PROBLEM STATEMENT:

Nowadays, people frequently find it difficult to choose what to cook, particularly when they have to deal with dietary restrictions, allergies, taste preferences, and a shortage of ingredients at home. Conventional recipe platforms offer generic recipes devoid of personalised suggestions, potentially failing to meet individual needs and resulting in food waste and subpar meals.

OBJECTIVES:

The main goal of this project is to design and create a machine learning (ML)-based system that analyses user preferences, dietary restrictions, and ingredient availability to suggest customised recipes. By making relevant and doable recipe recommendations, the system seeks to increase user satisfaction, decrease food waste, and encourage healthy cooking habits.

PROPOSED METHODOLOGY/APPROACH:

The suggested solution gathers information from a sizeable recipe database, including user ratings, cuisine type, ingredients, and nutritional values. Users provide the system with their taste profiles, available ingredients, dietary preferences, and allergies. These inputs are processed by a recommendation engine that uses supervised learning algorithms (like Matrix Factorisation or K-Nearest Neighbours) and collaborative filtering. Recipe data is converted into structured vectors through feature extraction, which allows the machine learning model to rank and predict recipes according to user requirements. Over time, the system improves its recommendations by continuously learning from user interactions and feedback.

EXPECTED OUTPUT:

It is anticipated that the ML-Driven Recipe Personaliser will provide incredibly relevant recipe suggestions based on user profiles, encouraging the use of ingredients efficiently and the selection of nutritious meals. It will speed up decision-making, stop food waste, and improve cooking in general. Reference for the Base Research Paper: Elsweiler, D., and C. Trattner (2017).

Food recommender systems: significant advancements, difficulties, and potential avenues for further study. User-Adapted Interaction and User Modelling, 27(3-5), 331-365. https://doi.org/10.1007/s11257-017-9195-4