



INNOVATION. AUTOMATION. ANALYTICS

USED BIKE MARKET ANALYSIS

(bikes4sale.in)

Presented By
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INDIA'S SECOND-HAND TWO-WHEELER MARKET



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BUSINESS OBJECTIVE

- This project focuses on analyzing the **Indian second-hand two-wheeler market** using real data scraped from **Bikes4Sale.in**.
- It aims to explore key **trends in pricing, demand, and brand** performance across different states.
- The analysis examines how factors like **brand, model year, and city** influence **resale prices**.
- It also highlights the **top-performing brands** and major cities in the used bike market.
- The insights gained can help both buyers and sellers make smarter price decisions.

APPROACH TO PROVE THE BUSINESS OBJECTIVE

- Collected real-world data by **web scraping** the **Bike4Sale.in** website.
- Cleaned and prepared the dataset by handling **missing values** and **duplicates**.
- Performed **Exploratory Data Analysis (EDA)** to understand **patterns** and **trends**.
- Created **visualizations** to study the effect of **brand**, **year**, and **city** on **bike prices**.
- Compared **top brands**, **models**, and **cities** to identify high-demand segments.
- Drew **insights and conclusion** to support data-driven decision-making for **buyers** and **sellers**.

WEB SCRAPING PROCESS

- **Web scraping** was used to collect real-time data from the **Bike4Sale** website.
- Details such as bike brand, model, price, year, city, and availability were extracted using Python and BeautifulSoup for analysis and visualization.
- The collected data helped in understanding market trends and buyer preferences

FIRST LOOK OF THE WEBSITE

Click to Visit Website

BIKES4SALE

Sell Bike Online Buy Used Bike Used Bike Valuation Dealer Plan Bike Loan Buy New Bike Dealers Compare

Search bike or scooter

Maharashtra Login

Selling Bikes Since 2007

India's First Bike Portal

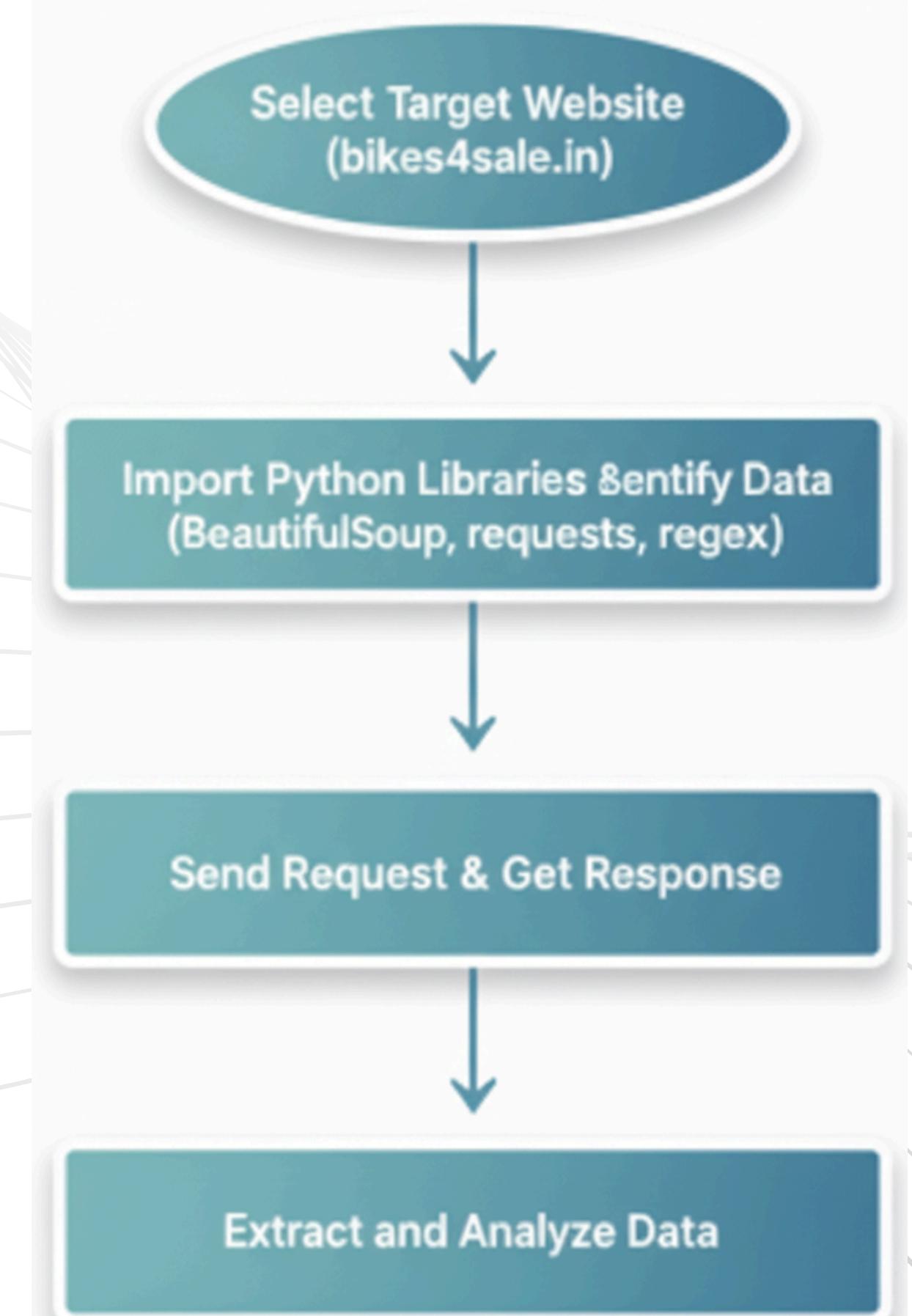
Sell Bike Online Buy Used Bike Buy New Bike

Buy Used Bike Find New Bike

Budget Maharashtra Go

Type Brand Go

BIKES4SALE



CONTAINERS FROM WHICH I HAVE SCRAPPED THE DATA:-

BIKE NAME	MODEL YEAR	LOCATION	PRICE	FINANCE AVAILABLE (YES/NO)
Royal Enfield Classic 500	2016	Gurgaon, Haryana	70,000	Yes

Royal Enfield Classic 500, 2016 Model
Location: Gurgaon, Haryana
Rs. 70,000
✓ Finance Available
[View More Details](#)

Royal Enfield Thunderbird 350, 2017 Model
Location: Ghaziabad, Uttar Pradesh
Rs. 1,20,000
✓ Finance Available
[View More Details](#)

Royal Enfield Bullet Standard 350, 2021 Model
Location: Ghatampur, Kanpur Nagar, Uttar Pradesh
Rs. 1,50,000
✓ Finance Available
[View More Details](#)

Royal Enfield Shotgun 650, 2024 Model
Location: Ahmedabad, Gujarat
Rs. 3,70,000
✓ Finance Available
[View More Details](#)

DATA CLEANING PROCESS

- Scraped **40 pages** from **Bike4Sale.in**, resulting in a raw dataset of **1,628 rows × 5 columns**.
- Performed key cleaning steps:
 - Handling **missing values**
 - Removing **duplicate** records
 - Treating noisy data
 - Converting **data types**
 - Standardizing formats

Old Data Frame (Before Data Cleaning) :-

	Bike Model	Model Year	Location	Price (Rs)	Finance_Available(Yes/No)
0	Honda Shine 125 Drum OBD2	2024.0	Pune, Maharashtra	95000.0	Yes
1	Aprilia Storm 125	2021.0	Dadar, Mumbai, Maharashtra	60000.0	Yes
2	Honda Shine 125 Drum	2023.0	Bokaro, Jharkhand	81000.0	Yes
3	Yezdi Roadster Dark	2023.0	Hyderabad, Telangana	165000.0	Yes
4	Aprilia SR 150	2018.0	East Delhi, Delhi	61000.0	Yes

