Is there any
relationship between weather/temperature and human?

Annie Won

I am very moody person, so I get easily depressed or sad when the weather is cloudy, rainy or gloomy and when sunny, I get excited that I should go out whenever it is sunny. Therefore, I wanted to know about what makes me feel this way. I first tried to find out indirect relationship between weather/temperature and human and further narrow it down to direct relationship with human.

GDP vs Temperature

My first approach to my question is that since the entity that human gathers and forms is country and we are grouped in each country with similarity, I first saw how weather/temperature relates to each country differently.
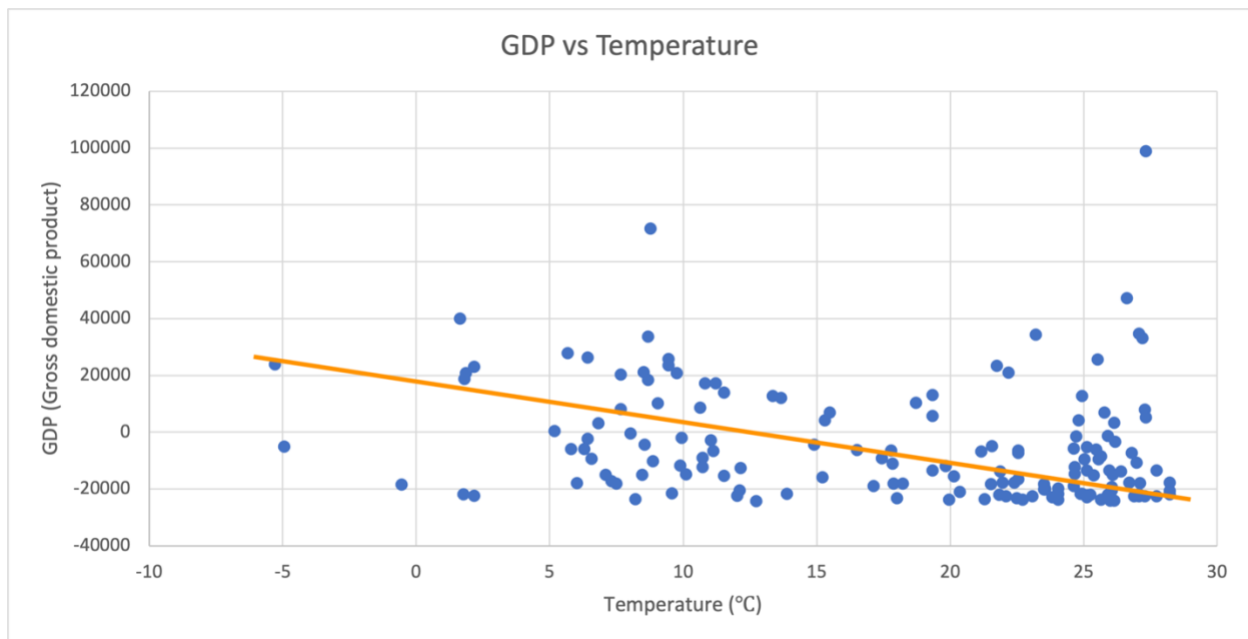

Fig 1. GDP vs Temperature

The data is from IMF, which compares temperature and GDP. The graph compares 154 countries and tells us that GDP tends to be lower in the countries where the average temperature is higher. From this graph, I knew that the temperature is related to human economically and I started to question, if the income is related to temperature as well and since money is the one of the outer and indirect factors of human.

