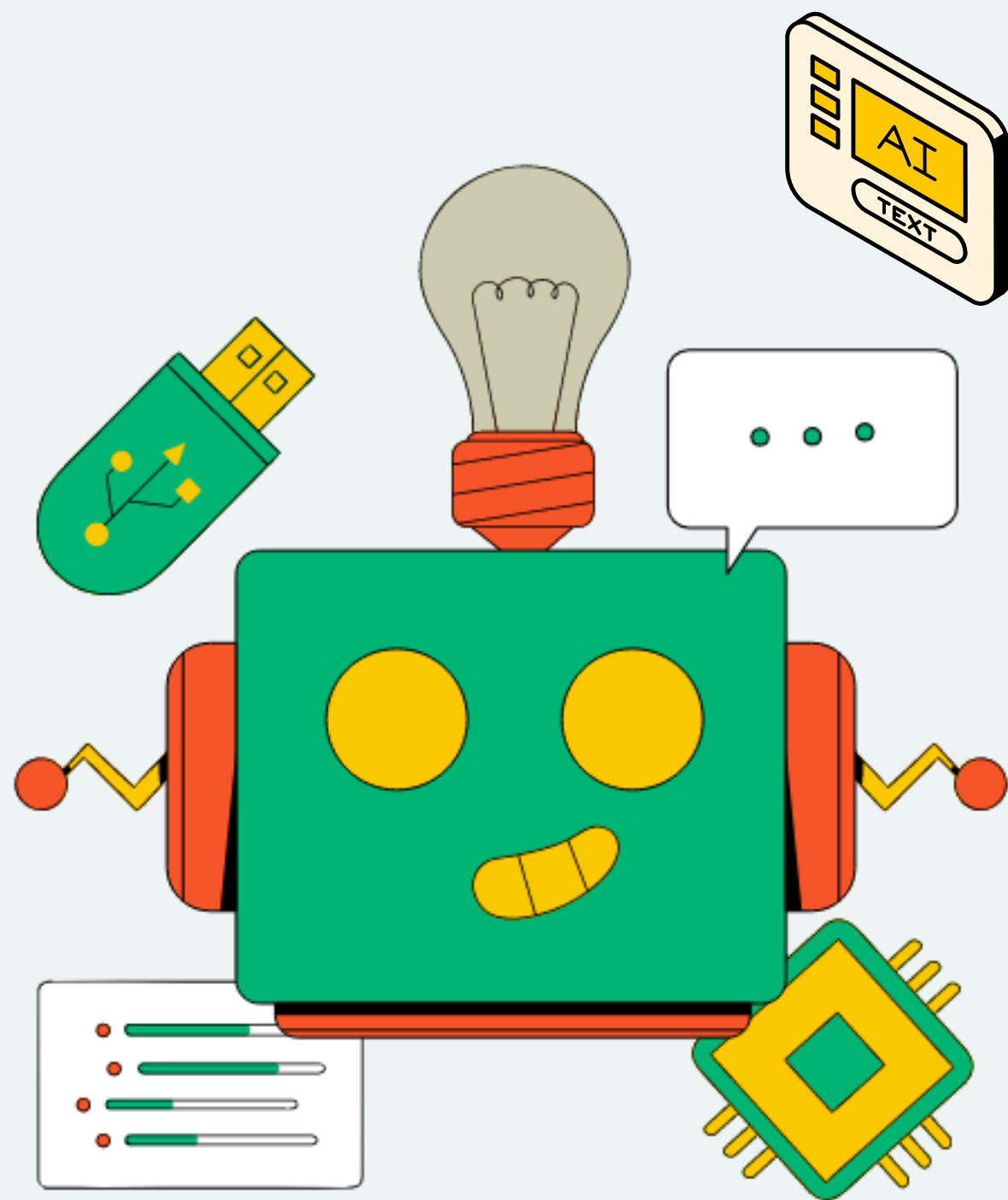


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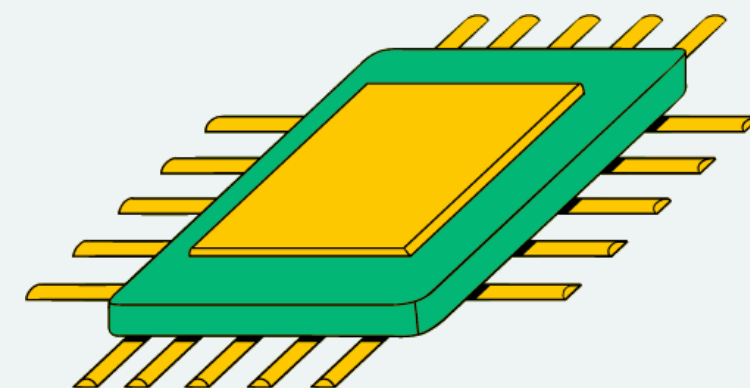


CANTEEN MENU OPTIMIZER

ML – MINI PROJECT

PRESENTED BY:

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INTRODUCTION

- University canteen faces challenges in planning food.
- Students have varied dietary preferences: Veg, Non-Veg, Vegan, Jain, Eggetarian.
- Wrong estimation → wastage or shortage of meals.
- Aim: Use Machine Learning to predict dietary preferences.

