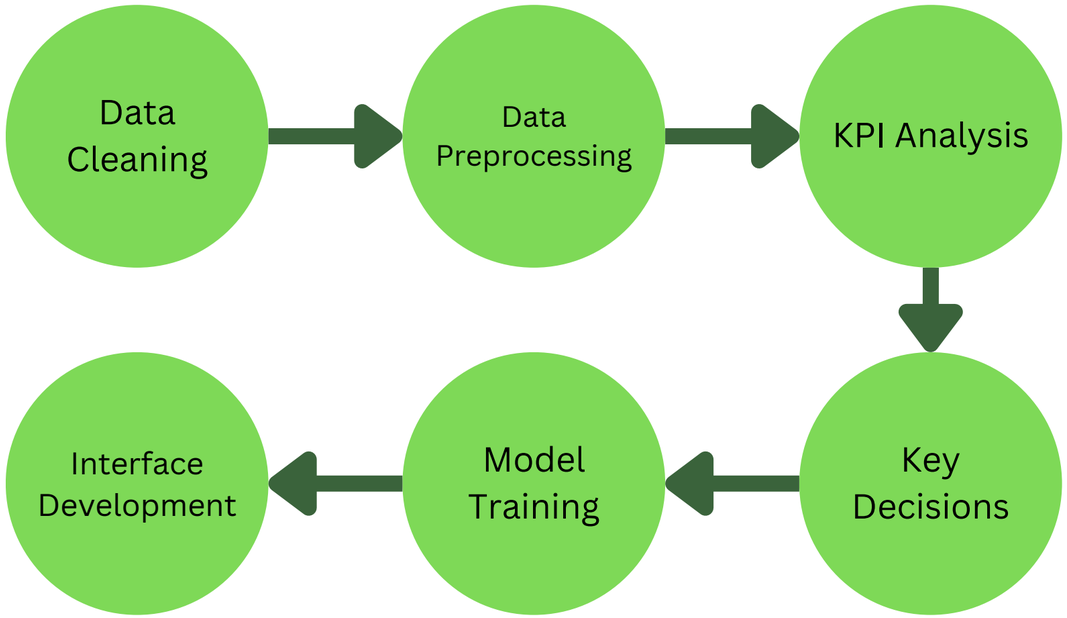
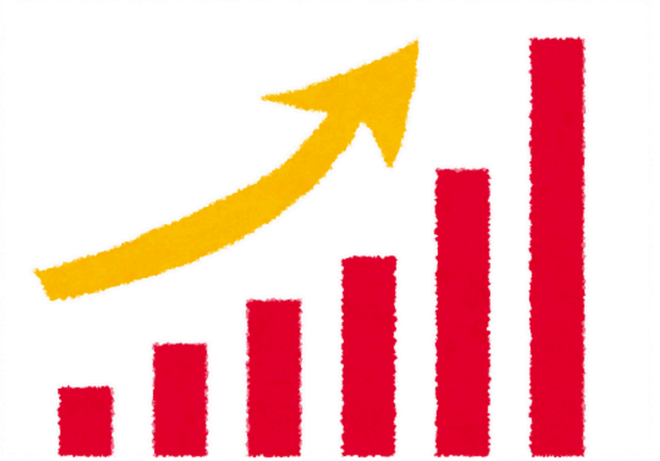
CROPOLYSIS

An Advanced Analytical Approach On Environmental And Soil Factors In Crop And Fertilizer Suggestion System





PROBLEM STATEMENT

Design a sensor-assisted or data-driven system that recommends the best crops to grow based on soil nutrients (N, P, K), pH, temperature, humidity, and rainfall. The system will also provide fertilizer guidance tailored to current conditions, targeting smallholder farmers.

