

MACHINE LEARNING FOR TIME SERIES DATA

Bianca Furtuna @Fur_Bi

Data Scientist at Elastacloud



What is time series data?

Data points ordered by time

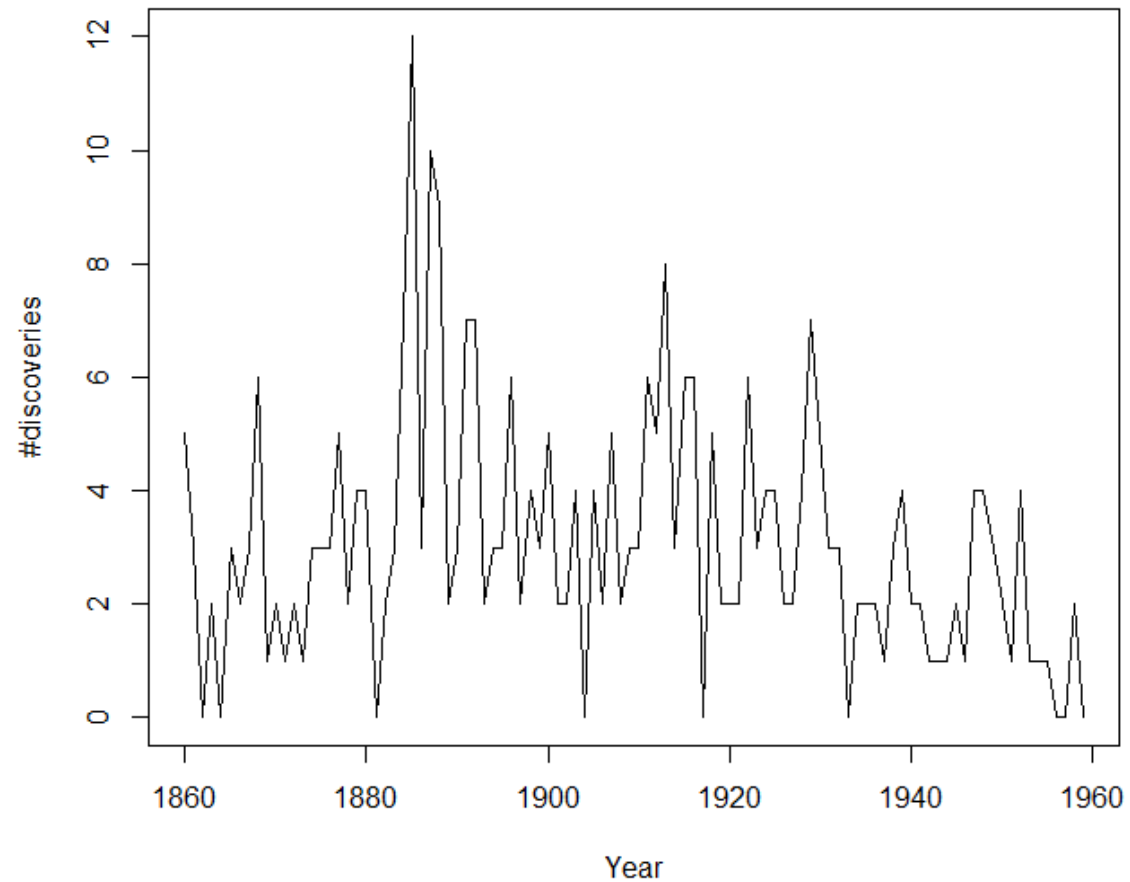
Examples of time series:

