

# The Air Quality Story of Delhi

## 1. Objective

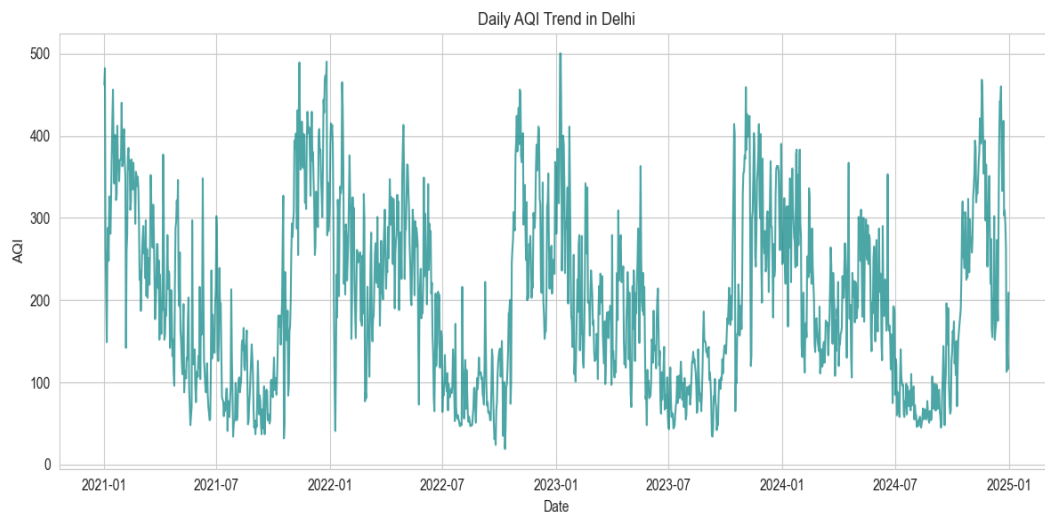
The goal of this project is to analyze air quality trends in Delhi (2021-2024), understand the impact of various pollutants, and predict future AQI levels using machine learning.

## 2. Key Insights & Conclusion

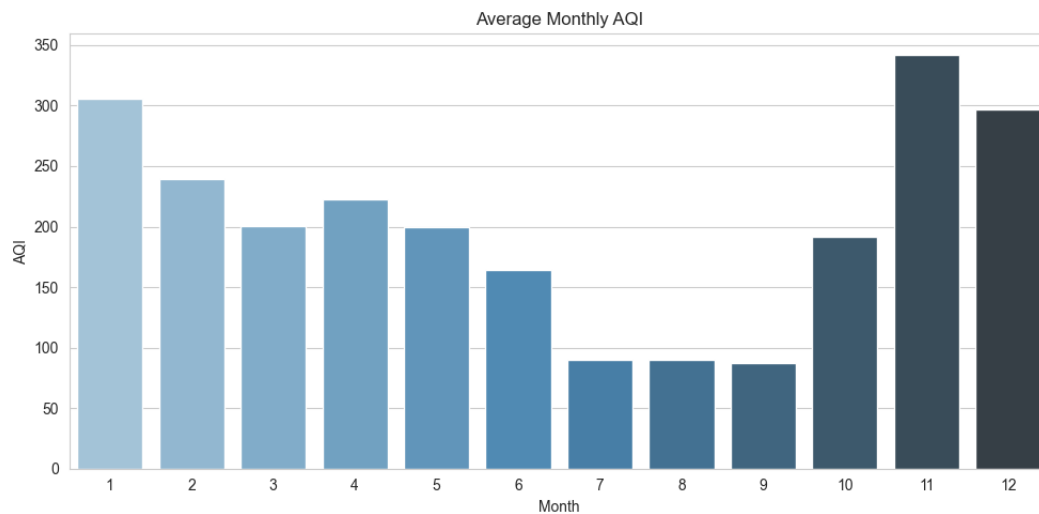
- **Seasonality:** Air quality significantly worsens in Winter (Nov-Jan) due to temperature inversion and lower wind speeds.
- **Major Pollutants:** PM2.5 and PM10 are the primary contributors to poor AQI and are highly correlated.
- **Prediction:** The Random Forest model forecasts a recurring pattern 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

