MECE Analysis

A MECE (Mutually Exclusive, Collectively Exhaustive) analysis is a framework used to organize information into distinct and comprehensive categories. In this analysis, we will explore various categories to gain insights into city information, time-based weather trends, weather attributes, relationships between weather variables, city-specific analysis, and predictive analysis for weather forecasting.

City Information Analysis

Country Analysis

Analyze the distribution of cities by country to understand geographical variations and patterns.

Geographical Analysis

Study the geographical distribution of cities using latitude and longitude data. Visualize cities on a map for spatial analysis.

Time-Based Analysis

Hourly Trends:

Analyze hourly averages and patterns of various weather attributes to identify trends and variations throughout the day.

Seasonal Analysis:

Group weather data by seasons (spring, summer, fall, winter) and investigate temperature and humidity trends during different times of the year.

Weather Attributes Analysis

Temperature Analysis

Calculate temperature statistics and analyze temperature trends over time.

Humidity Analysis

Analyze humidity trends and their impact on weather conditions.

Pressure Analysis

Study air pressure patterns and their relationship with other weather variables.

Weather Description Analysis

Examine frequent weather descriptions and their correlation with other weather attributes.

Wind Analysis

Analyze wind speed and direction patterns for different locations.

Weather Relationships

Correlations:

Explore relationships between various weather attributes to understand their interdependencies.

Weather Events:

Identify and analyze weather events based on patterns and combinations of weather variables.

City-Specific Analysis

City Rankings:

Rank cities based on specific weather attributes to identify locations with favorable or unfavorable weather conditions.

Extreme Events:

Investigate extreme weather events that have occurred in different cities and explore their causes and impacts.

Predictive Analysis

Weather Forecasting:

Use historical data to explore relationships with future predictions, improving the accuracy of weather forecasting models.