

# Data Analysis Of EV Sales In India 2014-2024



## Salil Panwar

I Help Businesses Scale Up With Google Ads Meta Ads Bing Ads & Data Analytics| End To End Marketing| SA360 Display Search Video Shopping Ads Certified| Certified Data Analyst| SQL| Tableau| Excel| Power BI| Rstudio

September 23, 2025

As a part of my online 4 month internship at [Unified Mentor Private Limited](#), I have been given various datasets to perform data analysis, data manipulation and data visualization on them.

As a part of this project, I have chosen to perform these tasks on the Electric Vehicle Sales by State in India for the years 2014-2024. I analyzed, cleaned, manipulated, modelled and visualized over 96,800 rows of data across 8 columns in a dataset. Various data pivots were created in order to dive deeper into the insights of the data provided.

The data analysis, modelling, manipulation tasks were primarily carried out using [Microsoft SQL Server](#). I also used [Microsoft Copilot](#) for debugging my query for errors, showcasing my skills as a Data Analyst as well as Artificial Intelligence prompt query writing.

The data visualization was performed using [Power BI](#) as my primary go to tool in order to explore and validate my skills in the requisite visualization tool. I have been using primarily Tableau for data visualization till this project, in order to build a strong foundation for my future endeavors in complex data visualization using other tools like Microsoft Power-BI and Google Looker Studio.

## **Methodology**

- Data Cleaning, Preparation and Manipulation:- Microsoft SQL Server was used primarily for verification of data integrity, accuracy, cleaning, preparing and manipulating data for further analysis. All the null values were removed as a part of the data cleaning process. The schema of all the columns of data was checked in order to process the data for further manipulation.

	years	month_name	dated	state_name	vehicle_class	vehicle_category	vehicle_type	ev_sales_quantity
96812	2023	dec	2023-12-01	Delhi	MAXI CAB	Others	Others	0
96813	2023	dec	2023-12-01	Delhi	M-CYCLE/SCOOTER	2-Wheelers	2W_Personal	5380
96814	2023	dec	2023-12-01	Delhi	M-CYCLE/SCOOTER-WITH SIDE...	2-Wheelers	2W_Personal	0
96815	2023	dec	2023-12-01	Delhi	MOPED	2-Wheelers	2W_Personal	0
96816	2023	dec	2023-12-01	Delhi	MOTOR CAB	4-Wheelers	4W_Shared	84
96817	2023	dec	2023-12-01	Delhi	MOTOR CAR	4-Wheelers	4W_Personal	727
96818	2023	dec	2023-12-01	Delhi	THREE WHEELER (GOODS)	3-Wheelers	3W_Goods	681
96819	2023	dec	2023-12-01	Delhi	THREE WHEELER (PASSENGER)	3-Wheelers	3W_Shared	8
96820	2023	dec	2023-12-01	Goa	ADAPTED VEHICLE	Others	Others	0
96821	2023	dec	2023-12-01	Goa	AGRICULTURAL TRACTOR	Others	Others	0
96822	2023	dec	2023-12-01	Goa	BUS	Bus	Bus	6
96823	2023	dec	2023-12-01	Goa	CONSTRUCTION EQUIPMENT V...	Others	Others	0
96824	2023	dec	2023-12-01	Goa	GOODS CARRIER	Others	Others	4
96825	2023	dec	2023-12-01	Goa	HEARSE	Others	Others	0
96826	2023	dec	2023-12-01	Goa	MAXI CAB	Others	Others	0
96827	2023	dec	2023-12-01	Goa	M-CYCLE/SCOOTER	2-Wheelers	2W_Personal	799
96828	2023	dec	2023-12-01	Goa	MOTOR CAB	4-Wheelers	4W_Shared	0
96829	2023	dec	2023-12-01	Goa	MOTOR CAR	4-Wheelers	4W_Personal	71
96830	2023	dec	2023-12-01	Goa	MOTOR CYCLE/SCOOTER-SIDE...	Others	Others	0
96831	2023	dec	2023-12-01	Goa	MOTOR CYCLE/SCOOTER USE...	2-Wheelers	2W_Shared	0
96832	2023	dec	2023-12-01	Goa	THREE WHEELER (GOODS)	3-Wheelers	3W_Goods	0
96833	2023	dec	2023-12-01	Goa	THREE WHEELER (PASSENGER)	3-Wheelers	3W_Shared	2
96834	2023	dec	2023-12-01	Goa	THREE WHEELER (PERSONAL)	3-Wheelers	3W_Personal	1
96835	2023	dec	2023-12-01	Andaman & Ni...	CONSTRUCTION EQUIPMENT V...	Others	Others	0
96836	2023	dec	2023-12-01	Andaman & Ni...	GOODS CARRIER	Others	Others	0
96837	2023	dec	2023-12-01	Andaman & Ni...	MAXI CAB	Others	Others	0

