Energy prediction

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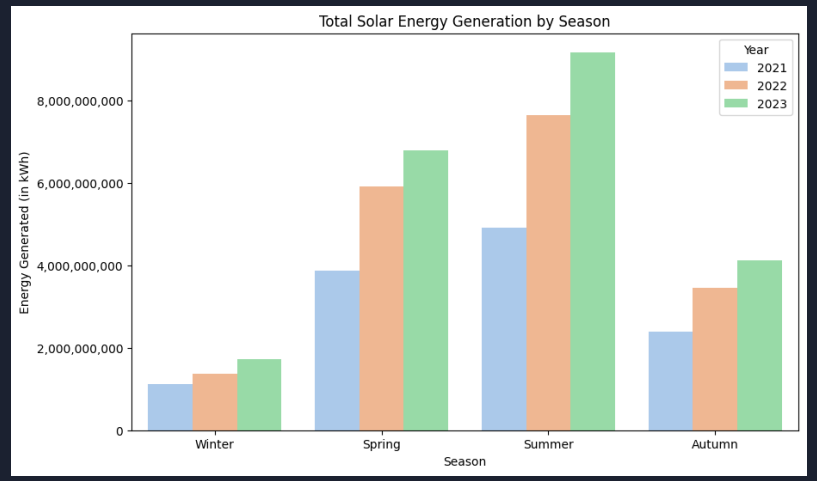
The idea

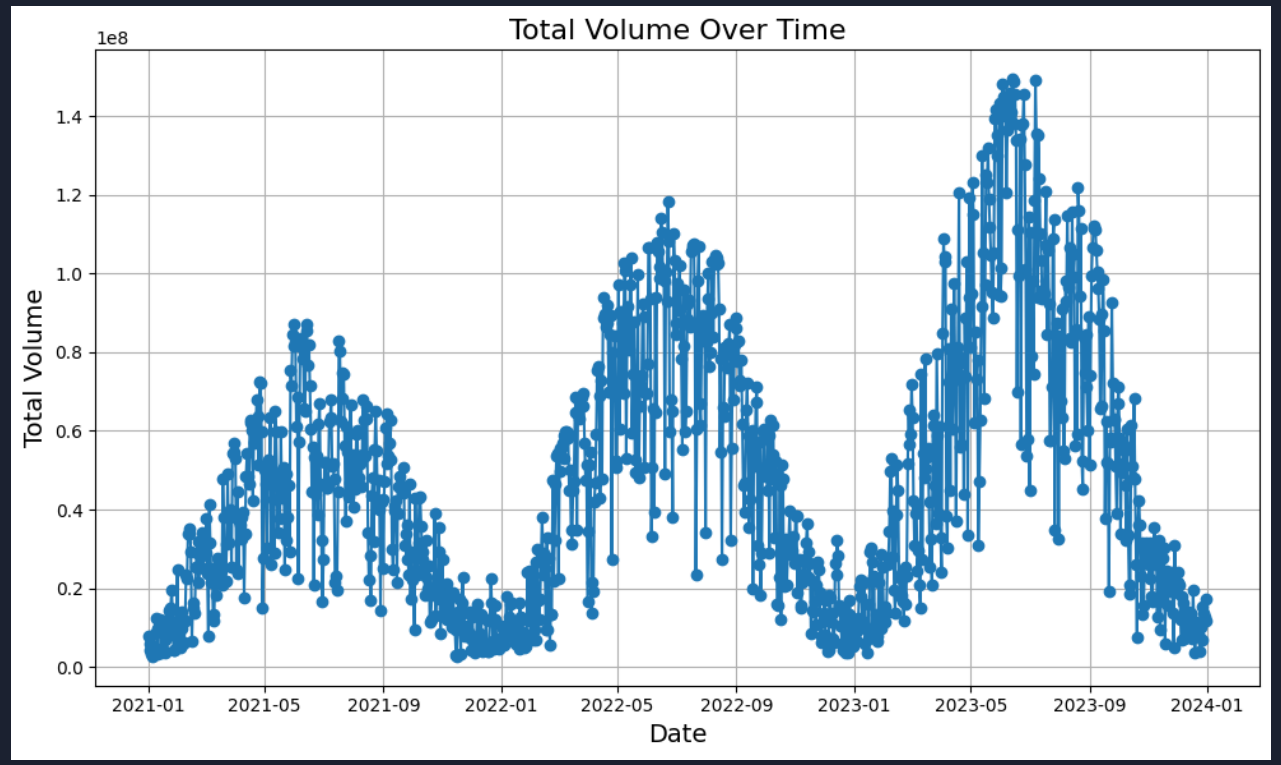
- Original idea
  - Energy congestion
- Predict green energy production