High/Low Income Countries vs Temperature

Next step, I used the same dataset from above and extract only with low income countries and high income countries with temperature. Most of high income countries' average temperature lies from 6 ℃ to 14 ℃, but the below graph shows that in most of lower countries, average temperature is above 20 ℃. We do not know the exact reason causing this, but we can know that we are getting close to the point that temperature/weather affects human.
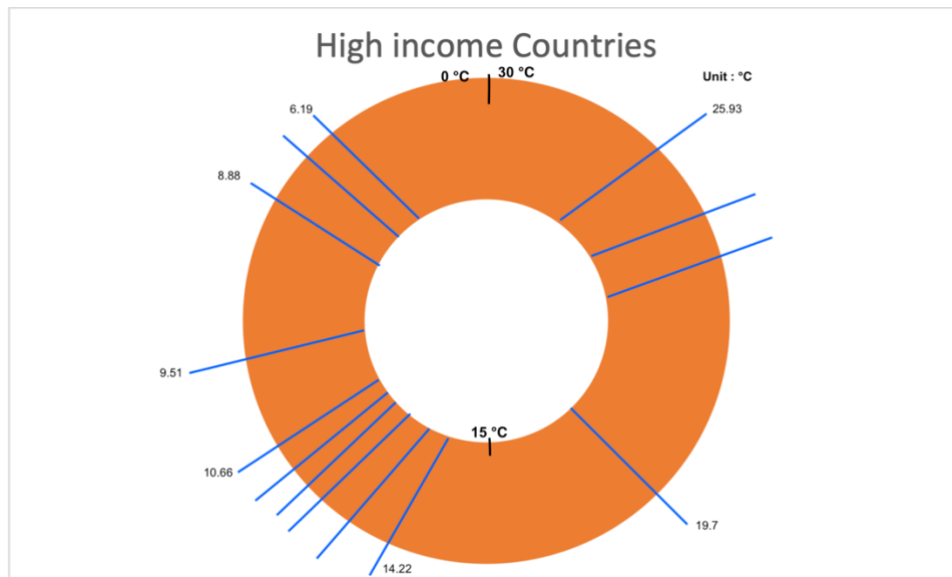

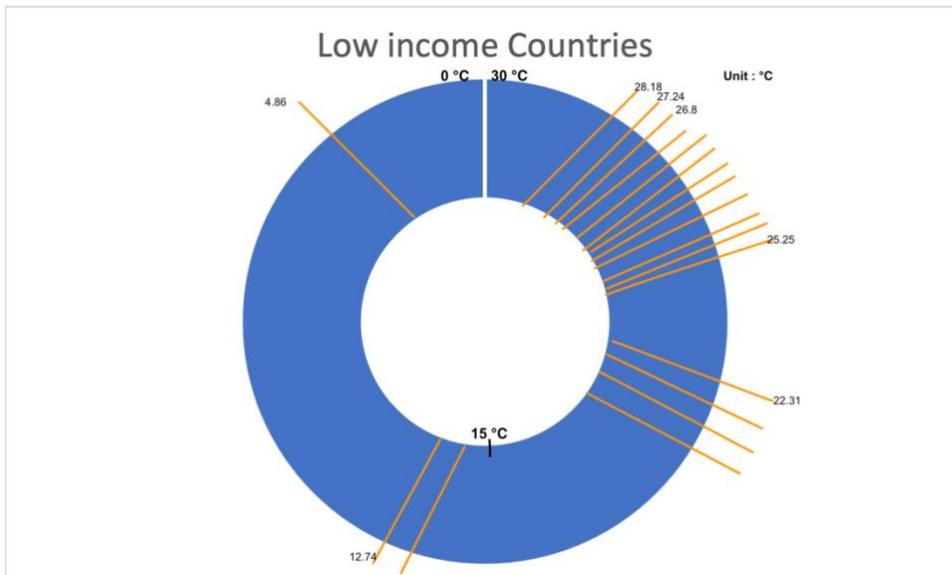Fig 2. High Income Countries vs Temperature

