

Charging Infrastructures for EVs and Fuel prices in France

PRESENTED BY

PRABHU NITHIN GOLLAPUDI

MASTERS IN AI - 23269243

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Introduction

Is the fuel price in France affecting the number of charging stations for electric vehicles ?

We already know that fuel prices are one of the driving factors for the adaptation of electric vehicles but is it also affecting the number of charging stations ?

Data



The data is maintained by the French government



Data format - Structured CSV



Data quality - Accuracy - High, Completeness - Low, Consistency - High, Timeliness - Medium, Relevance - Medium



Data License - Open License



Data info - ev station and start dates, Fuel prices - fuel price, data and fuel type

Data Pipeline



Extract

Python requests module to
extract the data



Transform

Remove columns
Rename columns
Apply data formats to
columns



Load

Save the two data sets to
separate sqlite files

Data pipeline

```
ev_infra_data.head(3)
```

	station_name	station_id	station_service_start_date	date_modified	last_modified	created_at
0	Hotel saint alban	FR000011062174	2022-03-02 00:00:00	2022-04-25 00:00:00	2024-01-19 00:00:00	2022-05-12 00:00:00
1	Hôtel Restaurant Campanile Nogent-sur-Marne	FR000012292701	2022-02-22 00:00:00	2022-05-12 00:00:00	2024-01-19 00:00:00	2022-05-12 00:00:00
2	Résidence les calanques	FR000012308585	2022-04-15 00:00:00	2022-04-19 00:00:00	2024-01-19 00:00:00	2022-05-12 00:00:00

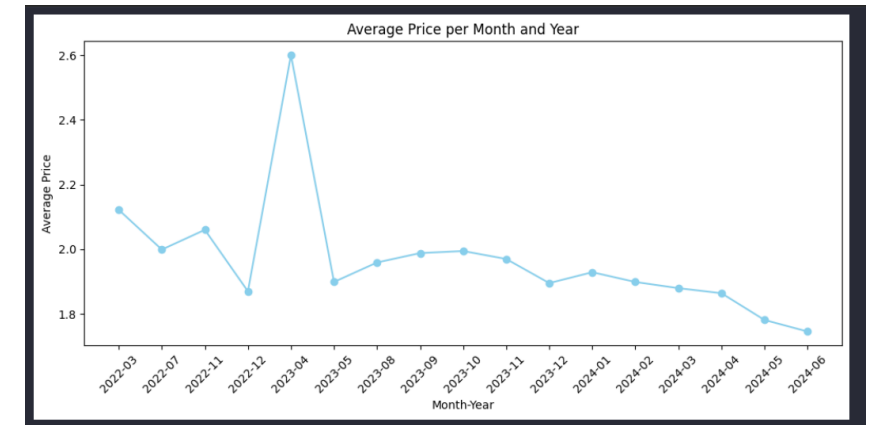
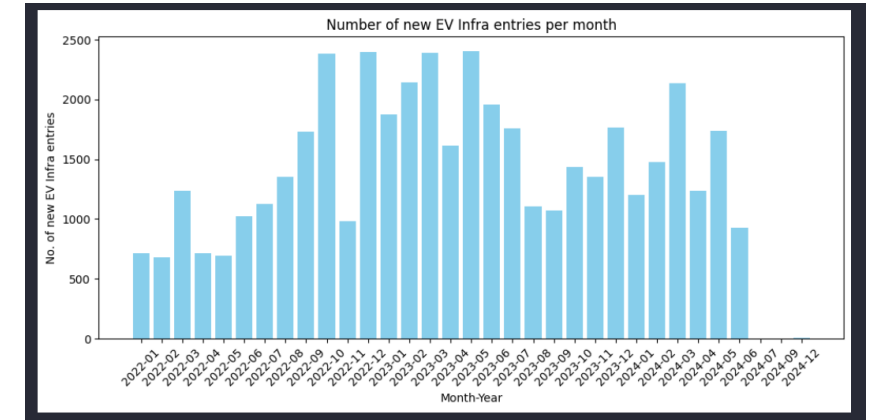
```
fuel_prices_data.head(3)
```

	date_modified	price_id	price_value	price_name
0	2024-06-29 00:00:00	2.0	1.795	SP95
1	2024-06-21 00:00:00	6.0	1.869	SP98
2	2024-06-30 00:00:00	2.0	1.849	SP95