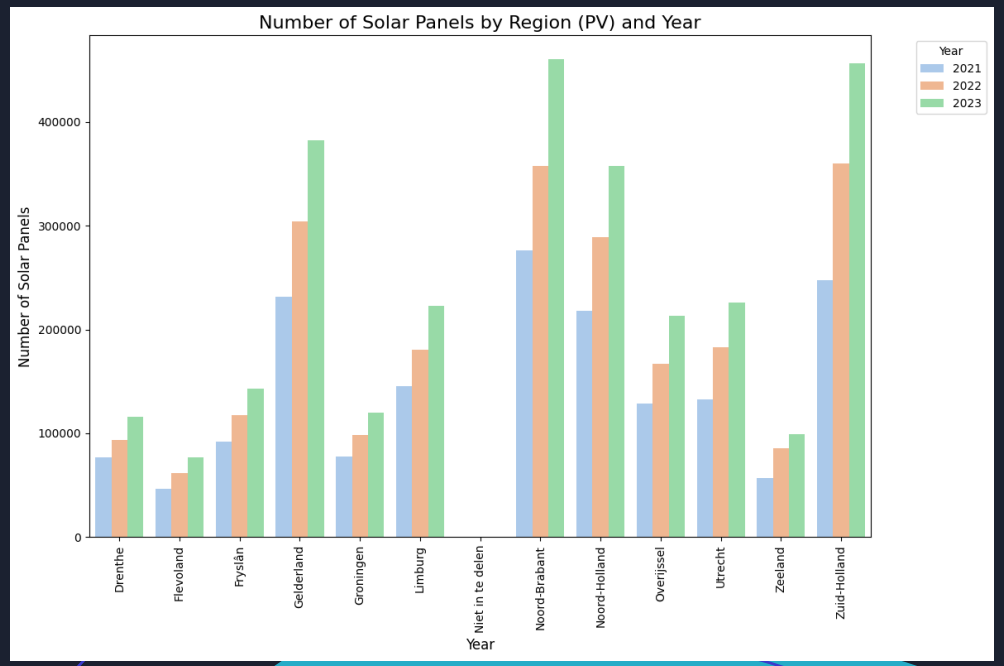
Approach

- Gathered data from the energy dashboard
  - Gather energy consumption data
- Gathered weather data from KNMI
- Split it per renewable source
  - Esther solar
  - Marjolein wind

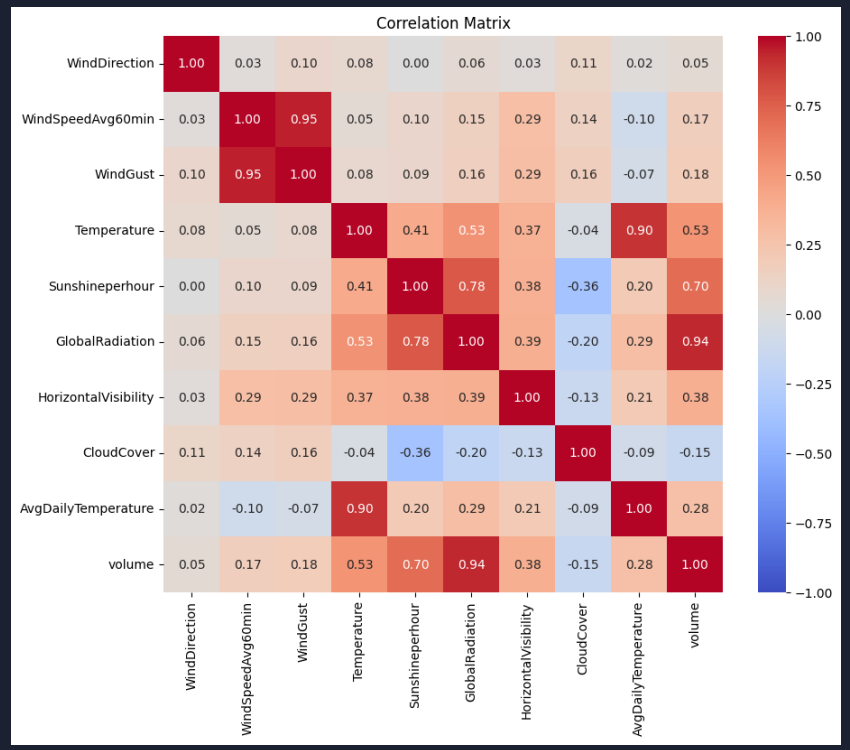
Results Solar Energy EDA

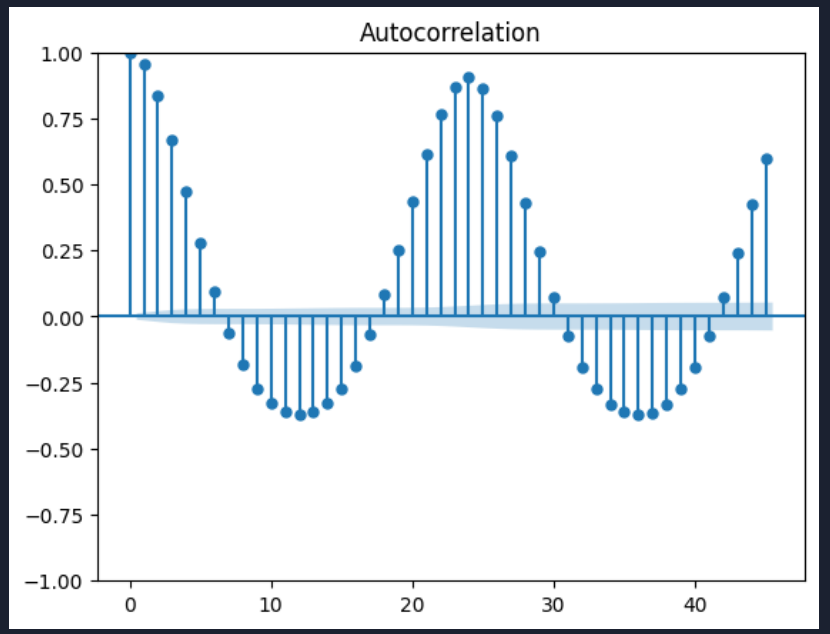






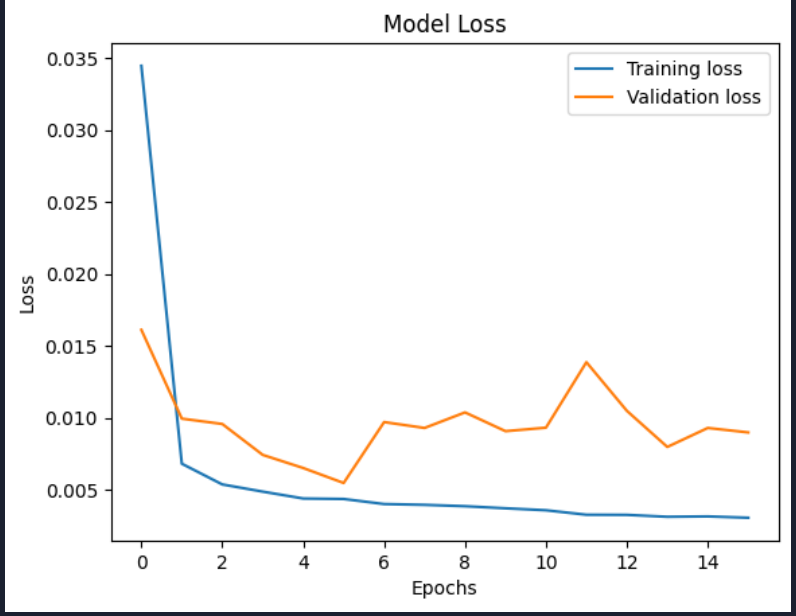
Solar Energy Modelling



