Project Part II

Introduction and Background:

Climate change can affect agriculture in a variety of ways. Beyond a certain range of temperatures, warming tends to reduce yields because crops speed through their development, producing less grain in the process and higher temperatures also interfere with the ability of plants to get and use moisture. The inspiring movement for us was when we heard about a who was a Greta Thunberg teen challenging all the world leaders in demand to take immediate action towards climate change and this was when we understood how critical the climate change has become and we were curious to know how the climate change affect the Food crop, and this was the reason for choosing this topic.

Objectives and Goals:

1. To understand the agricultural crop production trends in different countries over the years.
2. Identify the key factors that affect the production by analyzing the top crops produced in different countries.
3. Correlation between crop production in different countries based on temperatures.
4. To get insights like the crops with highest production value, which country is top in producing a particular crop, how production has changed over the time.

This will benefit others by providing insights into agricultural production trends, which can be useful for businesses, researchers in the agricultural industry and farmers to make more informed decisions about crop production and distribution.

Datasets:

Dataset - 1

1. We will use the "Global Food and Agriculture Statistics" dataset available on Kaggle for this project.
2. This dataset was collected by United Nations and was created for educational purpose.
3. Time frame for this dataset is 1961 to 2007.
4. 7GB large.
5. 156 countries are included in the dataset and yes, we can be able to make graphs based on country and national wide.

Dataset - 2

1. The second dataset that we will use for this project is the "Climate Change: Earth Surface Temperature Data" dataset, also available on Kaggle.
2. This dataset was collected by Berkeley and was created for educational purpose.
3. Time frame for this dataset is 1750 to 2015.
4. 8.5M data points.
5. 156 countries are included in the dataset and yes, we can be able to make graphs based on country and national wide.

Publication Papers:

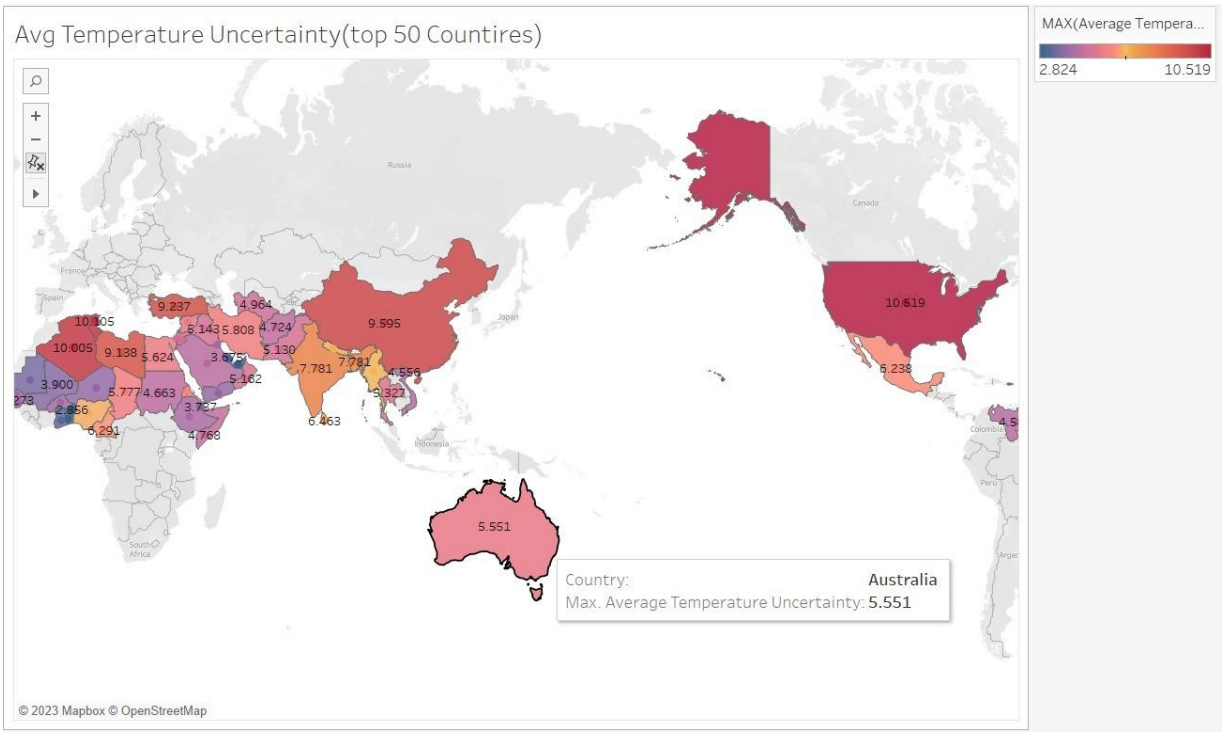
Title: Global Warming and Agriculture
Author: William R. Cline
Published by: IMF
URL: https://www.imf.org/external/pubs/ft/fandd/2008/03/pdf/cline.pdf

