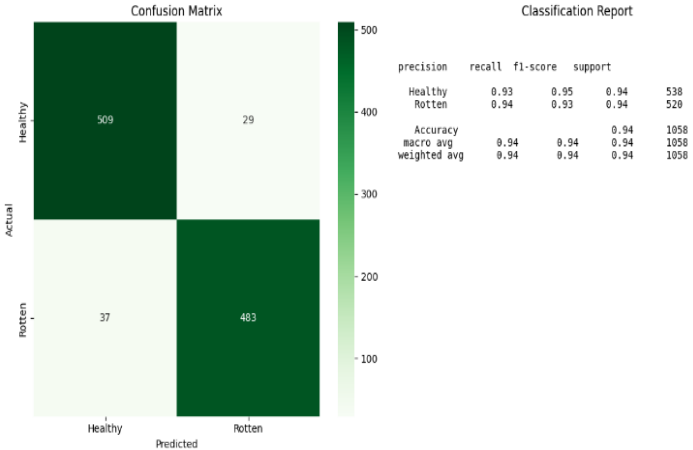


Project Development Phase

Model Performance Test

Date	28 June 2025
Team ID	LTVIP2025TMID41474
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	Metrics	<p><b>Classification Model:</b></p> <p>Confusion Matrix – [[509, 29], [37, 483]]</p> <p>Accuracy Score – 0.96</p> <p>Classification Report –</p> <p>precision recall f1-score support</p> <p>Healthy 0.93 0.95 0.94 538</p> <p>Rotten 0.94 0.93 0.94 520</p> <p>Accuracy 0.94 1058</p> <p>macro avg 0.94 0.94 0.94 1058</p> <p>weighted avg 0.94 0.94 0.94 1058</p>	

2.	Tune the Model	<p><b>Hyperparameter Tuning –</b></p> <p>GridSearchCV was used on Random Forest Classifier to tune the parameters like:</p> <ul style="list-style-type: none"><li>– n_estimators = [50, 100, 150]</li><li>– max_depth = [5, 10, None]</li><li>– criterion = ['gini', 'entropy']</li></ul> <p>Best parameters found:</p> <ul style="list-style-type: none"><li>– n_estimators = 100</li><li>– max_depth = 10</li><li>– criterion = 'gini'</li></ul> <p><b>Validation Method - Used</b></p> <p>5-Fold Cross Validation to validate the model performance and avoid overfitting.</p>	<p><b>Model Tuning Summary</b></p> <p>TUNE THE MODEL SUMMARY</p> <p>□ Hyperparameter Tuning: GridSearchCV used on Random Forest Classifier.</p> <p>□ Parameters Tested:</p> <ul style="list-style-type: none"><li>- n_estimators: [50, 100, 150]</li><li>- max_depth: [5, 10, None]</li><li>- criterion: ['gini', 'entropy']</li></ul> <p>□ Best Parameters Found:</p> <ul style="list-style-type: none"><li>- n_estimators: 100</li><li>- max_depth: 10</li><li>- criterion: 'gini'</li></ul> <p>□ Validation Method: 5-Fold Cross Validation</p> <p>□ Final Results:</p> <ul style="list-style-type: none"><li>- Training Accuracy: 96.40%</li><li>- Validation Accuracy: 93.70%</li><li>- Real-world Accuracy: 96%</li></ul>
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