Communicating the Results of the Seattle-NYC Weather Analysis

Purpose

The objective of this analysis was to investigate whether it rains more in Seattle or New York City. This information is intended to aid in convincing Dr. Egan's parents to consider visiting him in Seattle, based on the comparative precipitation patterns of the two cities.

Methodology

The analysis was conducted using data obtained from the NOAA National Centers for Environmental Information, which included daily precipitation records from January 2020 to December 2023 for both cities. The data underwent several steps to ensure its quality and usability by taking the average precipitation everyday across all stations for each city, joining data frames, addressing missing values, correcting data types, and checking for consistency. For the analysis, the cleaned data was examined using various statistical and visualization techniques to compare the average monthly and yearly precipitation between Seattle and New York City.

Analysis and Results

Line Graph of Average Monthly Precipitation

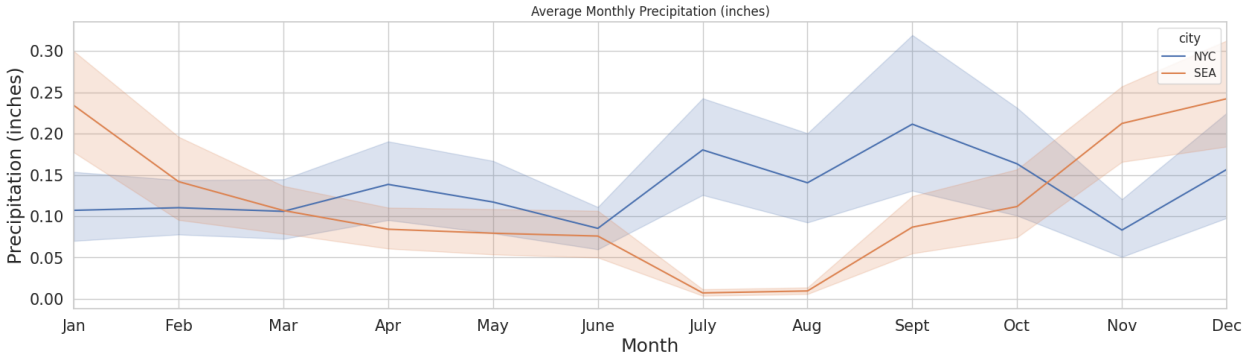

Figure 1

Figure 1 presents a line graph depicting the average monthly precipitation. The visualization indicates a marked seasonality in precipitation for both cities, with Seattle experiencing higher rainfall in the late autumn and winter months. The graph's shaded areas represent the variability

and show that Seattle's precipitation levels are more pronounced during these months compared to New York City.