- Stock market
- Temperature
- House prices

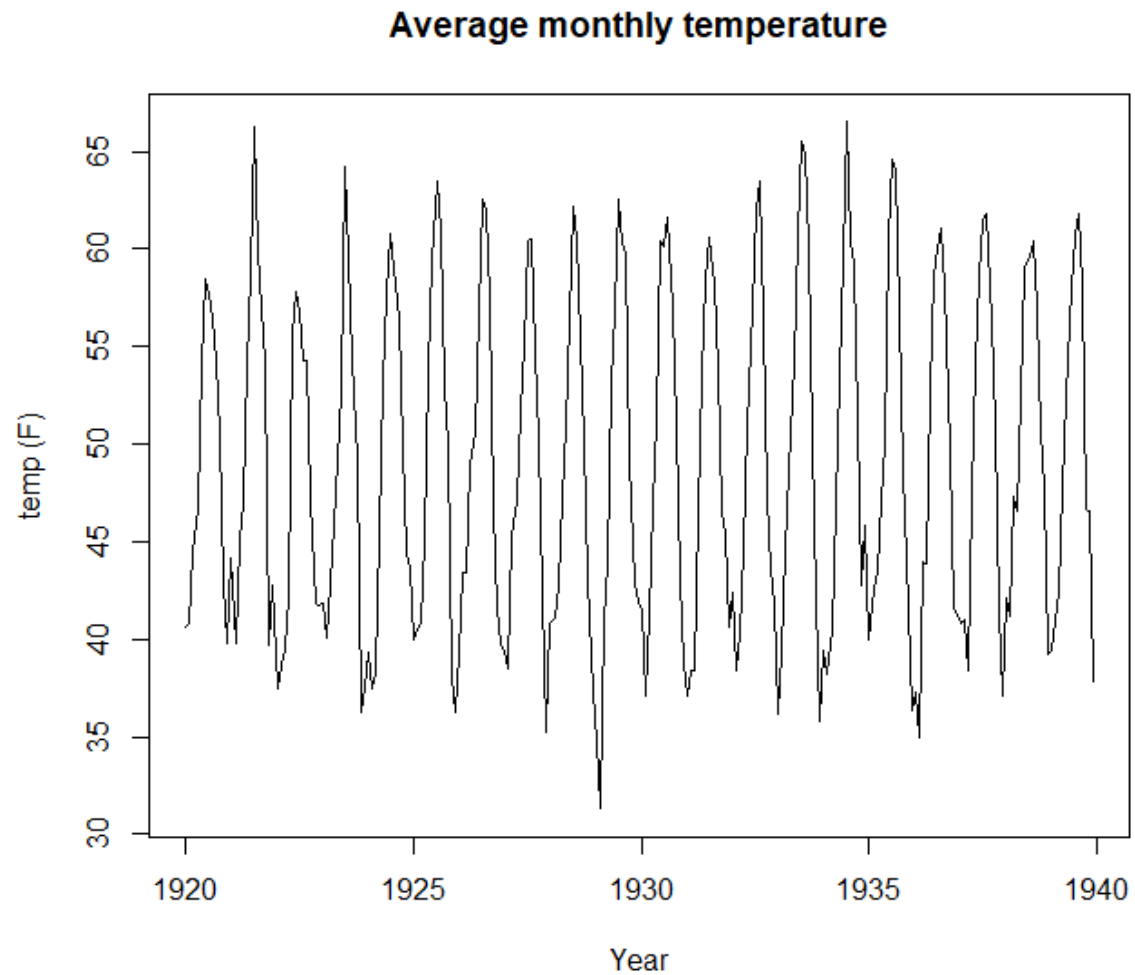
	Time	Price
1	2017-09-17	3582.88
2	2017-09-16	3625.04
3	2017-09-15	3637.52
4	2017-09-14	3154.95
5	2017-09-13	3882.59
6	2017-09-12	4130.81
7	2017-09-11	4161.27
8	2017-09-10	4122.94
9	2017-09-09	4226.06
10	2017-09-08	4228.75

What is time series data?

