Peer Review Rubric

Each group will peer grade (2 * group size) other projects. For each project reviewed, the review should include the following components:

1. A score between 1 to 5 (5 is the best).
2. A summary of the report & rationale for the score
3. 3 strong points
4. 3 weak points
5. Detailed feedback (>= 3 suggestions for improvement)

We will grade each review individually out of 10 points using the following rubric. The final grade each group receives for the peer review component of the project will be an average of all the review grades.

Component	**Points**	**Criteria**
1 & 2	2pt	● 1pt for summary ○ .5 for correctly identifying the topic but not the research question ○ 1 for correctly identifying both ● 1pt for score + rationale for score ○ .5 for well-articulated rationale ○ 1 for well-articulated rationale and description of the scale (what is considered 1 or 5 on your scale)
3	3pt	● 1 pt per strong point; should be about content and not minutia (examples of what not to do: the dog is cute in the example picture; the caption is big and easy to read)
4	3pt	● 1 pt per weak point; should be about content and not minutia (examples of what not to do: typos, indentation issues)
5	2pt	● 1 pt for identifying areas of improvement ● 1 pt for providing actionable suggestions
Total	**10pt**	

Group 46's Score:

2.5

Summary of Topic and Research Question + Rationale for Score and Description of Scale:

This project aimed to explore the relationship between COVID-19 and the global climate. The authors chose this topic because COVID-19 has rapidly become a severe global health problem that has infected 12.6 million people and caused 259,000 deaths in the United States as of November 24th. Much is still unknown about the disease, such as the environmental features that may impact virulence and onset of COVID-19. Therefore, the authors came up with three questions to explore through this final project:

1) In 2020, have there been regional differences in climate (average temperature, precipitation, and elevation) in the United States?
2) Is there a correlation between the number of confirmed COVID-19 cases per capita and the political party the state voted in the Presidential Election in 2020?
3) Is there a correlation between COVID-19 and environmental features like temperature and precipitation? If this correlation exists, can it shed light on possible strategies for controlling the pandemic?

My Scale:
1 - Analysis has not begun. There is minimal literature referenced, no rationale for the research question, and the topic itself is not interesting. The research question does not address multiple datasets. There is no overview of causal inference and no overview of how modeling took place. There is no modeling present. No limitations discussed and no ideas for future work. No visuals.

2 - Minimal analysis. There is some literature referenced, some rationale for the research question, and the topic is interesting. The research question does address multiple datasets. There is no overview of causal inference and no overview of how modeling took place. There is no modeling present. No limitations discussed and no ideas for future work. No visuals.

3 - Some analysis present. There is some literature referenced, rationale for the research question, and the topic is interesting. The research question does address multiple datasets. There is some overview of causal inference and minimal overview of how modeling took place. There is modeling present, but no comparison to other models. Limitations minimally discussed and one idea for future work. There are some visualizations.

4 - Analysis present. There is literature referenced, rationale for the research question, and the topic is interesting. The research question does address multiple datasets, as well as insights within datasets. There is some overview of causal inference and some overview of how modeling took place. There is modeling present, but no comparison to other models. Limitations minimally discussed and one idea for future work. There are visualizations.

5 - Perfect analysis. There is literature referenced, rationale for the research question, and the topic is interesting. The research question does address multiple datasets, as well as insights within datasets. There is a clear overview of causal inference and a detailed overview of how modeling took place. There is modeling present, and detailed comparisons to models.

Limitations are discussed and there are many ideas for future work. There are clear visualizations.

Score of 2.5 Rationale: Group 46's research topic is very relevant and draws upon two given datasets (COVID-19, climate), as well as outside sources of data related to the Presidential Election and total population per state. The "Introduction" section of their narrative notebook provides an excellent rationale for the study and clearly states their research questions. While this group did create some interesting line plots to visualize associations (temperature and mortality rate, temperature and incidence rate), there was no modeling or discussion of causal inference included in this draft. However, they included a brief explanation of future steps, and also used a few references within their narrative notebook, thereby deserving a score between 2 and 3.

Strong Points:

1. The authors provide a detailed description of their rationale for this study in the "Introduction" section of their narrative notebook. They also use references in their narrative notebook to provide information about real-world studies that addressed their research questions.
2. The authors provide a very clear description of their datasets and their data cleaning process in their narrative notebook. They walk through each step of cleaning for both of their datasets and also discuss the process of merging their data. Overall, this section was concise, while also addressing the challenges they encountered throughout the cleaning process.
3. In the discussion of their results, the authors go above and beyond — not only stating what their plots showed them, but also offering potential explanations of the trends shown based on current events at the time. For example, from April-July 2020, the authors found that states that leaned towards the Democratic presidential candidate had more COVID-19 cases per 100k. From August 2020 to present day, this trend has reversed and states that leaned towards the Republican presidential candidate now have more COVID-19 cases per 100k. In addition to listing these observations, the authors hypothesize that this could be because blue states are located near the coasts, where air and water transportation is more active, leading to an initial wave that has now flipped since Republican states are less stringent about COVID-19 precautions.

Weak Points:

1. The line plots in the analysis notebook are missing some key details. The "Impact of Temperature on Mortality Rate" and "Impact of Temperature on Incidence Rate" graphs need a legend to specify the difference between the red and blue lines. This was not immediately apparent — I had to look at the code to determine that the red line was "Average Temperature" and the blue line was "Mortality Rate" or "Incidence Rate". These four graphs also need more descriptive titles since the data is subsetted for different locations. Therefore, the titles should day "...in Iowa" or "...in California".
2. The "Results" section of the narrative notebook mentions that there was a "weak negative correlation" between temperature and mortality rates in California and a "slight positive correlation" between temperature and mortality rates in Iowa. These are general

statements — I think it would be beneficial to include summary statistics like the R^2 value to be more specific here.

3. The narrative notebook has grammatical errors and inconsistencies in tense. I'm sure this is because group members were in charge of different parts, but make sure that voice and writing style is consistent throughout. For example, in the data cleaning section, the "Climate Change Over Time" subsection is written in present tense, but the other cleaning subsections are written in past tense. Also, some data cleaning sections use third person, while other sections use a first person style of writing ("we cleaned…"). This makes it a little bit confusing for readers.

Feedback with Areas of Improvement and Actionable Suggestions:

1. Your narrative notebook mentions that one of your research questions is about regional variation of climate in the United States. The current analysis is about California and Iowa. Perhaps also include states beyond the Western and Midwestern regions if you would like to still answer this first question. Also, include a justification for why you picked that state to represent the entire region.
2. Instead of making different line plots for each region, perhaps you could create some plots for mortality and incidence rates that include lines of different color for each region. This would allow for a visual comparison of regional differences. Maybe even consider creating a heat map of the United States to visualize these regional differences.
3. Consider expanding upon your references and use literature to support or explain the other trends you observed. Currently, you have two references in total to contextualize the impact of temperature on COVID-19 spread. Perhaps you can find other references to include in your discussions on precipitation and elevation and COVID-19. If literature on COVID-19 is limited, then maybe you can look for articles on other similar infectious diseases (i.e. SARS).