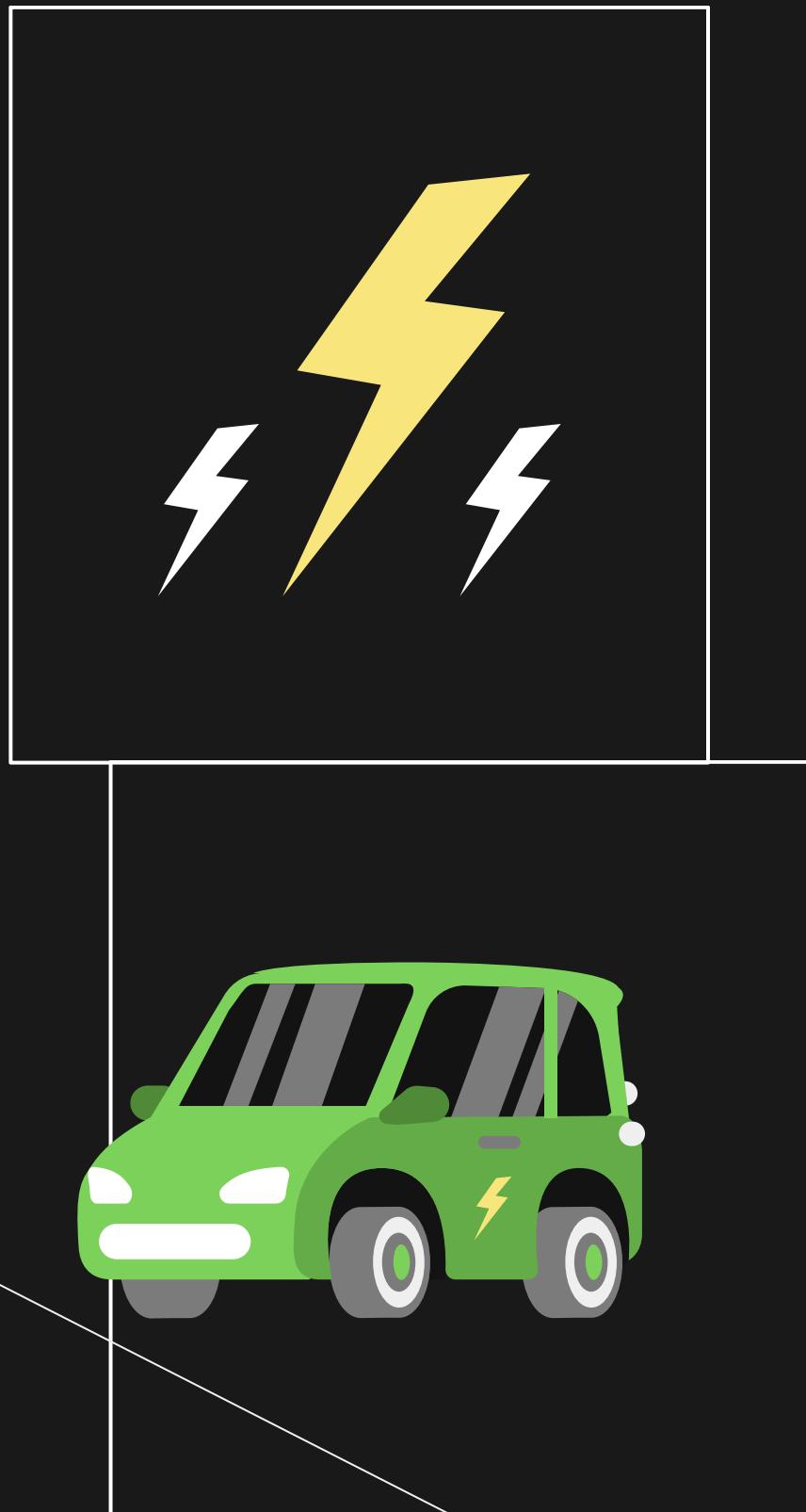


EV DATA ANALYSIS: ATLIQ MOTORS



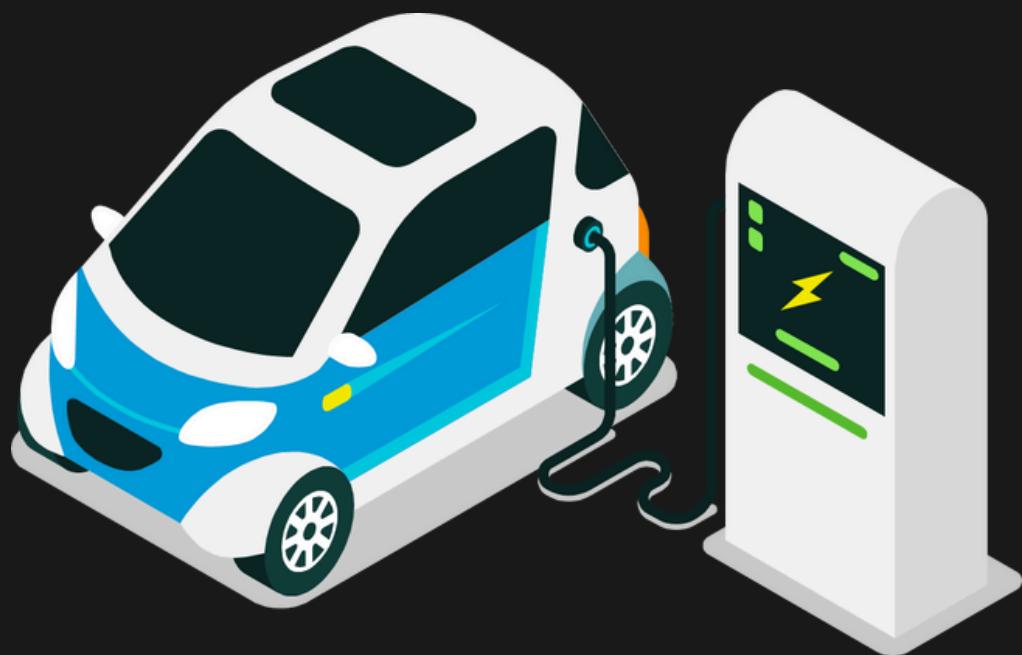
PRESENTED BY :- Dipankar Raman

TOOLS: Python



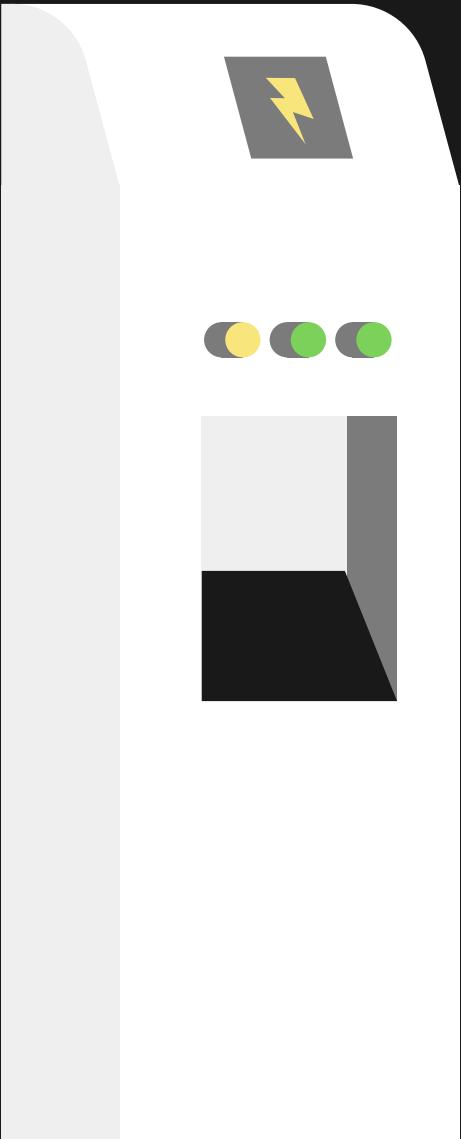
CONTENT

1. About Atliq Motors
2. Problem Statement
3. Dataset and Model
4. Task, Query and Output
5. Visualization and Insights





ABOUT ATLIQ MOTORS



AtliQ Motors, headquartered in the United States, is a leading name in electric and hybrid vehicle technology, known for its innovation, quality, and commitment to sustainability. With a vision to revolutionize the automotive industry, AtliQ focuses on developing cutting-edge electric vehicles (EVs) that combine eco-friendliness with exceptional performance and efficiency. Trusted across North America, AtliQ continues to push the boundaries of technology and design, setting new standards for sustainable and high-performance mobility solutions.





OBJECTIVES

1. Increase Market Share in India:

- Grow AtliQ Motors' market share in India from under 2% to a more competitive position, establishing a strong presence in the country's EV and hybrid vehicle segment.

2. Launch Bestselling Models:

- Successfully introduce AtliQ's most popular electric and hybrid vehicle models in the Indian market, ensuring they meet local consumer demands and regulatory standards.

3. Understand Indian Market Dynamics:

- Conduct in-depth market research to identify key opportunities, potential barriers, and consumer behavior in India's evolving EV and hybrid vehicle landscape.

4. Support India's Green Mobility Transition:

- Contribute to India's growing need for sustainable transportation solutions by offering high-performance, eco-friendly vehicles that align with government initiatives and consumer preferences for green mobility.

5. Strengthen Global Footprint:

- Leverage the company's North American success to expand into international markets, ensuring AtliQ Motors becomes a globally recognized leader in electric and hybrid vehicle technology.

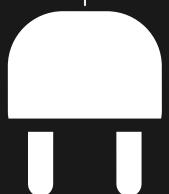




Datasets Overview:

This analysis uses datasets covering electric vehicle sales trends in India from April 2021 to April 2024, sourced from Codebasics with data from Vahan Sewa:

- 1. Electric Vehicle Sales by State:** Monthly sales data categorized by vehicle type (2-Wheeler or 4-Wheeler) and state, including the date, number of EVs sold, and total vehicle sales.
- 2. Electric Vehicle Sales by Makers:** Sales data by manufacturer, categorized by vehicle type, showing date, vehicle category, manufacturer, and number of EVs sold.
- 3. Date Dimension:** Provides time-series analysis details, including specific dates, fiscal years, and quarters.



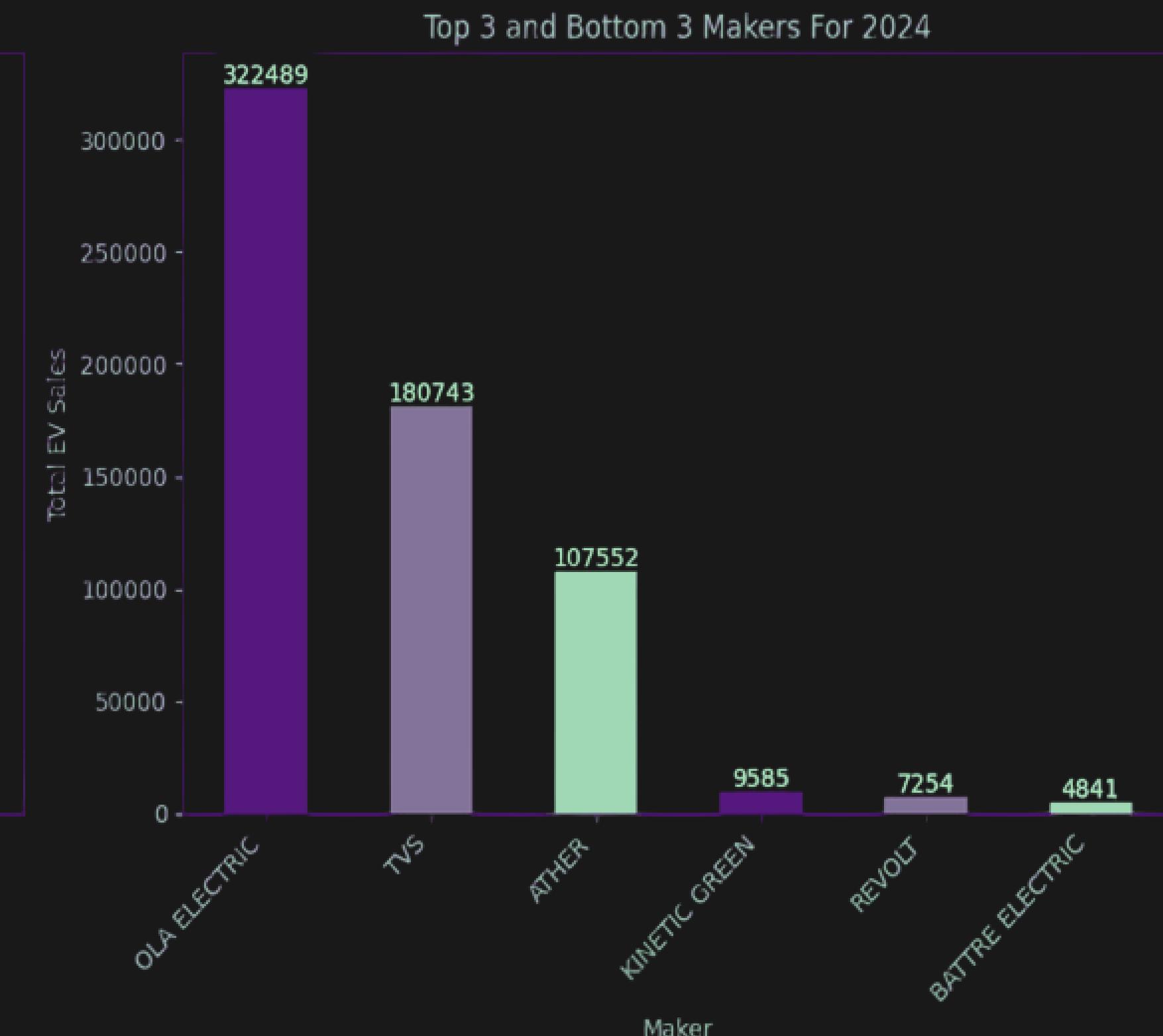
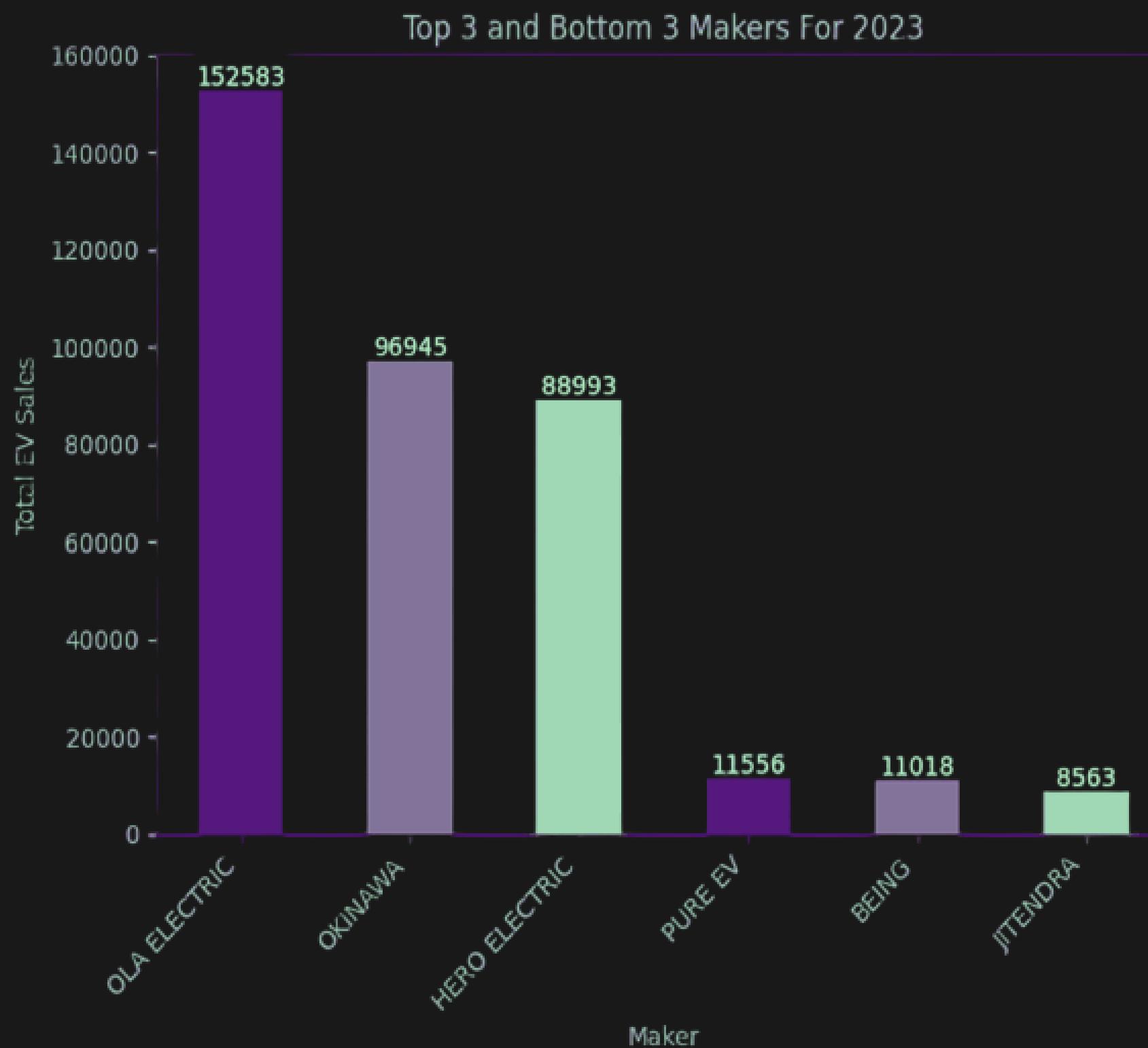


Primary Analysis USING:- Python





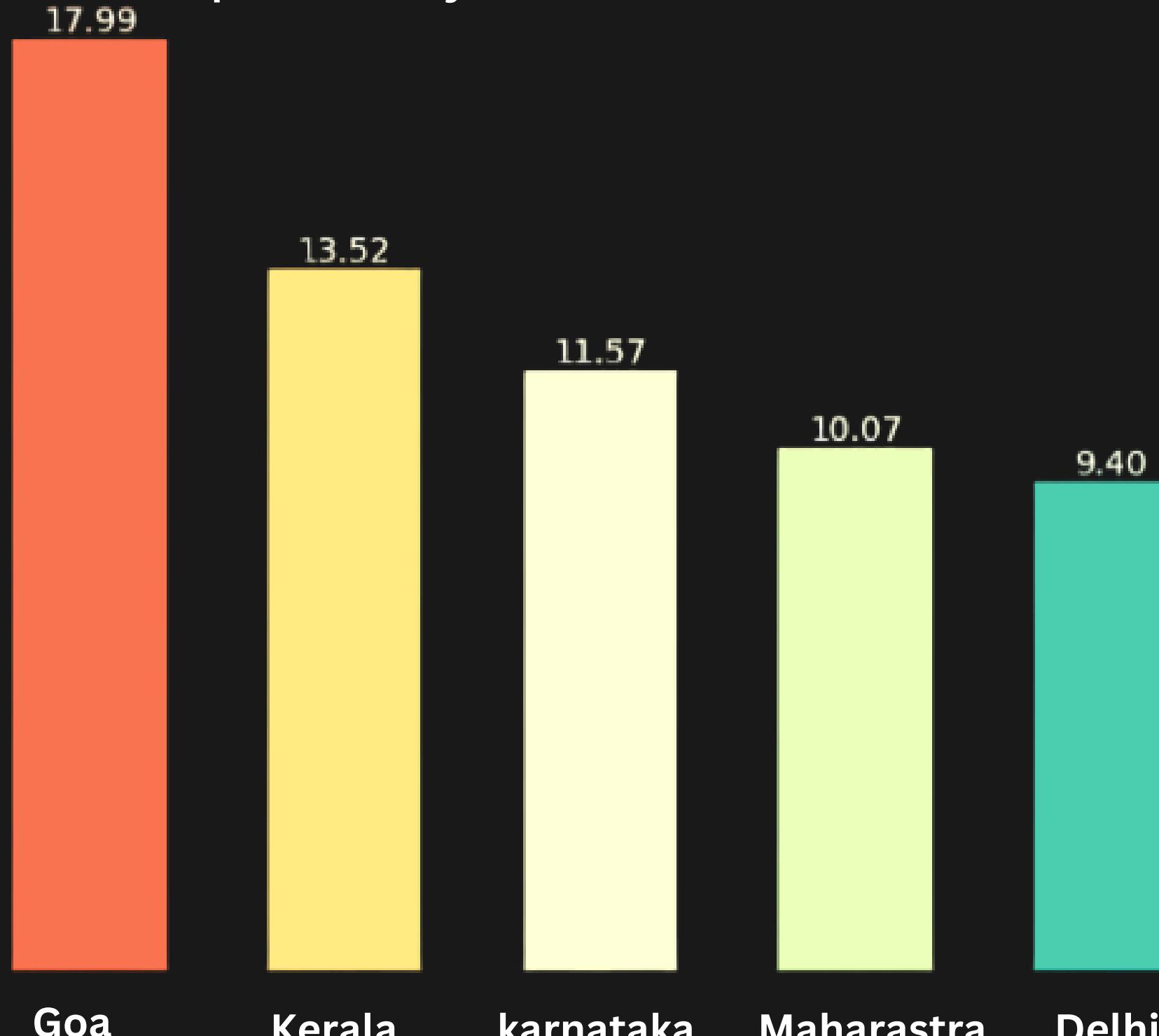
1. List the top 3 and bottom 3 makers for the fiscal years 2023 and 2024 in terms of the number of 2-wheelers sold.



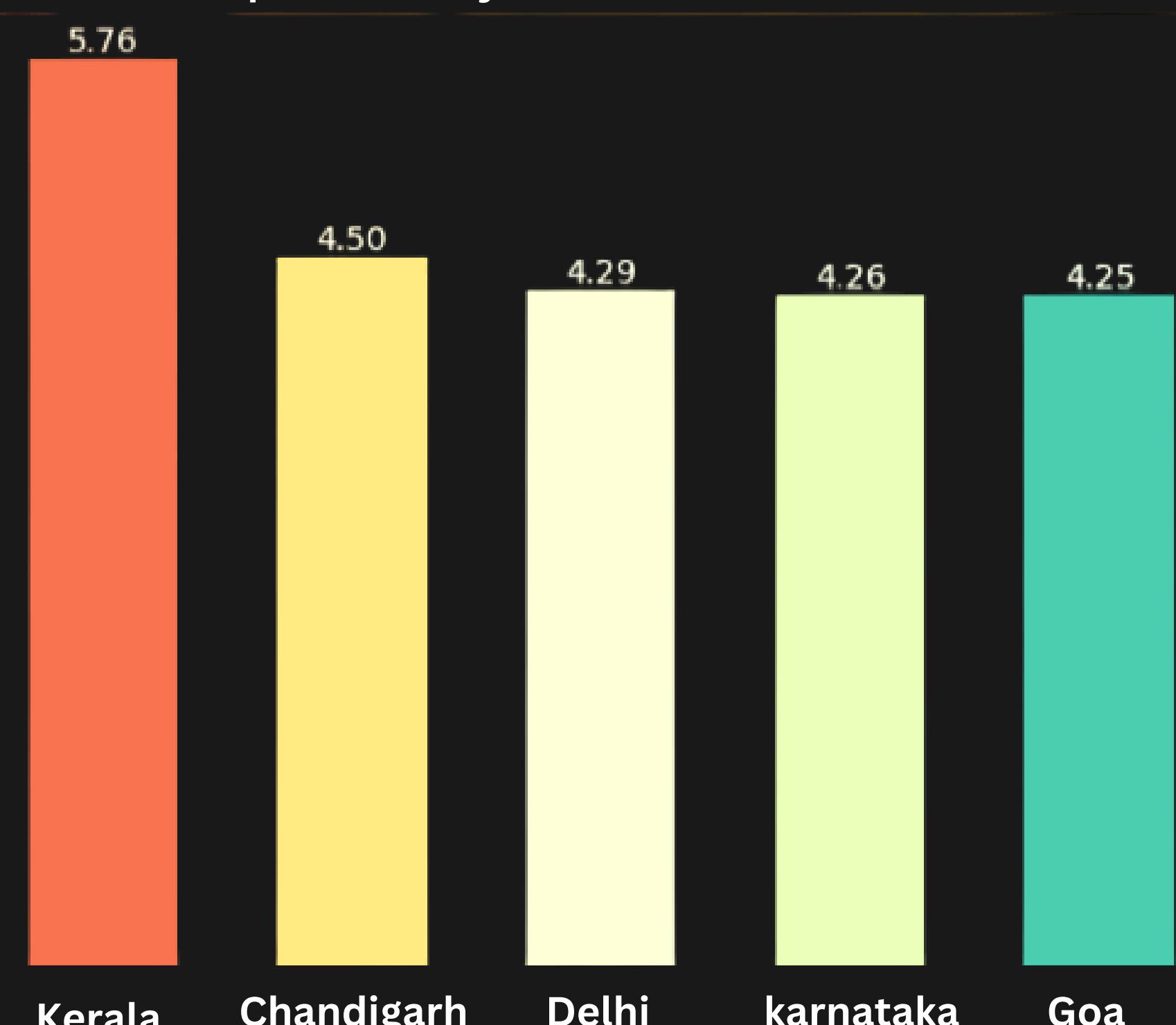
2. Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales in FY 2024.