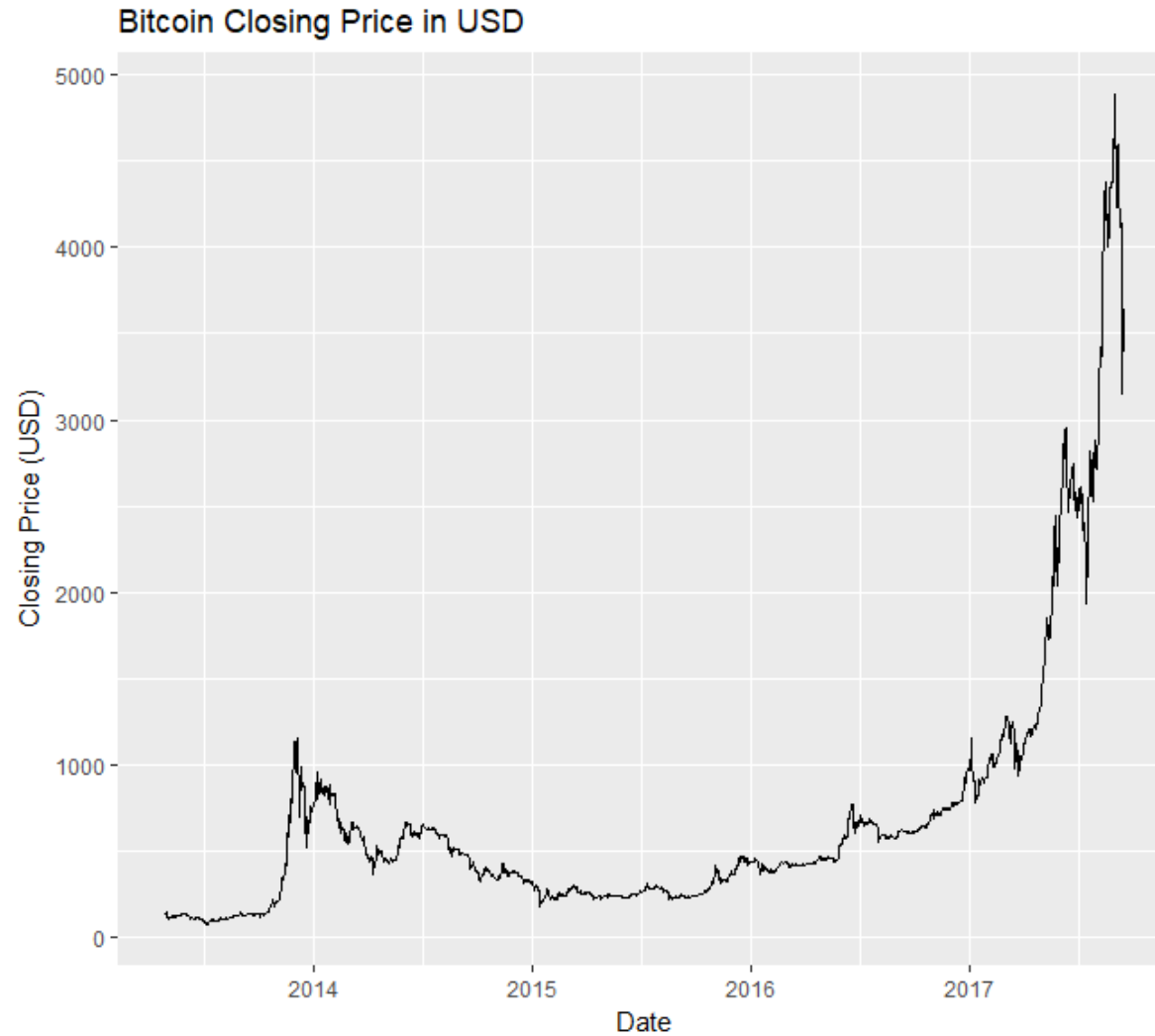
Yearly Numbers of Great Discoveries



What is time series data?



What is time series data?

