Koppula Hrushikesh
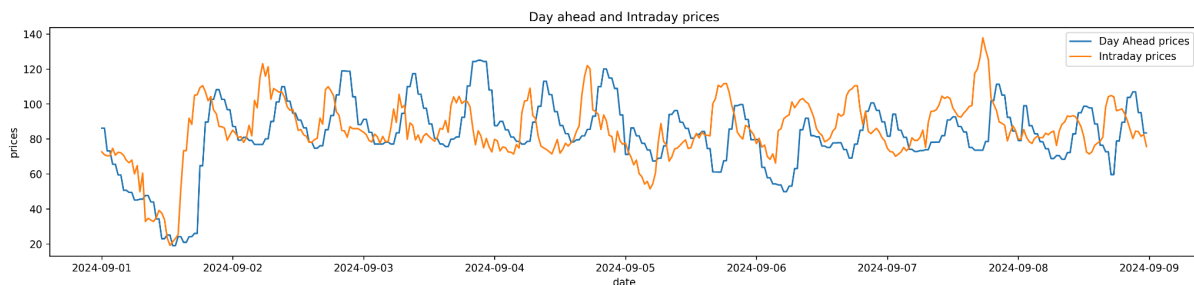
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Cobblestone Research project Junior Trader

Task - 1: Collecting resources and Data

1) Day ahead prices - Nord Pool
2) Intraday Prices - Elexon
3) Climate and Temperature - metoffice

Intraday and day ahead prices plotted on the same graph

Task - 2: Data Analysis

Intraday:
The days with highest volatility:
01-09-2024   8.681923
04-09-2024   7.548491
02-09-2024   7.037948

The days with lowest volatility:
05-09-2024   5.965590
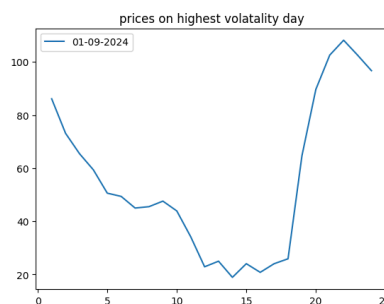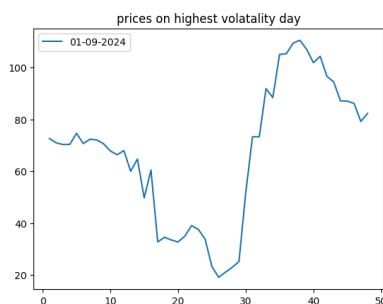06-09-2024   5.451649
08-09-2024   4.505331

Day ahead:
The days with highest volatality:
01-09-2024   11.831738
03-09-2024   9.144742
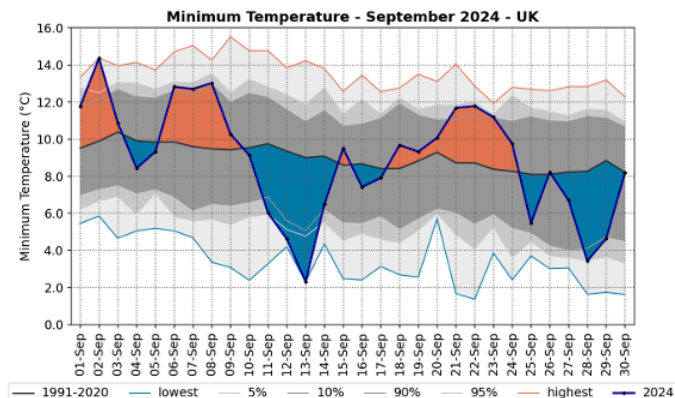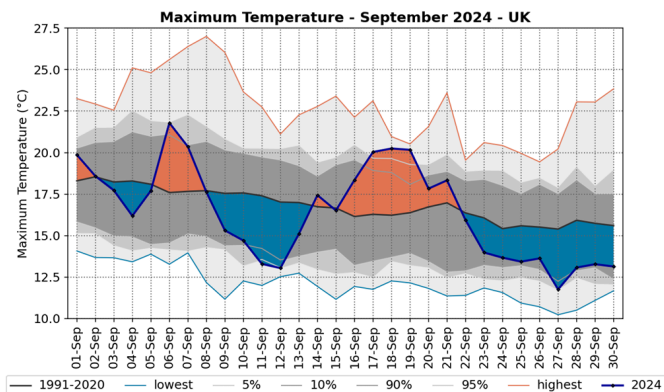08-09-2024   10.229251

The days with the lowest volatality:
04-09-2024   8.207275
06-09-2024   8.149157
07-09-2024   8.158146

we can see significant peak at peek time (pun intended)
As at peak time everyone consumes electricity hence
More price.