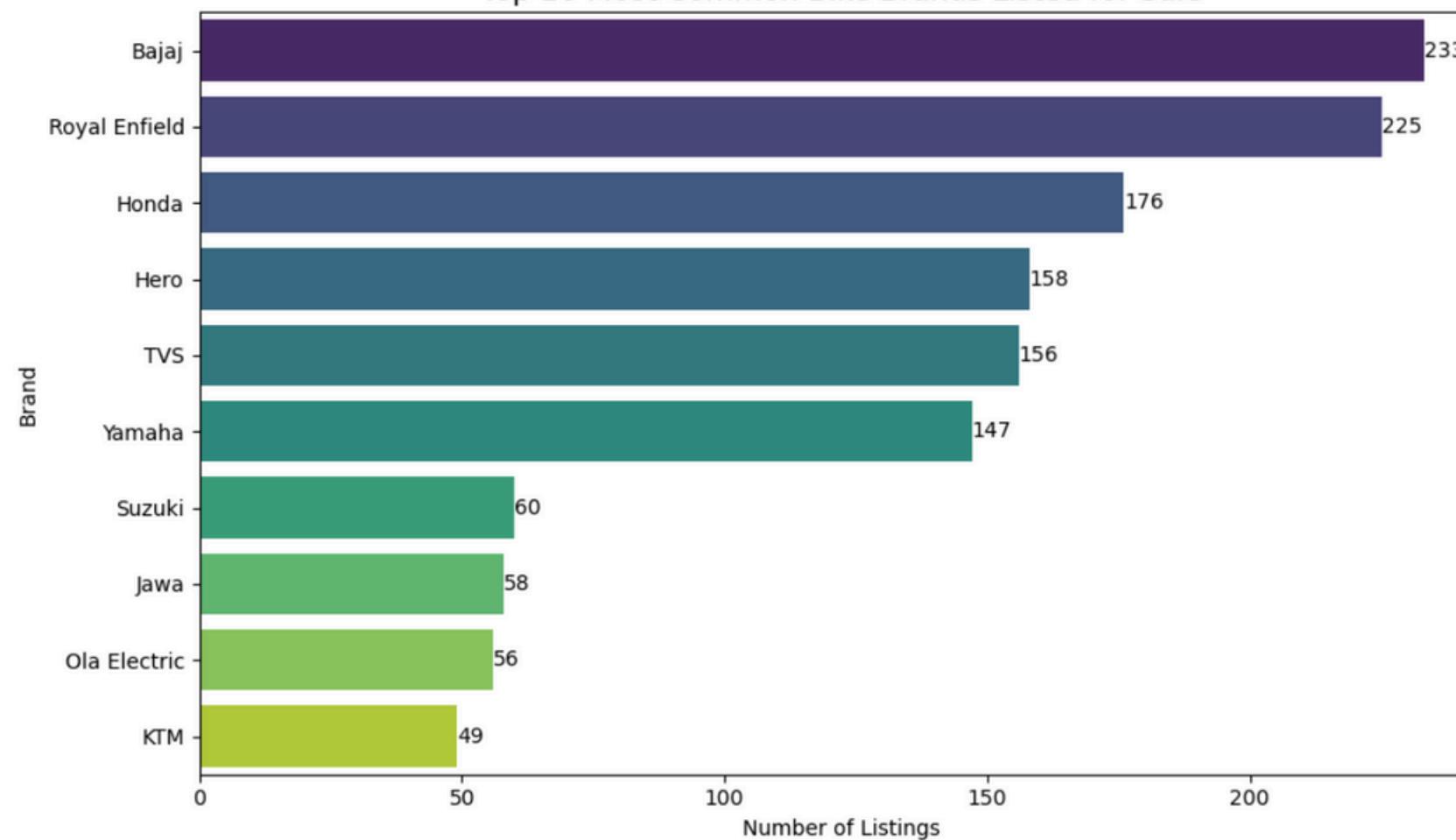
New Data Frame (After Data Cleaning) :-

	Brand	Bike Model	Model Year	Price (Rs)	City	State	Brand_Origin	Model_Type	Finance_Available(Yes/No)
0	Honda	Honda Shine 125 Drum OBD2	2024	95000	Pune	Maharashtra	Japan	Commuter	Yes
1	Aprilia	Aprilia Storm 125	2021	60000	Mumbai	Maharashtra	Italy	Commuter	Yes
2	Honda	Honda Shine 125 Drum	2023	81000	Bokaro	Jharkhand	Japan	Commuter	Yes
3	Yezdi	Yezdi Roadster Dark	2023	165000	Hyderabad	Telangana	India	Cruiser	Yes
4	Aprilia	Aprilia SR 150	2018	61000	East Delhi	Delhi	Italy	Commuter	Yes

- Split **Location** column into **City** and **State**.
- Extracted **Brand** name from the **Bike Model** column.
- Created a new column **Brand Origin** (e.g., India, Japan, Sweden).
- Added **Model Type** column to **classify bikes** (Sport, Commuter, Cruiser).
- After cleaning and transformation**, obtained a final dataset of **1,501 rows × 9 columns**.

UNIVARIATE ANALYSIS

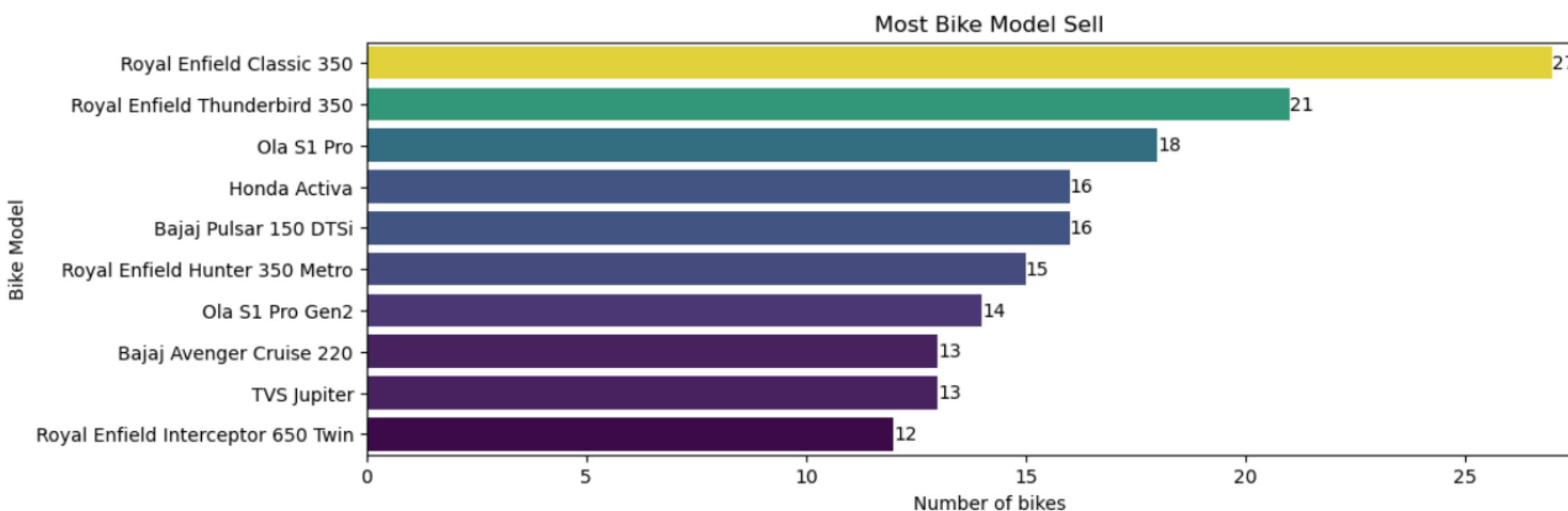
Top 10 Most Common Bike Brands Listed for Sale



CATEGORICAL COLUMN :-

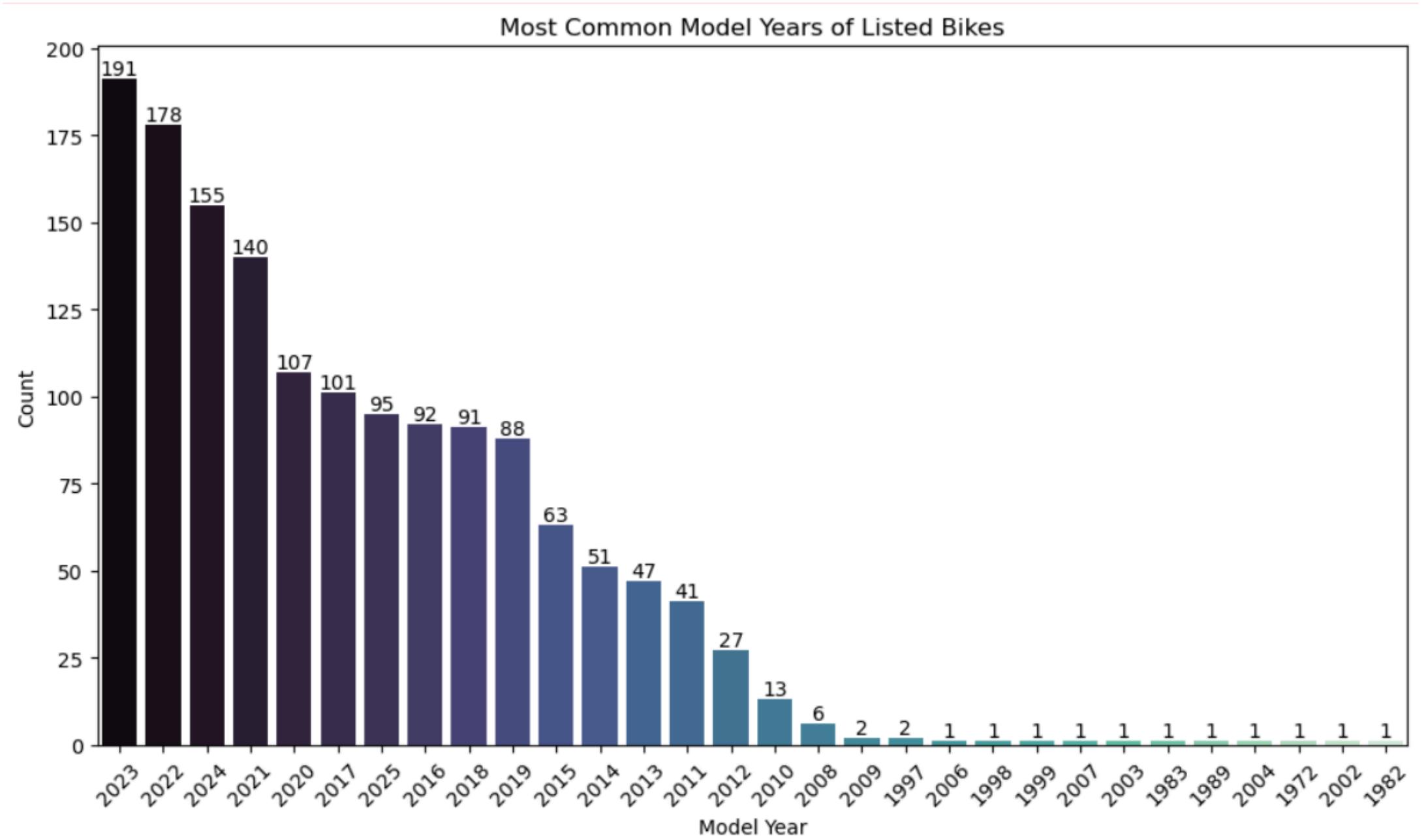
Brand

- **Bajaj** has the highest number of listings, followed by **Royal Enfield** and **Honda**.
- **Hero, TVS, and Yamaha** also show strong resale presence.
- **Indian brands** dominate the used bike market overall.