## Code Snippet

```
SELECT *
FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
```

## Data Cleaning

- During the process of data preparation, I noticed that few of the column headers were clashing with the syntaxes of Microsoft SQL. In order to avoid this I renamed all the clashing column headers and also ran data validation for all NULL and missing values.
- For my Data Manipulation, I found out that the data provided is large, vague and not insightful for data visualization, presentation, recommendations. In order to make the data more readily available for easier and quicker analysis, I went ahead and performed data pivoting operations of various kind to gain more insights. During this process I had a question in my mind "What if the dataset gets updated later on? How can I automate this process based on data being updated automatically at backend?". Hence, I discovered Dynamic SQL for data calling which pulls and pivots the data in real time automatically, regardless of the data being updated any number of time.

```

1  SELECT *
2  FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
3
4  --1 pivoting by vehicle class and total sales code
5  SELECT
6  state_name,
7  vehicle_class,
8  SUM (ev_sales_quantity) AS total_ev_sales_per_state
9  FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
10 GROUP BY state_name, vehicle_class
11 ORDER BY state_name ASC, total_ev_sales_per_state DESC
12
13 --1 pivoting by vehicle class and total sales code
14 --2 pivoting based on sale per year for each state
15 SELECT *
16 FROM(
17 SELECT years, state_name, ev_sales_quantity
18 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
19 ) AS source_table
20 PIVOT(
21 SUM(ev_sales_quantity)
22 FOR years IN ([2014],[2015],[2016],[2017],[2018],[2019],[2020],[2021],[2022],[2023])
23 )AS pivot_table
24 ORDER BY state_name;
25
26 --2 pivoting based on sale per year for each state
27 --3 pivoting based on sum of all vehicles per vehicle categories per state
28 SELECT *
29 FROM(
30 SELECT state_name, vehicle_category, ev_sales_quantity
31 FROM[ev_sales_india_project].dbo.[ev_sales_statewise_india]
32 ) AS source_table
33 PIVOT(
34 SUM(ev_sales_quantity)
35 FOR vehicle_category IN ([Others],[Bus],[2-Wheelers],[4-Wheelers],[3-Wheelers])
36 ) AS pivot_vehiclecategory_evsalesquantity
37 ORDER BY state_name;
38
39 --3 pivoting based on sum of all vehicles per vehicle categories per state
40 --4 Dynamic pivot of ev sales by state per year

```

## Code Snippet

--1 pivoting by vehicle class and total sales code

SELECT

state\_name,

vehicle\_class,

SUM (ev\_sales\_quantity) AS total\_ev\_sales\_per\_state

FROM [ev\_sales\_india\_project].dbo.[ev\_sales\_statewise\_india]

GROUP BY state\_name, vehicle\_class

ORDER BY state\_name ASC, total\_ev\_sales\_per\_state DESC

--1 pivoting by vehicle class and total sales code

```

40
41 DECLARE @total_per_sate_per_year NVARCHAR(MAX),
42 @no_of_years NVARCHAR(MAX),
43 @new_pivot_table_per_state_per_year NVARCHAR(MAX);
44 --Get sum of all years of sales into one column dynamically
45 SELECT @total_per_sate_per_year = STRING_AGG(QUOTENAME(years), '+')
46 FROM
47 ( SELECT DISTINCT years
48 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
49 ) AS sum_of_years;
50 --Get all the years inserted dynamically into columns
51 SELECT @no_of_years = STRING_AGG(QUOTENAME(years), ',')
52 FROM(
53 SELECT DISTINCT years
54 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
55 ) AS aggregated_years;
56 --Create Dynamic SQL pivot as new_pivot_table_per_state_per_year
57 SET @new_pivot_table_per_state_per_year =
58 '
59 SELECT state_name , ' + @no_of_years + ' , ' + @total_per_sate_per_year + ' AS sum_of_all_years_sales
60 FROM
61 (SELECT state_name,
62 years,
63 ev_sales_quantity
64 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
65 ) AS primary_table_for_pivot
66 PIVOT(
67 SUM(ev_sales_quantity) FOR years IN (' + @no_of_years + ')
68 ) AS pivoted_table
69 ORDER BY state_name;
70 '
71 EXEC sp_executesql @new_pivot_table_per_state_per_year
72
73 --4 Dynamic pivot of ev sales by state per year
74
75 --5 Dynamic pivot of ev sales per state per vehicle types

