Project Documentation

1. Introduction

- **Project Title:**
  TransferLearning-BasedClassificationofPoultryDiseasesforEnhancedHealthManagement
- **Team Members:**
  - **Team Leader:** Vardhanapu Amitha
  - **Team Member:** Thota Gayathri Naga Sai
  - **Team Member:** Talla Lakshmi Praveena
  - **Team Member:** Vijay Kumar Jarugu
  - **Team Member:** Velagala Ramadevi

2. Project Overview

- **Purpose:**
  To assist poultry farmers in quickly diagnosing common poultry diseases using a mobile application powered by a transfer learning-based machine learning model.
- **Features:**
  - Classificationintofourdiseasecategories:*Salmonella,NewcastleDisease,Coccidiosis,*and*Healthy*
  - User-friendly mobile interface for data input
  - Real-time predictions and treatment suggestions
  - Transfer learning-based ML model integration
  - Cloud-based data storage for tracking and monitoring

3. Architecture

- **Frontend:**
  Built using Reactor React Native
- **Backend:**
  Node.jsandExpress.jsforhandlingAPIrequestsandconnectingwiththeMLmodel
- **Database:**
  MongoDB for storing user data and diagnosis history

4.Setup Instructions

- **Prerequisites:**
  - Node.js
  - MongoDB
  - Python
  - Git
- **Installation Steps:**

1. Clone the project repository
2. Run npm install to install dependencies
3. Configure environment variables for the backend and database

5. Folder Structure

- **Client Side:**
  - /components,/pages,/services
- **Server Side:**
  - /routes,/controllers,/models,/ml(for the model)

6. Running the Application

Frontend:

- cdclient
- npmstart

Backend:

- cdserver
- npmstart

7. API Documentation

- POST/diagnose→ For disease prediction
- POST/register and POST/login→ For user authentication
- JWT-based authentication
- Tokens are stored securely in local storage

8. User Interface

- Mobile-optimized design
- Sections for:
    - Data input
    - Diagnosis result display
    - Treatment suggestions

  Frontend:
    - React Testing Library
    - Jest

  Backend:
    - Mocha
    - Chai
- **ML Model:**
    - Precision
    - Recall
    - F1-score

11. Demo video:

https://drive.google.com/file/d/1MNQM6wu7vQ0xB7CUVmnomAcEFkXp6SsX/view?usp=drivesdk

12. Known Issues:

- Model accuracy depends on input data quality
- Currentdatasetsizeislimited,whichcanaffectpredictionvarietyandprecision

13. Future Enhancements

- Voice-based input
- Wider disease detection coverage
- Offline mode functionality
- Integration with veterinary consultation services

14.Github Repository link:

https://github.com/gayathrithota512/Transfer-Learning-Based-Classification-of-Poultry-Diseases-for-Enhanced-Health-management