Maximum Temperature - September 2024 - UK

Minimum Temperature - September 2024 - UK
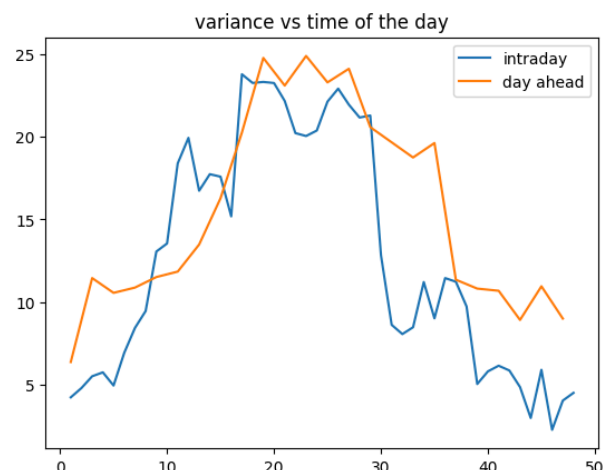
We can observe that temperature is normal around 1st sep and hence the normal electricity consumption, on 2nd, 3rd, 4th very minimum temperature is observed hence heaters were used, on 5th, 6th, 7th, 8th very high temperature is observed.

Also higher the demand higher the prices:
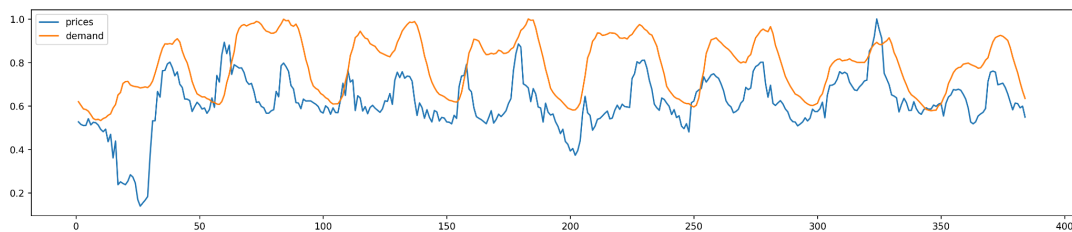
Task - 3: Trading strategy

Mean reversion is a trading strategy based on the assumption that prices tend to revert back to their long-term average over time. This means that after a period of significant price increase (overbought) or decrease (oversold), the price will eventually return to its historical mean.

- **Overbought:** When the current price is significantly above the mean, the asset is considered overbought.
- **Oversold:** When the current price is significantly below the mean, the asset is considered oversold.
- **Sell:** When the asset is overbought, sell it with the expectation that it will eventually decline back to the mean.
- **Buy:** When the asset is oversold, buy it with the expectation that it will eventually rise back to the mean.

Advantages of Mean Reversion:

- **Potential for High Returns:** In volatile markets, mean reversion strategies can generate significant profits.
- **Simplicity:** The strategy is relatively easy to understand and implement.

Risks & Disadvantages of Mean Reversion:

- **Risk of Reversion Failure:** If the price continues to move away from the mean, the strategy can result in losses.
- **Transaction Costs:** Frequent trading can increase transaction costs.

Cumulative Returns graph:
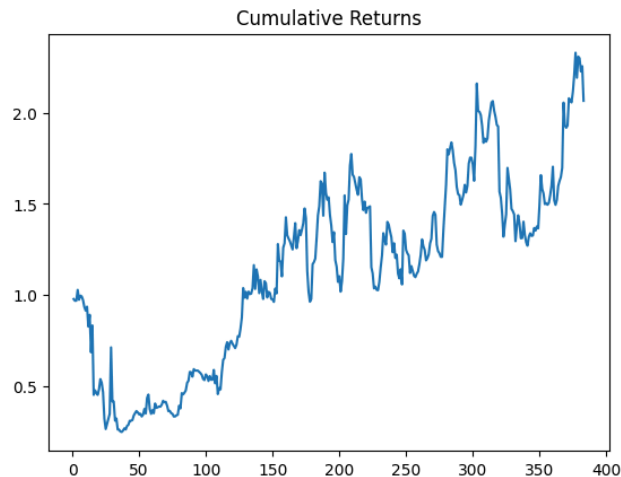
Task - 5: Reflection
If given more time and data, i would have developed an ML model based on supervised learning using Random forest algorithm on huge amount of past data (climate, temperature, power cut offs, wind generation, solar generation, etc…) and make good predictions of the price so as to decide to Buy or Sell.

Project Files and Data: GitHub
Code