**🌾 Crop Recommendation System**

A **Flask-based web application** that recommends the most suitable crop to grow based on user inputs such as nitrogen, phosphorous, potassium levels, pH, rainfall, and live weather data (temperature and humidity) fetched using a weather API.

**🚀 Features**

* Predicts the best crop to cultivate based on soil and environmental conditions.
* Integrates **live weather API** to fetch temperature and humidity.
* Trained using a **Random Forest Classifier**.
* Simple and interactive web interface using **Flask**.

**📁 Project Structure**

Crop Recommendation System/

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├── app.py # Main Flask application

├── RandomForest.pkl # Trained ML model

├── templates/

│ └── index.html # Frontend page

├── static/ # CSS/JS (if any)

├── requirements.txt # Python dependencies

└── README.md # Project documentation

**⚙️ Dependencies**

Install the following packages before running the app:

Flask

numpy

pandas

scikit-learn

requests

Or install all at once using:

pip install -r requirements.txt

**🧪 Steps to Run the Project**

💡 **Tip**: Make sure you have Python and Anaconda installed.

1. **Open Anaconda Prompt**.
2. **Navigate to the project directory**:
3. cd path\to\your\project
4. **(Optional) Create a virtual environment**:
   1. conda create -n crop\_env python=3.10
   2. conda activate crop\_env
5. **Install dependencies**:
6. pip install -r requirements.txt
7. **Run the app**:
8. python app.py
9. **Open browser** and go to:  
   [http://127.0.0.1:5000](http://127.0.0.1:5000/)

**🔑 Notes**

* Ensure the RandomForest.pkl model file is placed in the correct location (update the path in app.py if needed).
* Replace the placeholder **weather API key** in app.py with your own valid API key from [WeatherAPI](https://www.weatherapi.com/).
* The project uses temperature in Celsius and humidity from the API to make real-time recommendations.

**📌 Example Input**

* Nitrogen (N): 90
* Phosphorous (P): 42
* Potassium (K): 43
* pH: 6.5
* Rainfall: 120
* City: *Bangalore*

**📞 Contact**

Feel free to reach out for suggestions or queries.