Instructions to Execute Program

Here are the main steps to execute the mango leaf disease detection code:

1. Dataset Preparation:

Organize the dataset in folders like this:

```
/Mango leaf data set/
 ├── diseased/
 └── healthy/
```

Upload the dataset to Google Drive.

2. Set Up Environment in Google Colab:

Open Colab and mount Google Drive using drive.mount('/content/drive').

3. Modify Dataset Path:

Update the paths in the code to point to your dataset in Google Drive:

```
train_dir = '/content/drive/MyDrive/Mango leaf data set'
test_dir = '/content/drive/MyDrive/Mango leaf data set'
```

4. Install Required Libraries:

Ensure TensorFlow, NumPy, and Matplotlib are installed (usually pre-installed in Colab).

5. Data Preprocessing:

Use ImageDataGenerator to load and preprocess images (resizing, normalizing, and augmenting).

6. Model Training:

Build the CNN model.

Train the model for the specified number of epochs using the training data.

7. Evaluate the Model:

Evaluate the model's accuracy on the test dataset.

8. Save the Model:

Save the trained model for later use.

9. Predict on New Images:

Use the saved model to predict whether new images are of diseased or healthy leaves.

10. (Optional) Compute Metrics:

Calculate additional metrics like accuracy, precision, recall, and F1-score after making predictions.

These steps will guide you through the process of training, evaluating, and making predictions with the mango leaf disease detection model.