Fig 3. Low Income Countries vs Temperature

Average daily electricity consumption vs Temperature

Now, to get more closer to know weather and temperature have relationship with human, we will narrow down to human if human needs in 21st century (electricity and online shopping) also have relationship with weather/temperature. We will first see relationship between average daily electricity consumption and temperature. When the temperature goes high or low, people use much more electricity than other days. As shown in the graph, average daily electricity consumption increases as the temperature gets too low or too high.
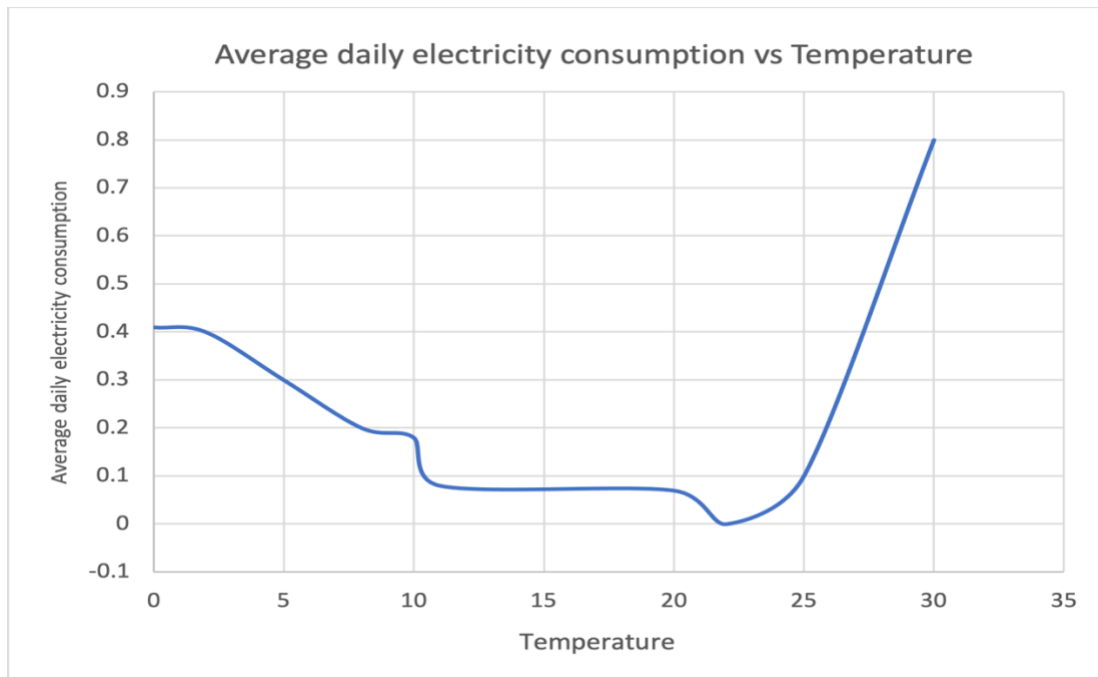

