

Project Report
Int 217
Project
LOVELY PROFESSIONAL UNIVERSITY
PHAGWARA, PUNJAB



Dashboard on Real Time Air Quality
Index in India

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DECLARATION

I, A. Manikanta, hereby declare that the work done by me on “Excel Project” is a record of original work for the partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Computer Science - Data Science, Lovely Professional University, Phagwara.

Signature

Signature

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ACKNOWLEDGMENT

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Thank you all

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Introduction :-

Air pollution remains one of the most critical environmental issues, impacting health, ecosystems, and climate. This project aims to design an interactive dashboard that presents real-time Air Quality Index (AQI) data across Indian cities. The dashboard simplifies complex datasets into visual insights, enabling users to monitor pollution levels, identify hotspots, and understand trends effectively.

Source of Dataset:-

<https://www.data.gov.in/catalog/real-time-air-quality-index>

Dataset Preprocessing :-

Before building the dashboard, several preprocessing steps were carried out:

Handling Missing Values

NA values were filled using average or forward fill techniques.

Data Cleaning

Corrected inconsistent labels and formatted city names.

Column Selection

Included key parameters such as City, AQI, PM2.5, PM10, NO2, SO2, CO, and O3.

Data Type Fixing

Ensured all measurement fields were in numeric format.

Analysis on Dataset :-

Objective 1: AQI Distribution by City

i) General Description

Analyze average AQI levels across cities to assess pollution severity.

ii) Specific Requirements

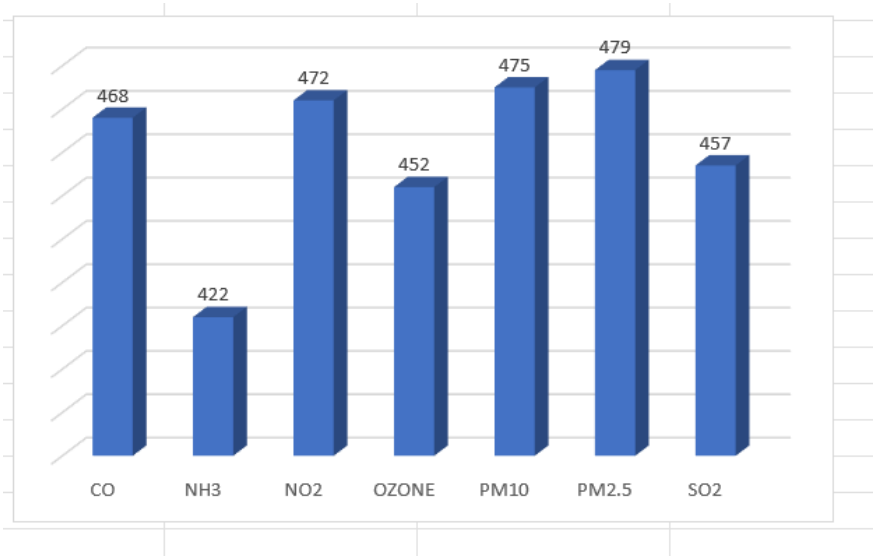
Pivot table with City in rows and AQI as values (average).

iii) Analysis Results

Identified cities with consistently poor air quality.

iv) Visualization

Clustered bar chart with slicers for region-wise filtering.



Objective 2: Pollutant Concentration Analysis

i) General Description

Study concentrations of PM2.5, PM10, NO2, SO2, CO, and O3.

