**Model Development Phase Template**

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| Date | 15 July 2024 |
| Team ID | 739795 |
| Project Title | Crop Prediction using machine learning |
| Maximum Marks | 5 Marks |

**Feature Selection Report Template**

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

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| **Feature** | **Description** | **Selected (Yes/No)** | **Reasoning** |
| N | Nitrogen is an essential for plant growth. Ratio of Nitrogen present in the soil. | Yes | Nitrogen plays a vital role for plant growth. How much nitrogen is available to plants to predict crop performance.  By using N we can plot the bar graph in our project. |
| P | Phosphorus is a critical component of soil fertility. Ratio of P present in the soil. | Yes | Phosphorus is one of the major nutrients in the soil. It is essential for cell division and development of growing tip of the plant.  By using P we can plot the bar graph in our project. |
| K | It ensures proper maturation in plant by improving root strength, disease. | Yes | Potassium enhances a plants ability to withstand stress conditions such as drought disease. P improves the quality and yield of crops.  By using K we can plot the bar plot in our project**.** |
| Temperature | Most of the plants can’t efficiently grow in the cool weather. We can use to maintain the temperature levels | Yes | Different crops have specific temperature ranges for optimal growth. Different crop varieties have varying temperature tolerances.  We selected temperature as a feature in our project based on the temperature we can predict the crop production.  By using Temperature we can plot the box plot. |
| Humidity | Humidity is used to determine the likelihood of rain, fog occuring. | Yes | It influences the water balance and photosynthesis process in the plants.  We can selected humidity as a feature in our project and we can plot the box plot |
| Rainfall | To grow the plants | Yes | Rainfall is critical for achieving optimal crop yields. Insufficient rainfall can cause droughts and excessive rainfall can lead to plant damage.  We selected the rainfall as a feature and we can plot the bar plot. |
| Ph | To determine the suitable crop for the land. | Yes | Ph plays a important role. Farmers can test the soli to decide which crop is used to cultivate in the land.  By using ph we plotted the bar plot and dist plot. |