Fig 4. Average daily electricity consumption vs Temperature

Orders of online shopping vs Temperature

We will also see if online shopping relates to temperature and weather, because there are more than 300 million online shopping users and we cannot imagine without ordering online. It is so related to our(human) life. As the graph shows the profit at the retailer store decreases when the sky clear index gets higher. This means that when the weather is nice, people doesn't do online shopping as much as they did when it is cloudy.
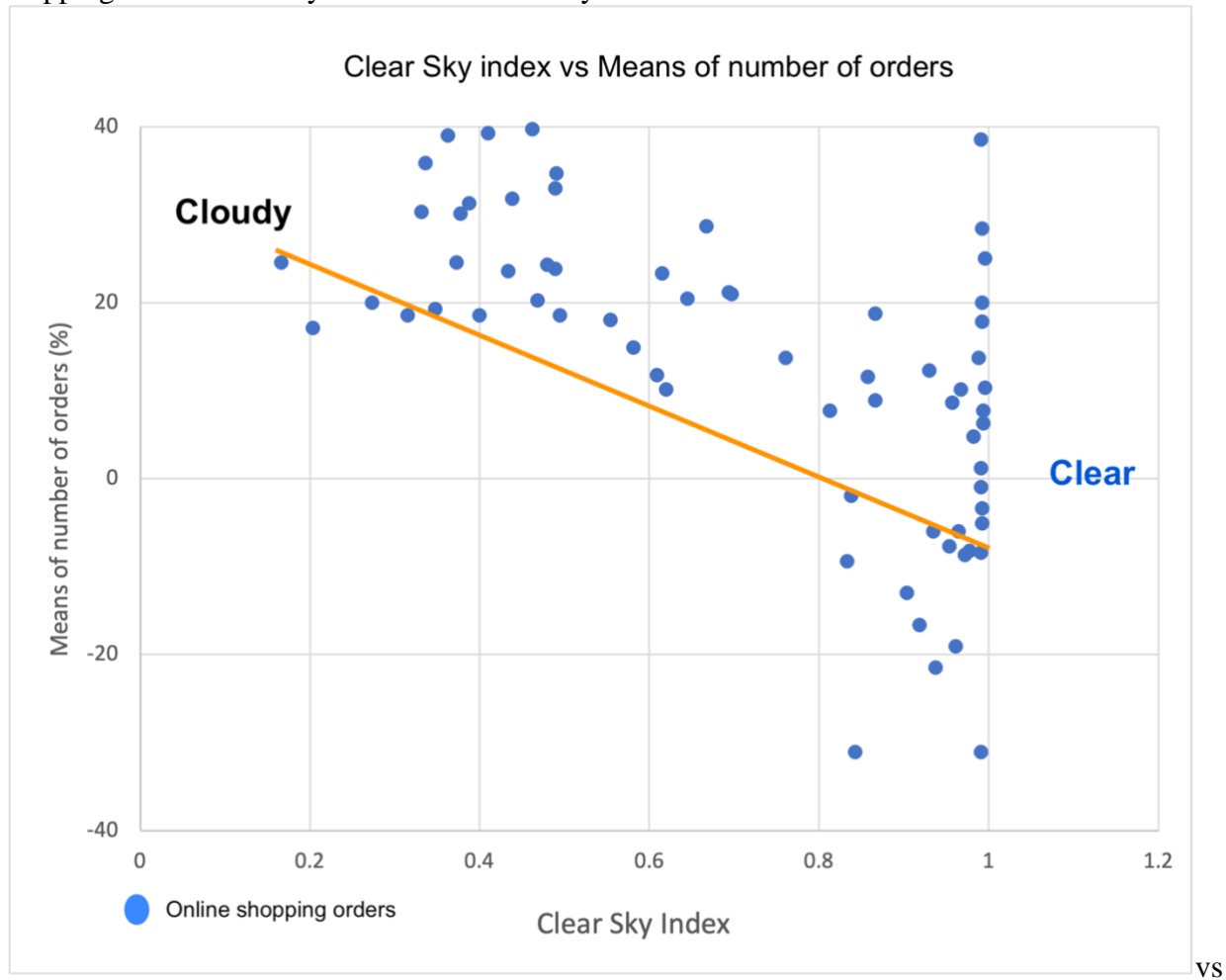

