Project Development Phase

Model Performance Test

Date	28 June 2025
Team ID	LTVIP2025TMID41507
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Scre	enshot								
1.	Metrics	Classification Model: Confusion Matrix – [[509, 29], [37, 483]] Accuracy Score – 0.96 Classification Report – precision recall f1-score support Healthy 0.93 0.95 0.94 538 Rotten 0.94 0.93 0.94 520 Accuracy 0.94 1058 macro avg 0.94 0.94 0.94 1058 weighted avg 0.94 0.94 0.94 1058	Actual Actual Potten Healthy	509 37 Healthy	onfusion M	29 483 Rotten	- 500 - 400 - 300 - 200	precision Healthy Rotten Accuracy macro avg weighted avg	Ci 0.93 0.94 0.94 9.94	assification 0.95 0.93 0.94	**	538 520 1058 1056 1056

Model Tuning Summary 2. Tune the Hyperparameter Tuning -Model GridSearchCV was used on TUNE THE MODEL SUMMARY ☐ Hyperparameter Tuning: GridSearchCV used on Random Forest Classifier. Random Forest Classifier to tune the Parameters Tested:
 n_estimators: [50, 100, 150]
 max_depth: [5, 10, None]
 criterion: ['gini', 'entropy'] parameters like: -n estimators = [50, 100, ☐ Best Parameters Found:
- n_estimators: 100
- max_depth: 10
- criterion: 'gini' 150] - max_depth = [5, 10, ☐ Validation Method: 5-Fold Cross Validation None] ☐ Final Results:
- Training Accuracy: 96.40%
- Validation Accuracy: 93.70%
- Real-world Accuracy: 96% - criterion = ['gini', 'entropy'] Best parameters found: - n_estimators = 100 $- max_depth = 10$ - criterion = 'gini' Validation Method - Used 5-Fold Cross Validation to validate the model performance and avoid overfitting.