

INFO151: Databases

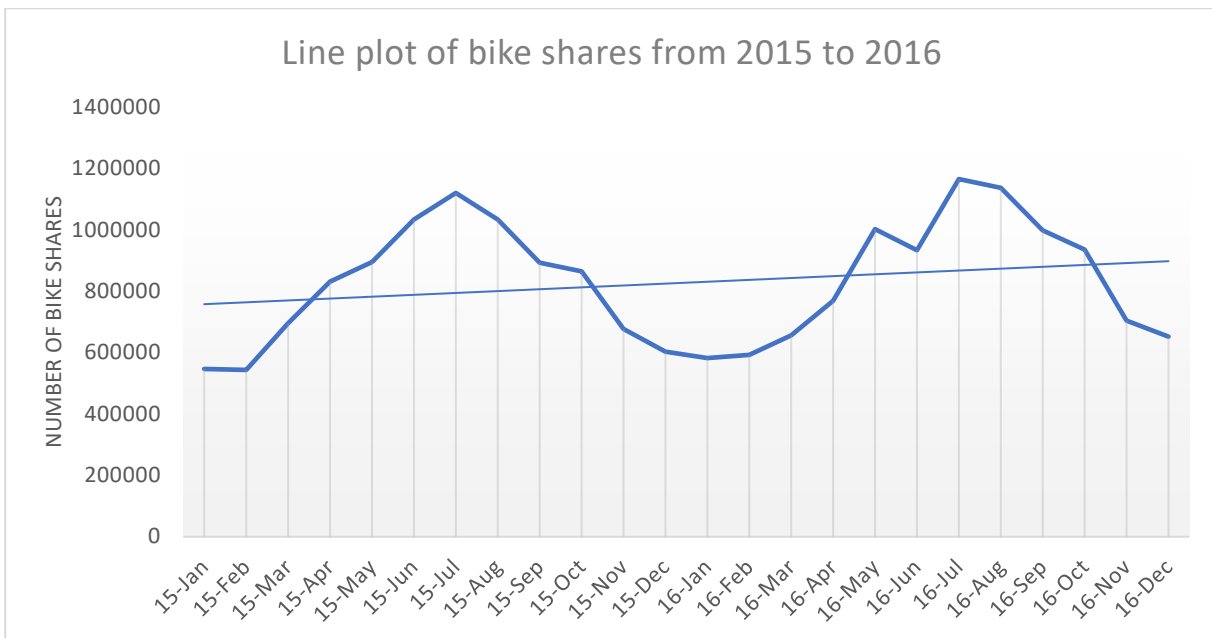
Course Coordinator & Lecturer: Dr Ryan Admiraal

Lab Report #2

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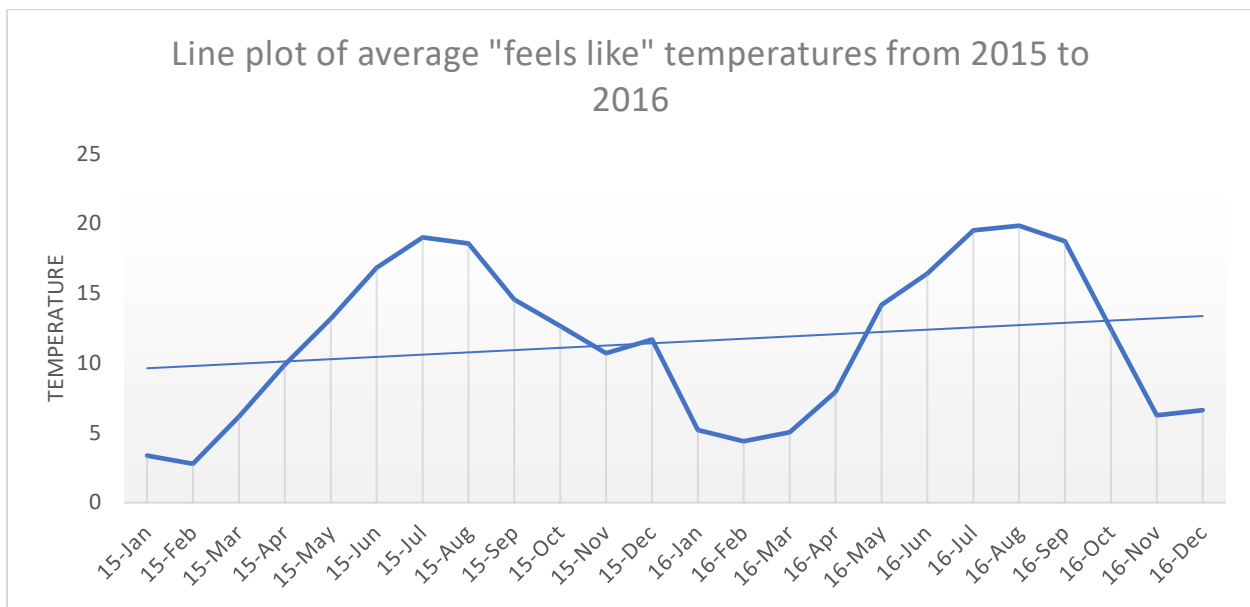
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Question 1:

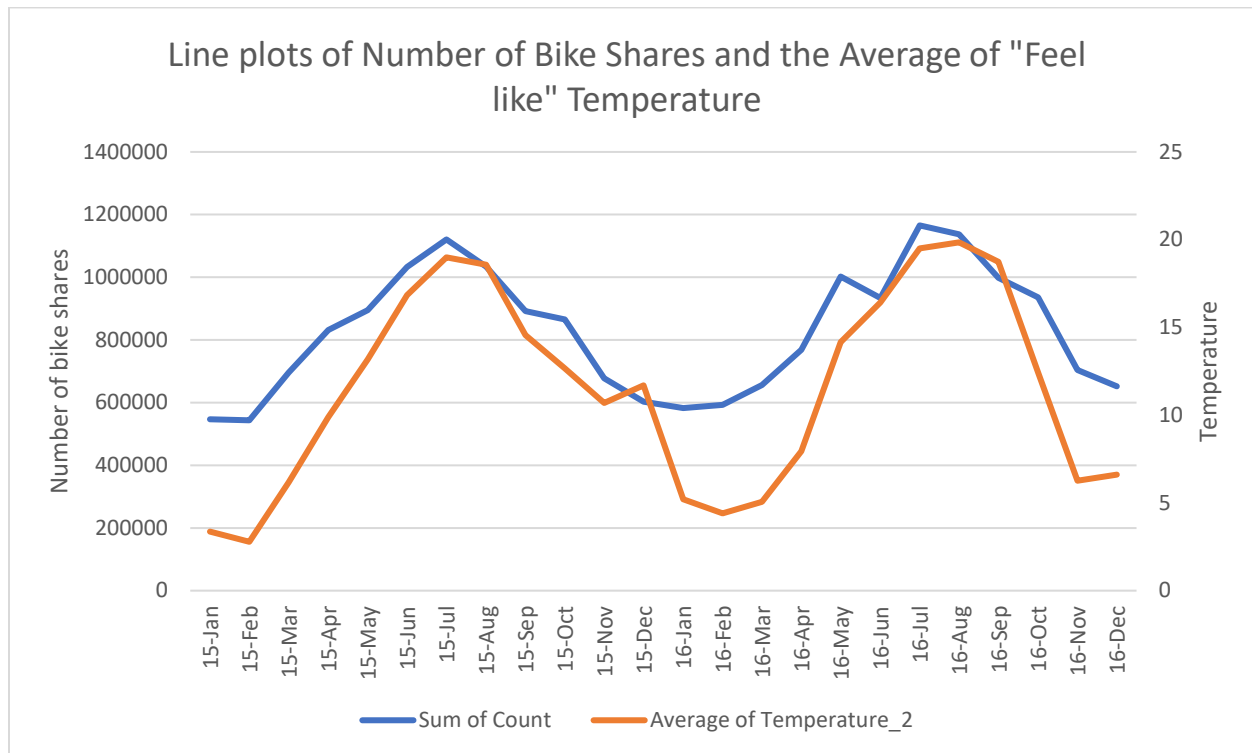


The line plot illustrates that monthly bike shares slightly increased from 2015 through 2016, and the overall distribution is binomial. Specifically, the number of bike shares reached the maximum peak in July of both years. That number significantly dropped from November to February every year. The chart suggests that the number of new bicycle shares has the same pattern every year. It is possibly caused by natural features such as temperature, wind speed, humidity, or other yearly public activities.

