VISUALIZATION REPORT

1. Key Performance Indicators (KPIs)

The dashboard displays four key high-level metrics that summarize the state of the weather monitoring system:

* Total Alerts: 24

A total of 24 alerts were generated across all stations. This indicates active monitoring and detection of potentially dangerous weather conditions.

* Total Sensors: 92

The system currently utilizes 92 sensors distributed across locations. This provides a robust sensor network capable of capturing diverse environmental data.

* Total Stations: 20

Data is collected from 20 different weather stations, suggesting a well-distributed monitoring infrastructure.

* Total Observations: 92

There are 92 recorded weather observations in the dataset. This represents the total number of measurement entries captured from the deployed sensors.

2. Alert Analysis

a. Alerts by Severity

A bar chart shows the distribution of alerts across severity levels:

Critical Alerts → 12

High Alerts → 12

Interpretation:

Alerts are evenly split between Critical and High severity. This balance indicates that the system encounters both severe and moderately severe weather events at comparable frequency. No low-priority or moderate alerts appear in the dataset.

b. Alerts by Description

Alert types recorded include:

Alert Description	Count
Severe Storm Warning	9
Low Temperature Warning	7
High Temperature Warning	5
Flooding Possible or Ongoing	3

Interpretation:

Severe storm warnings are the most frequent hazard, forming the largest share of alerts.

Low and high temperature warnings also occur regularly.

Flooding alerts are the least common, but still significant due to their potential risk.

This breakdown gives insight into the types of weather hazards most likely to affect the monitored region.

3. Sensor Distribution Analysis (Donut Chart)

The donut chart visualizes the number of sensors by type:

Major Sensor Categories (20 sensors each, 21.74% each):

Humidity

Precipitation

Pressure

Temperature

Minor Sensor Categories (2 sensors each, 2.17% each):

Cloud Cover

PM2.5

UV Index

Visibility

Wind Direction

Wind Speed

Interpretation:

The network is heavily optimized for core meteorological measurements such as temperature, humidity, pressure, and precipitation — each representing nearly a quarter of all sensors.

In contrast, environmental quality and specialized sensors (UV Index, PM2.5, Visibility, etc.) are present but minimal, each contributing only 2.17% of total sensors.

This distribution indicates a system designed primarily for weather forecasting accuracy, with limited emphasis on air quality or environmental health monitoring.

Summary

The dashboard provides a clear overview of the weather system’s performance:

20 stations and 92 sensors ensure comprehensive meteorological coverage.

Alerts are evenly distributed between High and Critical, indicating active detection of major weather hazards.

