Forecasting Covid-19 KSA by Confirmed Cases with Facebook Prophet

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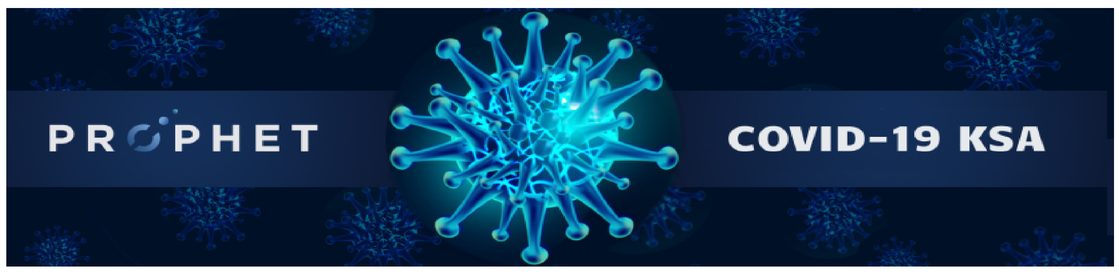
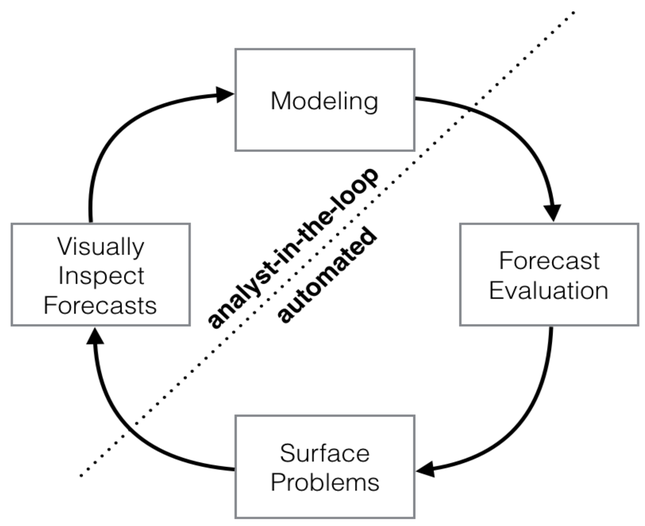
Introduction

- Coronaviruses (CoV) are a large family of viruses that cause illnesses ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV).
- The COVID-19 is the new coronavirus and most cases appeared in the Chinese city, Wuhan at the end of December 2019 in the form of acute pneumonia.
- The Kingdom of Saudi Arabia has dealt excellently with the Covid-19 situation.
- The aim is to explore and extract hidden knowledge to predict the future using time series forecasting Prophet.

