HarvestWise

"Sowing the seeds not of certainty."

Topic:-
Food and Agriculture

"Sowing the seeds of certainty"

Sowing in Doubt: The Modern Agricultural Crisis

- Today's farmers battle **unpredictable weather** and **depleted soil**, turning every planting season into a high-stakes gamble.
- The most critical choice, ***what to grow?*** is a single point of failure that dictates their entire year's income and effort.
- Relying on tradition in a fast-changing world leads to **suboptimal yields**, **wasted resources** like water and fertilizer, and **shrinking profit margins**.
- This vicious cycle of uncertainty not only jeopardizes a farmer's livelihood but also weakens the foundation of our **entire food supply chain**.

The Current Approach: A Glimpse of the Future

- **Government & Institutional Portals:** Platforms like the K-KISAN portal and advisories from Krishi Vigyan Kendras (KVKs) offer valuable regional guidance, but their advice is too general for a specific farmer's field.
- **Advanced Ag-Tech:** Powerful precision farming solutions showcased at events in Bengaluru are too expensive and complex for the 85% of smallholder farmers in Karnataka.
- **Local Agro-Input Dealers:** The most common source of advice, but their guidance is often biased by sales targets, not the farmer's best interest.
- **The Critical Gap:** Farmers lack a solution that is hyper-local, affordable, and truly independent, leaving millions underserved.

Our Solution: Introducing HarvestWise

What is HarvestWise?

HarvestWise is a smart agriculture platform that empowers farmers to maximize yield by providing **optimal crop recommendations** based on a **machine learning analysis** of their **specific soil** and **climate data**.

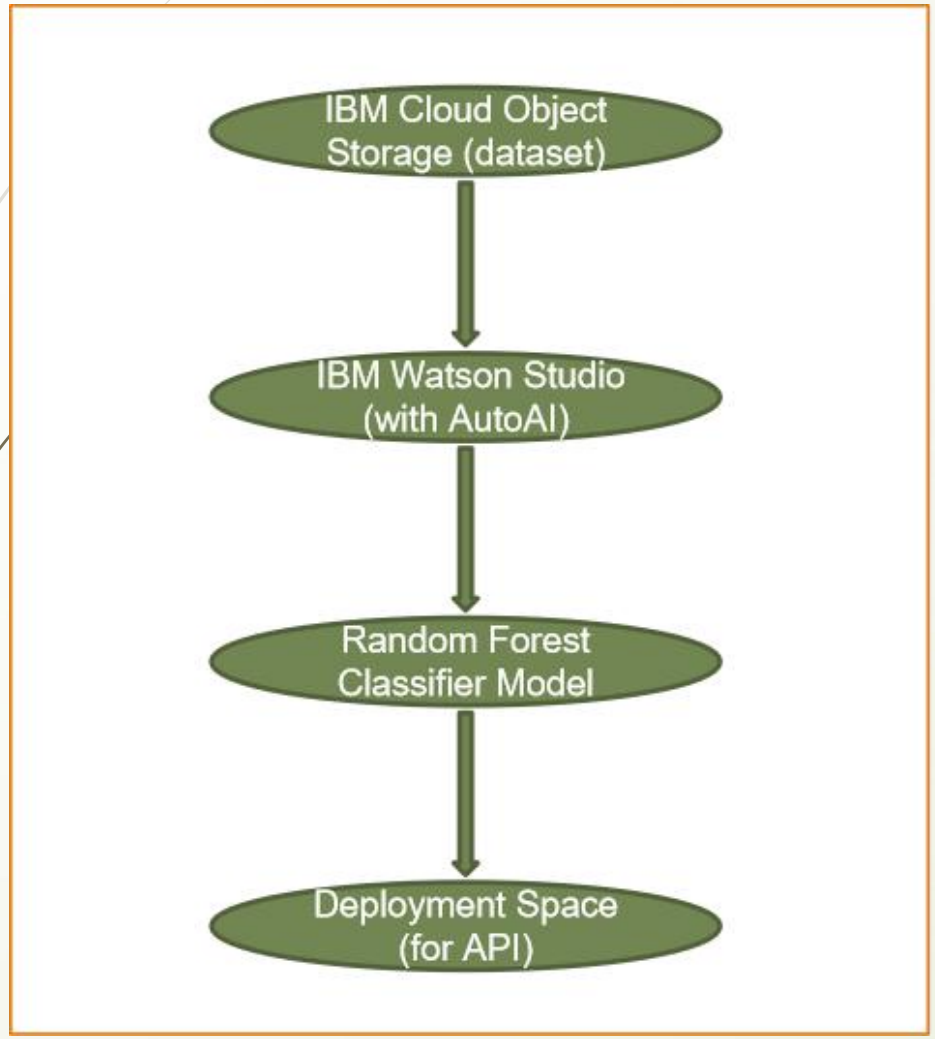
How It Works?

1. **Simple Data Input:** The farmer enters 7 key data points:
- Soil Nutrients: Nitrogen (N), Phosphorus (P), Potassium (K)
- Climate: Temperature, Humidity, pH, and Rainfall

