# Project Design Phase-II
# Data Flow Diagram & User Stories

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| Date | 15 February 2026 |
| Team ID | LTVIP2026TMIDS54490 |
| Project Name | Smart Sorting: Identifying Rotten Fruits and Vegetables Using Transfer Learning |
| Maximum Marks | 4 Marks |

# Data Flow Diagrams:

## Overview:

User Uploads Image: The user selects or drops a photo of produce (fruit/vegetable) into the Smart Sort interface.

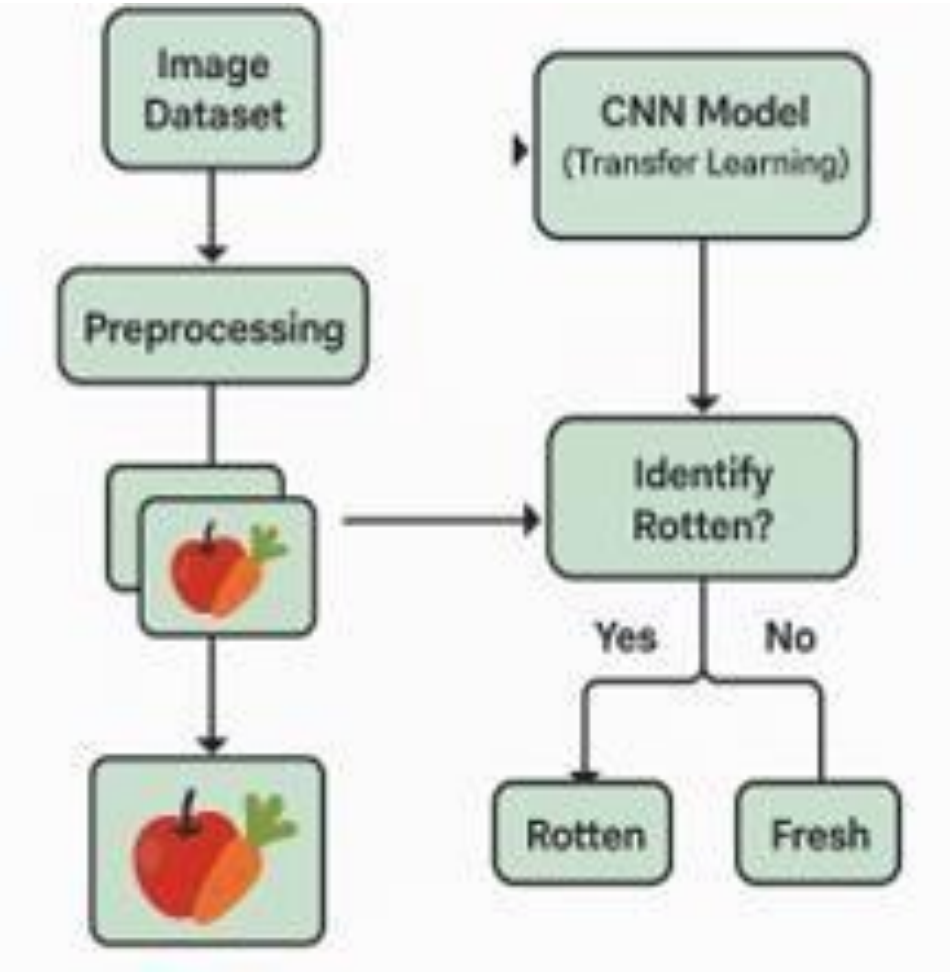
Image Preprocessing: The backend resizes the image to 224×224 pixels, normalizes pixel values, and prepares it for the MobileNetV2 model.

Model Inference: The processed image is fed into a transfer-learning model that outputs probabilities for 28 classes.

