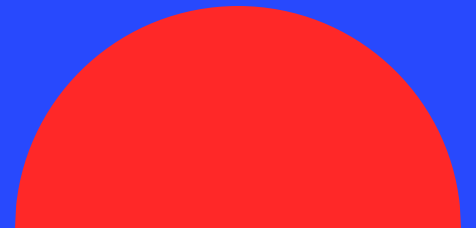
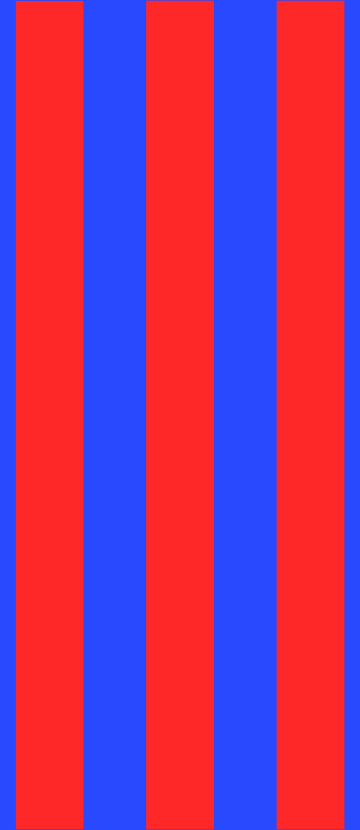


INDIA Air Quality Index Analysis

Presented by Shaik Baji



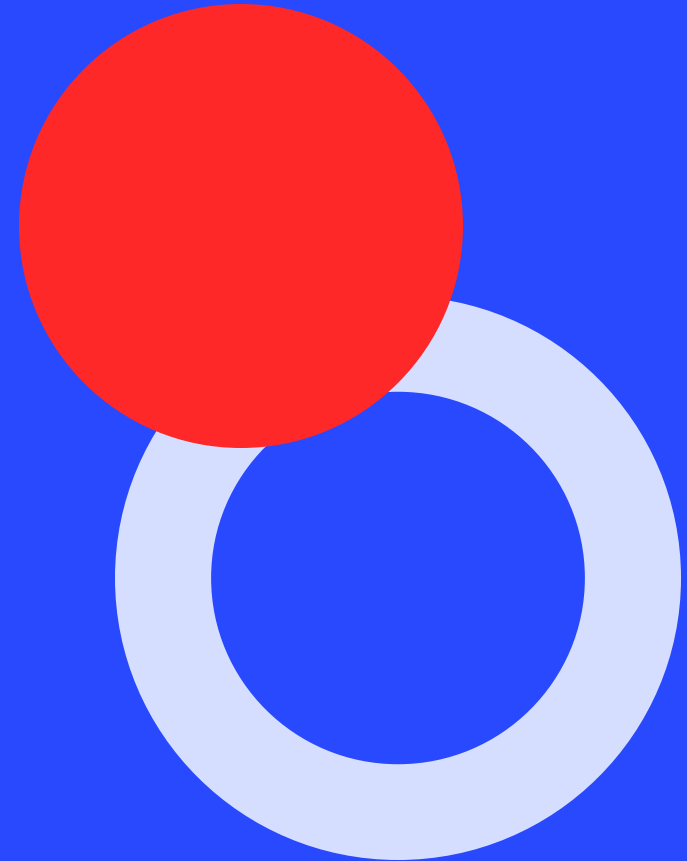
Objective

The Air Quality Monitoring System serves as an all-encompassing solution crafted to gather, store, and scrutinize air quality data derived from diverse monitoring stations situated across various states and cities. The primary objective of this initiative is to furnish valuable insights into the air quality across different regions. Such information proves instrumental for environmentalists, policymakers, and the public at large, empowering them to make well-informed decisions about health and environmental matters.











Table : Air Quality

	serialnumber [PK] integer	state character varying (50)	city character varying (50)	stationname character varying (100)	currentaqvalue double precision
1	1	Andhra Pradesh	Amaravati	Secretariat, Amaravati - ...	135
2	2	Andhra Pradesh	Anantapur	Gulzarpet, Anantapur - ...	62
3	3	Andhra Pradesh	Chittoor	Gangineni Cheruvu, Chi...	30
4	4	Andhra Pradesh	Eluru	Eluru - APPCB	95
5	5	Andhra Pradesh	Guntur	Collectorate, Guntur - A...	84
6	6	Andhra Pradesh	Kadapa	RTC Bus Stand, Kadapa...	102
7	7	Andhra Pradesh	Kakinada	LMD Colony, Kakinada - ...	54
8	8	Andhra Pradesh	Kurnool	Gandhi Nagar, Kurnool ...	44
9	9	Andhra Pradesh	Nellore	ZP Office, Nellore - AP...	72
10	10	Andhra Pradesh	Ongole	Ongole - APPCB	88
11	11	Andhra Pradesh	Rajamahendravaram	RTC Complex, Rajamah...	73
12	12	Andhra Pradesh	Srikakulam	New RTC Bus Stand, Sri...	45
13	13	Andhra Pradesh	Tirupati	Tirupati - APPCB	107
14	14	Andhra Pradesh	Vijayawada	Income Tax Office, Vija...	97
15	15	Andhra Pradesh	Visakhapatnam	GVM Corporation Offic...	106
16	16	Andhra Pradesh	Vizianagaram	Vizianagaram - APPCB	23
17	17	Andhra Pradesh	Yemmiganur	Yemmiganur - APPCB	83







