Project 3 / Group 4

Data Set:
Global Analysis of EV Charging Stations

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Introduction Purpose of Project

This project explored a comprehensive global dataset of EV charging stations, aiming to extract meaningful insights into the current state and trends of EV charging infrastructure. The dataset encompassed key attributes such as station location (latitude and longitude), charger types (AC Level 1, AC Level 2, DC Fast Charger), charging capacity (kW), station operator, connector types, installation year, and renewable energy usage.

Data and Data Cleaning/ High level research questions

Project Focus: The project analyzed a global dataset of EV charging stations to uncover insights about the current state and trends in EV charging infrastructure.
Key Dataset Features: The dataset included information on station location, charger types (AC Level 1, AC Level 2, DC Fast Charger), charging capacity, station operators, connector types, installation year, and renewable energy usage.

Motivations for the Study:
Optimizing station deployment to meet growing demand.
Improving route planning for EV users, ensuring accessibility to charging stations
Evaluating renewable energy integration within the charging infrastructure.
Forecasting future energy needs and grid requirements through energy consumption studies.

Data & Limitations and Bias

1. Data cleaning revealed **fictitious addresses** (e.g., "Random Rd").
2. **500 rows** contained incorrect location data.
3. This could mislead consumers searching for EV chargers.
4. Issues like these highlight the **importance of data cleaning & validation**.
5. Address discrepancies remain **inconclusive**—some may exist, but not definitively.


123 FAKE ST.

Conclusion

- Developed a user-friendly app to visualize global EV charging stations
- Dashboard provides clear insights on installation trends & charger types
- Map helps users explore charging station locations worldwide
- Faced challenges with incomplete map data (only 500 out of 5000 locations)

Future Work

- Fix data issues to ensure all 5000 stations are mapped correctly
- Clean and update data, possibly adding new sources
- Improve app performance for better speed and user experience
- Expand visualizations with insights on charging speed & regional trends