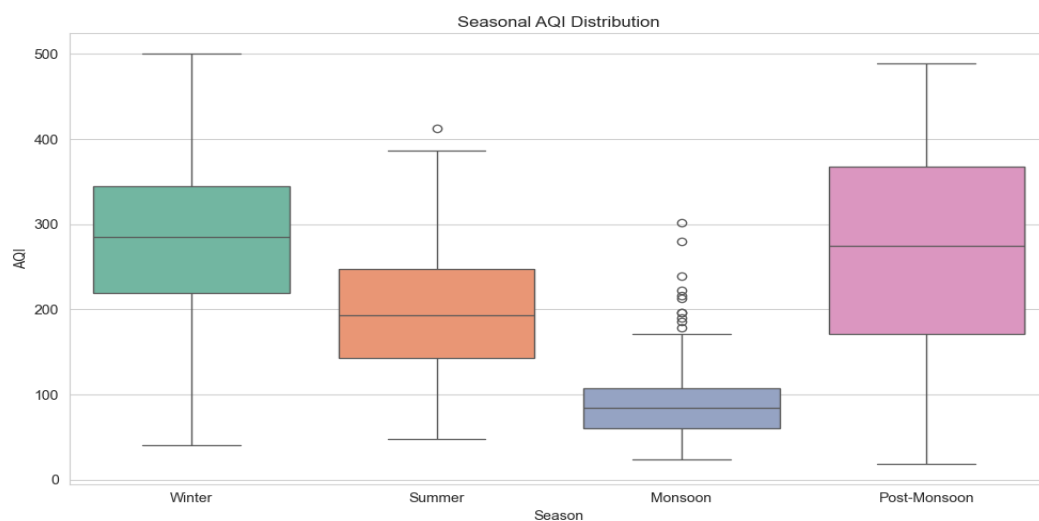
### *Long-term Daily AQI Trend:*



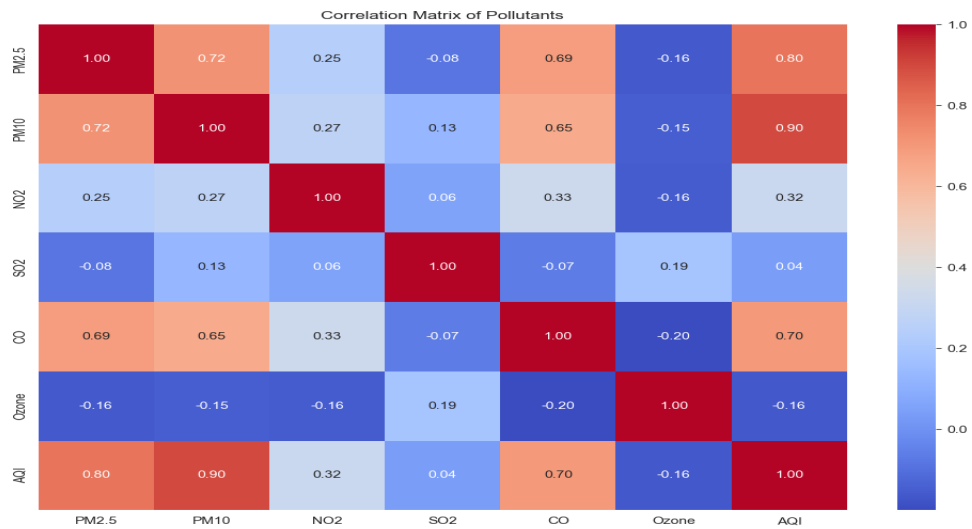
### *Average Monthly AQI:*



**Seasonal AQI Distribution:**



**Correlation Matrix of Pollutants:**



## 12-Month AQI Forecast:

