



## Recipe Search and Customizable Ordering System with Multilingual and Dietary Support

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### ABSTRACT

The proposed web-based application, Recipe Search Web Page Using User Preferences, is designed to provide a complete platform for meal planning, discovering recipes, and ordering ingredients based on individual user preferences. It includes customizable filters for dietary restrictions, cooking time, difficulty level, and cuisine, ensuring a smooth user experience. Key features also encompass multilingual support, allergen notifications, and real-time updates on orders. The aim is to enhance meal personalization, improve accessibility, and simplify meal management, ultimately encouraging healthier eating habits and more efficient home cooking.

Keywords: Recipe search, meal planning, dietary filters, ingredient ordering, user preferences, multilingual support, meal kit.

### INTRODUCTION :

In today's fast-paced world, meal *planning has become crucial for many individuals aiming to maintain a balanced diet, stay healthy, or meet various dietary restrictions. However, the overwhelming number* of online recipe platforms can lead to information overload, making it challenging for users to find recipes that suit their specific needs. Moreover, those with food allergies, special diets, or limited time face additional hurdles when using general recipe search engines that often lack essential filters and personalization.

The "Recipe Search and Customizable Ordering System with Multilingual and Dietary Support." tackles these challenges by providing a web-based platform that enables users to discover, filter, and customize recipes according to their dietary needs, ingredient availability, and preferred cooking time. This platform not only offers a comprehensive and user-friendly recipe search experience but also incorporates meal kit ordering services, streamlining the entire process—from recipe discovery to ingredient purchasing. By allowing users to filter recipes based on health requirements, cultural preferences, and cooking convenience, this platform seeks to transform how people plan meals and engage with food.

### Motivation of the Project :

As more people become aware of health, sustainability, and their dietary needs, there's a noticeable shift towards personalized eating habits, such as veganism, low-carb, gluten-free, or allergen-free diets. However, despite the increasing demand for tailored meal planning, many existing recipe platforms fall short in providing the level of personalization users require. This often results in frustration and wasted time as individuals struggle to find recipes that meet their specific needs.

Moreover, the lack of multilingual support on numerous recipe websites restricts access for individuals from various linguistic and cultural backgrounds, limiting the platforms' ability to cater to a global audience.

This project seeks to address these issues by creating an intuitive, customizable platform that offers recipes designed to accommodate a wide array of preferences and restrictions. Additionally, by providing easy access to ingredient shopping lists and integration with meal kit services, the application enhances the overall meal planning experience. The primary goal is to equip users with the tools they need to make healthier food choices while streamlining the cooking and meal preparation process.

### Brief description

The application allows users to explore and filter recipes according to their specific preferences, including vegan, gluten-free, or low-carb diets. Users can also order meal kits that come with all the necessary ingredients, receive nutritional information, and access recipes in various languages. Key features

include real-time notifications about ingredient availability and orders, customizable filters for dietary restrictions, and integration with meal kit providers to improve user convenience

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## LITERATURE SURVEY :

1. **A. Nadamoto, S. Hanai, and H. Nanba, "Clustering for Similar Recipes in User-Generated Recipe Sites Based on Main Ingredients and Main Seasoning" (2016)**

This paper by Nadamoto, Hanai, and Nanba (2016) introduces a clustering technique aimed at grouping similar recipes found on user-generated recipe websites, focusing on their primary ingredients and seasonings. This method enhances the organization and recommendation of recipes by uncovering patterns in common food elements, thereby improving recipe discovery and personalization.

2. **Amaia Salvador et al., "Inverse Cooking: Recipe Generation from Food Images" (2019)**

In their 2019 paper, Amaia Salvador and colleagues delve into inverse cooking, a technique for creating recipes from food images. The authors utilize deep learning methods to develop a model capable of predicting ingredients and formulating a recipe based on a provided food image, effectively linking visual recognition with recipe development. This method has potential uses in food recommendation systems and culinary AI.

3. **Michał Bień et al., "RecipeNLG: A Cooking Recipes Dataset for Semi-Structured Text Generation" (2020)**

Michał Bień and his team (2020) present RecipeNLG, a dataset crafted for the semi-structured generation of cooking recipes. This dataset features a variety of recipe examples with organized inputs (such as ingredients and instructions) and is intended to train models to produce coherent and detailed recipe instructions from structured data, thereby advancing natural language generation in culinary contexts.

4. **Aljbawi, Bushra, "Health-aware Food Planner: A Personalized Recipe Generation Approach Based on GPT-2" (2020)**

Bushra Aljbawi's 2020 paper introduces a health-focused food planner that leverages GPT-2 for generating personalized recipes. By taking into account nutritional needs and user preferences, this system aims to recommend recipes that align with specific health goals, providing a more customized approach to meal planning through AI-generated recipes.

5. **Florian Pecune, Lucile Callebert, Stacy Marsella, "A Socially-Aware Conversational Recommender System for Personalized Recipe Recommendations" (2020)**

Florian Pecune, Lucile Callebert, and Stacy Marsella (2020) present a socially-aware conversational recommender system designed for personalized recipe recommendations. This system engages users in interactive conversations, adapting to their social contexts, preferences, and dietary restrictions to provide more tailored and relevant recipe suggestions.