Top 5 States by Penetration Fot 4WH FY2024



Top 5 States by Penetration Fot 2WH FY2024

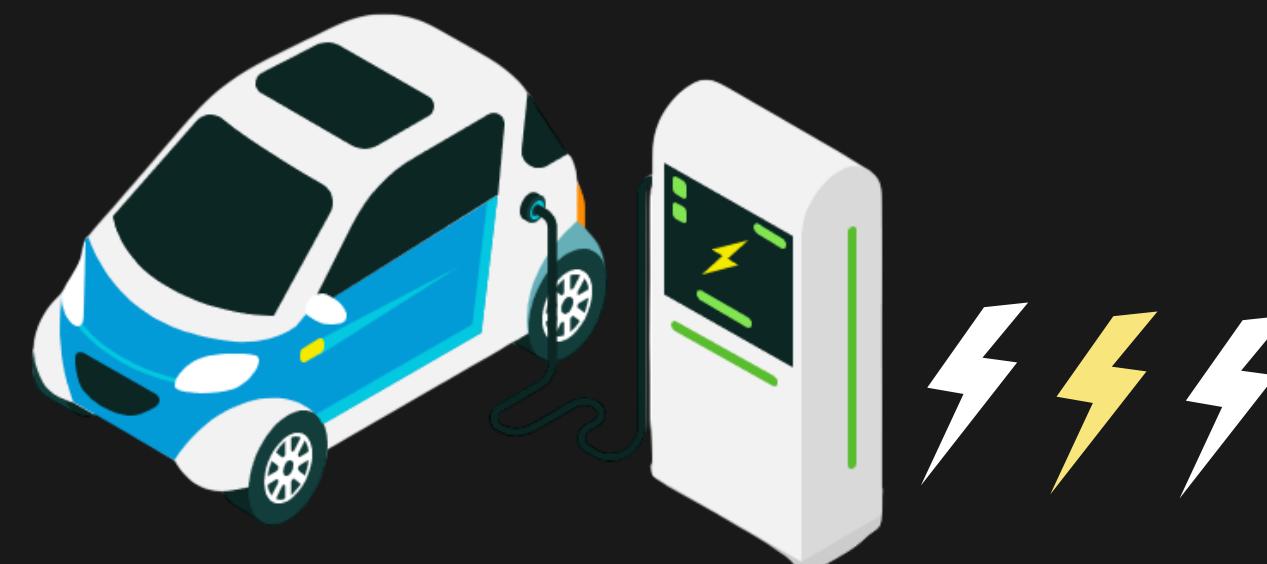




Q3.List the states with negative penetration (decline) in EV sales from 2022 to 2024?

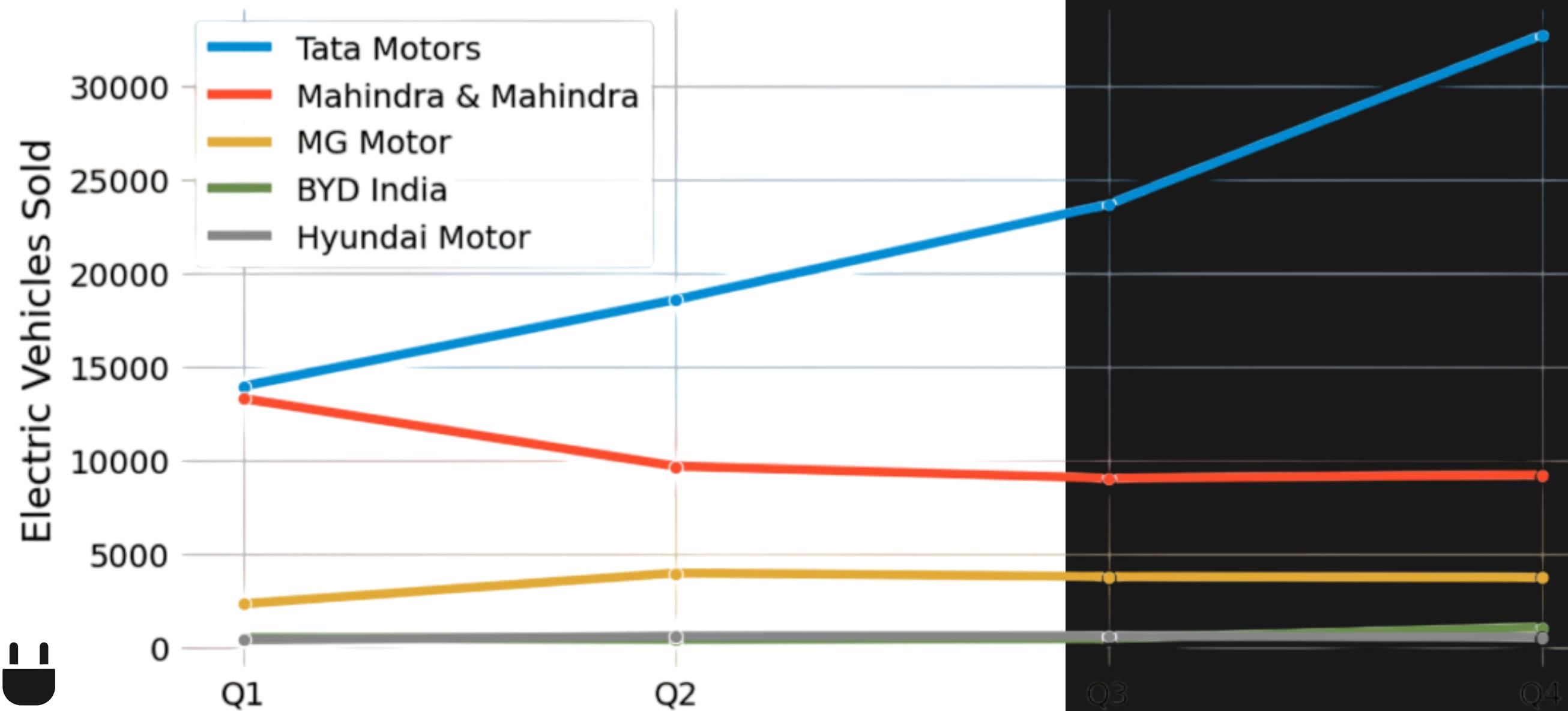
state	penetration_rate_2022_pct	penetration_rate_2023_pct	penetration_rate_2024_pct	change_22_23	change_23_24
Andaman & Nicobar Island	0.65	0.31	0.56	-0.34	0.25
Ladakh	2.64	0.46	2.01	-2.18	1.55

Andaman & Nicobar Island and Ladakh are the 2 states with decline in penetration rate over years.



