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A Mini- Project Report on

Smart Book Recommender

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ABSTRACT

In today's fast-paced and convenience-driven world, people frequently struggle with the question, "What should I cook today?" This everyday dilemma is especially common among students, working professionals, and homemakers who have limited time and often end up wasting ingredients they already have at home. The lack of inspiration or knowledge about what can be prepared with available ingredients leads to increased dependence on takeout or pre-packaged food, which not only affects physical health but also contributes to significant food wastage and increased household expenses.This project proposes the development of a smart, AI-powered recipe recommendation system designed to address this challenge. By utilizing Natural Language Processing (NLP) and Machine Learning (ML), the system will analyze user-input ingredients and generate suitable recipes accordingly. In addition to ingredient-based suggestions, users can apply multiple filters based on dietary restrictions (such as vegan, gluten-free, keto), cuisine preferences (e.g., Indian, Chinese, Italian, Mediterranean), and even cooking difficulty levels (easy, moderate, advanced). This provides a highly personalized experience, ensuring that the suggestions meet individual health goals, taste preferences, and available cooking time.To build this system, the project will use datasets sourced from reputable platforms such as Kaggle, along with APIs like Spoonacular and Edamam, which offer access to a large variety of recipe metadata including ingredient lists, nutrition facts, and tags. The ultimate goal is to make everyday cooking a smarter, healthier, and more sustainable activity while minimizing decision fatigue and food waste. This tool not only empowers users with creative meal ideas but also fosters better eating habits, improved ingredient utilization, and greater awareness about food.

Keyword: Recipe Recommendation, Machine Learning, Natural Language Processing, Food Waste Reduction, Personalized Cooking, Smart Kitchen Assistant

Problem Statement:

Many individuals struggle to decide what to cook based on the ingredients they currently have, often leading to unnecessary food wastage and unhealthy dietary habits. This issue becomes more prominent for busy professionals, students, or people with specific dietary restrictions. Addressing this problem is crucial for promoting sustainable living, reducing daily decision fatigue, and encouraging nutritious eating. A recipe recommendation system can be a valuable solution by offering smart, personalized suggestions based on available ingredients. Stakeholders include home cooks, health-conscious individuals, students, and families who seek quick, cost-effective, and healthy meal ideas.

Objectives:

1. To develop a recipe recommendation system that suggests dishes based on user-input ingredients.
2. To integrate filters for dietary preferences, cuisine types, and cooking difficulty for personalized suggestions.
3. To implement NLP and ML techniques to enhance the accuracy and relevance of recipe recommendations.

Dataset:

The dataset for this project will be sourced from publicly available platforms like **Kaggle**, which offers comprehensive recipe datasets containing details such as ingredients, recipe names, cooking instructions, cuisine types, and dietary tags. Additionally, APIs like Spoonacular and Edamam may be used to access dynamic, real-time recipe data, nutritional information, and filters for specific dietary needs. These sources provide structured and diverse information suitable for training and testing the machine learning model. The data is highly relevant as it reflects real-world cooking patterns and preferences, making it ideal for building a personalized recommendation system that aligns with user inputs and enhances the cooking experience.