Project Documentation

1. Introduction

- **Project Title:**
  Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
- **Team Members:**
  - **Team Leader:** Kanumuri Anusha
  - **Team Member:** Gubbala Sai Posi Harishma
  - **Team Member:** Goli Pranitha Sai
  - **Team Member:** Done Simhadri

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:**
  - Classification into four disease categories: *Salmonella, Newcastle Disease, 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 React or React Native
- **Backend:**
  Node.js and Express.js for handling API requests and connecting with the ML model
- **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:

- cd client
- npm start

Backend:

- cd server
- npm start

7. API Documentation

- POST /diagnose → For disease prediction
- POST /register and POST /login → For user authentication

8. Authentication

- JWT-based authentication
- Tokens are stored securely in local storage

9. 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. Screenshots or Demo

https://drive.google.com/file/d/1yLTaJ0z_1cF5O-rze032LYbJKNCVp-sr/view?usp=drive_link

12. Known Issues

- Model accuracy depends on input data quality
- Current dataset size is limited, which can affect prediction variety and precision

13. Future Enhancements

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