4. What are the quarterly trends based on sales volume makers (4-wheelers) from 2022 to 2024?

Quarterly Trend Of Electrical Vehicle Sold By Top 5 Makers



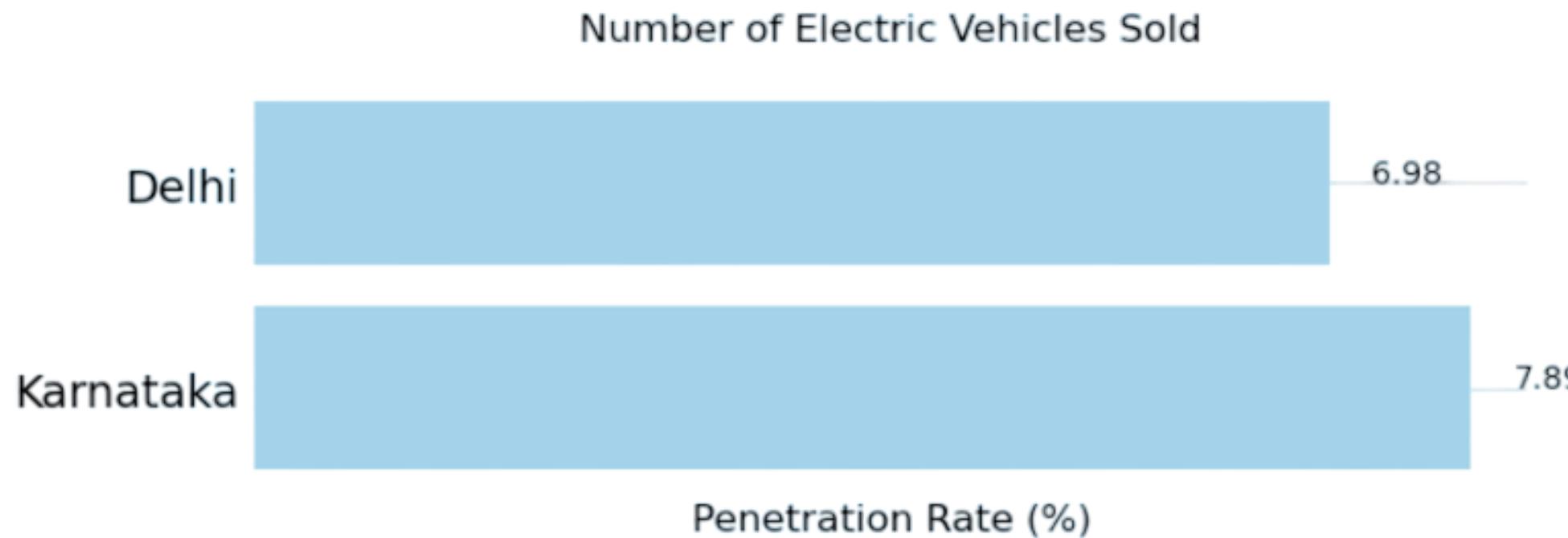
Tata motors have the highest EV sales followed by Mahindra & Mahindra while BYD India and Hyundai motors lag in this race.

- Regular increase in sales by all the makers are observed from (Q1FY22 to Q2FY22) and (Q1FY23 to Q3FY23)

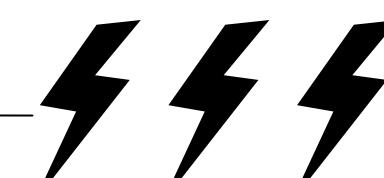


5. How do the EV sales and penetration rates in Delhi compare to Karnataka for 2024?

Electric Vehicles Sales and Penetration Rate by State

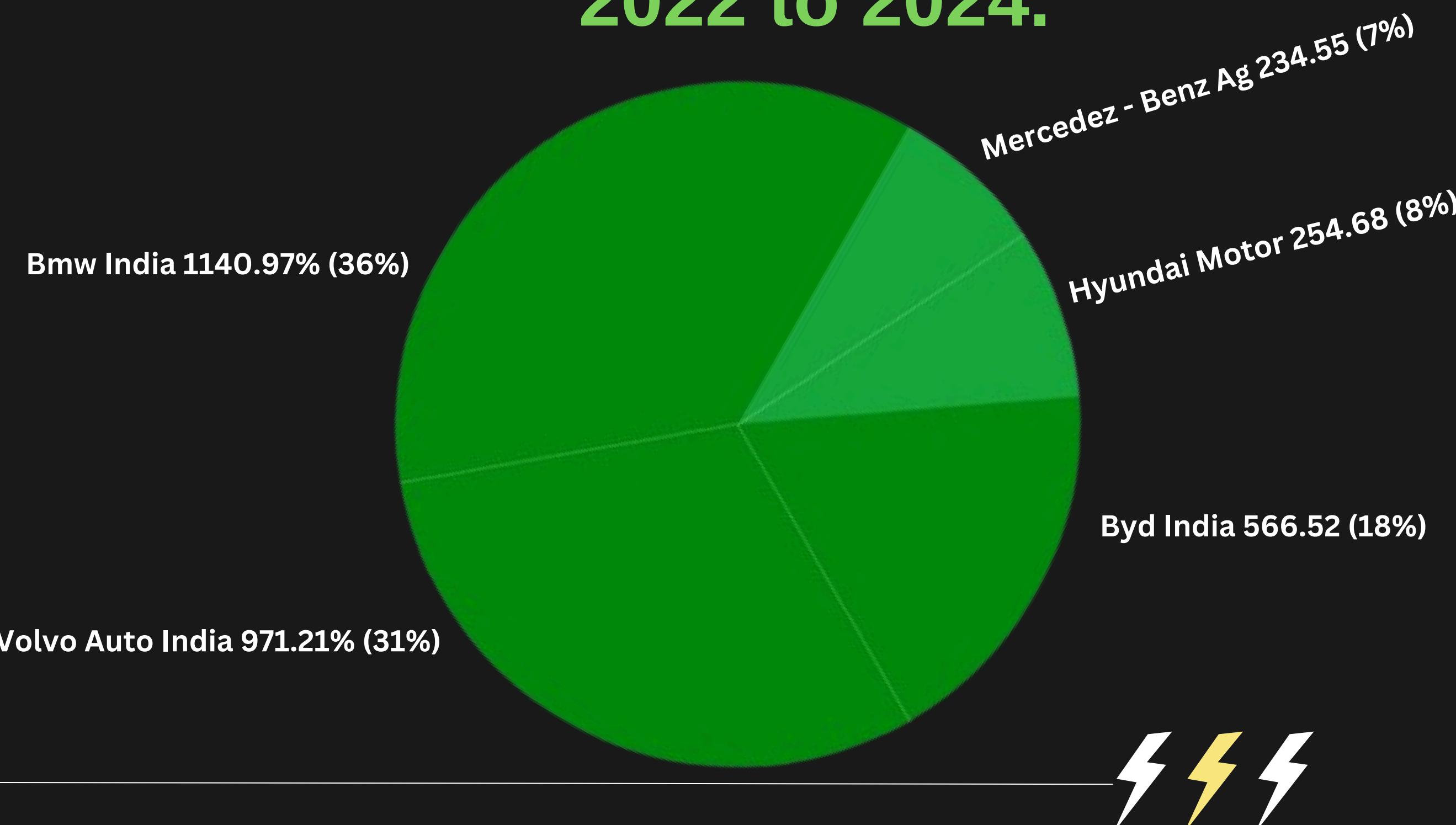


Karnataka has a higher penetration percentage compared to Delhi.