vs

Fig 5. Clear Sky Index vs Temperature

Suicide Rate/ Average shooting in Chicago vs Months

We now know enough through indirect factors that temperature/weather has relationship with human. We will now more focus on the human from the outside. Suicide rate and the number of average shooting also relates to temperature and weather. The data shows that people have tends to commit more suicide when the weather gets warmer in May, June, and July than in the winter (Fig. 6). Also, there are more shooting happening in Chicago in the summer than in the winter (Fig. 7).
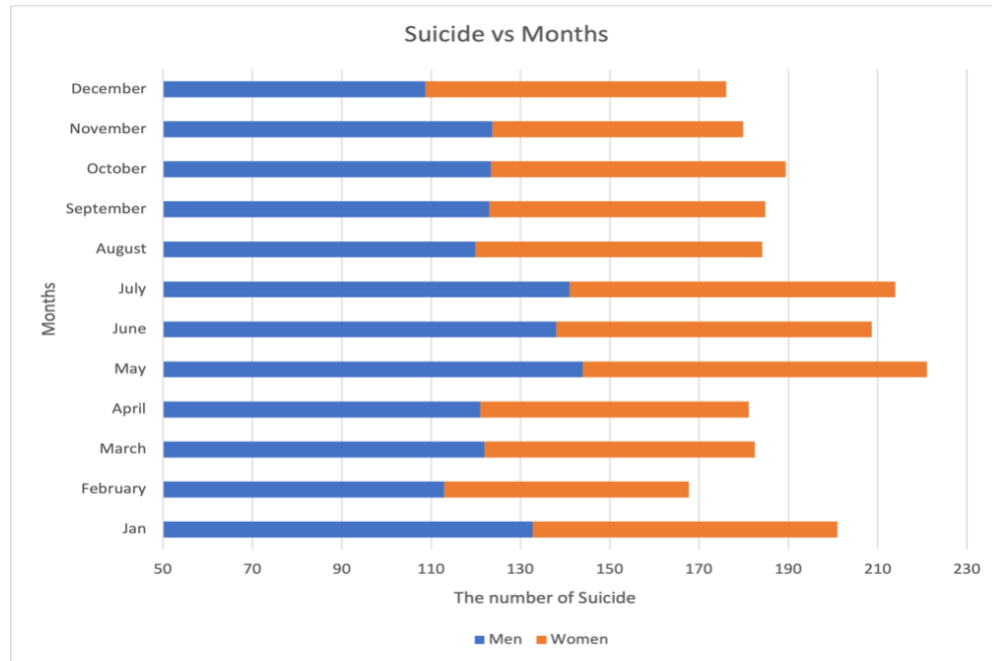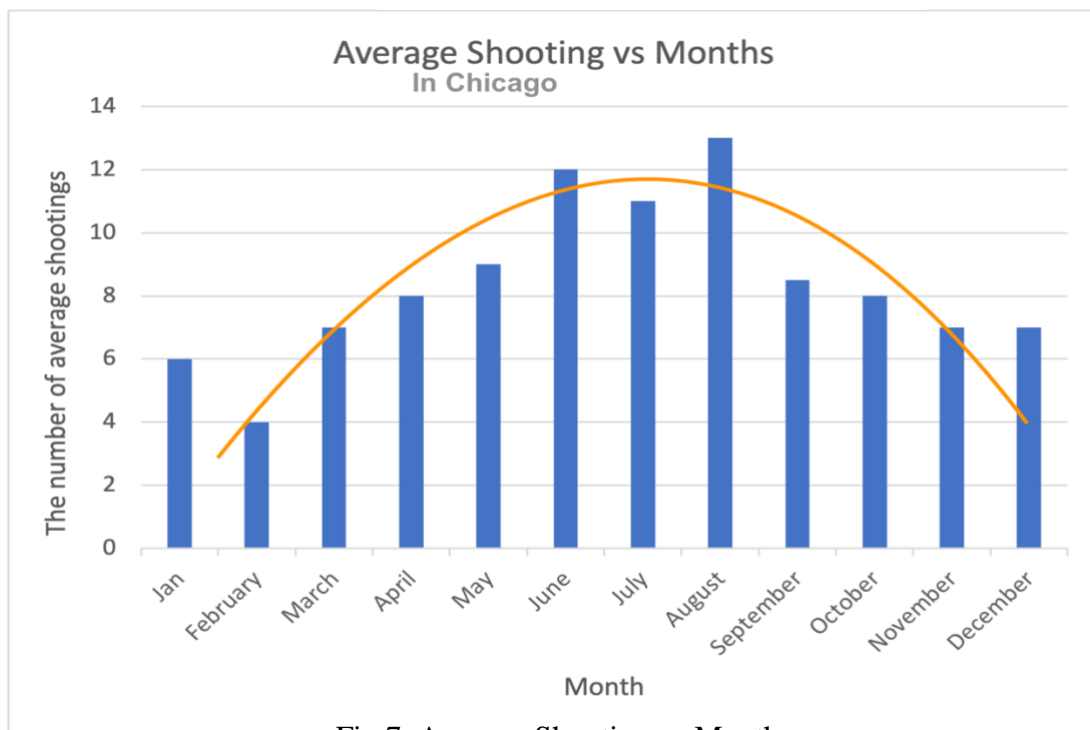

