CENG310 – Human Computer Interaction
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PROJECT STAGE 2

CookEase

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1. Introduction

CookEase simplifies meal planning by using artificial intelligence to generate personalized recipe suggestions based on available ingredients, user preferences, dietary restrictions, and past choices. It also features weekly meal planning, a favorites section, and a rating system to evaluate recipes on taste, healthiness, and difficulty. By continuously learning from user feedback, the app aims to make meal planning smarter and more efficient.

2. Persona & User Tasks

Personas

User Category 1: Busy Professionals

Persona 1: Göktürk

Göktürk is a 35-year-old marketing manager with a demanding work schedule, leaving him with little time for meal preparation. He often resorts to ordering food or cooking quick, simple meals at home. On weekends, he enjoys experimenting with new recipes when he has more time. While Ahmet tries to maintain a healthy lifestyle, he struggles to do so consistently due to his hectic work life. He seeks practical, healthy, and fast meal options that require minimal preparation time. He needs an app that provides quick recipes based on the ingredients he already has and helps him generate shopping lists for the week.

User Category 2: Health-Conscious Individuals

Persona 2: Selin

Selin, a 28-year-old fitness trainer, is highly health-conscious and follows a strict diet, typically vegetarian and gluten-free. She enjoys trying new healthy recipes but sometimes struggles to find options that align with her dietary restrictions. Selin seeks variety in her meals while sticking to her nutritional goals. She needs an app that can suggest meals based on her dietary preferences, provide nutritional information, and help her plan her weekly meals. The app should also allow her to customize recipes and track the meals she consumes.

User Category 3: Students

Persona 3: Ahmet

Ahmet is a 21-year-old computer science student living alone in a dorm. With a tight budget and limited time, he often opts for quick, affordable meals but wants to improve his eating habits by making healthier choices. He struggles with meal planning and often finds it challenging to decide what to cook. Ahmet needs an app that provides budget-friendly, easy-to-make meal suggestions

based on the ingredients he already has. Additionally, he would benefit from a feature that helps him plan meals for the week without exceeding his budget.

User Category 4: Home Cooks/Food Enthusiasts

Persona 4: Merve

Merve is a 40-year-old graphic designer who enjoys cooking and trying new recipes. She spends a lot of time experimenting in the kitchen, but sometimes she struggles with meal planning or finding inspiration for new dishes. Merve needs an app that offers creative recipe suggestions, helps her plan meals for the week, and generates shopping lists based on the recipes she selects. The app should also allow her to save her favorite recipes and easily organize them for future use.

User Category 5: Families

Persona 5: Meryem & Olcay

Meryem (38) and Olcay (40) are parents of two children. They want to prepare healthy, quick meals during the week, but on weekends, they enjoy cooking as a family. They struggle to plan meals that cater to each family member's dietary preferences while maintaining a balanced, healthy diet. They need an app that suggests family-friendly recipes, helps them plan meals for the week, and generates shopping lists for the ingredients needed. The app should allow them to adjust meal plans based on the varying preferences and needs of their family members.

User Categories and Their Tasks

1. Busy Professionals

Tasks:

- **Account/Profile Management**:
    - CRUD (Create, Read, Update, Delete) an account.
    - Log in and log out.
    - Update personal profile (e.g., preferences for quick meals).
    - Set dietary restrictions (e.g., low-calorie, low-carb).
- **Meal Planning**:
    - View personalized meal suggestions based on available ingredients.
    - Filter recipes by time constraints (e.g., under 30 minutes).
    - Save favorite recipes for future use.
    - Create a weekly meal plan based on quick meal preferences.
    - Generate a shopping list based on the weekly plan.
- **Recipe Recommendations**:

- Browse through recommended recipes based on past choices.
- Rate recipes based on taste, healthiness, and preparation time.
- Share favorite recipes with colleagues or friends.

2. Health-Conscious Individuals

Tasks:

- **Account/Profile Management**:
  - CRUD an account with dietary preferences (e.g., vegetarian, gluten-free).
  - Set specific diet-related preferences (e.g., high-protein, low-carb).
- **Meal Planning and Recipe Discovery**:
  - Search for healthy recipes based on specific dietary needs (e.g., gluten-free).
  - View nutritional information (calories, macronutrients) for recipes.
  - Save and categorize healthy recipes for easy access.
  - Create and customize weekly meal plans based on health goals.
- **Shopping List and Tracking**:
  - Generate shopping lists based on selected healthy meals.
  - Track the nutritional value of meals throughout the week.
- **Community Engagement**:
  - Share recipes and meal plans with others in health-focused communities.
  - Read reviews and ratings for recipes to ensure suitability for their diet.

3. Students

Tasks:

- **Account/Profile Management**:
  - CRUD an account with preferences (e.g., quick meals, budget-conscious).
  - Set dietary restrictions if any (e.g., vegetarian, low-budget).
- **Quick Meal Suggestions**:
  - Enter available ingredients to get quick meal suggestions.
  - Filter recipes based on preparation time and difficulty level.
  - Save quick and easy recipes for later use.
- **Budget-Friendly Meal Planning**:
  - Create a weekly meal plan with an emphasis on affordability.
  - Generate a shopping list that is budget-friendly and efficient.
- **Recipe Rating and Sharing**:
  - Rate recipes on ease of preparation and cost-effectiveness.
  - Share budget-friendly recipes with friends or on social media.

