import streamlit as st

st.set\_page\_config(page\_title="🌾 Crop Production Predictor", layout='centered')

import pandas as pd

import numpy as np

import pickle

# Load model

with open("final\_model.pkl", "rb") as f:

    model = pickle.load(f)

# ✅ Load reference data (from your training CSV)

@st.cache\_data

def load\_data():

    return pd.read\_csv("Crop\_Production\_Cleaned.csv")

df = load\_data()

areas = sorted(df["Area"].dropna().unique())

items = sorted(df["Item"].dropna().unique())

# --- Streamlit App UI

st.title("🌾 Crop Production Predictor")

st.markdown("Select options below to predict the crop production value using our ML model.")

# --- Dropdowns instead of text inputs

area = st.selectbox("🌍 Select Area", areas)

item = st.selectbox("🌾 Select Crop Item", items)

year = st.number\_input("📅 Enter Year", min\_value=1960, max\_value=2030, value=2022, step=1)

yield\_val = st.number\_input("📈 Enter Yield", min\_value=0.0)

area\_harvested = st.number\_input("📐 Enter Area Harvested", min\_value=0.0)

# --- Prediction

if st.button("🔍 Predict Production"):

    input\_df = pd.DataFrame({

        "Area": [area],

        "Item": [item],

        "Year": [year],

        "Yield": [yield\_val],

        "Area harvested": [area\_harvested]

    })

    try:

        prediction = model.predict(input\_df)[0]

        st.success(f"🎯 Predicted Crop Production: {prediction:,.2f}")

    except Exception as e:

        st.error(f"❌ Error: {e}")