

Electrifying Webscraping

The goal of this project was to collect, clean, and analyze data on electric vehicles listed on electrifying.com, using web scraping techniques. The final dataset was visualized using Power BI to derive insights into EV pricing, performance, and efficiency , empowering potential EV buyers make informed decisions .

Data Collection

Using **Python** in a **Google Colab notebook**, a two-phase scraping system with **Selenium** and **BeautifulSoup** was developed .

1. Car Listing Pages :

- Car name
- Score
- Price
- Range
- Detail Page URL

2. Individual Car Pages:

- Battery Size
- Max DC Charge Rate
- Miles per kWh

Each page was dynamically scrolled using JavaScript injection to load all vehicle cards.

- **Total cars scraped:** 190
- **Data saved to:** `electric_cars_cleaned.csv`

Data Cleaning

After scraping, it's time for cleaning and normalizing the data:

- Removed currency symbols, units (£, mi, kWh, etc.)
- Converted strings to numeric values
- Handled ranges (e.g., 50-60 kWh) by averaging
- Filled missing values using column averages .

Dashboard Highlights (Power BI)

Page 1: Overview Dashboard

KPIs:

- Total EV Cars: **190 cars**
- Avg Price: **£50.5K**
- Avg Range: **292 mi**
- Avg Battery Size: **72.7 kWh**
- Avg Score: **7.66**

Top Charging Capacity

- **Smart #5, Zeekr 7X, and Lotus Eletre** offer the **highest maximum charge rates**, with Smart #5 leading.
- These cars may be ideal for users who prioritize **fast charging and long-distance travel** .

Battery vs. Range Insights

- There's a **positive correlation** between battery size and range .
- However, **some vehicles with smaller batteries still achieve high range**, indicating **better efficiency** (e.g., Kia EV3 and BMW i4).
- On the scatterplot, **outliers with high range and small batteries** represent **efficient EVs**.

Best Value and Performance

- **Kia EV3 and BMW i4** offer a **high review score (10)** with relatively **affordable prices (~\$33K and \$49K)** and **strong range (375 km and 367 km)** — great value.
- **Porsche Taycan models** have high scores and performance but come at a premium price (~\$80K–\$100K).

Price Range Insights

- The **price range slider** reveals a wide spread—from as low as \$5,500 to over \$1 million.

We can distinguish two types of models :

- **Efficient and Affordable Options**
 - **Citroën Ami** and **Hyundai INSTER** are extremely affordable but come with **very low range (46–229 km)** and small batteries .
- **Luxury and High-Performance Models**
 - **Audi S e-tron GT, Porsche Taycan, and Lucid Air** stand out for their **high battery sizes, performance, and scores**, targeting the premium market.

Conclusion

This project scraped and analyzed data on 190 electric vehicles to explore pricing, performance, and efficiency. After cleaning and visualizing the data in Power BI, clear patterns emerged—highlighting both budget-friendly EVs like the Kia EV3 and premium options like the Porsche Taycan. The dashboard helps users make smarter, data-driven decisions when comparing electric cars.

