INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
The Great Step

Abstract Topic On

"Safety Data Analytics"

Venue : IIT Kharagpur

Participants :

RAKESH BHARDWAJ IT (1st year)
DOMENDRA SAHU IT (1st year)
PRACHI SAHU CSE (1st year)

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PROBLEM STATEMENT

As per the guideline of the Central Pollution Control Board of India, continuous monitoring of air pollutants and weather parameters is carried out at several stations located across India.
These stations are known as continuous ambient air quality monitoring stations (CAAQMS).
Hourly average concentrations of PM10, PM2.5 and wind speed (WS) and air temperature (AT) recorded at one such station located in Talcher Coalfields are given.

(A) Present the descriptive statistics (mean, median, mode, standard deviation and coefficient of variation for all four variables (PM10, PM2.5, WS and AT). Draw inference from the descriptive statistics.

(B) Does PM10 and PM2.5 follow a similar trend over the sampling duration? Compare the trend based on scatter plot and correlation coefficient.

(C) Is PM10 significantly correlated with WS and AT at 5% level of significance? Justify your answer.

(D) Find out the linear relationships of PM10 and PM2.5 with WS and AT.
Which relationship provides a better model fit? Establish through statistical test (carry out F-test). You can use R, Python, SPSS, Excel or any other statistical package/language.