

FINAL PROJECT REPORT

1. INTRODUCTION

1.1 Project Overview

The “Visualization Tool for Electric Vehicle Charge & Range Analysis” project focuses on analyzing Electric Vehicle (EV) datasets collected from multiple Indian and global data sources. The project transforms raw EV data into meaningful insights using Tableau dashboards and stories. Through interactive visualizations, users can analyze EV performance, price, efficiency, charging infrastructure, and market trends.

1.2 Purpose

The main purpose of this project is to simplify complex EV datasets through visualization. Instead of analyzing large tables manually, users can quickly understand data trends using graphical dashboards. The project helps users compare EV models, identify efficient vehicles, and study charging station availability through visual analytics.

2. IDEATION PHASE

2.1 Problem Statement

Electric Vehicle data is available in large volumes but is difficult to analyze due to its complexity. Users struggle to compare EV performance, efficiency, and pricing from raw datasets. Therefore, an interactive visualization-based solution is required to simplify data analysis and improve understanding.

2.2 Empathy Map Canvas

The empathy map was created to understand user expectations and challenges. Users such as analysts, students, and EV enthusiasts need simple dashboards that help them compare EV models, pricing, and charging infrastructure easily without technical complexity.

2.3 Brainstorming

During brainstorming, multiple ideas were discussed including static reports, spreadsheets, and visualization tools. Tableau dashboards were selected as the final solution because they provide interactivity, filtering, storytelling, and clear data insights.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

The customer journey defines how users interact with dashboards. Users access the dashboard, explore charts, apply filters, view stories, and finally gain insights related to EV range, efficiency, and pricing trends.

3.2 Solution Requirement

Functional Requirements

- Import EV datasets
- Clean and preprocess data
- Create dashboards and stories
- Publish dashboards online

Non-Functional Requirements

- Fast dashboard loading
- User-friendly interface
- Data accuracy
- Easy scalability

3.3 Data Flow Diagram

The data flow starts from CSV datasets, followed by data cleaning and preprocessing. The data is connected to Tableau, where visualizations are created. Dashboards and stories are published to Tableau Public for end-user interaction.

3.4 Technology Stack

- Tableau Desktop
- Tableau Public
- CSV Datasets
- Data Cleaning Techniques
- GitHub for project hosting

4. PROJECT DESIGN

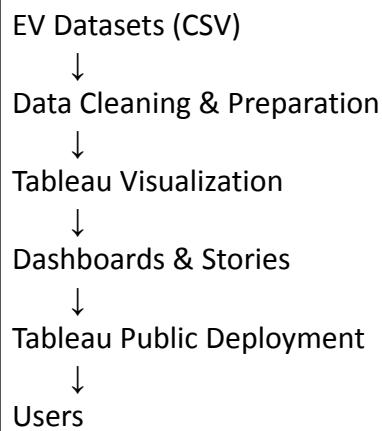
4.1 Problem Solution Fit

The project solves the problem of complex EV data analysis by providing interactive dashboards that simplify data interpretation and enable quick comparison of EV metrics.

4.2 Proposed Solution

The proposed solution is a Tableau-based visualization system containing dashboards and stories that analyze EV performance, pricing, efficiency, and charging station availability.

4.3 Solution Architecture



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

The project was divided into multiple sprints:

- Sprint 1: Data Collection & Cleaning
- Sprint 2: Visualization Development
- Sprint 3: Dashboard Creation
- Sprint 4: Story Creation & Deployment

Story points and sprint tracking were used to monitor progress and ensure timely completion.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Testing ensured that:

- Dashboards load correctly
- Filters function properly
- Story navigation works smoothly
- Visualizations render without errors

