

ACF, PACF

ACF \Rightarrow auto correlation function

PACF \Rightarrow Partial auto correlation function

ACF \Rightarrow

Auto

+

Correlation

= Correlation itself
in the feature

Corr itself in the
TS

\downarrow
to measure the relationship b/w two
variable

x_1	x_2

= ① Pearson method

\Rightarrow ② Spearman Rank
③ kendall's method

\Rightarrow ACF means measure the correlation b/w time series and it's lag value

TimeSeries

TS with 1st lag

TS with 2nd lag

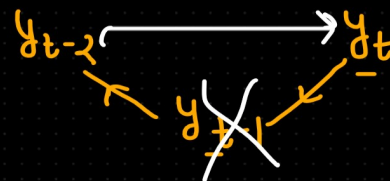
TS with 3rd lag

D_1	10	NAN	NAN	NAN
D_2	25	D_1 10	NAN	NAN
D_3	14	D_2 25	D_1 10	NAN
D_4	16	D_3 14	D_2 25	$D_1 - 10$
D_5	20	D_4 16	D_3 14	$D_2 - 25$
D_6	32	D_5 20	D_4 16	$D_3 - 14$
y_t	y_{t-1}	y_{t-2}	y_{t-3}	

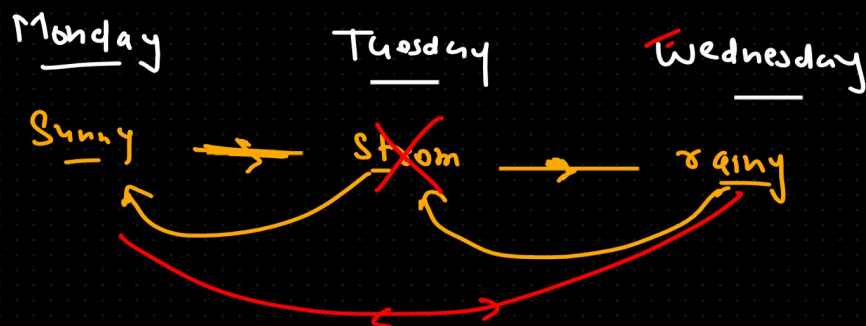
\downarrow
 $\text{corr}(y_t, y_{t-1})$ ✓
 $\text{corr}(y_t, y_{t-2})$ ←
 $\text{corr}(y_t, y_{t-3})$ ←

Person

PACF \Rightarrow Partial auto correlation function



Weather \Rightarrow



$$y_t - y_{t-2}$$

<u>Year</u>	<u>Profit</u>	
2010	78	
2011	80	
2012	85	7
2013	80	
2014	92	7
2015	81	
2016	96	4

2012	7
2014	7
2016	4
2018	-11

y_{t-3} 2017
 y_{t-2} 2018
 y_{t-1} 2019
 y_t 2020

~~70~~
 65
~~70~~
 72

\Rightarrow

-11

$\div 13$

2020	-13
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