**Project: Crop Prediction and Analysis**

**Description:**

This project, titled "Crop Prediction & Analysis " aims to utilize machine learning algorithms to predict the best-suited crops for specific agricultural conditions. The project involves comparing three supervised learning algorithms—K-Nearest Neighbors (KNN), Decision Tree, and Random Forest—on a dataset containing 22 different crops. The data includes features such as nitrogen, phosphorus, potassium content in the soil, temperature, humidity, pH level, and rainfall. The project evaluates the models based on their accuracy, precision, recall, and F1 scores, with Random Forest emerging as the most accurate model at 99%. The study concludes that crop prediction using these models can significantly aid farmers in making informed decisions about which crops to cultivate, thereby improving agricultural productivity.

**Technologies:**

Machine Learning Models: KNN, Random Forest, Gradient, Decision Tree

Visualization: python

**Impact:**

This project enhances agricultural productivity by predicting the most suitable crops based on soil and climate data using machine learning algorithms. It empowers farmers with data-driven decisions, leading to optimized resource use, higher yields, and improved sustainability. The project supports adaptation to climate change, promoting efficient and profitable farming practices.