

Correlation Code Documentation

This code is prepared for finding correlation for time series data based on weekly and monthly basis.

Python `finalscript.py typeofcorr number1 number2 dataset.csv`

Dataset should be in csv format

Typeofcorr can be weekly, monthly

Number1 and number2 are week/month numbers for which you want to find correlation.

E.g., *`python finalscript.py weekly 40 46 ptcdata.csv`*

For weekly:

For finding correlation between different weeks you can pass values of weeks between 2-52 e.g. first week number can be 4 and second week number can be 5 etc.

For Monthly:

For finding correlation between different months you can pass values of weeks between 2-12 e.g. first month number can be 3 and second month number can be 5 etc.

If your dataset *doesn't have headers* then you can add the headers then you can skip adding headers in the command line arguments although it is an optional argument you can add or skip if you require.

```
Command Prompt
Microsoft Windows [Version 10.0.18363.959]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Kartik>cd C:\Users\Kartik\Desktop\cognitensor_correlation

C:\Users\Kartik\Desktop\cognitensor_correlation>python finalscript.py weekly 3 5 ptcdata.csv
[
  Past_Day
  Mon      0.451887  0.351468  0.916667  0.305129  0.866667  0.152564  0.301258
  Tue      0.663866  0.831933  0.410045  0.680907  0.217575  0.374499  0.747899
  Wed      0.882353  0.915966  0.560674  0.766020  0.267785  0.527703  0.882353
  Thrus    0.899160  0.932773  0.543938  0.783043  0.251048  0.646861  0.848739
  Fri      0.351468  0.435150  0.883333  0.355983  0.816667  0.220371  0.267785
  Sat      0.292890  0.510465  0.766667  0.423790  0.833333  0.000000  0.309626
  Sun      0.663866  0.831933  0.410045  0.680907  0.217575  0.374499  0.747899]

C:\Users\Kartik\Desktop\cognitensor_correlation>_
```

If your *dataset have date and price column* headers then you can add your date column and price column name as the optional arguments like shown below –

```
Command Prompt

C:\Users\Kartik\Desktop\cognitensor_correlation>python finalscript.py weekly 3 5 --datecol date --pricecol price ptcdata.csv
[
  Past_Day
  Mon      0.451887  0.351468  0.916667  0.305129  0.866667  0.152564  0.301258
  Tue      0.663866  0.831933  0.410045  0.680907  0.217575  0.374499  0.747899
  Wed      0.882353  0.915966  0.560674  0.766020  0.267785  0.527703  0.882353
  Thrus    0.899160  0.932773  0.543938  0.783043  0.251048  0.646861  0.848739
  Fri      0.351468  0.435150  0.883333  0.355983  0.816667  0.220371  0.267785
  Sat      0.292890  0.510465  0.766667  0.423790  0.833333  0.000000  0.309626
  Sun      0.663866  0.831933  0.410045  0.680907  0.217575  0.374499  0.747899]

C:\Users\Kartik\Desktop\cognitensor_correlation>_
```

Your final results will be saved as a dataframe into an excel file in the same working directory with the name of “typeofcorr_corr_results.xlsx” along with a heatmap figure for the same will be saved in the working directory. Example shown below -