```

## Code Snippet

--2 pivoting based on sale per year for each state

SELECT \*

FROM(

SELECT years, state\_name, ev\_sales\_quantity

FROM [ev\_sales\_india\_project].dbo.[ev\_sales\_statewise\_india]

) AS source\_table

PIVOT(

SUM(ev\_sales\_quantity)

FOR years IN ([2014],[2015],[2016],[2017],[2018],[2019],[2020],[2021],[2022],[2023])

)AS pivot\_table

ORDER BY state\_name;

--2 pivoting based on sale per year for each state

```

76
77 DECLARE
78 @total_vehicle_sales_alltypes NVARCHAR(MAX),
79 @vehicle_types NVARCHAR(MAX),
80 @pivoted_table_statewise NVARCHAR(MAX)
81
82 SELECT @total_vehicle_sales_alltypes = STRING_AGG('ISNULL(' + QUOTENAME(vehicle_type) + ', 0)', ' + ')
83 FROM(
84     SELECT DISTINCT vehicle_type
85     FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
86 ) AS vehicles_aggregated
87
88 SELECT @vehicle_types = STRING_AGG(QUOTENAME(vehicle_type), ',')
89 FROM(
90     SELECT DISTINCT vehicle_type
91     FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
92 ) AS vehicle_types_aggregated;
93
94 SET @pivoted_table_statewise =
95 '
96 SELECT state_name, ' + @vehicle_types + ' , ' + @total_vehicle_sales_alltypes + ' AS total_sales
97 FROM(
98     SELECT state_name, vehicle_type, ev_sales_quantity
99     FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
100 ) AS primary_table
101 PIVOT
102 ( SUM(ev_sales_quantity) FOR vehicle_type IN (' + @vehicle_types + ')
103 ) AS pivoted_table
104 ORDER BY state_name;
105 '
106 EXEC sp_executesql @pivoted_table_statewise
107
108 --5 Dynamic pivot of ev sales per state per vehicle types

```

## Code Snippet

--3 pivoting based on sum of all vehicles per vehicle categories per state

SELECT \*

FROM(

SELECT state\_name, vehicle\_category, ev\_sales\_quantity

FROM[ev\_sales\_india\_project].dbo.[ev\_sales\_statewise\_india]

) AS source\_table

PIVOT(

SUM(ev\_sales\_quantity)

FOR vehicle\_category IN ([Others],[Bus],[2-Wheelers],[4-Wheelers],[3-Wheelers])

) AS pivot\_vehiclecategory\_evsalesquantity

ORDER BY state\_name;

--3 pivoting based on sum of all vehicles per vehicle categories per state

```

109 --6 Dynamic pivot of yearly ev sales based on vehicle category
110
111
112 DECLARE @vehicle_sales_yearly NVARCHAR(MAX) , @total_vehicle_sales NVARCHAR(MAX) , @pivot_table_vehicle_type NVARCHAR(MAX)
113
114 SELECT @vehicle_sales_yearly = STRING_AGG(QUOTENAME(years), ',')
115 FROM
116 (
117     SELECT DISTINCT years
118     FROM [ev_sales_india_project].dbo.ev_sales_statewise_india
119 ) AS years_aggregated_for_pivot;
120
121 SELECT @total_vehicle_sales = STRING_AGG(QUOTENAME(years), '+')
122 FROM
123 (SELECT DISTINCT years
124  FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
125 ) AS total_years_aggregated
126
127 SET @pivot_table_vehicle_type = '
128 SELECT vehicle_category , ' + @vehicle_sales_yearly + ' , ' + @total_vehicle_sales+ ' AS total_vehicle_sales
129 FROM
130 (
131     SELECT
132     vehicle_category,
133     years,
134     ev_sales_quantity
135     FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
136 ) AS primary_source_table
137 PIVOT
138 ( SUM(ev_sales_quantity) FOR years IN (' + @vehicle_sales_yearly+ ' )
139 ) AS pivoted_table
140 ORDER BY vehicle_category;
141 '
142 EXEC sp_executesql @pivot_table_vehicle_type
143 --6 Dynamic pivot of yearly ev sales based on vehicle category
144