ii) Specific Requirements

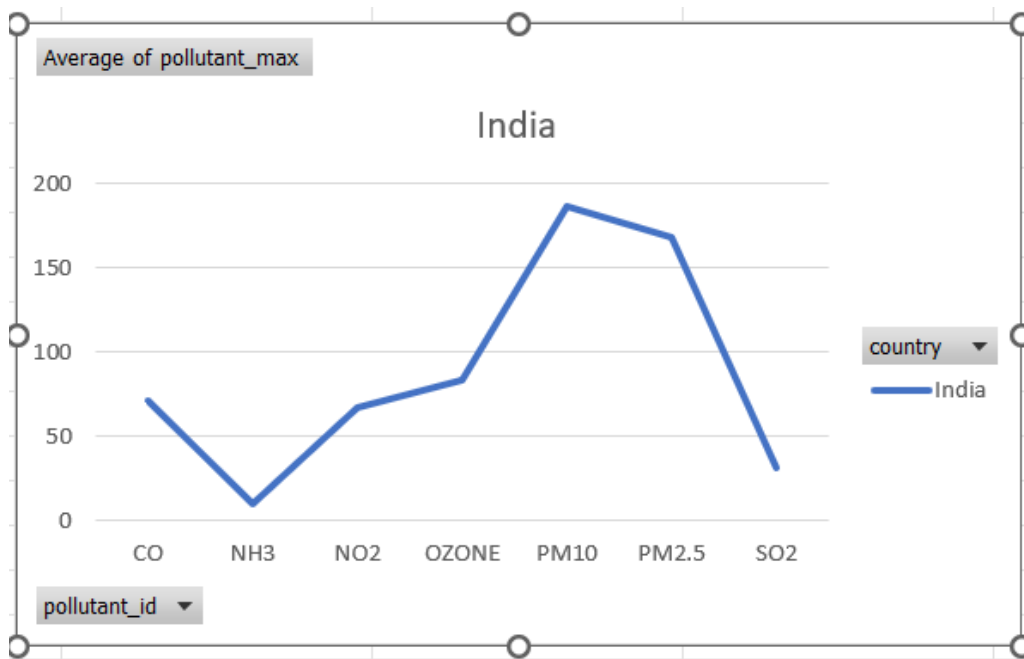
Pivot table with pollutants in columns and average values by city.

iii) Analysis Results

PM2.5 and PM10 were dominant pollutants in metro areas.

iv) Visualization

Stacked column charts to show pollutant makeup city-wise.



Objective 3: Time Series Analysis of AQI Trends

i) General Description

Track AQI variation over time to identify patterns.

ii) Specific Requirements

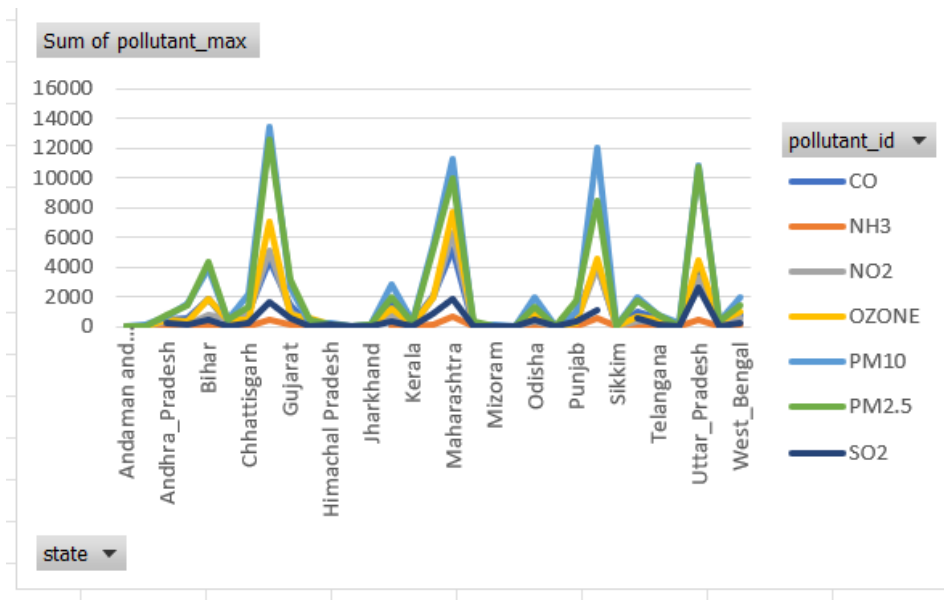
Line charts with date on X-axis and AQI values.

