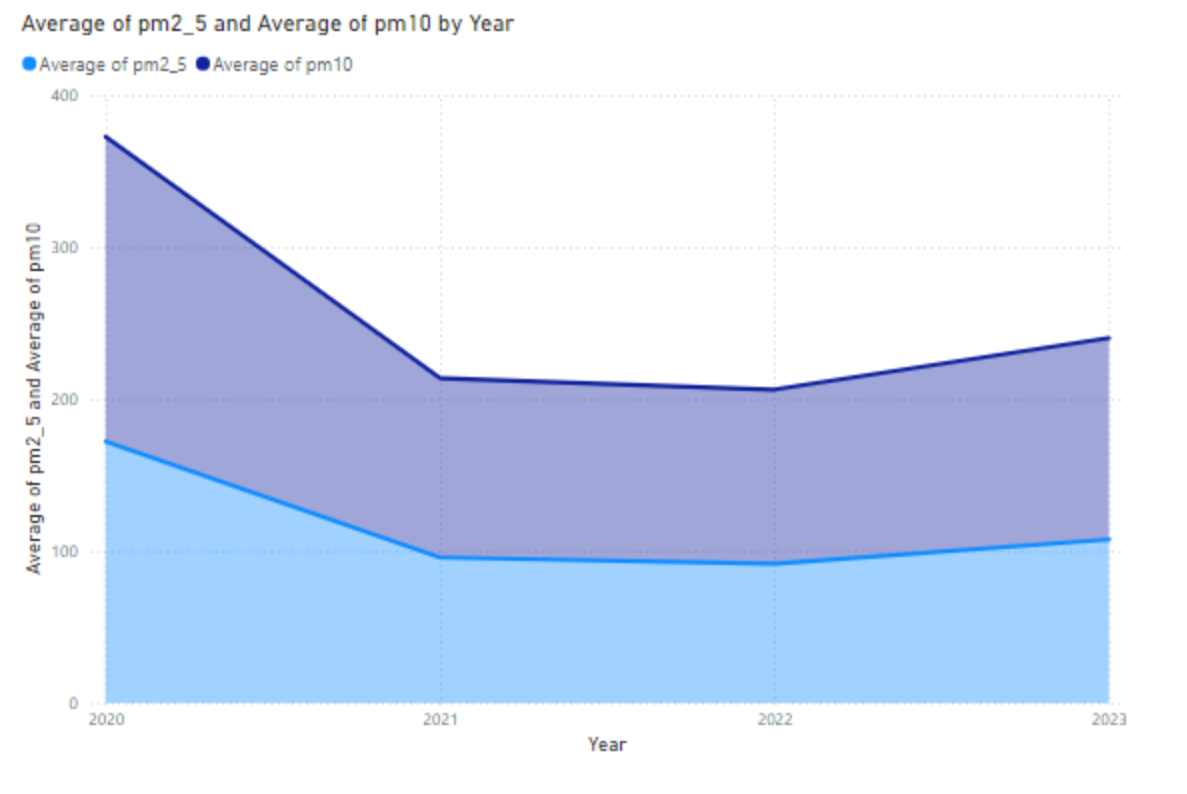
AIR POLLUTION IN INDIA DATA ANALYSIS

DATA SET:

https://www.kaggle.com/datasets/seshupavan/air-pollution-data-of-india-2020-2023

city	date	aqi	co	no	no2	o3	so2	pm2_5	pm10	nh3	Day	Month	Year
Ahmedabad	01 January 2021	5	774.38	0	18.85	57.94	14.42	106.42	121.51	14.95	1	1	2021
Ahmedabad	02 January 2021	5	767.71	0	20.05	70.81	16.21	115.08	125.53	13.93	2	1	2021
Ahmedabad	03 January 2021	5	667.57	0	16.79	85.12	15.74	94.08	106.82	12.03	3	1	2021
Ahmedabad	04 January 2021	5	1081.47	0	22.62	55.08	13.71	192.22	209.49	14.57	4	1	2021
Ahmedabad	05 January 2021	5	907.9	0	15.59	89.41	14.9	175.22	188.13	11.27	5	1	2021
Ahmedabad	06 January 2021	5	921.25	0	21.08	69.38	14.9	137.8	149.89	12.54	6	1	2021
Ahmedabad	09 January 2021	5	781.06	0	20.22	77.25	16.21	78.96	86.3	11.78	9	1	2021
Ahmedabad	13 January 2021	5	847.82	0	20.39	45.78	11.8	81.59	94.46	10.89	13	1	2021
Ahmedabad	24 January 2021	5	747.68	0	28.79	40.77	16.93	88.43	180.04	14.95	24	1	2021
Ahmedabad	26 January 2021	5	947.95	0	26.05	40.77	16.45	94.93	116.25	18.75	26	1	2021
Ahmedabad	28 January 2021	5	560.76	0	14.4	69.38	16.93	63.5	69.82	12.29	28	1	2021
Ahmedabad	30 January 2021	5	654.22	0	16.97	75.1	15.5	68.13	79.23	12.92	30	1	2021
Ahmedabad	31 January 2021	5	727.65	0	18.17	56.51	13.47	72.04	82.69	14.31	31	1	2021
Aizawl	08 January 2021	5	447.27	0	19.19	15.2	4.71	52.29	57.84	11.65	8	1	2021
Aizawl	12 January 2021	5	634.19	0	23.65	19.85	5.84	111.54	118.32	13.43	12	1	2021
Aizawl	14 January 2021	5	433.92	0	13.02	19.49	3.93	55.18	61.77	8.87	14	1	2021
Aizawl	16 January 2021	5	567.44	0	21.59	30.04	6.74	80.56	88.28	13.81	16	1	2021
Aizawl	17 January 2021	5	377.18	0	8.31	17.7	2.77	81.41	88.02	7.03	17	1	2021
Aizawl	21 January 2021	5	403.88	0	2.53	43.27	1.12	105.97	107.76	0.23	21	1	2021
Aizawl	22 January 2021	5	547.41	0	19.02	14.48	3.99	98.85	106.33	10.39	22	1	2021
Aizawl	23 January 2021	5	507.36	0	16.79	13.23	4.41	76.56	83.67	11.02	23	1	2021
Aizawl	25 January 2021	5	373.84	0	10.11	12.7	2.83	61.08	67.21	8.36	25	1	2021
Aizawl	26 January 2021	5	460.63	0	18.17	21.1	4.83	56.78	68.94	12.29	26	1	2021

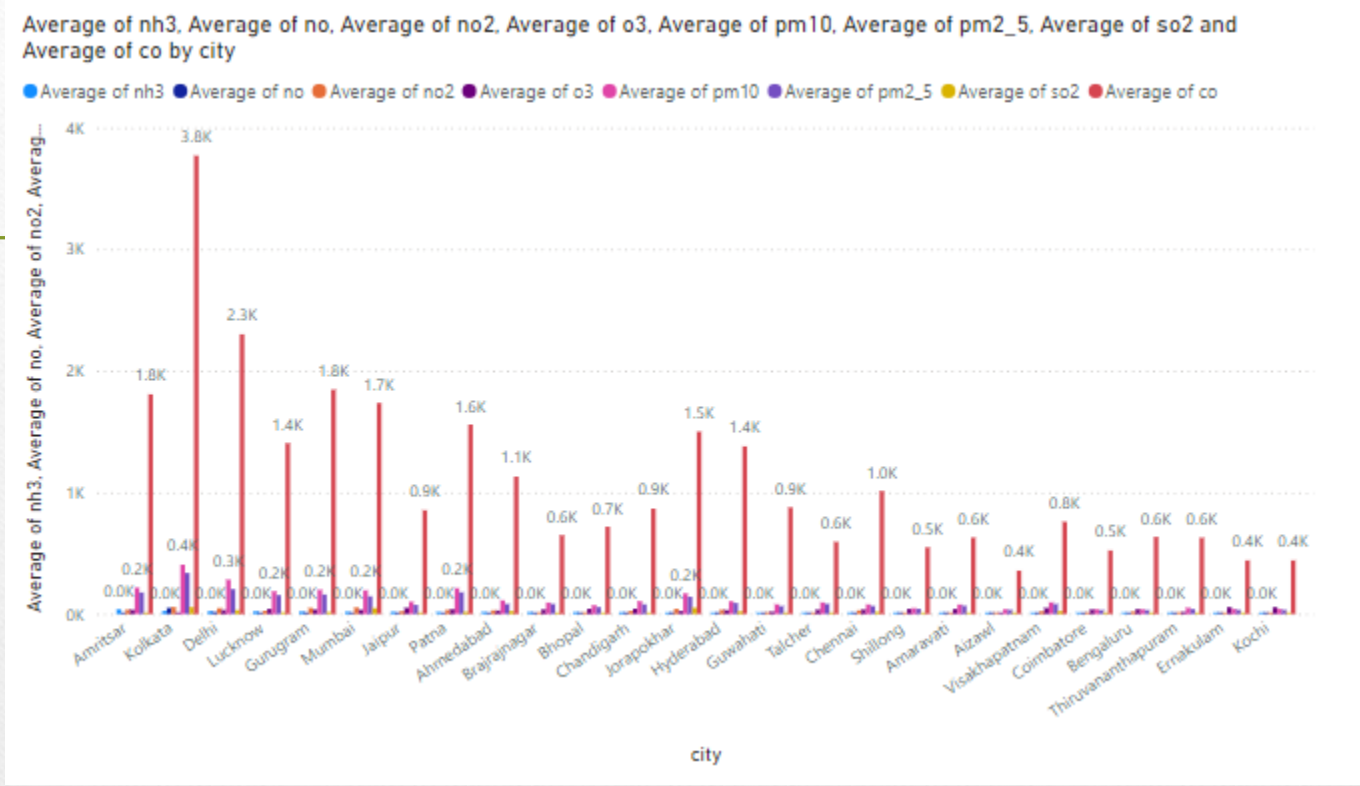
1. How can a time series plot be used to visualize the trend of PM2.5 and PM10 levels over time?