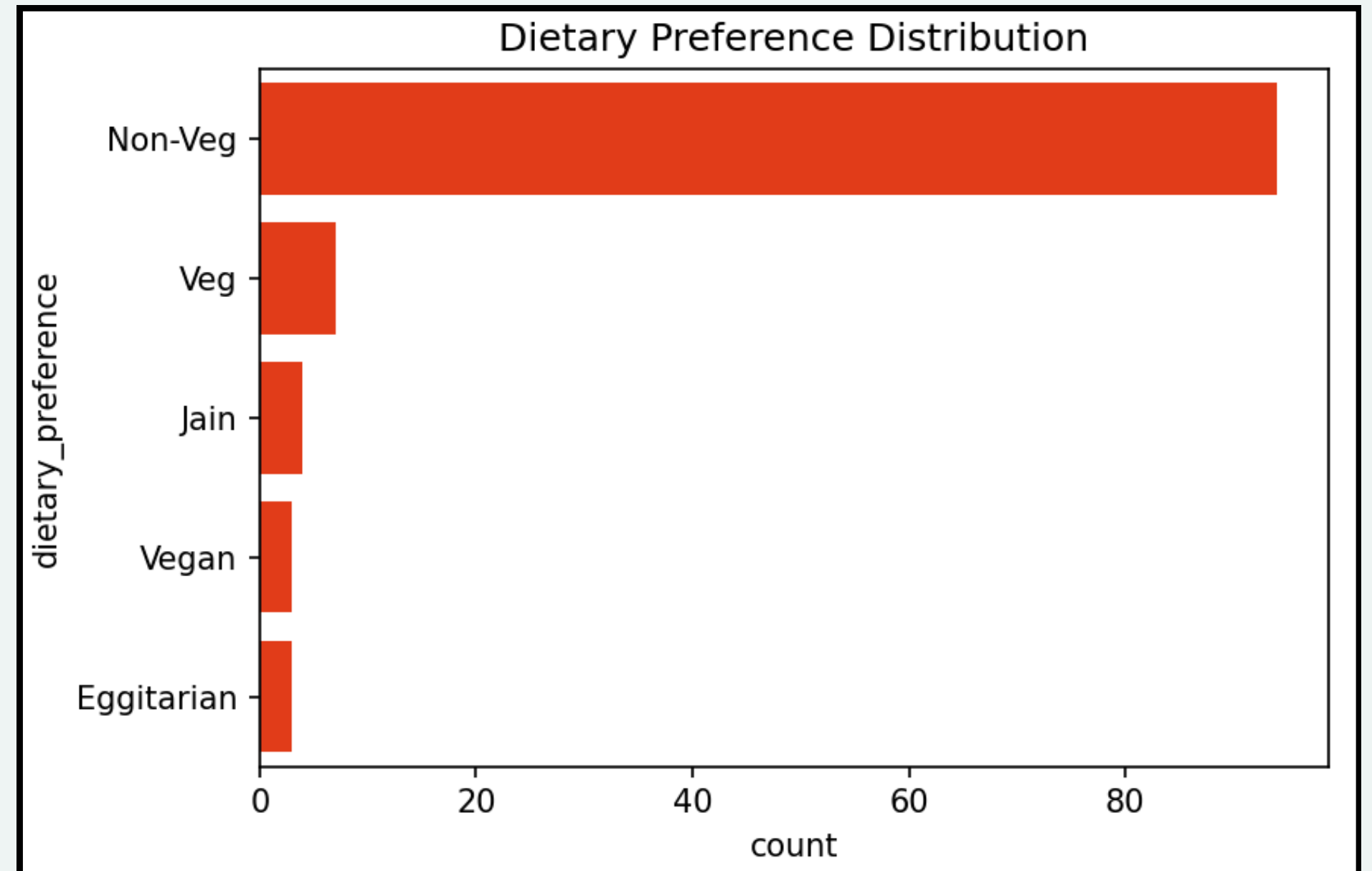


Canteen management is about serving the right meals to the right number of students. Using data, we can make this process smarter and reduce waste.



PROBLEM STATEMENT

- Canteen faces food waste & shortages
- Goal: Predict students' dietary preferences
- Helps in menu planning & stock optimization
- Understanding the imbalance in dietary choices is key to reducing waste and improving canteen efficiency.



METHODOLOGY

- **Dataset:** 111 responses, 73 features (Google Form)
- **Preprocessing:** Missing values, BMI, OneHot Encoding
- **Models tried:** Logistic Regression (baseline), Random Forest (final)
- **Hyperparameter** tuning with GridSearchCV

DATA

- Collected 111 student responses via Google Forms.

PREPROCESSING

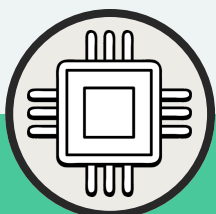
- Cleaned data, handled missing values, added BMI, & encoded features.

MODEL EVALUATION

- Trained Logistic Regression & Random Forest, tuned hyperparameters, & assessed performance.

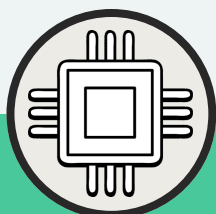


RESULTS



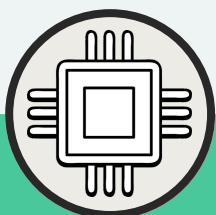
BEST MODEL

Random Forest
gave the most
reliable
performance.



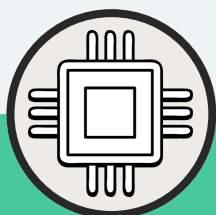
ACCURACY

Achieved high
accuracy, mainly
driven by Non-Veg
predictions(19/20).



