Abstract:

This report analyzes the Indian Electric Vehicle (EV) market using a dataset collected from customer reviews and ratings. The study identifies key market trends, user preferences, and segment-wise performance of different EV models. By performing segmentation analysis and visualization, this report aims to offer data-driven recommendations to help an EV startup decide the best entry strategy. The findings focus on consumer sentiments, vehicle performance, and ownership trends to suggest the most viable type of EV for production.

Introduction:

The transition to electric mobility in India is gaining momentum, driven by environmental concerns, government incentives, and rising fuel costs. However, for an EV startup, selecting the right vehicle category and target customers is crucial for successful market entry. This report leverages user data, ratings, and market segmentation techniques to provide strategic insights into consumer behavior and product expectations.

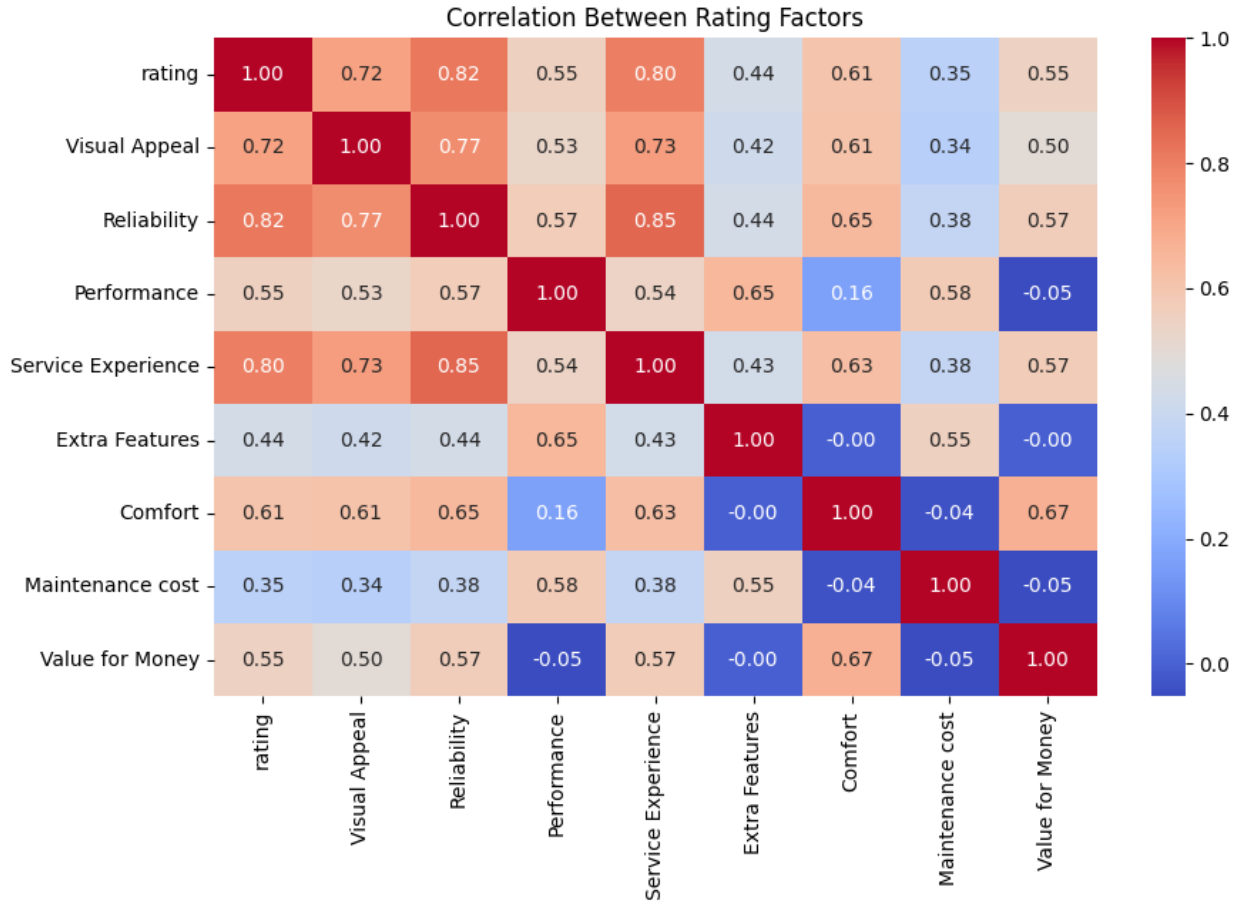
Problem Statement:

An EV startup is exploring the Indian market to determine which segment of electric two-wheelers (scooters or motorcycles) to focus on. The objective is to analyze customer reviews, ratings, and usage patterns to understand consumer preferences and recommend the most viable product category. This requires segmentation analysis based on demographics, behavioral trends, and psychographics.

Data Overview:

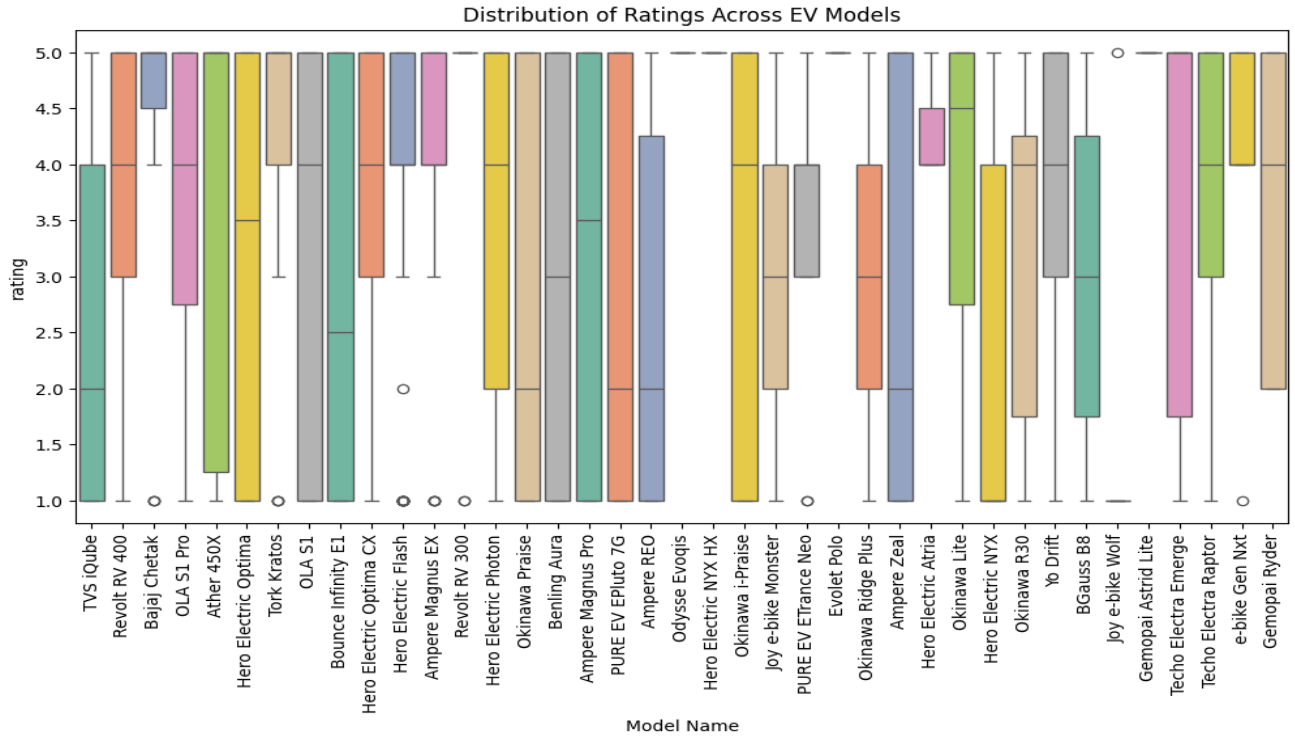
The dataset includes 844 entries with 14 attributes covering:

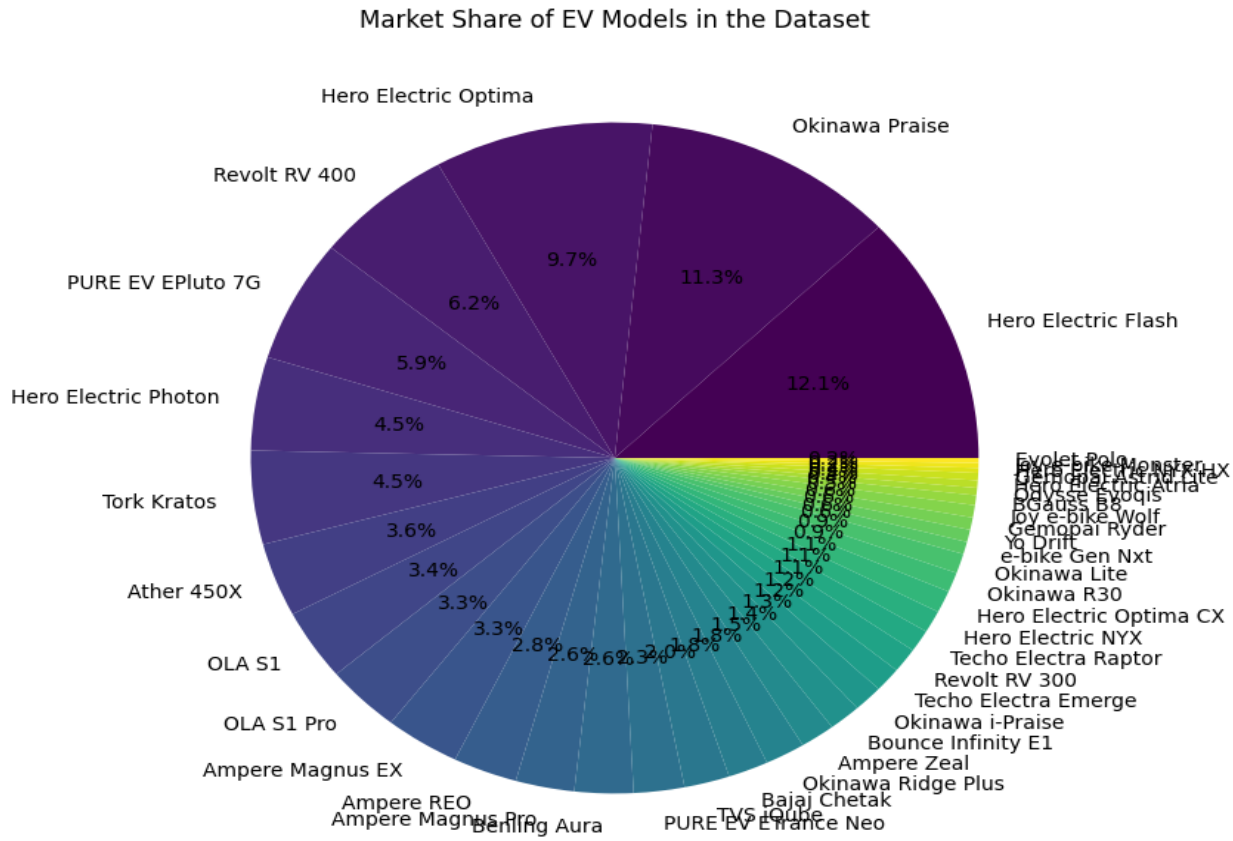
- **Ratings**: Performance, reliability, comfort, value for money, maintenance cost, etc.
- **Usage Patterns**: How long users have owned the vehicle and their riding distance.
- **Review Sentiments**: User-provided feedback on EV models.
- **Market Distribution**: The popularity of different models.