iii) Analysis Results

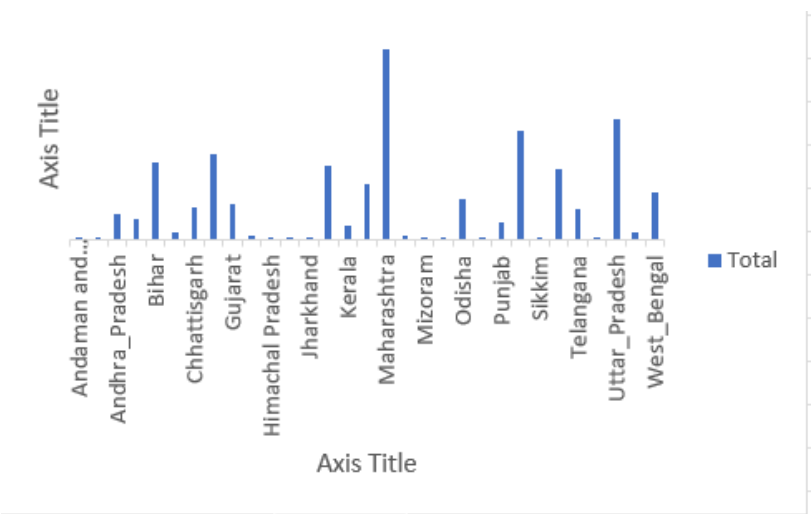
Seasonal spikes in AQI during winter months.

iv) Visualization

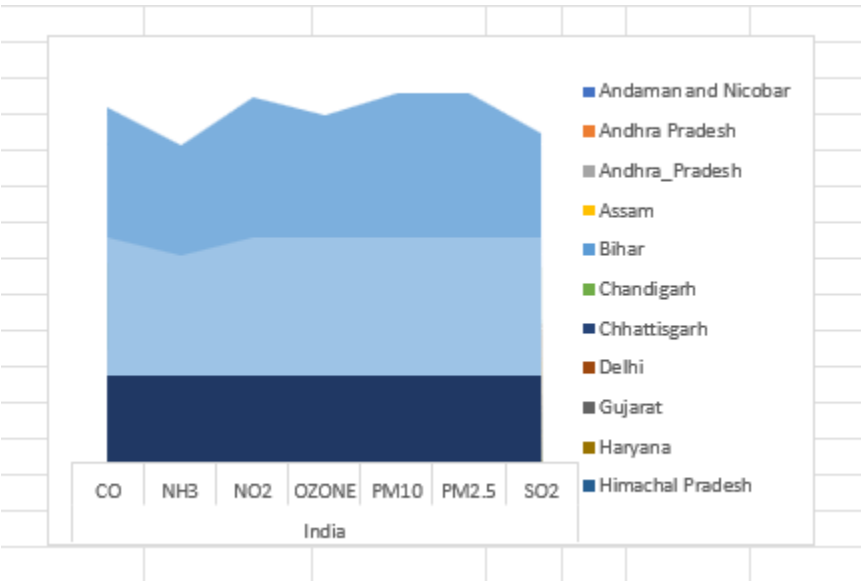
Multi-line charts with filters for city selection.



Objective 4: Average Of Pollutant _Max by City Wise



Objective 5: Stacked Area Chart



Conclusion :-

The interactive dashboard built using Excel provides an insightful view of India's air quality data. It enables users to explore pollution patterns, assess pollutant levels, and identify

critical cities at risk. By transforming raw data into actionable insights, the dashboard serves as a valuable tool for environmental monitoring and awareness.

Future Scope

- Add real-time data feed integration using APIs
- Use Power Map for geographic representation of AQI
- Implement predictive models to forecast AQI trends
- Extend dashboard to include health impact data

References :

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