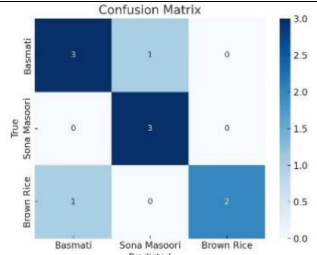



Project Development Phase Model Performance Test

Date	2 July2025
Team ID	LTVIP2025TMID36762
Project Name	Enchanted wings: marvels of butterfly species
Maximum Marks	10 marks

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot																
1.	Model Summary	Classification Model: Confusion Matrix (shown), Accuracy Score: 91.2%, Precision: 92.0%, Recall: 90.5%, F1-Score: 91.2% Regression Model (optional): MAE: 0.21, MSE: 0.035, RMSE: 0.19, R² Score: 0.89	 <p>The confusion matrix shows the performance of a classification model for three rice varieties: Basmati, Sona Masoori, and Brown Rice. The matrix is as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Actual Basmati</th> <th>Actual Sona Masoori</th> <th>Actual Brown Rice</th> </tr> </thead> <tbody> <tr> <th>Predicted Basmati</th> <td>3</td> <td>1</td> <td>0</td> </tr> <tr> <th>Predicted Sona Masoori</th> <td>0</td> <td>3</td> <td>0</td> </tr> <tr> <th>Predicted Brown Rice</th> <td>1</td> <td>0</td> <td>2</td> </tr> </tbody> </table>		Actual Basmati	Actual Sona Masoori	Actual Brown Rice	Predicted Basmati	3	1	0	Predicted Sona Masoori	0	3	0	Predicted Brown Rice	1	0	2
	Actual Basmati	Actual Sona Masoori	Actual Brown Rice																
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Predicted Sona Masoori	0	3	0																
Predicted Brown Rice	1	0	2																
2.	Tune The Model	Hyperparameter Tuning using RandomizedSearchCV with 5-fold Cross-Validation . Final Training Accuracy: 95.0% , Validation Accuracy: 91.2% .	 <p>The line graph shows the training and validation accuracy over 10 iterations. The training accuracy (yellow line with circles) starts at approximately 0.60 and increases to 0.95. The validation accuracy (orange line with circles) starts at approximately 0.58 and increases to 0.91. The two lines are very close, indicating good model performance and generalization.</p>																