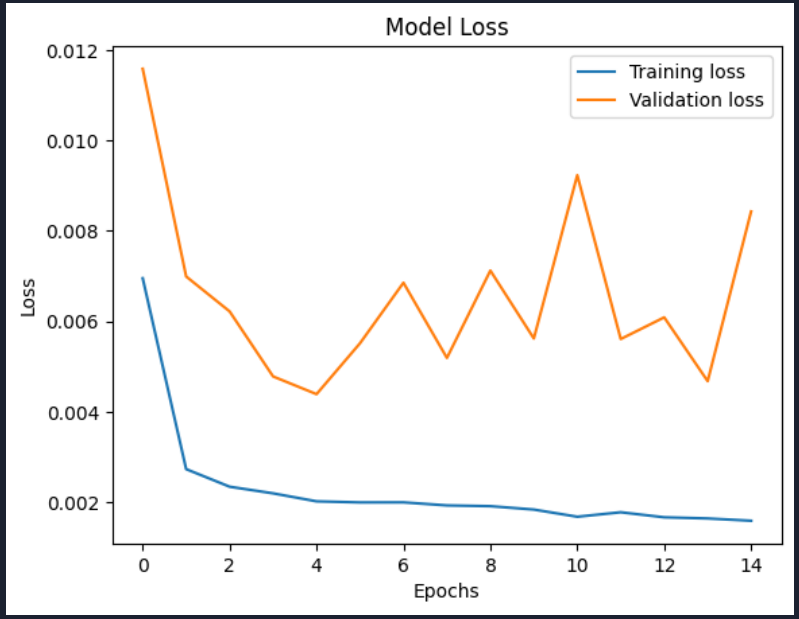


Solar Energy Deep learning

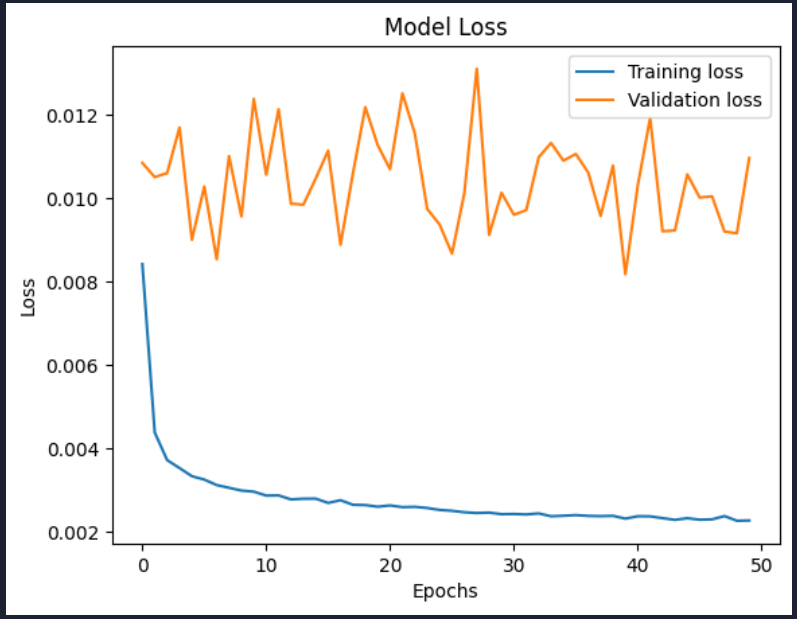
LSTM



BiLSTM

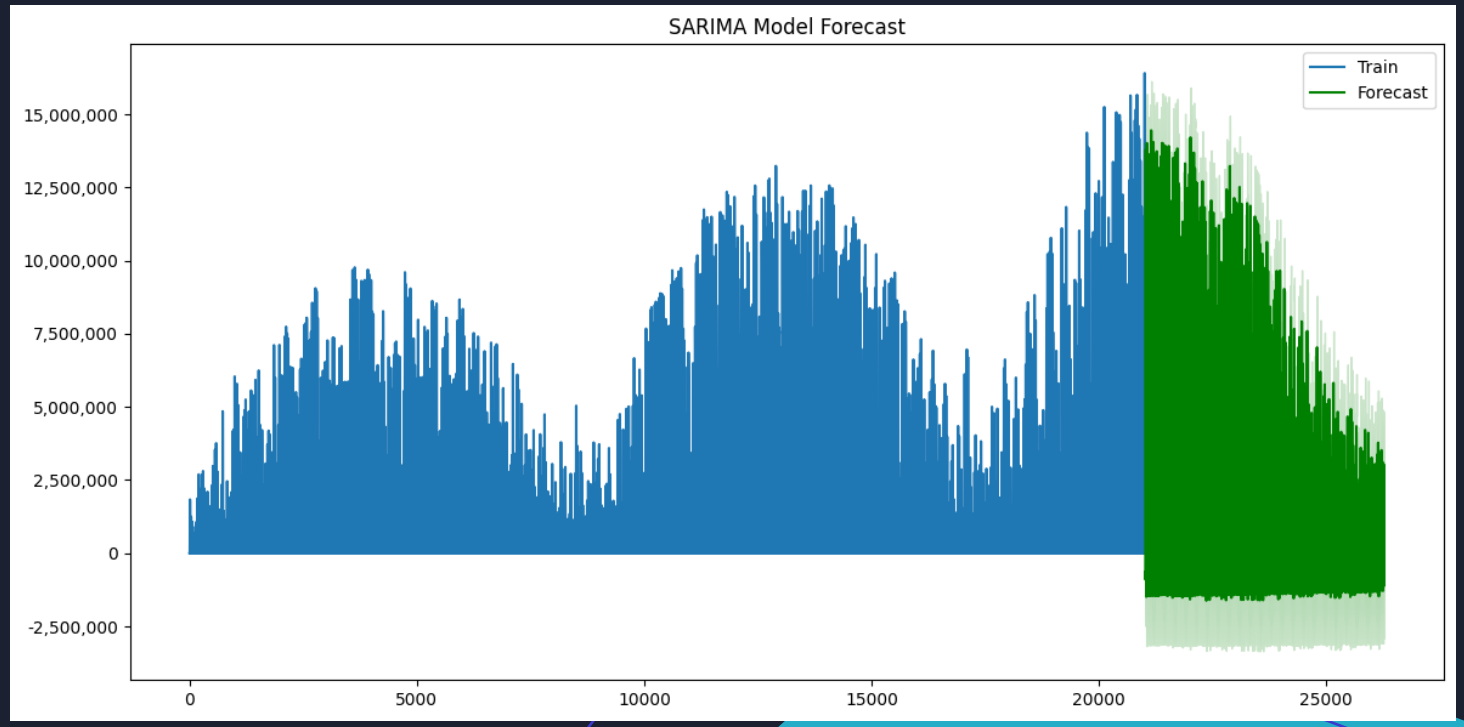


CNN



