

INDIA AIR QUALITY INDEX ANALYSIS

-Real time air pollution level



-BALJEET CHOUDHARY

Project overview

The air quality monitoring system is a comprehensive solution designed to collect, store and analyse air quality data from various monitoring stations across different states and cities. The system aims to provide valuable insights into the air quality of different reasons, aiding environmentalists, policymakers, and the general public in making informed decisions regarding health and environmental concerns.



1) Retrieve all records for a specific city (e.g., Mumbai) ?

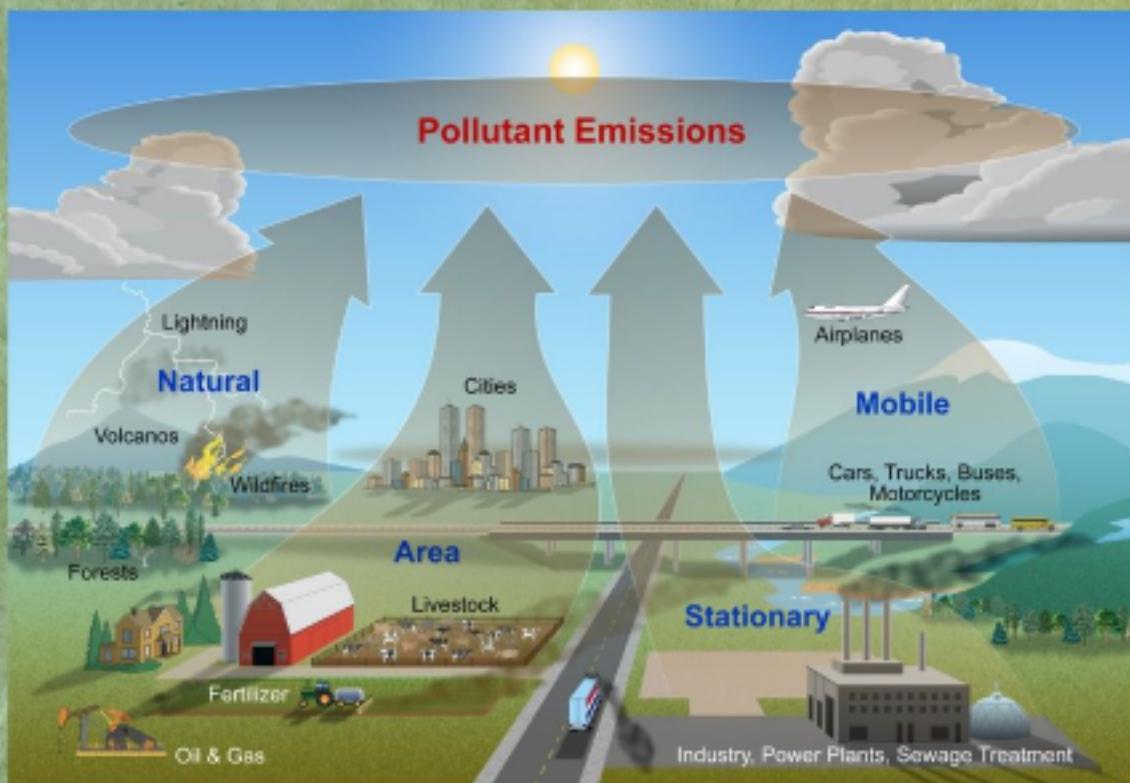
```
SELECT * FROM Airquality  
WHERE City = "Mumbai";
```



	SerialNumber	State	City	StationName	CurrentAQIValue
▶	108	Maharashtra	Mumbai	BKC, Mumbai - MPCB	151
	291	Maharashtra	Mumbai	Bandra, Mumbai - MPCB	212
	413	Maharashtra	Mumbai	Worli, Mumbai - MPCB	196
•	HULL	HULL	HULL	HULL	HULL

2) Find the average AQI value for each state?

```
SELECT State,ROUND(AVG(CurrentAQIvalue),2) AS Avg_AQI  
FROM Airquality  
GROUP BY State;
```



State	Avg_AQI
Andhra Pradesh	76.47
Arunachal Pradesh	64
Assam	94.5
Bihar	124
Chandigarh	68.67
Chhattisgarh	92
Dadra and Nagar Haveli	52
Daman and Diu	57
Delhi	290
Goa	41.67
Gujarat	122
Haryana	147.81
Himachal Pradesh	56.21
Jharkhand	97.6
Karnataka	68.81
Kerala	41.28
Madhya Pradesh	114.45
Maharashtra	121.79
Manipur	45
Meghalaya	35.33

3) Identify cities where AQI is above a certain threshold (e.g., $\text{AQI} > 200$)?

```
SELECT City, CurrentAQIvalue  
FROM Airquality  
WHERE CurrentAQIvalue > 200  
ORDER BY CurrentAQIvalue DESC;
```



	City	CurrentAQIvalue
▶	Delhi	318
	Ghaziabad	315
	Ahmedabad	292
	Ghaziabad	289
	Gurugram	277
	Faridabad	272
	Greater Noida	264
	Noida	264
	Noida	264
	Delhi	262
	Surat	241
	Noida	239
	Thane	218
	Kalyan	215
	Ghaziabad	213
	Mumbai	212
	Kanpur	207
	Faridabad	204
	Lucknow	203

4) Count the number of records with insufficient data ?

```
SELECT COUNT(*) AS Insufficient_Data_Count  
FROM Airquality  
WHERE CurrentAQIvalue = 'Insufficient data available in last 24 hours';
```

