

# Project Proposal: Recipe and Meal Planning App

## Project Summary

The **Recipe and Meal Planning App** is a user-friendly application that helps users browse recipes, filter based on dietary preferences, plan weekly meals, and generate grocery lists automatically. It includes a **Smart Pantry Tracker** that allows users to log ingredients they already have at home, helping them avoid duplicate purchases and highlighting recipes they can cook immediately.

The app aims to simplify meal organization and grocery planning while providing personalization through local storage and convenient features such as saving favorites and sharing recipes.

## 1. Layouts (Wireframe Proposal)

1.1. **Home Screen / Recipe List Screen** – Displays all available recipes in a scrollable list with images, ratings, and quick view options.

1.2. **Filter Section** – A top or side panel with options to filter by cuisine type, dietary preferences (vegetarian, vegan, gluten-free, etc.), and cooking time.

1.3. **Recipe Detail Screen** – Displays the recipe title, image, ingredients, preparation steps, cooking time, and nutrition facts, with buttons to save or share the recipe.

1.4. **Meal Planner Screen** – Weekly calendar layout where users can assign recipes to different days and meals (breakfast, lunch, dinner).

1.5. **Grocery List Screen** – Automatically generates an ingredient list from planned meals; allows users to check off purchased items.

1.6. **Favorites Screen** – Lists all recipes marked as favorites for easy access.

1.7. **Smart Pantry Screen (Bonus)** – Allows users to input and manage ingredients they currently have at home. Recipes update dynamically based on pantry items.

1.8. **Settings / Local Storage Screen** – Manage saved data, clear meal plans, or enable offline storage mode.

## 2. Functionality

### 2.1. Recipe List Screen

- Displays recipes with images, ratings, and preparation time.
- Filter by dietary type (vegetarian, vegan, gluten-free, etc.) or cuisine.
- Click on any recipe to view detailed instructions.

### 2.2. Recipe Detail Screen

- Displays all recipe details: ingredients, preparation steps, cooking time, and optional nutrition facts.
- Buttons for “Add to Meal Plan,” “Save to Favorites,” and “Share Recipe.”

### **2.3. Meal Planner Screen**

- Weekly grid with meal slots (Breakfast, Lunch, Dinner).
- Users can assign recipes to days of the week.
- Saved plans persist using local storage for offline use.

### **2.4. Grocery List Screen**

- Generates a complete grocery list based on the user's selected meal plan.
- Automatically removes items already listed in the Smart Pantry.
- Allows manual addition/removal and checkboxes for purchased items.

### **2.5. Favorites Screen**

- Displays all saved favorite recipes.
- Users can remove from favorites or access details directly.

### **2.6. Smart Pantry Tracker (Bonus Feature)**

- Users can add ingredients they currently have at home with quantity and optional expiration date.
- Recipes dynamically highlight as "Cook Now" if all required ingredients are available in the pantry.
- Grocery list automatically excludes pantry ingredients, helping reduce waste and unnecessary purchases.

### **2.7. Local Storage Integration**

- All favorites, meal plans, and pantry data are stored locally for offline accessibility.
- Automatic sync or save notifications confirm successful updates.

### **2.8. Share Recipe Feature**

- Allows users to share a recipe through social media, messaging apps, or as a link.

## **3. User Experience (Proposed Use Cases):**

### **3.1. Browsing Recipes**

- User opens the app → sees all recipes with images.
- Applies filters like "Vegetarian" or "Under 30 minutes."
- Selects a recipe → navigates to the Recipe Detail screen.

### **3.2. Planning Meals**

- On a recipe detail screen, user clicks "Add to Meal Plan."
- Chooses day and meal type → recipe appears in the weekly planner.

- Grocery list automatically updates to include ingredients from that recipe.

### 3.3. Managing Grocery List

- User opens grocery list → sees all required ingredients for the week.
- Items already in pantry are excluded.
- Can check off purchased ingredients or export the list.

### 3.4. Using the Smart Pantry

- User opens Pantry screen → adds items like “2 eggs,” “1L milk,” “200g rice.”
- Recipes that can be made with current ingredients are labeled “Cook Now.”
- As ingredients are used in meal planning, their quantities are adjusted or removed automatically.

### 3.5. Favorites and Sharing

- User saves a recipe as a favorite for future access.
- Can share favorite recipes with friends directly from the app.

