**Project Development Phase**

**Model Performance Test**

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| Date | 10 February 2025 |
| Team ID | LTVIP2025TMID34696 |
| 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.

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| **S.No.** | **Parameter** | **Values** | **Screenshot** |
|  | Metrics | **Classification Model: • Accuracy: 87.64% (example) • Precision, Recall, F1-score calculated using classification\_report • Confusion Matrix: Used to evaluate class-wise performance • Model used: VGG16 with transfer learning and fine-tuning** |  |
|  | Tune the Model | |  | | --- | | **Hyperparameter Tuning:** • Used **ImageDataGenerator** with augmentations • Batch size, learning rate, and epochs adjusted to reduce overfitting • Best results with img\_size=128, batch\_size=32, and learning rate=1e-4  **Validation Method:** • 80% training, 20% testing split • Used ModelCheckpoint, EarlyStopping during training to optimize performance |  |  | | --- | |  | |  |