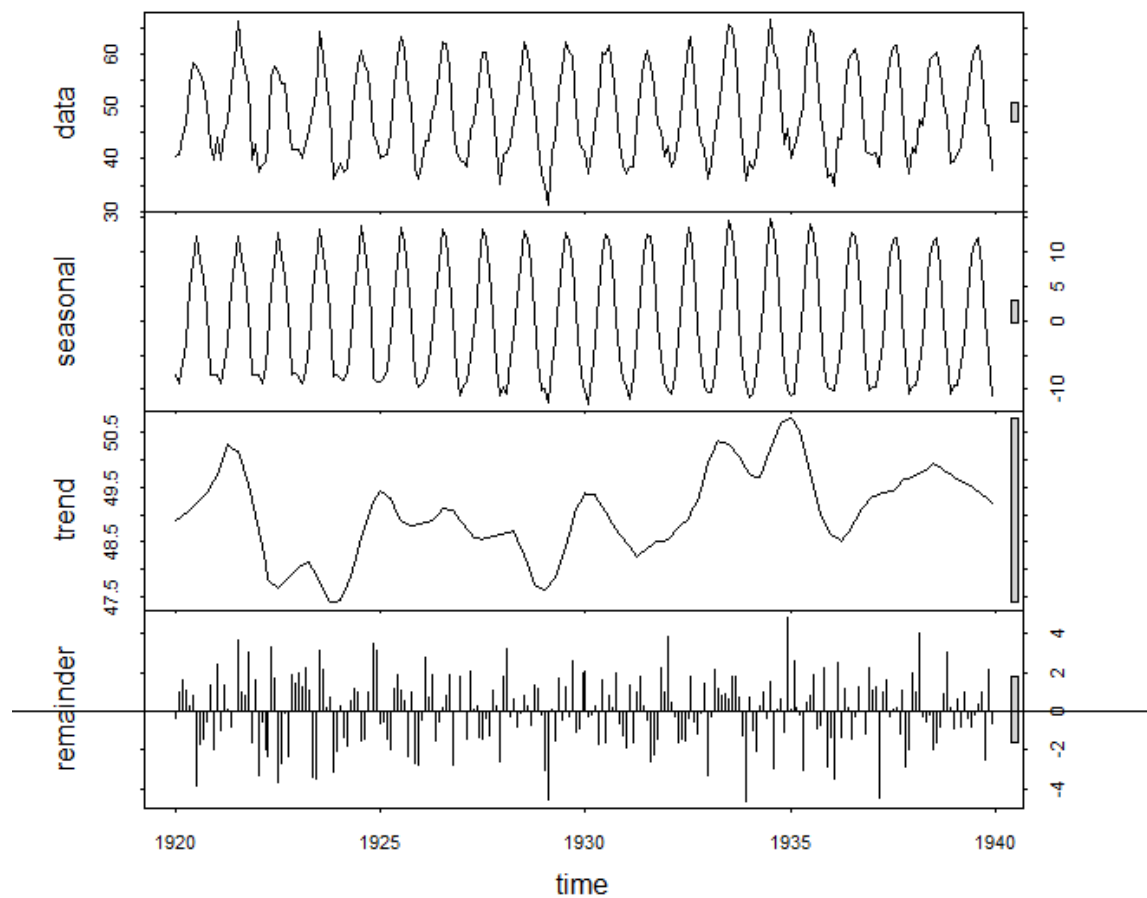


Characteristics of time series

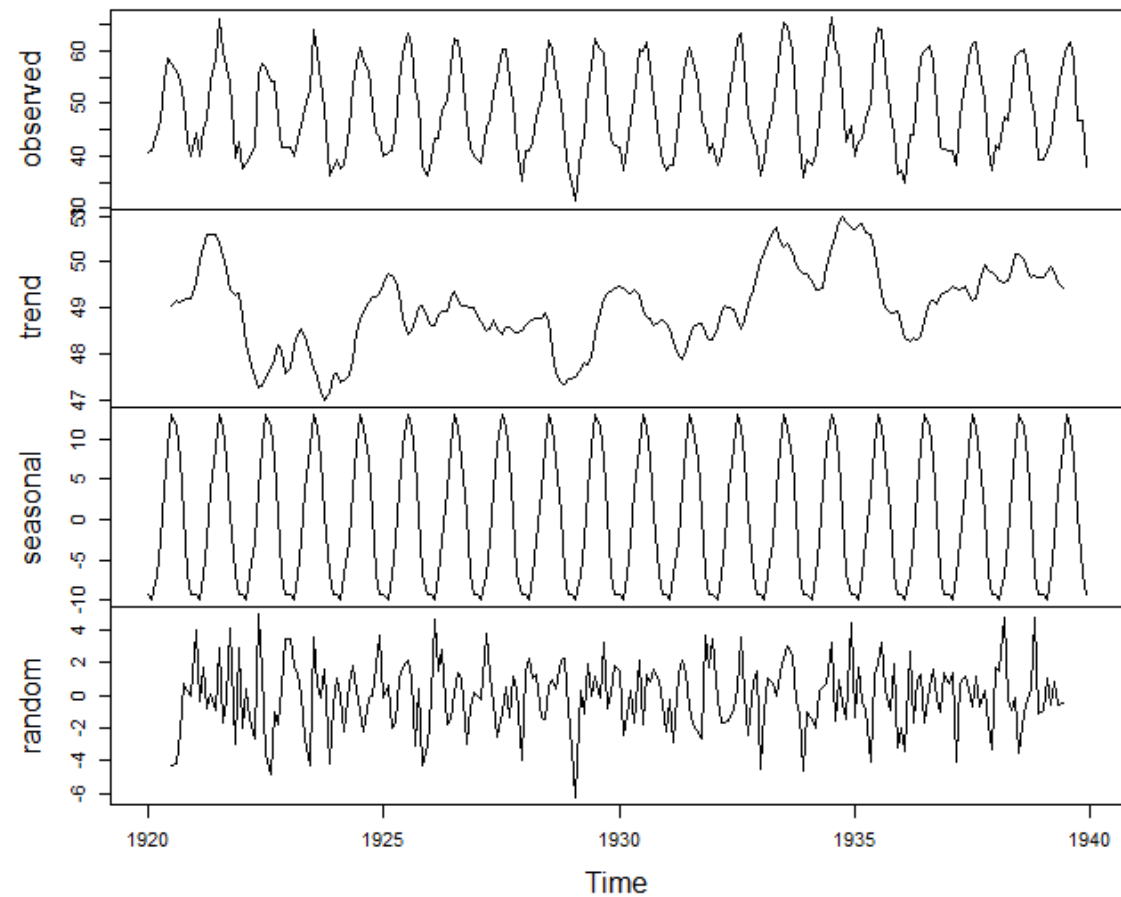
- Trend
- Seasonality
- Cycles
- Outliers
- Variance