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

```
SELECT * FROM airquality
WHERE city = 'Mumbai';
```

Result Grid   Filter Rows: <input type="text"/> Edit:    Export/Import:   Wrap Cell Content: 					
	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
✱	NULL	NULL	NULL	NULL	NULL

(2)Find The average AQI value for each state.

```
SELECT State,round(AVG(CurrentAQIValue)) AS Avg_AQI
FROM airquality
GROUP BY State;
```

Result Grid   Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 		
	State	Avg_AQI
▶	Andhra Pradesh	76
	Arunachal Pradesh	64
	Assam	94
	Bihar	124
	Chandigarh	69
	Chhattisgarh	92
	Dadra and Nagar Haveli	52
	Daman and Diu	57
	Delhi	290
	Goa	42
	Gujarat	122
	Haryana	148
	Himachal Pradesh	56
	Jharkhand	98
	Karnataka	69
	Kerala	41
	Madhya Pradesh	114
	Maharashtra	122

(3) Identify cities where AQI is above a certain threshold (e.g., $AQI > 200$).

```
SELECT City, CurrentAQIValue
FROM airquality
WHERE CurrentAQIValue > 200;
```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
City	CurrentAQIValue			
Delhi	318			
Faridabad	204			
Ghaziabad	315			
Noida	239			
Delhi	262			
Ahmedabad	292			
Surat	241			
Faridabad	272			
Gurugram	277			
Kalyan	215			
Mumbai	212			
Thane	218			
Ghaziabad	289			
Greater Noi...	264			
Lucknow	203			
Noida	264			
Ghaziabad	213			
Kanpur	207			

(4) Count the number of records with insufficient data?

```
SELECT COUNT(*) FROM airquality  
WHERE CurrentAQIValue IS NULL;
```

Result Grid		Filter Rows:
	COUNT(*)	
▶	0	



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

```
SELECT State, City, CurrentAQIValue FROM airquality  
ORDER BY CurrentAQIValue DESC LIMIT 1 ;
```

Result Grid			
Filter Rows:			
	State	City	CurrentAQIValue
▶	Delhi	Delhi	318

(6) Calculate the overall average AQI for the entire dataset.

```
SELECT round(AVG(CurrentAQIValue),2) AS OverAll_Average  
FROM airquality;
```

Result Grid			 Filter Rows: <input type="text"/>
	OverAll_Average		
▶	96.05		

(7) Retrieve records for states with more than five city.

```
SELECT State,Count(DISTINCT City) AS CityCount
FROM airquality
GROUP BY State HAVING Count(DISTINCT City)>5;
```

Result Grid			Filter Rows:
	State	CityCount	
▶	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 State, City, CurrentAQIValue
FROM airquality
WHERE CurrentAQIValue < 50;
```

Result Grid				Filter Rows:	Export:
	State	City	CurrentAQIValue		
▶	Andhra Pradesh	Chittoor	30		
	Andhra Pradesh	Kurnool	44		
	Andhra Pradesh	Srikakulam	45		
	Andhra Pradesh	Vizianagaram	23		
	Chandigarh	Chandigarh	48		
	Goa	Margao	34		
	Goa	Panaji	32		
	Gujarat	Morbi	38		
	Himachal Pradesh	Dalhousie	48		
	Himachal Pradesh	Dharamshala	42		
	Himachal Pradesh	Mandi	47		
	Himachal Pradesh	Paonta Sahib	39		
	Himachal Pradesh	Sirmaur	44		
	Himachal Pradesh	Solan	45		
	Karnataka	Bagalkot	33		
	Karnataka	Belagavi	44		
	Kerala	Alappuzha	20		
	Kerala	Ernakulam	32		
	Kerala	Kannur	33		




(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 Group"  
    WHEN CurrentAQIValue<=200 THEN "Unhealthy For All"  
    WHEN CurrentAQIValue<=250 THEN "Very Dangerous"  
    ELSE "Hazardous"  
END  
AS Categorize_AQI_Values  
FROM airquality;
```

Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content:			
	City	CurrentAQIValue	Categorize_AQI_Values
▶	Amaravati	135	Unhealthy For Sensitive Group
	Anantapur	62	Moderate
	Chittoor	30	Good
	Eluru	95	Moderate
	Guntur	84	Moderate
	Kadapa	102	Unhealthy For Sensitive Group
	Kakinada	54	Moderate
	Kurnool	44	Good
	Nellore	72	Moderate
	Ongele	88	Moderate
	Rajamahe...	73	Moderate
	Srikakulam	45	Good

(10) Find cities with the lowest AQI values in each state and rank them.

```
SELECT State, City, CurrentAQIValue,  
RANK() OVER(PARTITION BY State ORDER BY CurrentAQIValue) AS  
Ranks FROM airquality;
```

Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 				
	State	City	CurrentAQIValue	Ranks
▶	Andaman and Nicobar Islands	Port Blair	27	1
	Andaman and Nicobar Islands	Port Blair	32	2
	Andhra Pradesh	Vizianagaram	23	1
	Andhra Pradesh	Chittoor	30	2
	Andhra Pradesh	Kurnool	44	3
	Andhra Pradesh	Srikakulam	45	4
	Andhra Pradesh	Kakinada	54	5
	Andhra Pradesh	Anantapur	62	6
	Andhra Pradesh	Nellore	72	7
	Andhra Pradesh	Rajamahendravaram	73	8
	Andhra Pradesh	Yemmiganur	83	9
	Andhra Pradesh	Guntur	84	10

(11) Retrieve the states where the highest pollution level is recorded and the corresponding pollution level.

```
SELECT State, MAX(CurrentAQIValue) AS Highest_Value  
FROM airquality  
GROUP BY State;
```

Result Grid			Filter Rows:
	State	Highest_Value	
►	Andhra Pradesh	135	
	Arunachal Pradesh	64	
	Assam	112	
	Bihar	146	
	Chandigarh	91	
	Chhattisgarh	143	
	Dadra and Nagar Haveli	52	
	Daman and Diu	57	
	Delhi	318	
	Goa	59	
	Gujarat	292	
	Haryana	277	

(12) Identify the stations where the pollution level is higher than the average pollution level across all stations.

```
SELECT State,CurrentAQIValue FROM airquality
WHERE CurrentAQIValue > (SELECT AVG(CurrentAQIValue) FROM airquality);
```

Result Grid			Filter Rows:	Export:
	State	CurrentAQIValue		
►	Andhra Pradesh	135		
	Andhra Pradesh	102		
	Andhra Pradesh	107		
	Andhra Pradesh	97		
	Andhra Pradesh	106		
	Assam	112		
	Assam	99		
	Bihar	113		
	Bihar	108		
	Bihar	117		
	Bihar	146		
	Bihar	136		
	Delhi	318		




(13) Retrieve the names and pollution levels of stations in the National Capital Region (NCR).

```
SELECT State,CurrentAQIValue  
FROM airquality  
WHERE City IN ("Delhi","Ghaziabad","Noida","Gurugram","Faridabad");
```

Result Grid			Filter Rows:
	State	CurrentAQIValue	
▶	Delhi	318	
	Haryana	204	
	Haryana	190	
	Uttar Pradesh	315	
	Uttar Pradesh	239	
	Delhi	262	
	Haryana	272	
	Haryana	277	
	Uttar Pradesh	289	
	Uttar Pradesh	264	
	Uttar Pradesh	213	
	Uttar Pradesh	264	

(14) Find the monitoring stations in South India (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana) with pollution levels greater than 100.

```
SELECT State, City, CurrentAQIValue FROM airquality
WHERE State IN ("Andhra Pradesh", "Karnataka", "Kerala", "Tamil Nadu", "Telangana")
AND CurrentAQIValue > 100;
```

Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 			
	State	City	CurrentAQIValue
▶	Andhra Pradesh	Amaravati	135
	Andhra Pradesh	Kadapa	102
	Andhra Pradesh	Tirupati	107
	Andhra Pradesh	Visakhapatnam	106
	Tamil Nadu	Chennai	109
	Telangana	Hyderabad	128
	Telangana	Sangareddy	119
	Telangana	Nalgonda	114
	Telangana	Hyderabad	103
	Telangana	Rangareddy	108
	Telangana	Warangal	124




(15) Find the states with the highest average pollution levels.

```
SELECT State, ROUND(AVG(CurrentAQIValue), 2) AS Highest_Avg_Pollution
FROM airquality
GROUP BY State
ORDER BY AVG(CurrentAQIValue) DESC
LIMIT 1;
```

Result Grid			Filter Rows:	
	State	Highest_Avg_Pollution		
▶	Delhi	290		

(16) Find the states with the Lowest Average pollution levels.

```
SELECT State,ROUND(AVG(CurrentAQIValue),2) AS Lowest_Avg_Pollution
FROM airquality
GROUP BY State
ORDER BY AVG(CurrentAQIValue)
LIMIT 1;
```

Result Grid			Filter Rows: <input type="text"/>	Export: 
	State	Lowest_Avg_Pollution		
▶	Andaman and Nicobar Islands	29.5		

SQL PROJECT

THANK

YOU

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[Github Profile](#)

