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Project Name - Crop Monitoring System

Overview

This project is a simple crop monitoring program .

It uses a basic Tkinter GUI and generates random weather data .

The user can select a crop, check its ideal conditions, and compare them with the current simulated weather.

The app also gives some basic alerts if something is off with temperature or soil moisture.

It's not meant to be super accurate — more like a demonstration of how monitoring could work.

Features

- Simple graphical interface made with Tkinter
 - Random weather generator (temperature, soil moisture, conditions, etc.)
 - Basic 7-day forecast (also simulated)
 - Crop buttons with icons
 - Warnings for temperature issues (too hot, too cold)
 - Warnings for irrigation problems (soil too dry/wet)
 - Refresh button to update weather
 - Works offline since everything is simulated
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Technologies / Tools Used

- **Python 3**
- **Tkinter** (built-in GUI library)
- **random** module (for generating weather)
- **datetime** module (for day names in the forecast)

No external libraries needed.

Steps to Install & Run

1. Make sure Python 3 is installed
(you can check with `python --version` or `python3 --version`)
2. Download or copy the project files into any folder.
3. Open the folder in your terminal or VS Code.
4. Run the program using:
5. `python main.py`

or depending on your system:

`python3 main.py`

The window should open automatically.

How to Test the Project

You can try the following:

Select different crops

Check how each crop's ideal temperature/needs compare to the simulated weather.

Click Refresh Weather

Weather changes randomly each time, so alerts will also change.

Look at the Alerts Panel

It shows temperature problems (hot/cold) and irrigation problems.

Check the 7-Day Forecast

The forecast also updates with different temperatures and random rain icons.

Try extreme values

Sometimes the generator will create very cold/hot or very dry/wet conditions and you can see how the system reacts.

You don't need any internet connection — everything runs offline.

Screenshots

