Machine Learning Project Documentation format

1. Introduction

- **Project Title:** Pollen's Profiling: Automated Classification of Pollen Grains
- **Team Members:**
    1. Eduri Maryjones (Data collection,Train the model,Application building)
    2. Idimukkala Yasasswini (Train the model,save the model,Test the model,Application building)
    3. Mamidela Venkata Naga Suseel Kumar (Read the data,Image pre-processing,Training the model,Save the model,Test the model,Application building)
    4. Inturi Venkata Vikash (Data Collection,Exploratory Data Analysis,Image Pre-processing,Application Building)
    5. J Pushpitha (Data Collection,Exploratory Data Analysis,Image Pre-processing,Application Building)

2. Project Overview

- **Purpose:** Automate pollen grain identification using a deep learning CNN model based on image classification.
- **Features:** Image upload for pollen classification.
  Prediction of pollen type.
  Web-based interface using Flask.

3. Architecture

- **Frontend:** Describe the frontend architecture using React.
- **Backend:** Outline the backend architecture using Node.js and Express.js.
- **Database:** Detail the database schema and interactions with MongoDB.

4. Setup Instructions

- **Prerequisites:** Python, TensorFlow, Flask, OpenCV, Scikit-learn, Numpy, Pandas, Matplotlib.
- **Installation:** git clone https://github.com/YourUsername/Pollens-Profiling.git
  cd Pollens-Profiling
  pip install -r requirements.txt

5. Folder Structure

- **Client:** Describe the structure of the React frontend.
- **Server:** Explain the organization of the Node.js backend.

6. Running the Application

- Provide commands to start the frontend and backend servers locally.
    - **Frontend:** `npm start` in the client directory.
    - **Backend:** `npm start` in the server directory.

7. API Documentation

- Document all endpoints exposed by the backend.
- Include request methods, parameters, and example responses.

8. Authentication

- Explain how authentication and authorization are handled in the project.
- Include details about tokens, sessions, or any other methods used.

9. User Interface

- Provide screenshots or GIFs showcasing different UI features.

10. Testing

- Describe the testing strategy and tools used.

11. Screenshots or Demo

- Provide screenshots or a link to a demo to showcase the application.

12. Known Issues

- Accuracy depends on dataset quality.
- Misclassification in very similar pollen types.

13. Future Enhancements

- Deploy on cloud (Render, Heroku)
- Add user login to save predictions.
- Improve model with a larger dataset.