**Functional & Performance Testing Template**

**Model Performance Test**

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| Date | 29 June 2025 |
| Team ID | LTVIP2025TMID59822 |
| Project Name | Hematovision: Advanced Blood Cell Classification Using Transfer Learning |
| Maximum Marks | 4 Marks |

**Test Scenarios & Results**

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| **Test Case ID** | **Scenario (What to test)** | **Test Steps (How to test)** | **Expected Result** | **Actual Result** | **Pass/Fail** |
| **HV-01** | Image Upload Functionality | Upload a blood smear image in the UI | Image should upload without error and preview correctly |  |  |
| **HV-02** | Input Image Validation | Try uploading non-image files (e.g., .txt, .docx) or corrupted images | App should reject unsupported or invalid files with error message |  |  |
| **HV-03** | Blood Cell Classification Accuracy | Upload clear images of lymphocyte, neutrophil, etc. and check predictions | Model should return correct blood cell type with high confidence |  |  |
| **HV-04** | Transfer Learning Model Loading | Start the app and observe if the pre-trained model loads without issues | Model should load into memory and be ready for predictions |  |  |
| **HV-05** | Performance on Low-Resolution Images | Upload blurry or low-res blood smear images | System should still provide prediction or show warning if unusable |  |  |
| **HV-06** | Web Interface Responsiveness | Test interface on desktop, tablet, and mobile | UI should adapt to different screen sizes and remain usable |  |  |
| **HV-07** | Multiple File Upload | Upload several images simultaneously | System should accept and process all valid image files |  |  |
| **HV-08** | Error Handling on Prediction Failures | Simulate a crash during prediction (e.g., break model loading temporarily) | Error message should display instead of crashing the app |  |  |
| **HV-09** | Accuracy Report Generation (if available) | Check if accuracy/confusion matrix or logs are downloadable after predictions | Report should generate and download correctly |  |  |
| **HV-10** | Flask API Endpoint Functionality | Send test POST request with image to the prediction endpoint | JSON response should include correct class label and probability score |  |  |

**Performance Testing Scenarios**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Test Case ID** | **Scenario (What to test)** | **Test Steps (How to test)** | **Expected Result** | **Actual Result** | **Pass/Fail** | | **PT-01** | Disease Prediction Response Time | Use a stopwatch or log time taken for prediction after symptom input | Should respond in **under 3 seconds** |  |  | | **PT-02** | Chat API Load Test | Simulate 10+ users chatting with AI simultaneously | Chatbot remains responsive with no timeouts |  |  | | **PT-03** | Vitals Data Upload Load Test | Upload multiple vital logs (e.g., 50 records from Excel or sensors) | Upload and visualization should work without lag |  |  | | **PT-04** | Dashboard Load Performance | Open dashboard with multiple charts and recent health records | Loads within 2–3 seconds on stable network |  |  | | **PT-05** | Backend Model Throughput | Send 100 requests per minute to disease predictor API | No crashes, responses maintained under 5s |  |  | | **PT-06** | File Upload Resilience | Upload multiple reports (PDF, images) at once | All uploads complete without crashing the application |  |  | |