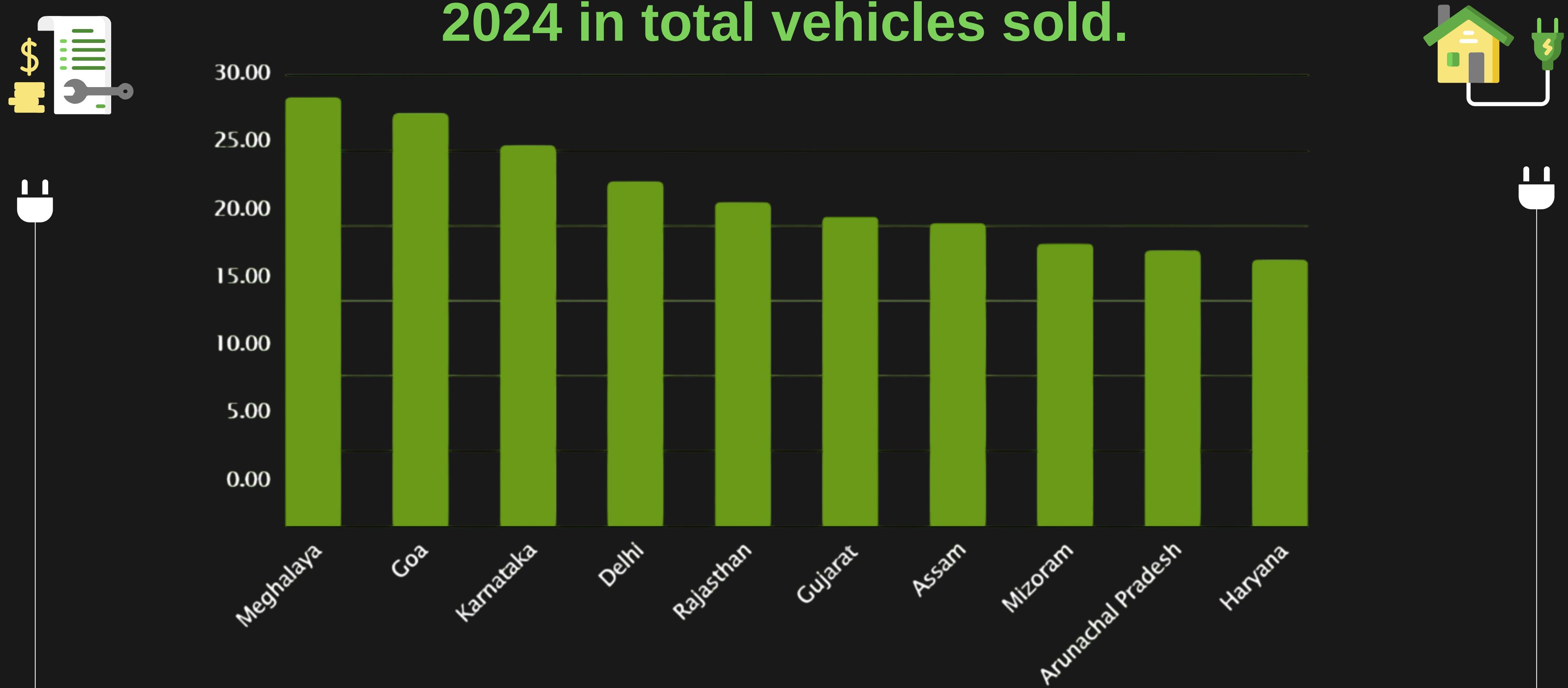




6. List down the compounded annual growth rate (CAGR) in 4-wheeler units for the top 5 makers from 2022 to 2024.

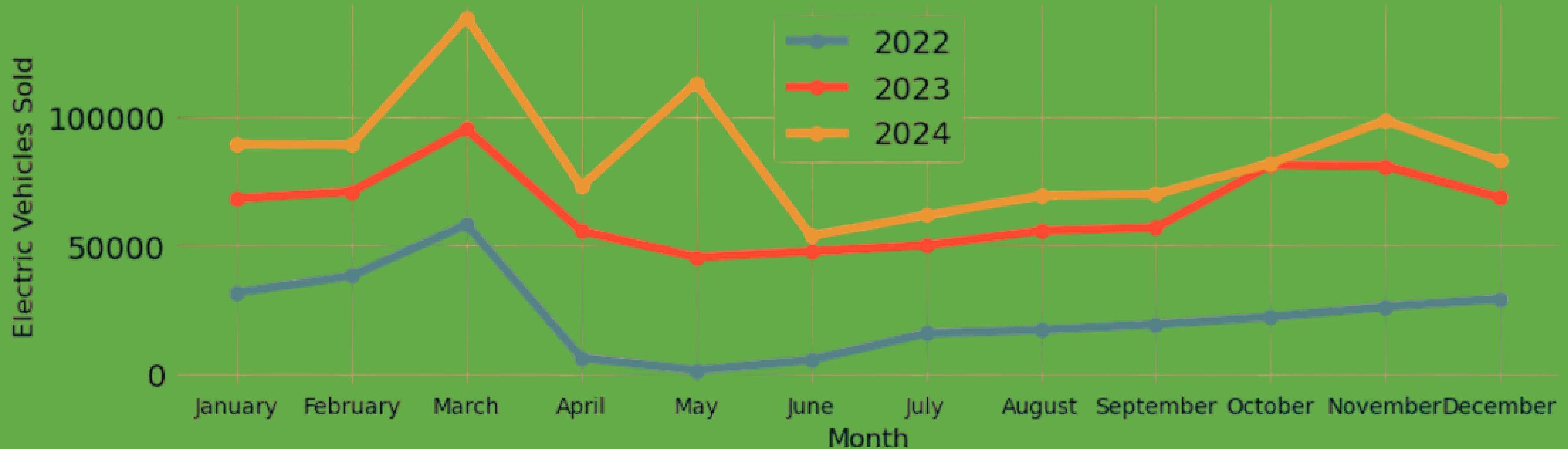


7. List down the top 10 states that had the highest compounded annual growth rate (CAGR) from 2022 to 2024 in total vehicles sold.



8. What are the peak and low season months for EV sales based on the data from 2022 to 2024?

Electric Vehicles Sold by Month for Each Fiscal Year



March is month having peak sales irrespective of fiscal years. May is month with low sales for fiscal year 2022,2023. June is month with least sales in fiscal year 2024.



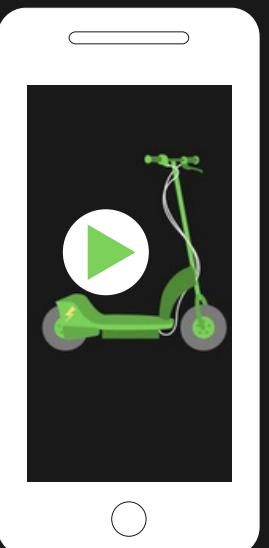


9.What is the projected number of EV sales (including 2-wheelers and 4-wheelers) for the top 10 states by penetration rate in 2030, based on the compounded annual growth rate (CAGR) from previous years?



Penetration Rate Rank	state	Projected Sales 2030
1	Goa	2.42M
2	Karnataka	8.38M
3	Delhi	1.05M
4	Kerala	11.78M
5	Maharashtra	13.35M
6	Odisha	2.73M
7	Rajasthan	2.40M
8	Gujarat	8.65M
9	Tamil Nadu	1.58M
10	Chandigarh	0.99M

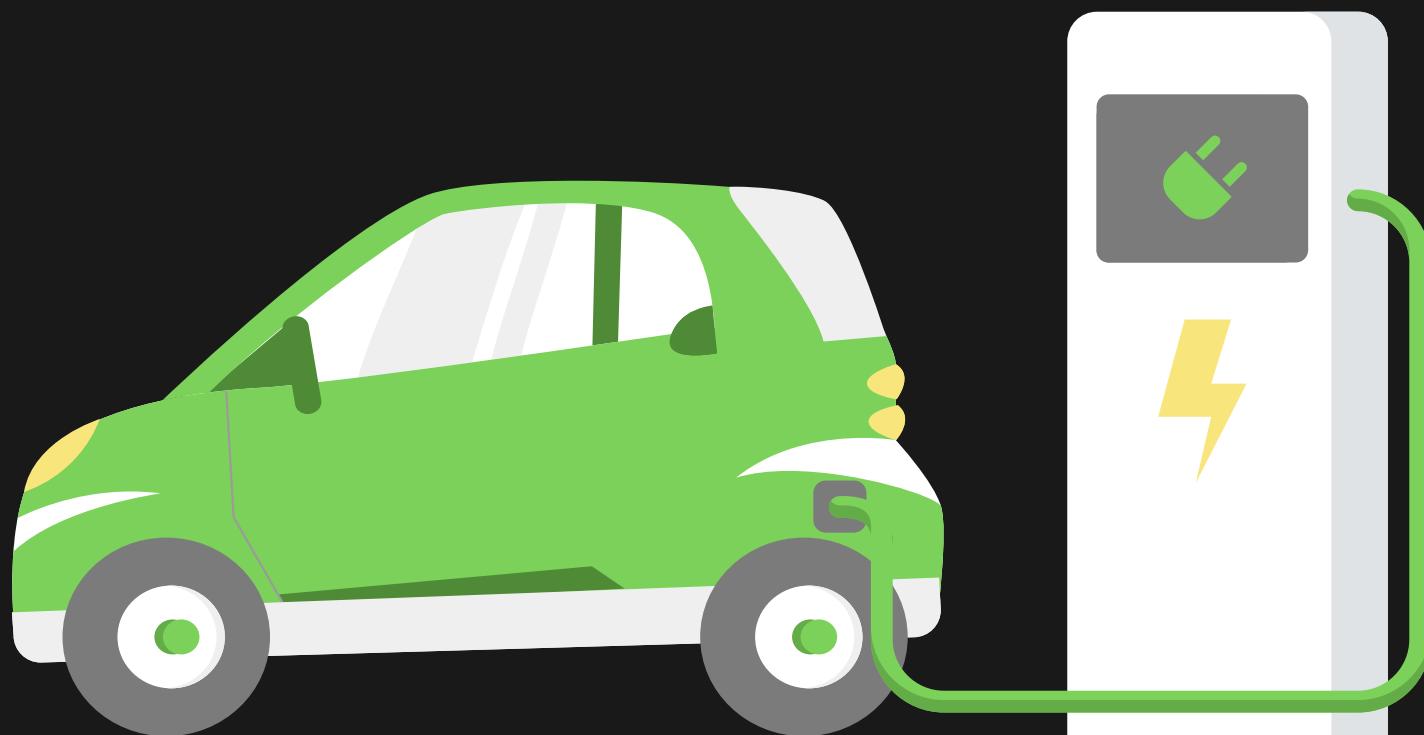
- Maharashtra State tend to have maximum sales projected for year 2030 ,but the penetration rate is still less.
- Goa State tend to have more penetration rate but the sales projected are not high as of Maharashtra.



