

The Air Quality Story of Delhi

1. Objective

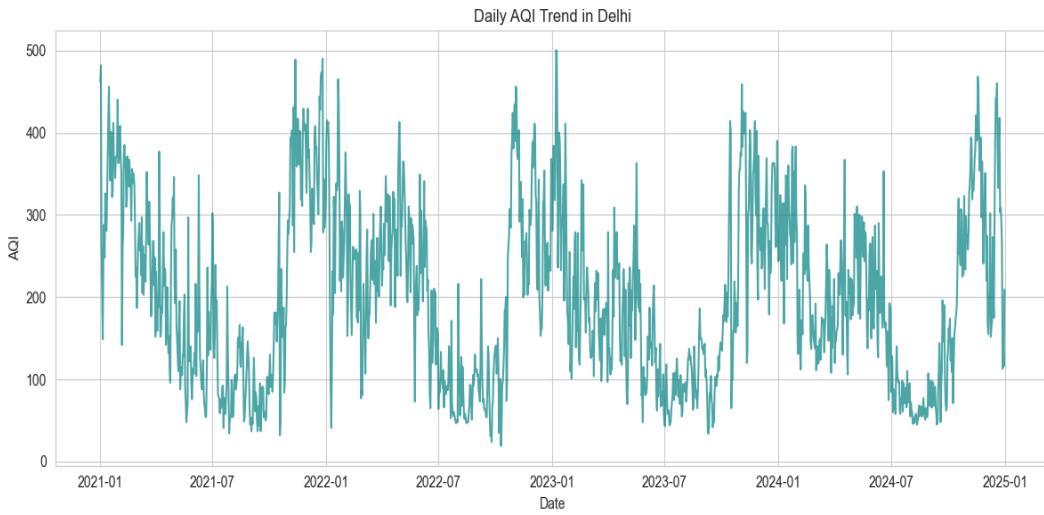
The goal of this project is to analyze air quality trends in Delhi (2021-2024), understand the impact of various pollutants, and predict future AQI levels using machine learning.

2. Key Insights & Conclusion

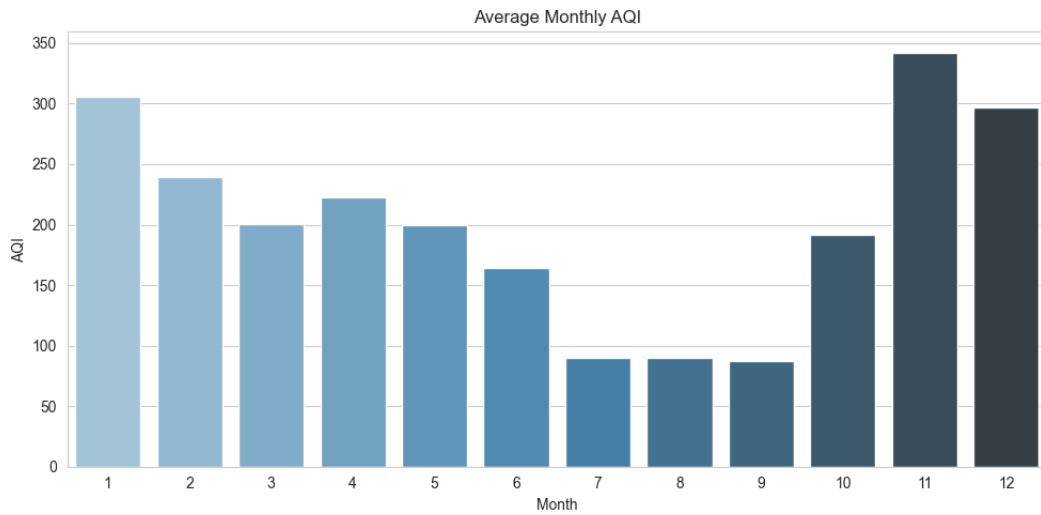
- **Seasonality:** Air quality significantly worsens in Winter (Nov-Jan) due to temperature inversion and lower wind speeds.
- **Major Pollutants:** PM2.5 and PM10 are the primary contributors to poor AQI and are highly correlated.
- **Prediction:** The Random Forest model forecasts a recurring pattern of 'Severe' AQI in the upcoming winter months.
- **Recommendation:** Stricter pollution control measures are needed specifically during the pre-winter months (Oct-Nov).