Decomposition

STL decomposition



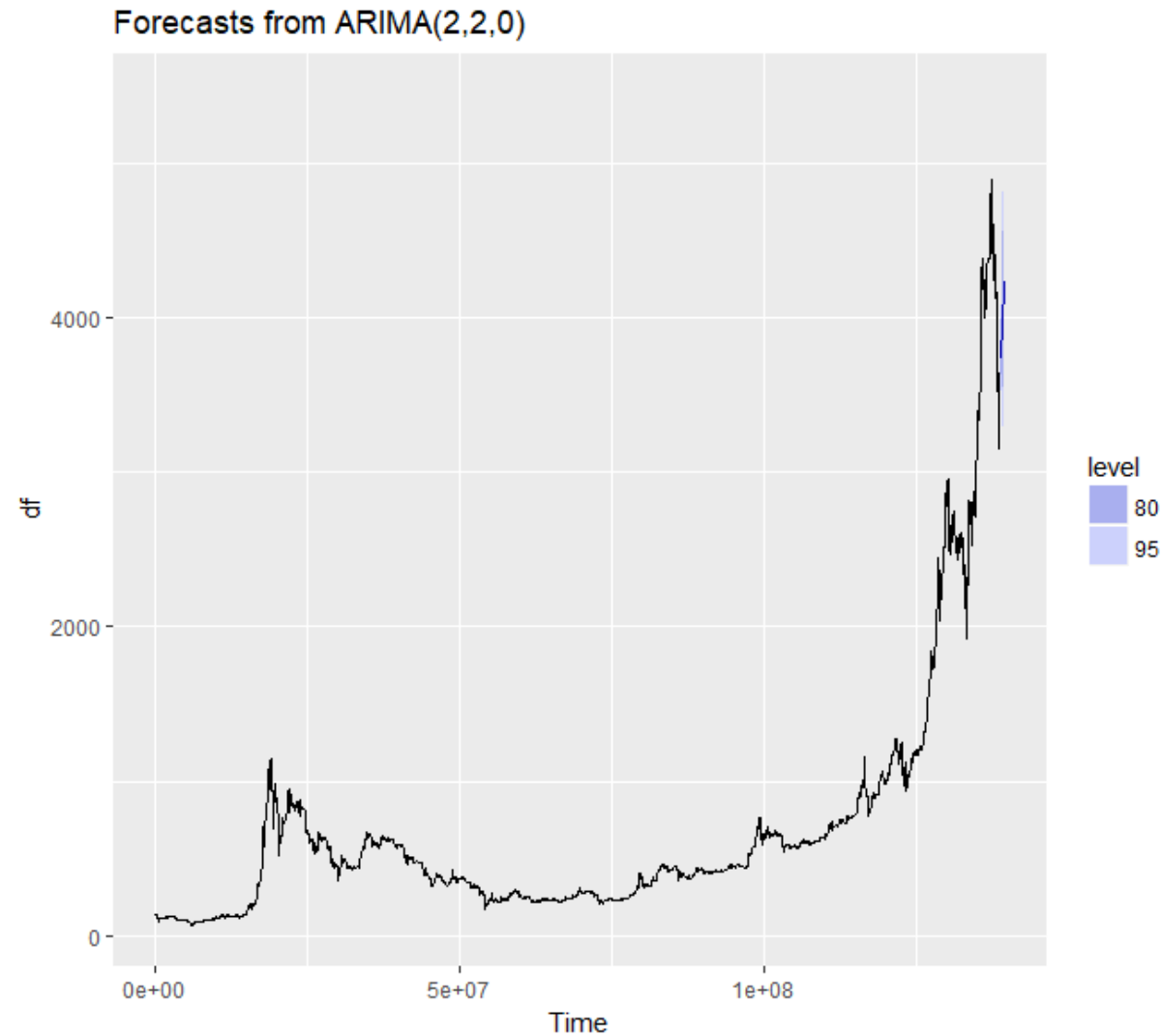
Decomposition of additive time series