Inference:

Time series plot is visualized to see the trend of PM2.5 and PM10 levels in the years 2020, 2021, 2022, 2023.

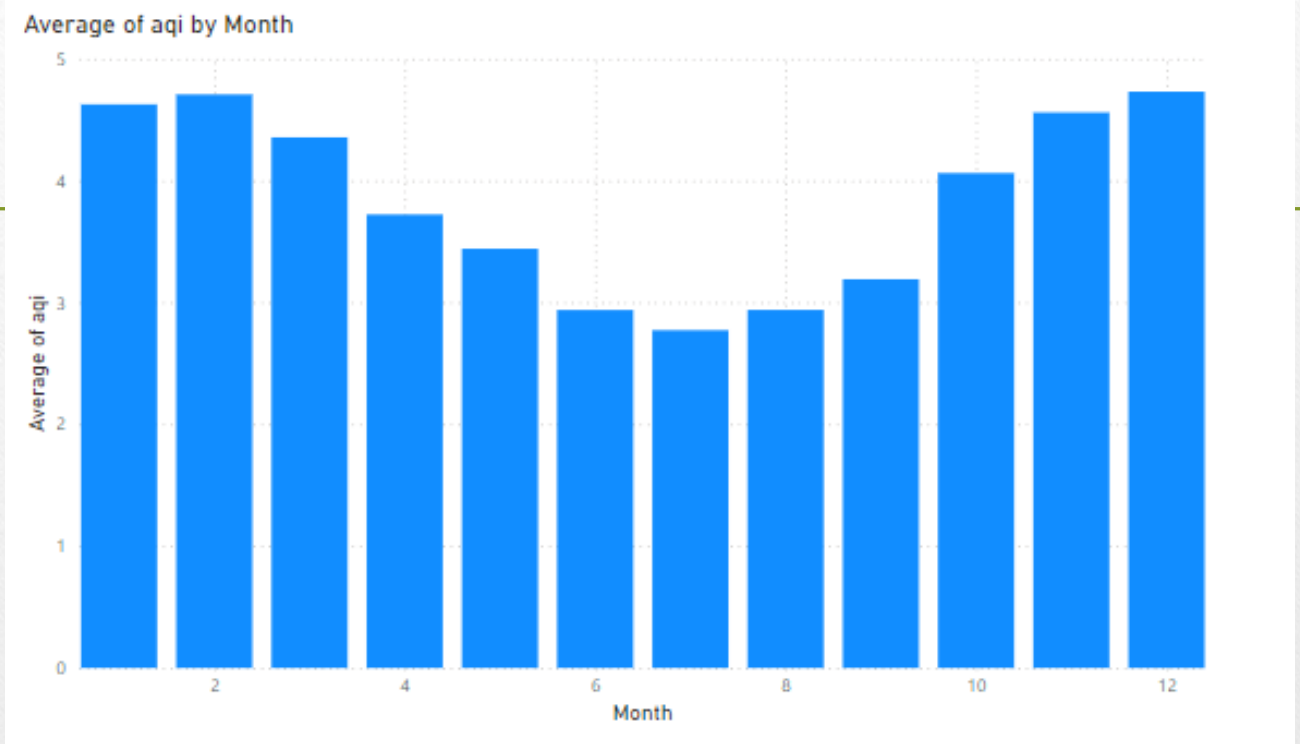
2. Which pollutant is most prevalent in different cities or regions?



Inference:

CO is most prevalent pollutant in different cities.

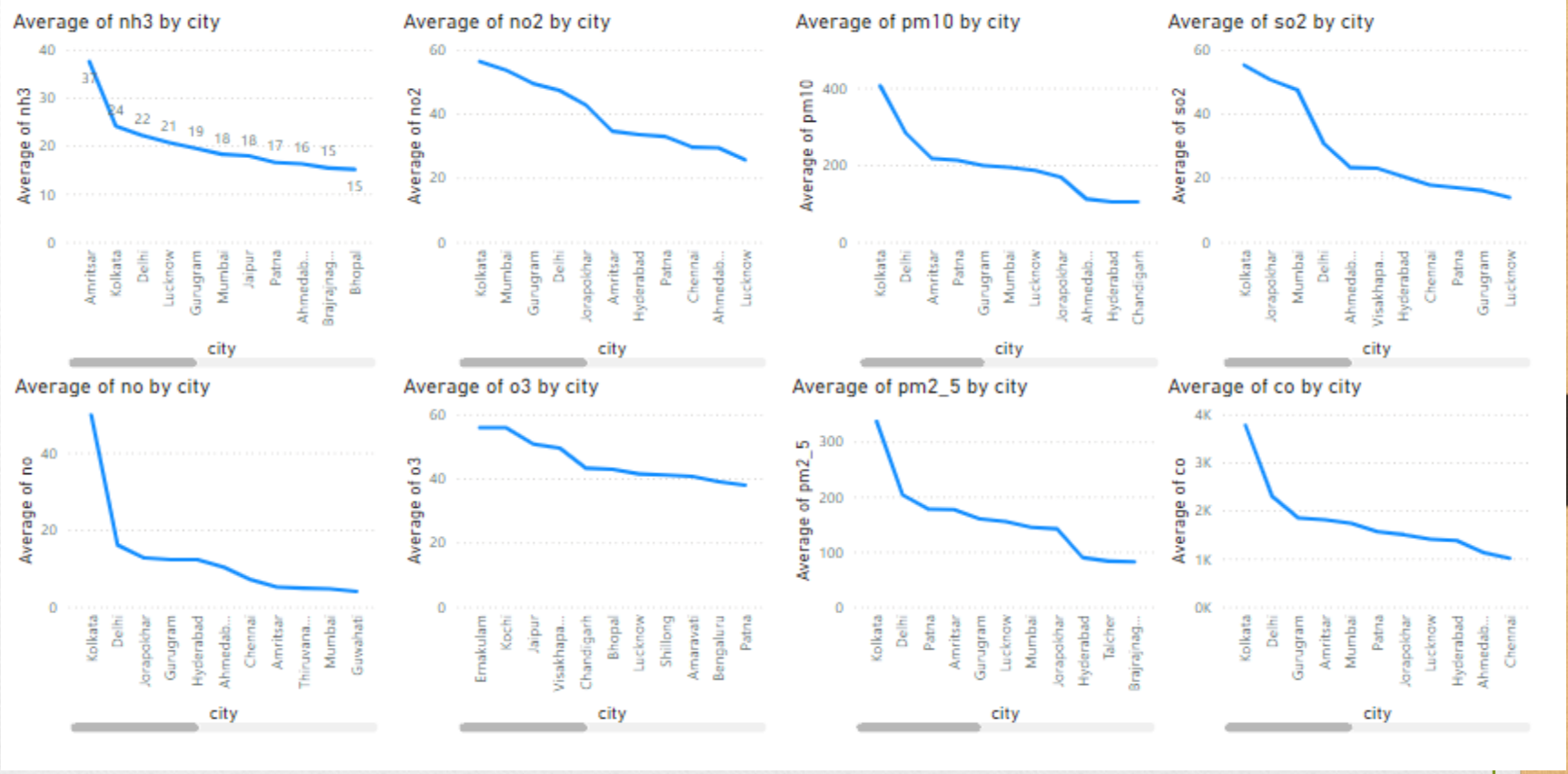
3. How do seasonal variations affect pollution levels?



Inference:

The months June, July, August have the Air Quality Index(aqi) less than 3 which defines the air is less pollutant and safe.

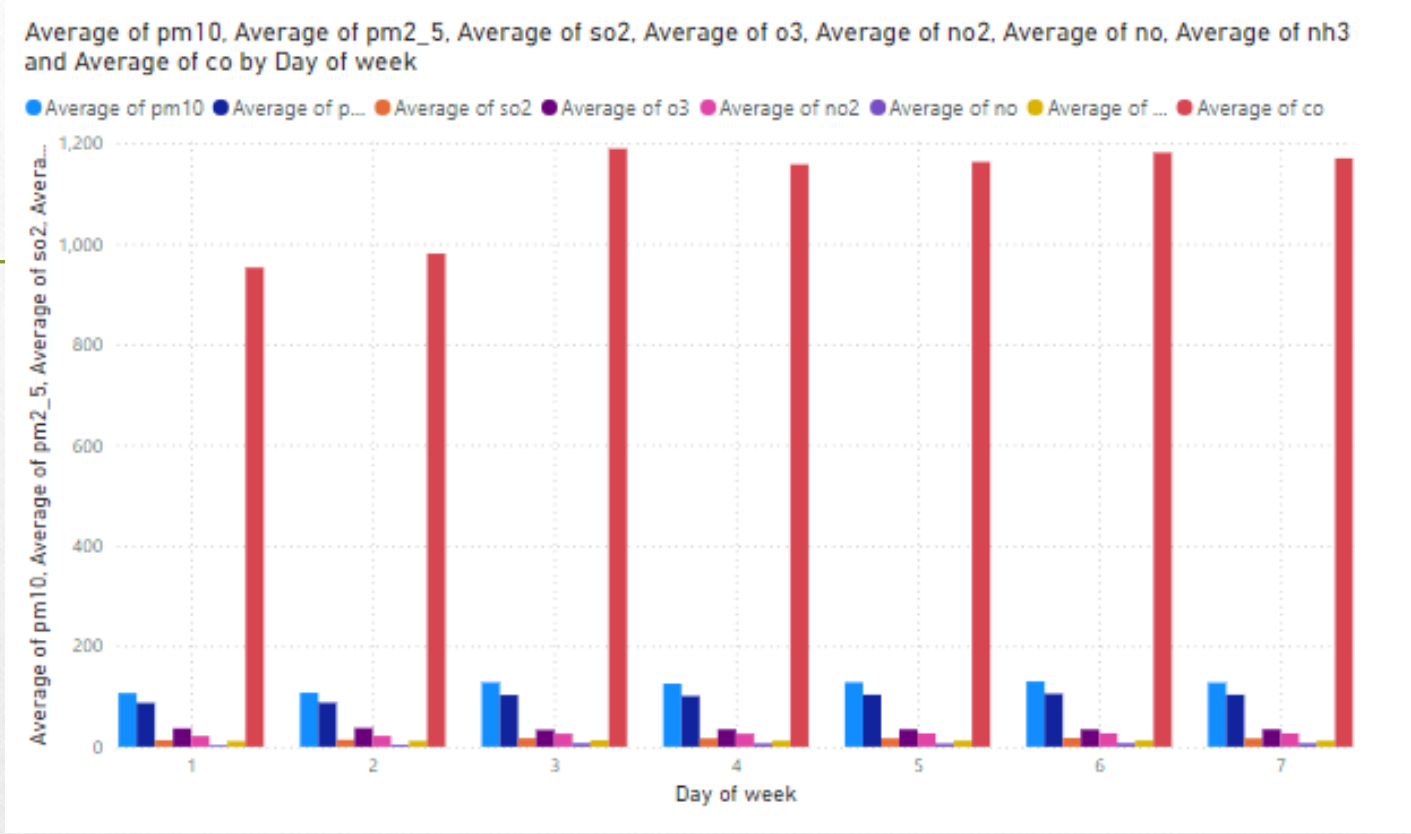
4. What is the distribution of pollutant levels in the dataset?



Inference:

The distribution of every pollutant levels in air is visualized individually.

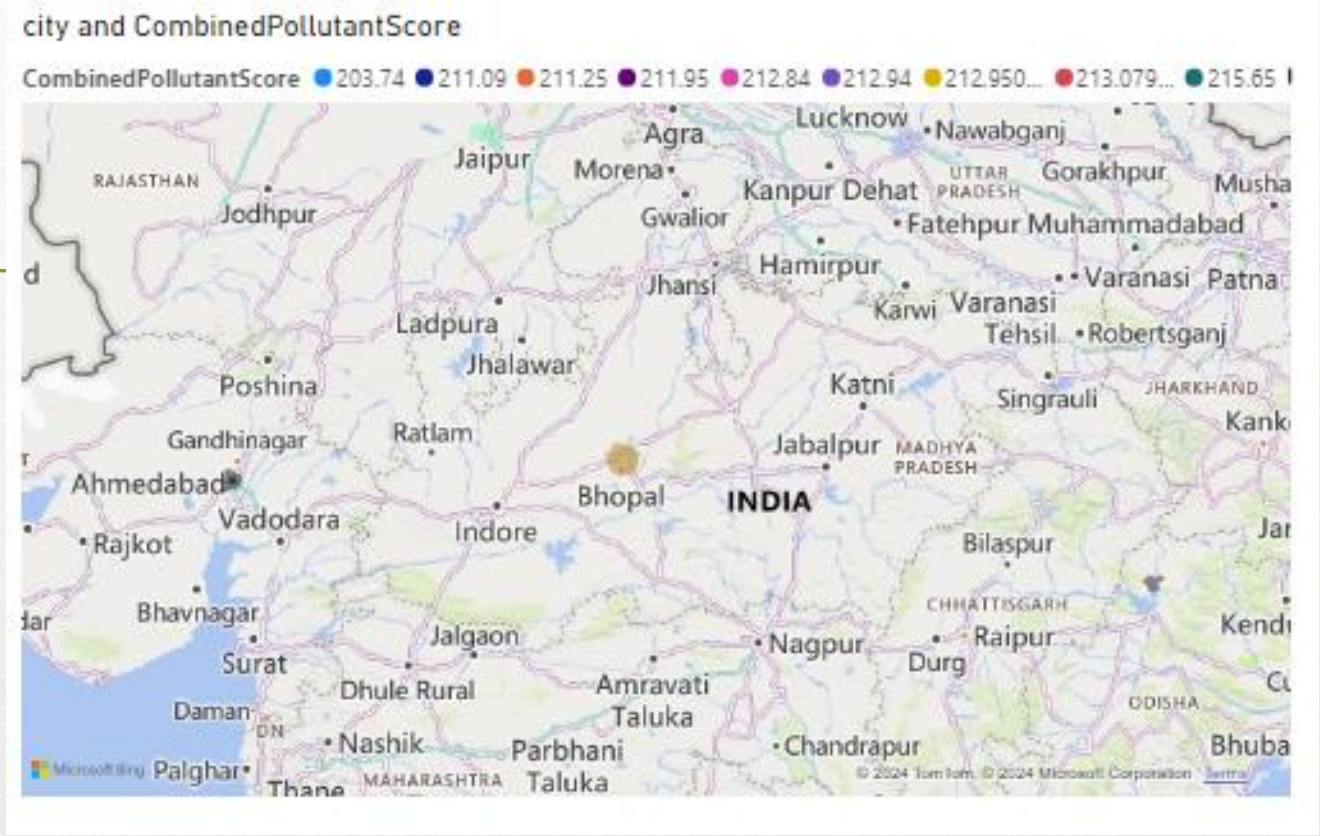
5. Are there days when multiple pollutants peak simultaneously?



Inference:

Sunday and Monday are the days the pollutants level is less compared to other days.

6. Visualize air pollution level across geographic regions?



Inference:

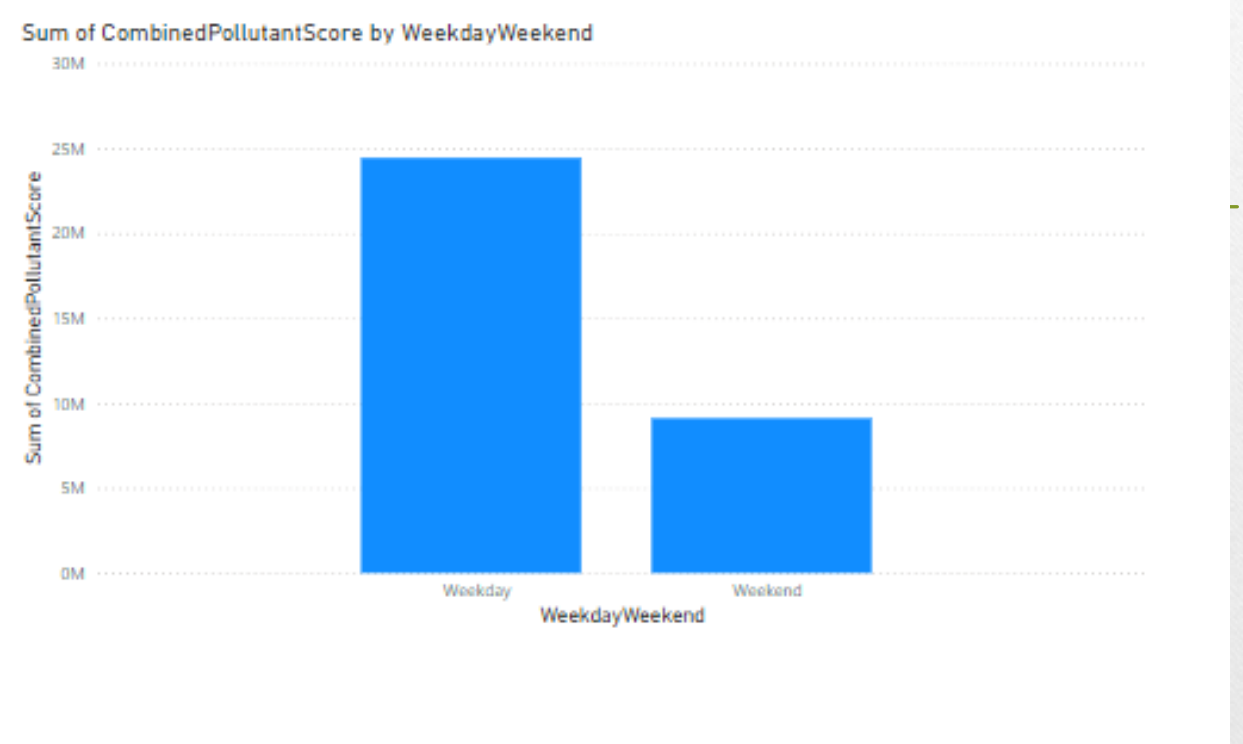
Air pollution in maximum regions are in safe level.

7. Which cities consistently have the highest levels of pollutants?

Inference:

Kolkata and Mumbai are the cities with highest levels of pollutants.