Market Segmentation Analysis:

1. **Demographic Segmentation**:
    - EV owners tend to be younger individuals and urban commuters seeking cost-effective mobility.
2. **Behavioral Segmentation**:
    - Consumers prioritize **performance, reliability, and cost-effectiveness** over extra features.
    - Many users have owned their EVs for more than a year, indicating long-term adoption.
3. **Psychographic Segmentation**:
    - Users prefer EVs due to fuel cost savings and environmental concerns.
    - Reliability and service experience significantly impact satisfaction levels.


Distribution of Ratings Across EV Models
rating
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
TVS iQube
Revolt RV 400
Bajaj Chetak
OLA S1 Pro
Ather 450X
Hero Electric Optima
Tork Kratos
OLA S1
Bounce Infinity E1
Hero Electric Optima CX
Hero Electric Flash
Ampere Magnus EX
Revolt RV 300
Hero Electric Photon
Okinawa Praise
Benling Aura
Ampere Magnus Pro
PURE EV EPluto 7G
Ampere REO
Odysse Evoqis
Hero Electric NYX HX
Okinawa i-Praise
Joy e-bike Monster
PURE EV ETrance Neo
Evolet Polo
Okinawa Ridge Plus
Ampere Zeal
Hero Electric Atria
Okinawa Lite
Hero Electric NYX
Okinawa R30
Yo Drift
BGauss B8
Joy e-bike Wolf
Gemopai Astrid Lite
Techo Electra Emerge
Techo Electra Raptor
e-bike Gen Nxt
Gemopai Ryder
Model Name


Market Share of EV Models in the Dataset
Hero Electric Optima
Okinawa Praise
Revolt RV 400
PURE EV EPluto 7G
Hero Electric Photon
Tork Kratos
Ather 450X
OLA S1
OLA S1 Pro
Ampere Magnus EX
Ampere REO
Ampere Magnus Pro
Benling Aura
PURE EV ETrance Neo
TVS iQube
Bajaj Chetak
Okinawa Ridge Plus
Ampere Zeal
Bounce Infinity E1
Okinawa i-Praise
Techo Electra Emerge
Revolt RV 300
Techo Electra Raptor
Hero Electric NYX
Hero Electric Optima CX
Okinawa R30
Okinawa Lite
e-bike Gen Nxt
Yo Drift
Gemopai Ryder
Joy e-bike Wolf
BGauss B8
Odysse Evoqis
Hero Electric Atria
Gemopai Astrid Lite
Hero Electric Flash
9.7%
11.3%
6.2%
12.1%
5.9%
4.5%
4.5%
3.6%
3.4%
3.3%
3.3%
2.8%
2.6%
2.6%
2.3%
2.0%
1.8%
1.8%

Strategic Pricing and Market Entry Approach:

- Target **urban and semi-urban commuters** who need affordable, efficient transportation.
- Emphasize **low maintenance costs and reliability** as key selling points.
- Offer competitive pricing while leveraging government subsidies to attract early adopters.

Visualization Insights:

- **Boxplot of Ratings by Model**: Some EV models have consistently high ratings, while others show variations in user satisfaction.
- **Market Share Pie Chart**: Highlights the distribution of popular models in the dataset.
- **Heatmap Analysis**: Shows strong correlations between reliability, performance, and overall ratings, indicating that consumers value quality and consistency over fancy features.

Conclusion:

Based on the analysis of ratings, ownership trends, and user feedback, the recommended strategy for the EV startup is to focus on **electric scooters rather than motorcycles**. Electric scooters dominate urban commuting due to their affordability, lower maintenance, and ease of use. Consumers highly value **reliability and cost-effectiveness**, making budget-friendly, mid-range scooters the ideal choice for mass adoption. Additionally, improving post-purchase service and addressing reliability concerns will enhance customer satisfaction and long-term brand loyalty.

Colab link:

https://colab.research.google.com/drive/1keEdSwSI4kJAf1NYm9pDR7WFQwIjF5q1?usp=sharing