**Project Proposal for FlavorQuest**

**1. Goal of the Website**

The primary goal of the "FlavorQuest" website is to assist home cooks in discovering recipes that match their available ingredients, dietary restrictions, and cooking skill level. The website aims to reduce food waste by encouraging the use of ingredients that users already have at home, while also accommodating specific dietary needs. Additionally, the site will offer educational resources to enhance users' cooking skills and nutritional knowledge.

**2. Target User Demographic**

"FlavorQuest" will cater to a diverse group of users ranging from novice cooks seeking simple recipes to more experienced cooks looking for new culinary challenges. The website will be particularly useful for:

* Individuals with specific dietary needs (e.g., vegan, gluten-free, keto).
* Busy professionals and students who need quick and easy meal solutions.
* Environmentally conscious users interested in minimizing food waste.
* Families seeking to diversify their meal plans while accommodating different preferences and health requirements.

**3. Data Utilization**

The core data for "FlavorQuest" will be sourced from the Spoonacular API, which offers extensive information including:

* Thousands of recipes with detailed cooking instructions.
* Nutritional facts for various dishes.
* Data on ingredients, including seasonal and alternative suggestions.
* Filtering options based on dietary restrictions like vegan, gluten-free, etc.

We will evaluate the API's data structure to design efficient queries that minimize response time and bandwidth usage, ensuring a seamless user experience.

**4. Project Approach**

**a. Database Schema**

* **Users Table**: Stores user profiles with preferences and dietary restrictions.
* **Recipes Table**: Includes details fetched from the API such as recipe name, ingredients, nutrition facts, and cooking instructions.
* **Ingredients Table**: Lists ingredients to correlate with user's available stock and recipe requirements.
* **User Preferences Table**: Links users to their chosen dietary restrictions and favorite recipes.

**b. API Integration Issues**

* **Rate Limits**: Ensuring the site does not exceed the API's call limits.
* **Data Consistency**: Regular updates to maintain synchronization with the API’s data changes.
* **Error Handling**: Robust error handling strategies for API downtime or data fetching errors.

**c. Security of Sensitive Information**

* Use authentication and authorization to protect user profiles and personal data.

**d. Functionality**

* Ingredient-based recipe search.
* Dietary filter application.
* Meal planning tools.
* Cooking skill tutorials and nutritional insights.

**e. User Flow**

* **Home Page**: User logs in/signs up.
* **Profile Setup**: User enters dietary preferences and available ingredients.
* **Recipe Discovery**: User browses, searches, or gets personalized recommendations.
* **Recipe Details**: User views recipes with detailed steps and nutritional information.
* **Meal Planning**: User plans meals for the week/month.

**f. Additional Features and Stretch Goals**

* **Social Integration**: Users can share recipes or their meal plans on social media.
* **Interactive Meal Planner**: Drag and drop recipes into a weekly/monthly planner.
* **Advanced Filtering**: Beyond dietary restrictions, include filters for meal type, occasion, seasonality, and more.
* **Mobile App Development**: Extend the platform with a mobile app for convenience.