Bike Model

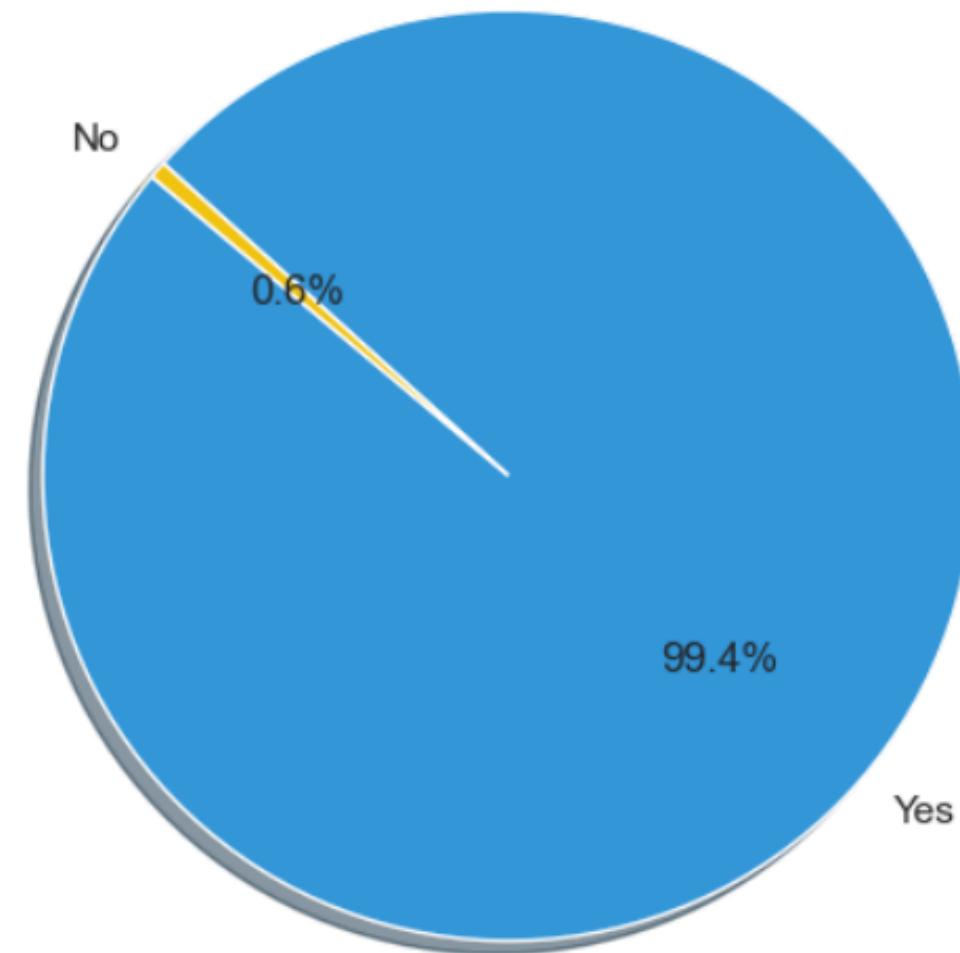
- **Royal Enfield Classic 350** leads the used bike market.
- **Ola S1 Pro** highlights rising **EV** popularity.
- Royal Enfield & Ola Electric dominate top listings.



Model Year

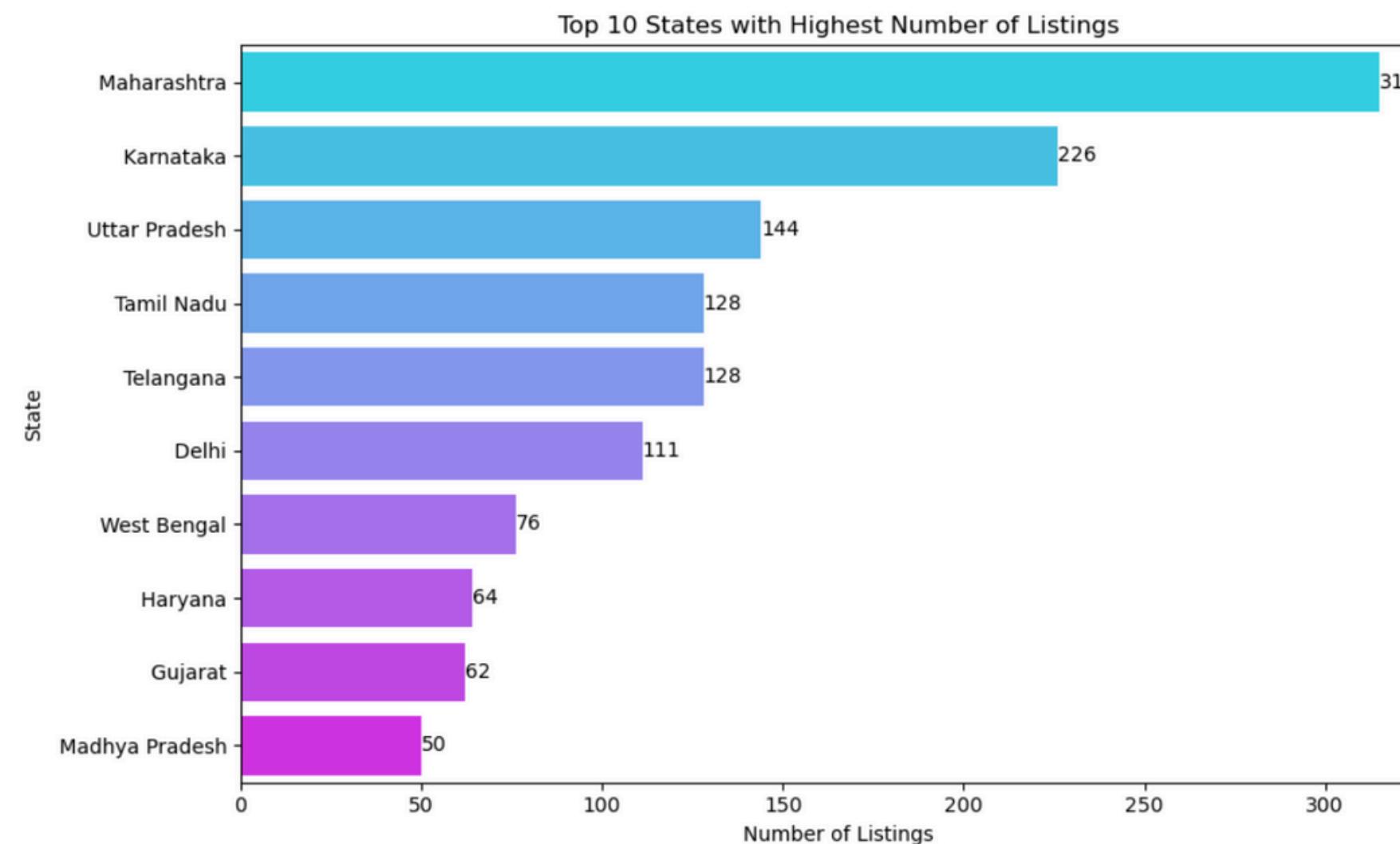
- Majority of listings are from **2023–2022**, showing demand for newer bikes.
- **Older models** see fewer listings and **lower** resale activity.
- Buyers prefer **recent bikes** with better features and condition.

Finance Availability (Yes/No)



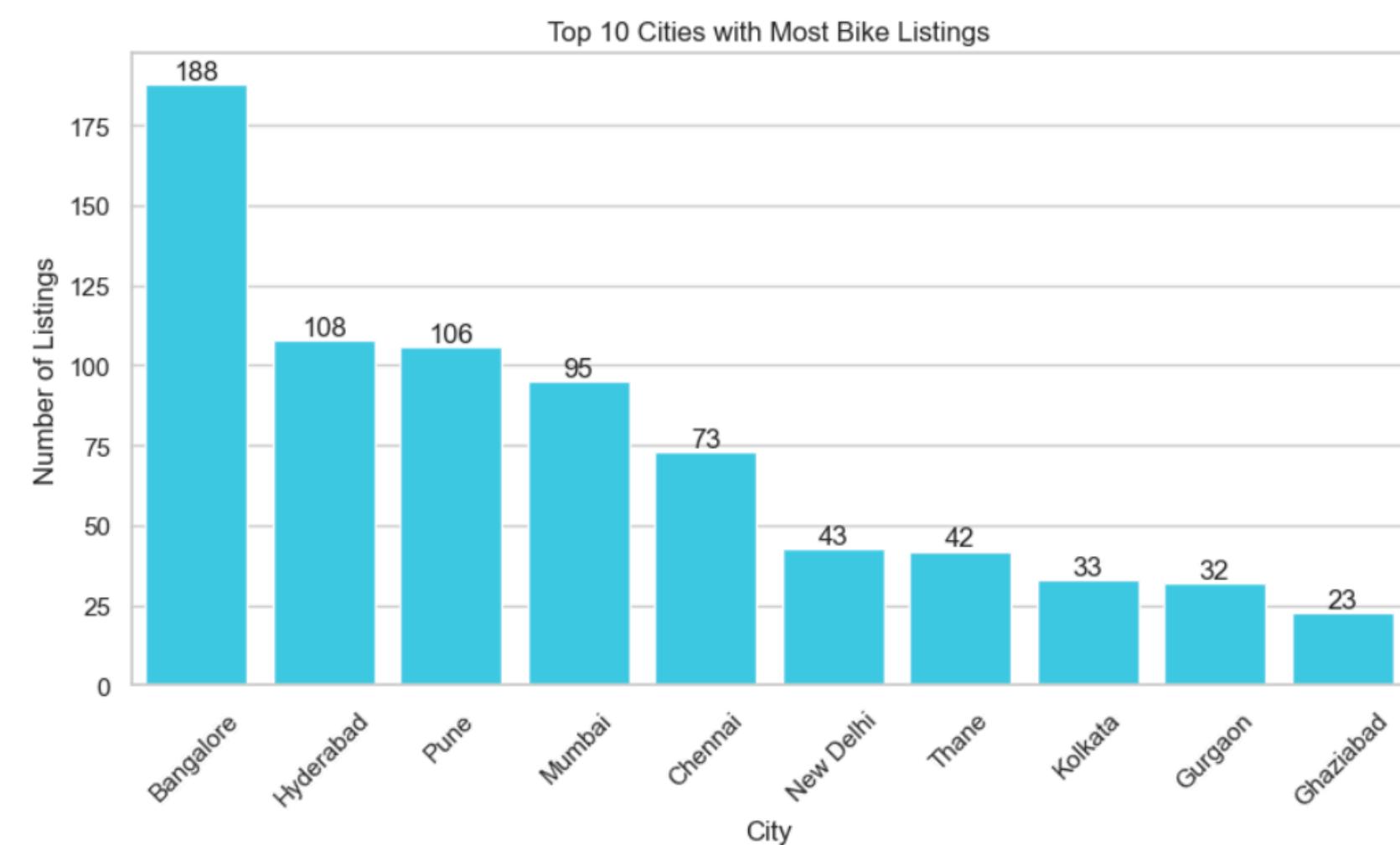
Finance Available(Yes/No)

- Almost all bikes (**99.4%**) have finance options available.
- Only a very small fraction (**0.6%**) of listings do not offer finance.