4. Home Cooks/Food Enthusiasts

Tasks:

- **Account/Profile Management**:

    - CRUD an account with food preferences and culinary interests.
    - Set preferences for types of cuisines (e.g., Italian, Mediterranean).
- **Recipe Exploration**:
    - Discover new and creative recipes based on preferences and ingredient availability.
    - Save, share, and organize favorite recipes.
    - Create custom recipes using existing ones as a base.
- **Meal Planning**:
    - Plan meals for the week with diverse and creative recipes.
    - Adjust meal plans based on available ingredients or specific cravings.
    - Generate a shopping list based on the weekly plan.
- **Recipe Rating and Review**:
    - Rate recipes based on taste, ease, and presentation.
    - Share feedback and modify recipes based on personal preferences.

5. Families

Tasks:

- **Account/Profile Management**:
    - CRUD an account for multiple users (e.g., parents and children with dietary needs).
    - Set family-wide preferences (e.g., meal preferences for kids, gluten-free, vegetarian).
- **Family Meal Planning**:
    - Create a weekly meal plan that accommodates different dietary needs.
    - Generate shopping lists based on the meal plan, accounting for family size.
    - Adjust the meal plan as needed for different family members.
- **Recipe Suggestions**:
    - Browse family-friendly recipes that are easy to prepare and meet various dietary restrictions.
    - Save recipes that are particularly well-liked by family members.
- **Meal Customization and Sharing**:
    - Modify meal recipes for family-specific needs (e.g., less spice for children).
    - Share successful meals with other family members or extended family.

3. Task Analysis

Risky Task 1: “Create a Weekly Meal Plan”

Goal (Aim of the Task):
Enable the user to quickly and efficiently create a weekly meal plan tailored to their preferences, dietary restrictions, and available ingredients or budget constraints.

Textual HTA:

0. “Create a Weekly Meal Plan”
1. Log in (precondition).
2. From the main menu, select “Weekly Plan.”
3. Set preferences:
   3.1. Choose the number of meals per day (breakfast, lunch, dinner, snacks).
   3.2. Indicate dietary restrictions (vegetarian, low-carb, gluten-free, etc.).
   3.3. Choose how many days to plan for (e.g., 7 days).
   3.4. If desired, enable a quick-prep meals filter.
   3.5. Enter a daily or weekly budget limit, if applicable.
4. The system generates recommended meals based on the filters and user history.
5. The user reviews and customizes the plan:
   5.1. Select or replace suggested recipes for each meal.
   5.2. Optionally pick favorites saved from earlier.
   5.3. Specify the number of people (e.g., solo vs. family).
6. Confirm the final weekly plan.
7. Generate a shopping list automatically (optional step).
8. Save or share the plan (optional).

Plan 0: Do (1), then (2) and (3) in order. After the system suggestions in (4), proceed with (5). Then (6) to confirm, (7) for shopping list, and optionally (8) to share.
Plan 3: Steps (3.1) → (3.2) → (3.3) → (3.4) → (3.5) in sequence.
Plan 5: Steps (5.1) and (5.2) can be done in any order, followed by (5.3).

Risky Task 2: “Discover and Filter Recipes”

Goal (Aim of the Task):
Allow the user to efficiently discover relevant recipes and apply multiple filters (time, difficulty, dietary needs, calorie range, etc.) to find suitable options.

Textual HTA:

0. “Discover and Filter Recipes”
1. Open “Recipe Discovery” or “Search” in the application.
2. (Optional) Enter a keyword in the search bar or leave it blank to list all recipes.
3. Apply filters:
   3.1. Difficulty level (easy, medium, hard).
   3.2. Preparation time (15, 30, or 60 minutes).
   3.3. Diet type (vegan, vegetarian, gluten-free, etc.).
   3.4. Ingredients on hand (e.g., filter out recipes missing key items).
   3.5. Calories or health rating range (optional).
4. Review the list of filtered recipes:
   4.1. View recipe details (ingredients, steps).
   4.2. Adjust portion size if needed.
   4.3. See user ratings or reviews.
5. Optionally favorite a recipe or add it to the weekly plan.

Plan 0: (1) → (2) → (3) → (4) → (5).
Plan 3: Steps (3.1)–(3.5) can be performed in any order; the system updates results accordingly.

Risky Task 3: "Rate and Review a Recipe"

Goal (Aim of the Task):
After trying a recipe, the user wants to give feedback via rating (taste, healthfulness, difficulty) and optionally add a comment with a photo.

Textual HTA:

0. "Rate and Review a Recipe"
1. Access the recipe page you have tried.
2. Click "Rate / Add Comment."
3. Enter ratings:
   3.1. Taste rating (1–5).
   3.2. Healthfulness rating (1–5).
   3.3. Difficulty rating (1–5).
4. Write a comment:
   4.1. Enter comment text.
   4.2. Optionally add a photo.
5. Click "Submit."
6. The system saves the user's rating and updates the overall score.