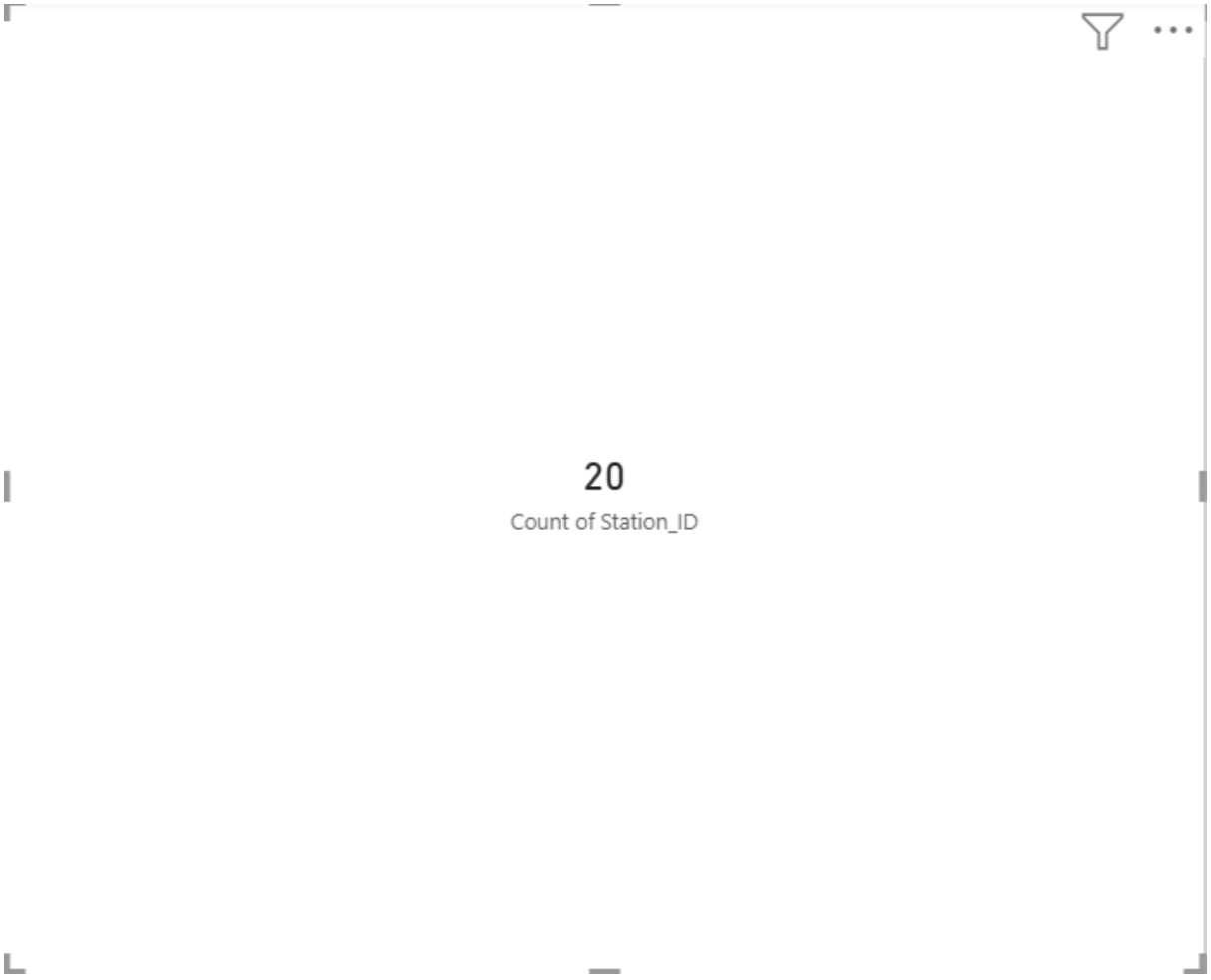
Severe storm warnings are the most frequently triggered alert.

The sensor distribution is dominated by core weather sensors, with limited air quality or environmental sensors.

This consolidated report focuses exclusively on the two visuals you requested and provides a professional interpretation suitable for academic or project submission.