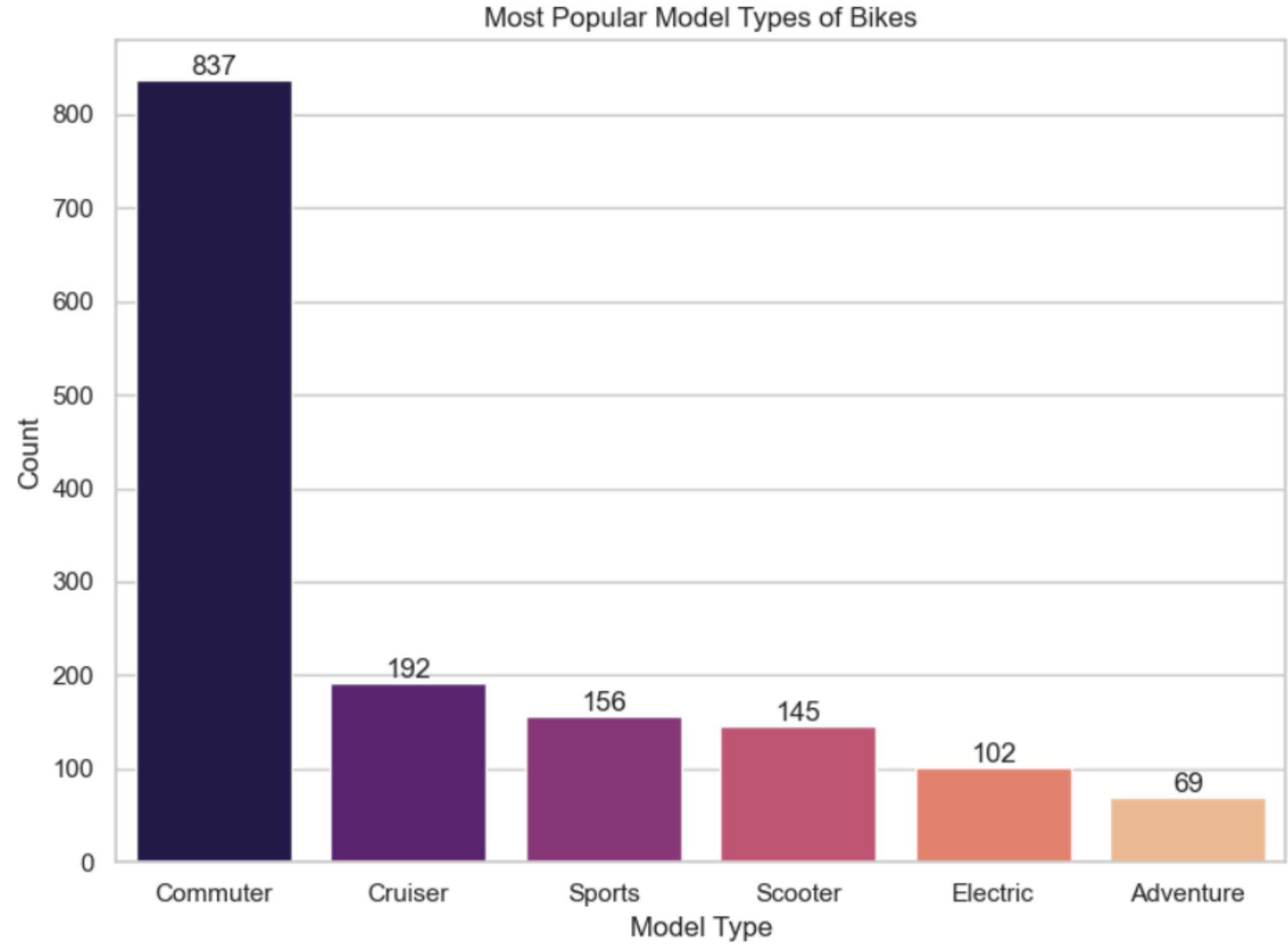
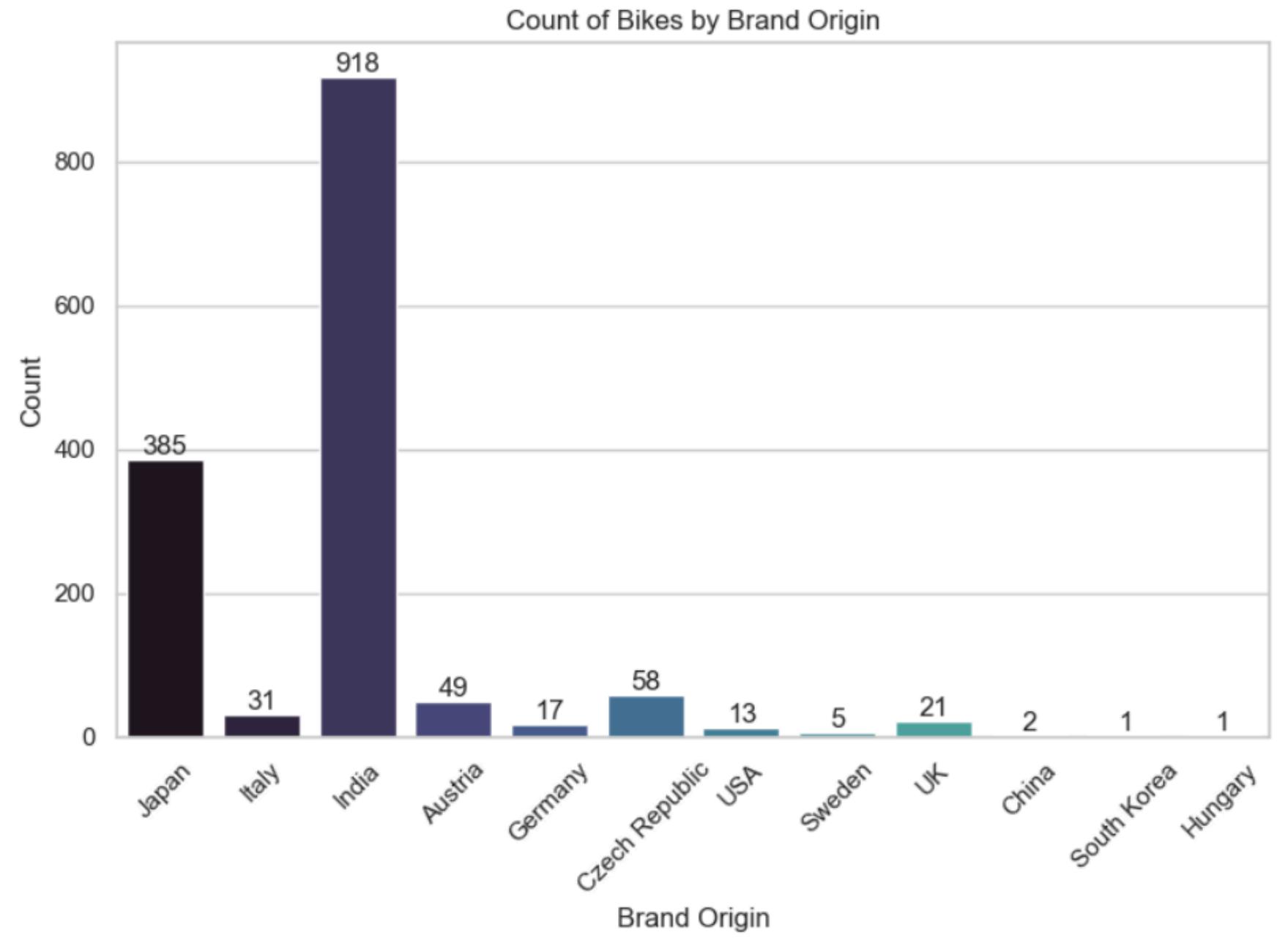
States

- **Maharashtra** leads, followed by **Karnataka**.
- **UP, Telangana, and Delhi** show strong resale activity.
- Southern & Western states dominate the market overall.



City

- **Bangalore** tops the list, showing strong demand & supply.
- **Hyderabad** and **Pune** also have active resale markets.
- Metro cities like **Mumbai, Chennai & Delhi** follow closely.
- Smaller cities show lower online bike sale activity.



