**IETE CSE Tech Project Proposal**

**Name:** A Dhruva Krishnama Raju

**Reg. No.:** 20BCE0907

**Optimizing Agricultural Production**

**Tech Stack Used:**

I will be Using Python language for the project in the Jupyter Notebook and libraries like NumPy, Pandas, Matplotlib, Seaborn, scikit-learn, etc., for various ML functions and Visualization.

**Idea:**

In this project I will be taking data of different factors affecting the production of a plant or a crop like

* **N** – Ratio of Nitrogen content in the soil
* **P** – Ratio of Phosphorus content in the soil
* **K** – Ratio of Potassium content in the soil
* **Temperature** – Temperature in degree Celsius
* **Humidity** – Relative Humidity in percentages
* **pH** – pH value of the soil
* **Rainfall** – Rainfall in mm
* **Label** – Names of different crops

And using ML and Visualization techniques to learn and do Realtime predictions of suitable crops for given set of climatic conditions.

**Method of Implementation:**

With the data of various growing conditions of different crops, analyze the different conditions and form clusters of crops having same climatic conditions using K-Means clustering. After analying the different conditions for different crops, perform Multi-class Classification and predict which crop can be grown with given conditions by running Predictive Models.

**Timeline:**

2 – 3 weeks

**Application of Project:**

If we analyze the data we will be able to predict the best crop that can be grown at any given climatic condition which will help in a strategized and optimized cultivation which results in better and production of crops, increasing profits.

**Expected Outcome:**

Predict the best crop to be produced during a given climatic condition for optimized agricultural production.