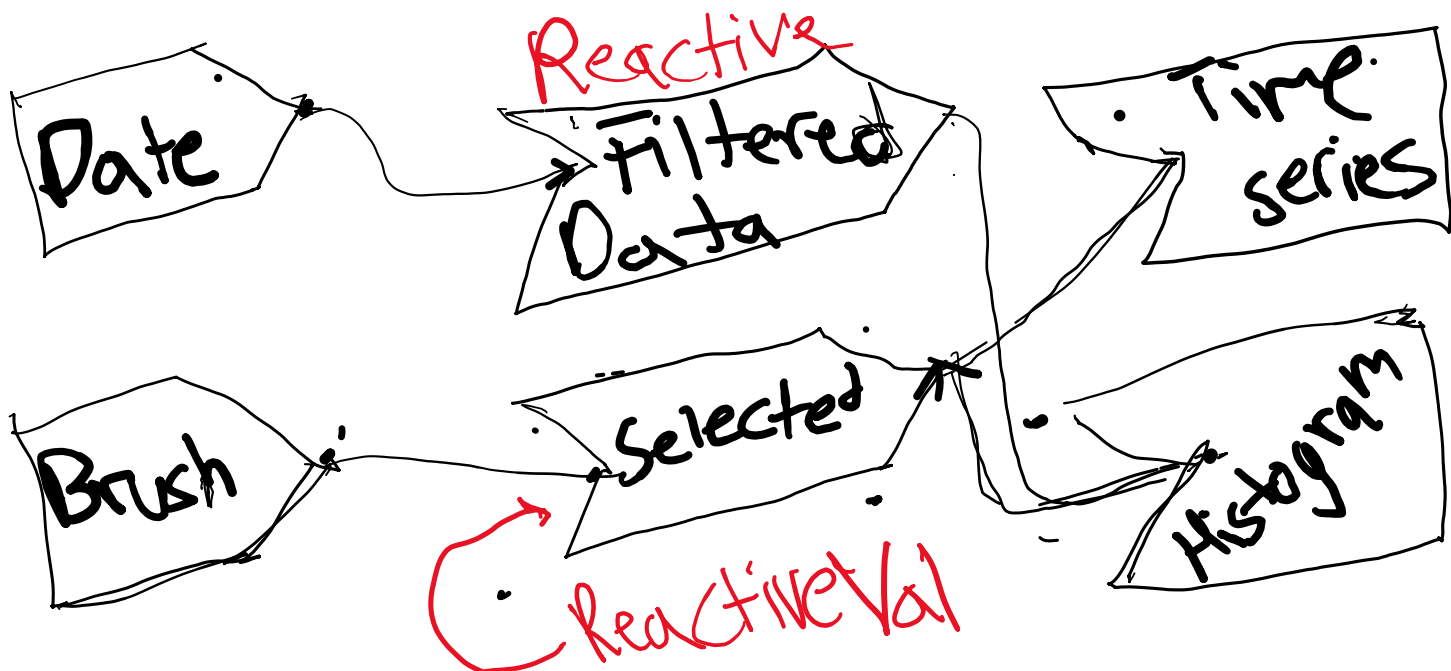


Microsoft Stock Time Series Analysis

Microsoft is one of the biggest IT, if not the biggest, in the world. Almost everyone has heard of the company, and many use their products. More importantly, the stock of big companies like Microsoft also depicts the overall growth and scenario of the global market. Hence, for this portfolio assignment I chose to visualize/analyze Microsoft's stock over time.

I created two plots. One plot was the time series with the price per stock on the Y axis and date on the X axis. This time series plot was made on 'Plotly'; hence, allowing the users to conveniently zoom, slice, and get details on demand with the tool tip functionality. The second plot is a histogram that depicted the frequencies of the volume of stock sold. The user can brush over the histogram and see the corresponding time series where the selected volumes of stock were sold. Moreover, at the top of the app, there is a date range selector to filter data in both the plots based on the date range the user has selected. The histogram plot is on the top and the time-series is on the bottom because the selection in the histogram further filters the time series; and the histogram also shows overview plus detail, while the time series plot did not.

The reactive graph structure is mentioned below:



The results of the analysis were quite interesting. From April 2016 to March 2021, the time series of Microsoft's stock was a trend that was mostly increasing. In February 2020, the price per stock dropped from 180 to 140 dollars most likely due to the Covid-19 pandemic; however, it took only 4 months to get back to 180 dollars! This is an example of how the market can quickly recover despite of such a major setback. Another interesting thing I witnessed was that the highest volume of stocks sold at a time was during May 2015 to November 2015. After googling for the reasons, it seemed that Microsoft had released Windows 10 around that time.