**MODULE DESCRIPTION**

* **Crop recommendation**
* **Importing Libraries and Dataset**
* **Descriptive Analysis**
* **Data Visualization**
* **Model Building**

**Crop Recommendation:**

The Crop recommendation was used for training model since it contains attributes such as temperature, humidity, average rainfall, soil Ph, nitrogen requirement ratio, potassium requirement ratio and phosphorous requirement ratio essential for predicting a crop. The datasets such as Soil names and Crop names are used after prediction to obtain the soil type and scientific name of the predicted crops.

**Importing Libraries and Dataset:**

In order to utilize Machine Learning algorithms and preprocessing tools specific libraries needs to be imported. Using these libraries, the model building and prediction would be performed efficiently. The libraries such as NumPy, pandas, pickle, matplotlib, seaborn, Label Encoder, train\_test\_split were imported. The models such as Naïve bayes, Logistic Regression, SVM, Decision Tree Classifier, Bagging Classifier, Random Forest Classifier, AdaBoost Classifier, Gradient Boosting Classifier, XGBoost Classifier, LGBM Classifier and KNN was imported. The dataset called crop recommendation was used initially for training and testing the models.

**Descriptive Analysis:**

To obtain a best predictive model descriptive analytics is to be performed in prior. Descriptive analytics provides an idea of how the dataset looks like and helps to draw new insights. Once the dataset is imported, missing values per attribute is checked. For crop recommendation dataset the attributes are free of missing values, results are displayed.

**Data Visualization:**

Once the basic details about the dataset is obtained data visualization is performed to analyze the dataset in a visual format. A correlation matrix is a relationship lattice is basically a table appearance that specifies the correlation coefficients between attributes.

**Model Building:**

This work aims to identify the crops using Machine Learning Classification algorithms. The proposed work uses 10 classification algorithms to find the best model for future prediction. The steps performed for model building are as follows:

The model is being imported from the library.

Model is being defined.

* The training and testing data are fitted into the model.
* After training the model, the model is being tested over the testing dataset.
* Confusion Matrix and evaluation metrics are calculated.