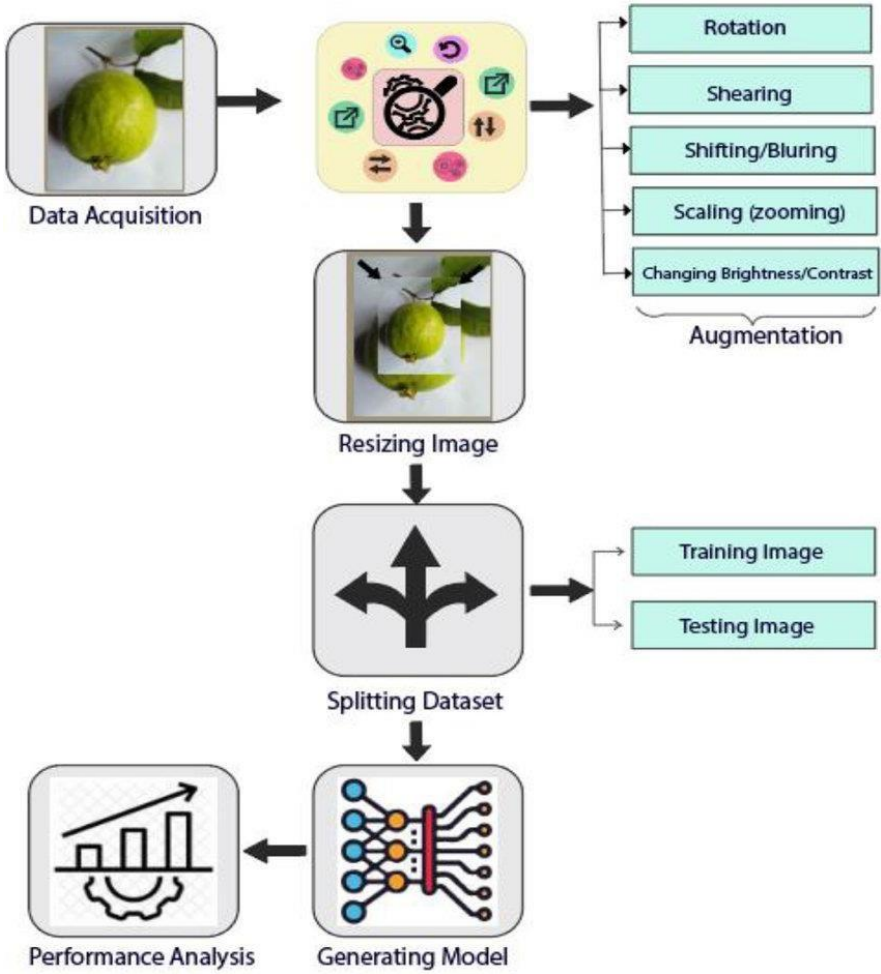
Result Interpretation: The class with the highest confidence is selected and formatted into a readable label (e.g., “FreshPotato”).

Prediction Display: The label and its confidence score are displayed instantly in the UI with visual feedback.

# Flow Graphs:




**User Interface Flow Graph**




**Model Flow Graph**

**User Stories:**

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance Criteria | Priority | Release |
|---|---|---|---|---|---|---|
| Farmer / Vendor | Registration | SS-US-1 | As a user, I can register with my email and password to access the smart sorting system. | I can log in to the system after registering with valid credentials. | High | Sprint1 |
| Farmer / Vendor | Registration | SS-US-2 | As a user, I receive a confirmation email after successful registration. | I receive an email with a confirmation link and can verify my account. | High | Sprint1 |

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| **Farmer / Vendor** | **Login** | **SS-US-3** | **As a user, I can log in with my registered email and password.** | **I can successfully log in and access the dashboard.** | **High** | **Sprint1** |
| **Farmer / Vendor** | **Image Upload** | **SS-US-4** | **As a user, I can upload or capture images of fruits/vegetables for sorting.** | **The system accepts image input and confirms receipt.** | **High** | **Sprint2** |
| **Farmer / Vendor** | **Prediction** | **SS-US-5** | **As a user, I can see whether the uploaded produce is “Fresh” or “Spoiled” based on AI detection.** | **The prediction is shown with a label and confidence score.** | **High** | **Sprint2** |
| **Farmer / Vendor** | **Feedback** | **SS-US-6** | **As a user, I can give feedback if the prediction seems incorrect.** | **A form or button allows me to report incorrect prediction.** | **Medium** | **Sprint3** |

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance Criteria | Priority | Release |
|---|---|---|---|---|---|---|
| Farmer / Vendor | View History | SS-US-7 | As a user, I can view the history of my uploaded images and predictions. | I can see past records with timestamps and outcomes. | Medium | Sprint3 |
| Admin | Manage Users | SS-US-8 | As an admin, I can view, edit, or delete registered users. | Admin panel displays user list with action buttons. | Medium | Sprint2 |

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| Admin | Monitor Predictions | SS-US-9 | As an admin, I can monitor AI prediction logs to ensure the system is performing accurately. | Admin sees dashboard with prediction counts, accuracy trends. | Medium | Sprint3 |
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| Admin | Model Feedback Loop | SS-US-10 | As an admin, I can review user feedback and retrain the model with new data. | Admin has access to feedback repository and retraining workflow. | High | Sprint4 |
| System | Transfer Learning Inference | SS-US-11 | As a system, I apply a trained model to infer the condition of fruits/vegetables from uploaded images. | Model processes the input and returns result within acceptable time and accuracy. | High | Sprint2 |