

# RECIPE HUB PROJECT

## Components

1. **User Interface (UI):**
    - Web or mobile app through which users interact with the platform.
    - Displays recipes, search results, personalized suggestions, and recipe modifications.
  2. **Recipe Database:**
    - A storage system where all recipes, ingredients, instructions, ratings, and user preferences are stored.
    - It can be structured as a relational database (SQL) or NoSQL (for flexibility in managing diverse recipe data).
  3. **Search Engine:**
    - An advanced search system that allows users to filter recipes based on ingredients, cuisine, difficulty, time, and more.
    - Includes AI-based filters for personalized recipe recommendations.
  4. **Social Sharing & Community Features:**
    - Allows users to share their recipes, rate them, comment, and recommend recipes to others.
    - Includes a review and rating system to build trust and quality control.
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## Key Features:

1. **Advanced Recipe Search:** Users can search by ingredients, cuisine type, preparation time, dietary restrictions, and more.
  2. **Generative AI-based Recipe Suggestions:** AI can suggest recipes based on the ingredients users have at home, dietary needs, and even based on user's cooking skill level.
  3. **Personalized Recommendations:** Based on user preferences and history, the platform can suggest recipes or meal plans tailored to individual tastes and goals (e.g., weight loss, muscle gain).
  4. **Nutritional Information:** Automatically calculates the nutritional values of recipes, such as calories, protein, fat, carbs, etc.
  5. **Social Integration:** Users can share recipes, save favorites, or invite friends to cook together.
  6. **Recipe Ratings and Reviews:** Users can rate recipes, leave feedback, and see ratings from others to gauge the quality of recipes.
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## Generative AI Use Case:

- **Recipe Generation:** Generative AI can be trained on a dataset of existing recipes to create new ones. For example, it can combine different cuisines, suggest variations

based on the ingredients a user already has, or create recipes for specific dietary needs.

- **Ingredient Substitution:** The AI can suggest ingredient substitutions based on availability or dietary restrictions. For example, it might suggest a dairy-free alternative for a recipe that usually uses cream.

**Simple Architecture Diagram:** Here's a simple, easy-to-understand diagram representing the architecture of the Recipe Hub