Fig 6. Suicide Rate vs Months

Fig 7. Average Shooting vs Months

All Causes Diseases/Height/ Number of Expressions is Facebook vs Temperature

We will finally focus directly on human. We will now look at the relationship between temperature/weather and human to see how weather/temperature affects human in direct ways. We will first see the relationship between temperature and human disease, height, change of the mood.
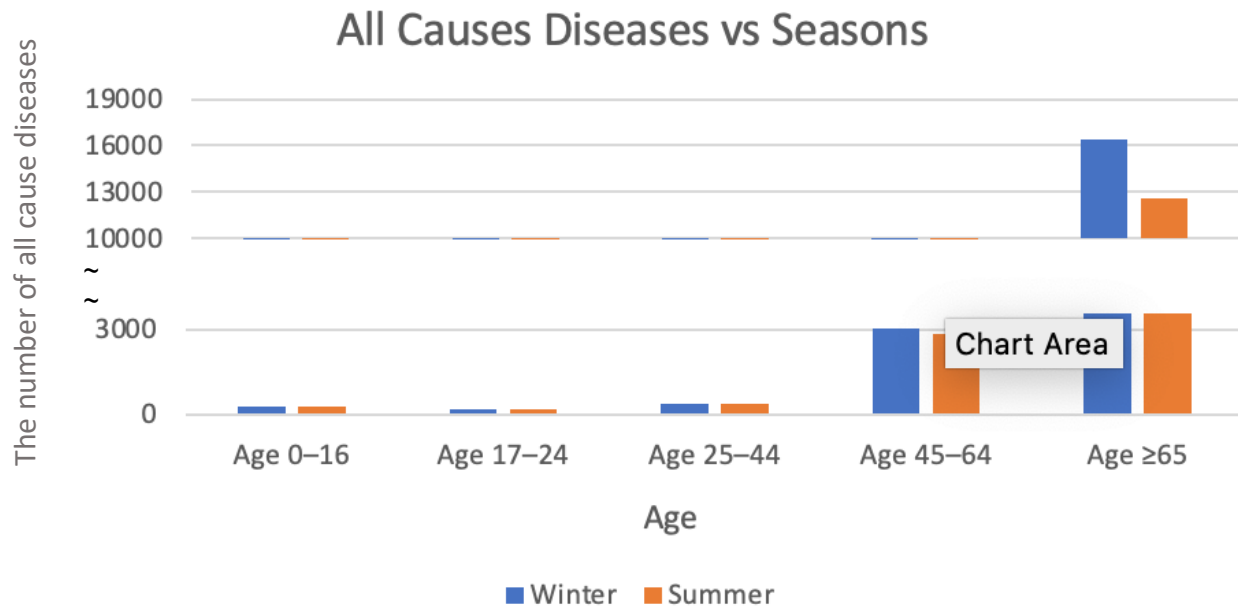

Fig 8. All Causes Diseases vs Seasons

Height vs Temperature

Did you know that weather also affects the height of the people? Height is the part of our body. The graph compares 266 countries based on people's average height and the temperature of each country. As the graph shows, when the higher the average temperature of the country, the shorter the people are. We can see that height is also related to the temperature.
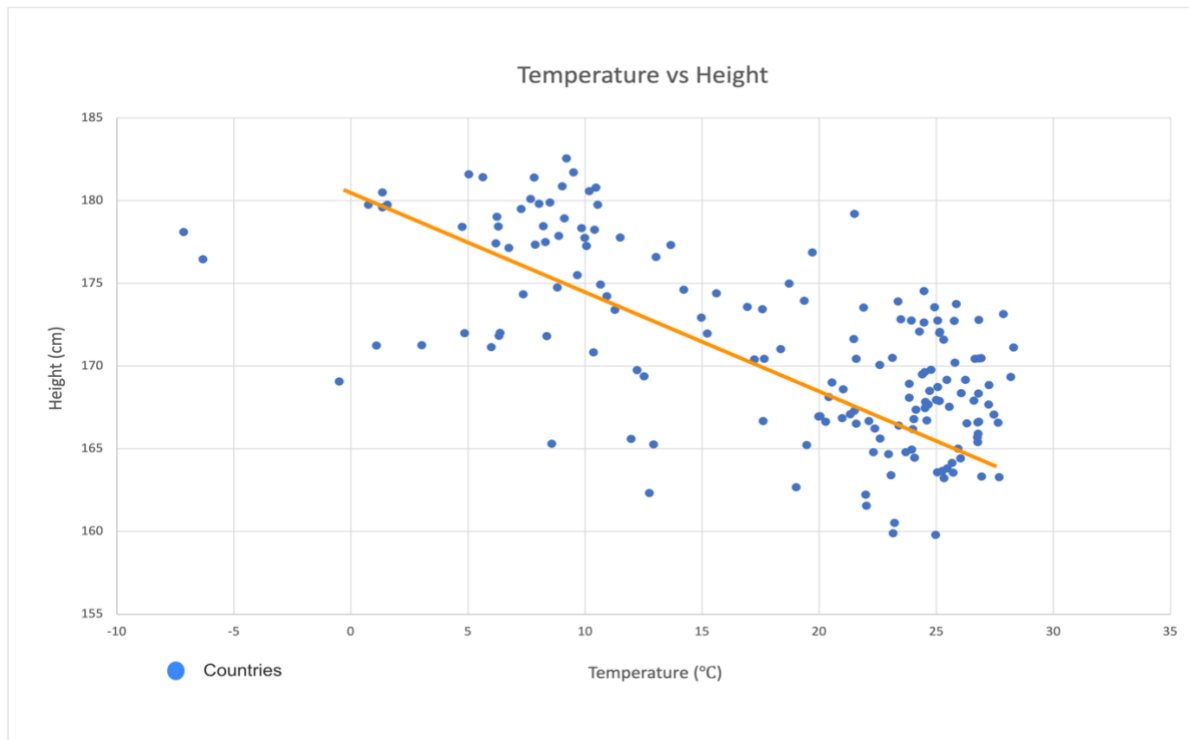

