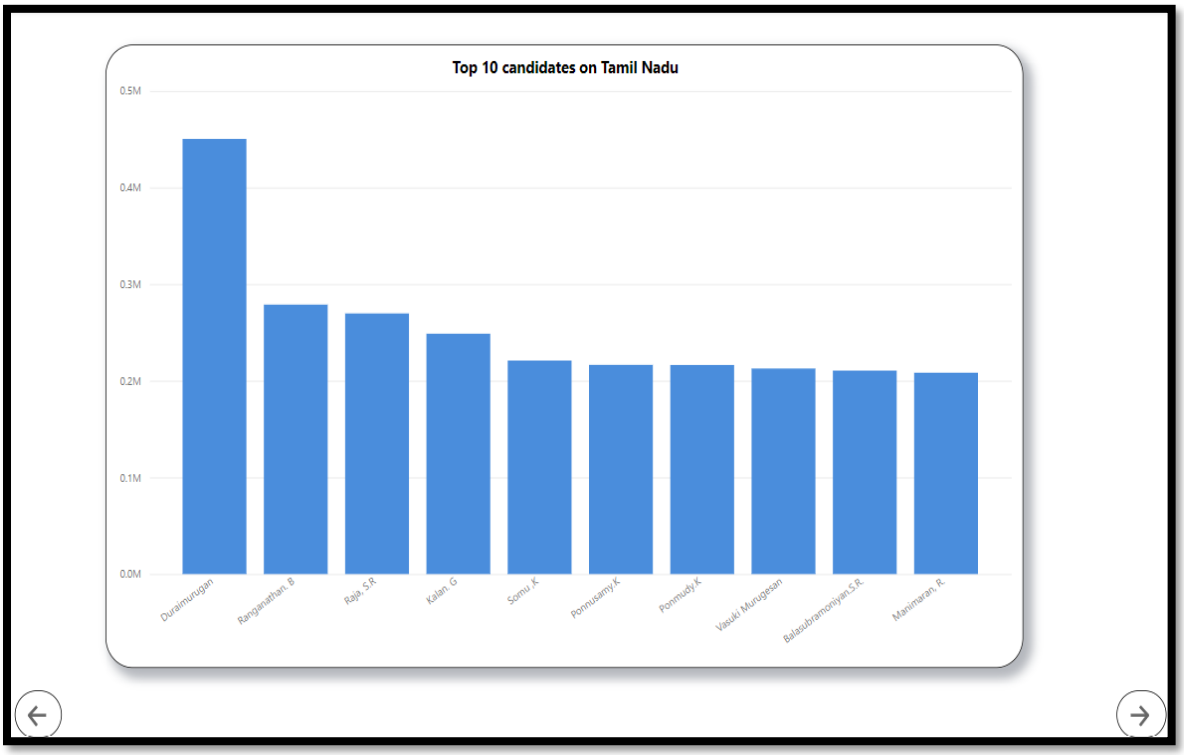

Figure : 3.10 Analysis on states

3.2 PUBLISHING DASHBOARD

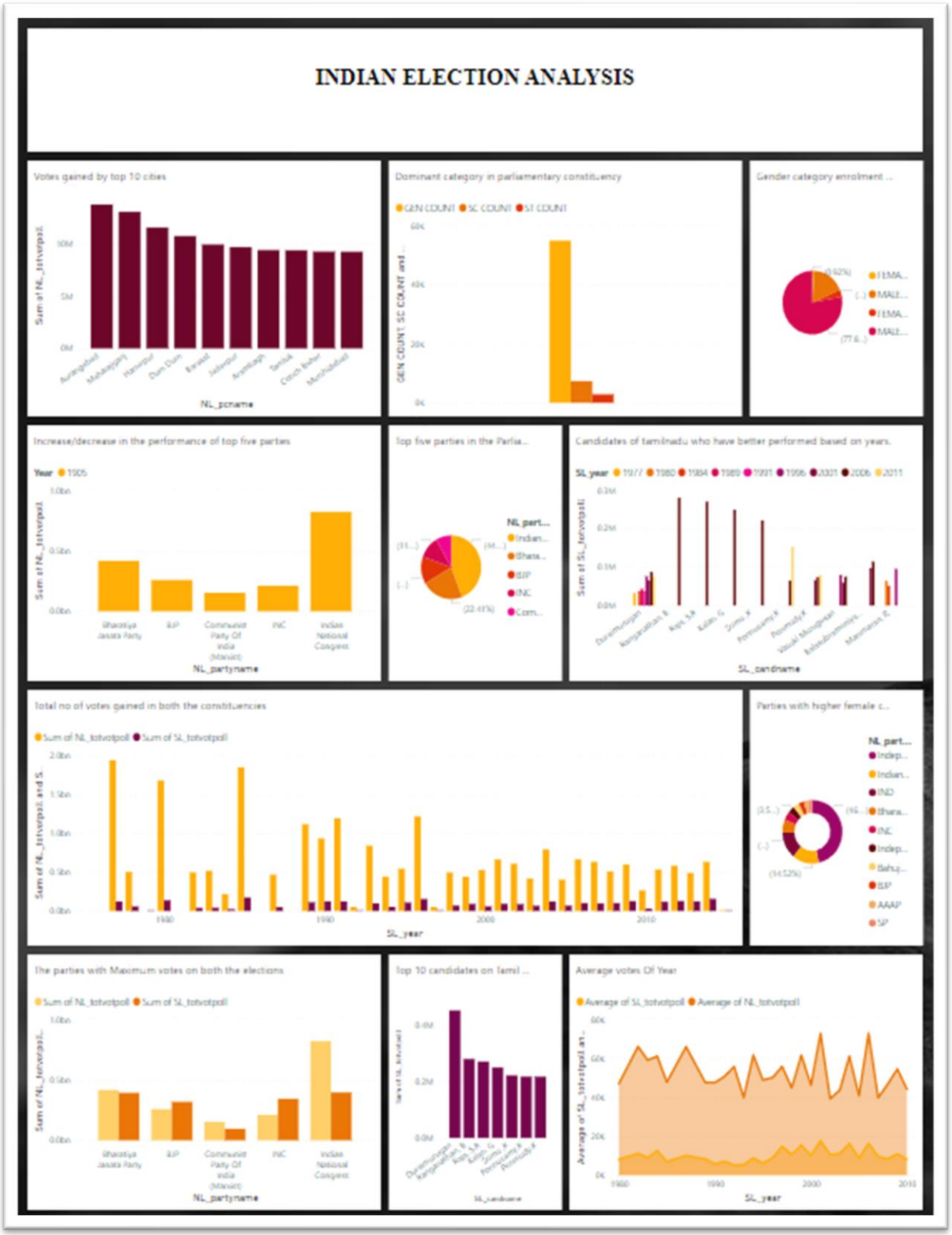

Figure : 3.11 Dashboard on Analysis on election

3.3 INFERENCES

- The cities named Aurangabad , Maharaj Ganj and Hamirpur are top three cities in national election where maximum amount of vote is gained.
- The General category is the Dominant category in the parliamentary constituency.
- In 1905 the party named Indian National congress is the one who performed well in both the Parliamentary and Assembly constituency
- In both the Parliamentary and Assembly Constituency Male candidates have higher enrollment and vote secured.
- The candidates named Duraimurugan, Ponmudy K and Vasuki Murugesan has performed well in many years.
- Most of the female candidates stood as an independent party in every election and secured more votes.
- Bhartiya Janata Party and Indian National Congress has performed well in Parliamentary constituency as compared to assembly constituency.
- In every year from 1977 to 2015 the Parliamentary constituency has higher vote count.
- The candidates named Duraimurugan, Ranganathan B ,Raja S R and Kalan G are the top candidates who secured more vote in State named Tamil Nādu.
- The assembly constituency have higher average votes than compared to parliamentary constituency.
- The parties named Indian National Congress and Bharati Janata Party have less female candidate count.
- The Indian National congress is the Party who has performed well in both the parliamentary election and assembly election till 2012and Bharati Janata party has started to perform well from the year of 2014.

CHAPTER 4

CONCLUSION AND FUTURE WORK

4.1 RECOMMENDATIONS

The Indian Election Analysis has been done using Power Bi tool and various insights are performed and visualized. The parties and the candidates secured higher and lesser votes has been analyzed. The parties secured least votes has a clear understanding in the area they lack a lot and even learned the tricks which can be followed in specific areas and cities.

This analysis made to have a clear view of the dataset only by looking the basic charts such as bar charts, pie charts ,cards and etc... This election analysis has made a clearance in the result and the votes gained by each city and the state. Even the analysis has created an option in filtering the analysis based on years from 1977 to 2015 and even on the gender and caste categories. This categorization helps the candidates to get a good clearance to perform well in the upcoming elections.

The further works that are required to be performed in the analysis is to update the data for upcoming elections that will be conducted every 4 years. The new candidates and parties enrolled in the Election has also to be updated in the Data set for perfect analysis that is to made based on years.

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