Delhi Air Quality Analysis: Summary & Conclusion

This document presents the summary and conclusion of a detailed analysis of Delhi's air quality data over a period of approximately four years (1461 days).

Summary of Findings

1. Dataset Overview:
-Daily measurements of key pollutants (PM2.5, PM10, NO2, SO2, CO, Ozone) and AQI.
- Contextual features included days of the week and holiday information.

2. Trends Observed:
- PM2.5 and PM10 consistently emerged as major pollutants.
- Winter months (Nov–Jan) saw the worst air quality due to factors like stubble burning and temperature inversion.
- Summer and monsoon seasons experienced better air quality.

3. Weekday vs Weekend Analysis:
- Minor differences suggest that sources beyond traffic, such as industry and construction, are also significant.

4. Holiday Influence:
- Slight dip in pollution during holidays due to reduced human activity.

5. Pollutant Correlation:
- Strong positive correlation between PM2.5, PM10, NO2, SO2 and AQI.
- CO and Ozone had moderate influence on AQI.

6. AQI Levels:
- Most days were in the “Unhealthy” to “Very Unhealthy” categories.
- Very few days experienced “Good” or “Moderate” air quality.

Conclusion

Delhi faces year-round air pollution, with PM2.5 and PM10 being the dominant contributors. While certain periods like monsoon offer temporary relief, the overall air quality remains a public health concern.

Recommendations

1. Strengthen policies targeting emissions from traffic, construction, and crop burning.
2. Promote public awareness and protective behaviors during high AQI periods.
3. Encourage use of public transportation to lower vehicle-related emissions.
4. Deploy real-time monitoring and predictive alerts to inform the public.

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