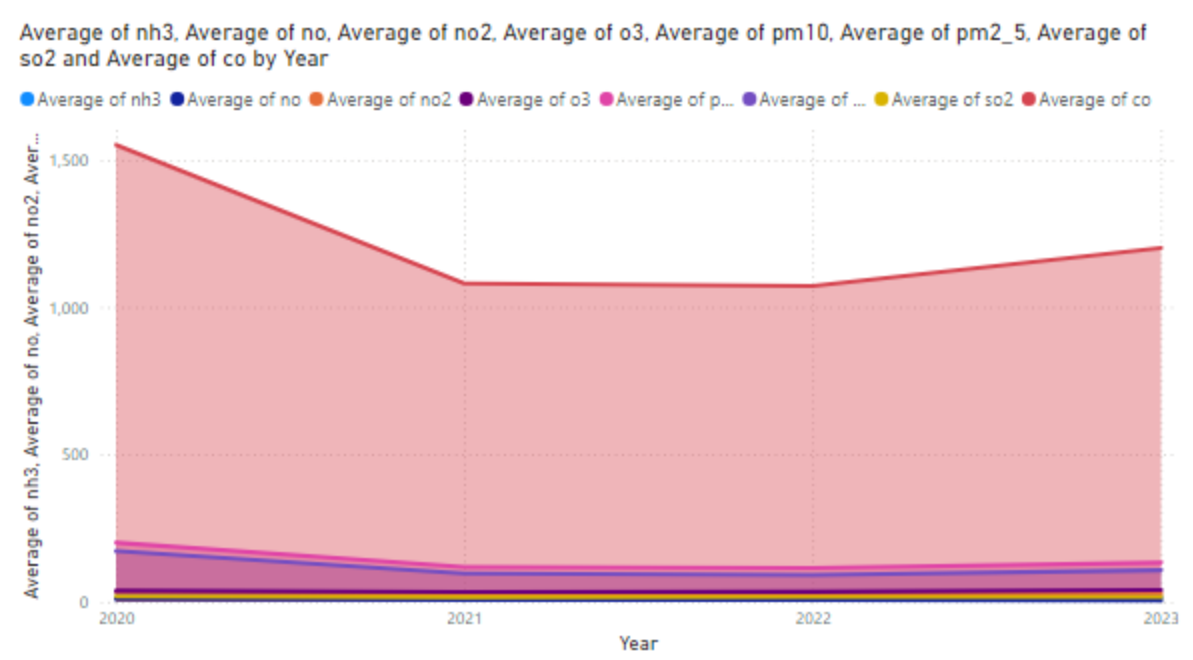
8. How do air quality levels compare between weekdays and weekends?



Inference:

Air quality level in weekdays is more compared to weekends.

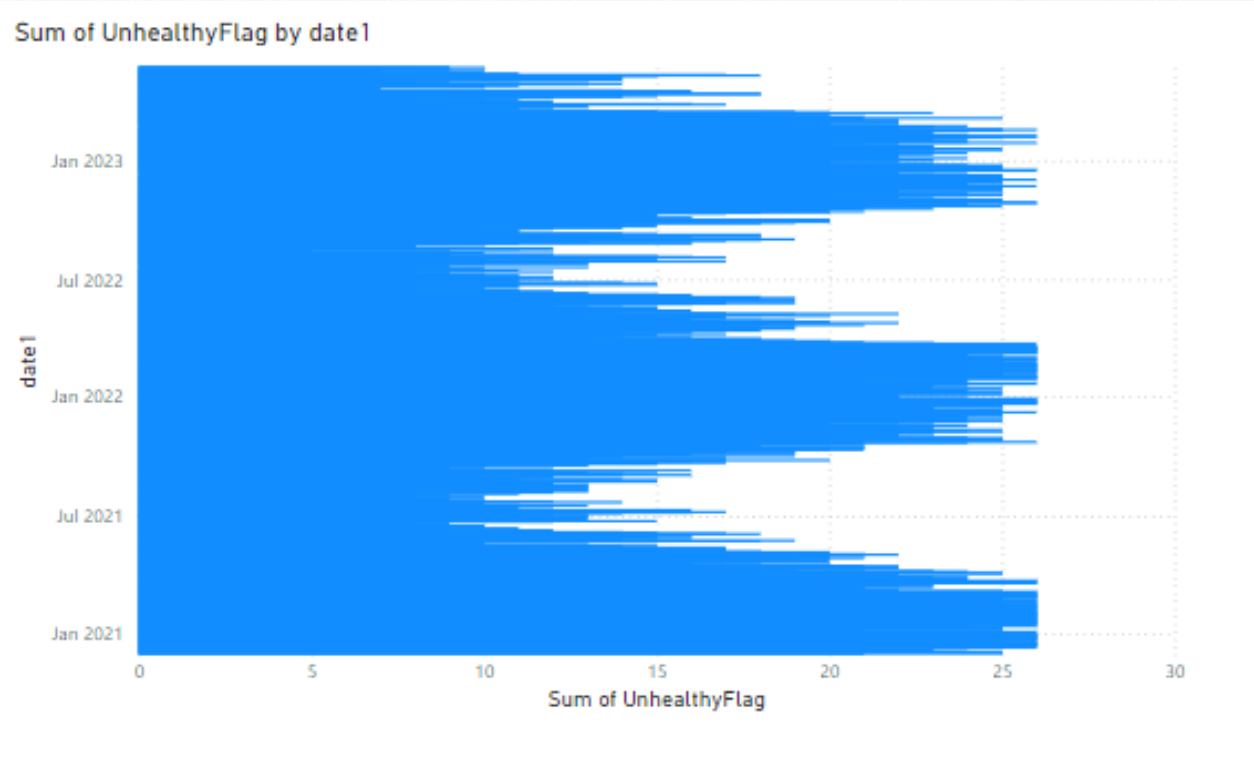
9. What is the annual trend of air pollution levels over the years?



Inference:

Air pollution is decreased in the year 2021 compared to the previous year and it remains nearly same in the year 2022 also. But Air pollution is started increasing from the year 2023.

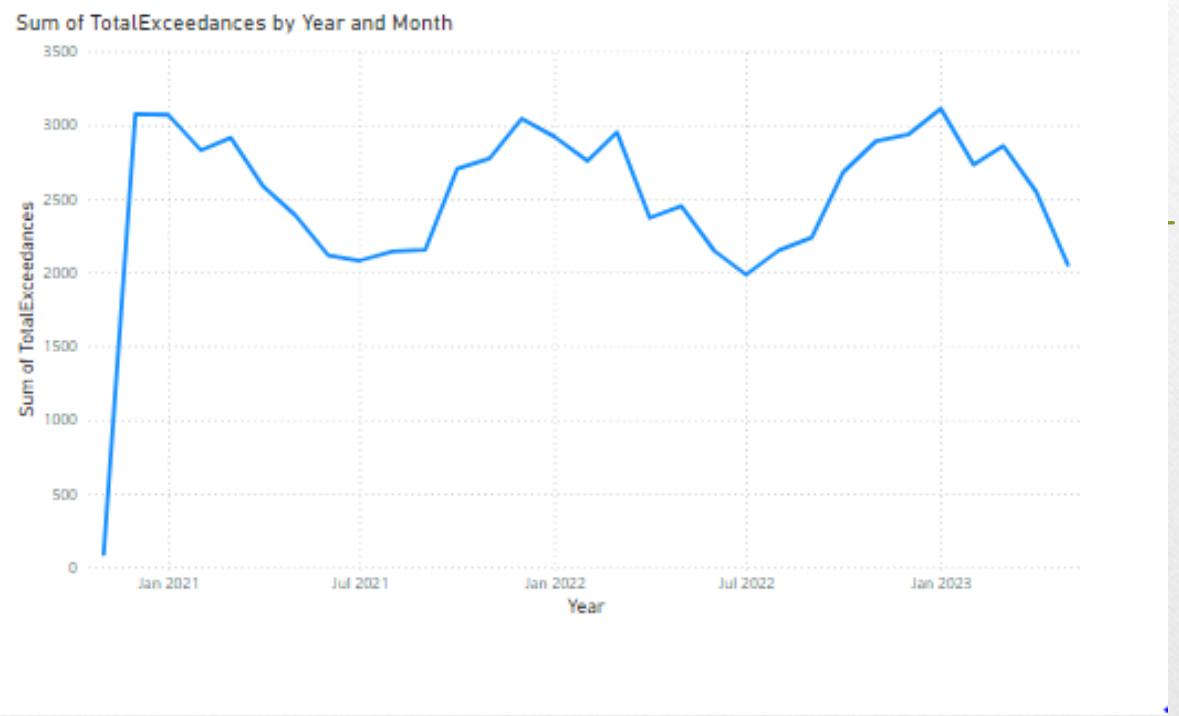
10. What is the longest consecutive period of time when air quality remained unhealthy?



Inference:

From January 2021 to March 2021 is the longest consecutive period of time when air quality remained unhealthy.

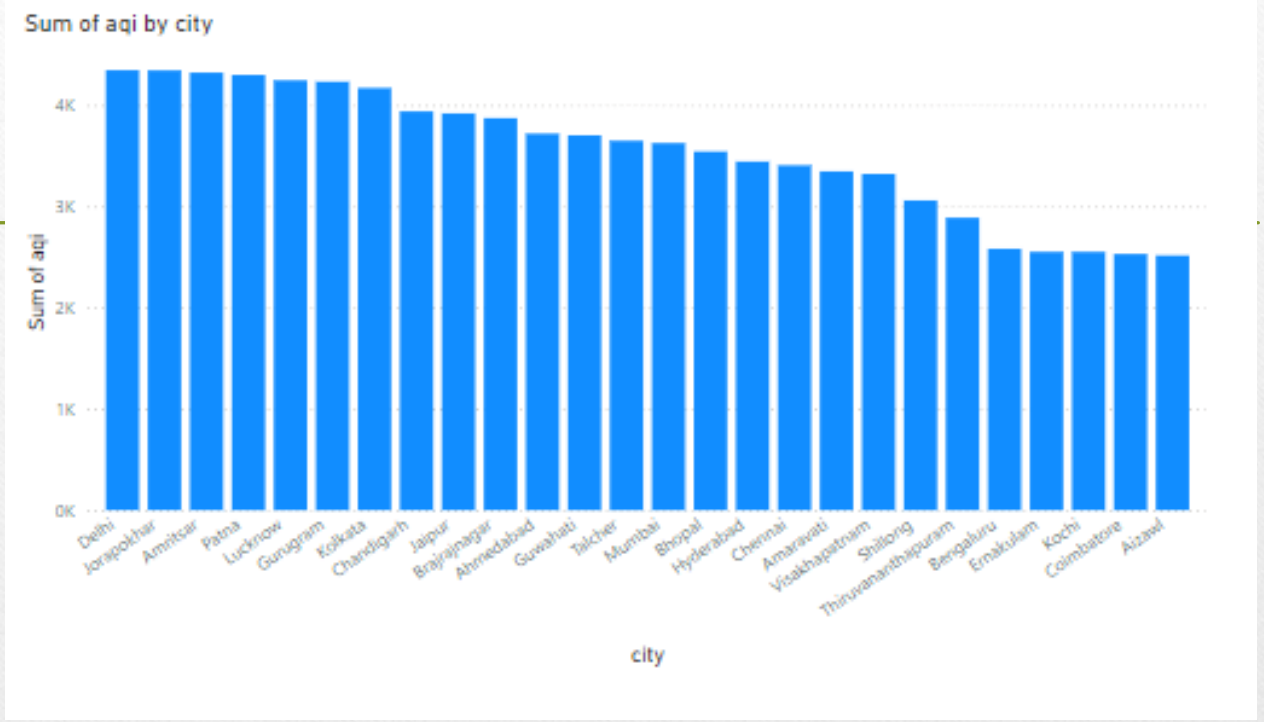
11. How frequently do pollutant levels exceed air quality standards?