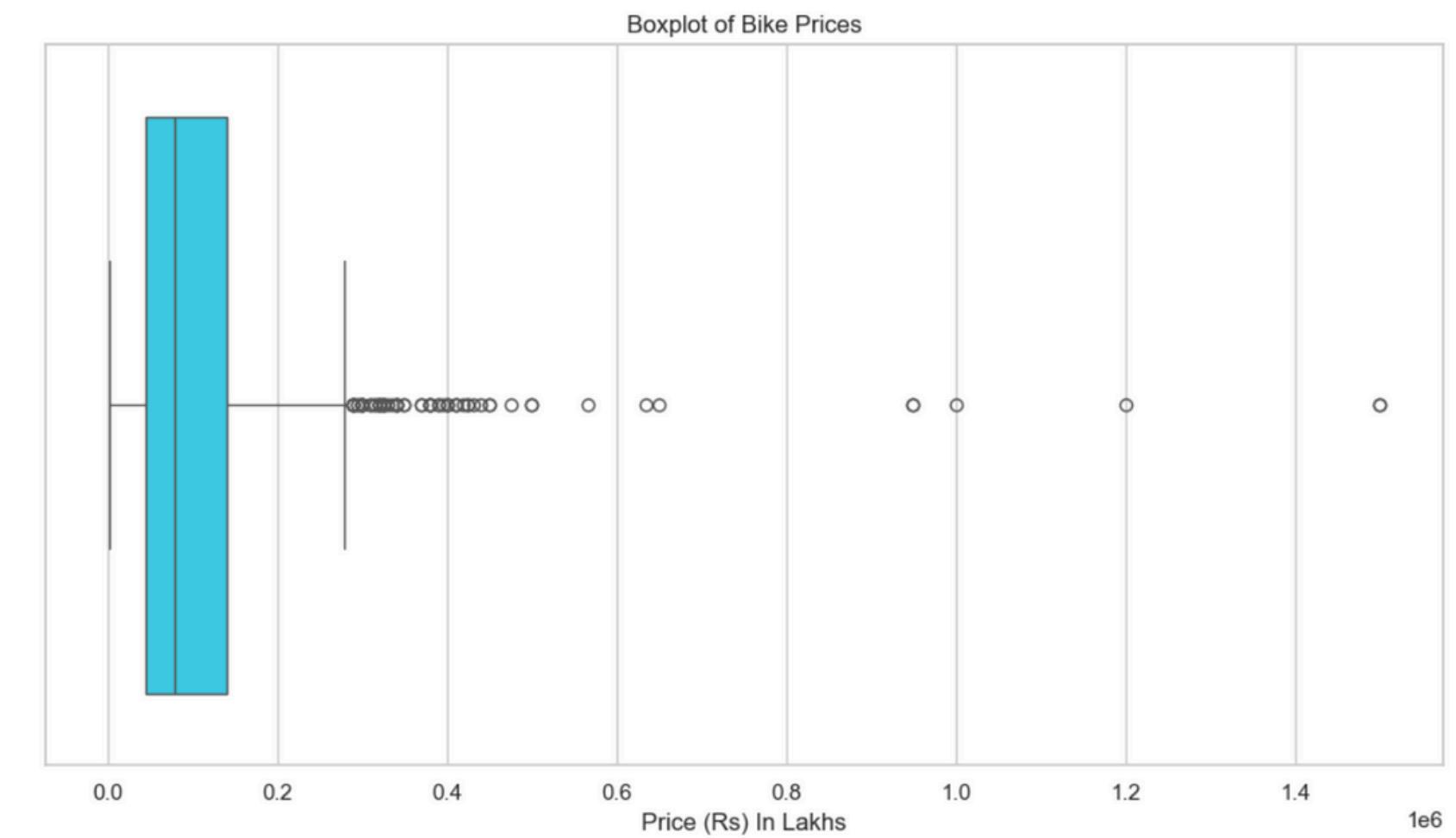
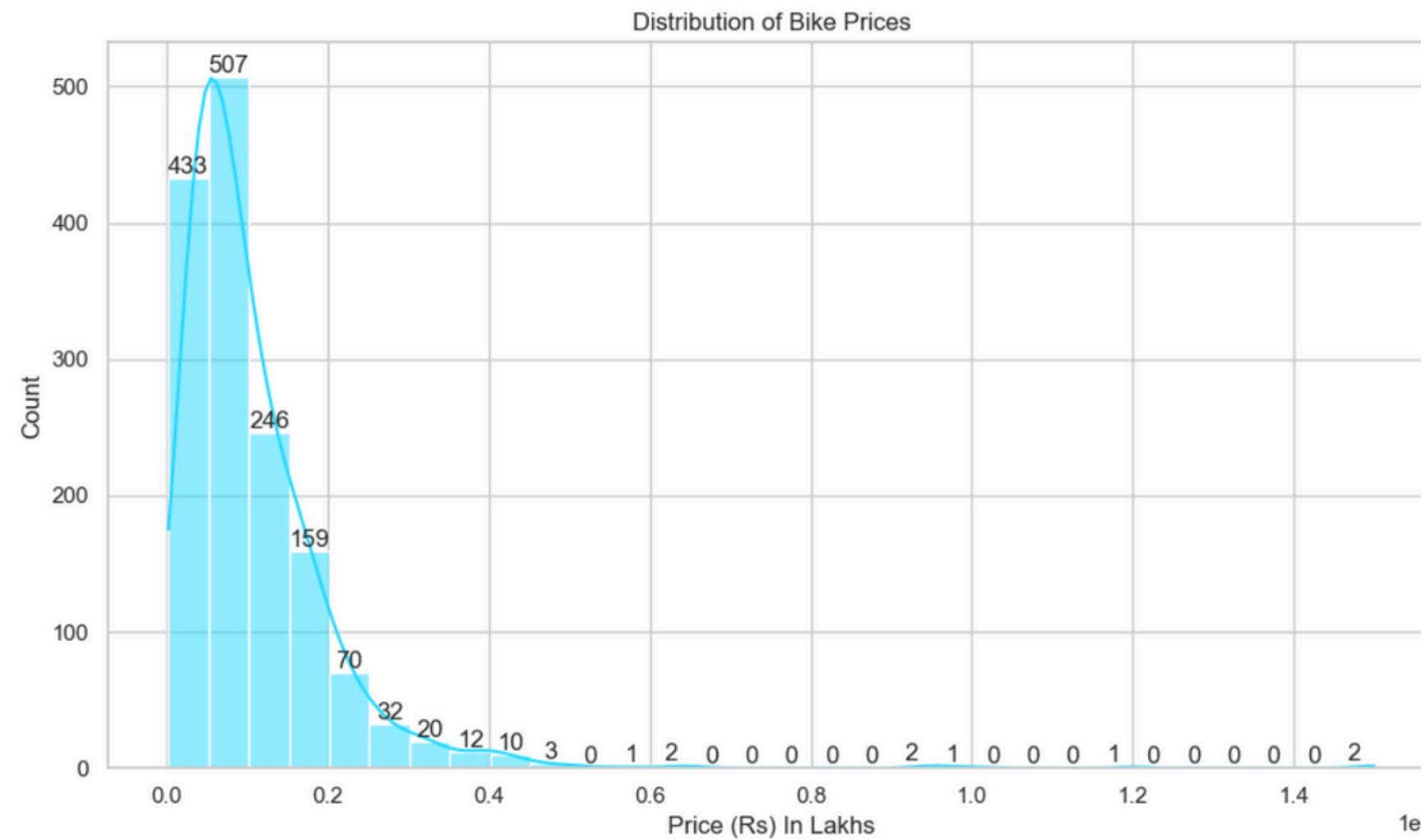
Brand_Origin

- **Indian** brands dominate the used bike market.
- **Japanese** brands rank second for reliability & performance.
- Other countries (Italy, Austria, Czech Republic) have minimal share.

Model_Type

- **Commuter** bikes dominate as the most preferred & affordable.
- **Cruiser** and **Sports** bikes show moderate demand.
- **Scooters** remain popular for urban convenience.
- Electric & Adventure bikes are emerging segments.

NUMERICAL COLUMN :-

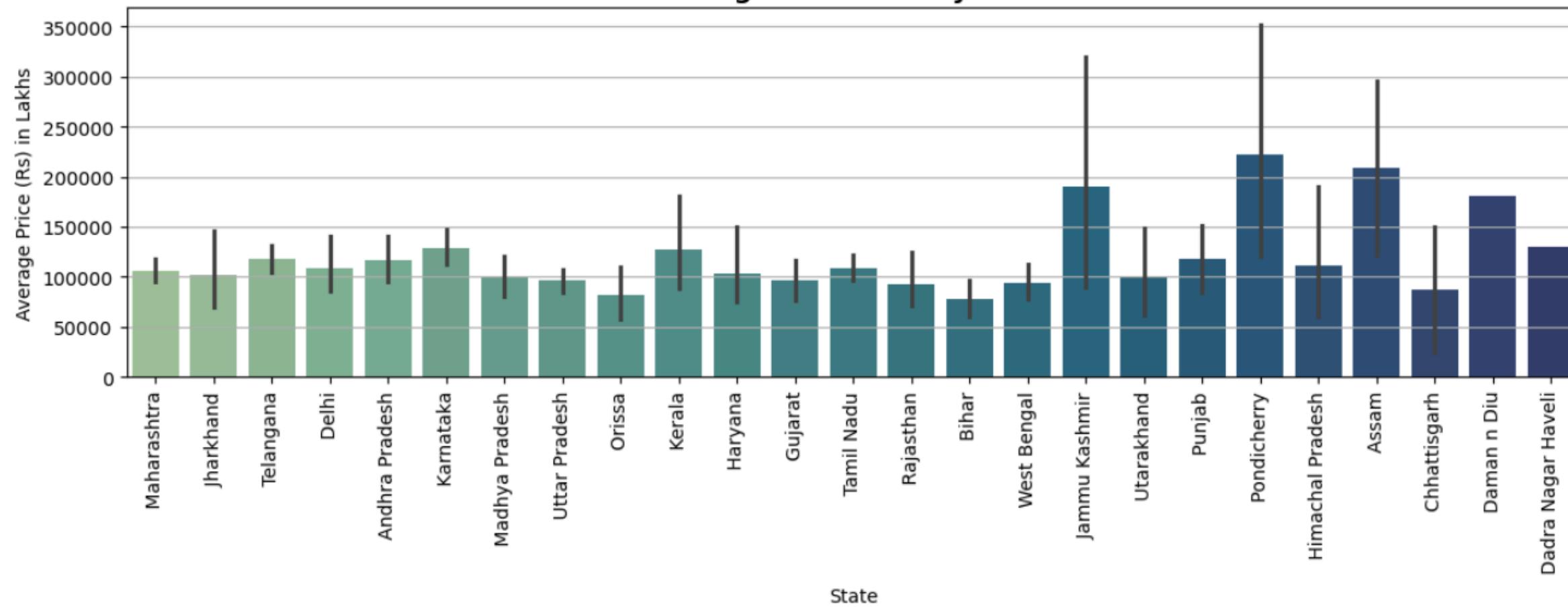


Price (Rs)

- **Right-skewed trend:** Most bikes in lower price range.
- Majority priced ₹50K–₹2L, showing affordability focus.
- Outliers indicate **premium brands & superbikes**.
- Wide price variation reflects diverse models & conditions.
- Limited demand for bikes above ₹3L.