Fig 9. Height vs Temperature

Number of Expressions is Facebook vs Temperature

Weather and temperature are related to our mood. The graph shows the number of positive and negative expressions in Facebook as temperature increase and the precipitation grows. As the temperature increases the number of positive expressions grows, but decreases before the weather gets too hot. The more rain, the more negative expressions people use in Facebook. We can see that weather is directly related to human feelings.
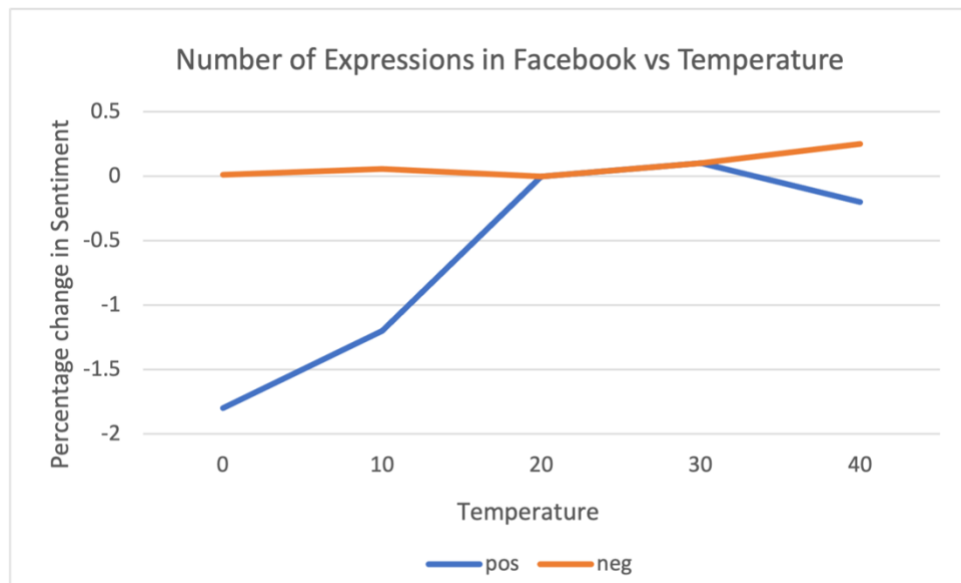

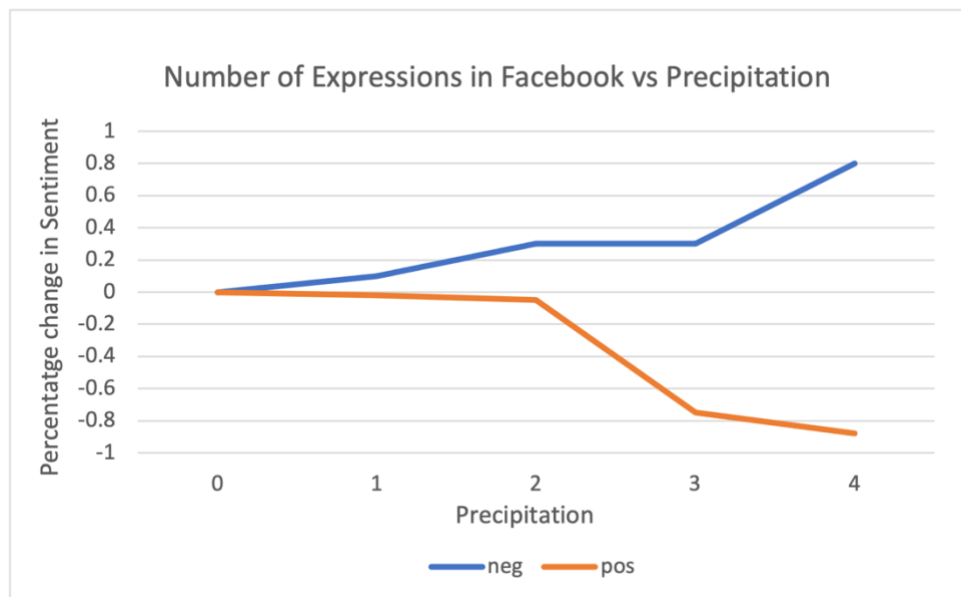Fig 10. Number of Expressions is Facebook vs Temperature

