DAX Documentation Guide - Air Quality Analytics Dashboard

1. Date and Time Measures

DAX - Code

```
// Extract Hour from DateTime
Hour_of_Day =
HOUR('AirQualityUCI'[Date and Time])


// Create Time Band
Time_Band =
SWITCH(
    HOUR('AirQualityUCI'[Date and Time]),
    0, "00:00", 1, "01:00", 2, "02:00",
    3, "03:00", 4, "04:00", 5, "05:00",
    6, "06:00", 7, "07:00", 8, "08:00",
    9, "09:00", 10, "10:00", 11, "11:00",
    12, "12:00", 13, "13:00", 14, "14:00",
    15, "15:00", 16, "16:00", 17, "17:00",
    18, "18:00", 19, "19:00", 20, "20:00",
    21, "21:00", 22, "22:00", 23, "23:00",
    "Unknown"
)
```

2. Primary Pollutant Measures

DAX - Code

```
// Average NO2 Levels
Avg_NO2 =
AVERAGE('AirQualityUCI'[NO2])


// Average CO Levels
Avg_CO =
```

```
AVERAGE('AirQualityUCI'[CO(Hourly Avg)])

// Average Benzene Levels
Avg_Benzene =
AVERAGE('AirQualityUCI'[Benzene])
```

3. Environmental Metrics

DAX - Code

```
// Average Temperature
Avg_Temperature =
AVERAGE('AirQualityUCI'[Temperature in Celsius])

// Relative Humidity Average
Avg_RelativeHumidity =
AVERAGE('AirQualityUCI'[Relative Humidity])

// Absolute Humidity Average
Avg_AbsoluteHumidity =
AVERAGE('AirQualityUCI'[Absolute Humidity])
```

4. Seasonal Analysis

DAX - Code

```
// Seasonal Pollutant Sum
Season_Pollutant_Sum =
CALCULATE(
    SUM('AirQualityUCI'[CO(Hourly Avg)]) +
    SUM('AirQualityUCI'[NO2]),
    ALLEXCEPT('AirQualityUCI', 'AirQualityUCI'[Season])
)
```

5. Oxide Correlation Measures

DAX - Code

```
// NO-Idium Oxide Correlation
NO_IdiumOxide_Correlation =
CALCULATE(
    DIVIDE(
        SUMX(
            'AirQualityUCI',
            ([NO] - AVERAGE('AirQualityUCI'[NO])) *
            ([Idium Oxide] - AVERAGE('AirQualityUCI'[Idium Oxide]))
        ),
        SQRT(
            SUMX('AirQualityUCI', POWER([NO] - AVERAGE('AirQualityUCI'[NO]), 2)) *
            SUMX('AirQualityUCI', POWER([Idium Oxide] - AVERAGE('AirQualityUCI'[Idium Oxide]), 2))
        )
    )
)
```

6. Ozone Analysis

DAX - Code

```
// Hourly Ozone Average
Avg_Hourly_Ozone =
CALCULATE(
    AVERAGE('AirQualityUCI'[Ozone]),
    ALLEXCEPT('AirQualityUCI', 'AirQualityUCI'[Time_Band])
)

// Daily Ozone Pattern
Daily_Ozone_Pattern =
SUMMARIZE(
```

```
    'AirQualityUCI',
    'AirQualityUCI'[Time_Band],
    "Average Ozone", [Avg_Hourly_Ozone]
)
```

7. Pollutant Distribution

DAX - Code

```
// Pollutant Type Distribution
Pollutant_Distribution =
SUMMARIZE(
    'AirQualityUCI',
    'AirQualityUCI'[Pollutant Type],
    "Count", COUNT('AirQualityUCI'[Pollutant Type]),
    "Average", AVERAGE('AirQualityUCI'[Value])
)
```

8. Quarterly Analysis

DAX - Code

```
// Quarter-wise Idium Oxide Average
Avg_IdiumOxide_Quarter =
CALCULATE(
    AVERAGE('AirQualityUCI'[Idium Oxide]),
    ALLEXCEPT('AirQualityUCI', 'AirQualityUCI'[Quarter])
)

// Quarter-wise Tin Oxide Average
Avg_TinOxide_Quarter =
CALCULATE(
    AVERAGE('AirQualityUCI'[Tin Oxide]),
    ALLEXCEPT('AirQualityUCI', 'AirQualityUCI'[Quarter])
```

```
)
```

9. KPI Calculations

DAX - Code

```
// AQI Rating
AQI_Rating =
CALCULATE(
    AVERAGE('AirQualityUCI'[NO2]) * 0.4 +
    AVERAGE('AirQualityUCI'[CO(Hourly Avg)]) * 0.6
)

// Compliance Rate
Compliance_Rate =
DIVIDE(
    COUNTROWS(
        FILTER(
            'AirQualityUCI',
            'AirQualityUCI'[NO2] <= 100 &&
            'AirQualityUCI'[CO(Hourly Avg)] <= 4
        )
    ),
    COUNTROWS('AirQualityUCI')
) * 100
```