User Acceptance Testing (UAT) Template

Date	04/02/2026
Team ID	LTVIP2026TMIDS83275
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	4 Marks

Project Overview

Project Name:
Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy

Project Description:
This project is a deep learning–based web application designed to detect Diabetic Retinopathy (DR) from retinal fundus images. The system uses a Convolutional Neural Network (CNN) model to classify the severity level of DR and provides prediction confidence scores through a user-friendly interface. The application assists doctors and healthcare professionals in early diagnosis, supporting clinical decision-making while not replacing medical expertise.

Project Version: v1.0

Testing Period: 08/02/2026 to 19/02/2026

Testing Scope

Features and Functionalities to be Tested

1. Homepage Loading – Verify index.html loads correctly when accessing the root URL (/).
2. Image Upload Form Display – Ensure prediction page loads properly via GET request.
3. Image Upload Handling – Check that uploaded retinal image is correctly captured and processed.
4. Image Preprocessing – Validate resizing, normalization, and formatting before feeding into the model.
5. Model Prediction Execution – Confirm CNN model generates predictions without runtime errors.
6. Confidence Score Calculation – Verify probability scores for each DR class are calculated correctly.
7. DR Severity Classification – Ensure correct stage (No DR, Mild, Moderate, Severe, Proliferative DR) is assigned.
8. Results Display – Confirm prediction results render properly on results page.
9. API Endpoint Functionality – Test /api/predict returns valid JSON response with prediction results.
10. Error Handling – Validate system handles invalid file types or missing images gracefully.

11. Mobile Responsiveness – Verify UI responsiveness across devices.

User Stories / Requirements to be Tested

1. As a user, I want to upload a retinal image and receive a DR prediction.
2. As a user, I want to see confidence scores to understand prediction reliability.
3. As a user, I want a clear DR severity level displayed.
4. As a developer, I want the API endpoint to accept image input and return prediction results.
5. As a healthcare stakeholder, I want accurate and consistent predictions.
6. As a tester, I want the application to handle invalid inputs without crashing.

Test Cases

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
TC-001	Valid image upload	Step 1: Open application Step 2: Upload valid retinal image Step 3: Click Predict	Prediction displayed with DR stage & probability	Prediction displayed correctly with confidence score	Pass
TC-002	Invalid file format	Step 1: Upload .txt file Step 2: Click Predict	Validation error message displayed	Proper error message shown	Pass
TC-003	No image uploaded	Step 1: Click Predict without image	System shows warning message	Warning displayed successfully	Pass
TC-004	Probability threshold check	Step 1: Upload image generating high probability	Correct DR stage displayed	Correct stage shown	Pass
TC-005	Large image size	Step 1: Upload high-resolution image	System processes without crash	Image processed successfully	Pass
TC-006	Mobile responsiveness	Step 1: Open results page on mobile	Proper responsive layout	Minor alignment issue observed	Fail
TC-007	Missing required API key	Step 1: Send incomplete API	Clear error message returned	Generic error message shown	Fail

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
		request			

Bug Tracking

Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional Feedback
BG-001	Layout misalignment on mobile	Open results page on mobile device	Medium	Open	Improve responsive CSS design
BG-002	API error message unclear	Send incomplete API request	Medium	Open	Improve descriptive API response
BG-003	Slow prediction for large image	Upload very large image	Low	In Progress	Optimize preprocessing pipeline

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Sign-off

Tester Name: Meher Divakar
Date: 19/02/2026
Signature: Meher Divakar