OBJECTIVES

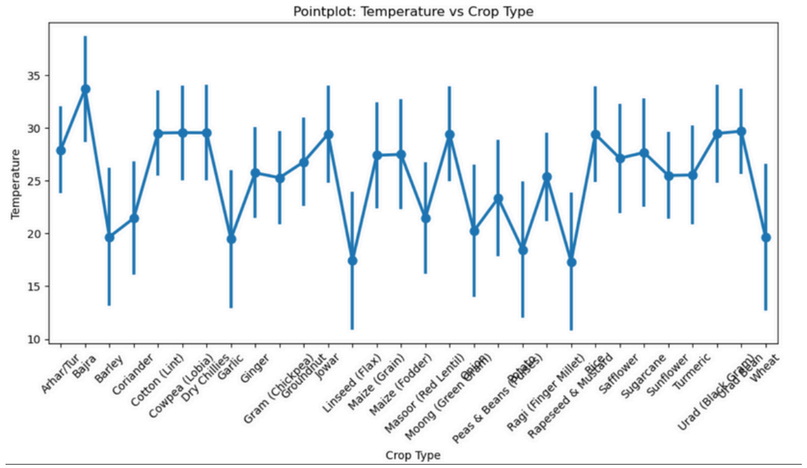
- Recommend suitable crops using soil and environmental data.
- Provide targeted fertilizer advisory based on nutrient levels.
- Improve farm productivity through data-driven decisions.

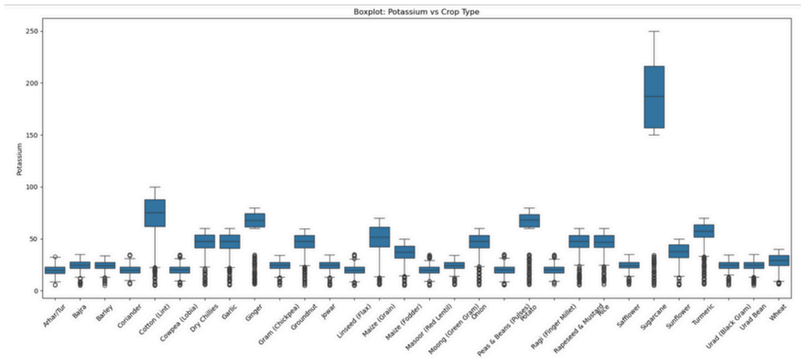
DATASET

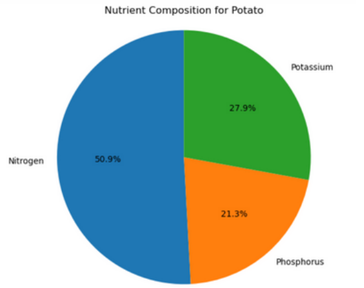
https://www.kaggle.com/datasets/ismailsaleem/fertilizer-recommendation-dataset