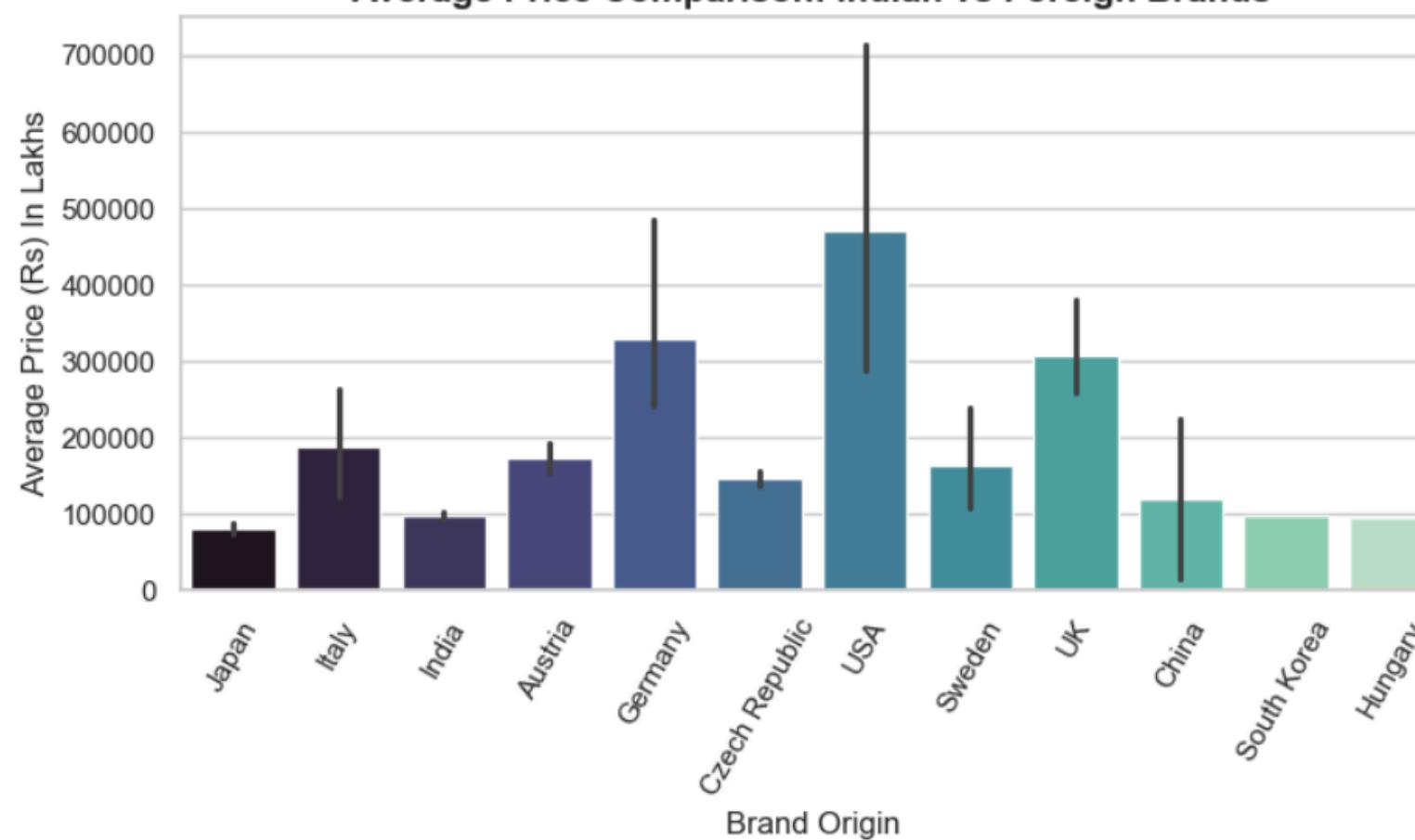
BIVARIATE ANALYSIS

Average Bike Price by State

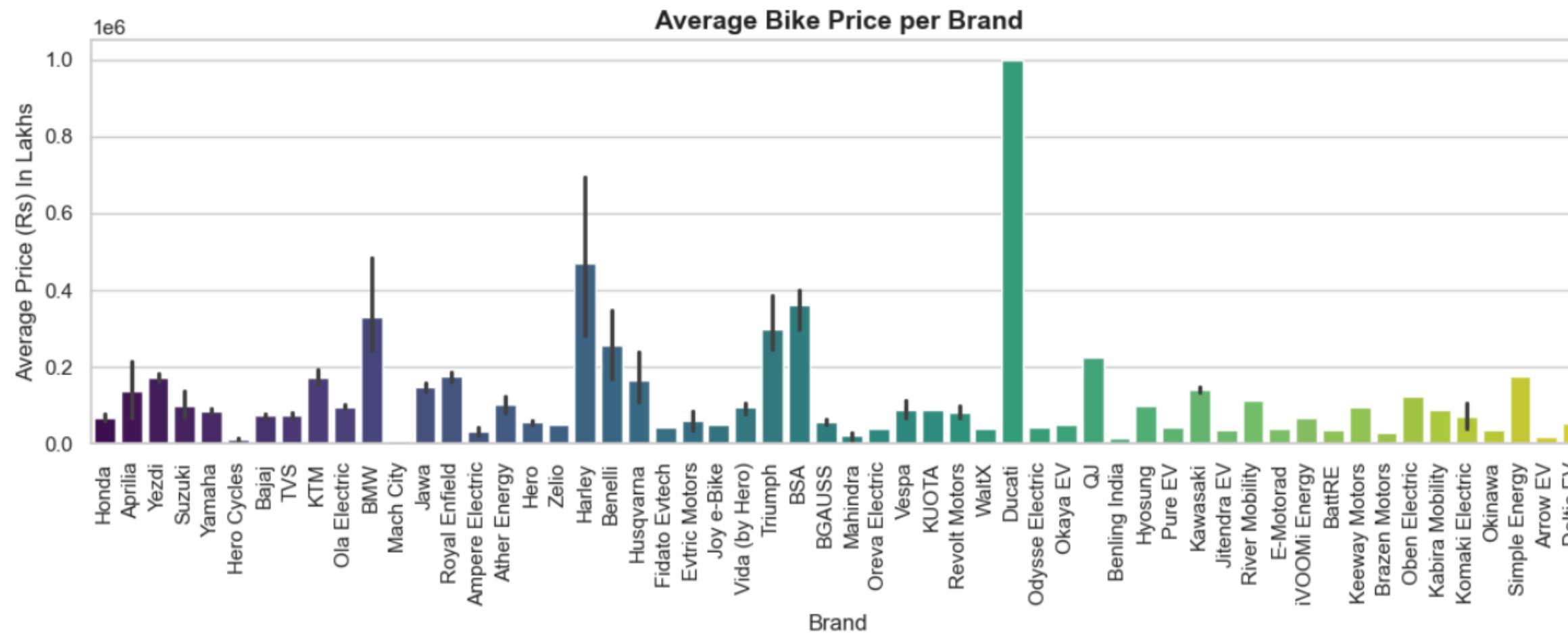


- **Pondicherry tops** with the highest average prices (premium listings).
- **Assam** and **Daman & Diu** also show higher averages.
- **Maharashtra, Karnataka, Delhi** reflect moderate pricing.
- **Bihar & Orissa** have lowest prices, showing affordability.

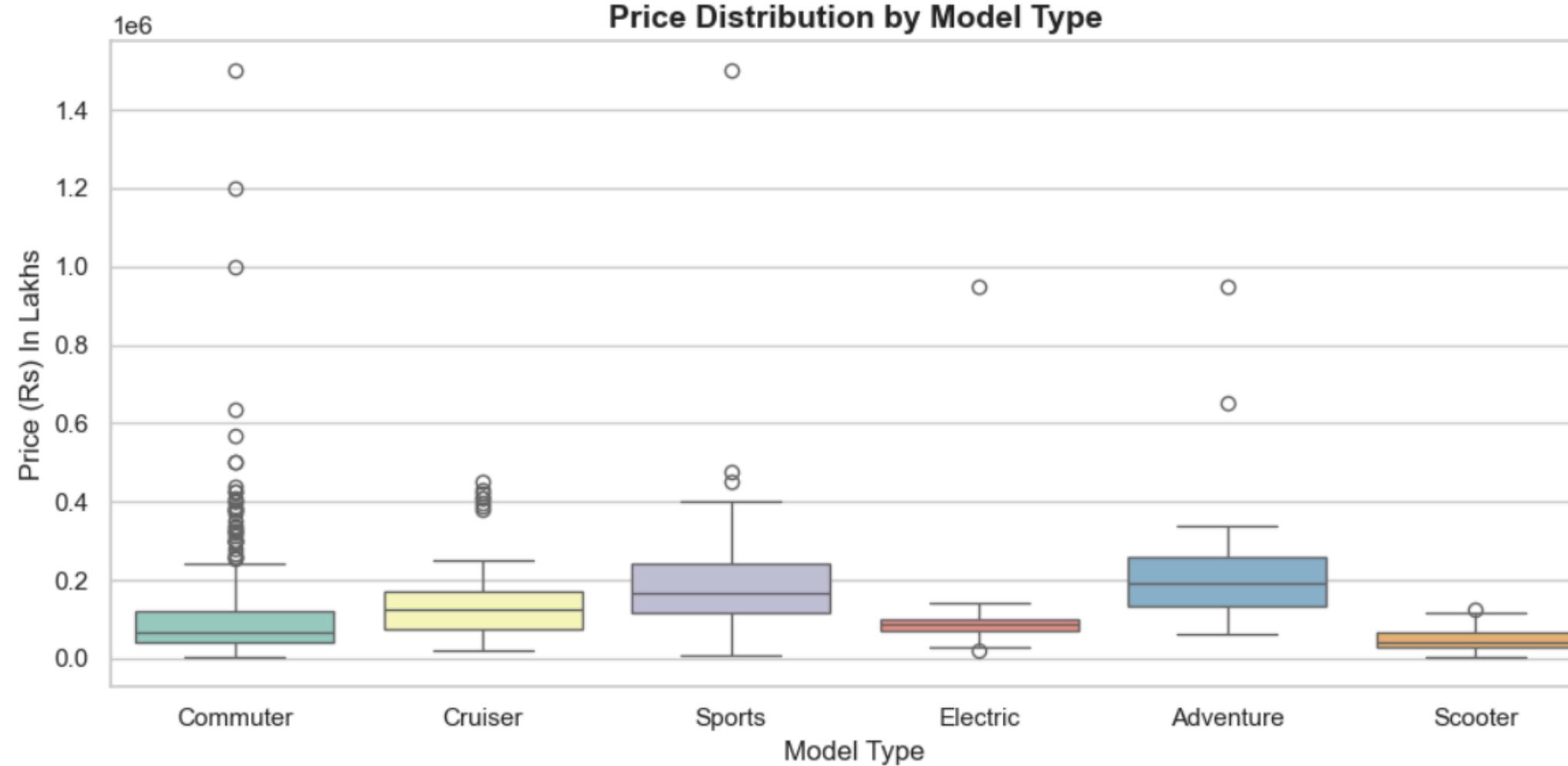
Average Price Comparison: Indian vs Foreign Brands