Fig 11. Number of Expressions is Facebook vs Precipitation

Final visualization

Temperature/Weather and human are closely related to each other. The relevancy of the graph is calculated based on the number of data used for each visualization above divided by total number of data used. As the graph shows diseases and mood are the most relevant to temperature and weather, but relevancy of other factors also fairly have high relevancy. From outer and indirect factors to direct related factors, it is proved that there is a relationship between temperature/weather and human.
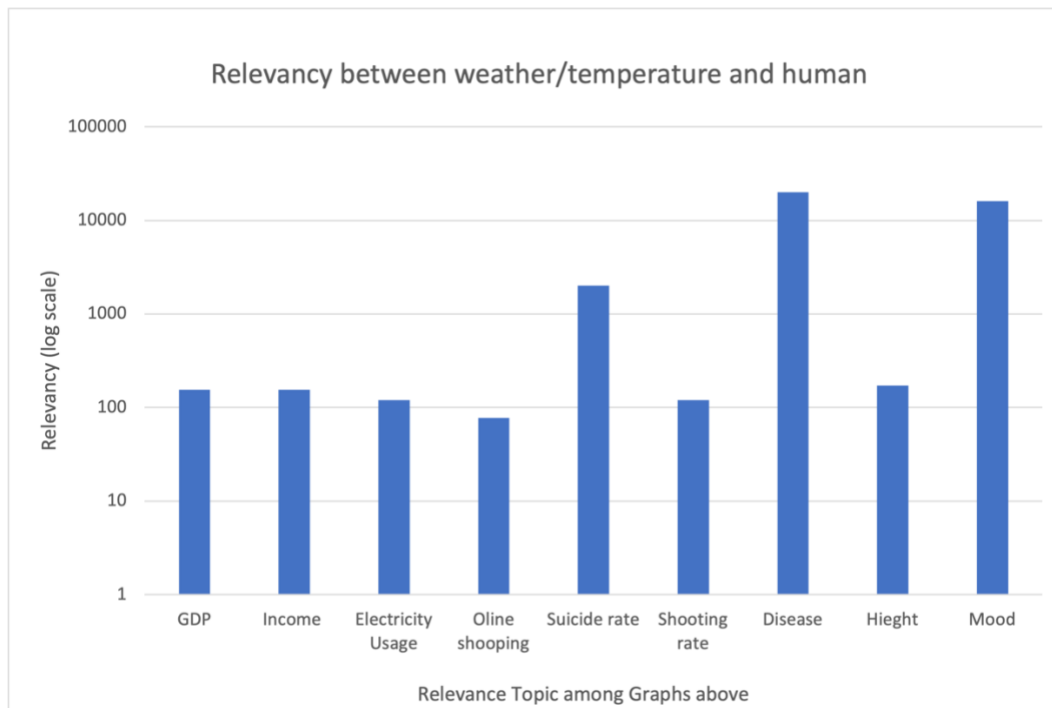

Fig 12. Relevancy between Weather/Temperature and Human

Lessons Learned:

It was my first time making this many kinds of visualizations and it was not easy in the beginning to come up with idea that I can narrow it down. However, by doing this assignment, I got the better sense of how visualization is created and how this process is happening behind. Articles in many newspaper platforms, I realized that author puts lot of efforts considering how to show the best visualization to convey exactly what the author thinks.