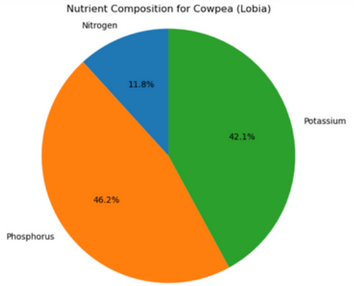
	A	B	C	D	E	F	G	H	I
1	Temperature	Humidity	Soil Moisture	Soil Type	Crop Type	Nitrogen	Potassium	Phosphorus	Fertilizer
2	29.89	69.58	27.33	Sandy Loam	Arhar/Tur	17.47	24.59	32.87	MOP
3	25.85	56.63	22.71	Sandy Loam	Arhar/Tur	3.76	17.32	27.77	20-40-20
4	25.3	50.72	22.73	Loamy	Arhar/Tur	4.48	18.11	28.25	20-40-20
5	29.45	46.51	41.87	Loamy	Arhar/Tur	4.85	12.62	43.49	MOP
6	16.02	56.99	48.91	Sand	Arhar/Tur	11.54	31.36	27.2	DAP
7	31.66	67.31	27.54	Clay Loam	Arhar/Tur	17.08	23.83	33.9	MOP
8	30.55	68.36	28.47	Clay Loam	Arhar/Tur	16.5	24.99	34.94	MOP
9	16.87	77.72	34.58	Clay Loam	Arhar/Tur	26.96	15.4	31.07	MOP
10	27.47	60.66	24.64	Clay Loam	Arhar/Tur	12.29	18.8	29.18	DAP
11	25.44	54.05	21.02	Loamy	Arhar/Tur	4.29	16.29	26.94	20-40-20
12	25.3	50.53	20.22	Clay Loam	Arhar/Tur	4.12	15.83	25.23	20-40-20
13	28.6	60.56	23.74	Sandy Loam	Arhar/Tur	11.03	19.39	31.12	DAP
14	29.02	60.89	25.33	Loamy	Arhar/Tur	8.69	19.89	31.56	DAP
15	27.28	59.81	24.84	Loamy	Arhar/Tur	11.73	21.12	29.39	DAP
16	31.96	68.67	26.96	Loamy	Arhar/Tur	18.67	23.96	33.18	MOP
17	30.31	68.71	27.23	Clay Loam	Arhar/Tur	16.3	23.62	33.19	MOP
18	25.34	55.46	23.07	Clay Loam	Arhar/Tur	0.38	16.28	26.42	20-40-20
19	28.41	58.44	25.35	Clay Loam	Arhar/Tur	11.81	21.65	30.41	DAP
20	34.97	67.49	21.46	Sand	Arhar/Tur	10.93	8.61	22.53	20-40-20
21	24.51	51.6	22.19	Loamy	Arhar/Tur	2.7	17.9	26.84	20-40-20
22	29.94	64.18	29.83	Loamy	Arhar/Tur	18.93	23.86	32.24	MOP
23	28.35	57.87	24.82	Loamy	Arhar/Tur	7.99	19.6	31.47	DAP
24	31.36	63.99	29.77	Loamy	Arhar/Tur	19.57	24.03	32.93	MOP