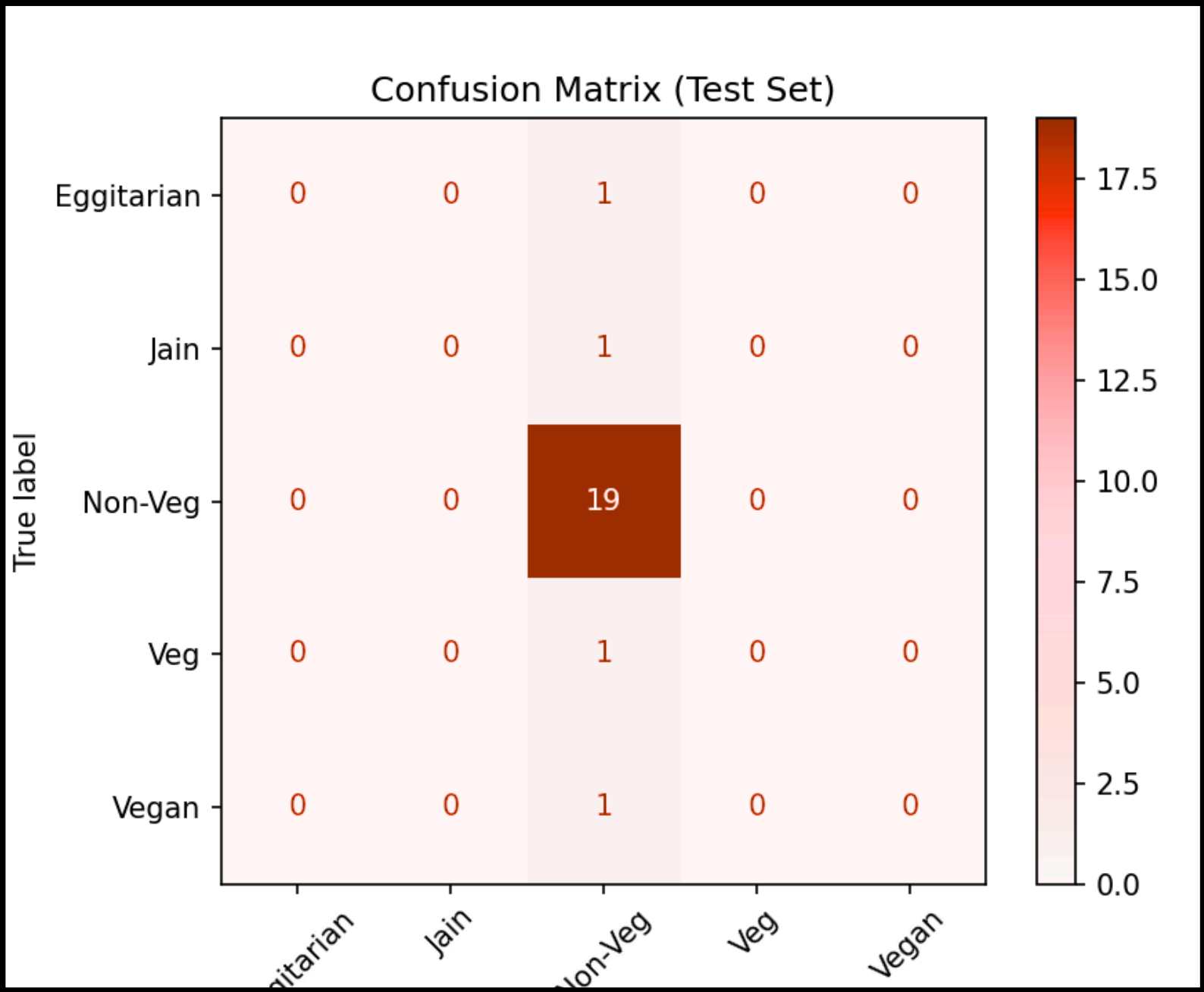
MACRO F1

Low due to poor
performance on
minority classes
(Missclassified).

