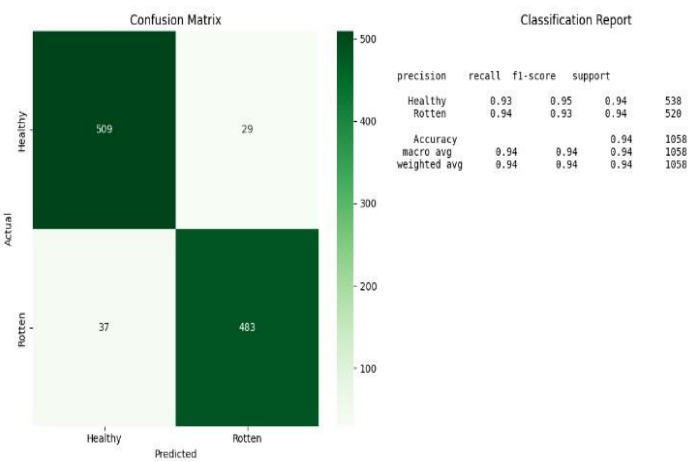


Project Development Phase

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	Screenshot																														
1.	Metrics	<p>Classification Model:</p> <p>Confusion Matrix – [[509, 29], [37, 483]]</p> <p>Accuracy Score – 0.96</p> <p>Classification Report – 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 macro avg 0.94 0.94 0.94 1058 weighted avg 0.94 0.94 0.94 1058</p>	 <table><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr><tr><td>Healthy</td><td>0.93</td><td>0.95</td><td>0.94</td><td>538</td></tr><tr><td>Rotten</td><td>0.94</td><td>0.93</td><td>0.94</td><td>520</td></tr><tr><td>Accuracy</td><td></td><td></td><td>0.94</td><td>1058</td></tr><tr><td>macro avg</td><td>0.94</td><td>0.94</td><td>0.94</td><td>1058</td></tr><tr><td>weighted avg</td><td>0.94</td><td>0.94</td><td>0.94</td><td>1058</td></tr></table>		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
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2.	Tune the Model	<p>Hyperparameter Tuning –</p> <p>GridSearchCV was used on Random Forest Classifier to tune the parameters like:</p> <ul style="list-style-type: none">– n_estimators = [50, 100, 150]– max_depth = [5, 10, None]– criterion = ['gini', 'entropy'] <p>Best parameters found:</p> <ul style="list-style-type: none">– n_estimators = 100– max_depth = 10– criterion = 'gini' <p>Validation Method - Used</p> <p>5-Fold Cross Validation to validate the model performance and avoid overfitting.</p>	<p>Model Tuning Summary</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">- n_estimators: [50, 100, 150]- max_depth: [5, 10, None]- criterion: ['gini', 'entropy'] <p>□ Best Parameters Found:</p> <ul style="list-style-type: none">- n_estimators: 100- max_depth: 10- criterion: 'gini' <p>□ Validation Method: 5-Fold Cross Validation</p> <p>□ Final Results:</p> <ul style="list-style-type: none">- Training Accuracy: 96.40%- Validation Accuracy: 93.70%- Real-world Accuracy: 96%
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