IETE CSE Tech Project Proposal

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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.