Plan 0: (1) then (2), followed by (3) and (4) in any order, then (5) and (6).
Plan 3: Steps (3.1) → (3.2) → (3.3) in sequence or as the user prefers.
Plan 4: (4.1) is required, (4.2) is optional, then proceed to completion.

Risky Task 4: "Family Profile Meal Planning with Multiple Dietary Needs"

Goal (Aim of the Task):
A family profile with different dietary needs (e.g., one vegetarian, one gluten-free, kids who dislike certain vegetables) needs to create a shared meal plan that accommodates everyone.

Textual HTA:

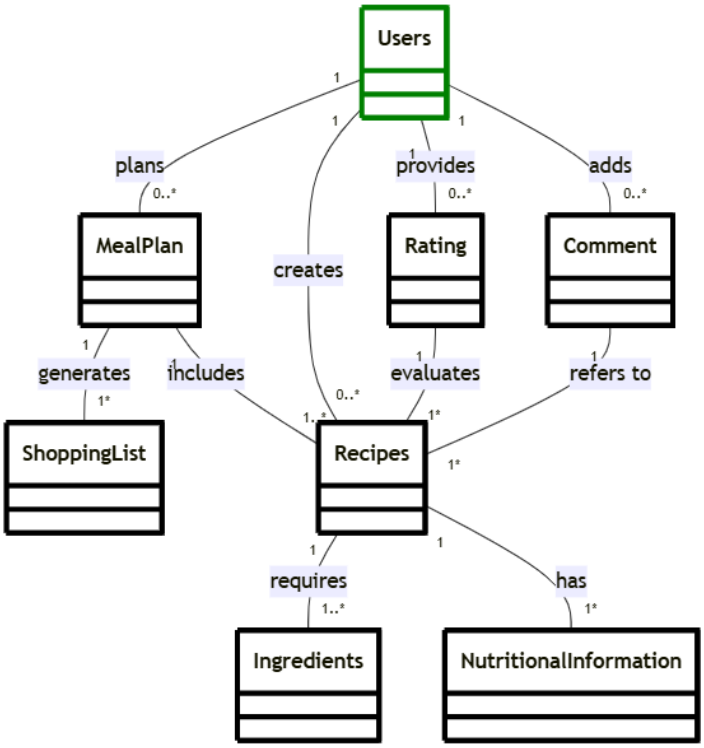
0. "Family Profile Meal Planning with Multiple Dietary Needs"
1. Log in to the family account (precondition).
2. Go to "Family Profile," ensuring each member's dietary info is up to date.
3. Click "Create Weekly Plan."
4. Adjust filters for each family member:
   4.1. Dietary restrictions/allergies per member (e.g., lactose intolerance).
   4.2. Dislike lists (e.g., kids dislike broccoli).
5. The system proposes multiple versions for each meal.
6. The user assigns the appropriate version to each family member.
7. Generate a combined shopping list (the system merges shared ingredients).
8. Save or finalize the plan.

Plan 0: After (1), do (2), (3), (4) in order. Then the system suggestions appear in (5), user customizes in (6), and optionally (7) and (8).
Plan 4: Steps (4.1) and (4.2) may be done in any order, or on the same screen.

Simple Task1 : Add a Recipe to Favorites

Allow the user to quickly save a recipe to their personal favorites list, so they can easily find it later.

4. Domain Analysis



5. Usability Goals

5.1 Quantitative Goals

1. **Fast Recipe Search:** Experienced users should find and filter a recipe within 30 seconds on average.
2. **Quick Page Load:** Recipe lists and meal plan pages must load within 2 seconds.
3. **Auto-Logout:** Sessions should automatically log out after 10 minutes of inactivity.

4. **Task Completion Rate:** At least 90% of first-time users can successfully create a weekly meal plan on their first try.
5. **Comment Submission Speed:** Posting a comment takes less than 20 seconds on average (assuming the recipe page is already open).

5.2 Qualitative Goals

1. **Easy Learnability:** Even new users should quickly grasp complex features such as multi-ingredient filtering.
2. **Minimal Interface Clutter:** The UI must remain clean and concise, preventing information overload.
3. **Personalization:** Users can customize dietary filters, allergy info, and budgets to tailor the app to their needs.
4. **Accessibility:** Adequate color contrast and screen-reader compatibility to support users with visual impairments.
5. **Motivational Feedback:** When users complete tasks like creating a plan, the app provides encouraging feedback to motivate continued use.

6. Conclusion

In this stage of the CookEase project, we identified user categories and tasks, then conducted an in-depth analysis of complex (risky) tasks using **textual HTA**. We also noted simpler tasks that require only brief explanations. A **domain analysis** was created to highlight how system entities (e.g., User, Recipe, MealPlan, ShoppingList) interrelate. Finally, we outlined **5 quantitative and 5 qualitative** usability goals to guide the design, ensuring both efficiency and user satisfaction.

7. Contributions

- **Nurten Çiftçioğlu:** 33.3%
- **Muhammed Enes Uğraş:** 33.3%
- **Emirhan Akbaş:** 33.3%