Inference:

The frequency of exceedance varies across the years, with significant peaks in mid-2021, early-2022, and early 2023.

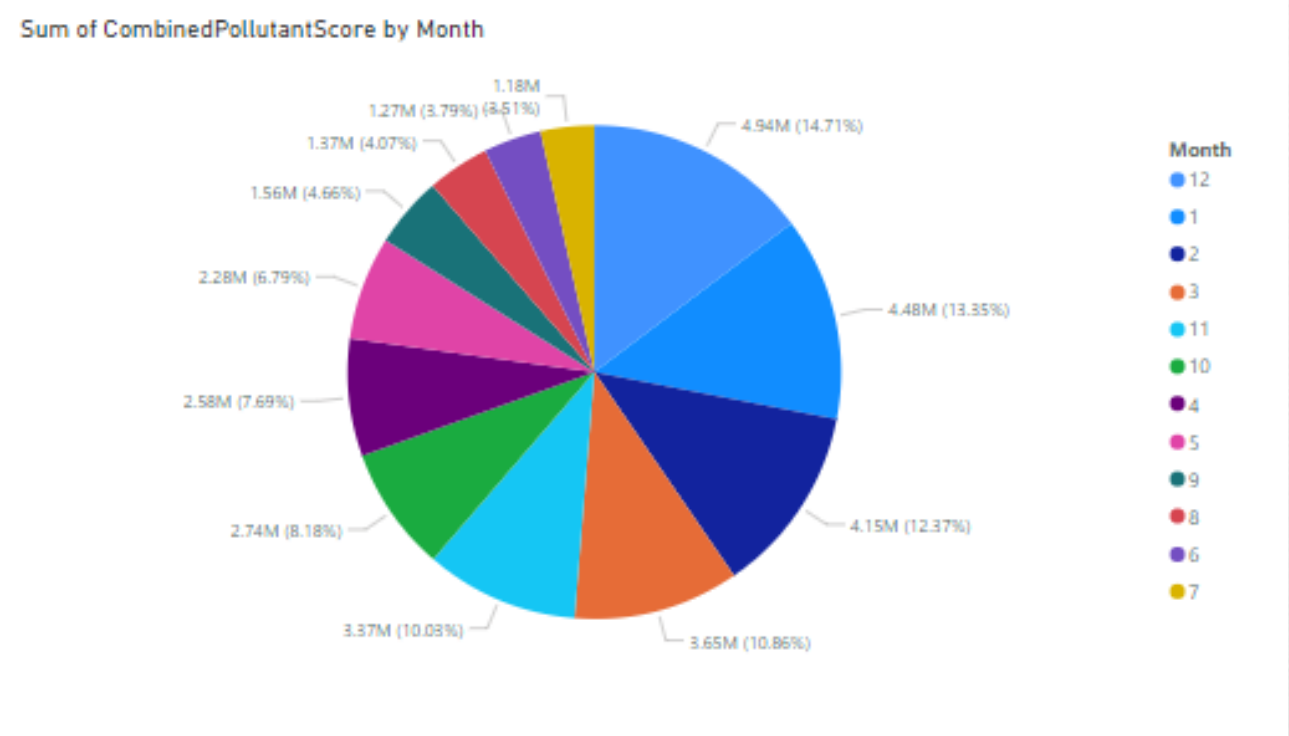
12. What is the distribution of air quality index (AQI) across different regions?



Inference:

The above visualization shows the AQI distribution across different regions and Delhi has high pollution compared to other cites.

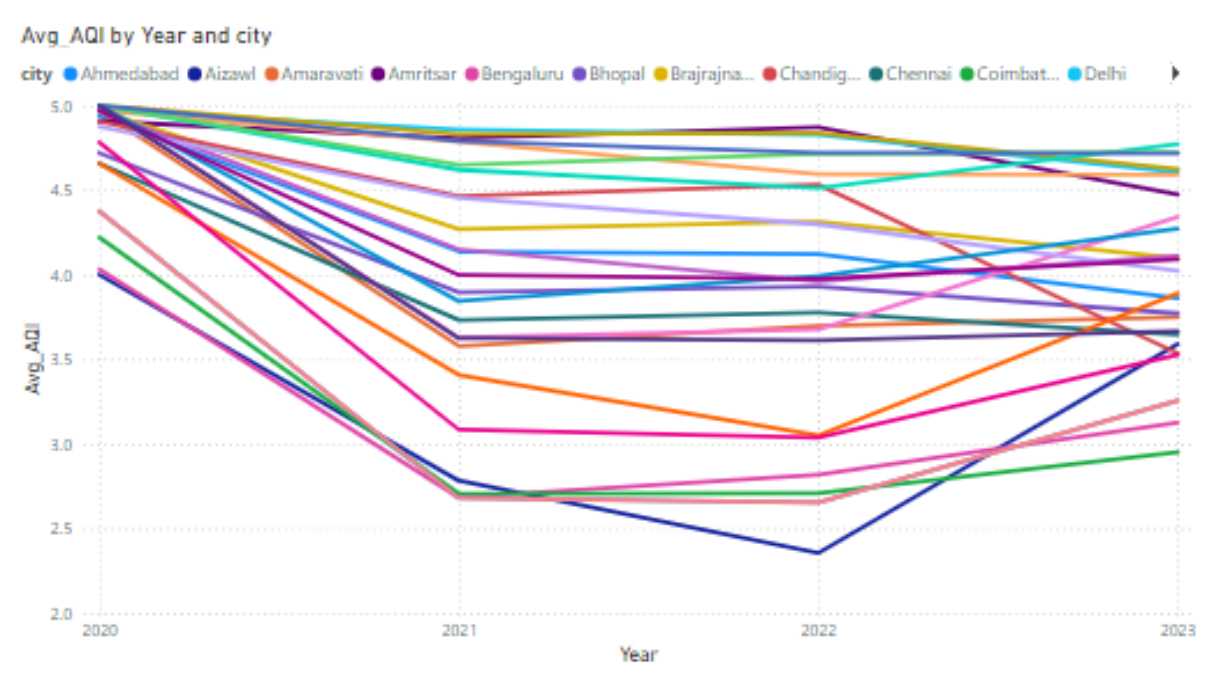
13. Which months have the highest air pollution levels?



Inference:

December and January months have the highest pollution levels among other months and February and March are placed next to them.

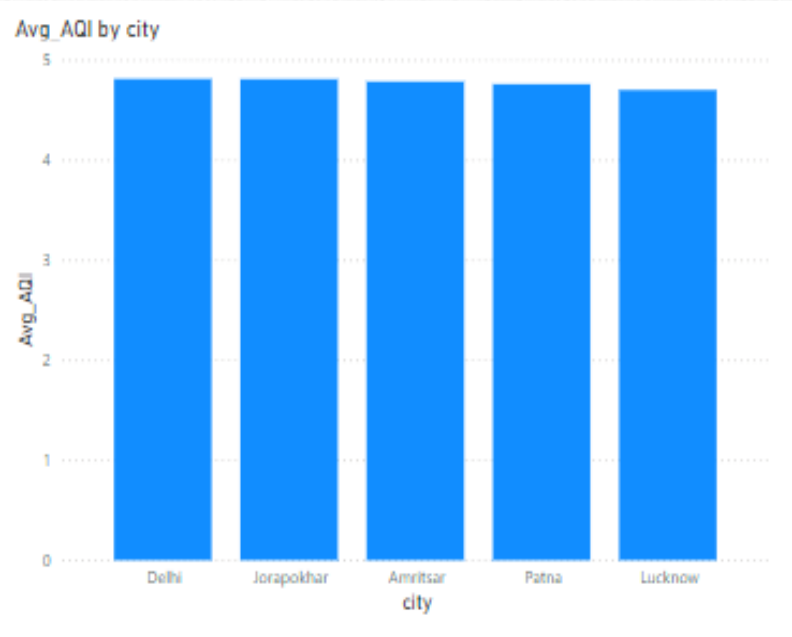
14. How has the average AQI changed year-over-year in various regions?

