## Test Scenerio: **Skin Disease Detection Web Application**

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Prepared By: Sadia Yaqoob and burhan ahmed

**1. Introduction**

These test scenarios are designed to validate the functional, AI/ML, performance, security, and user experience aspects of the Skin Disease Detection Web Application.

**2. Test Objectives**

The primary objectives of these test scenarios are to:

* Ensure accurate image upload handling for various file types, sizes, and quality levels.
* Evaluate the deep learning model’s predictions across defined disease categories and healthy skin.
* Test robustness using ambiguous, low-quality, and edge-case images.
* Analyze model fairness across different skin tones, age groups, and genders.
* Validate the payment process including successful and failed transactions.
* Check the accuracy, formatting, and content integrity of the generated PDF reports.
* Assess application responsiveness and performance under different user loads.
* Verify consistent and intuitive user experience across devices.

Each scenario below focuses on validating specific components and edge cases.

## 3. Image Upload Functionality

- Scenario 1.1: Upload a valid JPG image within accepted size limits.

- Scenario 1.2: Upload a valid PNG image within accepted size limits.

- Scenario 1.3: Upload an image exceeding the maximum allowed file size.

- Scenario 1.4: Attempt to upload an unsupported file type (e.g., .txt, .pdf, .exe, .doc).

- Scenario 1.5: Attempt to upload a corrupted or partially downloaded image file.

- Scenario 1.6: Upload an image with very high resolution.

- Scenario 1.7: Upload an image with very low resolution.

- Scenario 1.8: Verify error messages for invalid uploads are clear and helpful.

## 4. Deep Learning Model Inference & Results Display

- Scenario 2.1: Positive Cases (Known Diseases)

- Scenario 2.2: Negative Cases (No Disease / Healthy Skin)

- Scenario 2.3: Ambiguous/Edge Cases

- Scenario 2.4: Bias Testing (Crucial for Medical DL)

- Scenario 2.5: Confidence Score Display

- Scenario 2.6: Disclaimer Prominence

- Scenario 2.7: Responsiveness

## 5. Payment Gateway Integration

- Scenario 3.1: Successful Payment

- Scenario 3.2: Failed Payment - Invalid Details

- Scenario 3.3: Failed Payment - Insufficient Funds

- Scenario 3.4: Failed Payment - Gateway Error

- Scenario 3.5: Payment Security

- Scenario 3.6: Test payment flow interruption (e.g., closing browser during payment process).

## 6. PDF Report Generation & Download

- Scenario 4.1: Generate and download a PDF report for a detected disease (e.g., Acne).

- Scenario 4.2: Generate and download a PDF report for 'Healthy skin.'

- Scenario 4.3: Verify the PDF content.

- Scenario 4.4: Verify PDF formatting.

- Scenario 4.5: Verify PDF file properties.

- Scenario 4.6: Test the download mechanism (e.g., link, button).

## 7. Performance Testing

- Scenario 5.1: Measure image upload time for various file sizes (small, medium, large).

- Scenario 5.2: Measure DL model inference time (time from image upload completion to results display).

- Scenario 5.3: Measure PDF generation and download time.

- Scenario 5.4: Conduct basic load tests (e.g., 5, 10, 20 concurrent users).

- Scenario 5.5: Observe application behavior under sustained load for a period.

## 8. Usability and User Experience (UX)

- Scenario 6.1: Evaluate the overall ease of use for the application.

- Scenario 6.2: Check clarity and helpfulness of all messages (success, error, loading).

- Scenario 6.3: Verify intuitive navigation flow from image upload to results and PDF download.

- Scenario 8.4: Ensure visual consistency across all pages.

### **9. Test Deliverables**

* Documented test scenarios and detailed test cases.
* Execution report showing test results (pass/fail) with evidence.
* Bug/defect logs for any issues found during testing.
* Sample PDF reports generated during scenario testing.
* Final test summary report outlining coverage and findings.

### **10. Exit Criteria**

* All high-priority scenarios are tested.
* 95% or more of test cases executed.
* No unresolved critical or high-severity bugs.
* 100% success on main flows (upload → result → payment → PDF).

### **11**. **Approval**

# This Test scenerio has been reviewed and approved by the following stakeholders:

[Test Lead Name]: Burhan Ahmed Date:  11/6/2025