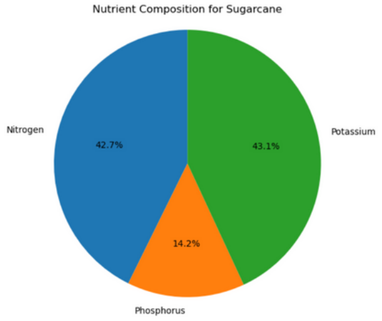
FACTORS AFFECTING CROP TYPE

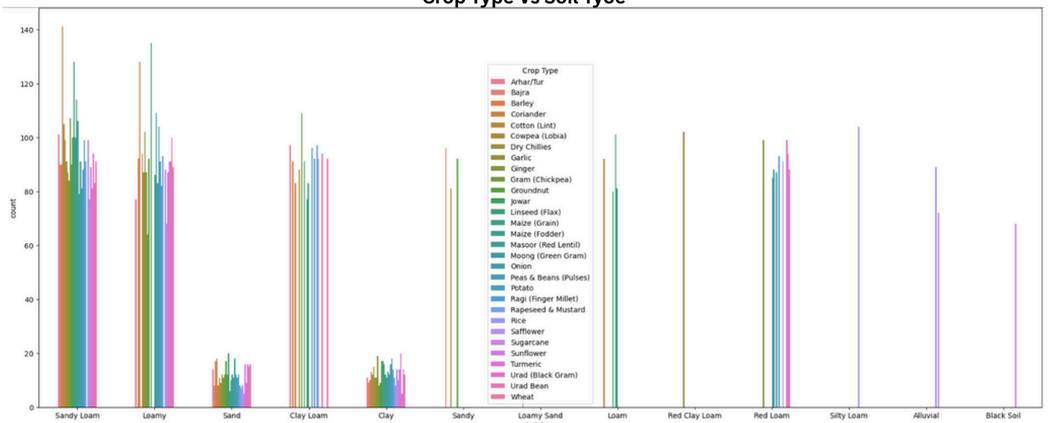


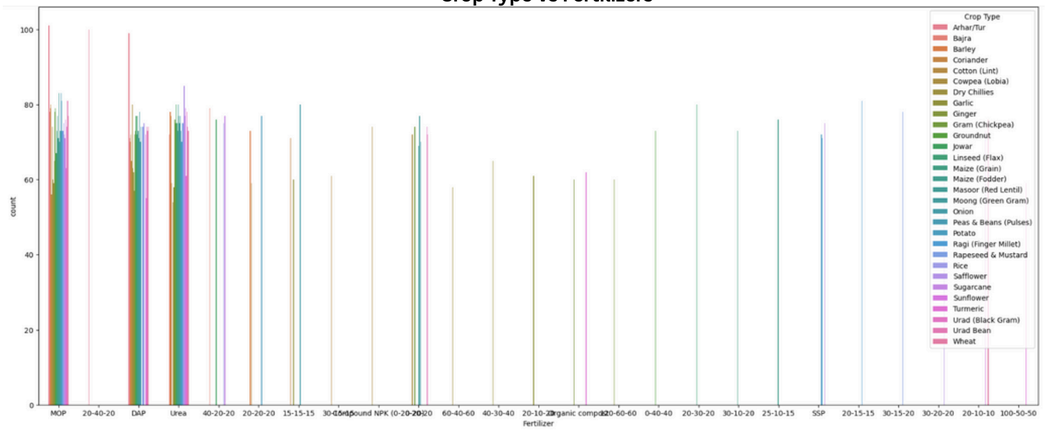




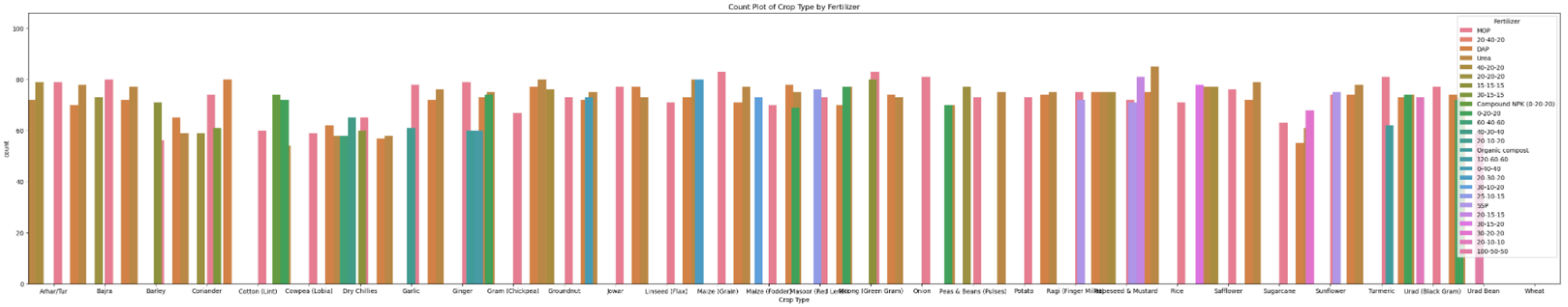


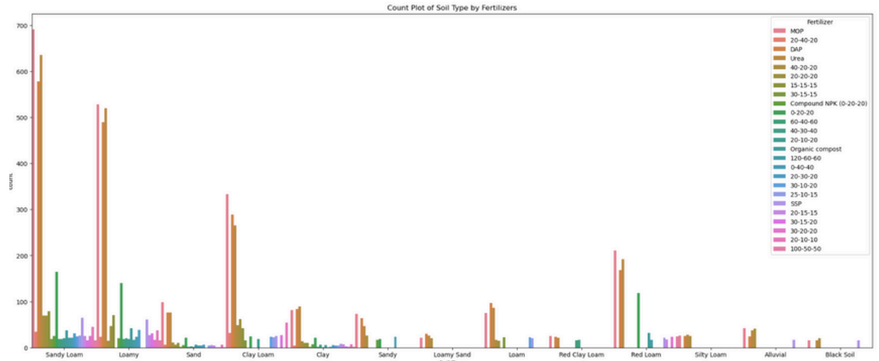


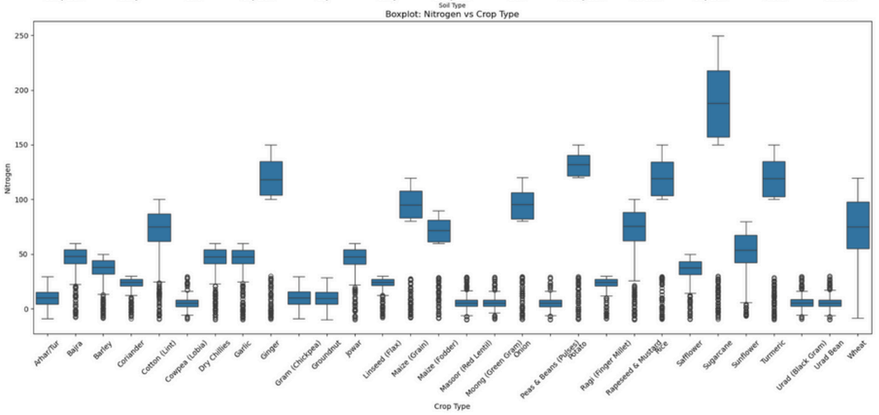


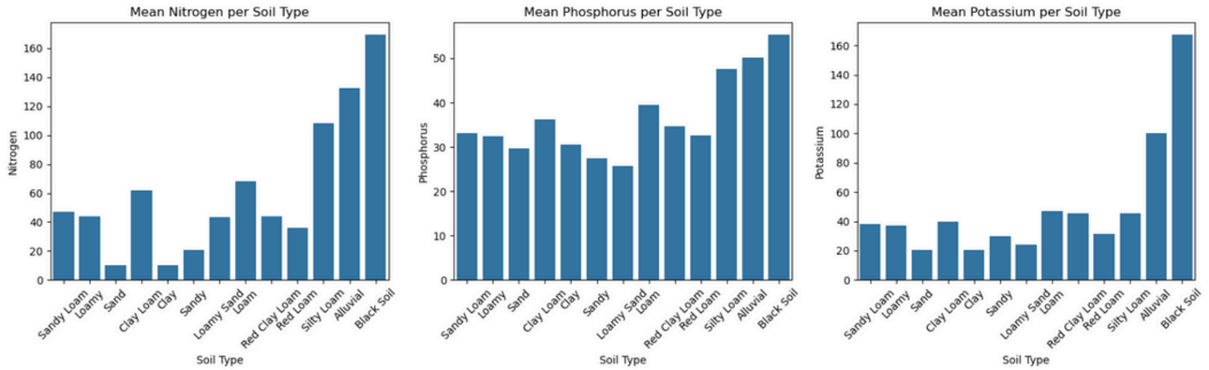


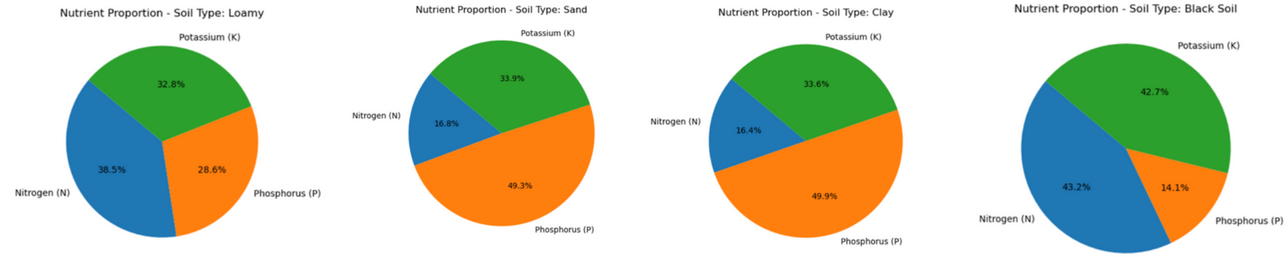
FACTORS AFFECTING TYPE OF FERTILIZERS





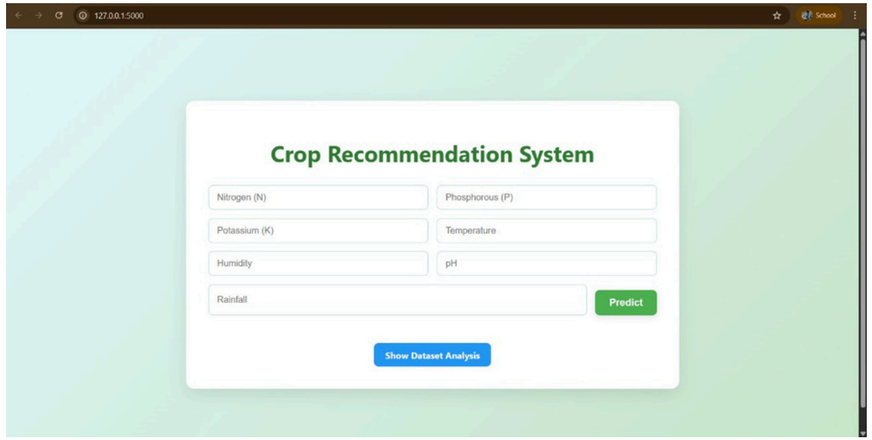