3. Visualizations

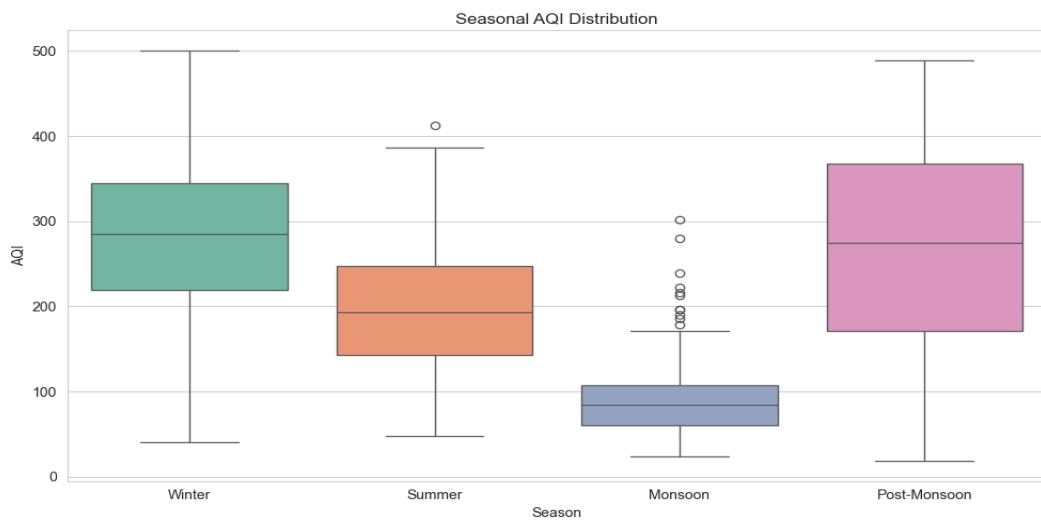
Long-term Daily AQI Trend:



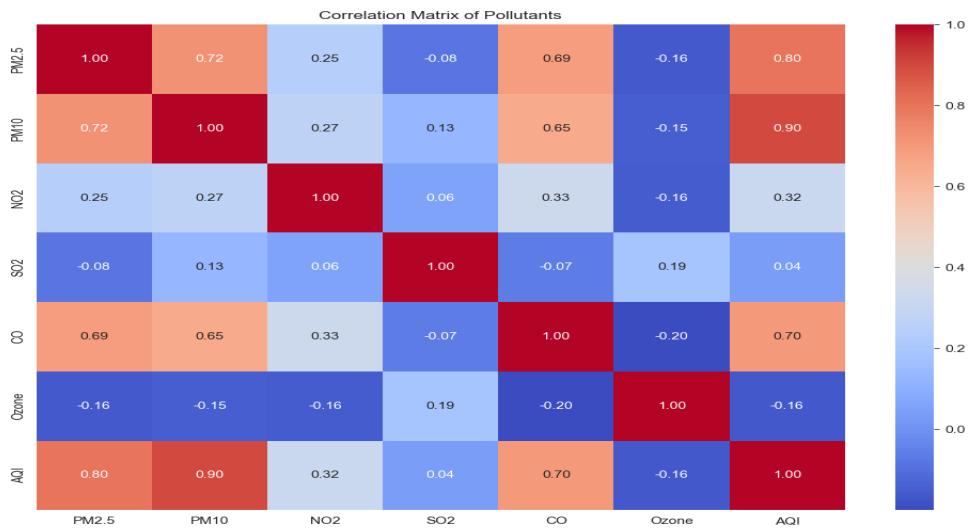
Average Monthly AQI:



Seasonal AQI Distribution:



Correlation Matrix of Pollutants:



12-Month AQI Forecast:

