**Project Title: Impact of Climate Change to the Local Farmers in the Philippines Using EDA**

**Introduction**

Climate change refers to changes in the atmosphere that are driven by both natural and man-made variables such as the earth's orbit, volcanic activity, and crustal motions. Artificial causes such as the growth in greenhouse gas and aerosol concentrations climate change caused by global warming, which refers to the average increase in global temperature, has emerged as a megatrend that will result in huge future world changes. Climate change's effects can also be seen in other ways around the world, such as rising sea levels, melting glaciers, northward relocation of plant habitats, changes in animal habitats, rising ocean temperatures, shorter winters, and early arrival of spring.

The increased variability of weather caused by climate change has a negative impact on food supply, access to food, and food quality. The dry season has been longer than it has ever been in recent years. It starts earlier and ends later in the year. Drought becomes more likely as a result of this. This risk has a direct impact on the amount of water available for agriculture and home consumption, as scarcity will drive up prices. Farmers with already modest incomes will find it increasingly difficult to secure water for their crops as costs rise. The Philippines has a tropical marine climate due to its location on the equator. As a result, the seasons are divided into two categories: rainy and dry. The dry season runs from November to May, when it is the hottest, while the wet season runs from June to October when there is the most rainfall. Additionally, typhoons are relatively common during this time. Despite the frequency of natural hazards, farmers rely on the consistency of this pattern to know the optimum time to plant in order to achieve the greatest harvest. As a result of climate change, local weather patterns have changed significantly, making it increasingly more difficult for farmers to know when to plant their crops. In addition, because most of the country's key agricultural crops are rain-fed, a lack of rain will limit the variety of crops that farmers may plant. Drought makes it difficult for farmers to grow particular crops, which reduces the availability of certain crops. As a result, it will either cease to be sold in supermarkets or be imported and sold at a higher price.

The wet season, on the other hand, is getting shorter, but typhoons are growing more frequent and intense over that short period of time. The Philippines' current location makes it particularly vulnerable to natural disasters such as typhoons and flooding, which are exacerbated by climate change. The Philippines is one of the most vulnerable countries to climate change due to its geographic location, according to the Global Climate Risk Index. Despite the fact that many of the crops farmed in the Philippines require a lot of rain, typhoons increase the risk of flooding, which affects crop production and causes soil erosion. As a result, agricultural land becomes less productive. A powerful enough typhoon has the potential to wipe out entire crop fields, which would be devastating to a farmer's livelihood. Not to mention the long-term consequences, such as soil erosion, which will make planting crops much more difficult in the future.

**Problem Statement**

Farmers in the Philippines are suffering as a result of climate change. Farmers' revenue can be ruined by a fast change of season, such as the beginning of the dry season or shorter wet season. It also has an impact on the Philippines' economy because farmers are unable to produce crops due to the sudden shift in weather. They have difficulties to adopt to the changing weather and because of that It throws off their planting and harvesting schedule. Droughts will most likely reduce crop output, putting them at danger of losing income if they do not respond. Non-farmers, as well as farmers, will have an impact on crop production. Rice, coconuts, corn, sugarcane, bananas, pineapples, and mangoes are all declining in output, which has a significant impact on their profits. Farmers must react to these changes by switching to more drought-resistant crops or using pesticides, both of which are potentially more expensive and time-consuming for the farmer. Despite the fact that many of the Philippines' crops require a lot of rain, typhoons increase the risk of flooding, which has an impact on crop productivity and causes soil erosion. As a result, agricultural land becomes less productive. A strong enough storm might wipe away entire crop fields, which would be disastrous for a farmer's livelihood. Not to mention the long-term effects, such as soil erosion, which will make planting crops in the future much more difficult.

**Significance of the proposed project**

The goal of this analysis is to determine how climate change affects agriculture in the Philippines by applying exploratory data analysis to temperature and weather changes, as well as crop production value. The researchers will be able to uncover strategies to avoid or mitigate climate change in the Philippines by constructing exploratory data analysis for this study. Farmers will profit as well, since they will be able to adjust to the unexpected change in weather. And to the economy, it will result higher income for the people, proper price of the products and the reducing poverty.

**Methods**

**Expected Output**