6. **Prateek Chhikara et al., "FIRE: Food Image to Recipe Generation" (2024)**

Prateek Chhikara and colleagues (2024) introduce FIRE (Food Image to Recipe Generation), a system that creates recipes from food images by utilizing advanced machine learning techniques. This innovative approach combines image recognition with natural language processing to identify ingredients, cooking steps, and dish details, effectively connecting visual food content with recipe development

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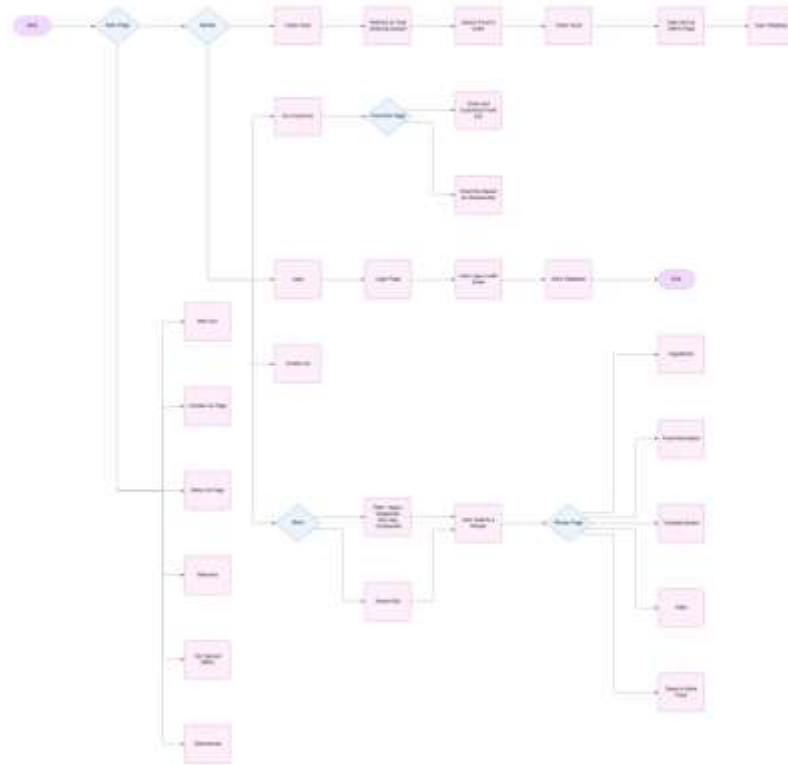
## PROBLEM STATEMENT :

Current meal kit and recipe platforms face several challenges that negatively impact user experience. These challenges include limited options for customizing recipes and portion sizes, a lack of support for multiple languages and cultural relevance, and inadequate dietary filters (such as vegan or gluten-free). The process of meal planning and shopping is often disjointed, forcing users to look for recipes, compile shopping lists, and buy ingredients separately. Additionally, platforms tend to provide generic recipe suggestions that do not take into account individual preferences or dietary needs, and they often lack filters for cooking time or skill levels. Furthermore, poor integration with meal kit providers and the absence of real-time notifications add to the complexity. These problems highlight the need for a more personalized, efficient, and inclusive approach to meal planning and kit ordering .

### *Proposed Website Alogrithm*

#### **.Workflow Diagram**

This workflow diagram outlines a user-friendly flow for an online food ordering and information platform.



**Fig. 1. Workflow Diagram**

### 1. Main Page (Start):

The main page features a navigation bar that allows users to easily find their way around.

### 2. Navbar Options

Menu: Shows the different food items available, possibly organized into categories.

Order Food: Takes users directly to the food ordering section of the platform.

Our Food Kits: Offers details on food kits that can be ordered, customized according to membership levels.

Contact Us: Directs users to a page where they can reach out for support and inquiries.

Login: Enables users to sign in with their email, allowing for personalized account actions

### 3. Welcome Section:

This section includes a Why Us? area that emphasizes unique selling points.

It also features Our Special Offers and Testimonials sections to foster user engagement and build trust.

### 4. Recipe Search and Selection:

A search bar equipped with filters (Vegan, Vegetarian, Non-Veg, Continental) helps users locate their desired recipes.

Once a recipe is selected, users are taken to the Recipe Page to view more details.

### 5. Recipe Page:

This page contains information about the food, including ingredients and preparation steps. A video may be included to guide users through the cooking process.

A translate button is available to make the recipe accessible to a wider audience.

There's also an option to link to the food ordering system, allowing users to place an order.

### 6. Ordering Process:

Users can look for the food they want to order. The order details are then forwarded to the Admin Page for processing.

### 7. User and Food Kits Database:

A user database keeps track of user information, including login details and order history.

The Food Kits Page allows users to order or customize kits based on their membership.

### 8. End

The process wraps up once the order or information session is finished, with all data securely stored in the database

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## CONCLUSION:

The Recipe Search Web Page Using User Preferences provides a tailored and effective approach to the challenges of meal planning and finding recipes. With customizable filters for dietary needs, cooking times, and skill levels, along with support for multiple languages, the platform serves a wide variety of users. Its collaboration with meal kit providers and real-time notifications adds to the convenience and accessibility, making meal preparation smoother and more efficient.

Looking ahead, AI-driven recipe suggestions and collaborations with health experts could enhance personalization, encouraging healthier eating habits and better meal planning. Ultimately, this platform seeks to make home cooking easier, boost user satisfaction, and foster a more inclusive and efficient meal planning experience.

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