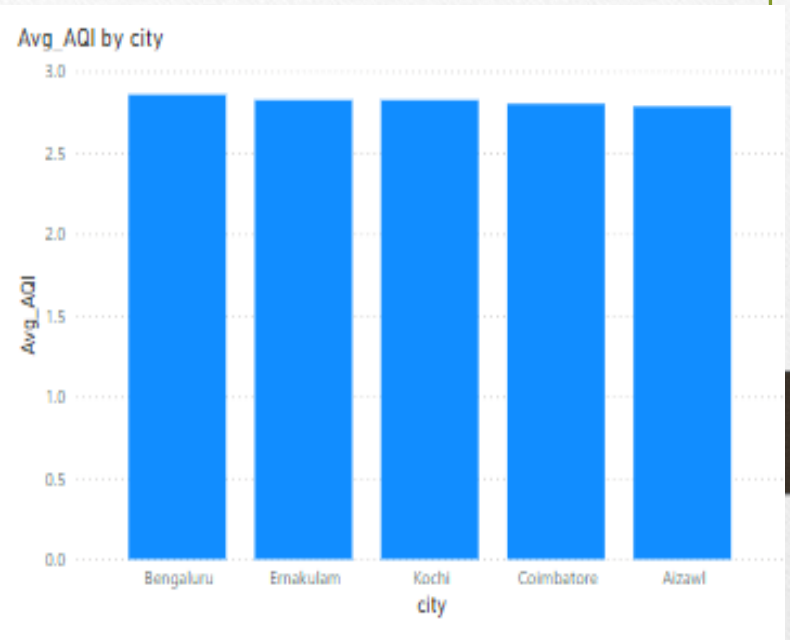


Inference:

This chart shows that most cities experienced an improvement in air quality during 2021. However, in 2022 and beyond, air quality seems to be worsening again in many regions.

15. What are the top 5 most polluted and least polluted cities over a specified time period?

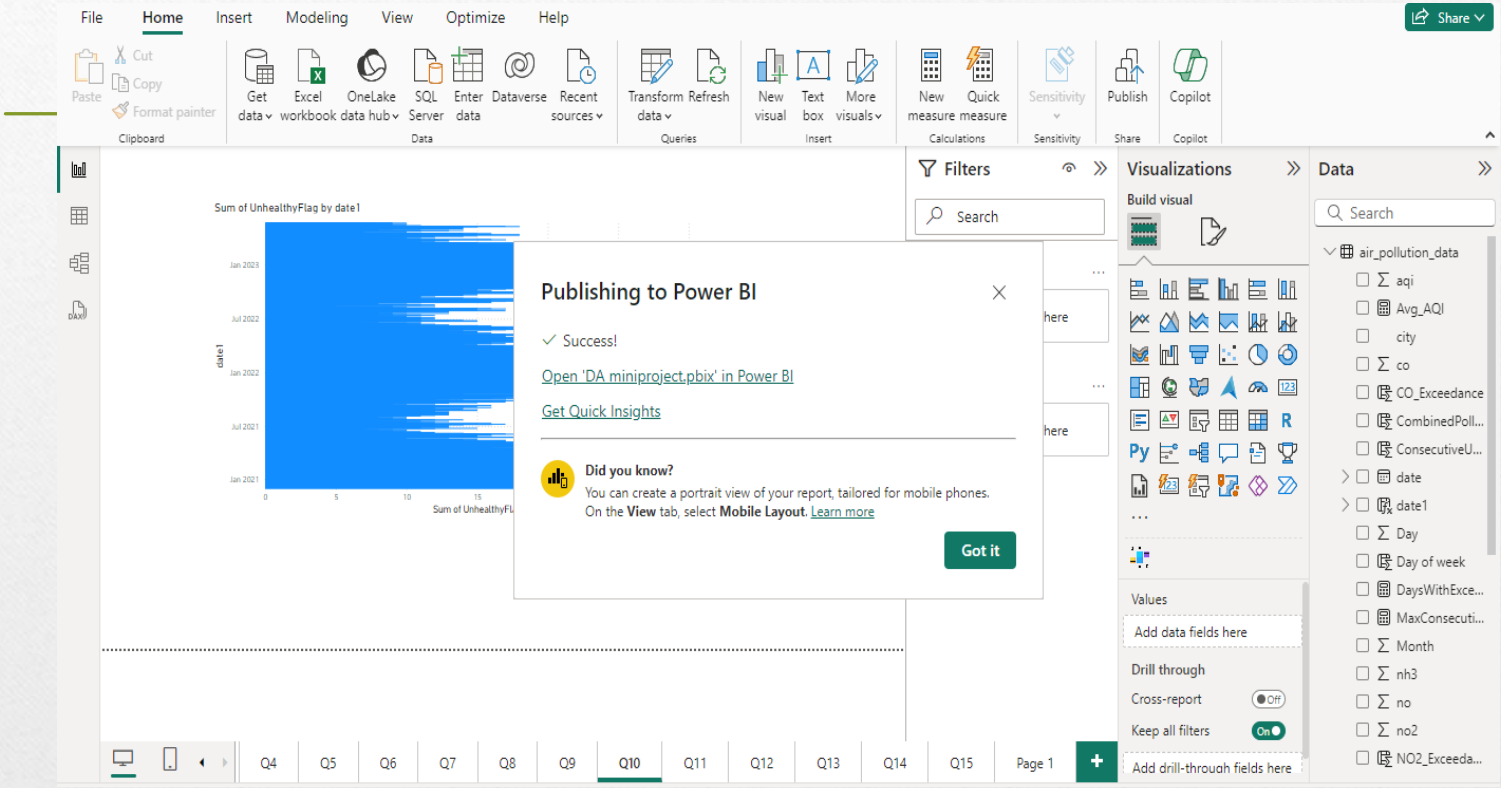


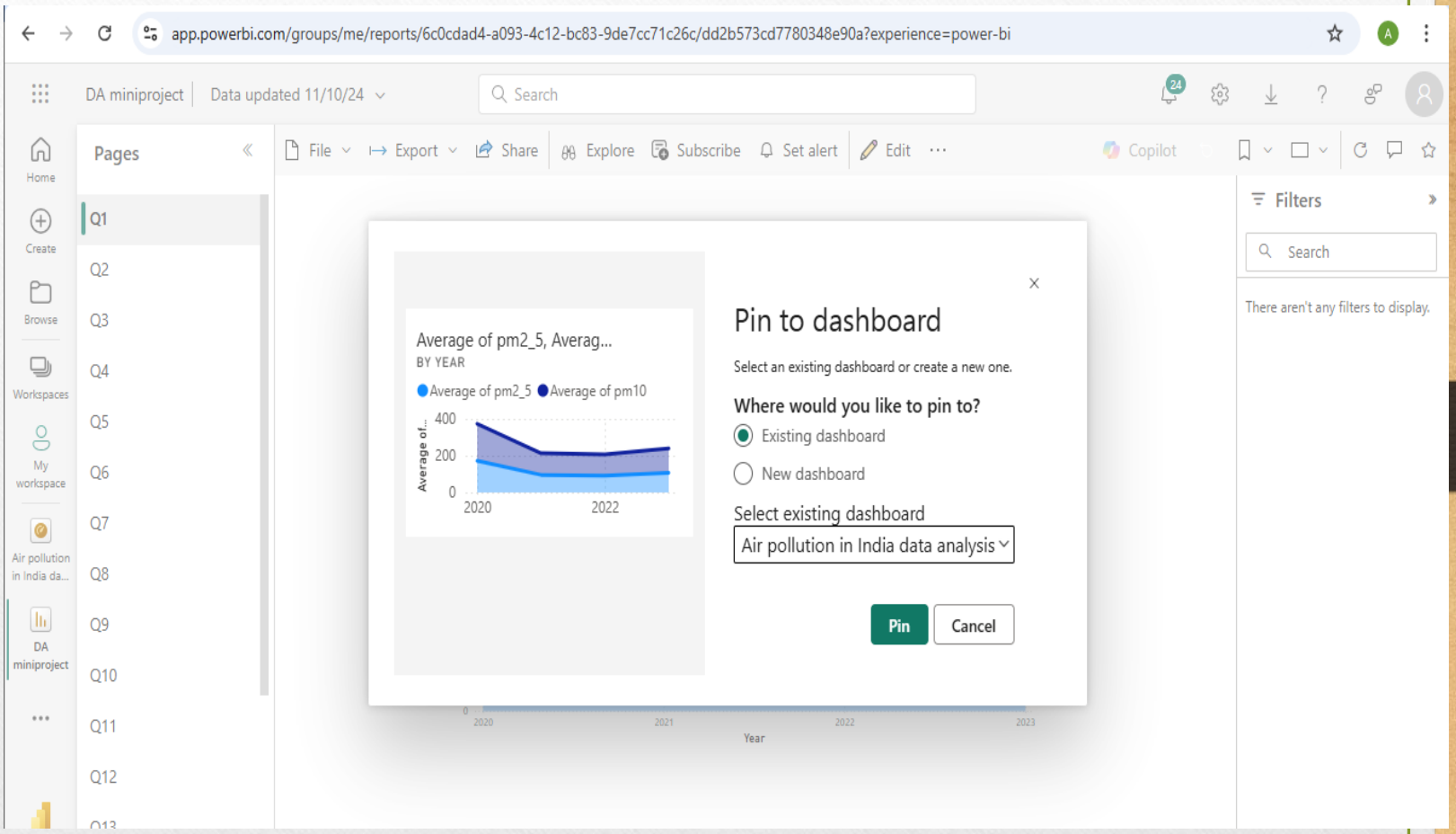


Inference:

The most polluted cities are Delhi, Jorapokhar, Amritsar, Patna, Lucknow. The least polluted cities are Bengaluru, Ernakulam, Kochi, Coimbatore, Aizawl.