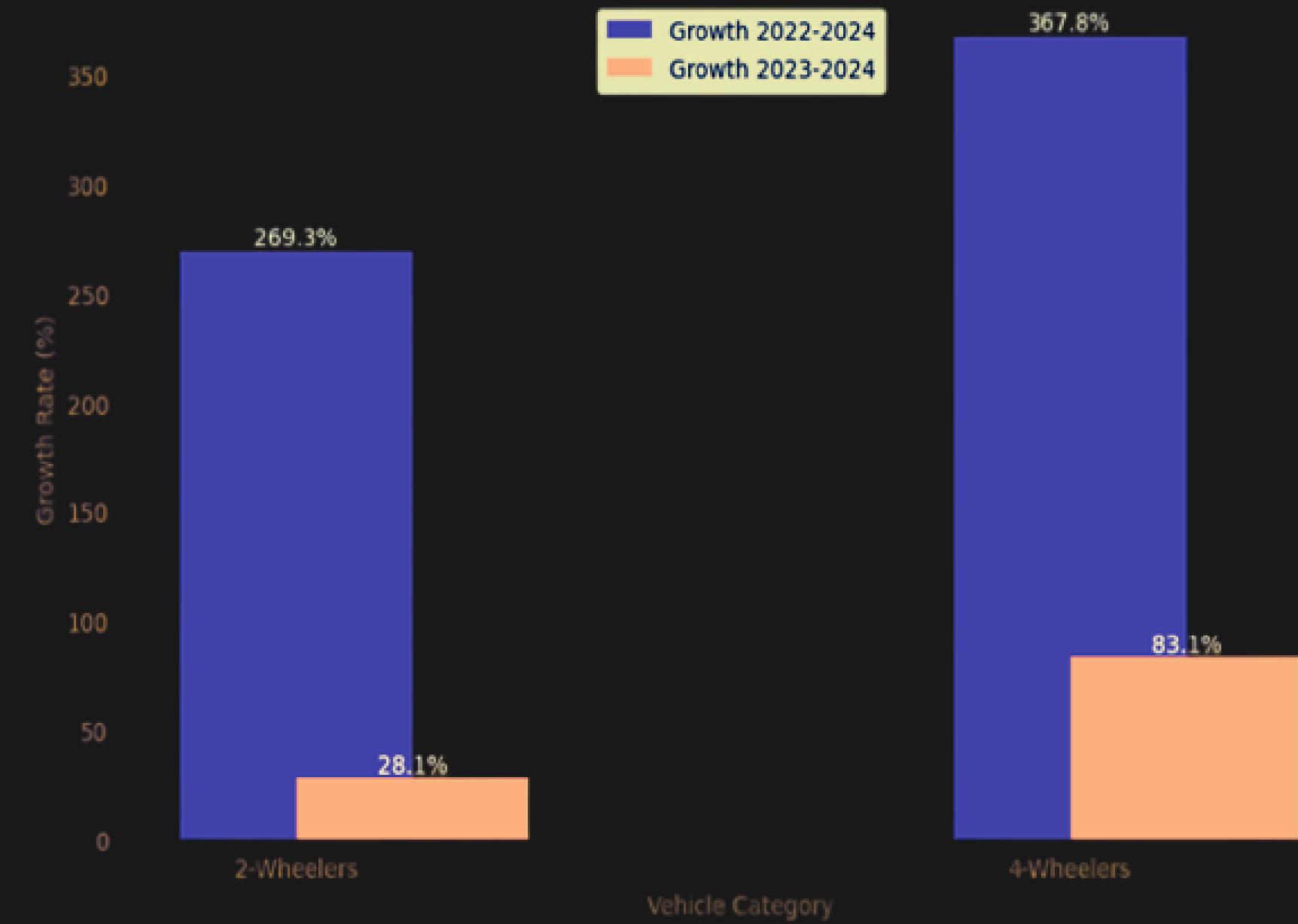


10. Estimate the revenue growth rate of 4-wheeler and 2-wheelers EVs in India for 2022 vs 2024 and 2023 vs 2024, Avg unit price for 2_wheelers=85000, 4_wheelers=1500000

vehicle_category	revenue_growth_22_24	revenue_growth_23_24
2-Wheelers	269.28	28.13
4-Wheelers	367.79	83.08



Comparison of Growth Rates by Vehicle Category



4-Wheelers have a higher revenue growth in 2022 compared to 2-Wheelers. The revenue growth for 4-Wheelers in 2024 is also greater than that of 2-Wheelers.





Secondary Analysis



1.What are the primary reasons for customers choosing 4-wheeler EVs in 2023 and 2024 (cost savings, environmental concerns, government incentives)?

1. **Cost Savings:** Lower fuel and maintenance costs, with long-term savings despite higher upfront prices.
2. **Environmental Concerns:** Reduced carbon emissions and support for sustainable transportation.
3. **Government Incentives:** Tax credits, rebates, reduced road taxes, and access to low-emission zones.



2. How do government incentives and subsidies impact the adoption rates of 2-wheelers and 4-wheelers? Which states in India provided most subsidies?

Impact of Government Incentives on EV Adoption

1. Key Incentives:

- **Purchase Discounts:** Upfront cost reduction through direct subsidies, tax exemptions, and scrapping benefits.
- **Tax Benefits:** Road tax and registration fee waivers, plus income tax deductions.
- **Loan Support:** Interest-free loans and discounted interest rates.
- **Special Offers:** Incentives for electric 3-wheelers and other schemes.

2. Impact on Adoption:

- Makes EVs affordable by reducing upfront costs.
- Accelerates adoption of 2-wheelers and 4-wheelers.
- Improves infrastructure and boosts consumer confidence.