```

## Code Snippet

--4 Dynamic pivot of ev sales by state per year

DECLARE @total\_per\_sate\_per\_year NVARCHAR(MAX),

@no\_of\_years NVARCHAR(MAX),

@new\_pivot\_table\_per\_state\_per\_year NVARCHAR(MAX);

--Get sum of all years of sales into one column dynamically

SELECT @total\_per\_sate\_per\_year = STRING\_AGG(QUOTENAME(years), '+')

FROM

( SELECT DISTINCT years

FROM [ev\_sales\_india\_project].dbo.[ev\_sales\_statewise\_india]

) AS sum\_of\_years;

--Get all the years inserted dynamically into columns

```

SELECT @no_of_years = STRING_AGG(QUOTENAME(years), ',')

FROM(

SELECT DISTINCT years

FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]

) AS aggregated_years;

--Create Dynamic SQL pivot as new_pivot_table_per_state_per_year

SET @new_pivot_table_per_state_per_year =

,

SELECT state_name , ' + @no_of_years + ' , ' + @total_per_sate_per_year + ' AS
sum_of_all_years_sales

FROM

(SELECT state_name,

years,

ev_sales_quantity

FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]

) AS primary_table_for_pivot

PIVOT(

SUM(ev_sales_quantity) FOR years IN (' + @no_of_years + ')

```

) AS pivoted\_table

ORDER BY state\_name;

;

EXEC sp\_executesql @new\_pivot\_table\_per\_state\_per\_year

--4 Dynamic pivot of ev sales by state per year

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'ev\_sales\_india\_project' database selected. The center pane shows a SQL query window with the following code:

```
4 -- Dynamic pivot of ev sales per state based on vehicle type
5 DECLARE @vehicle_types NVARCHAR(MAX), @pivot_states_vehicle_type NVARCHAR(MAX);
6 --Declaring new dataset with vehicle_types as columns and whole query as pivot_states_vehicle_type
7 SELECT @vehicle_types = STRING_AGG(QUOTENAME(vehicle_type), ',')
8 FROM (
9 SELECT DISTINCT vehicle_type
10 FROM
11 [ev_sales_india_project].dbo.[ev_sales_statewise_india]
12 ) AS vehicle_type_aggregated;
13 --Building Dynamic SQL pivot for execution by first creating a new table by concatenating state_name and vehicle_types
14 SET @pivot_states_vehicle_type = '
15 SELECT state_name, ' + @vehicle_types + '
16 FROM
17 (SELECT state_name, vehicle_type, ev_sales_quantity
18 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india] ) AS primary_source_table
19 PIVOT
20 (SUM(ev_sales_quantity)
21 FOR vehicle_type IN (' + @vehicle_types + '))
22 AS pivoted_table
23 ORDER BY state_name;
24 --Command to execute @pivot_states_vehicle_type
25 EXEC sp_executesql @pivot_states_vehicle_type
```

The right pane shows the 'Results' tab with the following data:

state_name	3W_Personal	Others	2W_Personal	4W_Shared	4W_Personal	2W_Shared	Institution Bus	Bus	3W_Goods	3W_Shared_LowSpeed	3W_Shared	3W_Goods_LowSpeed
Andaman & Nicobar Island	0	2	11	7	92	20	NULL	40	0	1	0	29
Andhra Pradesh	1	765	69019	51	3213	1	0	120	409	1502	1412	863
Arunachal Pradesh	0	0	10	0	28	NULL	0	9	2	NULL	0	NULL
Assam	0	423	5208	53	485	NULL	0	193	324	137982	4826	2343
Bihar	0	47	28116	16	865	0	NULL	27	855	174880	5678	2981
Chandigarh	NULL	40	3395	12	1489	0	0	80	128	4684	414	1211
Chhattisgarh	68	1578	48828	42	1688	0	0	2	771	15943	3949	2408
Delhi	0	417	85358	7143	12021	NULL	0	1731	12344	134439	1418	13670
DNH and DD	1	8	256	3	65	0	0	25	32	2	39	NULL
Goa	8	90	15151	2	1921	0	0	108	16	12	14	60
Gujarat	35	751	157670	143	10885	1	0	623	3415	778	1253	979
Haryana	0	292	27318	1314	2687	52	0	16	1249	43732	3701	4929

