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DATA 3320
Dr. Brian Fischer

Seattle Weather Report

Does it rain more in Seattle, WA than in St. Louis, MO?

Introduction

The domain problem is that Dr. Fischer's parents think that it rains too much in Seattle, WA. His parents live in St. Louis, MO. I will use the data science methodology to investigate whether it rains more in Seattle, WA than in St. Louis, MO.

Data

Data sets were downloaded from the National Centers for Environmental Information NOAA Climate Data Online [search tool](#). The two data sets [Seattle Rain](#) and [St. Louis Rain](#) consist of precipitation values measured daily in Seattle and St. Louis from January 1, 2017, to December 31, 2022.

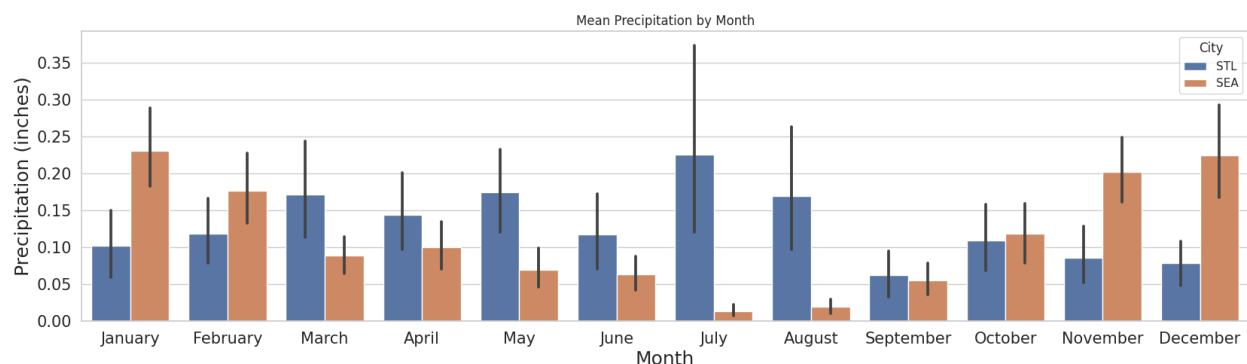
Analysis

While preparing the data I came across an abstract issue with the definition of "rains more." I stated some questions to assist my understanding and interpretation of the data:

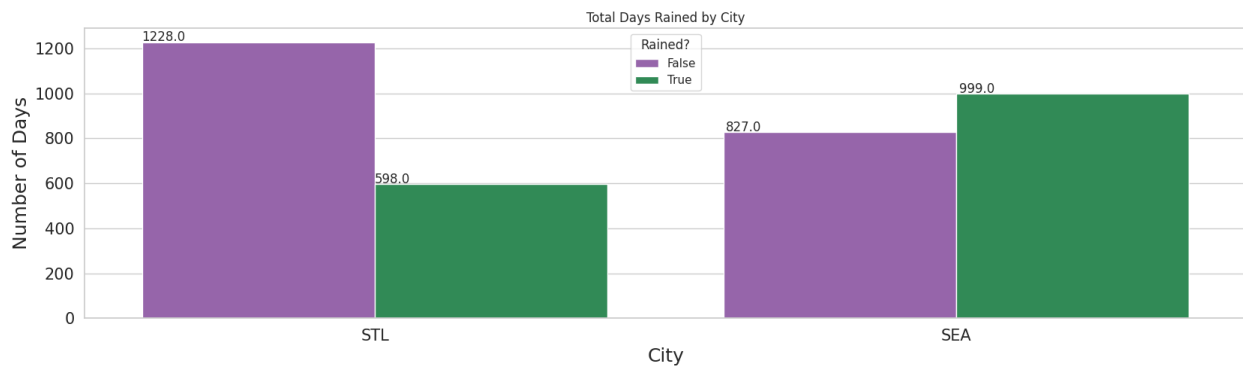
1. Did the mean precipitation in Seattle and St. Louis change over the years? If so, how did it change, and do they differ from each other?
2. How many days of rain does Seattle have in comparison to St. Louis? Which city has more days of rain?

The definition of "rains more" could be measured in two different ways. First, the total amount of precipitation (inches) and second, the number of days rained. Without creating bias in my analysis, I decided to create plots that fell under both categories of "rains more."

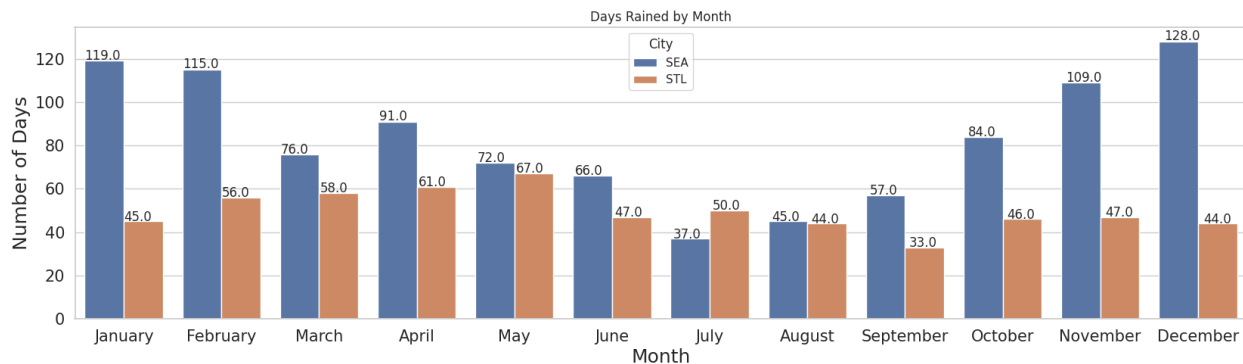
The first graph was created to calculate the mean precipitation by month in Seattle and St. Louis from 2018 to 2022.



Next, I wanted to compare the number of days of rain each city had to answer my second question. The second graph was created to count the number of days with rain verses no rain for each city from 2018 to 2022.



The difference between days with rain versus days with no rain varied between the two cities. To better understand what this meant I created another graph to show the number of days rained by month for each city from 2018 to 2022.



Results

Our original problem was to determine whether it rains more in Seattle, WA than in St. Louis, MO. To answer this, I created graphs that represent the different categories of "rains more." The first graph was used to find the mean precipitation for each city. From the output, St. Louis had more precipitation on the days it rained from 2018 to 2022. The second set of graphs were used to calculate the total days of rain for each city. Notably, Seattle had more days of rain from 2018 to 2022.

Conclusion

Through my analysis, I found that St. Louis had more precipitation than Seattle. However, Seattle had more days of rain. Both Seattle and St. Louis fall under one of the categories that it "rains more." Thus, I conclude that St. Louis had more rain, but Seattle had more days of rain from 2018 to 2022.