# **Functional & Performance Testing Template**

## **Model Performance Test**

**Date**: 27 June 2025  
**Team ID**: LTVIP2025TMID45523  
**Project Name**: Enchanted Wings: Marvels of Butterfly Species  
**Maximum Marks**: Not Specified

## **Test Scenarios & Results**

Enchanted Wings uses transfer learning to classify 6499 images across 75 butterfly species, supporting biodiversity monitoring, ecological research, and citizen science. The following table outlines functional and performance test scenarios to validate the butterfly image classification system’s reliability and efficiency.

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| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Scenario (What to test)** | **Test Steps (How to test)** | **Expected Result** | **Actual Result** | **Pass/Fail** |
| FT-01 | Image Input Validation | Upload valid (e.g., .jpg, .png) and invalid | Valid images accepted; errors shown for invalid formats or sizes. | Valid images processed; errors for invalid files | PASS |
| FT-02 | Classification Accuracy | Input 100 test images with known species labels to the model. | At least 85% accuracy in species classification | Achieved 89.3% accuracy on test set | Pass |
| FT-03 | Mobile App Output | Use mobile app to capture and classify a butterfly image. | Displays correct species name and confidence score. | Correct species and score displayed. | Pass |
| FT-04 | API Connection Check | Send image data via API with valid and invalid API keys. | Successful response with valid key; error with invalid key | API responds as expected. | Pass |
| PT-01 | Response Time Test | Measure time to classify a single image on a standard device. | Classification under 2 seconds | Average 1.8 seconds per image | Pass |
| PT-02 | Scalability Test | Send 50 concurrent image classification requests via API. | System processes all requests without crashing, under 5 seconds each. | All requests processed, average 2.3 seconds. | Pass |
| PT-03 | Batch Image Upload | Upload 100 images in a batch for classification | Processes all images without errors in under 60 seconds | Processed in 52 seconds, no errors. | Pass |