## Code Snippet

--5 Dynamic pivot of ev sales per state per vehicle types

DECLARE

@total\_vehicle\_sales\_alltypes NVARCHAR(MAX),

@vehicle\_types NVARCHAR(MAX),

@pivoted\_table\_statewise NVARCHAR(MAX)



```
SELECT @total_vehicle_sales_alltypes = STRING_AGG('ISNULL(' +  
QUOTENAME(vehicle_type) + ', 0)', ' + ')
```

```
FROM(
```

```
    SELECT DISTINCT vehicle_type
```

```
    FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
```

```
) AS vehicles_aggregated
```

```
SELECT @vehicle_types = STRING_AGG(QUOTENAME(vehicle_type), ',')
```

```
FROM(
```

```
    SELECT DISTINCT vehicle_type
```

```
    FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
```

```
) AS vehicle_types_aggregated;
```

```
SET @pivoted_table_statewise =
```

```
,
```

```
SELECT state_name, ' + @vehicle_types + ', ' + @total_vehicle_sales_alltypes + ' AS  
total_sales
```

```
FROM(
```

```
    SELECT state_name, vehicle_type, ev_sales_quantity
```

FROM [ev\_sales\_india\_project].dbo.[ev\_sales\_statewise\_india]

) AS primary\_table

PIVOT

( SUM(ev\_sales\_quantity) FOR vehicle\_type IN (' + @vehicle\_types + ')

) AS pivoted\_table

ORDER BY state\_name;

,

EXEC sp\_executesql @pivoted\_table\_statewise

--5 Dynamic pivot of ev sales per state per vehicle types

The screenshot displays the SQL Server Enterprise Manager interface. The left pane shows the 'Object Explorer' with the 'ev\_sales\_india\_project' database selected. The right pane shows the 'SQL Query1.sql' window with a dynamic pivot query. The query is as follows:

```
1 DECLARE @total_per_sate_per_year NVARCHAR(MAX),
2 @no_of_years NVARCHAR(MAX),
3 @new_pivot_table_per_sate_per_year NVARCHAR(MAX),
4 --Get sum of all years of sales into one column dynamically
5 SELECT @total_per_sate_per_year = STRING_AGG(QUOTENAME(years), ',')
6 FROM
7 ( SELECT DISTINCT years
8 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
9 ) AS sum_of_years,
10 --Get all the years inserted dynamically into columns
11 SELECT @no_of_years = STRING_AGG(QUOTENAME(years), ',')
12 FROM
13 ( SELECT DISTINCT years
14 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
15 ) AS aggregated_years,
16 --Create Dynamic SQL pivot as new_pivot_table_per_sate_per_year
17 SET @new_pivot_table_per_sate_per_year =
18 (
19 SELECT state_name , ' ' + @no_of_years + ' ' , ' ' + @total_per_sate_per_year + ' ' AS sum_of_all_years_sales
20 FROM
21 (SELECT state_name,
22 years,
23 ev_sales_quantity
24 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
25 ) AS primary_table_for_pivot
26 PIVOT
27 (SUM(ev_sales_quantity) FOR years IN (' + @no_of_years + '))
28 AS pivoted_table
29 (SELECT state_name
30 FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
31 ) AS state_names
32 EXEC sp_executesql @new_pivot_table_per_sate_per_year
```

The bottom pane shows the 'Results' window with the following data:

state_name	2024	2021	2022	2016	2019	2014	2020	2023	2017	2018	2015	sum_of_all_years_sales
Andaman & Nicobar Island	3	92	23	0	2	0	36	26	0	20	0	202
Andhra Pradesh	2353	9540	29008	20	2123	12	1623	31506	0	1185	8	77296
Arunachal Pradesh	7	2	2	1	1	0	5	21	0	1	0	40
Assam	4262	15633	40720	19	10867	2	6367	60798	3833	7403	23	151917
Bihar	8375	23062	55752	1100	12360	12	12447	81186	3593	8459	69	213465
Chandigarh	593	724	2719	1	506	0	369	6323	23	212	2	11483
Chhattisgarh	3579	4214	22363	192	2744	123	1489	37638	945	1902	88	75275
Delhi	7067	25815	62265	21688	23222	48	12378	73487	18042	20961	3585	268538
DNH and DD	35	29	140	2	19	0	24	160	1	19	2	431
Goa	826	1095	1608	34	41	9	80	8440	39	26	4	17382
Goa and DNH	6088	9276	69092	142	945	36	1120	88612	124	458	81	126211