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	Past_Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	1	0.93277	0.22269	0.76602	0.76602	0.45961	0.66388	0.80007	0.56904	0.27615	0.4916	0.58403	-0.3431	0.71495	0.68487	0.67647	0.72689	0.76602	0.76602	0.69328	0.76602	0.78304	0.80007	0.73197	0.68091	0.68091	0.76602	0.80007	0.76891	0.81709	
3	2	-0.03782	0.88235	0.17023	0.20427	0.54473	0.45961	0.22981	0.159	0.66946	0.61765	0.44118	-0.07531	0.23832	0.35714	0.32553	0.37395	0.17023	0.17023	0.48319	0.38301	0.4511	0.27236	0.38301	0.28087	0.44259	0.44259	0.38301	0.30641	0.39076	0.34045
4	3	0.80007	0.20427	1	0.94828	0.7931	0.89655	0.87931	0.76282	0.47464	0.78304	0.9022	0.01695	0.91379	0.86816	0.9022	0.91922	1	1	0.9022	0.96552	0.93103	0.98276	0.96552	0.98276	0.93103	0.96552	0.93103	0.93625	0.94828	
5	4	0.62605	0.39916	0.83411	0.78304	0.56175	0.71495	0.71495	0.70294	0.38494	0.73109	0.78151	0.30126	0.71495	0.7479	0.88235	0.91597	0.83411	0.83411	0.89916	0.80007	0.76602	0.81709	0.80007	0.81709	0.749	0.749	0.80007	0.76602	0.84874	0.78304
6	5	0.68091	0.3745	0.94828	0.86207	0.91379	0.96552	0.77586	0.74587	0.5594	0.86816	0.95327	0.06781	0.84483	0.78304	0.85113	0.86816	0.94828	0.94828	0.9022	0.96552	0.91379	0.93103	0.96552	0.98276	0.98276	0.96552	0.98276	0.96552	0.84874	0.87931
7	6	0.66388	0.39152	0.91379	0.82759	0.87931	0.98276	0.7931	0.77977	0.57635	0.83411	0.91922	0.05085	0.77586	0.71495	0.80007	0.83411	0.91379	0.91379	0.88518	0.94828	0.89655	0.89655	0.94828	0.96552	0.96552	0.96552	0.96552	0.94828	0.81034	0.84843
8	7	0.76602	0.27236	0.93103	0.98276	0.72414	0.82759	0.94828	0.69502	0.50855	0.71495	0.80007	-0.08476	0.87931	0.9022	0.83411	0.88518	0.93103	0.93103	0.86816	0.93103	0.96552	0.94828	0.93103	0.91379	0.86207	0.86207	0.93103	1	0.97029	0.98276
9	8	0.11716	0.0251	0.40684	0.33903	0.30513	0.47464	0.37293	0.81667	0.38333	0.35147	0.3682	0.68333	0.32208	0.26778	0.3682	0.41841	0.40684	0.40684	0.45189	0.47464	0.45769	0.44074	0.47464	0.44074	0.45769	0.45769	0.47464	0.37293	0.38494	0.42379
10	9	0.05021	0.56067	0.32208	0.35598	0.32208	0.50855	0.54245	0.6	0.73333	0.55231	0.43515	0.23333	0.32208	0.46862	0.5021	0.58578	0.32208	0.32208	0.63599	0.47464	0.54245	0.42379	0.47464	0.37293	0.44074	0.44074	0.47464	0.45769	0.56904	0.4916
11	10	-0.06695	0.32636	0.35598	0.27123	0.5255	0.4916	0.18647	0.63333	0.51667	0.56067	0.49373	0.71667	0.35598	0.32636	0.41005	0.42678	0.35598	0.35598	0.49373	0.47464	0.45769	0.40684	0.47464	0.42379	0.5255	0.5255	0.47464	0.32208	0.37657	0.38989
12	11	0.55042	0.39916	0.9022	0.78304	0.93625	0.93625	0.71967	0.71967	0.96639	1	0.08568	0.9022	0.86555	0.93277	0.91597	0.9022	0.9022	0.93277	0.93625	0.88518	0.91922	0.93625	0.91922	0.97029	0.97029	0.93625	0.80007	0.88235	0.86816	
13	12	0.21429	0.63445	0.45961	0.40854	0.35748	0.51068	0.42557	0.53557	0.45189	0.63025	0.56303	0.41841	0.35748	0.46218	0.64706	0.69748	0.45961	0.45961	0.73109	0.51068	0.49366	0.47663	0.51068	0.49366	0.49366	0.49366	0.51068	0.42557	0.57983	0.45961
14	13	0.37395	0.52511	0.57877	0.62984	0.3745	0.45961	0.56175	0.45189	0.35147	0.59664	0.56303	0.30126	0.57377	0.66387	0.71429	0.76471	0.57877	0.57877	0.7479	0.57877	0.61282	0.95979	0.57877	0.56175	0.51068	0.51068	0.57877	0.57877	0.64686	0.62984
15	14	0.76602	0.27236	0.93103	0.98276	0.72414	0.82759	0.94828	0.69502	0.50855	0.71495	0.80007	-0.08476	0.87931	0.9022	0.83411	0.88518	0.93103	0.93103	0.86816	0.93103	0.96552	0.94828	0.93103	0.91379	0.86207	0.86207	0.93103	1	0.97029	0.98276
16	15	0.78304	0.31492	0.96552	0.96552	0.7931	0.89655	0.87931	0.71197	0.40684	0.73197	0.85113	0.01695	0.91379	0.80007	0.85113	0.96552	0.96552	0.86816	0.94828	0.93103	0.93103	0.94828	0.98276	0.91379	0.91379	0.94828	0.93103	0.9022	0.91379	
