📄 Solution Architecture – Poultry Disease Classifier

🗓️ **Date**: 01 July 2025

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👄 **Project Name**: Transfer Learning Based Classification of Poultry Diseases for Enhanced Health Management

🎯 **Maximum Marks**: 4 Marks

🧠 Overview

The system integrates a lightweight deep learning model with a simple web interface to detect poultry diseases from uploaded images. It is optimized for real-time use, even in rural or resource-limited environments.

🔁 Workflow

1. 📤 **Image Upload**:
   User uploads a poultry bird image through the Streamlit web app.
2. 🧼 **Preprocessing**:
   Image is resized to 224×224, normalized (0–1), and converted to RGB using **PIL** and **NumPy**.
3. 🤖 **Prediction**:
   MobileNetV2 (pretrained on ImageNet, fine-tuned for four poultry classes) predicts the disease using softmax output.

Classes:

- Newcastle Disease
- Coccidiosis
- Salmonella
- Healthy

4. 📊 **Output**:
   The predicted class and confidence score are displayed instantly.

🧰 Tools Used

- **TensorFlow + Keras** – Model training & inference
- **PIL & NumPy** – Image preprocessing
- **Streamlit** – Web app interface

🌐 Deployment

- ✅ Local system (Python + Streamlit)
- 🌐 Streamlit Cloud for browser-based access
- 💻 Optional deployment on Hugging Face, Heroku, or GCP