3. Top Subsidy-Providing States:

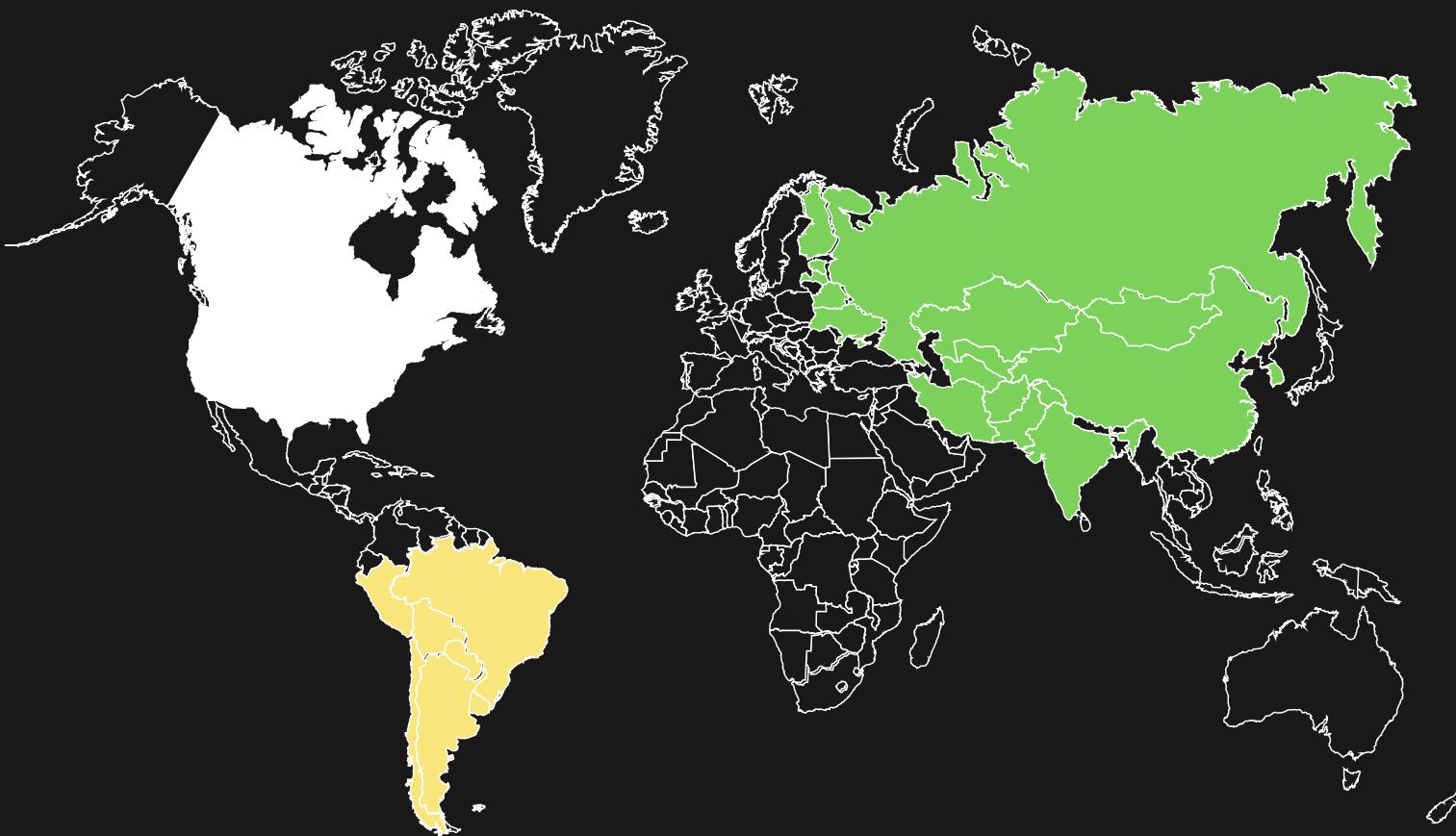
- Delhi, Maharashtra, Gujarat, and Tamil Nadu.





3. How does the availability of charging stations infrastructure correlate with the EV sales and penetration rates in the top 5 states?

state	electric_vehicles_sold	penetration_rate
Maharashtra	396045	6.49
Karnataka	312995	7.84
Tamil Nadu	200062	4.30
Gujarat	181389	4.40
Rajasthan	150366	4.55



States with better charging infrastructure, like Karnataka, tend to have higher penetration rates, while others with strong sales, such as Maharashtra, need expanded infrastructure to increase penetration.



4. Who should be the brand ambassador if AtliQ Motors launches their EV/Hybrid vehicles in India and why?



MS DHONI

- **Passion for Vehicles:** A well-known automobile enthusiast with an impressive collection of vintage cars and bikes, Dhoni's love for vehicles makes him an authentic voice for promoting EVs.
- **Trust & Reliability:** His eco-conscious lifestyle and mass appeal resonate with AtliQ's vision of sustainability.
- **Tagline:** "Driven by Excellence, Powered by Change."



JOHN ABRAHAM

- **Passion for Mobility:** As an avid biker and automobile aficionado, John's deep connection with vehicles adds credibility to AtliQ's EV offerings.
- **Style & Performance:** His image as a fitness icon and eco-warrior aligns perfectly with the sleek and innovative appeal of EVs.
- **Tagline:** "Power Meets Purpose."

Both ambassadors bring authenticity and passion for automobiles, making them ideal for positioning AtliQ Motors as a game-changer in the EV market.



5.Which state of India is ideal to start the manufacturing unit? (Based on subsidies provided, ease of doing business, stability in governance etc.)

Best State to Start an EV Manufacturing Unit: Gujarat

Key Advantages of Gujarat:

1. **Subsidies:** Significant incentives under Industrial and EV Policies.
2. **Ease of Doing Business:** High ranking in Ease of Doing Business Index, making it easier to set up operations.
3. **Governance Stability:** Known for stable governance and proactive industrial policies that support business growth.
4. **Infrastructure:** Well-connected ports (e.g., Mundra), facilitating smooth logistics and international trade.
5. **Skilled Manpower:** Availability of a skilled workforce essential for EV manufacturing.

Secondary Option: Maharashtra

Key Advantages of Maharashtra:

1. **EV Market & Customer Base:** Largest urban EV market, with significant sales in Mumbai and Pune.
2. **Subsidies & Incentives:** Attractive incentives under the Maharashtra EV Policy, promoting EV manufacturing and infrastructure.
3. **EV Penetration:** Leads in EV sales and expected to maintain strong growth through 2030.

Conclusion:

- **Primary Recommendation:** Gujarat due to its balance of subsidies, ease of doing business, governance stability, and infrastructure.
- **Secondary Recommendation:** Maharashtra, ideal for access to a large EV market and further growth potential.





6. Your top 3 recommendations for AtliQ Motors.

Here are the top 3 recommendations for AtliQ Motors based on the Indian EV market analysis:

1. Focus on Key Growth Regions

- **Target Major States:** Focus on Gujarat and Maharashtra, which provide significant subsidies, strong EV focus, and favorable business environments.
- **Leverage Growing Ecosystems:** These states have robust infrastructure and an evolving EV ecosystem, making them ideal for AtliQ Motors' expansion.

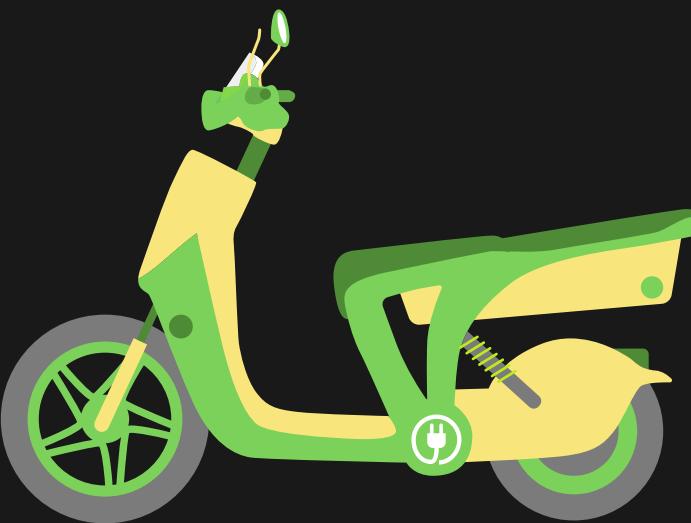
2. Invest in Local Manufacturing & Infrastructure

- **Set Up Manufacturing Units:** Establish manufacturing facilities in states with attractive incentives (e.g., Gujarat, Maharashtra) to reduce costs and meet local demand efficiently.
- **Develop Charging Infrastructure:** Invest in a comprehensive network of EV charging stations and service centers to support adoption, ensuring consumer convenience and market penetration.

3. Leverage Strategic Partnerships & Innovation

- **Form Alliances:** Partner with local businesses, technology providers, and government bodies to optimize supply chains, navigate regulatory challenges, and leverage regional expertise.
- **Invest in Technological Innovation:** Focus on advanced EV features to differentiate AtliQ Motors in the competitive market.
- **Expand Charging Networks:** Collaborate to enhance the charging infrastructure, boosting consumer confidence and adoption rates.

These strategies will help AtliQ Motors effectively enter and grow in the Indian EV market.





THANK YOU