## Code Snippet

--6 Dynamic pivot of yearly ev sales based on vehicle category

DECLARE @vehicle\_sales\_yearly NVARCHAR(MAX) , @total\_vehicle\_sales  
NVARCHAR(MAX) , @pivot\_table\_vehicle\_type NVARCHAR(MAX)

```
SELECT @vehicle_sales_yearly = STRING_AGG(QUOTENAME(years), ',')
```

```
FROM
```

```
(
```

```
SELECT DISTINCT years
```

```
FROM [ev_sales_india_project].dbo.ev_sales_statewise_india
```

```
) AS years_aggregated_for_pivot;
```

```
SELECT @total_vehicle_sales = STRING_AGG(QUOTENAME(years), '+')
```

```
FROM
```

```
(SELECT DISTINCT years
```

```
FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]
```

```
) AS total_years_aggregated
```

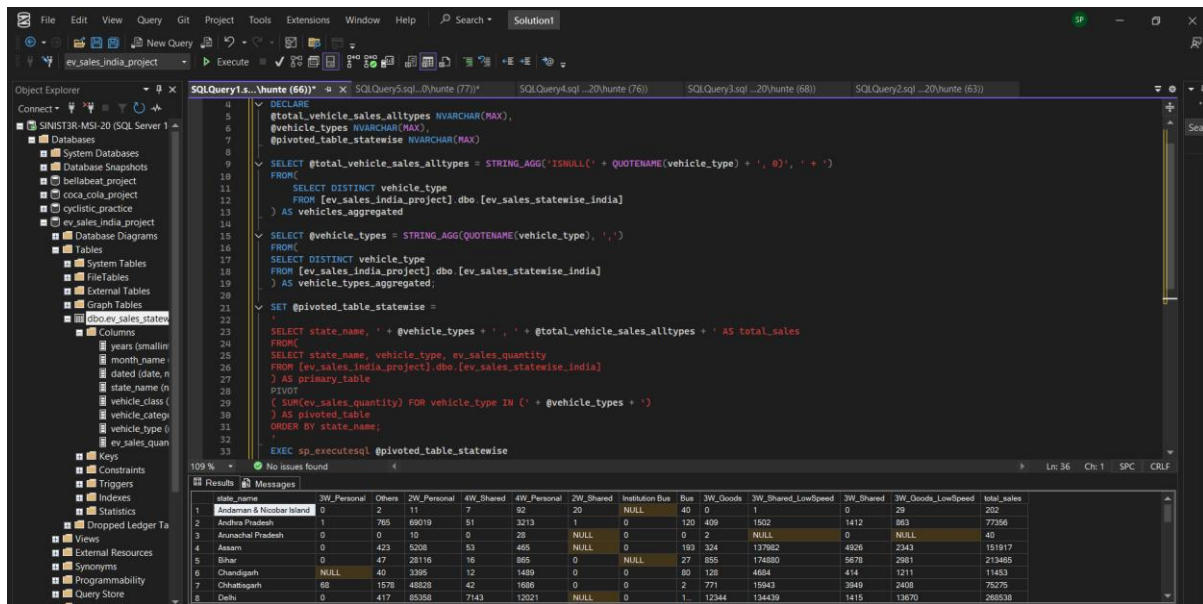
```
SET @pivot_table_vehicle_type ='
```

```
SELECT vehicle_category , ' + @vehicle_sales_yearly + ' , ' + @total_vehicle_sales+ '  
AS total_vehicle_sales
```

```
FROM
```