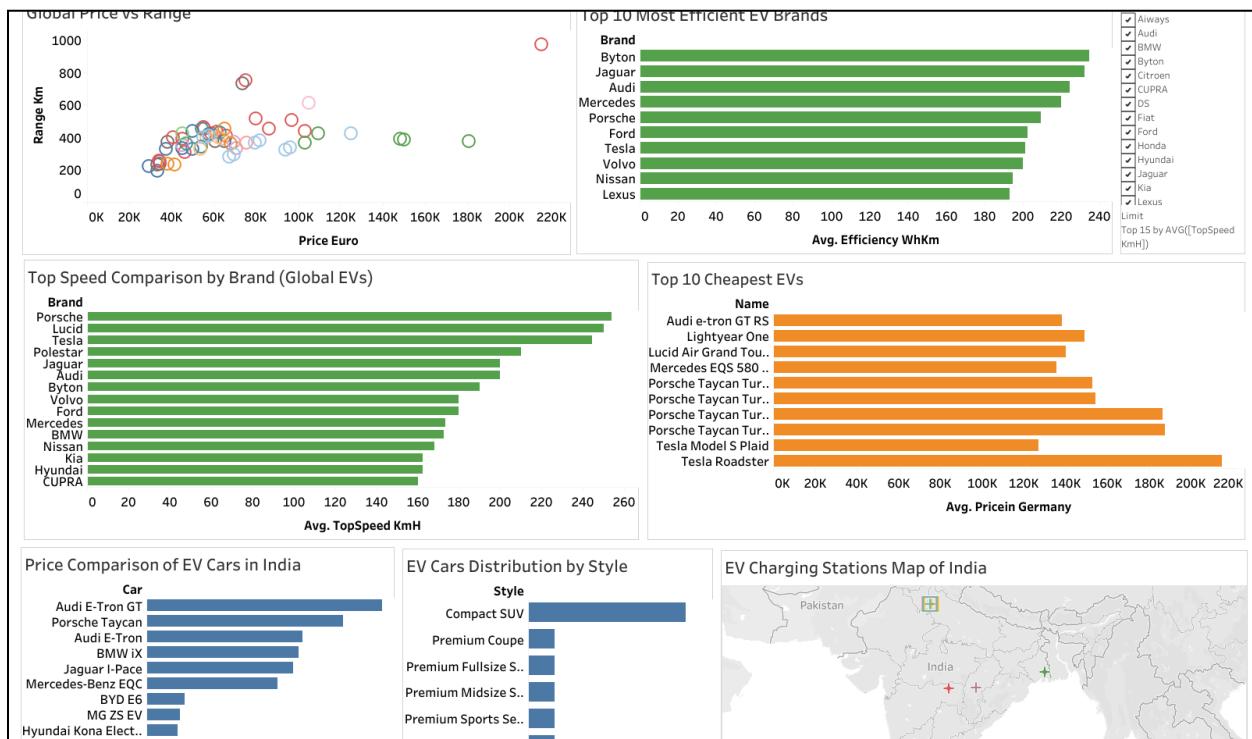
User Acceptance Testing confirmed that the dashboards meet user expectations.

7. RESULTS

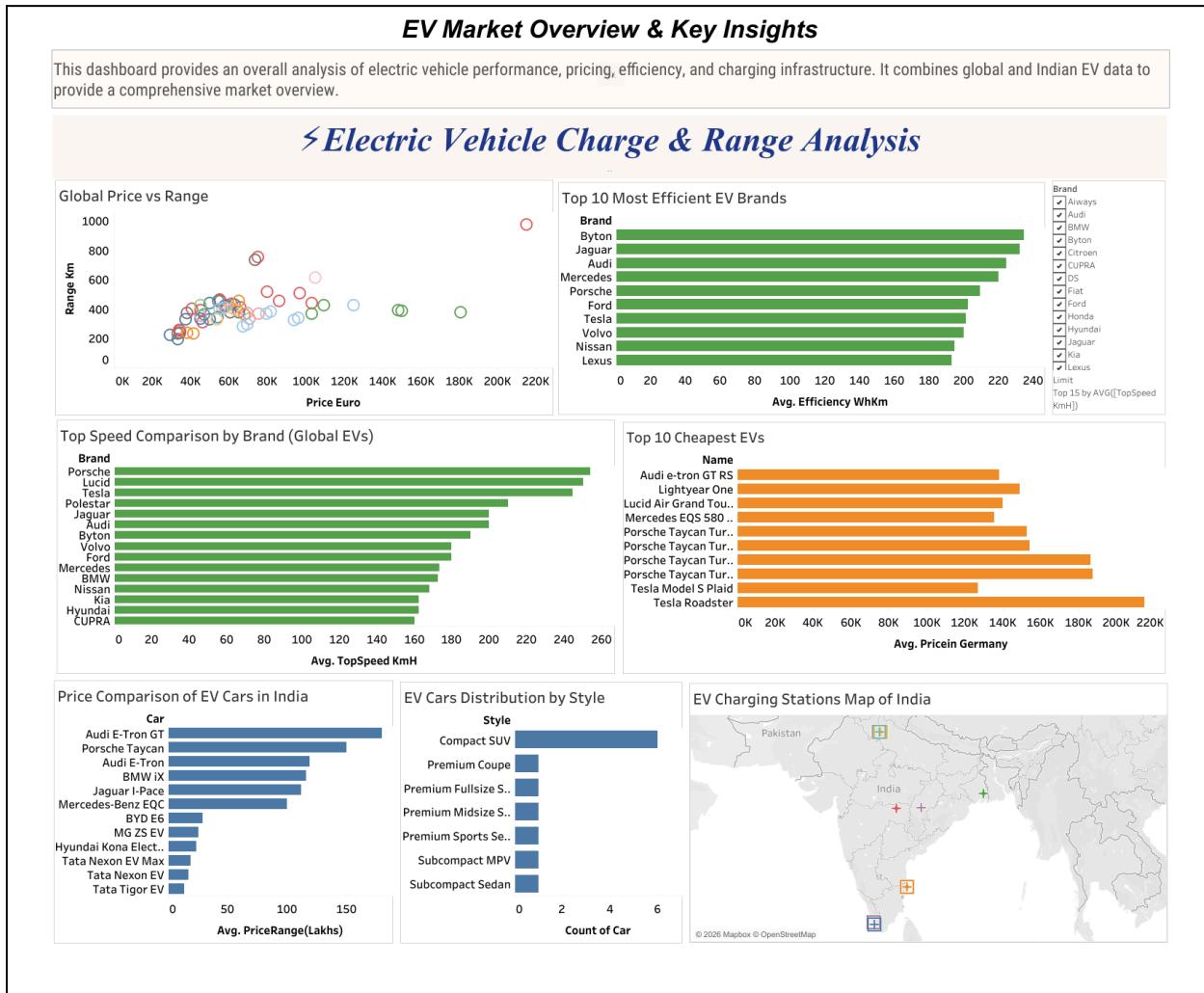
The project successfully produced:

- 1 Main Dashboard
- 4 Mini Dashboards
- 5 Stories

EV Charge & Range Analysis Dashboard :



Story-1:



8. ADVANTAGES & DISADVANTAGES

Advantages:

- Easy EV comparison
- Interactive visual insights
- Real-world data analysis

Disadvantages:

- Depends on dataset accuracy

- Tableau Public requires internet

9. CONCLUSION

The EV Charge & Range Analysis project successfully demonstrates how data visualization can transform complex datasets into meaningful insights. The Tableau dashboards enable users to analyze EV performance, efficiency, and charging infrastructure easily. The project meets all objectives and provides an effective analytical solution.

10. FUTURE SCOPE

- Real-time EV market updates
- AI-based EV prediction models
- Mobile app dashboard version
- Advanced KPI analysis

11. APPENDIX

Tableau public link (Story) :

https://public.tableau.com/views/ElectricVehicleChargeandRangeAnalysis_17713481097120/Story1?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Tableau Public Link(Dashboard) :

https://public.tableau.com/views/ElectricVehicleChargeandRangeAnalysis_17713481097120/EVChargeRangeAnalysisDashboard?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Github Link :

<https://github.com/VedhaSri-2005/EV-Charge-Range-Analysis>