# ARIMA Model

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# ARIMA Model

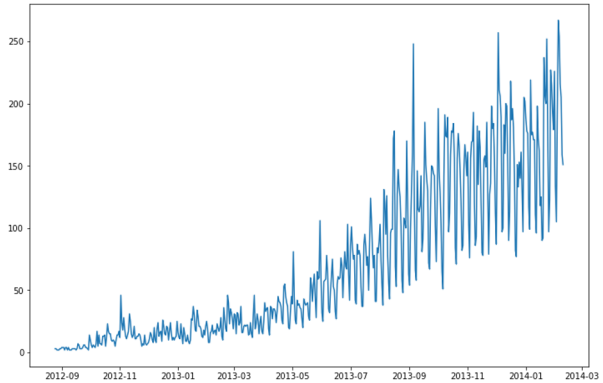
- ARIMA: Auto-Regressive Integrated Moving Average

# ARIMA Model

- ARIMA: Auto-Regressive Integrated Moving Average
- ARIMA has three parameters
    - **AR** - Lags of the stationarized series demonstrating autocorrelation
    - **I** - No of times series needs to be differentiated for stationarity
    - **MA** - Order of the forecast errors

# Steps to Build ARIMA Model

1. Check if the series is stationary

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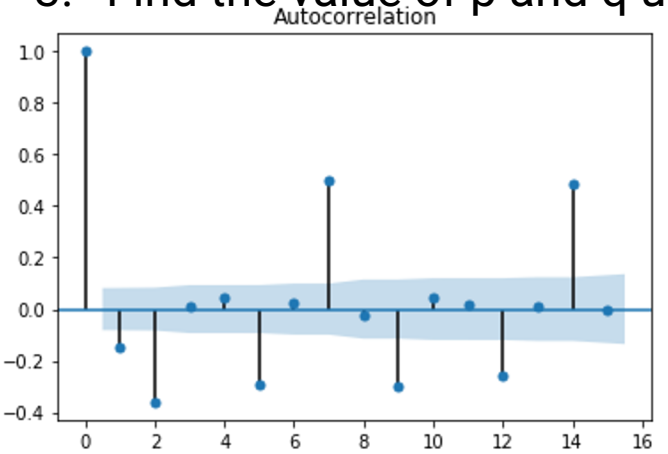
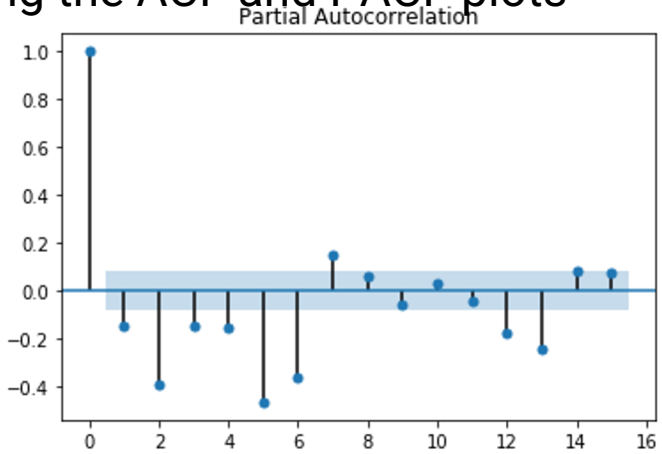
# Steps to Build ARIMA Model

1. Check if the series is stationary
2. Find the value of d required to make series stationary

# Steps to Build ARIMA Model

1. Check if the series is stationary
2. Find the value of d required to make series stationary
3. Find the value of p and q using the ACF and PACF plots



# Steps to Build ARIMA Model

1. Check if the series is stationary
2. Find the value of d required to make series stationary
3. Find the value of p and q using the ACF and PACF plots
4. Build ARIMA model

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# Steps to Build ARIMA Model

1. Check if the series is stationary
2. Find the value of d required to make series stationary
3. Find the value of p and q using the ACF and PACF plots
4. Build ARIMA model
5. Make predictions

# Notebook

# SARIMA

# SARIMA Model

- ARIMA model takes the past values to make forecast
- **SARIMA - Seasonal ARIMA**
- Includes an additional component of seasonality

# SARIMA Model

- Parameters of SARIMA model:
  - (p, d, q)
  - (P, D, Q, m)

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# SARIMA Model

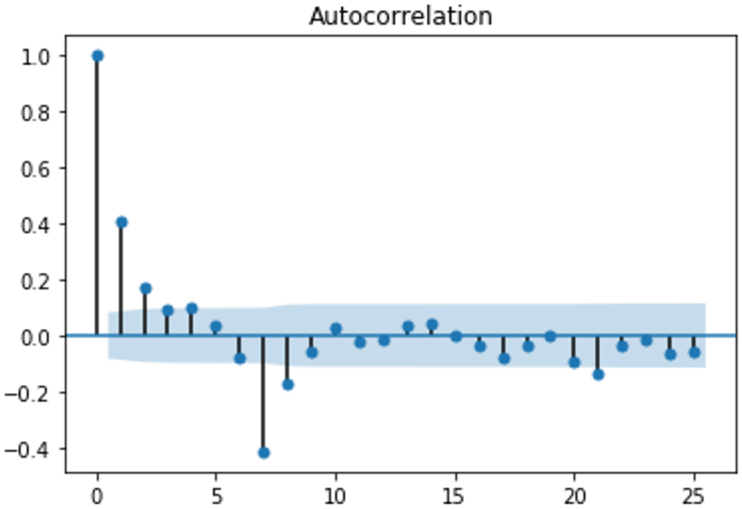
- Parameters of SARIMA model:
  - (p, d, q) -> similar to ARIMA parameters
    - p : Auto regressive term
    - d: difference
    - q: Moving average term

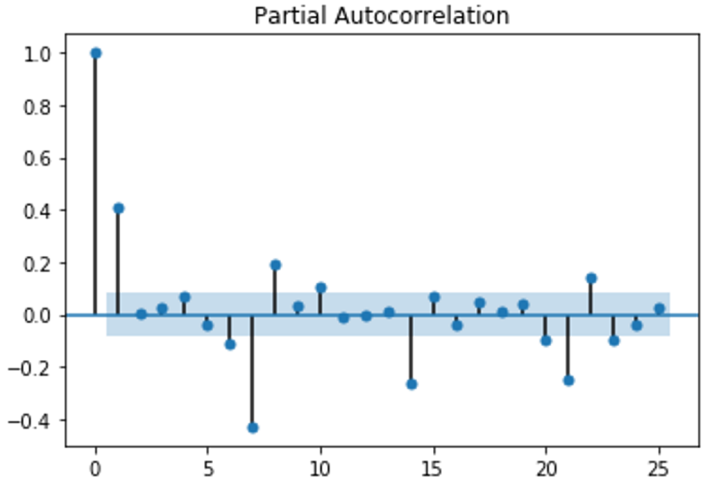
# SARIMA Model

- Parameters of SARIMA model:
  - (P, D, Q, m)
    - P: Seasonal Auto-regressive term
    - D: Seasonal difference value
    - Q: Seasonal Moving average term
    - m: number of time steps for a single period

# SARIMA Models

- ACF and PACF plots of stationary series

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Thank You

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