Mango Disease Detector - Documentation

This project is a mobile application called **Mango Disease Detector**, developed using **React Native with Expo**. It uses image classification via an AI model to detect common diseases in mango leaves from user-uploaded or camera-taken photos.

Technologies Used:

1. **React Native + Expo**: For building cross-platform mobile apps efficiently using JavaScript.
2. **Expo Router**: Simplified file-based routing system for managing screens.
3. **i18next + react-i18next**: For multilingual support (English, Hindi, Tamil, Telugu).
4. **React Native Reanimated**: For smooth animations on screen transitions and UI elements.
5. **Expo Camera & ImagePicker**: To allow image capturing and uploading.
6. **REST API Integration**: For sending images to a backend FastAPI model and receiving predictions.

Core Features:

- Upload or capture an image of a mango leaf.
- Send the image to a backend model for disease prediction.
- View the predicted disease and its confidence.
- Display breakdown of prediction confidence for all classes.
- View detailed disease information.

- Multi-language support (English, Hindi, Tamil, Telugu).

- History of past predictions with delete option.

Why These Tools Were Used:

- **Expo** simplifies device testing and deployment without native code configuration.

- **React Native** provides fast development with native performance.

- **i18next** allows easy management of translations.

- **FastAPI backend** (assumed) for efficient image classification using Python AI models.

- **ImagePicker & Camera** allow easy image input for analysis.

App Structure Overview:

- **Home Screen**: Upload/capture image, run analysis, view prediction.

- **History Screen**: View all previous analyses, delete old ones.

- **Learn Screen**: Educational material about mango diseases.

- **Settings Screen**: Change app language.

- **Bottom Navigation**: Easy access to all main screens.

How It Works:

1. User uploads or takes a photo of a mango leaf.

2. The image is sent to the API endpoint (`/api/predict/`) using multipart/form-data.

3. The backend responds with prediction label and confidence values.

4. The app shows the prediction, its breakdown, and disease info using localized strings.

This app helps farmers, agricultural officers, and researchers identify mango leaf diseases on-the-go with high accuracy and accessibility.