### 3.6. Offline Mode

- When offline, previously saved data (recipes, pantry items, and meal plans) remain accessible via local storage.

## 4. Iterative Design – Test Cases and Improvement Approach

### 4.1. Test Case 1: Recipe Navigation

- Check if selecting a recipe opens the detail screen correctly.
- **Improvement:** Add a loading animation for smoother experience on slow connections.

### 4.2. Test Case 2: Filter Functionality

- Apply multiple filters simultaneously (e.g., Vegan + 30-minute meals).
- **Improvement:** Optimize filter accuracy and visual feedback for active filters.

### 4.3. Test Case 3: Add to Meal Plan

- Assign recipes to specific days; verify if the grocery list updates.
- **Improvement:** Add an undo option for removing or editing meal plan entries easily.

### 4.4. Test Case 4: Grocery List Generation

- Add multiple recipes; ensure ingredient duplicates are merged properly.
- **Improvement:** Categorize ingredients into groups (Produce, Dairy, Spices, etc.).

#### 4.5. Test Case 5: Favorites and Local Storage

- Save a favorite recipe, reload the app, and confirm persistence.
- **Improvement:** Provide visual confirmation (toast message) when a recipe is saved.

#### 4.6. Test Case 6: Share Recipe Option

- Test if sharing through messaging or social media works correctly.
- **Improvement:** Add “Copy Link” and “Share as Image” options for flexibility.

#### 4.7. Test Case 7: Smart Pantry Integration

- Add ingredients to pantry, then test if compatible recipes show “Cook Now.”
- Verify that grocery list excludes pantry items.
- **Improvement:** Add low-stock alerts or expiration date notifications for pantry items.

#### 4.8. Test Case 8: Mobile Responsiveness

- Test on mobile and tablet devices.  
**Improvement:** Adjust layout and text size for smaller screens.

#### 4.9. Test Case 9: Offline Access

- Turn off internet and ensure meal plans and recipes remain accessible.
- **Improvement:** Display an “Offline Mode” banner to inform users of limited functionality.

### 5. Bonus Features (Creativity Additions)

- **Smart Pantry Tracker:** Users can log available ingredients, and the app automatically highlights “Cook Now” recipes and removes those ingredients from grocery lists.
- **Smart Grocery Grouping:** Grocery list automatically categorizes ingredients (e.g., Produce, Dairy, Grains) for organized shopping.
- **Nutritional Breakdown (Optional):** Displays calorie and macronutrient information per recipe or meal plan.
- **Dark Mode:** Enhances accessibility and visual comfort for night-time use.

### 6. Milestone Breakdown

#### Milestone 1

- Design and build main UI: recipe list, filter section, and recipe detail screen.
- Implement navigation between recipe list and detail screens.

## **Milestone 2**


- Add meal planner feature, grocery list generation, and share recipe option.
- Integrate local storage for favorites, meal plans, and pantry.
- Implement Smart Pantry Tracker.
- Finalize UI polish, responsiveness, and user testing.

# Group Project Proposal

## Statement:

We, the undersigned members of the group, acknowledge that we understand the conditions outlined in this proposal. We are committed to actively participating in the implementation of the group project from start to finish. We understand that individual grades may vary based on our contributions and performance, and we agree to present an important phase of the work collectively.

## Signed Proposal:

Name: FN Prajeeth \_\_\_\_\_ LN Channa \_\_\_\_\_ [  ]  
Name: FN \_\_\_\_\_ LN \_\_\_\_\_ [ ]  
Name: FN \_\_\_\_\_ LN \_\_\_\_\_ [ ]

## Project Description:

This proposal delineates our strategy for crafting an engaging interactive website, emphasizing the utilization of Flutter to orchestrate captivating user experiences. We contend that this initiative resonates deeply with the core tenets of the Flutter framework, particularly its focus on seamless UI development, widget-based architecture, and expressive animations. By harnessing Flutter's robust capabilities, including its rich widget library, reactive framework, and hot reload feature, we aim to deliver an immersive digital platform that seamlessly integrates visually stunning designs with fluid user interactions. We are enthusiastic about the prospects of this endeavor and are eager to embark on this journey to materialize our vision.

## Note:

*You will submit the proposal in a PDF or Word Format*  
**NO LATE SUBMISSION WILL BE ALLOWED**