

# Project Development Phase

## Data Preprocessing Steps

### 1. Data Collection

- Downloaded the EV dataset in CSV/Excel format.
- Verified the dataset completeness and structure.
- Ensured attributes like vehicle type, range, charging time, price, and location are available.

### 2. Understand the Dataset

- Identified column names and meanings.
- Checked data types (numeric, text, date).
- Identified missing values and inconsistencies.
- Reviewed business questions related to EV adoption and charging infrastructure.

### 3. Import Dataset into Database / Spreadsheet

- Loaded dataset into MySQL / Excel / Tableau.
- Validated a successful import.
- Ensured no data truncation or format issues.

### 4. Connect Tableau Desktop to Database Server

- Established connection between Tableau and data source.
- Verified tables and fields are visible.
- Checked relationships if multiple tables are used.

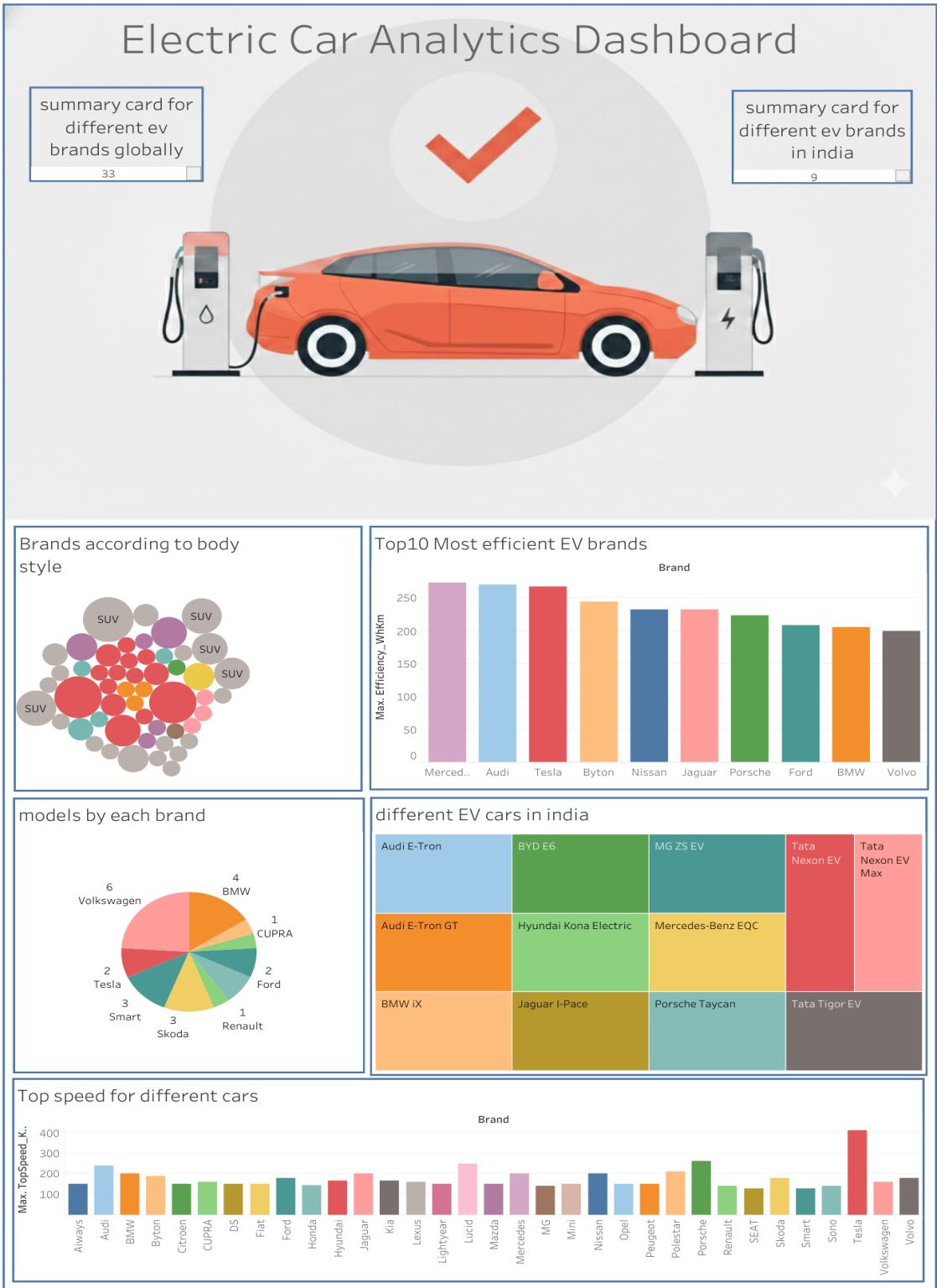
### 5. Data Preparation

- Remove Duplicate Records**  
Eliminated repeated entries.
- Handle Missing Values**  
Replaced null numeric values using average/median.  
Replaced missing categorical values with mode or default label.
- Correct Data Types**  
Converted text fields to numeric where required.  
Formated date columns properly.  
Ensured price and range fields are numeric.
- Data Standardization**  
Standardized units (km, hours).  
Normalized state or city names.  
Format currency properly.
- Create Calculated Fields in Tableau**  
Range Efficiency  
Charging Speed Ratio  
State-wise EV count  
Average price per region
- Filtering & Cleaning**  
Removed unnecessary columns.  
Filtered irrelevant or outlier records.

### 6. Data Validation

- Cross-checked totals and aggregations.
- Ensured no null values affecting visualizations.

# Dashboard



## Story

### Story of Electric Cars in India

< Charging Stations in India | Charging Stations by Region & Type | Price of Electric Cars by different | Different Brands & No. of Models >

