1. Project Title

Fruit & Vegetable Classifier using Deep Learning

2. Group Members

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4. Introduction

This project aims to classify images of fruits and vegetables using a deep learning model and provide a simple web interface to predict the class of the uploaded image. It leverages a Convolutional Neural Network (CNN) and a Streamlit-based frontend.

5. Objectives

- Train a CNN to classify 36 types of fruits and vegetables
- Create a user-friendly Streamlit app for prediction
- Deploy the model for local or cloud-based usage
- Visualize prediction results with confidence score

6. Dataset

The dataset contains 36 categories of labeled images of fruits and vegetables. Images are resized to 180x180 pixels and normalized. Due to GitHub size limits, the dataset is hosted on Google Drive.

7. Tools & Technologies

- Python
- TensorFlow & Keras
- NumPy, Pillow

- Streamlit
- Google Drive (for dataset)
- GitHub (for source code and documentation)

8. System Workflow

1. User uploads an image through the app.
2. Image is preprocessed (resized, converted to array).
3. CNN model predicts the class.
4. The app displays the predicted name and confidence percentage.

9. Expected Output

- Prediction of fruit/vegetable name
- Display of uploaded image
- Confidence percentage
- Clean and styled interface

10. Future Improvements

- Add more classes (leafy greens, exotic fruits)
- Add voice-based search
- Make mobile-friendly UI
- Enable real-time camera input