Model Development Phase Template

Date	15 March 2024
Team ID	739833
Project Title	Crop Prediction using machine learning
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
1. K Nearest Neighbors Model	A variable is created with name knn which has KNeighborsClassifier() algorithm initialised in it.The knn model is trained using the .fit() function.The model is trained on the X_train and y_train data that is the training features and target variables.	K,distance,weights.	The accuracy of K Nearest Neighbors Classifier is 0.9829545454545454 0.9727272727272728

2. SVM Model	A variable is created with name svm which has SVC() algorithm initialised in it.The svm model is trained using the .fit() function.The model is trained on the X_train and y_train data that is the training features and training target variables.	Regularization parameter,Gamma parameter,degree.	The accuracy of SVM is 0.977272727272273 0.9727272727272728
3. Decision Tree Model	A variable is created with name dt classifier which has Decision Tree Classifier() algorithm initialised in it with a parameter max_depth set to 7. The dtclassifier model is trained using the .fit() function. The model is trained on the X_train and y_train data that is the training features and training target variables.	**Gini impurity,entropy,** **information gain.**	The accuracy of Decision Tree Classifier is 0.7613636363636364 0.7318181818181818

4. Random Forest Model	Random Forest Classifier is a Bagging model which utilises multiple decision trees and takes their aggregate to give a prediction. A variable is created with name rfclassifier which has Random ForestClassifier() algorithm initialised in it.The rfclassifier model is trained using the .fit() function.The model is trained on the X_train and y_train data that is the training features and training target variables.	**Number of trees,Tree depth,number of features,criterion.**	`The accuracy of random forest Classifier is 1.0` `0.9931818181818182`