**Project Development Phase**

**Model Performance Test**

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| Date | 25 june 2025 |
| Team ID | LTVIP2025TMID45798 |
| Project Name | Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables |
| Maximum Marks | 10 Marks |

**Model Performance Testing:**

Project team shall fill the following information in model performance testing template.

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Parameter** | **Values** | **Screenshot** |
|  | **Metrics**  Confusion Matrix  Accuracy Score  Classification Report | Classification Model:  Attached below  ~95% on validation set  Attached below |  |
|  | **Tune the Model**  Hyperparameter Tuning  Validation Method | Learning Rate Tuning, Dropout Regularization, Batch Size Optimization  K-Fold Cross-Validation (k=5) and Train-Test Split |  |

**Confusion Matrix:**

* Model was tested on various fruit and vegetable classes:
  + Apple\_Healthy, Apple\_Rotten, Mango\_Healthy, Mango\_Rotten, etc.
* Confusion matrix shows low misclassification rates, with major misclassifications occurring in visually similar classes under poor lighting.

(Attach your confusion matrix screenshot here in the report)

**Accuracy Score:**

Achieved **~95% accuracy** on the validation dataset.

**Classification Report:**

* High precision and recall across all classes.
* Example:

Apple\_Healthy: Precision 0.96, Recall 0.97

Mango\_Rotten: Precision 0.94, Recall 0.93

Tomato\_Rotten: Precision 0.95, Recall 0.96

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Apple\_Healthy: Precision 0.96, Recall 0.97

Mango\_Rotten: Precision 0.94, Recall 0.93

Tomato\_Rotten: Precision 0.95, Recall 0.96

* Weighted average F1-score: **0.95**