Insufficient_Data_Count
0



5) Find the highest AQI value along with the corresponding city and state?

```
SELECT city,state,currentAQIvalue  
FROM Airquality  
ORDER BY CurrentAQIvalue DESC  
LIMIT 1;
```

	city	state	currentAQIvalue
▶	Delhi	Delhi	318



6) Calculate the overall average AQI for the entire dataset?

```
SELECT ROUND(AVG(CurrentAQIValue),2) AS Overall_average_AQI  
FROM Airquality;
```

Overall_average_AQI
96.05



7) Retrieve records for states with more than five city?

```
SELECT State, COUNT(DISTINCT City) AS No_of_cities  
FROM Airquality  
GROUP BY State  
HAVING No_of_cities > 5;
```



State	No_of_cities
Andhra Pradesh	17
Gujarat	12
Haryana	19
Himachal Pradesh	12
Karnataka	19
Kerala	9
Lakshadweep	10
Madhya Pradesh	8
Maharashtra	24
Odisha	9
Punjab	9
Rajasthan	11
Tamil Nadu	18
Telangana	10
Uttar Pradesh	14
West Bengal	7

8)Find the cities in a specific state with AQI less than 50 ?

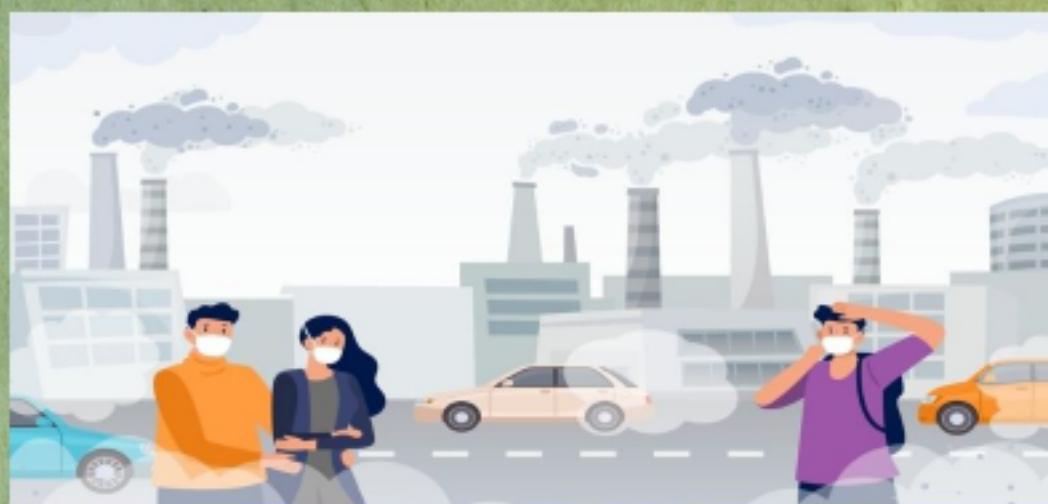
```
SELECT City,CurrentAQIvalue  
FROM Airquality  
WHERE CurrentAQIvalue < 50  
ORDER BY CurrentAQIvalue ASC;
```



	City	CurrentAQIvalue
▶	Alappuzha	20
	Aizawl	21
	Vizianagaram	23
	Andrott	27
	Chetlat	27
	Chetlat	27
	Andrott	27
	Andrott	27
	Port Blair	27
	Shillong	27
	Chetlat	27
	Balasore	28
	Kavaratti	28
	Kavaratti	28
	Kavaratti	28
	Amini	29
	Agatti	29
	Agatti	29
	Kozhikode	29
	Amini	29

9) Categorize AQI values into different pollution levels ?

```
SELECT City, CurrentAQIvalue,  
CASE  
    WHEN CurrentAQIvalue <= 50 THEN 'Good'  
    WHEN CurrentAQIvalue <= 100 THEN 'Moderate'  
    WHEN CurrentAQIvalue <= 150 THEN 'Unhealthy for Sensitive Groups'  
    WHEN CurrentAQIvalue <= 200 THEN 'Unhealthy'  
    WHEN CurrentAQIvalue <= 300 THEN 'Very Unhealthy'  
    ELSE 'Hazardous'  
END AS Pollution_level  
FROM Airquality  
WHERE CurrentAQIvalue IS NOT NULL;
```



City	CurrentAQIvalue	Pollution_Level
Amaravati	135	Unhealthy for Sensitive Groups
Anantapur	62	Moderate
Chittoor	30	Good
Eluru	95	Moderate
Guntur	84	Moderate
Kadapa	102	Unhealthy for Sensitive Groups
Kakinada	54	Moderate
Kurnool	44	Good
Nellore	72	Moderate
Ongole	88	Moderate
Rajamahe...	73	Moderate
Srikakulam	45	Good
Tirupati	107	Unhealthy for Sensitive Groups
Vijayawada	97	Moderate
Visakhapa...	106	Unhealthy for Sensitive Groups
Vizianaga...	23	Good
Yemmiganur	83	Moderate
Itanagar	64	Moderate
Guwahati	92	Moderate
Naqaon	112	Unhealthy for Sensitive Groups

10) find cities with the Lowest AQI values in each state and rank top 1 ?

```
WITH Lowest_AQI AS (
    SELECT DISTINCT City, CurrentAQIvalue, State,
    RANK() OVER(PARTITION BY State ORDER BY CurrentAQIvalue ASC) AS Lowest_AQI_rank
    FROM Airquality)
SELECT City, State, CurrentAQIvalue, Lowest_AQI_rank
FROM Lowest_AQI
LIMIT 1;
```

	City	State	CurrentAQIvalue	Lowest_AQI_rank
▶	Port Blair	Andaman and Nicobar Islands	27	1





Thank you!