Question 2:



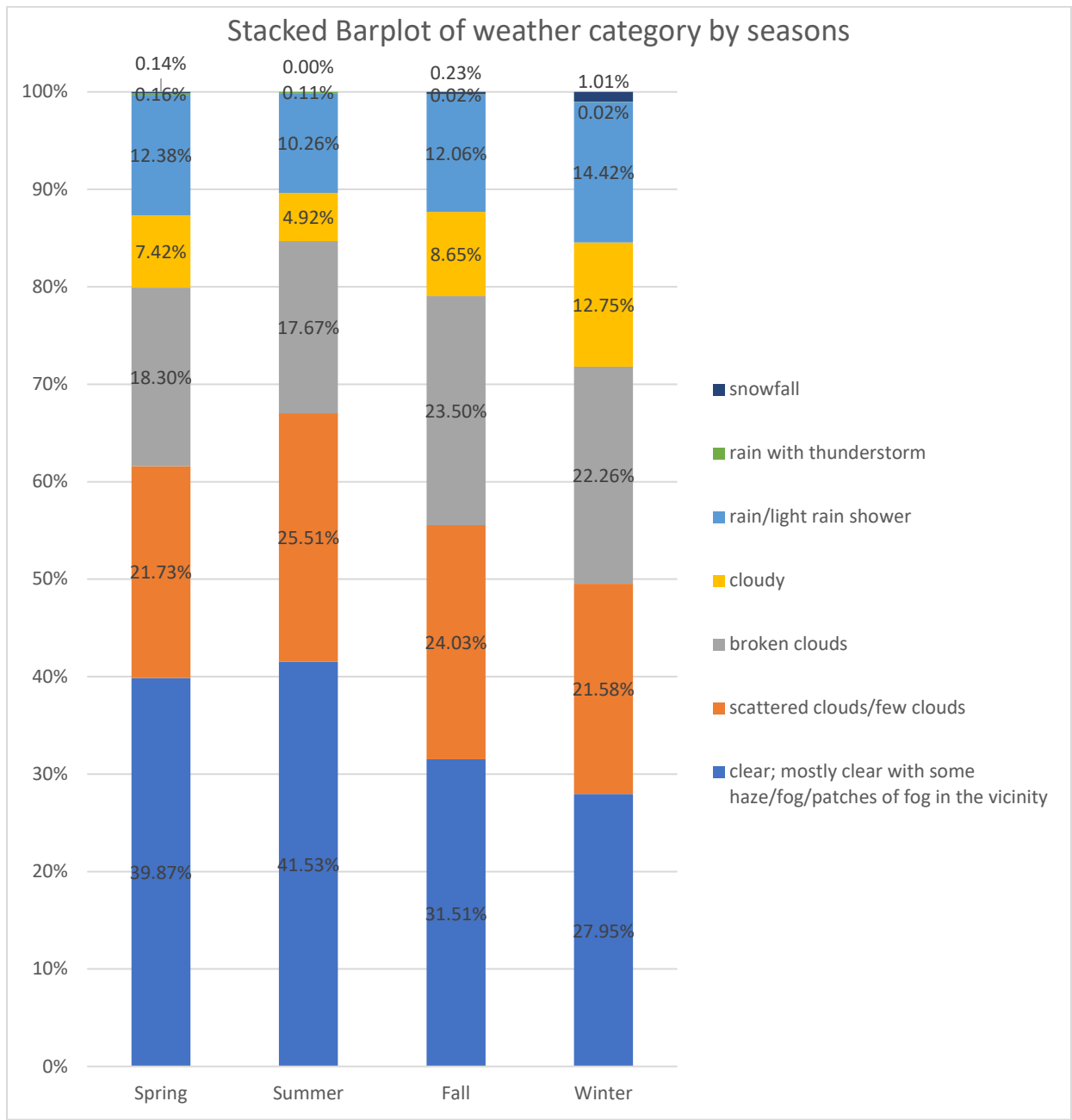
The line plot shows that average “fell like” temperature slightly increased from 2015 through 2016, and the overall distribution is binomial. Specifically, the average temperature reached the maximum peak from July to August, and that number significantly in January and February every year. In December of 2015, there was a considerable increase in temperature.



Correlation		
	Sum of Count	Average of Temperature_2
Sum of Count	1	
Average of Temperature_2	0.934407619	1

The line plots and the correlation coefficient suggest that there was a strongly positive relationship between the number of bike shares and the “Feel like” temperature. It is significant that number of bike shares went up when the temperature grew and vice versa. Both data set reached the maximum peaks around July and August and bottomed off in January and February.