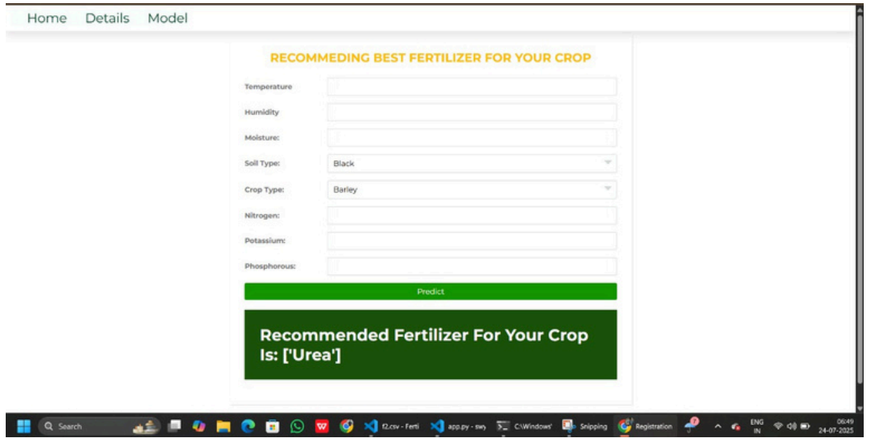




Determining the relation between **soil Parameters**(N,K,P) and **soil type** helps in selection of **Fertilizer.**

MODEL AND OUTCOME





Crops	Fertilizer
Tur, Cotton	MOP
Cowpea	DAP
Sugarcane	Urea
Mustard	Urea, DAP+ 20-15-15
Turmeric,Gram	0-20-20

High Phosphorus	High Nitrogen	High Pottasium	Evenly	Less Nitrogen
Tur	Bajra	Groundnut	Coriander	Cowpea
Garlic	Barley		Dry Chillies	Masoor
Gram	Garlic		Cotton	Urad Bean
	Ginger		Linseed	Green Gram
	Jowar		Ragi	Black Gram
	Maize		Sunflower	Peas
	Onion			Beans
	Potato			
	Mustard			
	Rice			
	Safflower			
	Turmeric			
	Wheat			

- Crops like beans and pulses grow on soil which have less nitrogen, whereas crops like Ginger, onion, turmeric etc requires high nitrogen.
- As a fertilizer Domestic compost works on very limited parameters of moisture, humidity and N-P-K soil parameters.