Description:

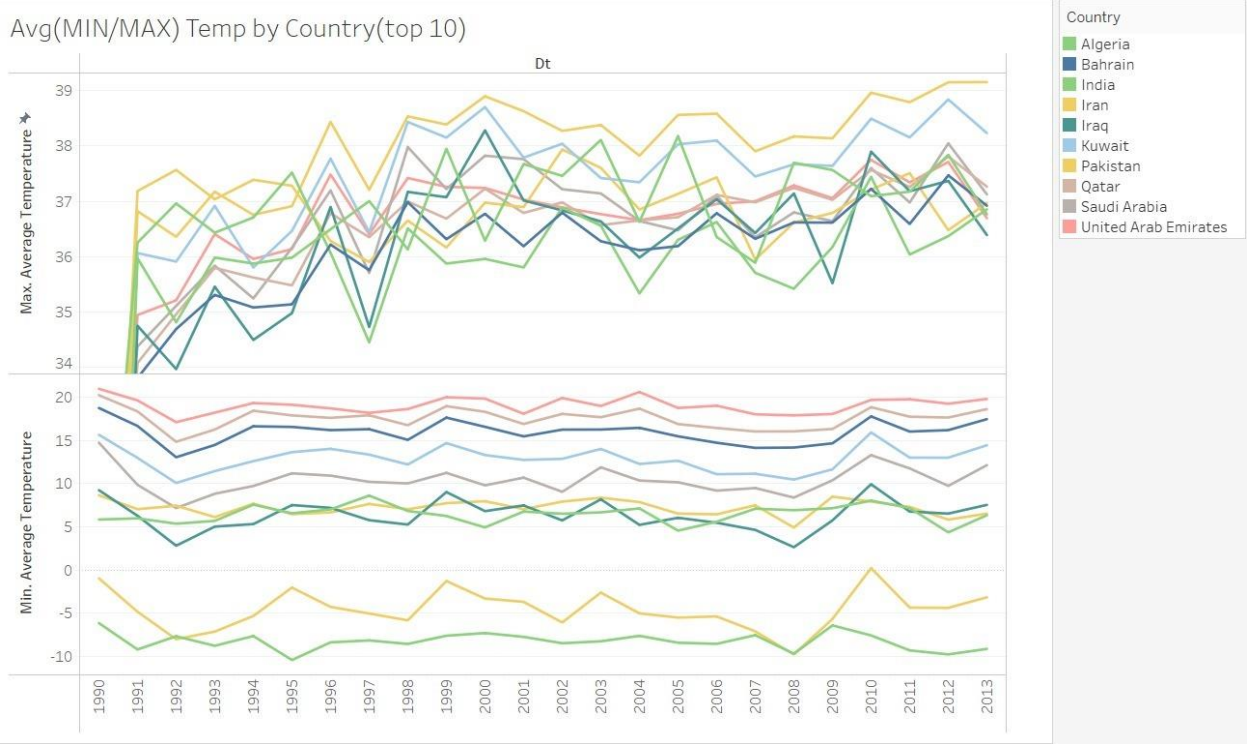
The paper highlights that the impact of global warming on agriculture is not evenly distributed across countries, and that some countries are likely to experience more severe effects than others. The authors estimate that the country's most vulnerable effects of climate change on agriculture are those with low levels of agricultural productivity, high levels of poverty, and high reliance on agriculture for employment and income. Overall, the paper provides insights into the potential impacts of global warming on agriculture and highlights the need for policymakers to take action to address this issue.

