EDA questions

Are there any countries with cities located at extreme latitudes, and how might this impact their climate?

1. Can you identify any clusters of cities with similar latitude and longitude values? What factors might explain these clusters?
2. Are there any correlations between a city's geographical location (latitude and longitude) and its weather attributes, such as temperature or humidity?
3. Identify the top three cities with the most frequent occurrence of rainy weather based on weather descriptions. What are the seasonal patterns?
4. Is there a correlation between humidity levels and air pressure? How might this relationship affect weather conditions?
5. Explore the impact of wind direction on temperature for coastal cities. Are there noticeable patterns?
6. Are there specific months when cities experience significant temperature fluctuations? What might explain these variations?
7. Identify periods of extreme weather events, such as storms or heatwaves, by analyzing the time-based data. What patterns emerge?
8. Are there any notable differences in temperature trends between northern and southern hemisphere cities over the year? How do they relate to seasons?
9. What are the consequences of prolonged periods of extreme cold or heat in specific cities? How do residents adapt to such conditions?
10. Investigate whether temperature anomalies (unusual deviations from the norm) coincide with certain events or environmental factors in specific cities.
11. Analyze the impact of temperature on energy consumption patterns in cities. Are there noticeable trends or correlations?
12. How do specific wind patterns impact air quality and pollution dispersion in urban areas? Analyze wind direction data for insights.
13. Identify cities prone to strong winds and the potential consequences, such as increased risk of natural disasters or challenges for transportation.
14. Explore whether wind speed and direction influence the frequency and severity of weather-related events (e.g., hurricanes, storms) in coastal cities.

Power Bi questions

These are the questions that you will need to asnwer after doing the required analysis. (Note: You may earn bonus marks by providing additional analysis.)

1. Can you create a geographical map in Power BI showing the distribution of cities in the dataset based on their latitude and longitude?
2. In Power BI, can you create a bar chart representing the top 10 countries with the highest number of cities in the dataset?
3. How does the distribution of cities in terms of latitude vary across different continents? Create a scatter plot in Power BI to illustrate this.
4. Create a line chart in Power BI to display the temperature trends over time for a selected city. Highlight extreme temperature events.
5. How does humidity vary across different cities? Generate a heatmap in Power BI to visualize this variation.
6. Can you create a time-series chart in Power BI showing the relationship between wind speed and air pressure for a specific city?

7. Create a time-series line chart in Power BI to show the overall temperature trends over the entire dataset.
8. Can you create a heatmap in Power BI to visualize the busiest hours for specific weather conditions (e.g., "clear sky," "rainy")?
9. How does the wind speed change over the course of a day? Create a radial chart in Power BI to represent this.
10. Create a Power BI chart comparing the temperature variations between two selected cities over a specific timeframe.
11. Can you build a heatmap in Power BI to show the temperature ranges for cities across different countries?
12. Create a bar chart in Power BI to highlight cities with the highest and lowest average temperatures in the dataset.
13. Create a wind rose chart in Power BI to visualize the prevailing wind directions for a selected city.
14. Can you generate a Power BI heatmap illustrating the average wind speeds across cities for different months of the year?
15. Create a Power BI scatter plot to show the relationship between wind speed and air pressure for a specific city.