1.Introduction

This project is to compare rain precipitation between Seattle, Washington vs Vancouver, Canada. The goal is to understand which city receives more rain and observe seasonal patterns over the five-year period.

2. Data collection

- Seattle rainfall : got it from course materials (seattle_rain.csv)

- Vancouver rainfall: got it from NOAA Climate Data Online.

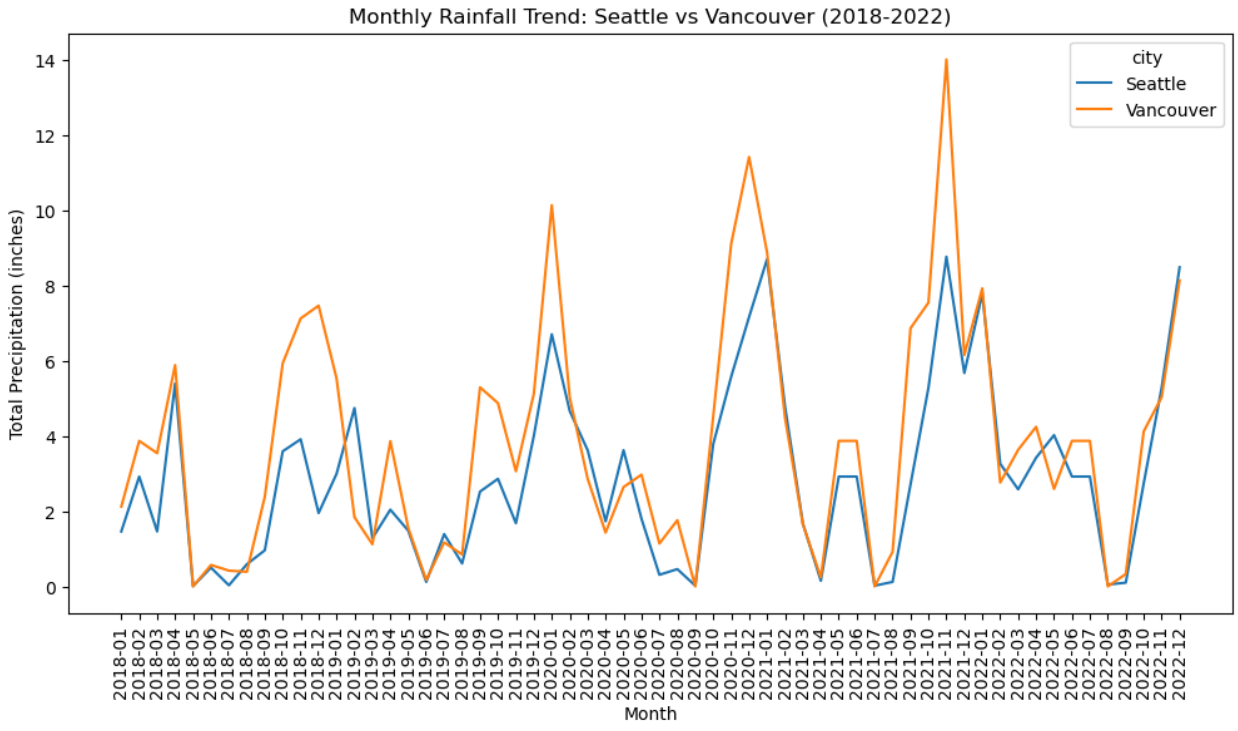
The datasets include daily precipitation measurements. Missing values were replaced with the average precipitation of each city.

3. Method / Analysis

The Seattle and Vancouver datasets were combined by date and cleaned to handle missing values. The data was converted into a tidy format with columns for date, city, and precipitation. Precipitation was then aggregated to monthly and yearly totals. Bar and line plots were created to visualize monthly rainfall trends and yearly totals, allowing for a clear comparison between the two cities.

4. Result

- Graph 1



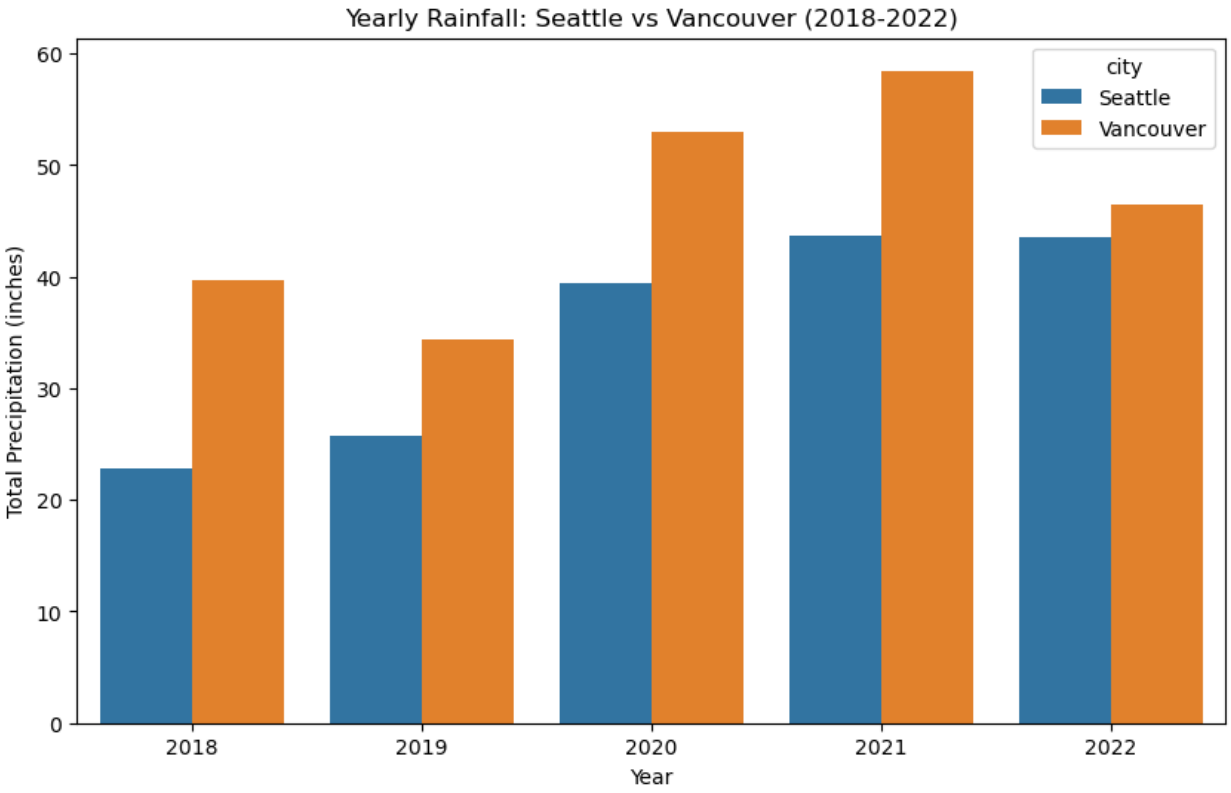
* Vancouver generally has more rainy days than Seattle, especially in the late fall and winter (October–March).

* Seattle's highest rainy month is October 2021, while Vancouver peaks in October 2021.

* October 2021 showed the biggest gap, with Vancouver much wetter than Seattle.

* Both cities have peaks in late fall/winter (Oct–Feb) and lows in summer (Jun–Aug).

- Graph 2



* Over 5 years Vancouver, Canada has the highest rainfall and Vancouver, Canada typically adds 10-15 inches more rain than Seattle, Washington each year.

* Both cities saw a sharp increase from 2019 to 2020.

5. Conclusion

Overall, the analysis shows that Vancouver consistently receives more rainfall than Seattle across the five-year period. Both cities follow a similar seasonal pattern, but Vancouver experiences heavier rainfall during the wet months.