ADVANCED CODING PROJECT

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WHY THIS PROJECT?

Most applications to reshape society offer the latest ways to benefit people. In my project, I focused on it especially for agricultural workers and people who love growing plants to understand how plants can easily find the disease. My application helps people to some extent with some problems they encounter when growing a plant. It can also help people who need fast and reliable solutions and those who have little time. This useful approach in the application makes it easier for individuals to grow plants. Therefore, sometimes people want to grow plants but are afraid and do not do it, this situation leads people to this situation and they can easily cope. When I consider this application and its features, this project is fun for beginners, although it is complicated to do, it is entertaining, informative and educational. The main reason I chose this project is because my father grows plants in a greenhouse and I can help him.

WHAT IS THE APP?

This project can be called “Plant Disease Detection”. It is an application that can understand plant diseases of users. This application is a Python-based system that allows users to upload a plant leaf photo and receive AI-powered disease detection. Backend API was created with Flask, image classification was done with PyTorch, SQLite database was used and image processing was done with Pillow. And I also used the dataset I got from Kaggle. The dataset name is PlantVillage. This dataset was divided into curved models.

*Technologies Used*

Python: Used as the main programming language of the application.

Flask: Used to establish the REST API structure.

SQLite: Used for data persistence of training and prediction records.

PyTorch: Created and trained a deep learning model for visual classification.

Pillow: Used for processing images.

HTML: Used for basic user interface design.

*Properties*

The user uploads a plant leaf image via HTML form.

The uploaded image is analyzed by a deep learning model trained using PyTorch.

The disease class to which the image belongs is detected and presented to the user.

Training and prediction processes are recorded in the SQLite database.

The code structure was developed according to the principles of object-oriented programming.

Inheritance and modular structure (packages and modules) were used effectively.

HOW DO CODES WORK?