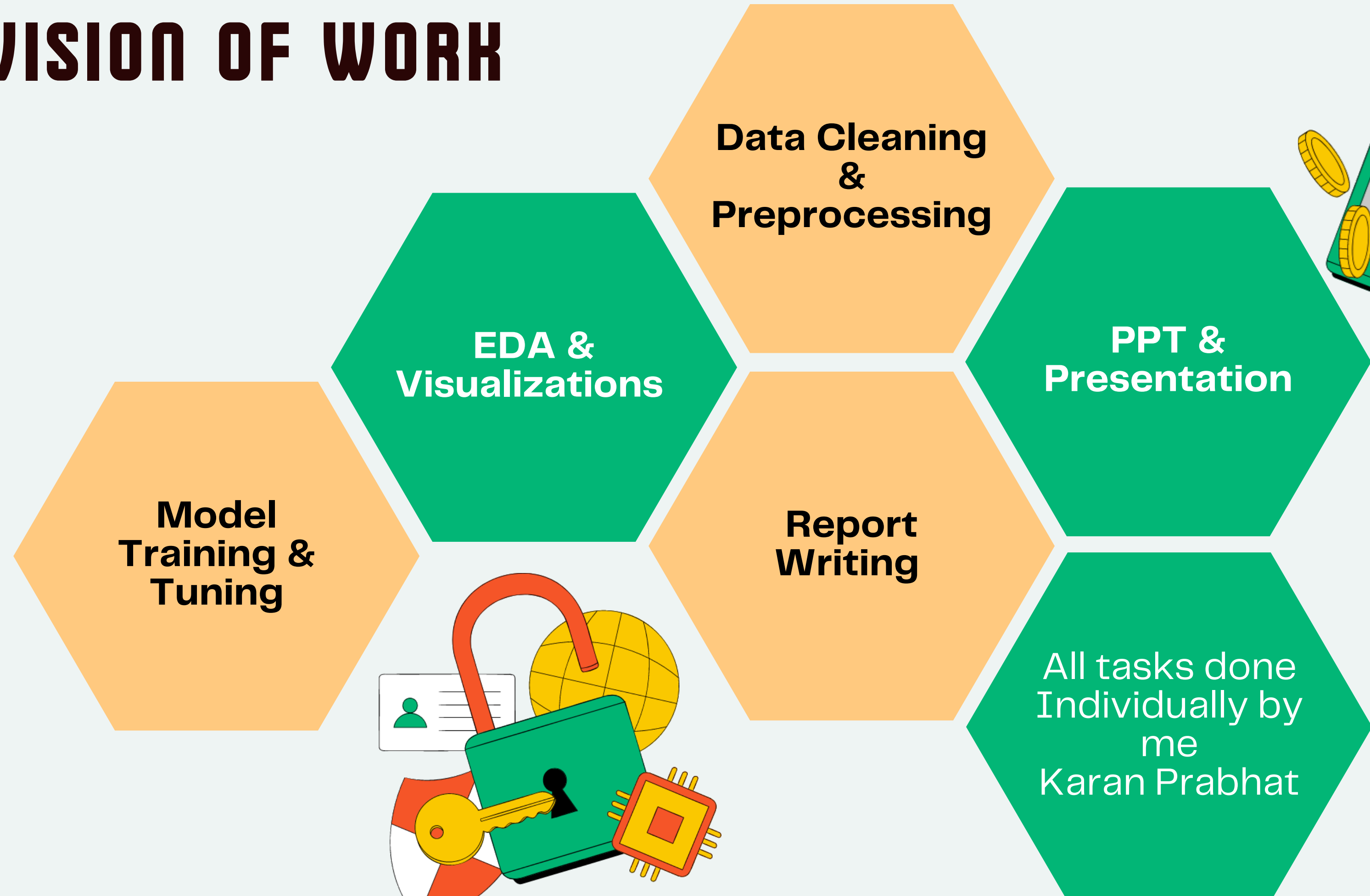


CONFUSION MATRIX

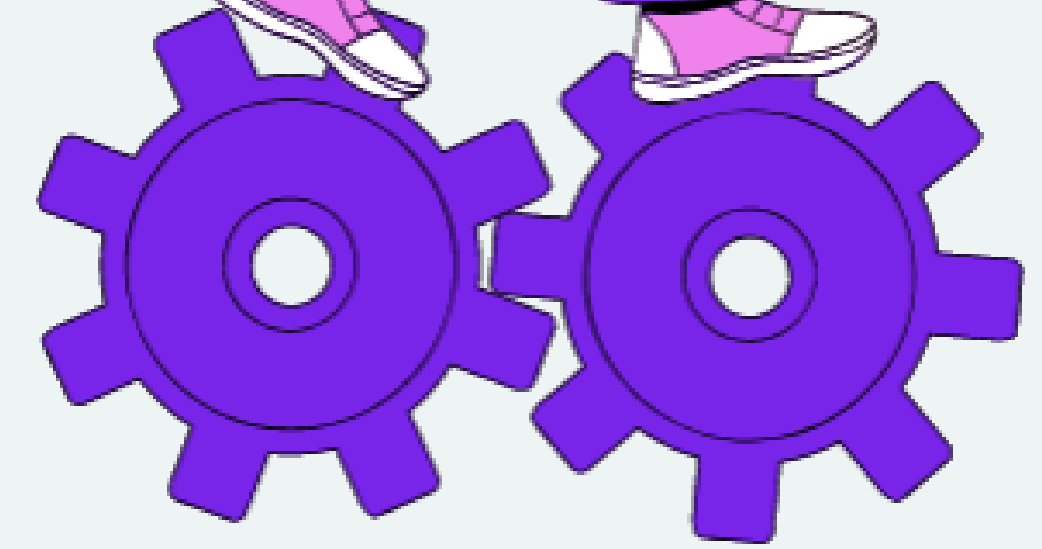
Non-Veg predicted
well, minorities
misclassified as
Non-Veg.



