

Crop Recommendation System

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Introduction

- Focus: Optimize agricultural productivity
- Align crops with regional climatic conditions
- Benefits:
 - Increased crop yield
 - Improved resource utilization
 - Reduced risk of crop failure
 - Enhanced profitability
 - Sustainable farming practices

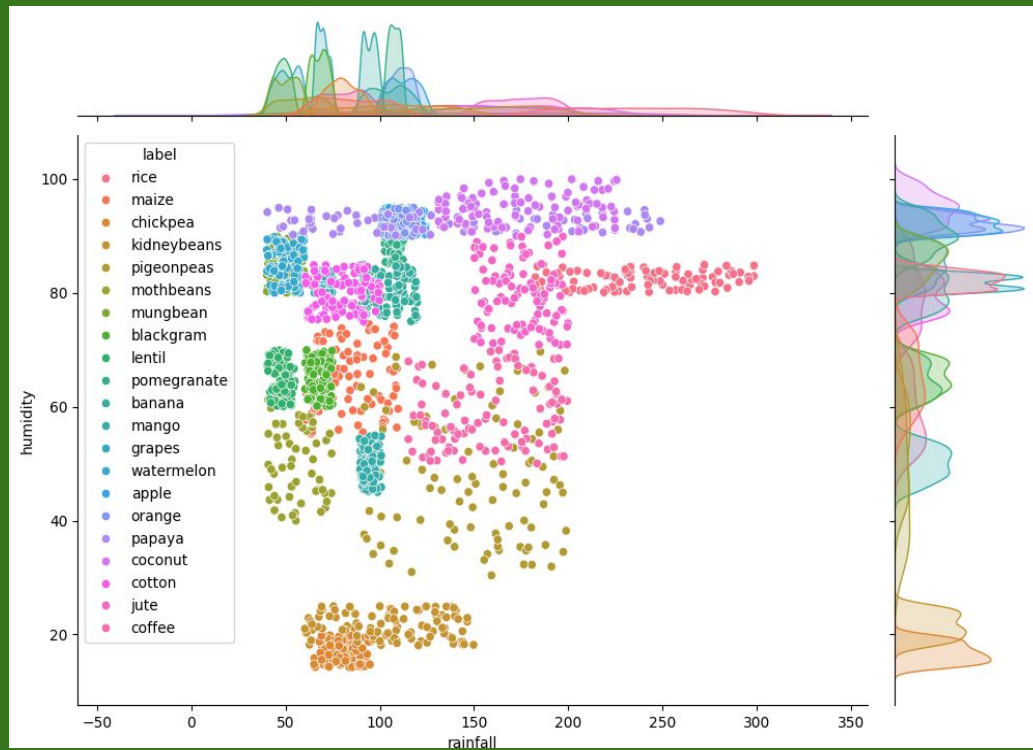


Data Description

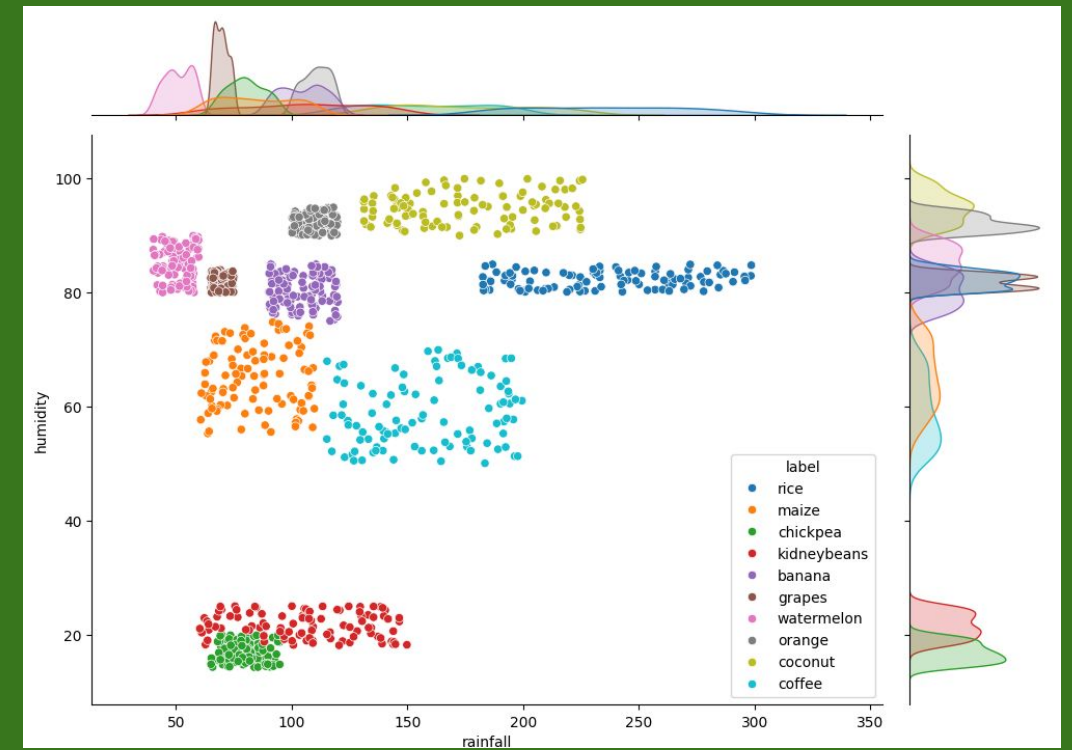
- Soil components
 - Nitrogen (N)
 - Phosphorus (P)
 - Potassium (K)
 - pH
- Environmental factors
 - Temperature
 - Humidity
 - Rainfall

Data Description

- Output labels (21 -> 10)

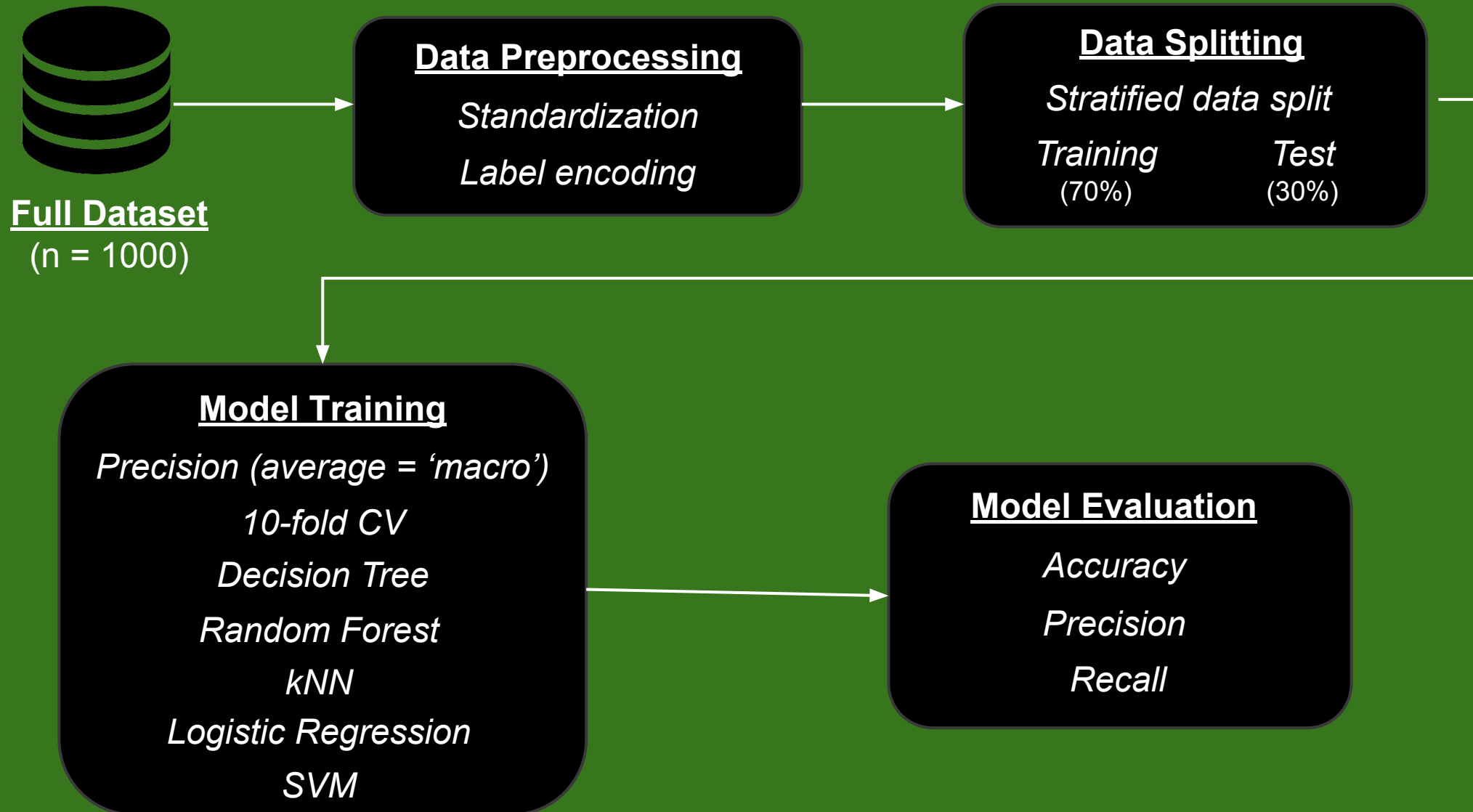


Raw (label numbers = 21)

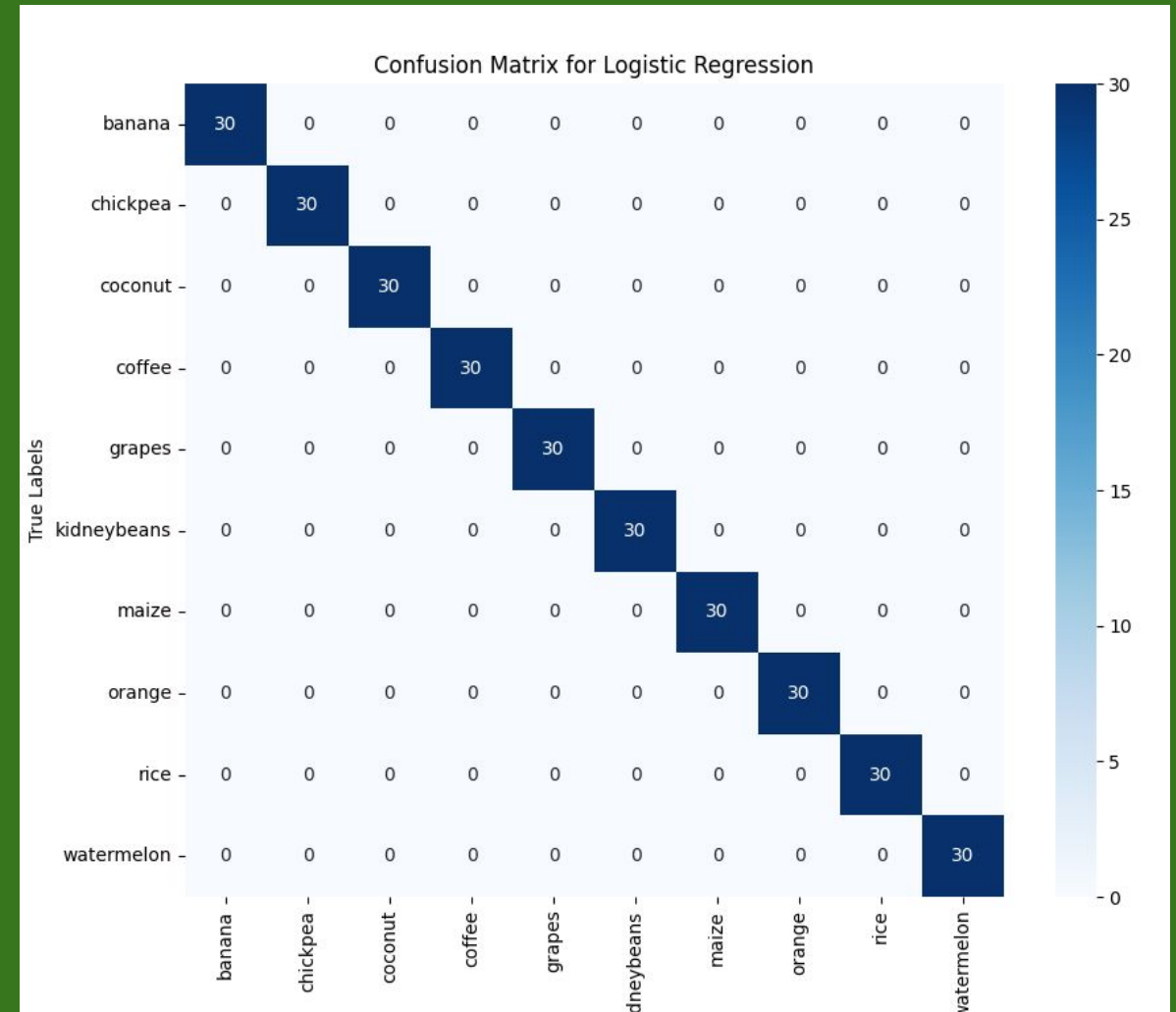


Subset (label numbers = 10)

WORKFLOW



kNN



Model Comparison Results

Model	Accuracy	Precision	Recall
Decision Tree	1.000	1.000	1.000
Random Forest	1.000	1.000	1.000
Logistic Regression	1.000	1.000	1.000
SVM	1.000	1.000	1.000
kNN	0.997	0.997	0.997

Crop Recommendation

Example 1 - Hot and humid environment

```
Recommended Crop for Input [50, 40, 60, 29.6, 87, 6.5, 260]:  
Decision Tree: rice  
Random Forest: rice  
Logistic Regression: rice  
SVM: rice
```



Example 2 - Warm and moderately humid environment

```
Recommended Crop for Input [100, 80, 52, 27, 80, 6.1, 120]:  
Decision Tree: banana  
Random Forest: banana  
Logistic Regression: banana  
SVM: banana
```