DASH BOARD CREATION:

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Q5
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Explore
Subscribe
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Search
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BY YEAR
Average of pm2_5
Average of pm10
Pin to dashboard
Select an existing dashboard or create a new one.
Where would you like to pin to?
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Select existing dashboard
Air pollution in India data analysis
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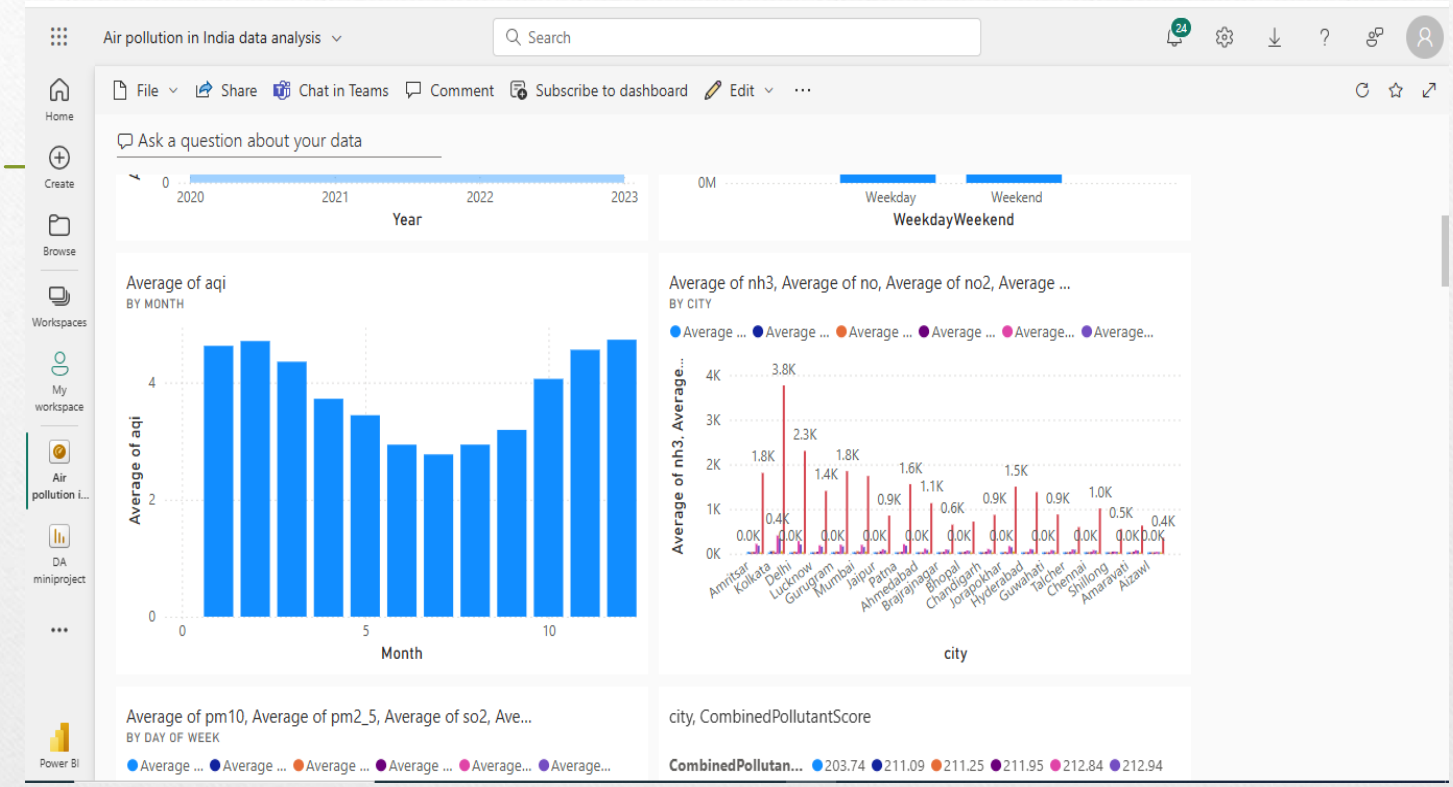
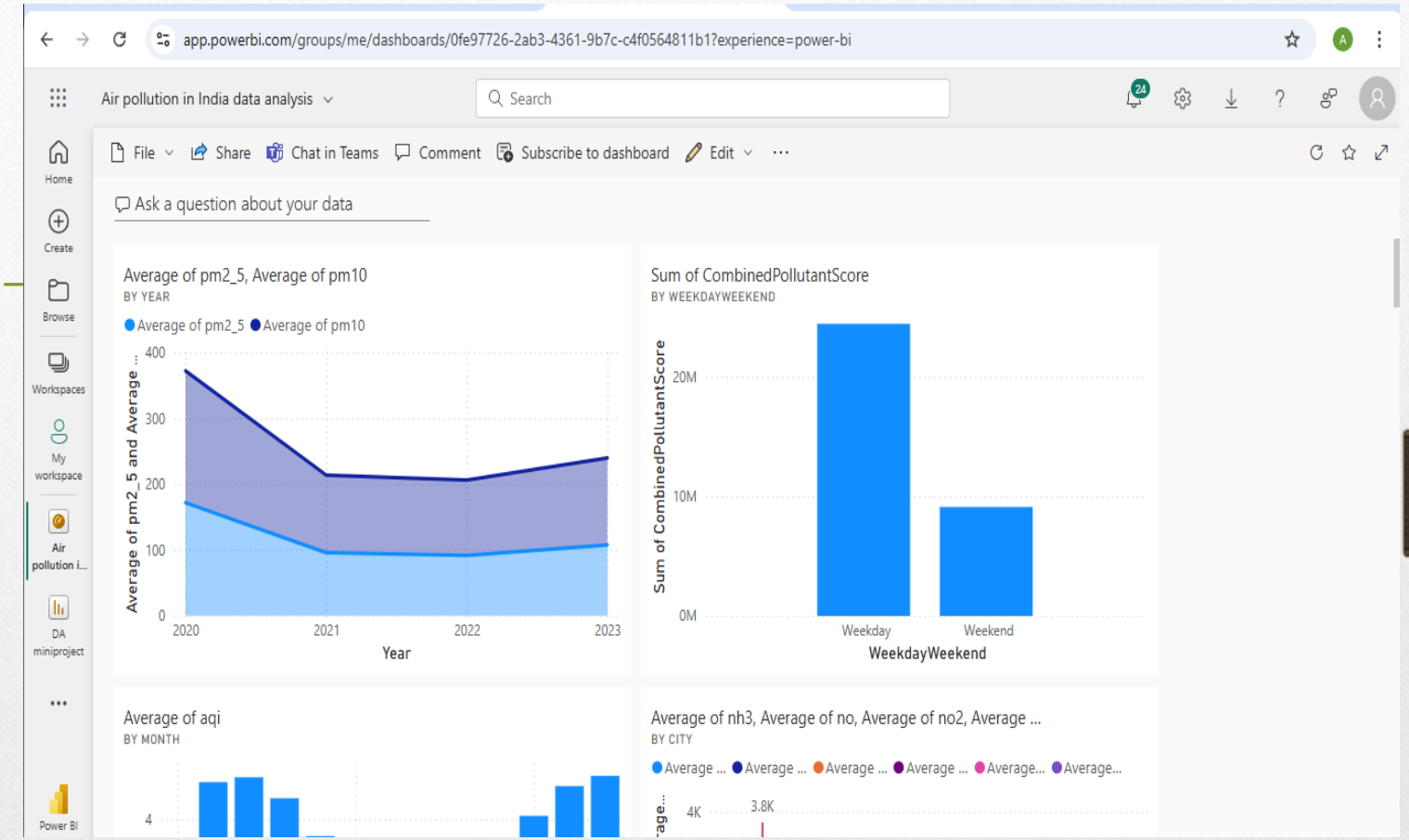
Year

DASH BOARD VIEW:

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Workspaces
My workspace
Air pollution i...
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Power BI
Ask a question about your data
Average of pm2_5, Average of pm10
BY YEAR
Average of pm2_5
Average of pm10
Average of pm2_5 and Average ...
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300
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2020
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Year
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BY WEEKDAYWEEKEND
Sum of CombinedPollutantScore
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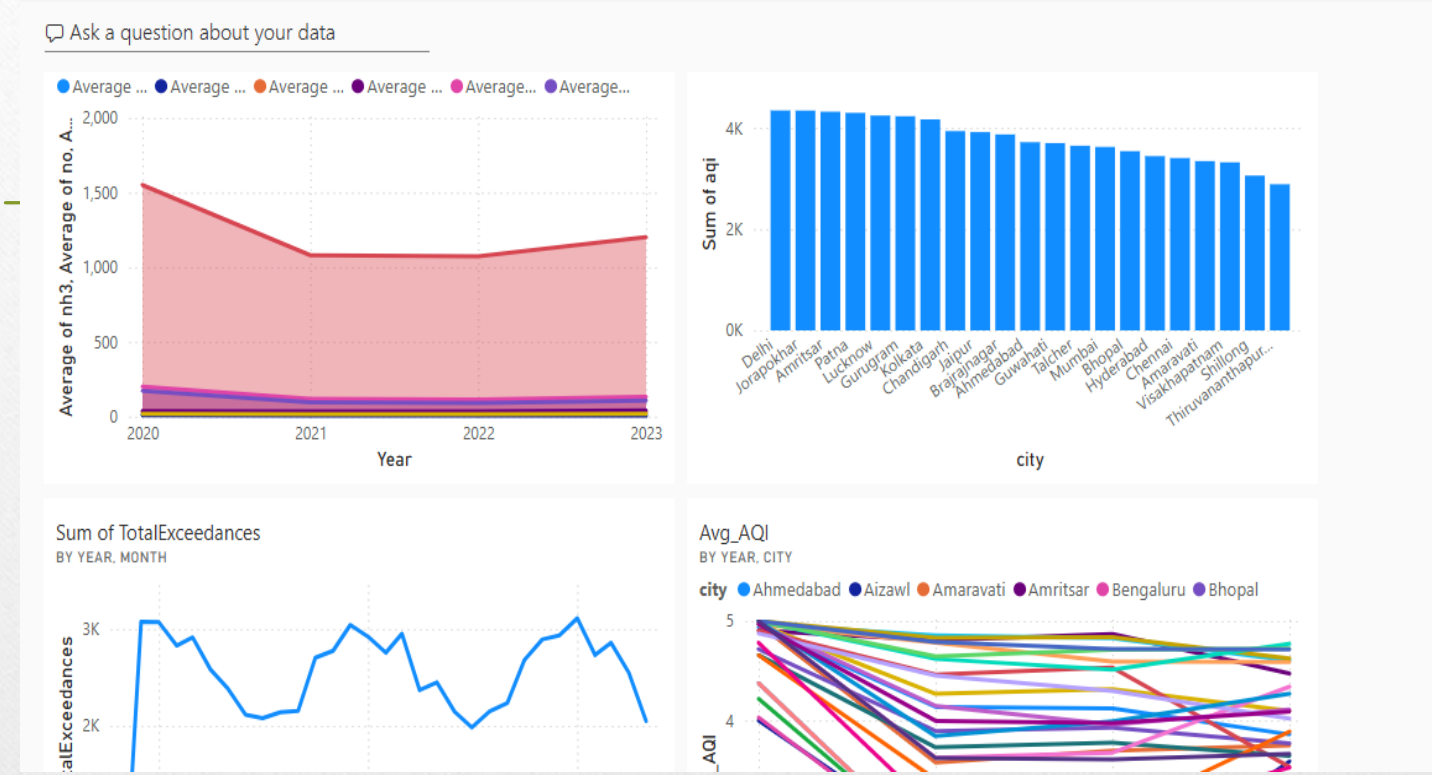
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Brajrajnagar
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Guwahati
Talcher
Mumbai
Bhopal
Hyderabad
Chennai
Amaravati
Visakhapatnam
Shillong
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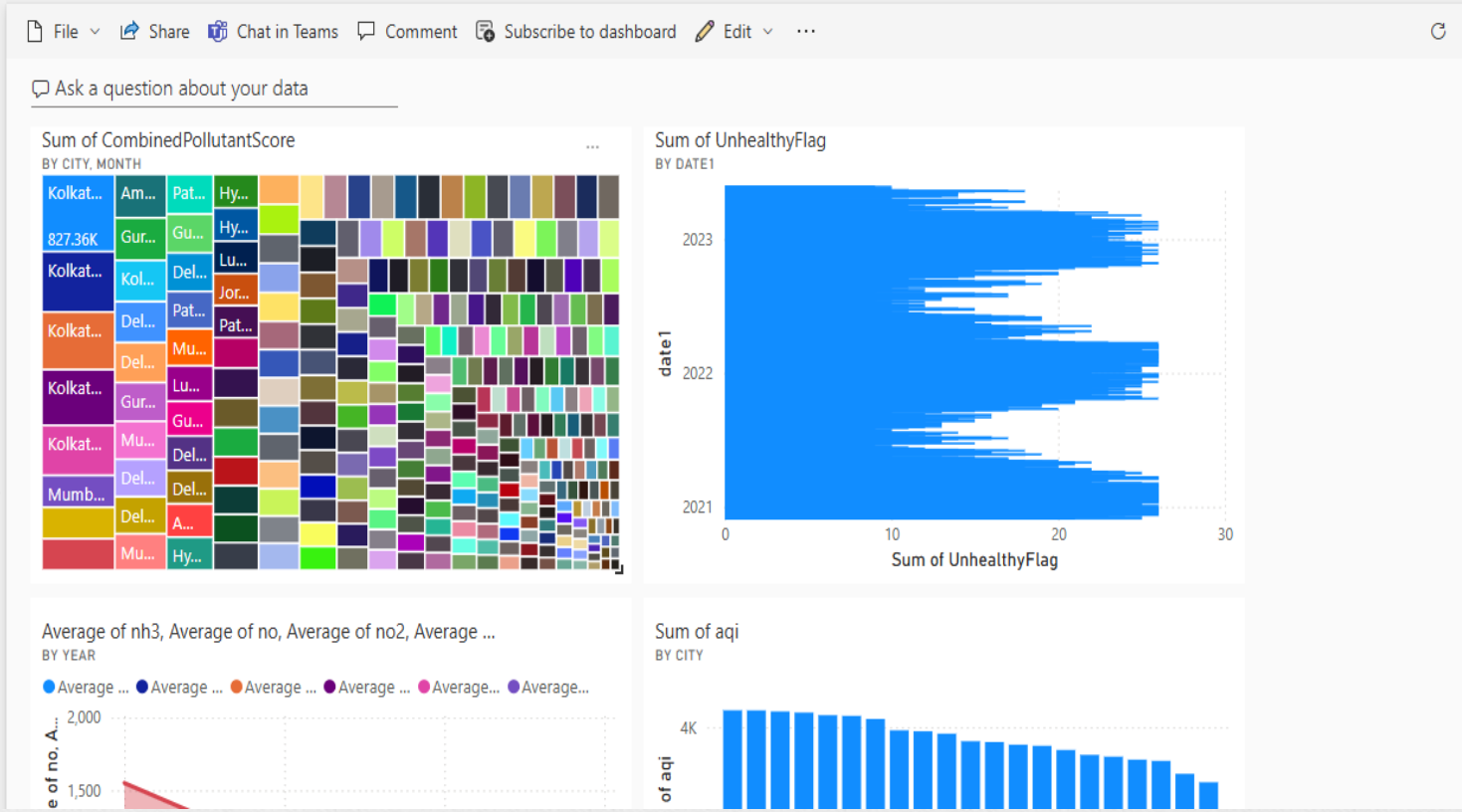
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Sum of CombinedPollutantScore
BY CITY, MONTH
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Sum of UnhealthyFlag
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BY CITY
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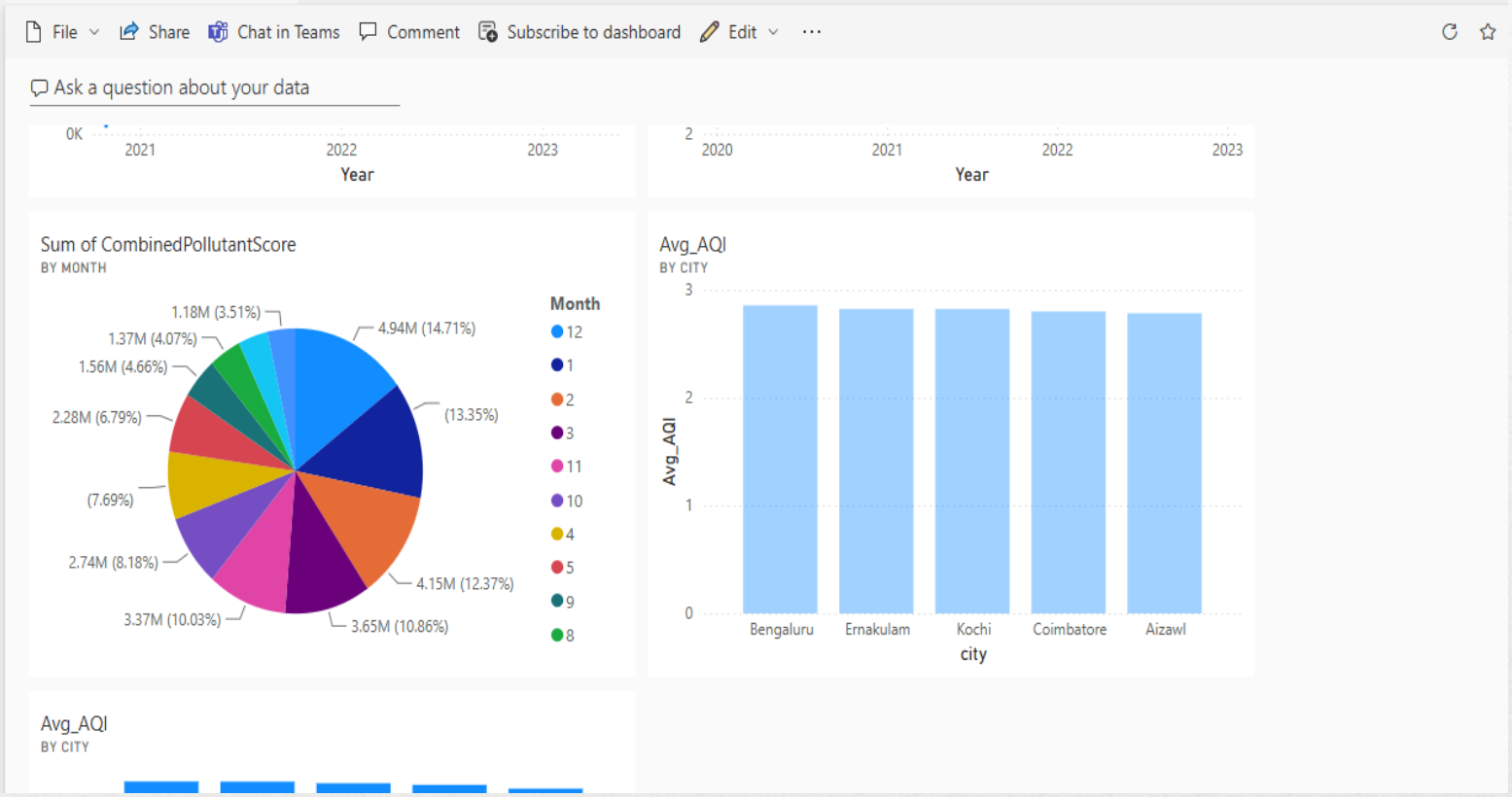
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Ask a question about your data
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2021
2022
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2020
2021
2022
2023
Year
Sum of CombinedPollutantScore
BY MONTH
1.18M (3.51%)
4.94M (14.71%)
1.37M (4.07%)
1.56M (4.66%)
(13.35%)
2.28M (6.79%)
(7.69%)
2.74M (8.18%)
4.15M (12.37%)
3.37M (10.03%)
3.65M (10.86%)
Month
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8
Avg_AQI
BY CITY
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Avg_AQI
Bengaluru
Ernakulam
Kochi
Coimbatore
Aizawl
city
Avg_AQI
BY CITY

THANK YOU