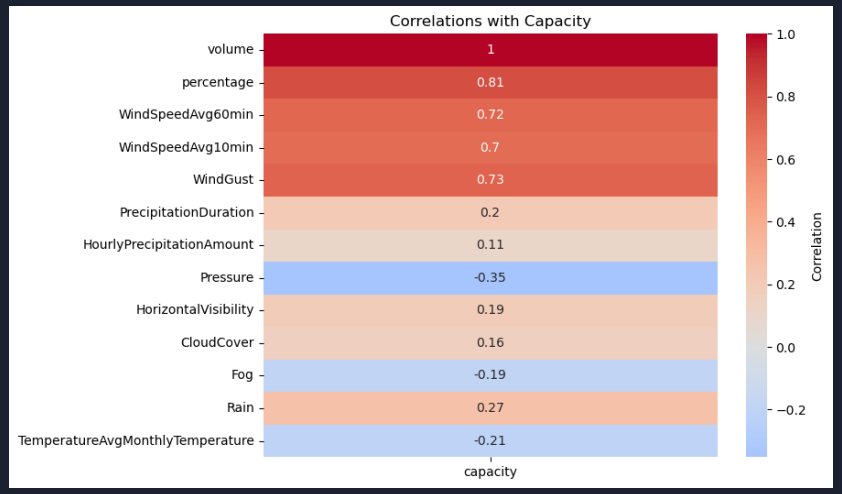
Solar Energy Modelling

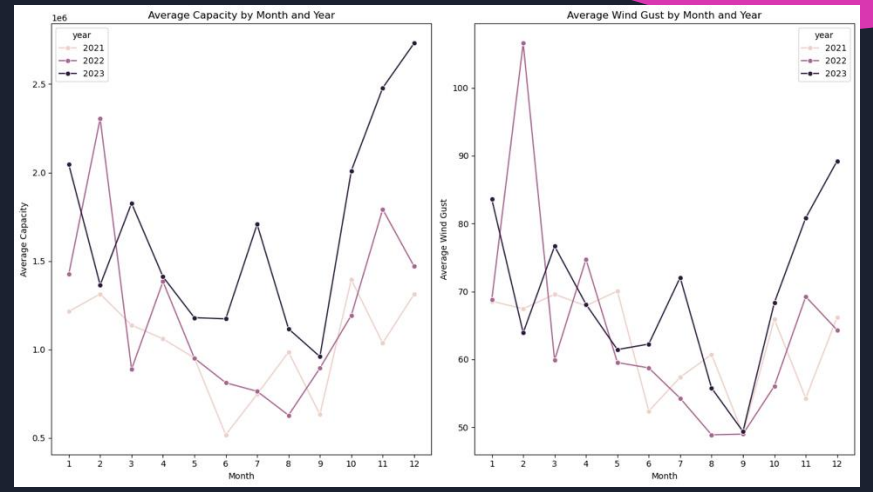
- SARIMA
  - High R^2: 0.94
  - Low RMSE

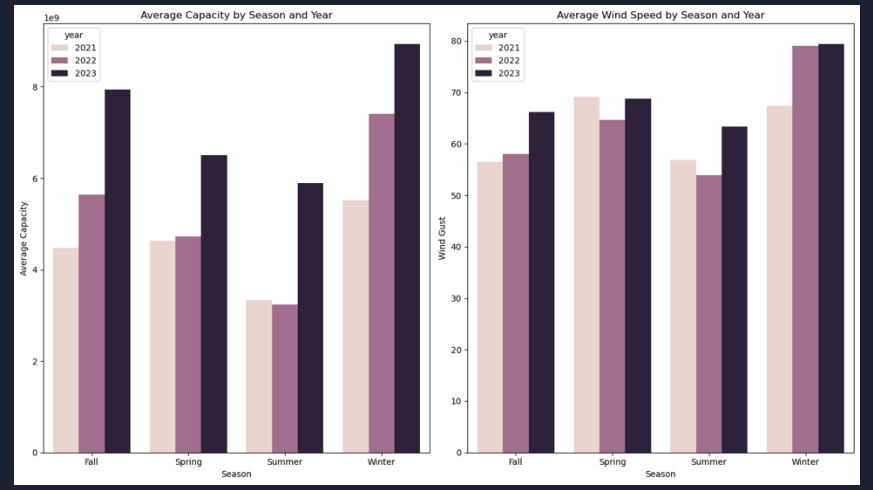


Results wind EDA

- No seasonality
- The production increases over the years







Results wind

- Tried 3 models
- Optuna trials on GRU model
  - Before
    - $R^2 = 0.87$
  - After
    - $R^2 = 0.85$