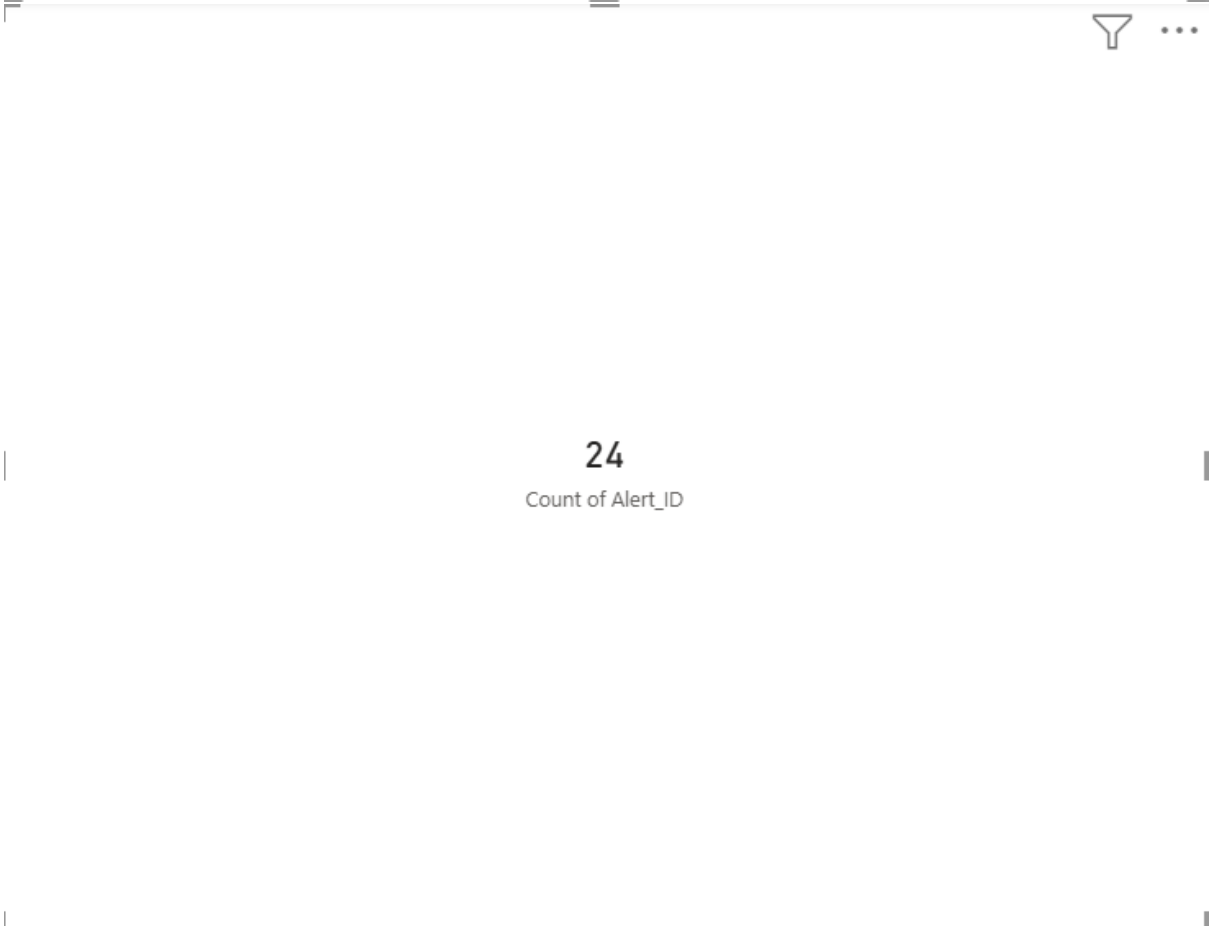
92

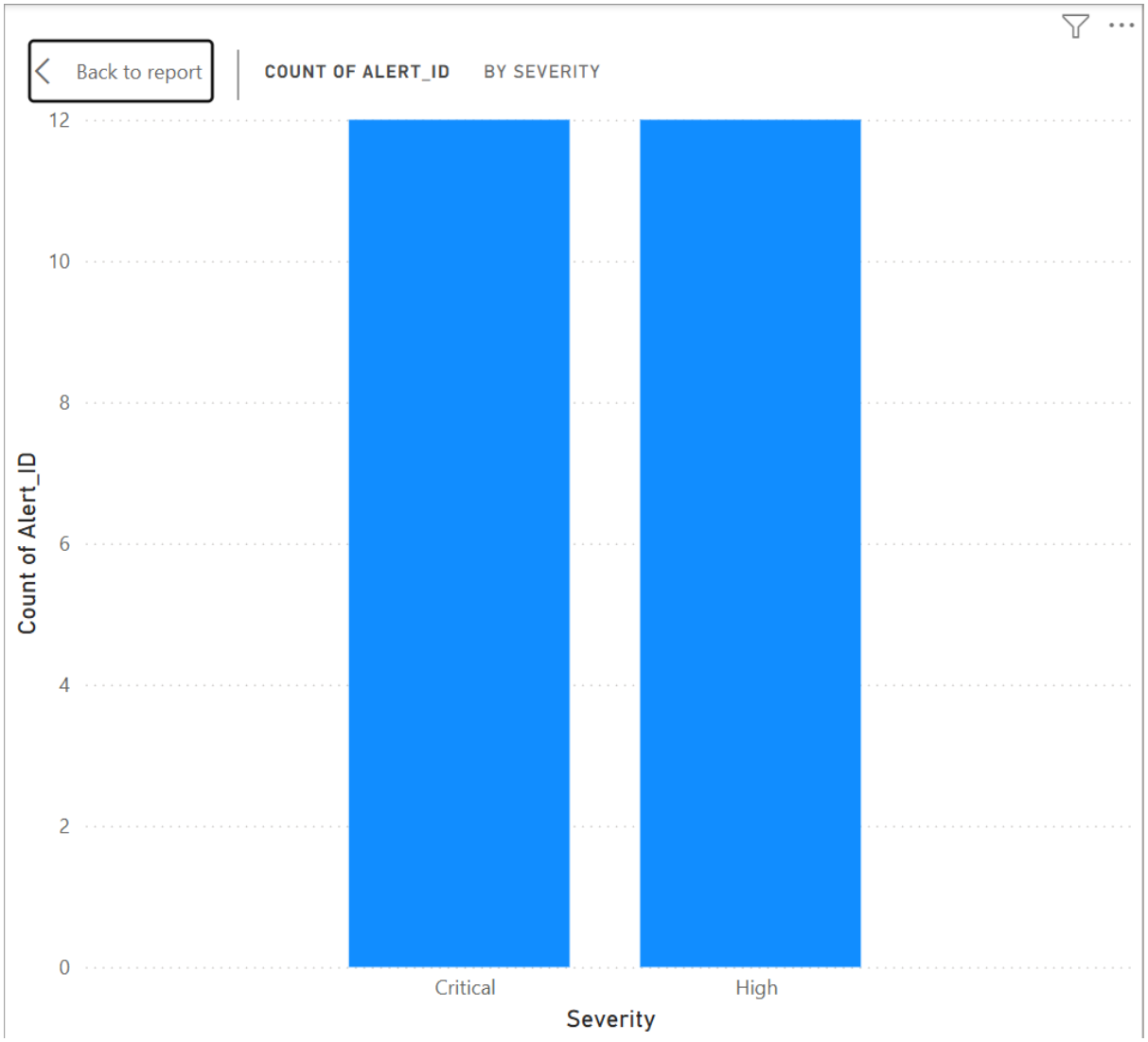
Count of Observation_ID


20
Count of Station_ID


20
Count of Station_ID


92
Count of Sensor_ID


24
Count of Alert_ID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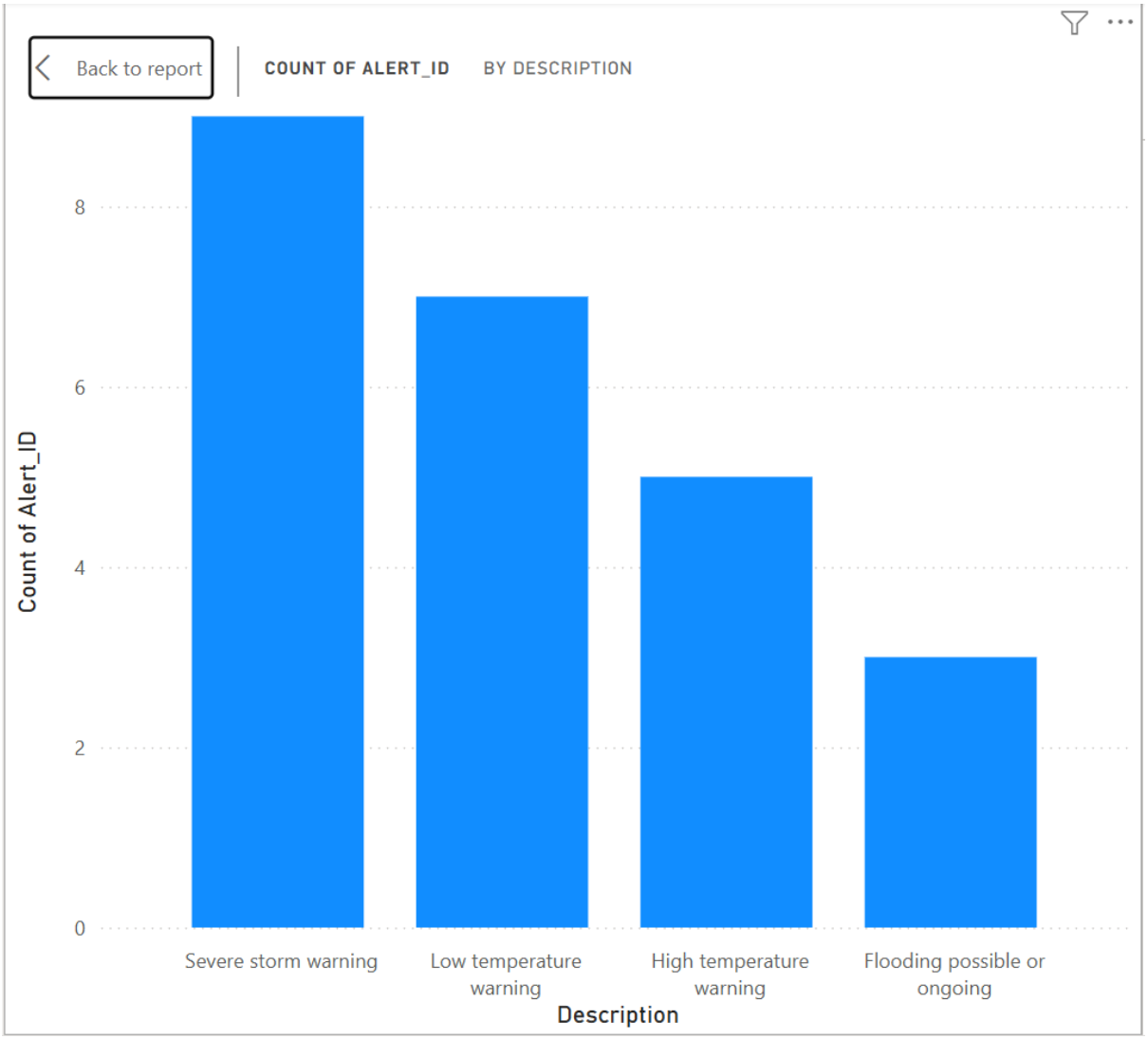
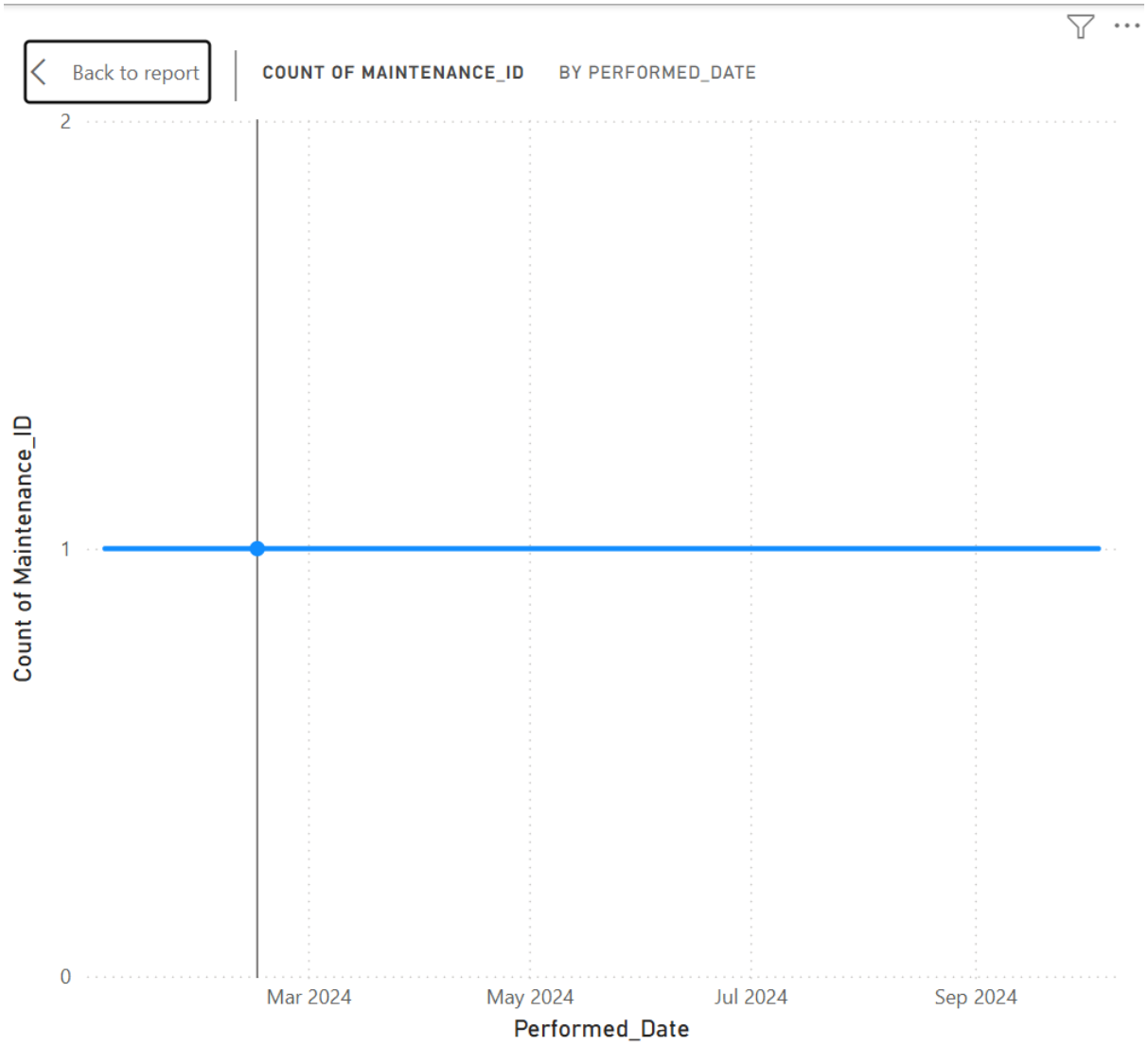
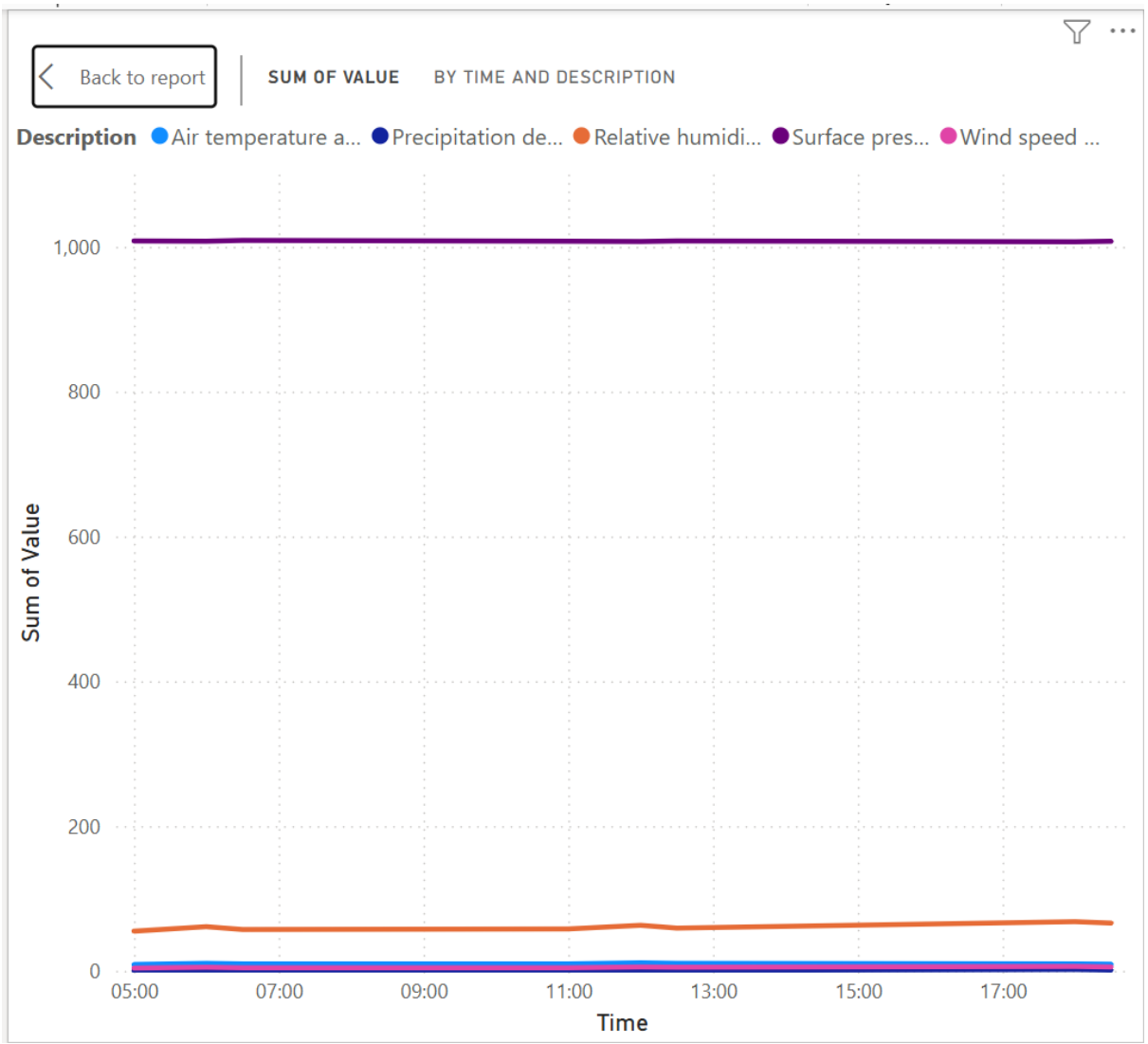
COUNT OF ALERT_ID BY SEVERITY
12
10
8
6
4
2
0
Count of Alert_ID
Critical
High
Severity


