Bike Sales Dashboard – Project Report

1. Dataset Source and Description

The dataset for this project was compiled to capture **comprehensive information about two-wheeler sales and resales**. It contains **200+ records** across multiple tables and attributes, enabling multidimensional analysis.

Key variables include:

- **Vehicle details**: Brand, Model, Year of Manufacture, Fuel Type, Engine Capacity, Mileage.
- **Financial data**: Sales Price, Resale Price, Depreciation Value.
- **Performance metrics**: Daily Fuel Consumption, Daily Distance Covered, Efficiency Score.
- **Insurance details**: Insurance Status (Active, Expired, Not Available).
- **Registration details**: Year of Vehicle Registration.

This diverse dataset allows a **360-degree view** of the bike market by combining **sales trends, consumer behavior, efficiency analysis, and after-sales services**.

2. Business Problem Statement

In today's highly competitive automobile sector, two-wheeler manufacturers and dealerships must make **data-driven decisions** to stay ahead. The business challenge is:

"How can we use sales, resale, and performance data to understand market trends, customer preferences, and vehicle efficiency—thereby optimizing pricing, marketing, and after-sales strategies?"

The dashboard addresses this challenge by:

- Tracking **sales and resale performance** across years and brands.
- Identifying **high-value bike models** and computing average pricing.
- Comparing **fuel-type usage and efficiency patterns**.
- Highlighting **insurance compliance gaps**.
- Assessing **depreciation and efficiency** to guide product and pricing strategies.

3. Key Insights from Dashboard

The analysis revealed several **important insights**:

1. **Sales & Resale Trends**
    - Both sales and resale values dipped sharply in **2020**, reflecting possible market disruptions.
    - A **steady recovery from 2021 onwards** indicates regained consumer demand.
2. **Pricing & High-Value Models**
    - **Meteor 350** emerged as the **costliest bike model** in the dataset.
    - The **average bike price** is approximately **₹224.33K**, serving as a benchmark for pricing strategies.
3. **Fuel Type Analysis**
    - Petrol, Hybrid, and Electric bikes share sales almost equally (~33% each).
    - **Electric bikes cover the greatest daily distance**, underlining their growing practical value.
4. **Insurance Compliance**
    - Insurance distribution is nearly equal across **Active, Expired, and Not Available**, signaling a **major opportunity** for dealers to offer renewal and add-on services.
5. **Efficiency & Mileage**
    - Average mileage is **67.19 km/L**, but efficiency scores vary across years.
    - Manufacturers can investigate low-efficiency periods to improve product design.
6. **Depreciation Trends**
    - Bikes manufactured around **2020 showed higher depreciation**, linked to weaker resale demand.
7. **Brand and Market Insights**
    - Leading brands include **Bajaj, Hero, Honda, Royal Enfield**, with consistent year-on-year presence.
    - The tree map reveals an evenly spread brand contribution across multiple years, confirming market competitiveness.

4. Conclusion

The **Bike Sales Dashboard** delivers a **clear, interactive, and insight-rich view** of the two-wheeler market. By integrating KPIs, trend analysis, efficiency metrics, and insurance tracking, it helps stakeholders:

- **Optimize pricing and resale policies.**
- **Focus marketing** on high-performing brands and models.
- **Encourage insurance renewals** to strengthen customer retention.
- **Improve vehicle design and efficiency** through data-backed decisions.

This project successfully demonstrates the full workflow of **data collection, preprocessing, exploratory data analysis, visualization, and interpretation**, and provides **actionable insights** for real-world decision-making.