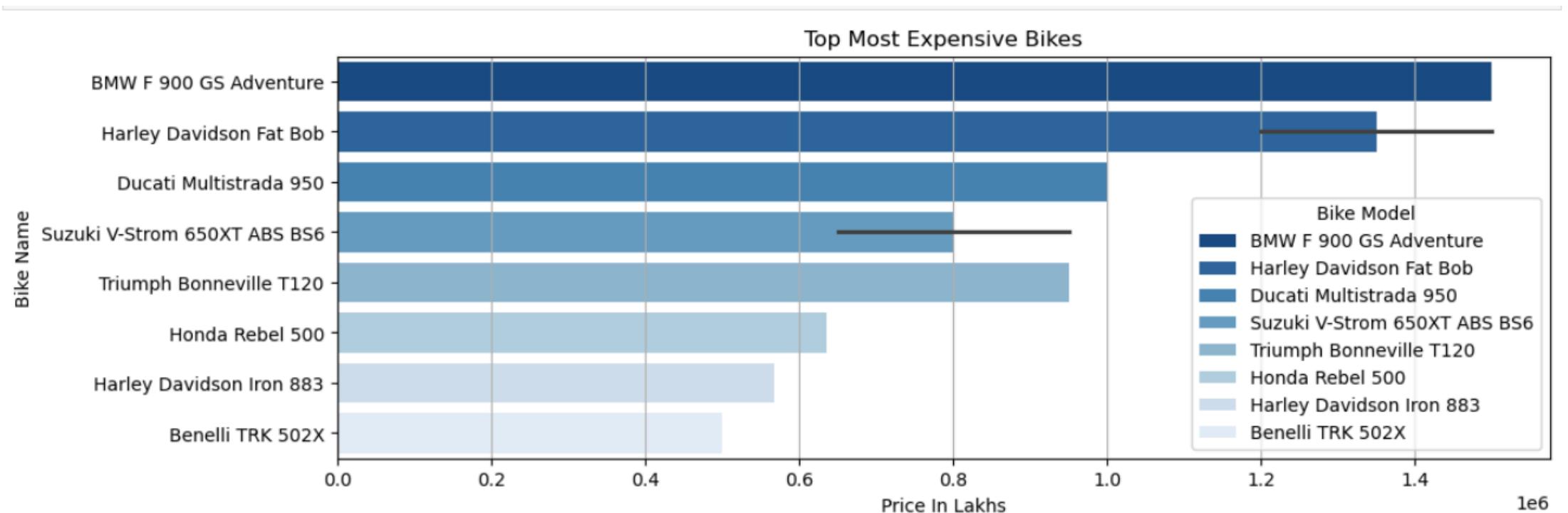
- **USA** brands lead with the highest average prices, followed by **Germany & UK**.
- **Indian** brands are more affordable than foreign ones.
- **Japanese & Chinese** bikes show **value-for-money** pricing.
- Clear price gap between **Indian** and **premium global brands**.



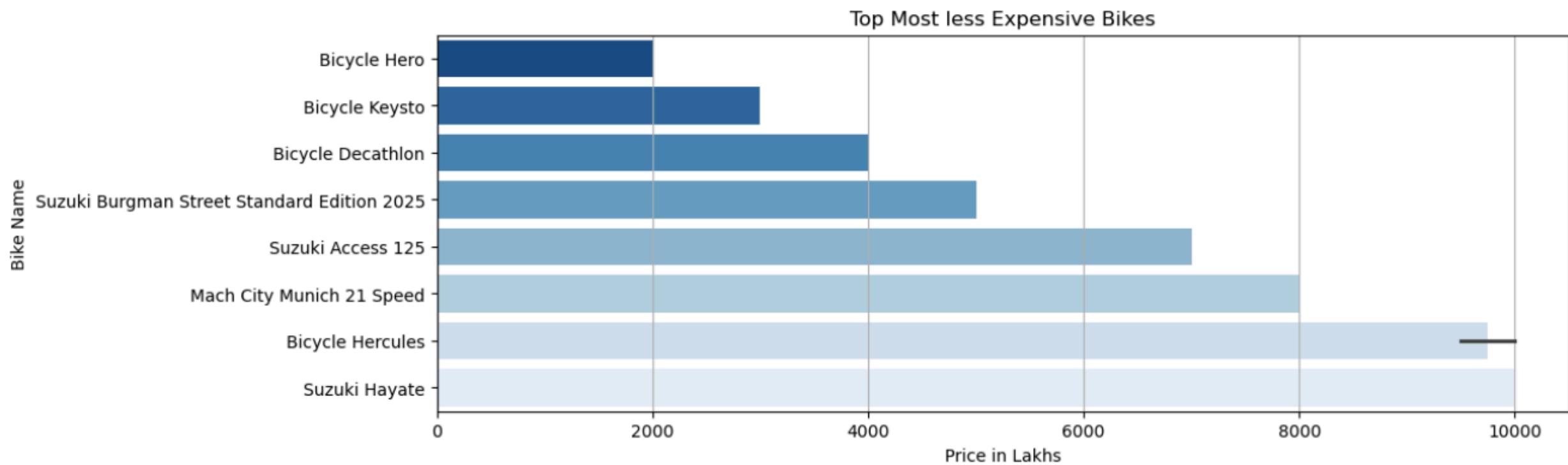
- **Ducati** tops with the highest average price.
- **Harley-Davidson & BMW** are in the premium range.
- **Royal Enfield & Jawa** lead the mid-range segment.
- **Ola Electric & Ather Energy** represent affordable EVs.



- **Adventure** bikes have the highest median price.
- **Sports bikes** show wide price variation (budget to premium).
- **Cruisers** fall in the mid-range segment.
- **Electric & Scooters** are the most affordable.
- **Commuter bikes** dominate the low-price range.



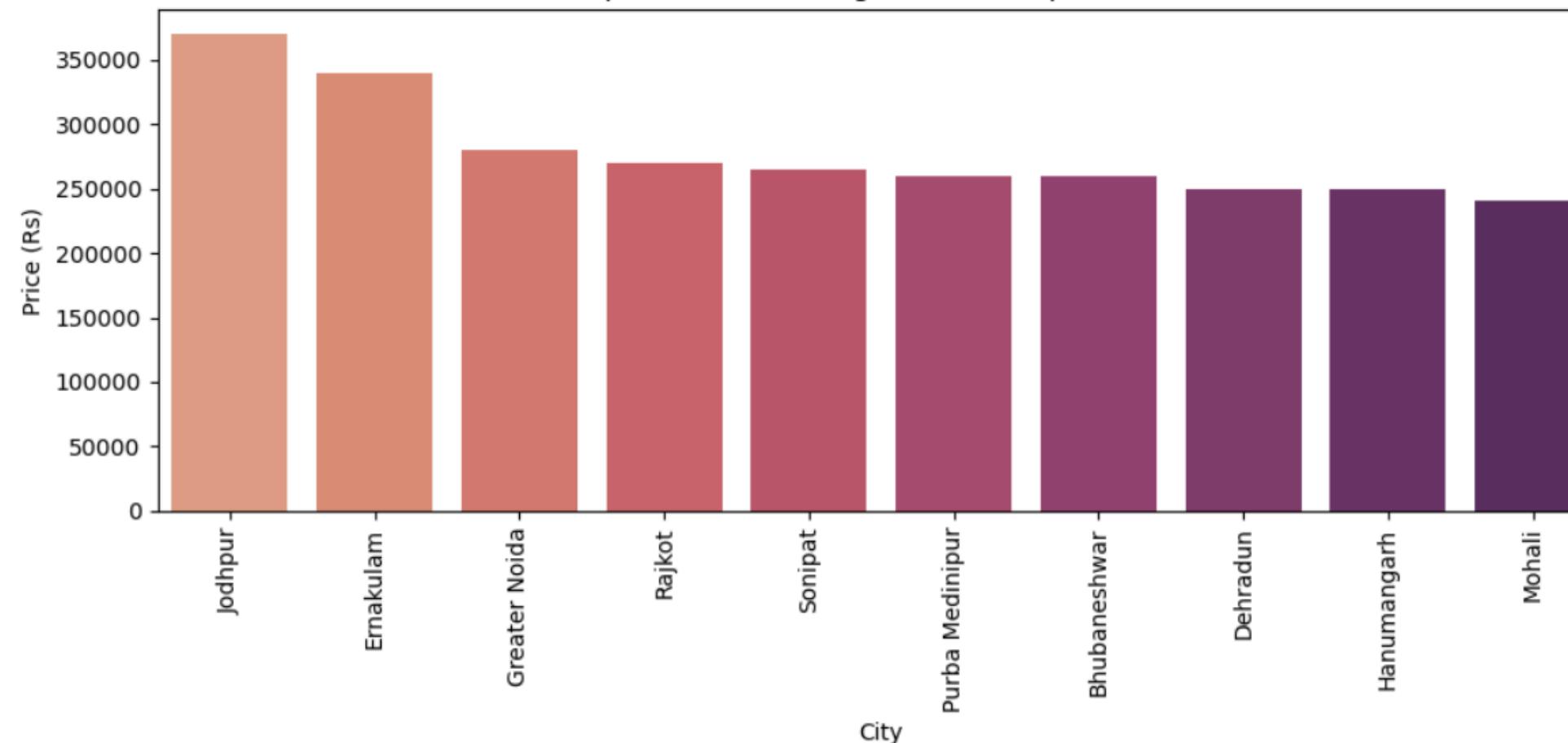
- **BMW F 900 GS Adventure** is the **most expensive**, priced around ₹15 Lakh.
- **Harley Davidson Fat Bob** and **Ducati Multistrada 950** follow in the **premium segment**.
- **Triumph Bonneville T120** and **Suzuki V-Strom 650XT** represent mid-range premium options.
- **Cruiser & Adventure** bikes dominate the high-end listings.



- **Bicycle Hero & Bicycle Keysto** are the cheapest, priced **below ₹3K**.
- **Suzuki Access 125 & Burgman Street 2025** are the most affordable **motorized bikes (under ₹10K)**.
- Most low-priced listings are **bicycles or basic scooters**.
- Indicates strong budget-segment demand in the used bike market.

