UE22CS352B - Object Oriented Analysis & Design

Mini Project Report

Title : The Nibble Notebook

Submitted by:

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Problem Statement:

In modern hectic life, people are finding it difficult to plan meals, prepare ingredients, and follow a healthy and balanced diet. This is compounded by the absence of a personalized web source that considers the users taste, pantry inventory, and ahead-of-time planning.

The purpose of this project is to develop an intelligent and centralized Recipe, Pantry, and Meal Planning Application that can allow users to:

- Search and store recipes by name, filter, and cuisine.
- Keep a personal store of ingredients to automatically adjust shopping lists.
- Customize individual meals and create 7-day meal plans.
- Receive cuisine-specific recommendations and coordinate their dietary flow effectively with built-in shopping assistance.

Key Features:

1. Recipe Management:

- View, create, edit, and delete recipes.
- View detailed recipe pages.
- Filter and search recipes by name, ingredient, or selected cuisine.

2. Pantry System:

- Maintain a list of ingredients already available (User Pantry).
- Automatically adjust the shopping list by subtracting pantry items from recipe needs.

3. Shopping List Generation:

- Generate a dynamic shopping list based on selected recipes and existing pantry ingredients.
- Update the list as users add/remove recipes or update pantry items.

4. Meal vs Meal Plan:

- Meal Management: Choose meals (breakfast, lunch, dinner, snacks) from recipes.
- Meal Planning: Plan meals across 7 days, selecting recipes for each day and meal slot.
- Add/remove meals to/from the meal plan with ease.
- View and update current 7-day meal plans.

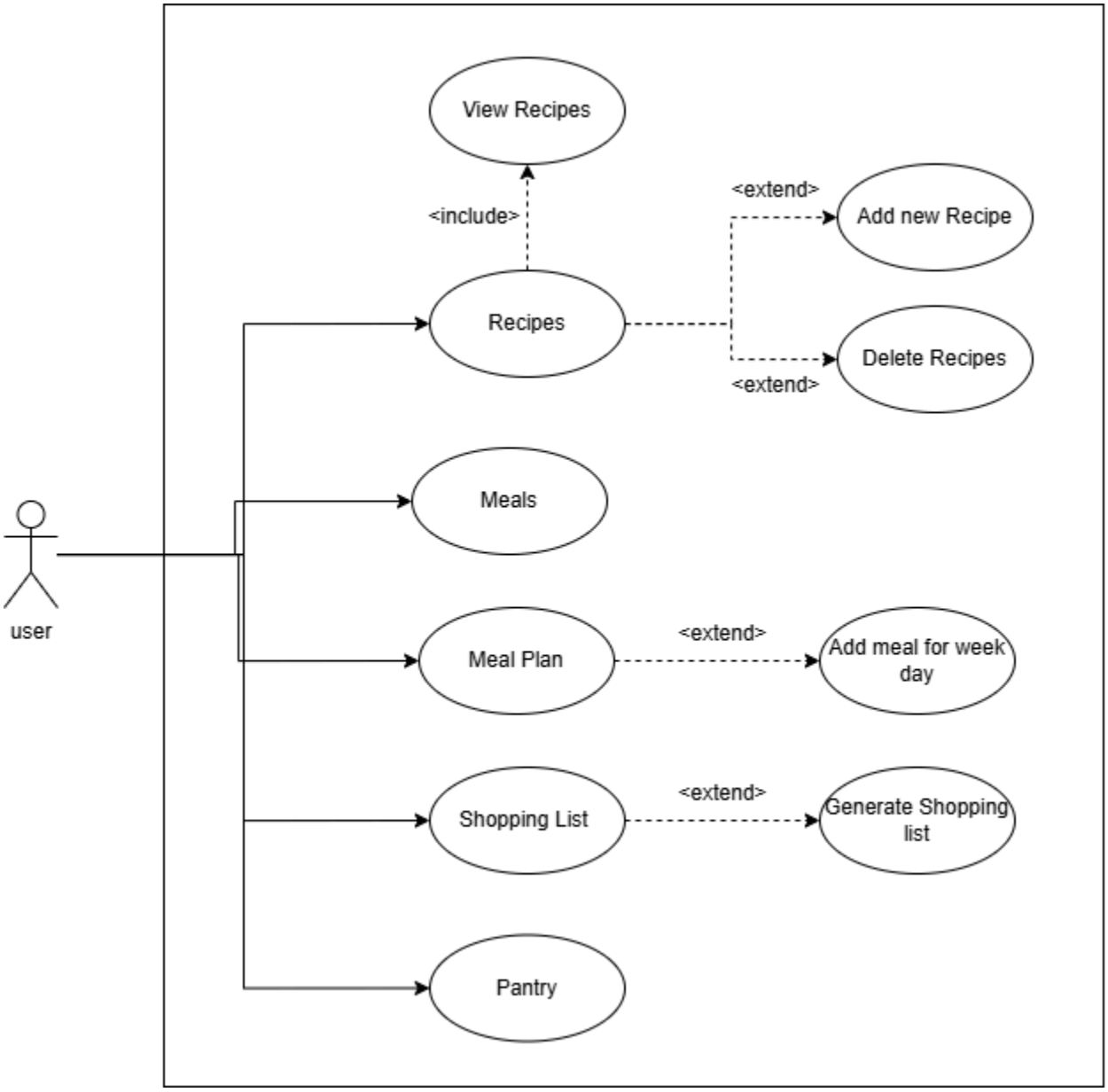
5. User Navigation Flow:

- Smooth navigation from homepage to recipes, search, pantry, shopping list, and meal planning.
- Support for intuitive user actions (e.g., search by filter/cuisine, add meal, generate shopping list)

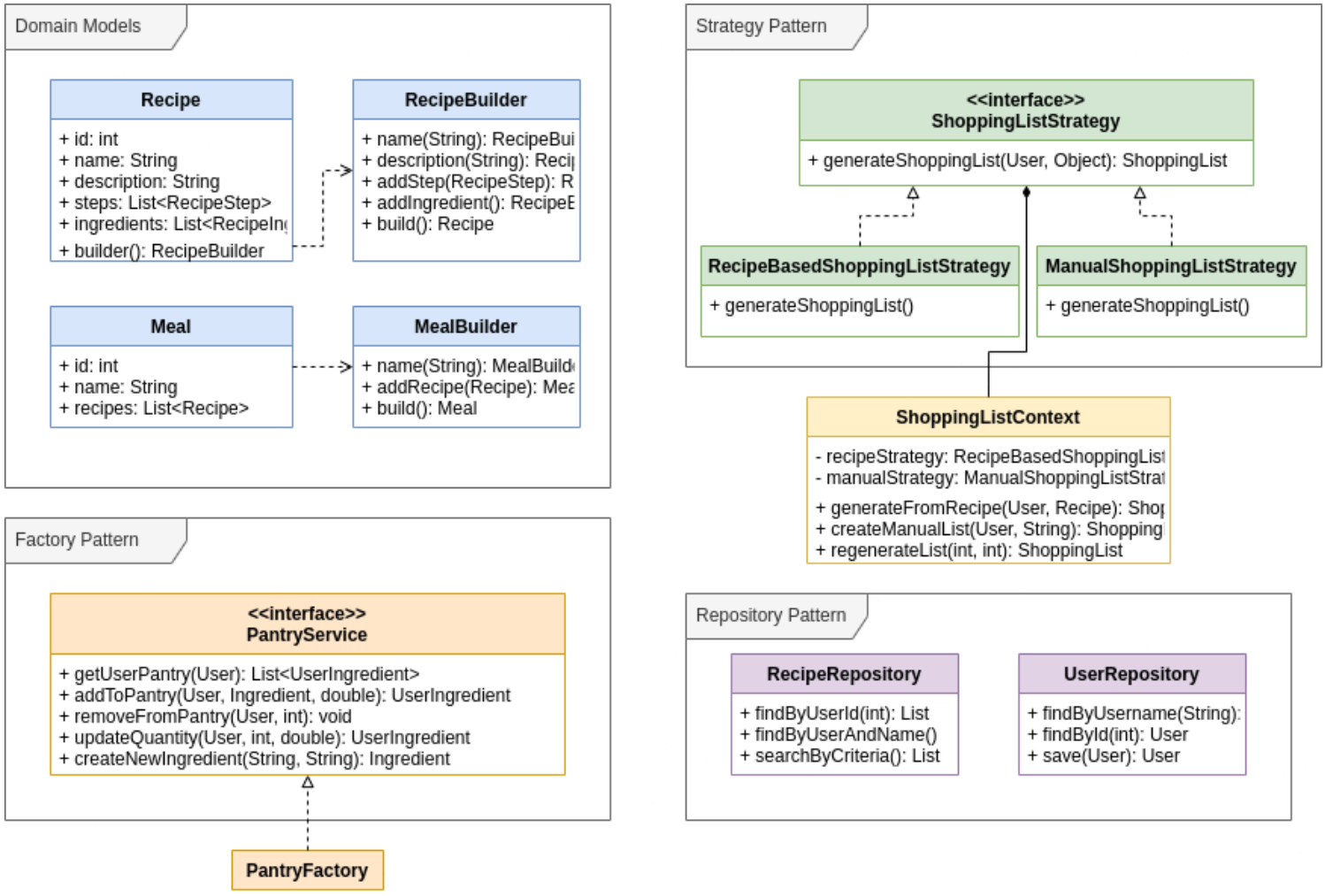
Models:

- **Ingredients.java**
- **Meal.java**
- **MealBuilder.java**
- **MealPlan.java**
- **Recipe.java**
- **RecipeBuilder.java**
- **RecipeIngredient.java**
- **RecipeStep.java**
- **ShoppingItem.java**
- **ShoppingList.java**
- **ShoppingListItem.java**
- **User.java**
- **UserIngredient.java**

Use Case Diagram:

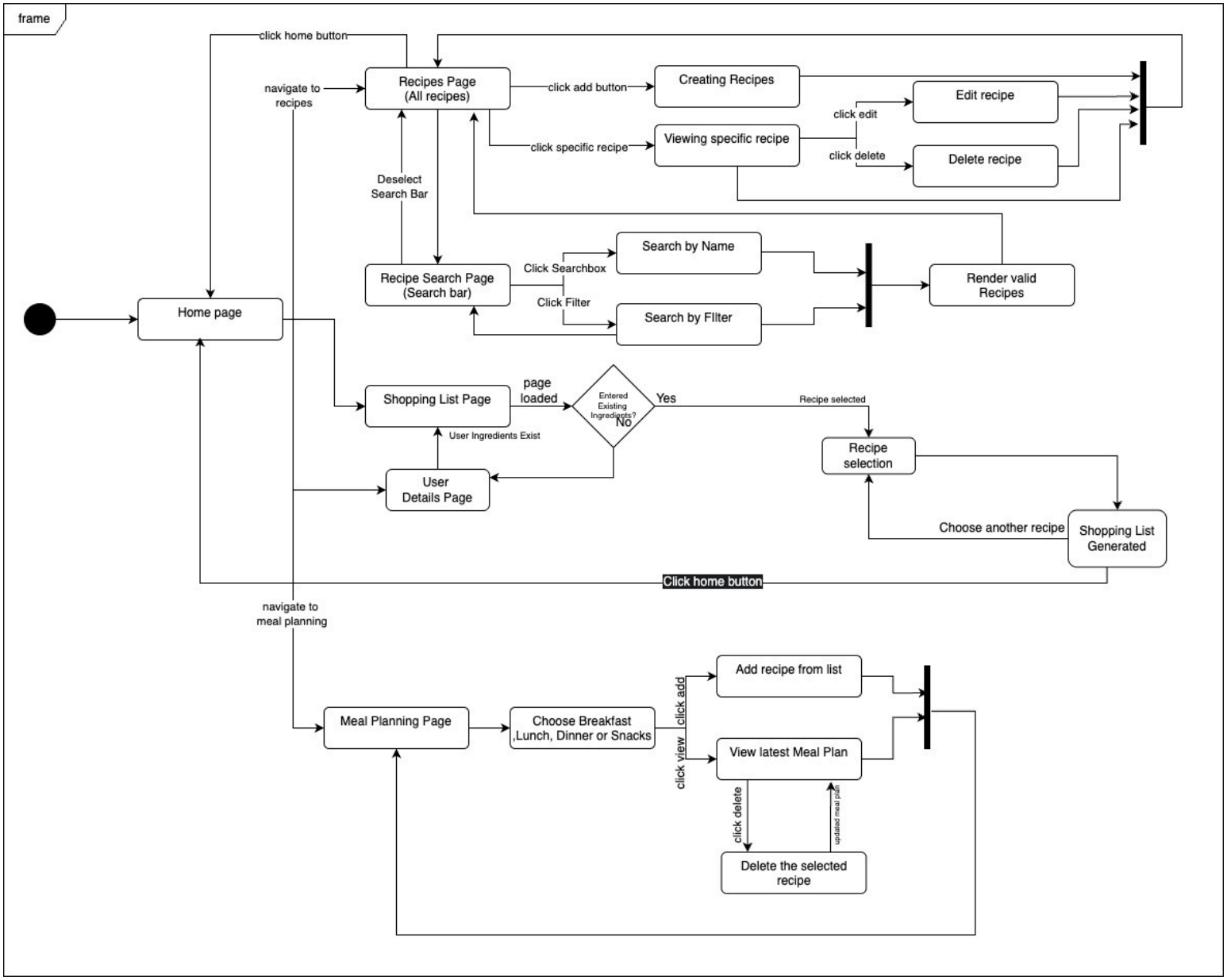


Class Diagram:

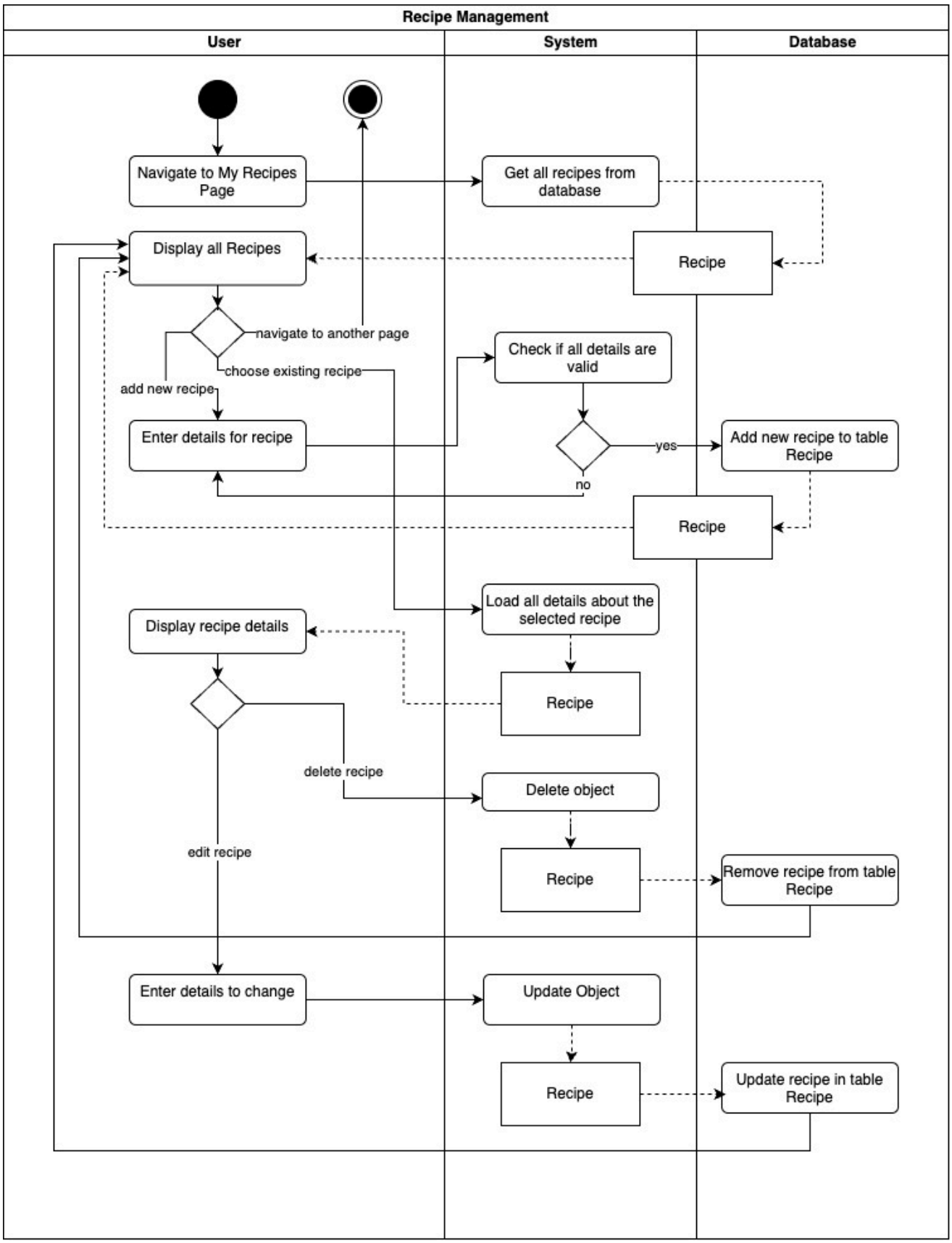


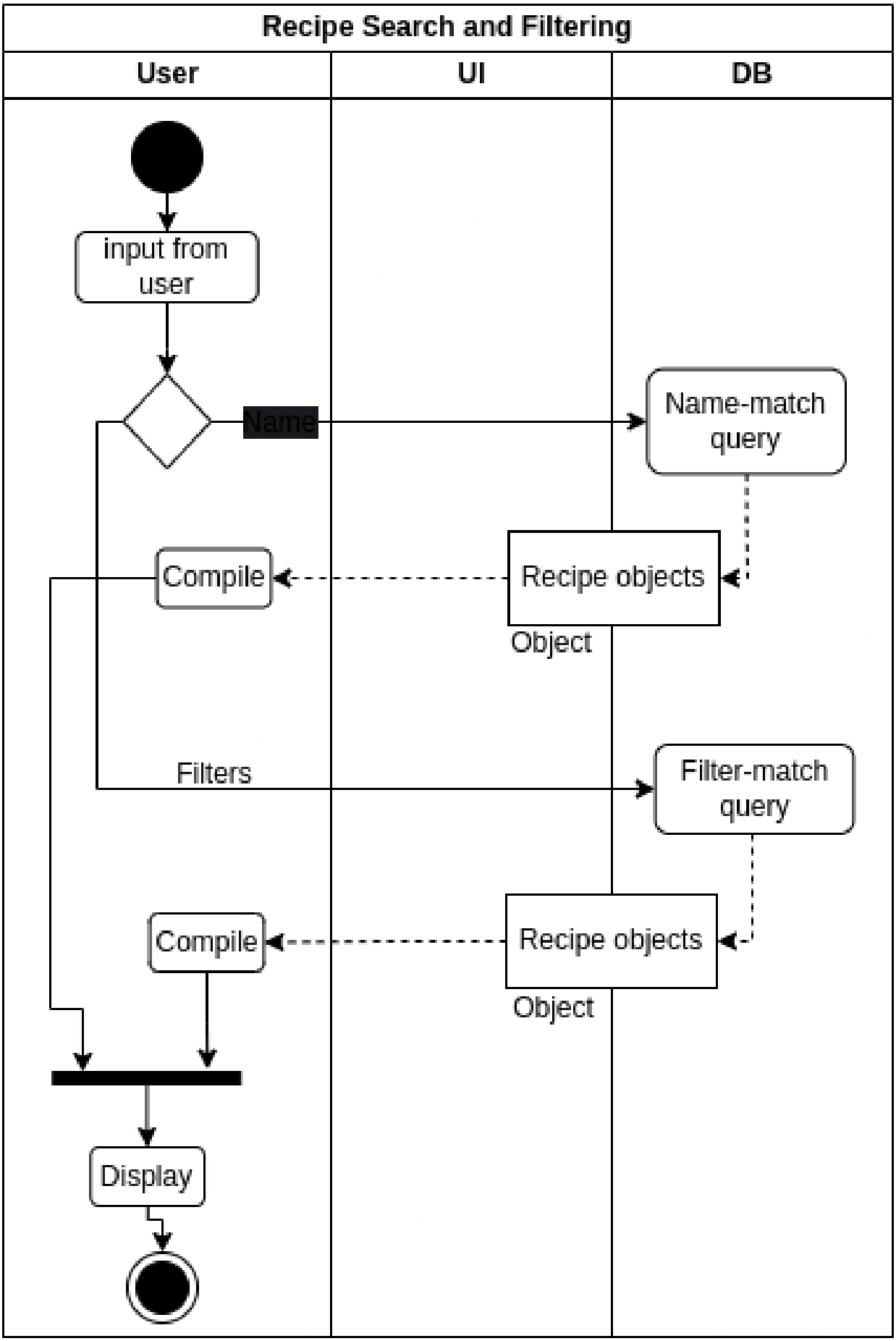
Builder Pattern **Strategy Pattern** **Factory Pattern** **Repository Pattern** **Context Pattern**

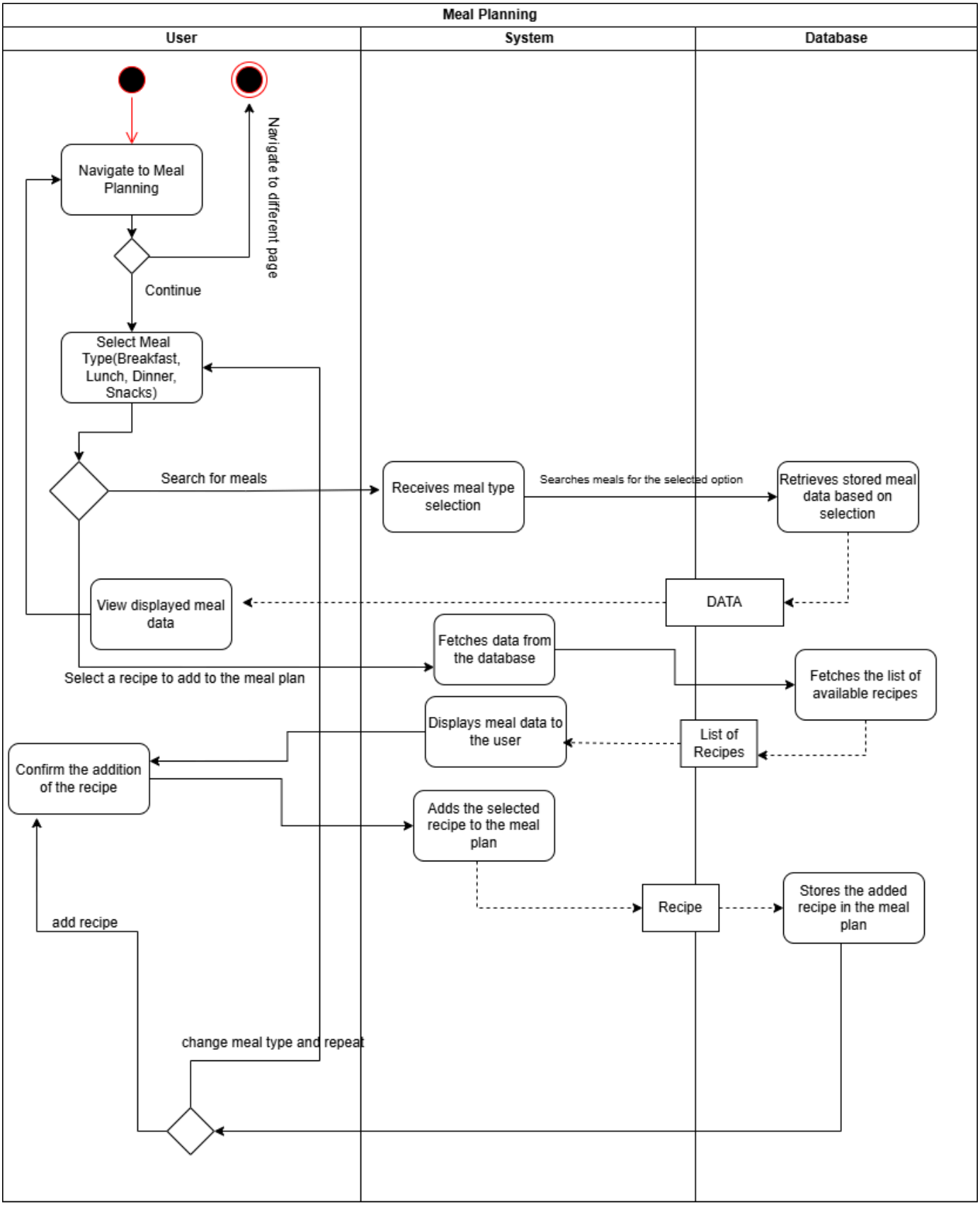
State Diagram:

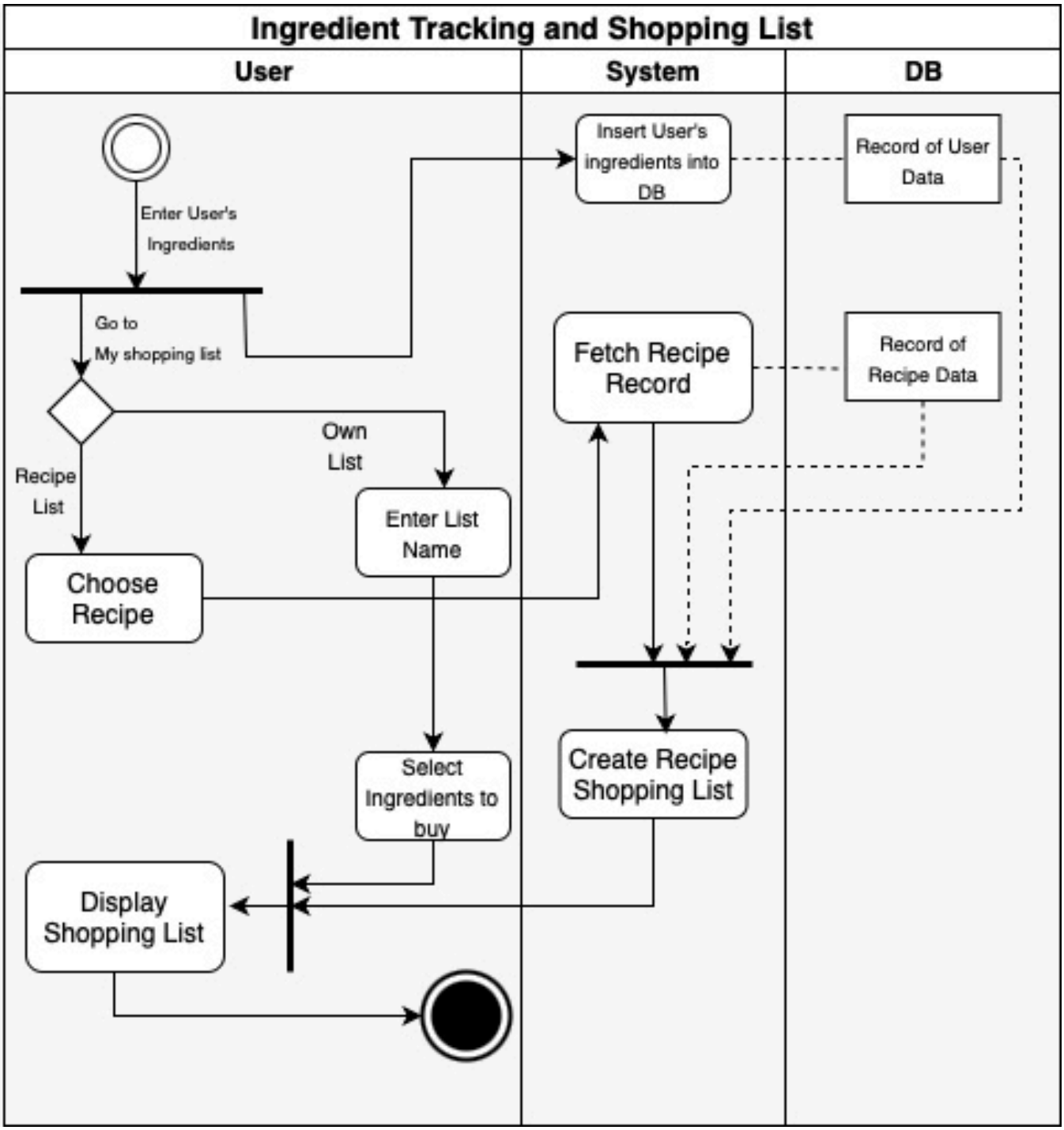


Activity Diagrams:




Recipe Search and Filtering
User
UI
DB
input from user
Name
Name-match query
Compile
Recipe objects
Object
Filters
Filter-match query
Compile
Recipe objects
Object
Display


Meal Planning
User
System
Database
Navigate to Meal Planning
Navigate to different page
Continue
Select Meal Type(Breakfast, Lunch, Dinner, Snacks)
Search for meals
Receives meal type selection
Searches meals for the selected option
Retrieves stored meal data based on selection
DATA
View displayed meal data
Fetches data from the database
Fetches the list of available recipes
Select a recipe to add to the meal plan
Displays meal data to the user
List of Recipes
Confirm the addition of the recipe
Adds the selected recipe to the meal plan
Recipe
Stores the added recipe in the meal plan
add recipe
change meal type and repeat


Ingredient Tracking and Shopping List
User
System
DB
Enter User's Ingredients
Insert User's ingredients into DB
Record of User Data
Go to My shopping list
Fetch Recipe Record
Record of Recipe Data
Own List
Recipe List
Enter List Name
Choose Recipe
Select Ingredients to buy
Create Recipe Shopping List
Display Shopping List

1. Major Use case

a. Recipe Management
b. Meal Creation
c. Meal Planning
d. Shopping List Generator

2. Minor Use case

a. Recipe Search and Filtering
b. Recipe Blog
c. View Meals
d. Tracking of Ingredients

Architecture Patterns, Design Principles, and Design Patterns:

Architecture Patterns

Model – View – Controller Pattern (MVC)

Design Principles

Single Responsibility

Design Patterns

- Builder Pattern
- Factory Pattern
- Strategy Pattern

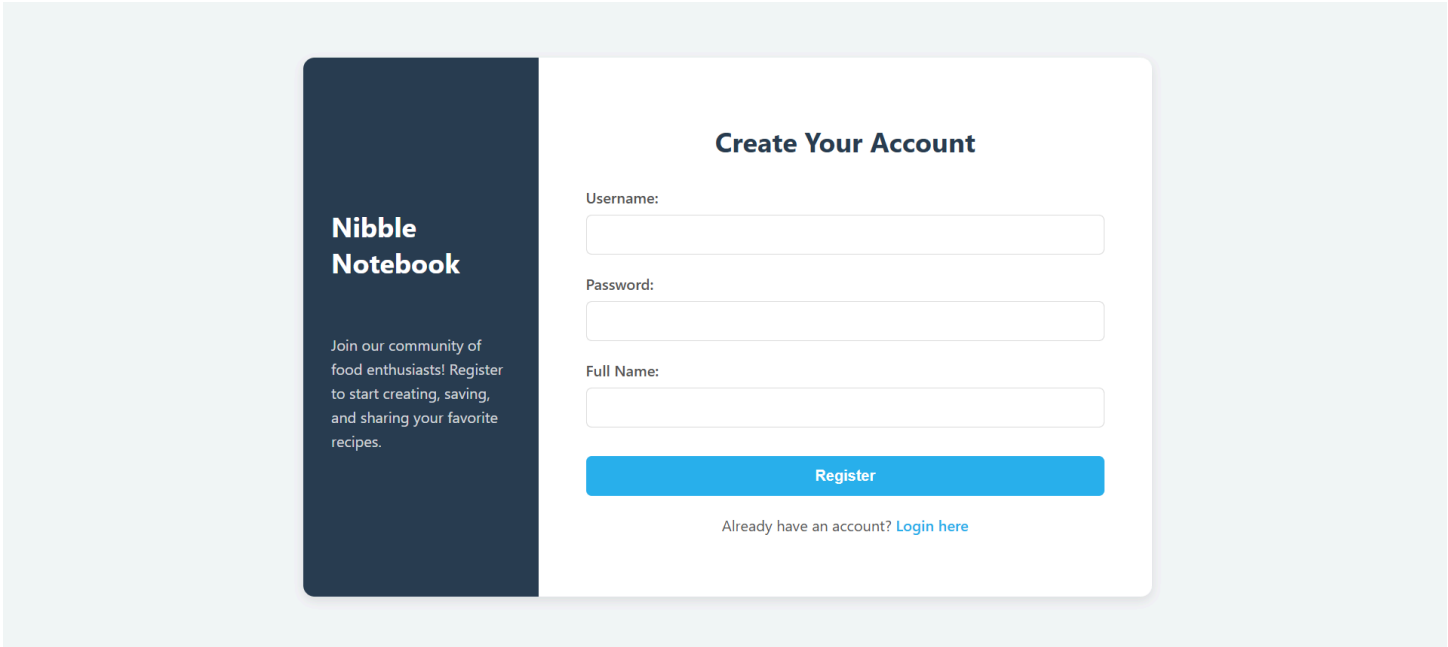
Github link to the Codebase:

https://github.com/NB1223/NibbleNotebook

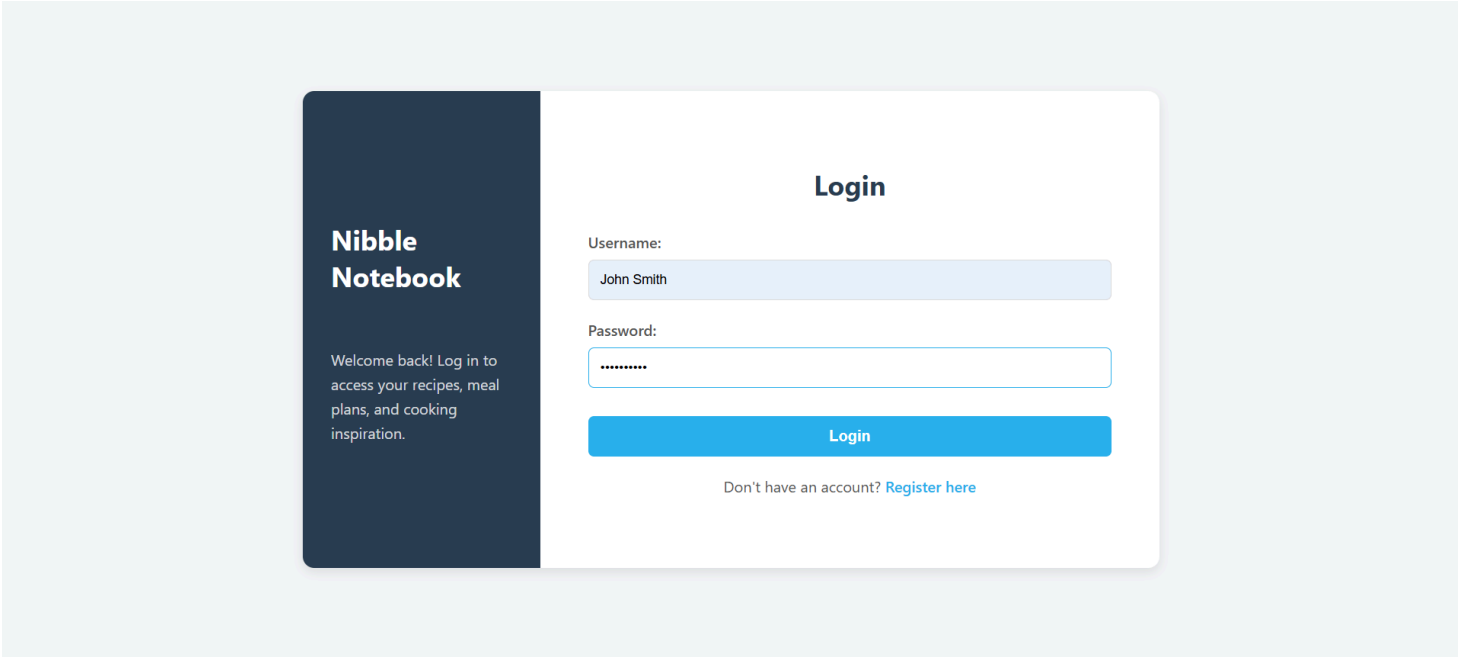
Screenshots

UI:

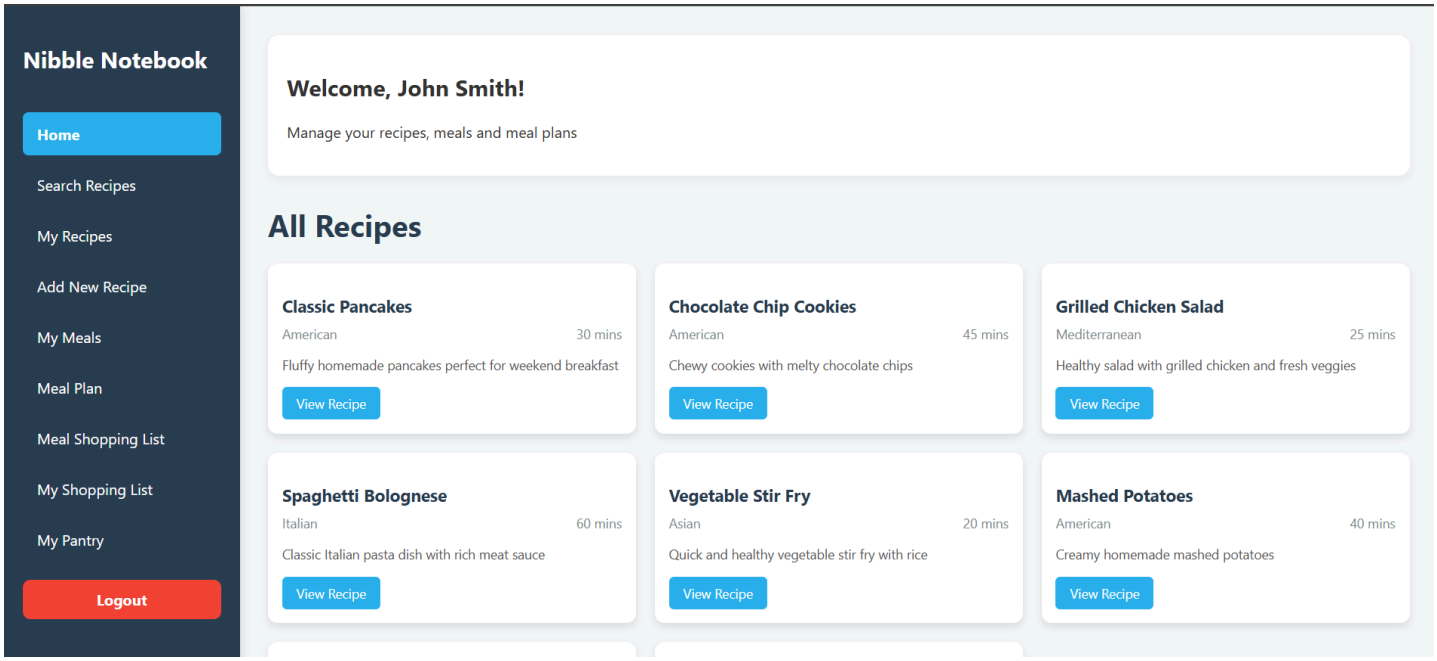
Register



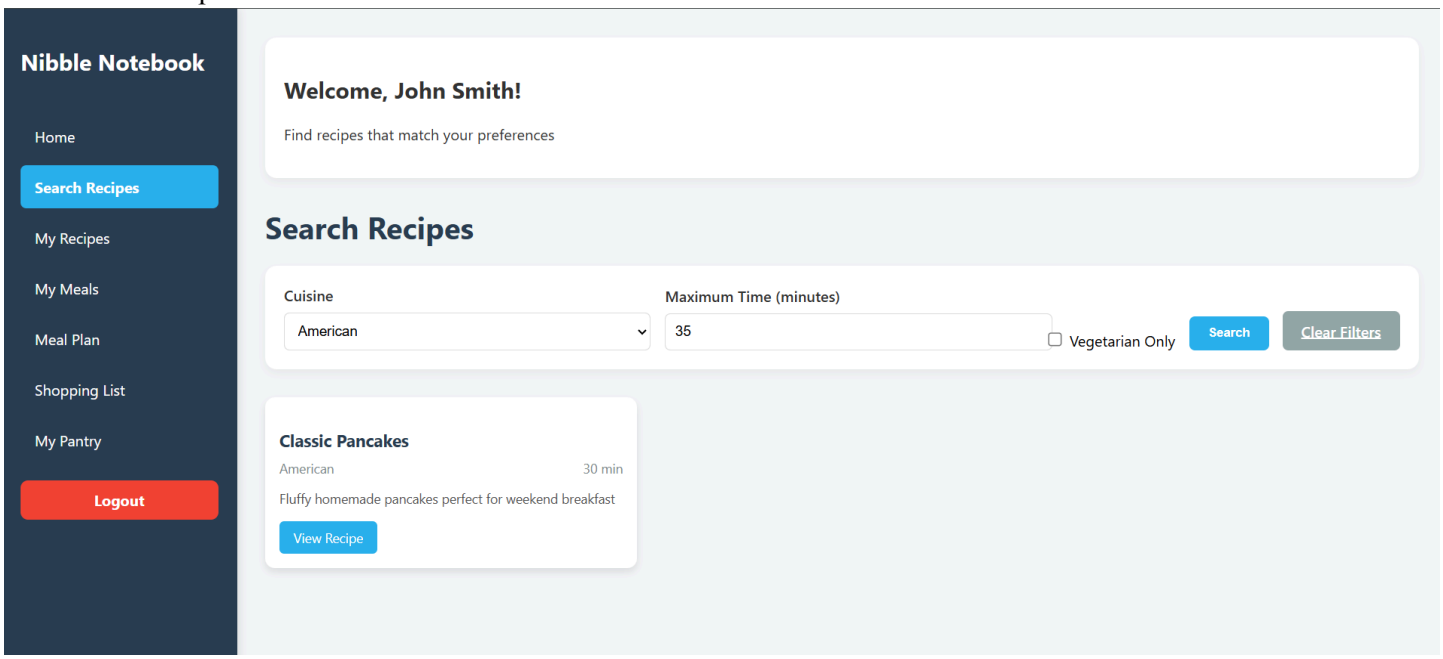
Login



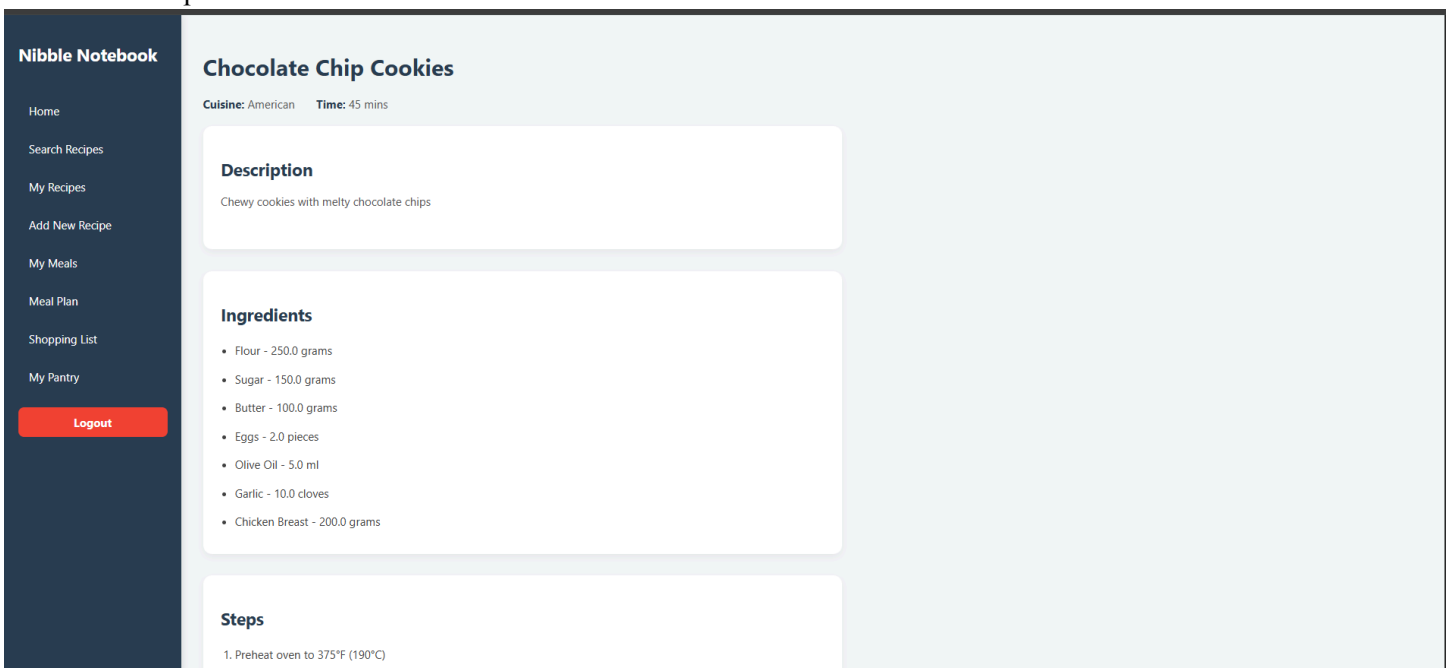
Home



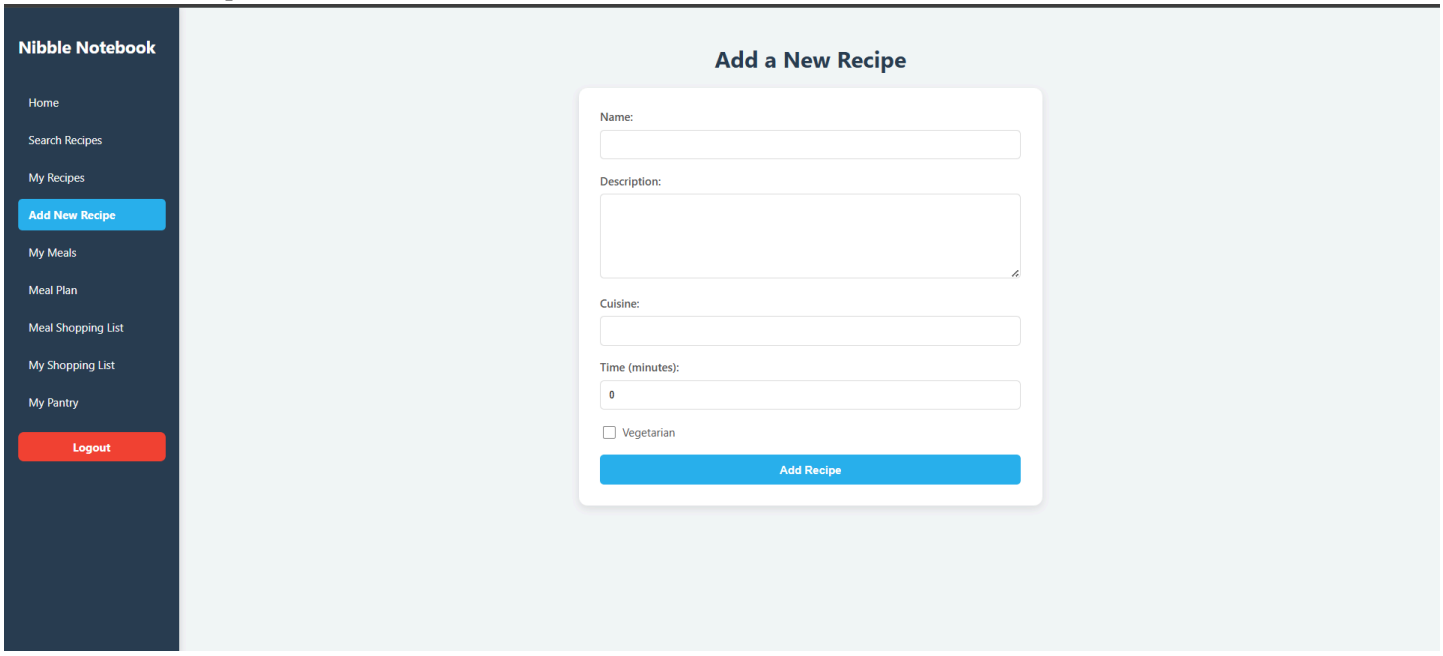
Search Recipe



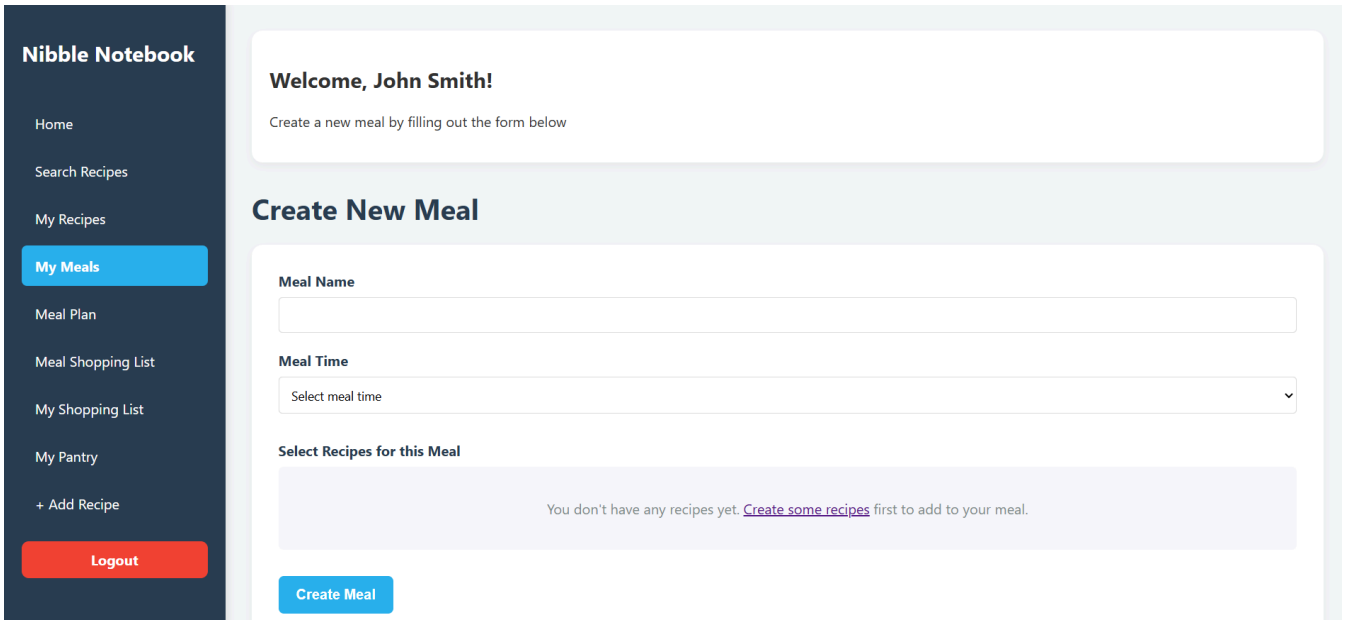