17	16	0	0.68091	0.2931	0.36207	0.46552	0.31034	0.15517	0.0339	0.20342	0.49366	0.42557	0.28818	0.2069	0.32343	0.34045	0.3745	0.931	0.2931	0.44259	0.32759	0.34483	0.25862	0.32759	0.36207	0.36207	0.36207	0.32759	0.32759	0.3745	0.27586
18	17	-0.11916	0.54473	0.22414	0.27586	0.46552	0.2069	0.05172	-0.10171	0.25427	0.49366	0.40854	0.20342	0.25862	0.3745	0.34045	0.32343	0.22414	0.22414	0.35748	0.24138	0.25862	0.2069	0.24138	0.25862	0.2931	0.2931	0.24138	0.25862	0.32343	0.22414
19	18	0.38458	0.55064	0.6728	0.6728	0.88527	0.77904	0.5046	0.39167	0.42649	0.71671	0.75167	0.03482	0.58487	0.52442	0.51668	0.55064	0.6728	0.6728	0.64679	0.73477	0.71671	0.63739	0.74777	0.77018	0.79674	0.73477	0.63739	0.61183	0.62196	
20	19	0.59579	0.4511	0.81034	0.89655	0.81034	0.81034	0.7931	0.50855	0.44074	0.68091	0.749	-0.08476	0.68966	0.71495	0.62984	0.69793	0.81034	0.81034	0.749	0.84483	0.87931	0.7931	0.84483	0.86207	0.82759	0.82759	0.84483	0.87931	0.81709	0.82759
21	20	0.56175	0.42557	0.7931	0.87931	0.7931	0.7931	0.84483	0.5594	0.64416	0.749	0.76602	-0.15256	0.81034	0.86816	0.73197	0.78304	0.7931	0.7931	0.80007	0.86207	0.93103	0.84483	0.86207	0.81034	0.82759	0.82759	0.86207	0.93103	0.9022	0.91379
22	21	0.47663	0.54473	0.75862	0.81034	0.89655	0.84483	0.72414	0.50855	0.61026	0.78304	0.80007	-0.08476	0.7069	0.73197	0.64686	0.69793	0.75862	0.75862	0.76602	0.84483	0.87931	0.77586	0.84483	0.86207	0.82759	0.86207	0.86207	0.84483	0.82759	0.81034
23	22	0.59579	0.4511	0.81034	0.89655	0.81034	0.81034	0.7931	0.50855	0.44074	0.68091	0.749	-0.08476	0.68966	0.71495	0.62984	0.69793	0.81034	0.81034	0.749	0.84483	0.87931	0.7931	0.84483	0.86207	0.82759	0.82759	0.84483	0.87931	0.81709	0.82759
24	23	0.51068	0.11065	0.75862	0.82759	0.72414	0.62069	0.74138	0.37293	0.54245	0.66388	0.71495	-0.25427	0.87931	0.91922	0.73197	0.71495	0.75862	0.75862	0.66388	0.74138	0.7931	0.7931	0.74138	0.7069	0.7069	0.7069	0.74138	0.86207	0.83411	0.84483
25	24	0.52777	0.53621	0.82759	0.81034	0.93103	0.93103	0.75862	0.67806	0.76282	0.9022	-0.0922	-0.0339	0.82759	0.83411	0.80007	0.83411	0.82759	0.88518	0.88518	0.93103	0.94828	0.87931	0.93103	0.94828	0.87931	0.94828	0.93103	0.86207	0.88518	0.89655
26	25	0.49366	0.28087	0.74138	0.7931	0.74138	0.74138	0.82759	0.5594	0.76282	0.749	0.749	-0.23732	0.86207	0.91922	0.76602	0.78304	0.74138	0.74138	0.76602	0.81034	0.87931	0.82759	0.81034	0.72414	0.75862	0.75862	0.81034	0.87931	0.88518	0.89655
27	26	0.31513	0.58403	0.59579	0.66388	0.62984	0.66388	0.71495	0.53557	0.78662	0.76471	0.68067	-0.01674	0.68091	0.81513	0.73109	0.78151	0.59579	0.59579	0.79832	0.71495	0.80007	0.69793	0.71495	0.61282	0.68091	0.68091	0.71495	0.76602	0.83193	0.78304
28	27	0.54473	0.44259	0.81034	0.84483	0.84483	0.84483	0.82759	0.62721	0.74587	0.83411	0.83411	-0.11866	0.86207	0.9022	0.80007	0.83411	0.81034	0.81034	0.85113	0.89655	0.94828	0.87931	0.89655	0.82759	0.87931	0.87931	0.89655	0.91379	0.91922	0.93103
29	28	0.54473	0.44259	0.81034	0.84483	0.84483	0.84483	0.82759	0.62721	0.74587	0.83411	0.83411	-0.11866	0.86207	0.9022	0.80007	0.83411	0.81034	0.81034	0.85113	0.89655	0.94828	0.87931	0.89655	0.82759	0.87931	0.87931	0.89655	0.91379	0.91922	0.93103
30	29	0.80007	0.20427	1	0.94828	0.7931	0.89655	0.87931	0.76282	0.47464	0.78304	0.9022	0.01695	0.91379	0.86816	0.9022	0.91922	1	1	0.9022	0.96552	0.93103	0.98276	0.96552	0.98276	0.93103	0.96552	0.93103	0.93625	0.94828	
31	30	0.56723	0.07983	0.86816	0.81709	0.76602	0.71495	0.73197	0.53557	0.58578	0.79832	0.86555	-0.08368	0.97029	0.96639	0.91597	0.86555	0.86816	0.86816	0.86816	0.80007	0.88518	0.81709	0.80007	0.80007	0.80007	0.80007	0.80007	0.81709	0.88235	0.86816