DIVISION OF WORK



CONCLUSION

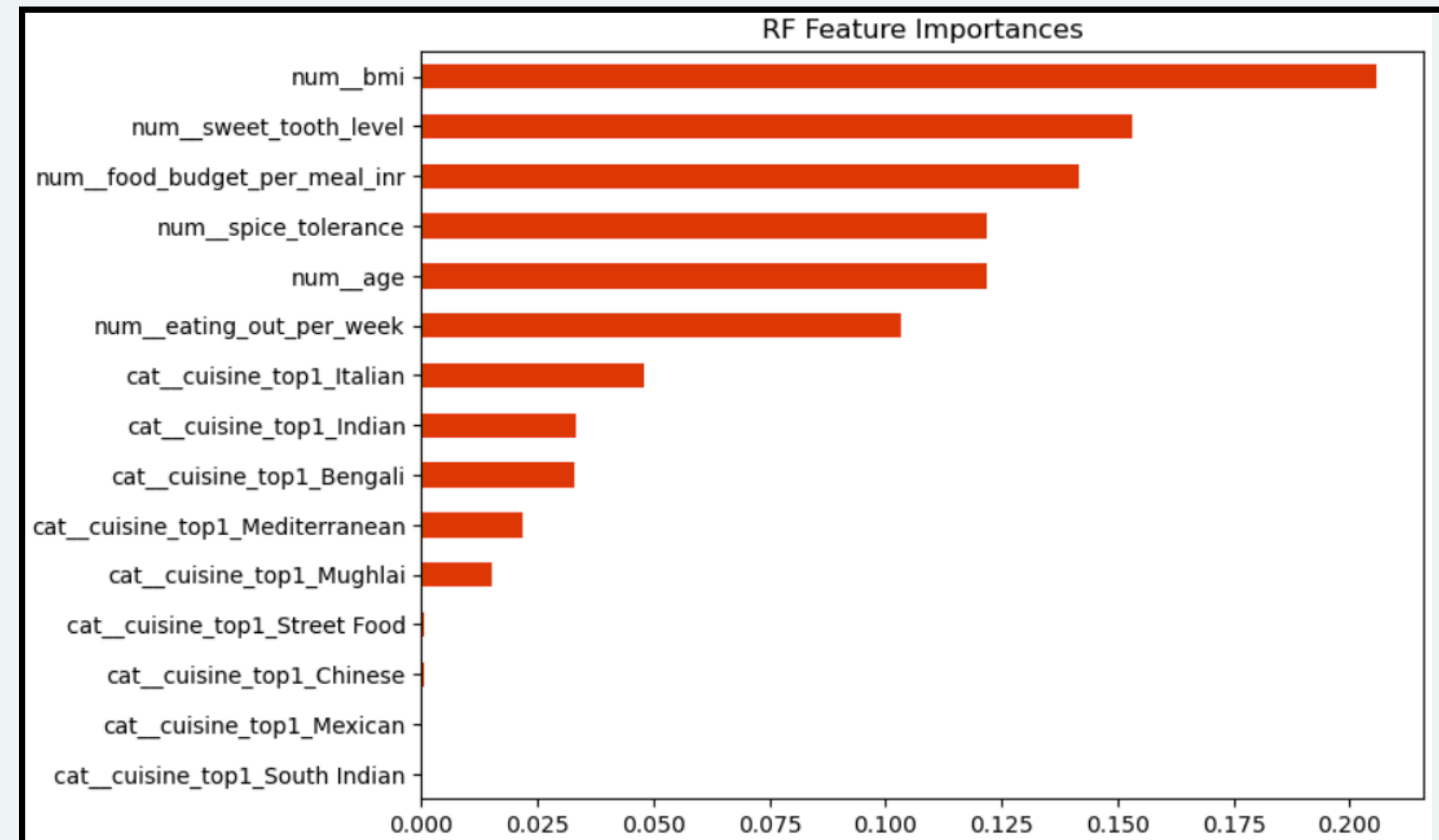


**ML assist canteen stock planning
and reduce wastage of food**

**Strong prediction for Non-Veg
(Majority)**

**Weak for Minority classes due to
imbalance**

**Future work : More data, SMOTE,
Advance Models.**



With more balanced data, this system can become a powerful decision-support tool for the university canteen.



THANKYOU FOR YOUR TIME & ATTENTION.

Let's make canteen meals smarter together!

Karan Prabhat | B.Tech CSE (AI-ML) | SNU