Methods of forecasting

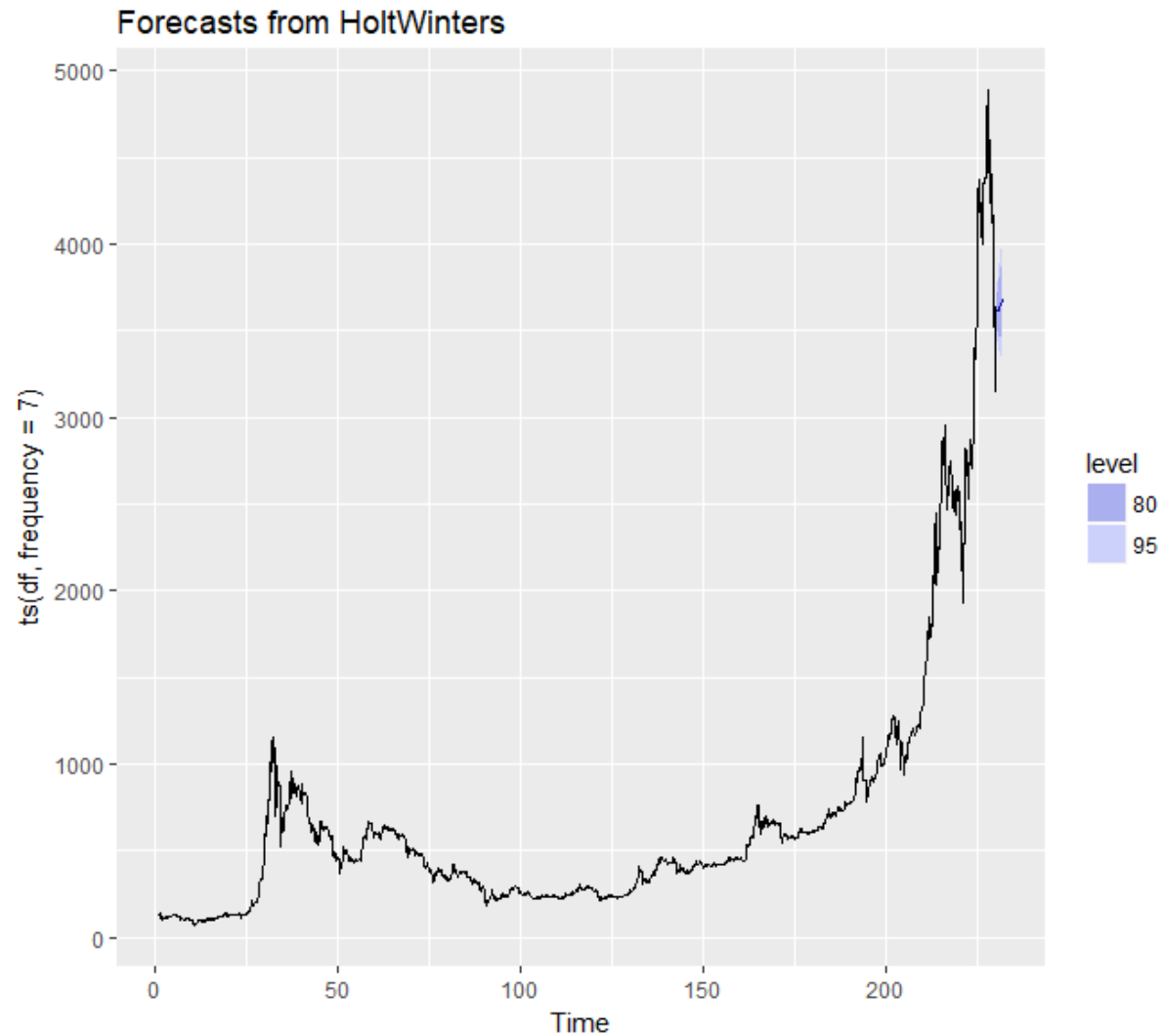
- ARIMA
- Exponential Smoothing
- Neural Networks