View Recipe



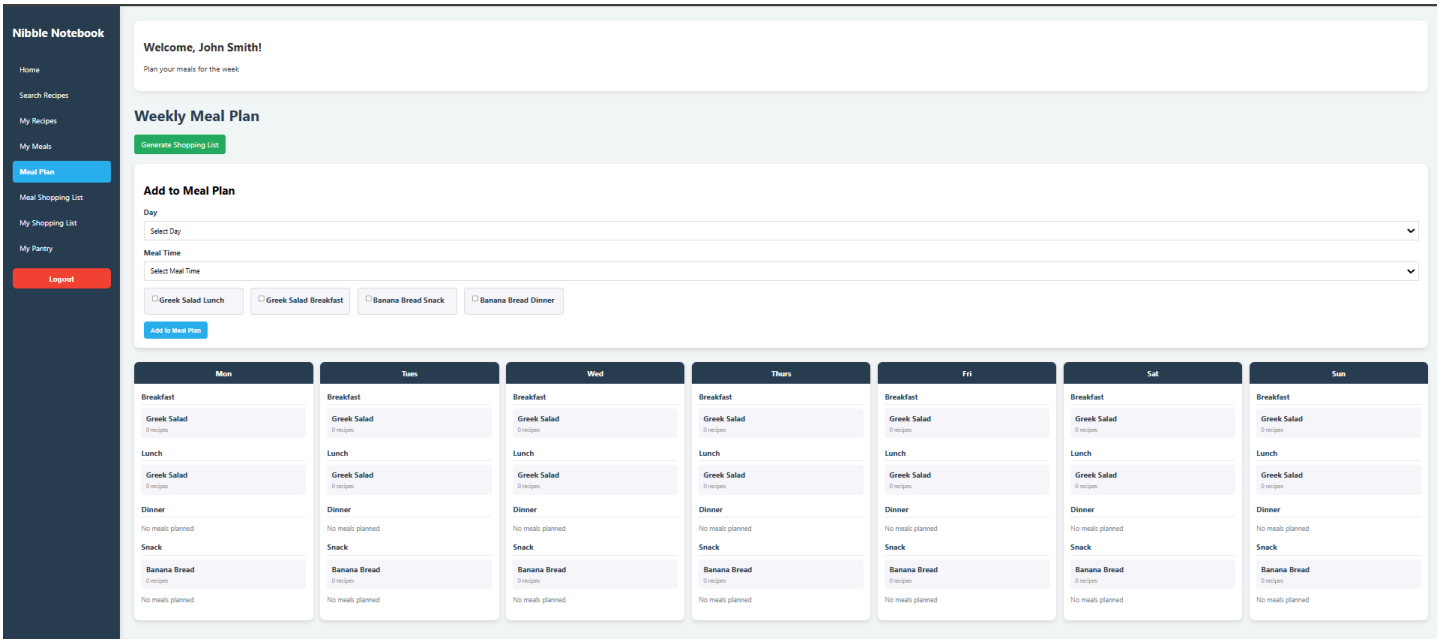
Add new Recipe



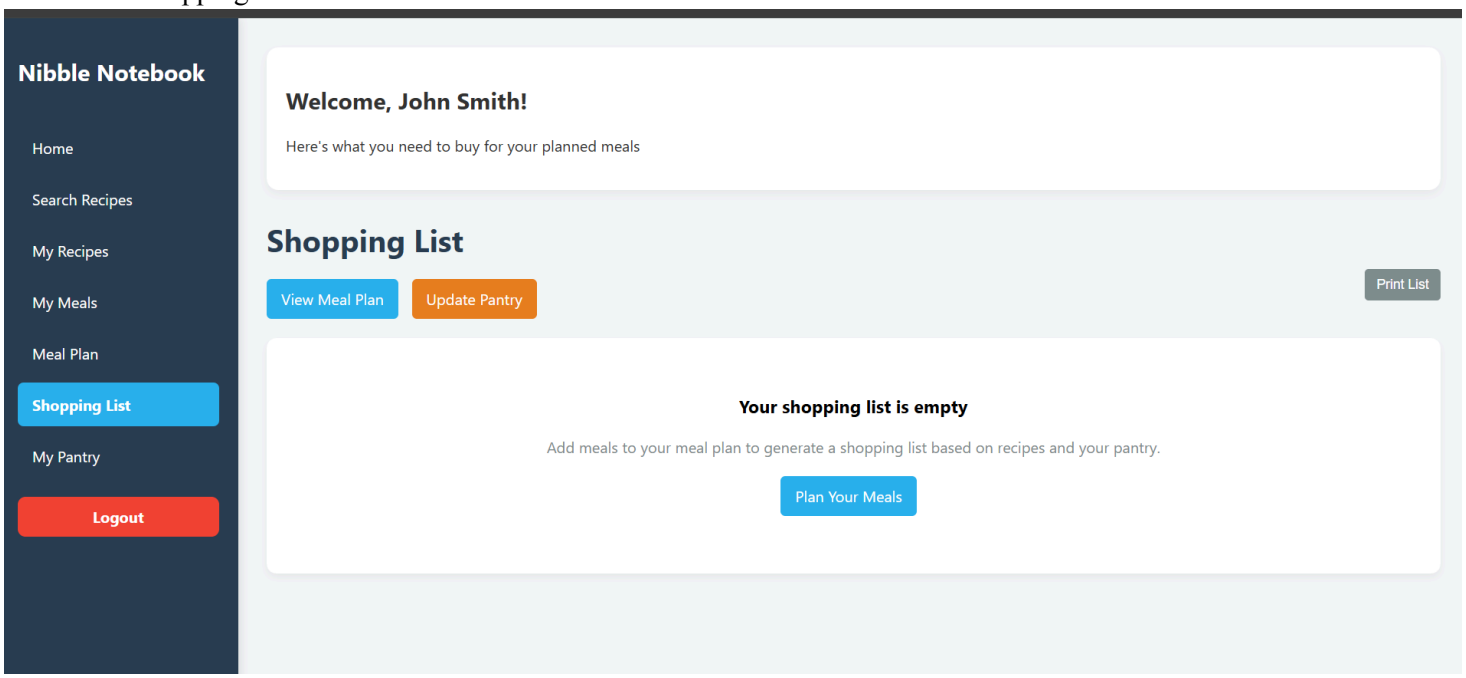
Meal



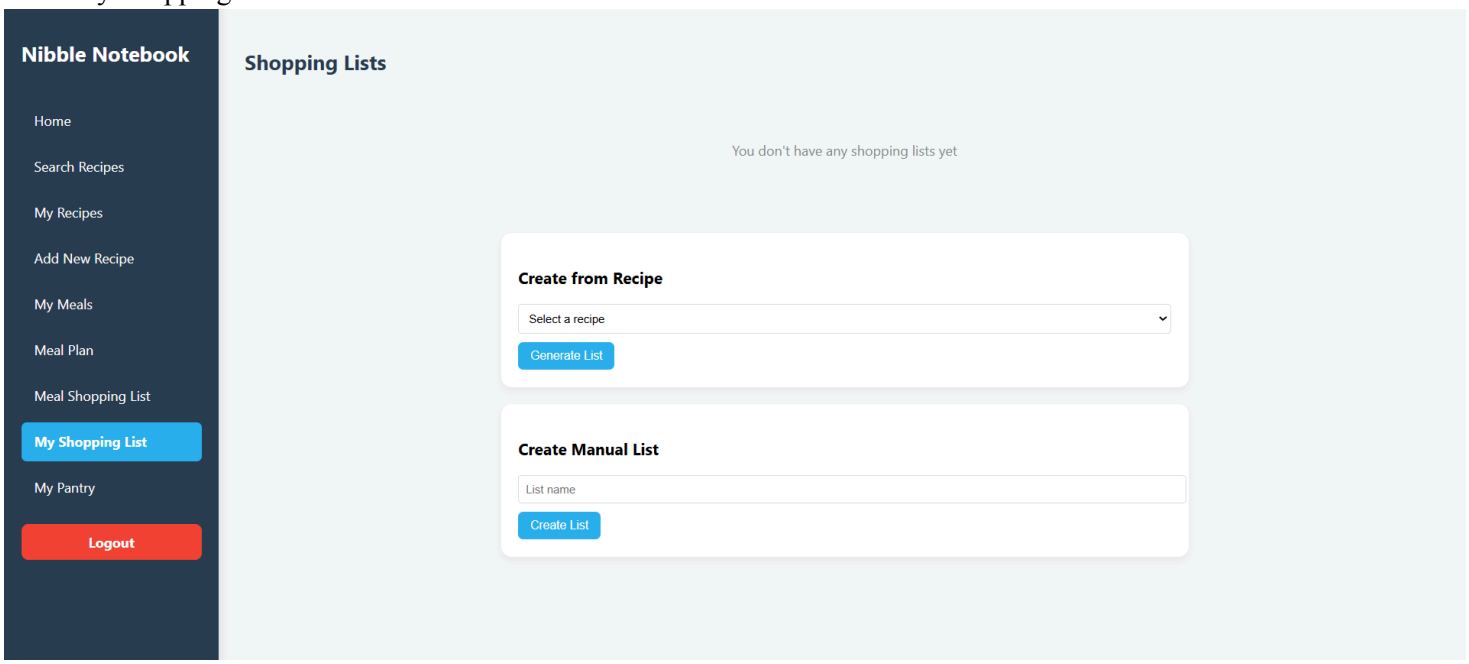
Meal Plan



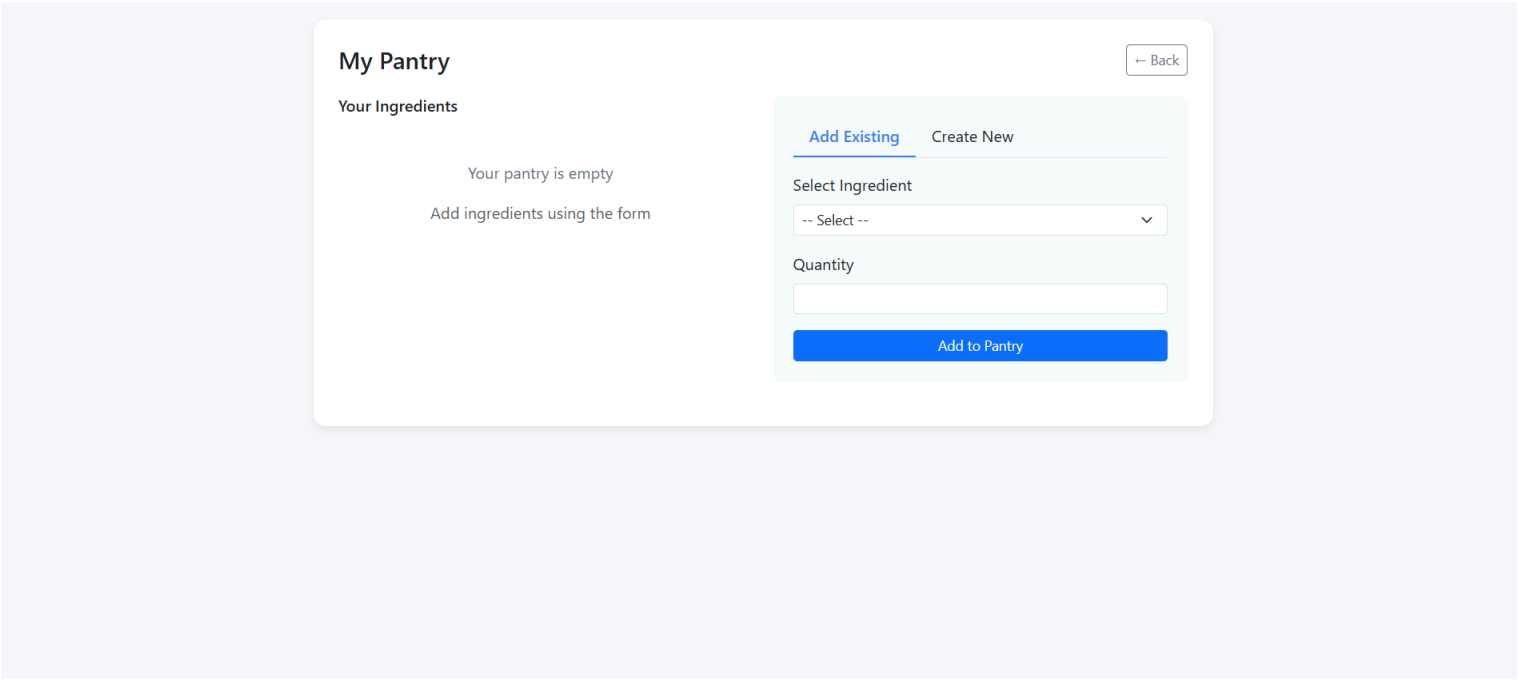
Meal Shopping List



My Shopping List



Pantry



Individual contributions of the team members:

Name	**Module worked on**
Neha Bhaskar	Shopping List, Pantry
Nikitha Roj	Recipe
Nishta Nahar	Meal, Meal Plan
Prajwal M	Meal, Meal Plan