Question 3:

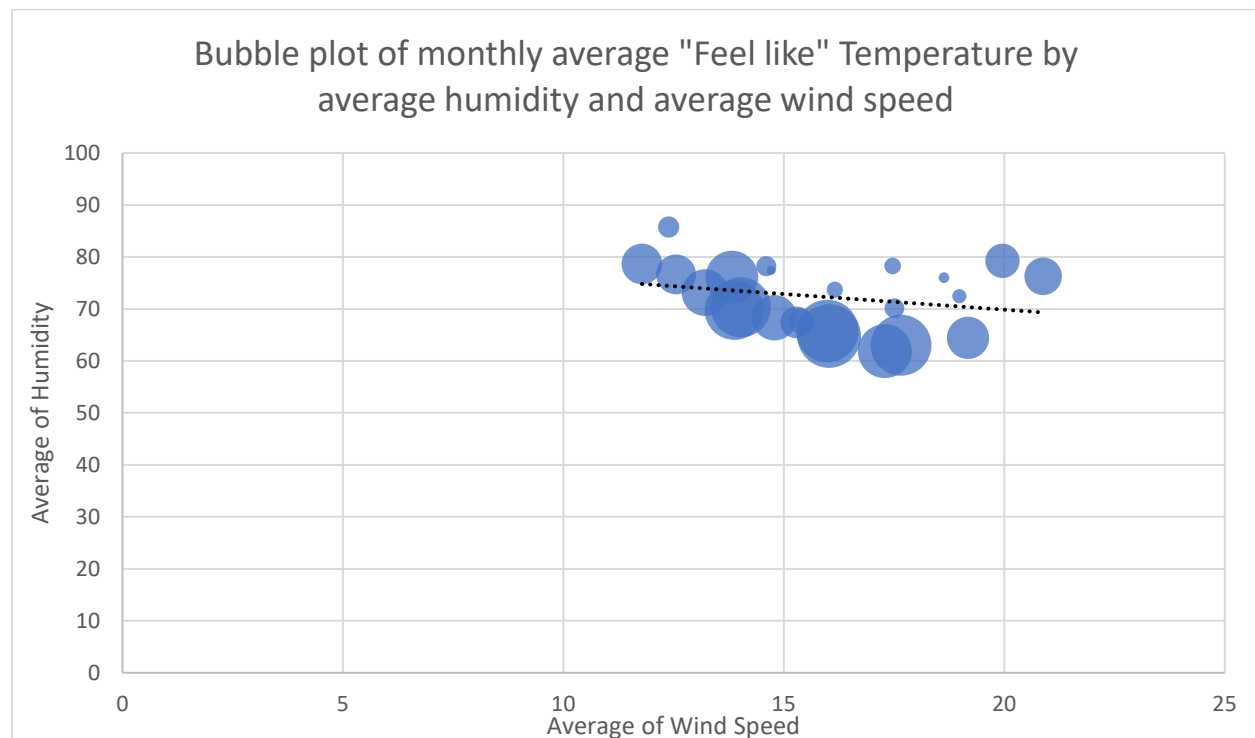


	clear; mostly clear with some haze/fog/patches of fog in the vicinity	scattered clouds/few clouds	broken clouds	cloudy	rain/light rain shower	rain with thunderstorm	snowfall	Grand Total
Spring	39.87%	21.73%	18.30%	7.42%	12.38%	0.16%	0.14%	100.00%
Summer	41.53%	25.51%	17.67%	4.92%	10.26%	0.11%	0.00%	100.00%
Fall	31.51%	24.03%	23.50%	8.65%	12.06%	0.02%	0.23%	100.00%
Winter	27.95%	21.58%	22.26%	12.75%	14.42%	0.02%	1.01%	100.00%

As I can see from the table above, the weather is often steady throughout all four seasons of the year, largely clear with some haze, fog, or patches of fog around. In the aforementioned table, it always makes the largest contribution. But based on my research, I can say that summer typically has the finest weather of the year, with 42% of it being bright and sunny. After the summer, spring is not too far away, and about 40% of spring is already clear. Since the transition from summer to winter began in the fall and the weather is far less stable in the winter than it is in the summer, fall and winter have around 32% and 28% of the time respectively. It clarified why winter is the season with the most foggy, snowy, or rainy days. The probability of snow in winter is much higher than the other seasons, at about 1%, while the probability of snow in summer is zero.

As I previously stated, fall marks the beginning of the transition from hot to cold weather, thus this season can occasionally be gloomy with a 9% probability of rainfall, fall has the second-highest possibility of snowfall (comes after winter). In terms of rainfall and cloudiness, winter arrives first. Rain always occurs occasionally in the summer. This can be attributed to the fact that the season is generally hot, which speeds up the formation of the water cycle and produces more clouds. This demonstrates why the summer has the most dispersed clouds of the four seasons, with fall, spring, and winter following.

Question 4:



The bubble plot illustrates that the temperature had the negative relationship with the average humidity. In detail, the higher the percent of humidity, the lower the average "feel like" temperature. On the other hand, we can see a slightly downward trend in wind speed by the average of humidity.