Back to report
COUNT OF ALERT_ID
BY DESCRIPTION
Count of Alert_ID
8
6
4
2
0
Severe storm warning
Low temperature warning
High temperature warning
Flooding possible or ongoing
Description


Back to report
COUNT OF MAINTENANCE_ID
BY PERFORMED_DATE
2
1
0
Count of Maintenance_ID
Mar 2024
May 2024
Jul 2024
Sep 2024
Performed_Date


Back to report
SUM OF VALUE
BY TIME AND DESCRIPTION
Description
Air temperature a...
Precipitation de...
Relative humidi...
Surface pres...
Wind speed ...
1,000
800
600
400
200
0
Sum of Value
05:00
07:00
09:00
11:00
13:00
15:00
17:00
Time

Back to report

City

- [ ] (Blank)
- [ ] Boston
- [ ] Chicago
- [ ] Dallas
- [ ] Denver
- [ ] Hyderabad
- [ ] London
- [ ] Los Angeles
- [ ] Miami
- [ ] New York
- [ ] Seattle

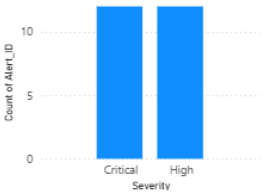
24
Count of Alert_ID

92
Count of Sensor_ID

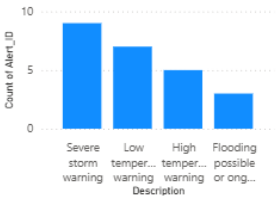
20
Count of Station_ID

92
Count of Observation_ID

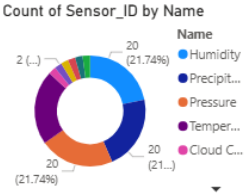
Count of Alert_ID by Severity



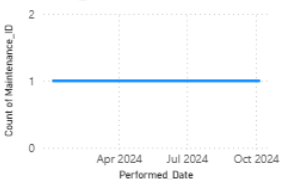
Count of Alert_ID by Description



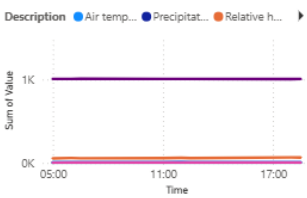
Count of Sensor_ID by Name



Count of Maintenance_ID by Performed_Date

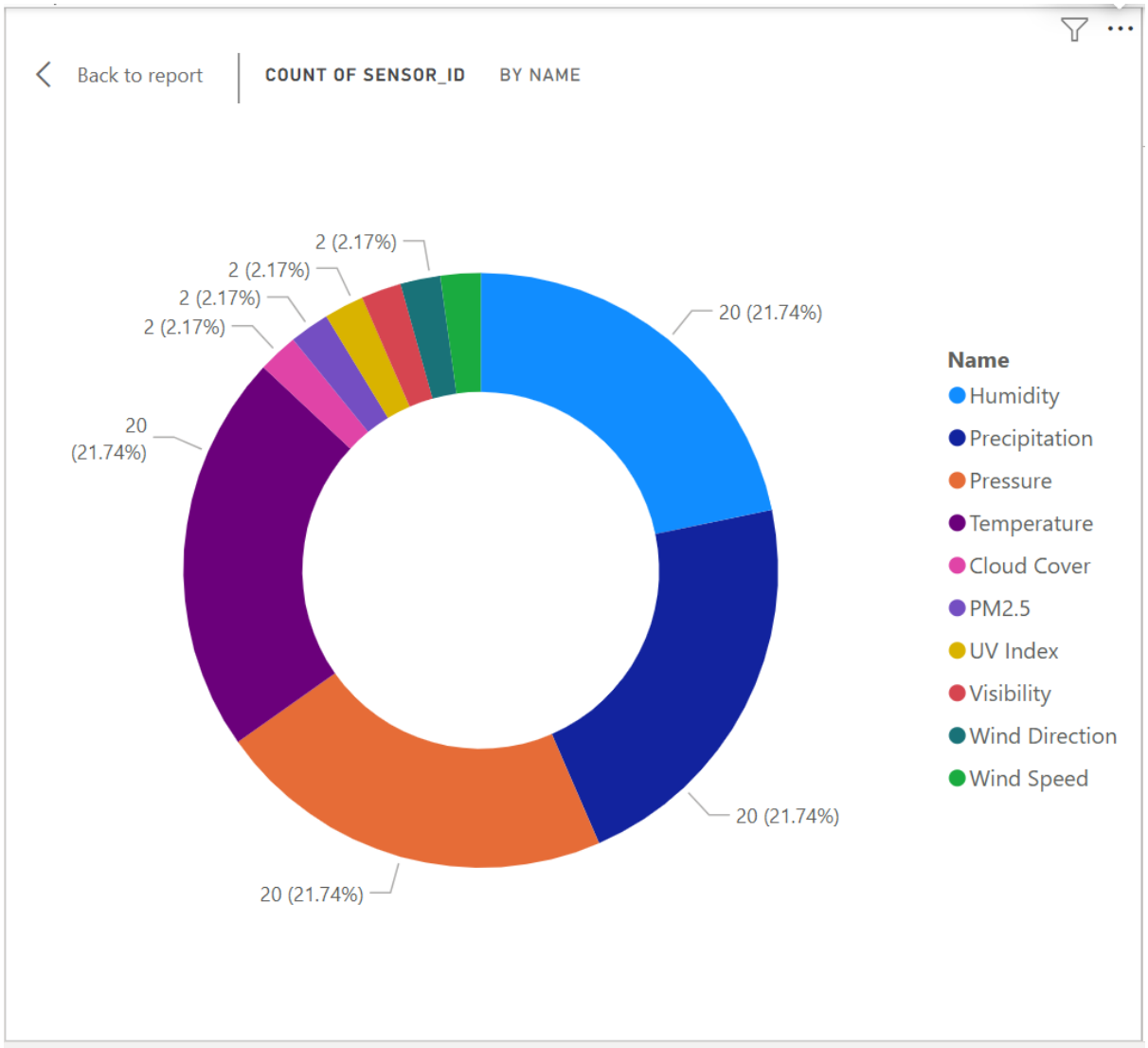


Sum of Value by Time and Description



City

- [ ] (Blank)
- [ ] Boston
- [ ] Chicago
- [ ] Dallas
- [ ] Denver
- [ ] Hyderabad


Back to report
COUNT OF SENSOR_ID BY NAME
2 (2.17%)
2 (2.17%)
2 (2.17%)
2 (2.17%)
20 (21.74%)
20 (21.74%)
20 (21.74%)
20 (21.74%)
Name
Humidity
Precipitation
Pressure
Temperature
Cloud Cover
PM2.5
UV Index
Visibility
Wind Direction
Wind Speed