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From flask import Flask, render_template, request, jsonify
Import pandas as pd
Import pickle

App = Flask(__name__)

# Load trained model and encoders
With open(“crop_yield_model.pkl”, “rb”) as f:
    Model = pickle.load(f)
With open(“label_encoders.pkl”, “rb”) as f:
    Label_encoders = pickle.load(f)

Def preprocess_input(data):
    “””Preprocess user input for prediction.”””
    Categorical_columns = [“Crop”, “Season”, “State”]

    For col in categorical_columns:
        Data[col] = data[col].strip()

    # Encode categorical values
    For col in categorical_columns:
        If col in label_encoders:
            If data[col] in label_encoders[col].classes_:
                Data[col] = label_encoders[col].transform([data[col]])[0]
            Else:
                Print(f”Warning: Unseen category ‘{data[col]}’ in column ‘{col}’, assigning default value.”)
                Data[col] = -1  # Assign -1 for unknown categories

    Return pd.DataFrame([data])

@app.route(“/”, methods=[“GET”, “POST”])
Def home():
    If request.method == “POST”:
        Try:
            # Get input data from form
            Input_data = {
                “Crop”: request.form[“crop”],
                “Crop_Year”: int(request.form[“crop_year”]),
                “Season”: request.form[“season”],
                “State”: request.form[“state”],
                “Area”: float(request.form[“area”]),
                “Production”: float(request.form[“production”]),
                “Annual_Rainfall”: float(request.form[“annual_rainfall”]),
                “Fertilizer”: float(request.form[“fertilizer”]),
                “Pesticide”: float(request.form[“pesticide”])
            }

            # Preprocess input
            Processed_input = preprocess_input(input_data)
            # Predict yield

            Prediction = model.predict(processed_input)[0]


            Return render_template(“index.html”, prediction=round(prediction, 2))


        Except Exception as e:

            Return render_template(“index.html”, error=str(e))


    Return render_template(“index.html”)


If __name__ == “__main__”:

    App.run(debug=True)
```