Visualization Plan:

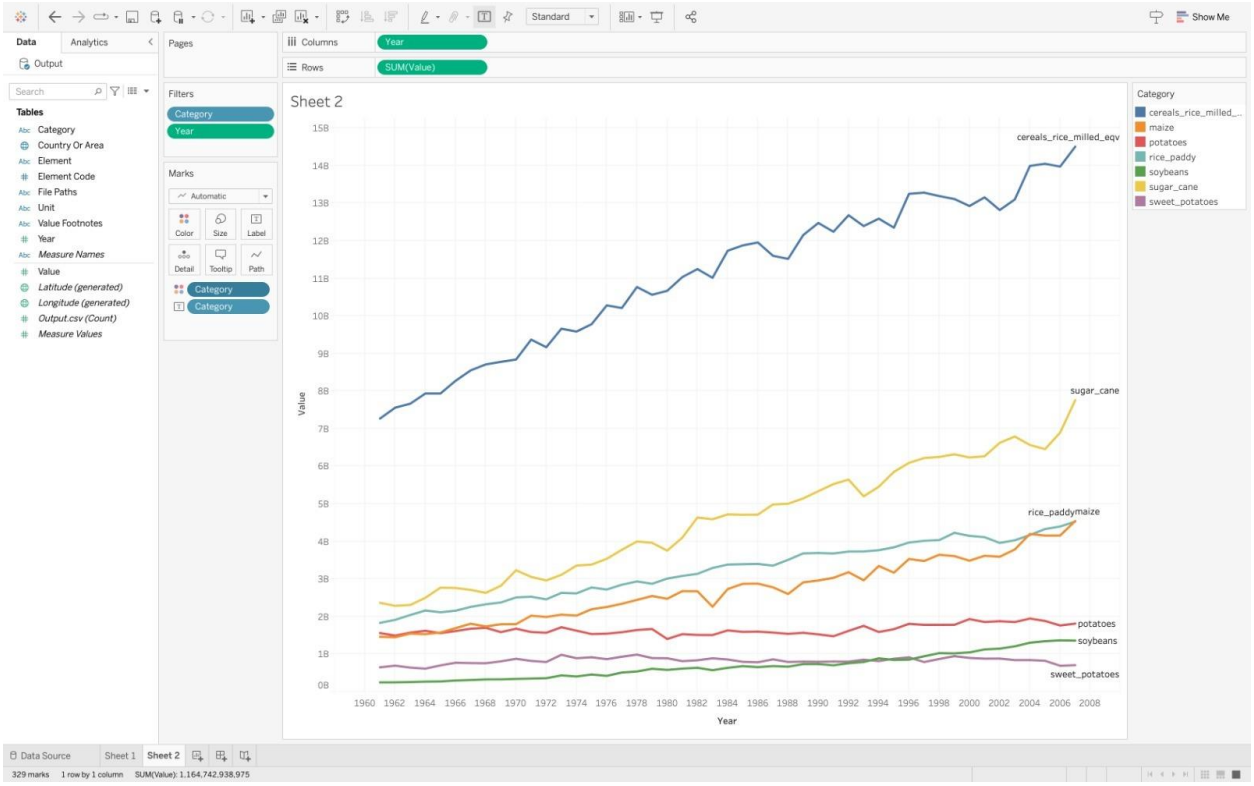
1. Here we have used the variables Temperature uncertainty from the Global climate dataset, and we are using the latitude and longitude to get the visualization in the form of a map. We can see that we have changed the color for the Temperature uncertainty to make it more appealing rather than the default color.



