

# Power BI Project Dashboard Report

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power BI Project Report Summary

Title: City-Level Data Analysis using Power BI

This report presents a multi-visual analytical exploration of a city-level dataset using Power BI. The dataset includes attributes such as environmental metrics (e.g., AQI, temperature, humidity), which are visualized using various chart types to extract actionable insights. The report spans 10 pages, each highlighting a different analytical approach.

## Page 1: Data Cleaning and Transformation

The dataset was prepared using the Power Query Editor. This involved:

Renaming columns for clarity.

Replacing null or missing values.

Ensuring correct data types (numeric, text, date). This step laid a clean foundation for the rest of the report.

## Page 2: Map Visualization

A map chart was created to show the geographical spread of cities with respect to a specific metric (e.g., AQI). Bubbles were used to represent cities, with size and color indicating the intensity of the value. This visual helps identify pollution hotspots.

## Page 3: Table View

A detailed table lists city-level data with all important columns visible (e.g., city name, AQI, temperature, etc.). It allows users to directly read the raw data and perform manual comparisons or lookups

## Page 4: Funnel Chart

The funnel chart shows the sum of key attributes across the dataset, sorted in descending order. This chart makes it easy to identify which attributes (e.g., Column6, Column5) dominate the overall dataset in terms of total values

## Page 5: Ribbon Chart

The ribbon chart captures the ranking of attributes over time. It highlights how the rank of different environmental factors changed, e.g., whether AQI rose or fell in priority. Ribbons move up and down based on value ranks, showing volatility or stability.

## Page 6: Waterfall Chart

This chart visualizes how different columns add up to form a total value. Some columns contribute positively, while others subtract from the total. This helps to break down and understand overall performance in terms of gains and losses.

## Page 7: KPI Visual

The KPI visual summarizes a key metric — such as total AQI or average temperature — in a clean, prominent way. It may also include a trend arrow or target line to indicate whether performance is improving or declining compared to a previous period.

## Page 8: Matrix Table

A matrix visual (like a pivot table) displays data grouped by two or more dimensions — such as city vs. attribute, or month vs. value. This layout allows for detailed comparisons and highlights variations across dimensions.

## Page 9: Python Analysis

Python scripting was used within Power BI to perform advanced data processing or visualization. This might include:

Descriptive statistics using pandas,

Outlier detection,

Trend lines using matplotlib or seaborn. Using Python enhances analytical capabilities beyond Power BI's native visuals.

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## Page 10: Line Chart

The line chart presents time-series analysis. It displays how a selected metric (like AQI or temperature) changes over time. It is ideal for spotting trends, seasonality, and anomalies. The chart offers an easy way to visualize increases or decreases over days, weeks, or months.

## Conclusion

This Power BI report leverages a variety of visuals to provide an in-depth exploration of city-level environmental data. From spatial analysis on maps to ranking with ribbon charts, cumulative impacts via waterfall, and time-series with line charts, the report demonstrates a full analytical pipeline. Python integration further strengthens the report by allowing for custom analysis. Overall, the report provides clear, actionable insights and showcases how Power BI can turn raw data into intelligent visual storytelling.