Frequency of Rain Levels by Month

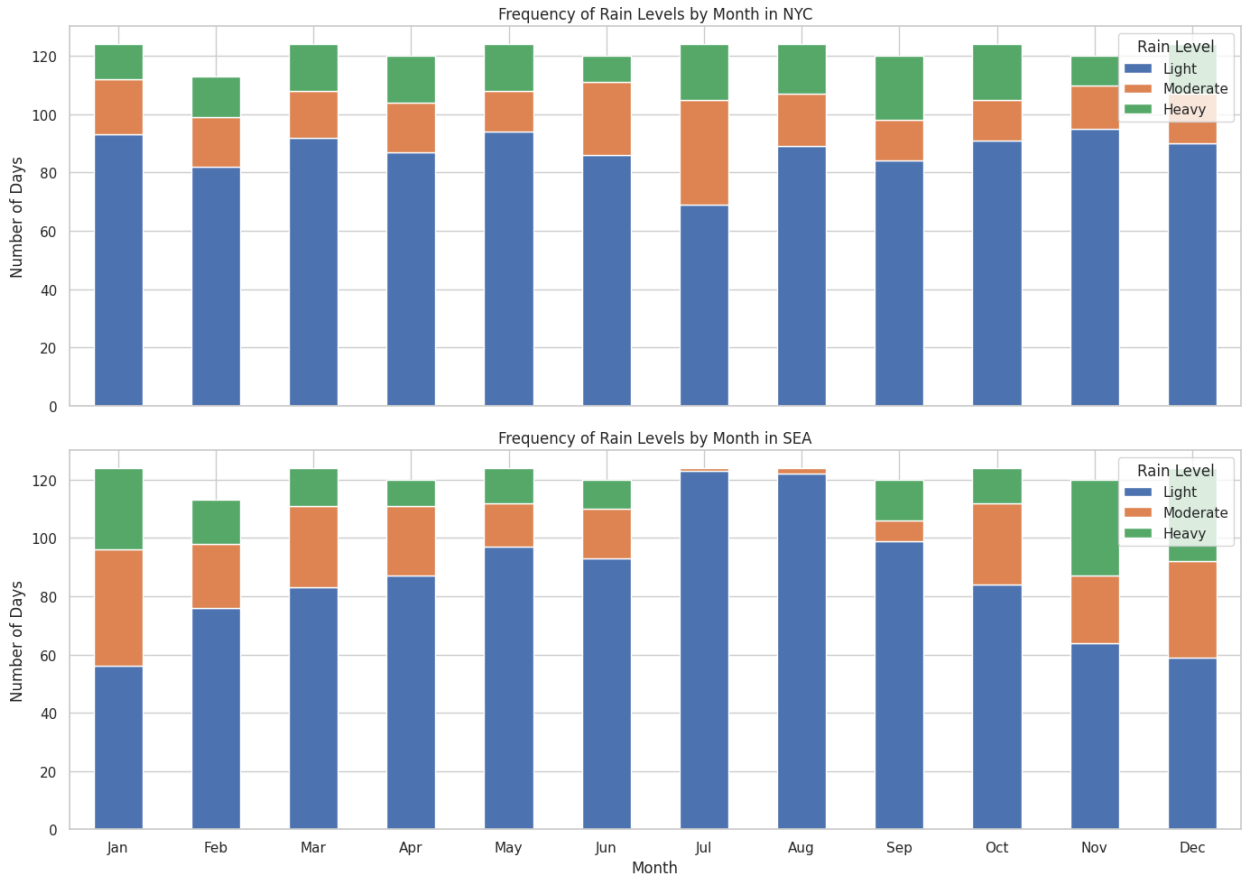

Figure 2

Figure 2 is a set of two bar charts that breaks down the frequency of rain by intensity levels (light to no rain, moderate, heavy) for each city and each month. This graph provides a detailed view of the distribution of rain across different intensities from the past four years. Seattle exhibits a higher frequency of moderate and heavy rain, especially from October to January. In comparison, New York City tends to have more light to no rain occurrences throughout the year, with a more even distribution across the months. This graph suggests that Seattle has a wetter climate with more variability in precipitation intensity.

Total Annual Precipitation Comparison

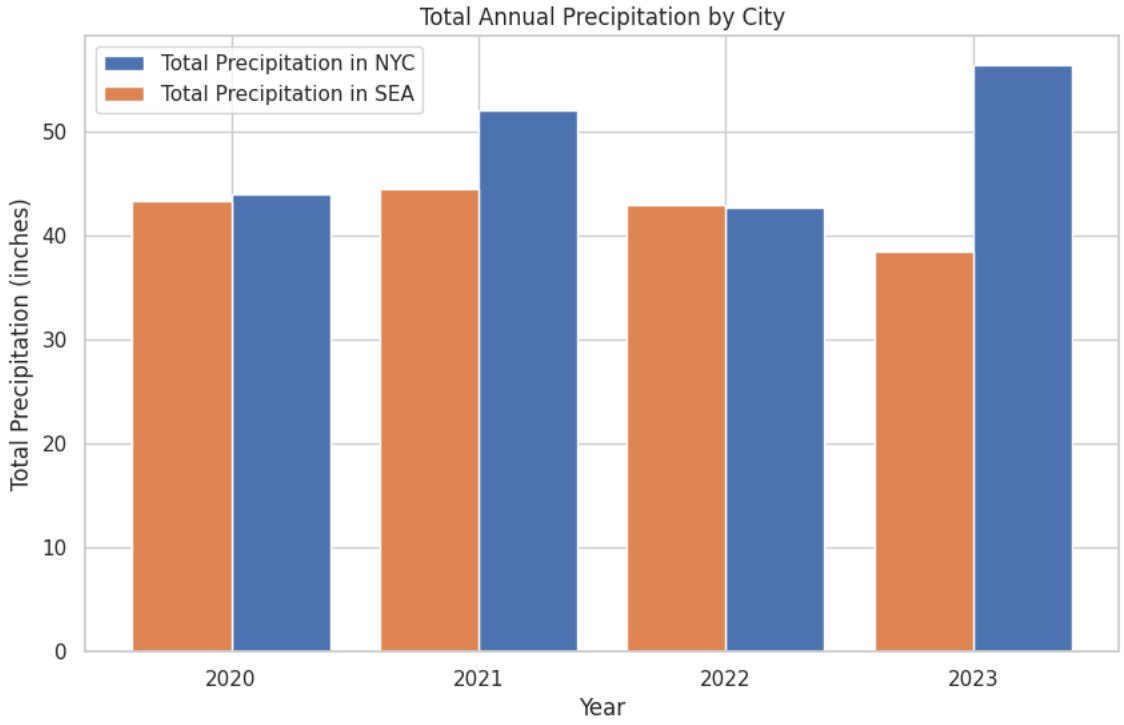

Figure 3

Figure 3 provides a bar chart illustrating the total annual precipitation by city. The chart reveals that New York City accumulates more annual precipitation despite Seattle's reputation for rain. With the fact that New York City's rainfall is more evenly spread throughout the year, this might have contributed to the higher total rainfall over the years (with the slight exception from 2022).

Conclusion

This analysis suggests that Seattle experiences a significantly wetter fall and winter, which could influence the planning of outdoor and tourism-related activities. While Seattle might experience more frequent rain or heavier rain events, New York City surpasses Seattle in total annual precipitation. For those who prefer to avoid rain, the best time to visit Seattle would be from May through September, while New York City presents a somewhat drier option throughout the year. Dr. Egan's parents should consider these findings when planning their visit to Seattle.