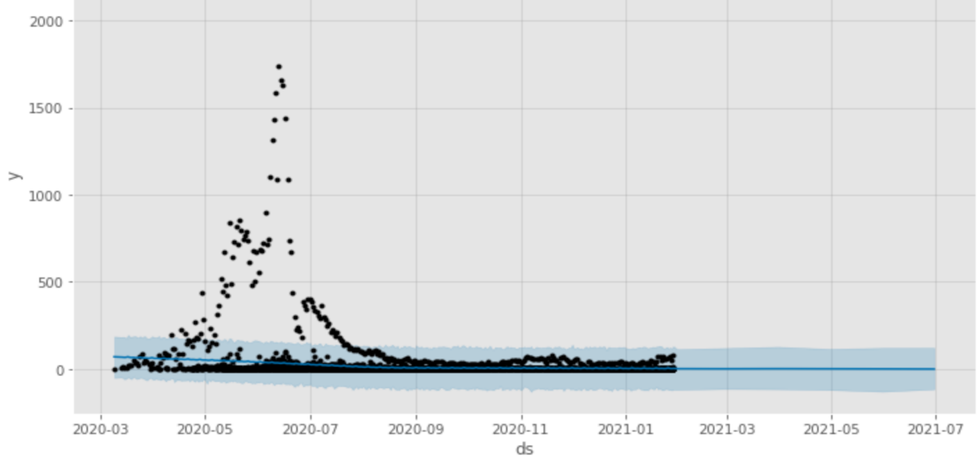


Prophet Model

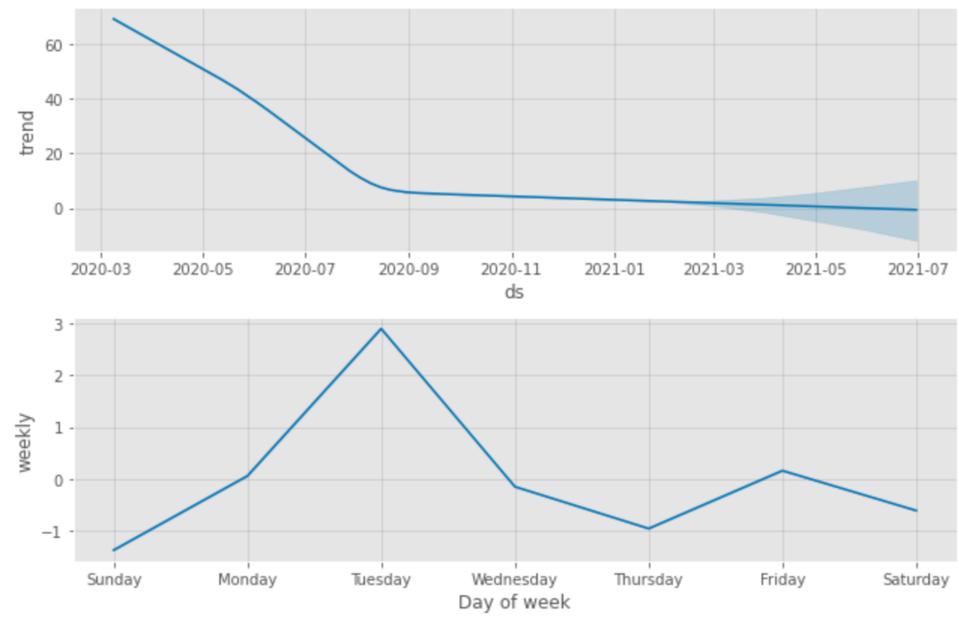


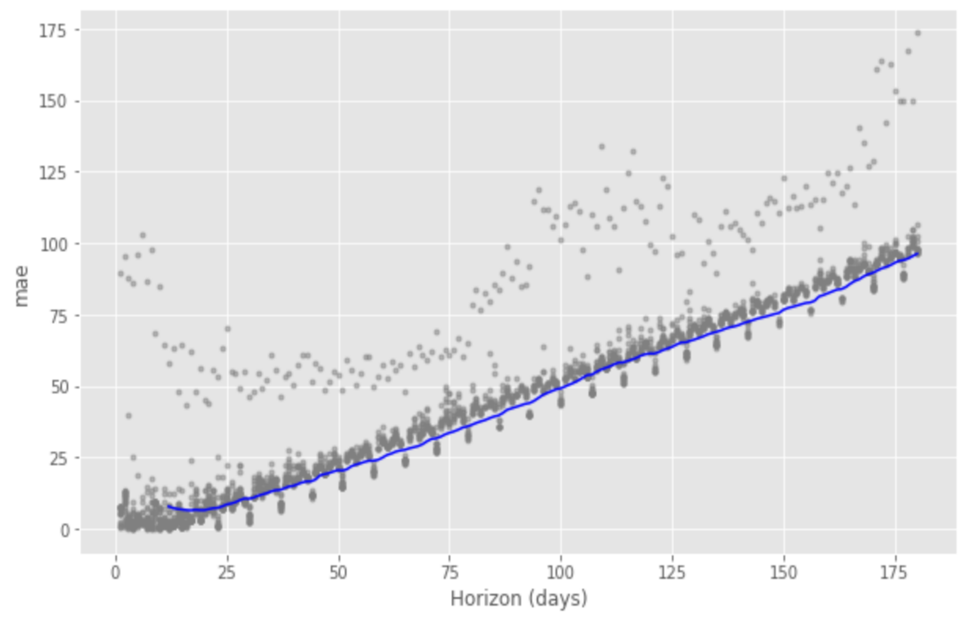
The Prophet forecasting time series is an additive model where non-linear trends are fit with the seasonality of historical data.

Results



Prophet has a plotting mechanism called plot. This plot functionality draws the original data (black dots), the model (blue line) and the error of the forecast (shaded blue area).





Mean Absolute Error about 44

Conclusion

Predicting time series forecasting can be challenging as there are many different methods. The Prophet library is an open-source library designed for making forecasts for univariate time series datasets. It is easy to use and designed to automatically find a good set of hyperparameters for the model in an effort to make skillful forecasts for data with trends and seasonal structure by default.
The Prophet is an open-source library developed by Facebook and designed for easier and accurate automatic forecasting of univariate time series data.

Future Work

- Forecasting other regions and compare between them.
- Try to predict with another models.
- Predict and compare Saudi Arabia with global.

Tools & Packages Used

- Python | Google Colab | Jupyter Lab
- Seaborn | Matplotlib | Fbprophet
- Pandas | Numpy | Latex

References

1. https://facebook.github.io/prophet/
2. https://www.kaggle.com/fahdahalalyan/covid19-ksa
3. https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/PublicHealth/Pages/corona.aspx