



Sadguru Balumama Shikshan Prasarak Mandal's
K.P. PATIL INSTITUTE OF TECHNOLOGY

(DTE CODE : 6814) (MSBTE Code : 1661)

Approved by AICTE, DTE Mumbai & Govt. of Maharashtra, Affiliated to MSBTE Mumbai

Internships Daily Diary(2025-26)

Department of Artificial Intelligence & Machine Learning

Program Code : AN5K

Name of the Student: Samruddhi Bhikaji Chougale

Name of the Mentor (Faculty): Mrs. P. M. Kumbhar

Name of the Mentor (Industry): Mr. Abhijit Gaikwad

Enrollment Number: 23213500039

Week	Day & Date	Discussion Topics/Activity	Details of Work Allotted Till Next Session / Corrections Suggested/Faculty Remarks	Signature of Industry Mentor
Week 10	Mon, Date 4,08,25	Coop Recommendation intro & dataset	understand features & target coop variable	 
	Tue, Date 5,08,25	Data Preprocessing	clean & scale dataset	
	Wed, Date 6,08,25	EDA & Visualize	create graph and correlation map	
	Thu, Date 7,08,25	Model building	Train Logistic Regression & Random Forest	
	Fri, Date 8,08,25	Model Evaluation	compute accuracy & finalize model	
	Sat, Date 9,08,25	Documentation	update code & prepare summary	



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Week No: 10

Day: Monday

Date: 4.08.25

Topic :- Project Introduction

Today, I officially started working on the crop recommendation system project. My first step was to thoroughly understand the problem predicting the most suitable crop based on soil, weather, and environmental features. I explored the dataset containing attributes such as soil type, temperature, humidity, pH, & rainfall. I analyzed the distribution of different crops in the data to ensure balanced classes. This initial exploration helped me appreciate how data-driven insights can empower farmers to make informed decisions, improving yield & sustainability.



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Week No: 10

Day: Tuesday

Date: 5.08.25

Topic :- Data cleaning & Preprocessing

Today I focused on cleaning and preparing the data for modeling using my data cleaning notebook. I handled missing values, removed duplicates, and standardized feature names for consistency.

I also checked for outliers and normalized relevant features like temperature and rainfall to ensure better model performance. After thorough preprocessing, I split the dataset into training and testing sets to avoid data leakage. The clean, well-structured data now provides a solid foundation for building robust predictive models.



Internships Daily Diary (2025-26)

Week No: 10

Day: Wednesday

Date: 6.08.25

Topic :- Exploratory Data Analysis (EDA)

I performed comprehensive exploratory data analysis today to understand feature relationships and their impact on crop recommendation.

Using visualization tools, I analyzed feature distribution & correlation heatmaps. I discovered key features such as soil pH, temperature, and rainfall strongly influence crop selection.

pair plots and boxplots revealed interesting patterns bet' crop & environmental conditions.

These insights guided me to select relevant features and helped plan an effective modeling strategy.



Internships Daily Diary (2025-26)

Week No: 10

Day: Thursday

Date: 7.08.25

Topic :- Logistic Regression Model

Today, I implemented a Logistic Regression model as a baseline for the crop prediction task.

After training on the processed data, I evaluated the model

using accuracy, precision, recall, and F₁-score metrics. The

model showed reasonable accuracy but struggled with certain

crop classes due to their

complex nature. I plotted the

confusion matrix to analyze misclassifications. This exercise

helped me understand the

limitations of simple model &

set the stage for experimenting with more advanced algorithms.



Internships Daily Diary (2025-26)

Week No: 10

Day: Friday

Date: 8, 08, 25

Topic :- Random Forest model & Model comparison

I developed a Random forest classifier today, tuning hyperparameters such as the number of trees and max depth for optimal result. This ensemble model improved overall accuracy and handled the multiclass classification more effectively than logistic regression. The model showed better recall for minority crop classes, which is important to provide reliable recommendations across diverse farming scenarios. Comparing both models reinforced the value of ensemble methods in capturing complex agricultural data patterns.



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Internships Daily Diary (2025-26)

Week No: 10

Day: Saturday

Date: 9.08.25

Topic :- Final Model saving & Reflection

Today, I finalized the best-performing Random Forest model and saved it as a .pkl file for future deployment. I documented the entire pipeline - from data cleaning to model evaluation ensuring reproducibility and easy updates. This project gave me valuable hands-on experience in applying machine learning to agriculture, highlighting the importance of data quality and model choice. I feel confident that this crop recommendation system can help farmers make better decisions, ultimately supporting sustainable agriculture.