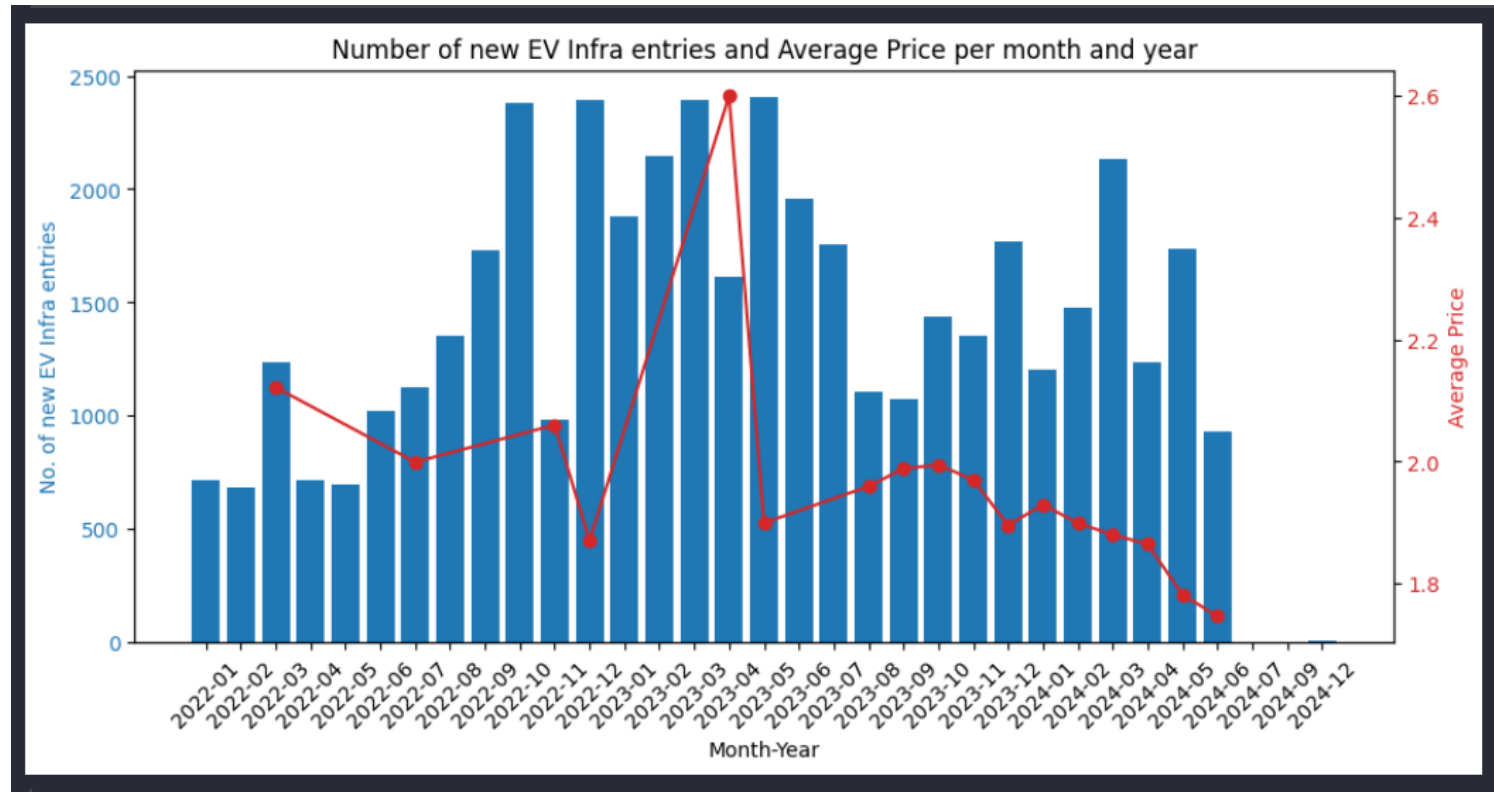
Analysis

Merge the two data sets based on time periods as two are in very different time frames.

Hence the time period is restricted from years 2022-2024



Analysis



Result



Although it may appear that at some point the trend is similar, the correlation between the fuel prices and the number of charging stations is very low. Therefore, we can conclude that the fuel prices are not affecting the number of charging stations in France.



It is important to note that correlation does not imply causation. Therefore, we cannot say that the fuel prices are affecting the number of charging stations in France. Further research is needed to establish a causal relationship between the fuel prices and the number of charging stations in France.



In the future, we can try to analyze the relationship between the fuel prices and the number of charging stations in other countries as well. This will help us to understand if the relationship is the same in other countries as well. We can also try to extend the time frame from 2022 - 2024 to a longer period to see if the relationship holds over a longer period.

Future work and Limitations