ARIMA

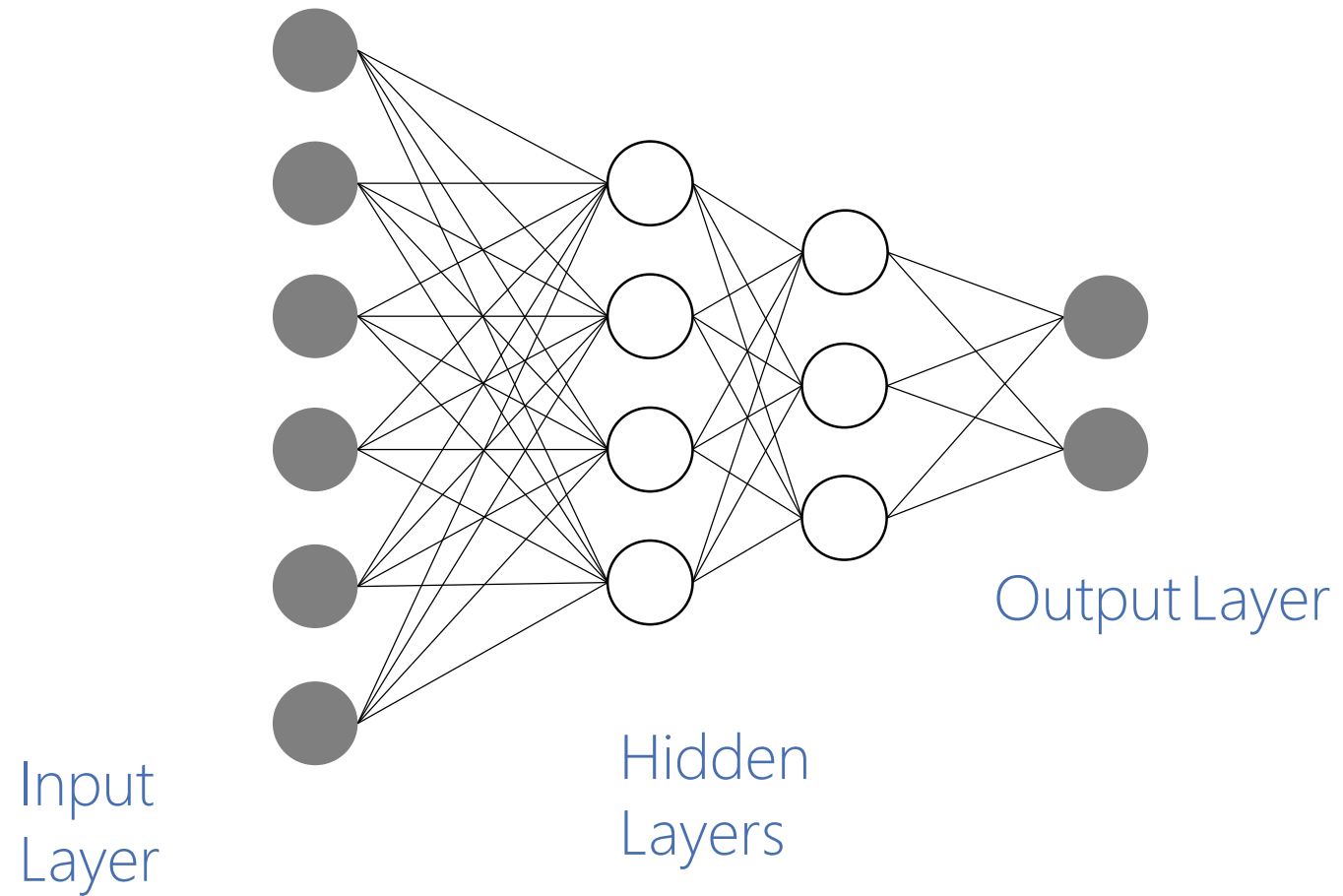


ARIMA(p,d,q) model

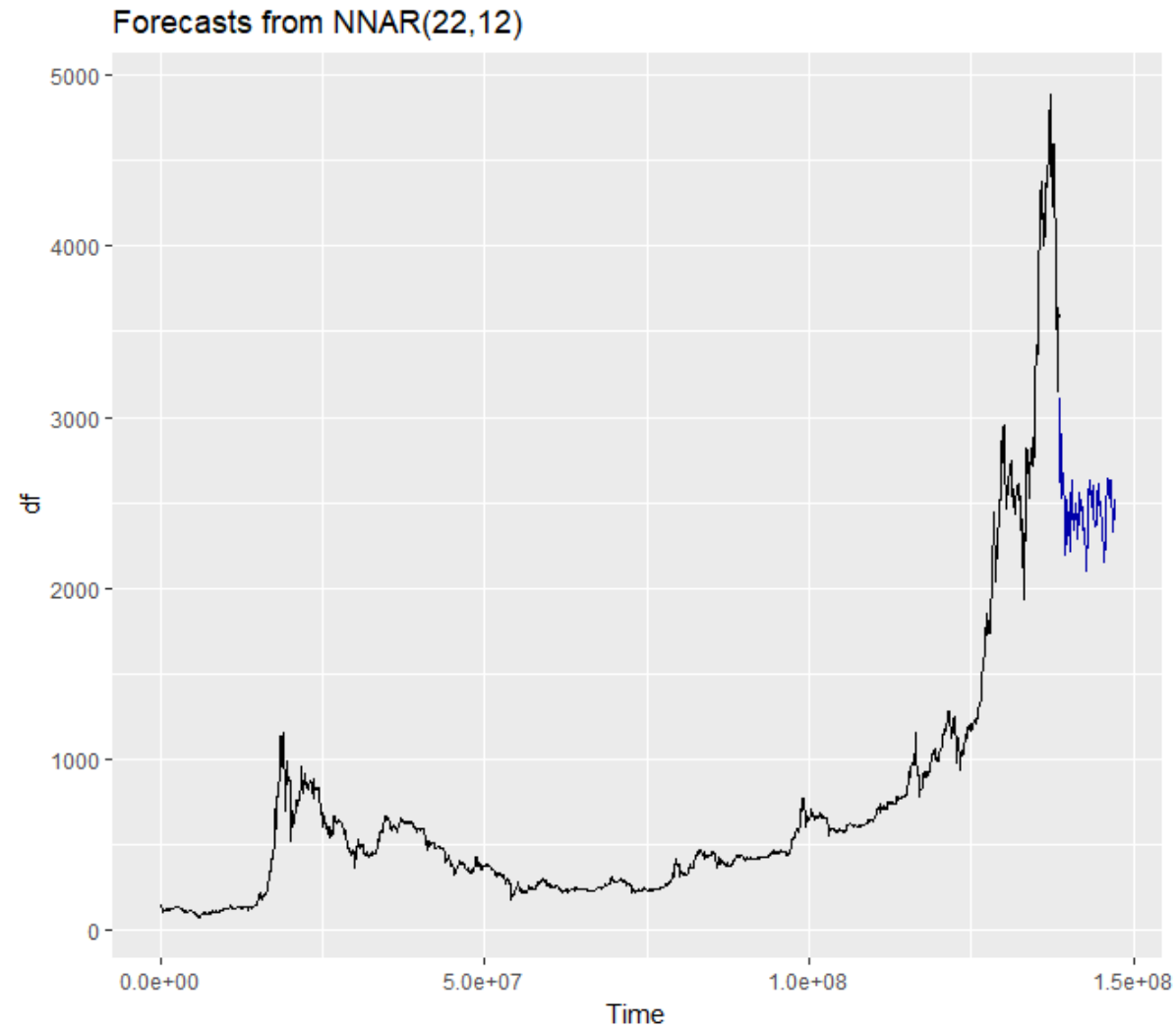
Exponential smoothing



Neural networks



Neural networks



Thank you for listening!

Any questions?

