**Seattle Weather Project**

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DATA 3320 01 Project 1: Seattle Weather Final Report

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**Introduction**

The aim of this project is to see if it rains more in Seattle than it does in New York. I will use the data science methodology to investigate whether it rains more in Seattle, WA than in New York City, NY. The problem is simple; a lot of people think that it rains too much in Seattle and refuses to visit me. I want to use data to determine whether it rains more in Seattle, WA than in New York City, NY.

**Data Description**

I used daily precipitation measured in Seattle and New York from January 1, 2020 to January 1, 2024. The data sets were downloaded from the National Centers for Environmental Information (NOAA Climate Data). I inspected the two datasets to see what information would be necessary to answer the main question. Then, I merged both datasets retaining only the most important information.

**Data Analysis**

To help with this analysis, I had to break down my main research question: Where does it rain more: Seattle or New York, into more focused sections to get a broader understanding. I asked further: ‘What is the nature of rainfall in each of these cities?’ and ‘How do people prefer to experience rain?’.

To begin, I plotted a simple bar chart to see if there was a general pattern of rainfall across the four-year time period. Because there are lots of data points, it is hard to see any real pattern. I then used a line graph to show this information. I could then see a clearer pattern - between months 6 and 8 Seattle experiences less rain and there is a huge peak in precipitation between months 8 and 10 in New York.

I also filtered the dataset for extreme precipitation levels, grouping the data by the two cities. This revealed that New York experiences more days of heavier rain. There were 7 days of precipitation greater than 2 inches in New York and 3 days in Seattle.

**Results**

From exploring this data, it became clear that the question of where it rains more couldn’t produce such a clear answer. If measuring based on the average rainfall in both cities over 4 years, the graph below that New York has a higher average rainfall than seattle. This might come as a shocker, but this metric alone cannot definitively conclude that it rains more in New York.

**A graph of a city and sea

Description automatically generated**

Inspecting deeper, the plot below shows the nature of rainfall in each city. It reveals that Seattle registers more rainy days although lighter showers, whereas New York experiences fewer but more intense rainfall events.

**A graph with different colored lines

Description automatically generated**

**Conclusion**

While New York receives more rain overall (higher average precipitation), Seattle experiences rain more frequently (more rainy days). This suggests that New York tends to have fewer, but heavier, rainfall events compared to Seattle's more frequent, lighter showers.

Ultimately, the perception of which city receives more rain hinges on individual preferences regarding the intensity and frequency of rainfall. For instance, Seattle's two months of minimal rainfall during the summer may appeal to some individuals, highlighting the subjective nature of rain experience preferences.