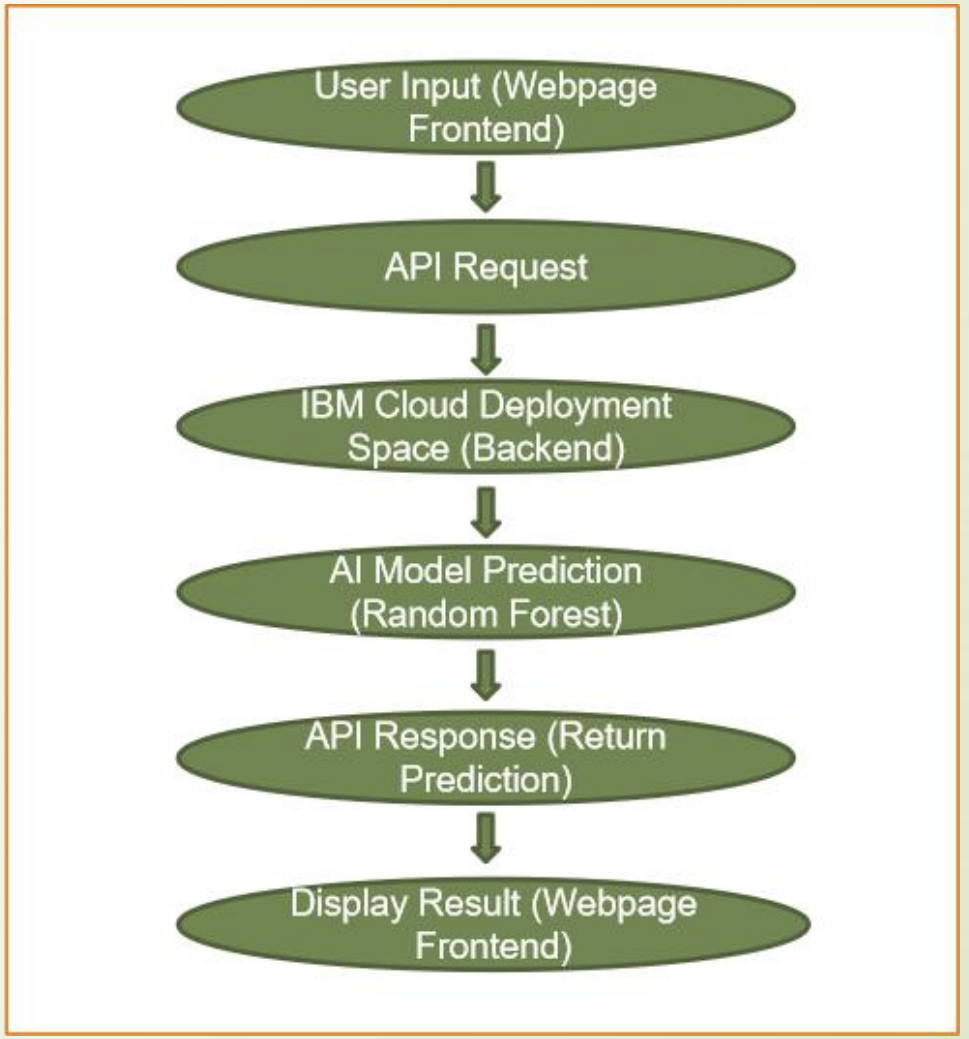
1. **Secure API Call:** The data is instantly and securely sent to our AI brain hosted on IBM Cloud.
2. **Instant AI Analysis:** Our advanced machine learning model (a Batched Tree Ensemble Classifier) processes the data in real-time.
3. **Actionable Result:** The single best crop recommendation is immediately displayed back to the farmer on the webpage.

HarvestWise Deployment Architecture Flowchart

Model Training & Deployment Flow



User Interaction Flow



Future Enhancements

The HarvestWise Roadmap - From Seed to Sale

Our vision is to build a complete digital companion that empowers the modern farmer through every stage of their journey.

- **Marketplace:** Connect farmers directly with buyers and suppliers to ensure fair pricing and increase profits.
- **AI Market Analysis:** Predict market prices to advise farmers on the best time and place to sell for maximum returns.
- **Full Lifecycle Guidance:** Offer AI support from seed to harvest, including pest detection, smart scheduling, and yield prediction.
- **"AgriBot" Assistant:** A 24/7 AI chatbot providing instant, multilingual support and farming advice to all users.

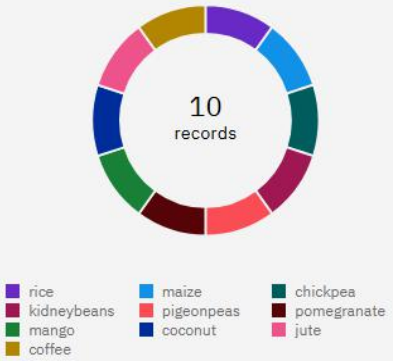
HarvestWise Model Deployment

Prediction results

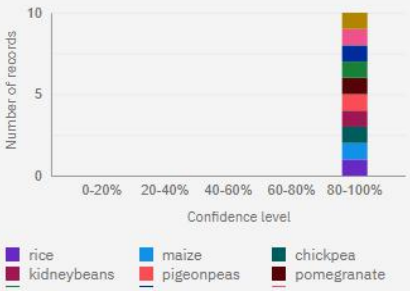
Prediction type

Multiclass classification

Prediction percentage



Confidence level distribution



Display format for prediction results

(•) Table view ( ) JSON view

Show input data

	Prediction	Confidence	N	P	K	temperature	humidity	ph
1	rice	89%	65	37	40	23.35905428	83.59512273	5.333322606
2	maize	100%	83	57	19	25.73044432	70.74739256	6.877869005
3	chickpea	100%	49	69	82	18.3156	15.3614	7.2631
4	kidneybeans	100%	22	60	24	18.7822	20.24	5.6306
5	pigeonpeas	100%	33	61	24	20.0461	48.9390	4.5674
6	pomegranate	99%	4	20	41	24.26	93.79	6.53
7	mango	100%	18	26	31	32.61	47.74	5.41
8	coconut	100%	19	26	29	26.93	98.8	5.67
9	jute	95%	84	38	43	26	73	7.2
10	coffee	100%	92	40	30	23.3	55.1	6
11								
12								
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14								
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Download JSON file