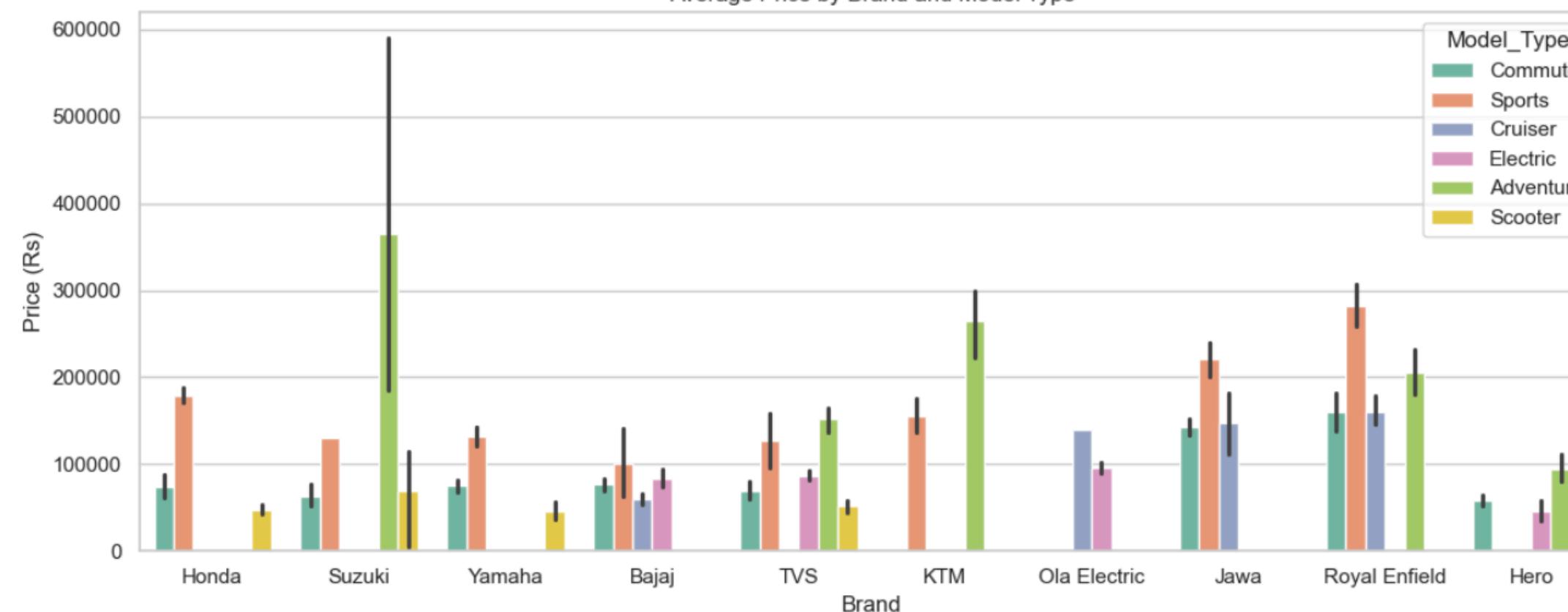
MULTIVARIATE ANALYSIS

Top 10 Cities with Highest-Priced Sport Bikes



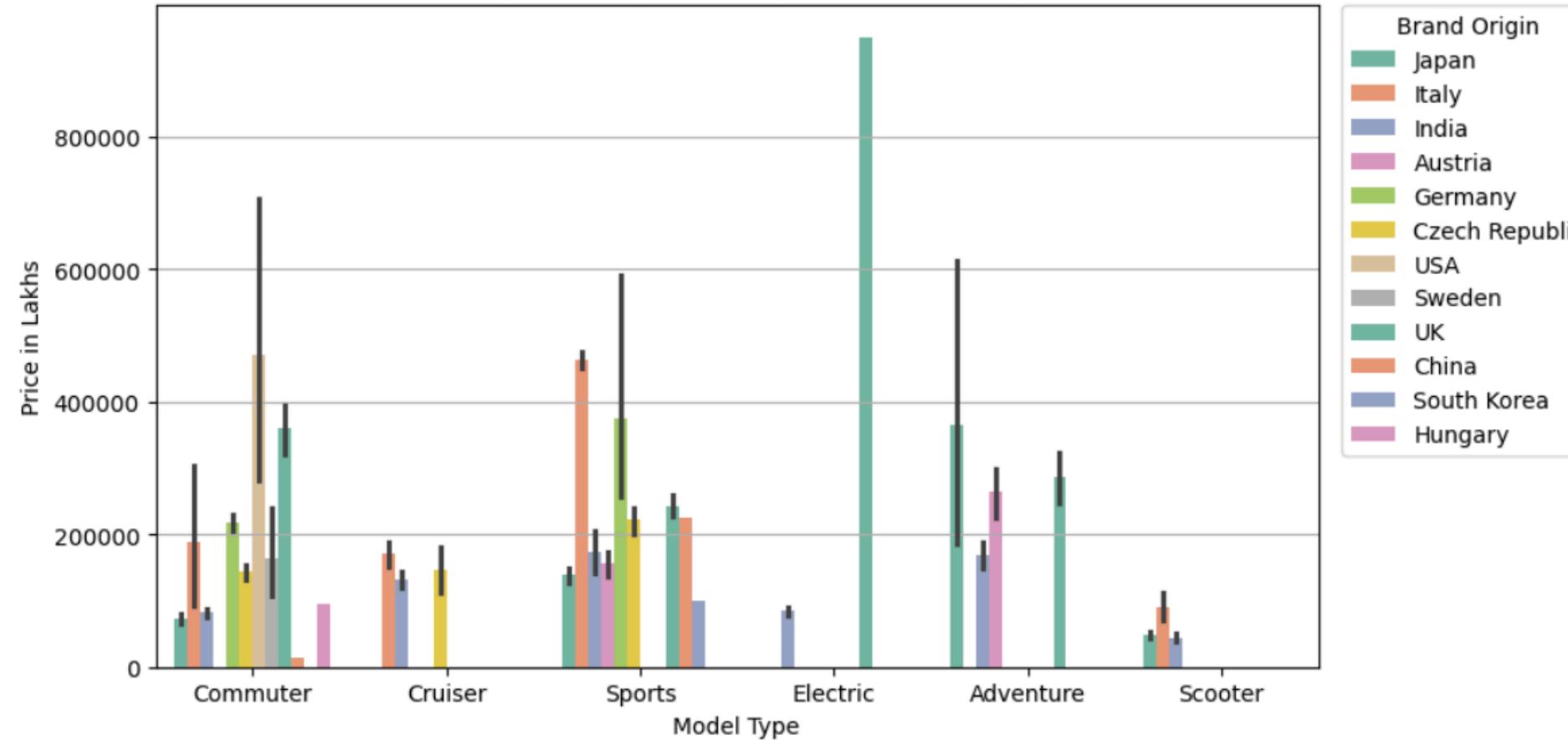
- **Jodhpur** leads with the **highest** average price ₹3.7Lakhs.
- **Ernakulam** follows ₹3.4L, showing strong premium demand.
- **Greater Noida & Rajkot** also show high-value listings.
- **Tier-2** cities are emerging markets for **premium sport bikes**.

Average Price by Brand and Model Type



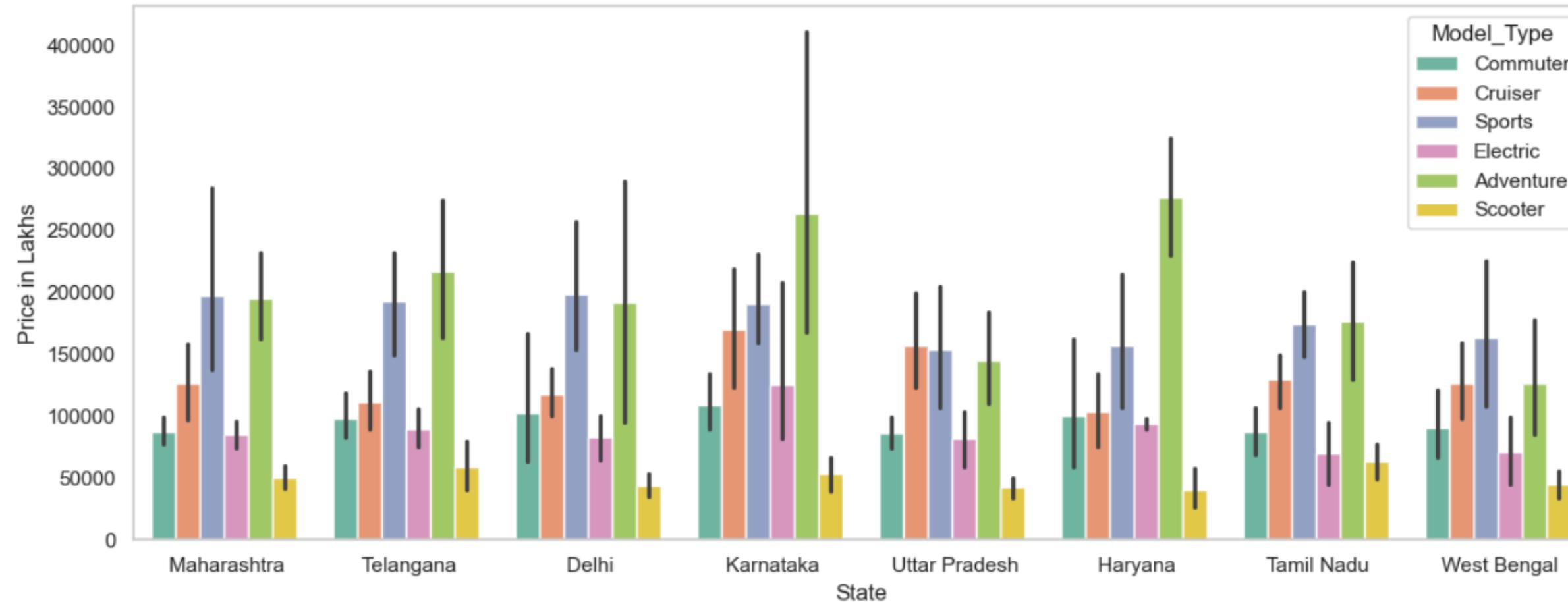
- **Royal Enfield & Jawa** lead sports/cruiser segments.
- **KTM & Suzuki** show premium pricing for adventure bikes.
- **Honda, Yamaha, & TVS** maintain balanced pricing.
- **Ola Electric** leads in EV pricing with modern tech.

Average Price by Model Type and Brand Origin



- **Japanese & Italian** brands dominate **Sports** and **Adventure** bikes.
- **USA & European** brands maintain premium pricing across segments.
- **Indian** brands lead **Commuter** & **Electric** categories for affordability.
- **Japanese EVs** show higher prices due to advanced technology.

Average Price by State and Model Type



- **Karnataka & Haryana** lead with highest prices (Adventure & Sports).
- **Delhi, Maharashtra & Telangana** show mid-to-high pricing trends.
- **Electric bikes** are lower priced across all states.
- **Scooters** remain the most affordable, while Adventure bikes drive price variation.

CONCLUSION

- The analysis revealed that **Bajaj, Royal Enfield, and Honda** are the most listed and demanded brands in the **used bike market**.
- **Royal Enfield Classic 350** emerged as the **most popular** and frequently **sold** model.
- Newer model **years (2020–2025)** showed **higher resale prices**, indicating strong demand for recently launched bikes.
- **Bangalore, Pune, Hydabad and New Delhi** recorded the highest number of **used bike listings**, showing these cities as **key market hubs**.
- **Sport** and **commuter** bikes dominated the resale segment, reflecting **India's urban riding preferences**.
- Price variations were mainly influenced by **brand** reputation, **model year**, and **city**.

THANK YOU