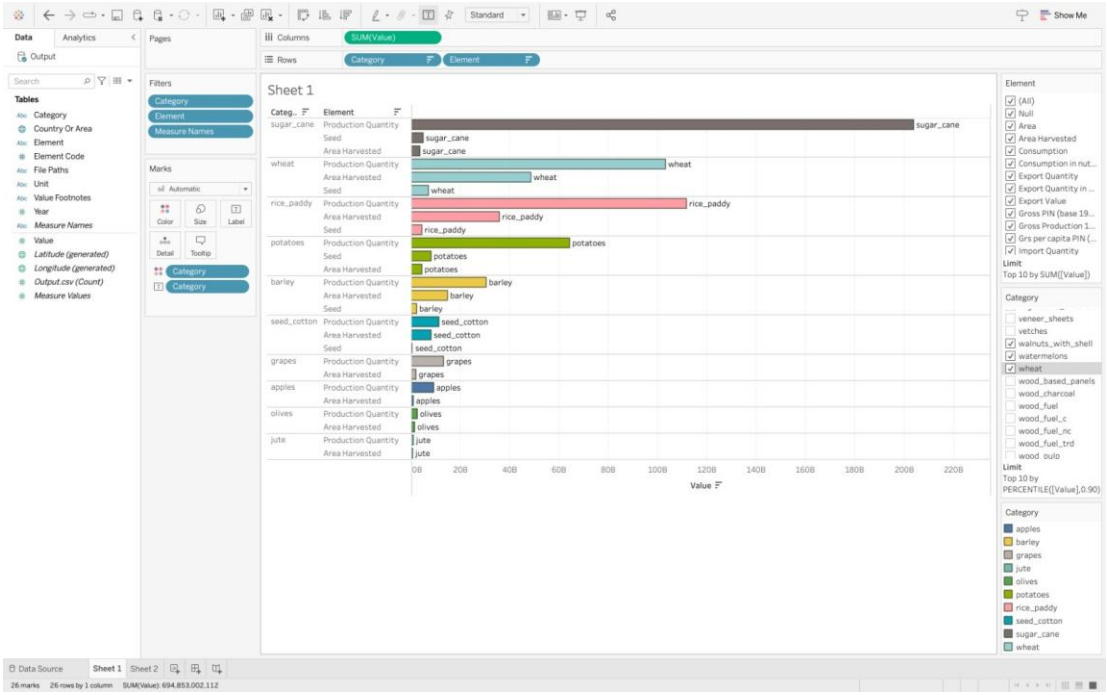
2. Using the same dataset, we can plot some graphs for the Average temperature based on the country and here we are going to use both the country and Average Temperature variables to get the graph. As we can do both Maximum and Minimum value for the temperature, we can plot both of those in the same sheet and we can use that and make sure we can get the Line chart if we can use the year variable also and color the variables based on the country to differentiate the lines and making sure it looks good.



3. Now we want to explore the Food crop dataset, here we can plot the graph by considering the value of food that got produced every year and we can try to differentiate them by using any other filter which makes the graph looks more understandable. Below is a graph in which we have tried to convey our findings which is about checking how much food value is being produced based on the year and they have been color coded based on their categories and we tried to do it in the form of a line chart.



4. We have tried to use the same variables as we did in the previous graph but here, we tried to gather some more information by adding another variable in the rows which is element which involved the production quantity, seed and Area harvested, here we are able to get some bar charts based on the value and category and element from the data. We are going to try with some more variables and make some more meaningful and good-looking graphs.



In next steps, we are proposing two more charts,

1. We will try plotting Bubble Chart to show which country is producing highest yield in the crops.
2. We will try to do a scatter plot which was a preferred graph mentioned in the visualization plans.

References:

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We all of us discussed and collaborated each person contribution and integrated as a unique work.