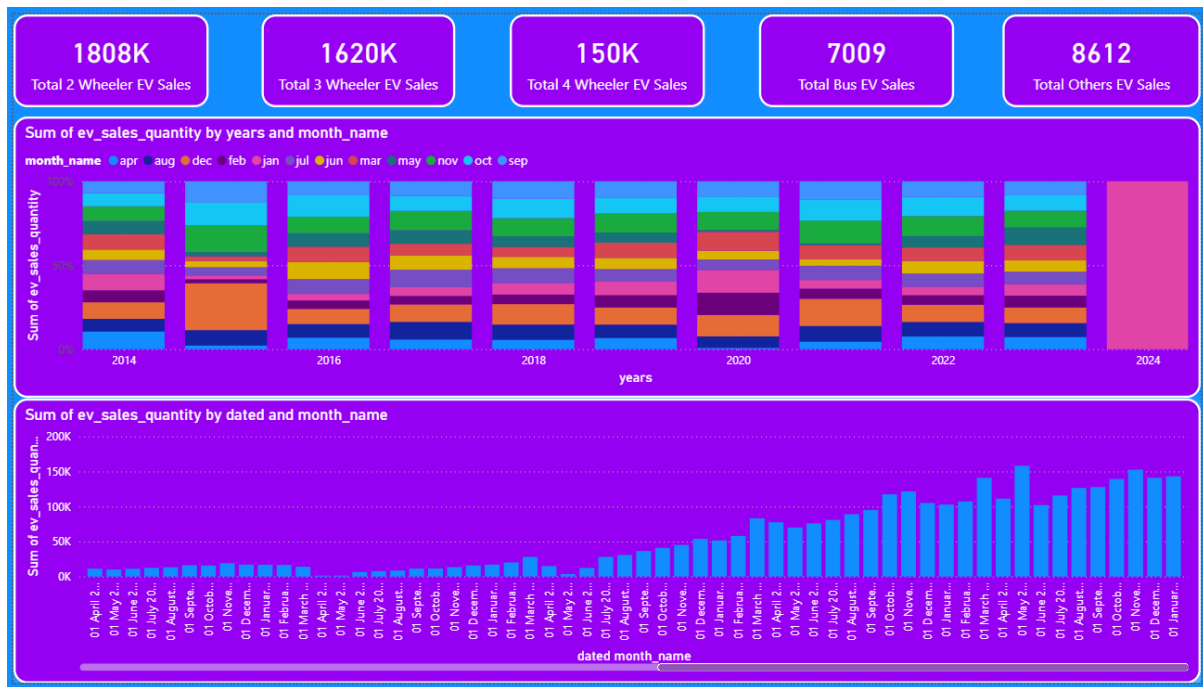
```
(  
  
SELECT  
  
vehicle_category,  
  
years,  
  
ev_sales_quantity  
  
FROM [ev_sales_india_project].dbo.[ev_sales_statewise_india]  
  
) AS primary_source_table  
  
PIVOT  
  
( SUM(ev_sales_quantity) FOR years IN (' + @vehicle_sales_yearly+ ' )  
  
) AS pivoted_table  
  
ORDER BY vehicle_category;  
  
';  
  
EXEC sp_executesql @pivot_table_vehicle_type
```

--6 Dynamic pivot of yearly ev sales based on vehicle category



- Data Visualization: PowerBI software was used to transform the various datasets into meaningful and insightful visual representations of data in form of charts, graphs, trend lines for business and financial analysis.





- Scope Of Data: Over 10 years of national data state-wise of Electric Vehicles across 96,800 data points and 8 columns we're cleaned, analyzed and manipulated from a financial and business use perspective.

## Key Insights:

1. In terms of total electric vehicle per state, Uttar Pradesh has seen the most number of sales, followed by Maharashtra and Karnataka. This shows the confidence of Indian consumers in the electric vehicles.
2. Electric Vehicles are also gaining popularity in many other states which are primarily consisting of Tier-2, Tier-3, Tier-4 cities and rural areas.
3. Two wheeler is the most popular electric vehicle among all types of electric vehicles, showcasing the strong confidence of middle class on the EV initiative and lower carbon emissions.

State which are lagging behind are primarily the one's with a weak road and electricity infrastructure.

## Recommendations:

- Invest in building of more EV charging infrastructure across all states and metropolitan cities in order to boost consumer confidence in electric vehicles to push for lower carbon footprint of India.

- Invest in small sized nuclear power stations for all major cities in order to reduce reliance on coal power plants.
- Reduce all forms of taxes on all personal use electric vehicles in order to boost sales among middle class.
- Giving tax benefits to companies manufacturing and selling electric vehicles in India under government supervision for funding of Research and Development department of the private firms.
- Built and increase road connectivity and infrastructure across India to build confidence in potential consumers in rural areas as well in order to boost sales and lower national emissions.

## **Data Visualization:**

You can view all my codes, queries, visuals and spreadsheets on my [GitHub project](#).

-Salil Panwar