SWEN - Nutrition Manager App

Phase II

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Overview:

Goal: Build a system to help users log their food intake, manage calorie limits, add exercises and track daily progress with graphical visuals.

Key Features:

- Add and remove food items (basic food or recipes).
- View daily log of food intake.
- Set and track calorie limits and weight
- Add and remove exercises
- Display through GUI for users to view.

Features:

- **Food Collection:**
  - Users can add basic food items and recipes.
  - Food data is saved in `foods.csv`
- **Daily Log:**
  - Log food consumption for each day.
  - Adjust and track daily calorie limits and weight in `log.csv`.
- **User Interaction**:
  - Command-line interface to interact with the program.
  - Menu-driven options for logging and viewing data
- **Exercises:**
  - Users can add exercises
  - Exercise data is saved in `exercise.csv`

Structure:

Class Overview

Food & Subclasses: Food is an abstract class. FoodItem stores basic nutrition info, while Recipe combines items.

FoodCollection: Manages Food Objects (items & recipes) and handles loading/saving from foods.csv

DailyLog: tracks daily food,exercise, weight, and calorie limits. Saves to log.csv

Exercise & ExerciseManager: Repersents physical activities and m,anges exercise data.

Model-View-Controller: Modles = holds aps data, Controler = logic and updates handler, MainView, LogVIew, FoodView from GUI.

App Entry: Main and NutritionTrackerApp initialize and launch the application.

Data Flow:

User Input → Add food item or log food/ recipe. Log exercise and set weight and calories

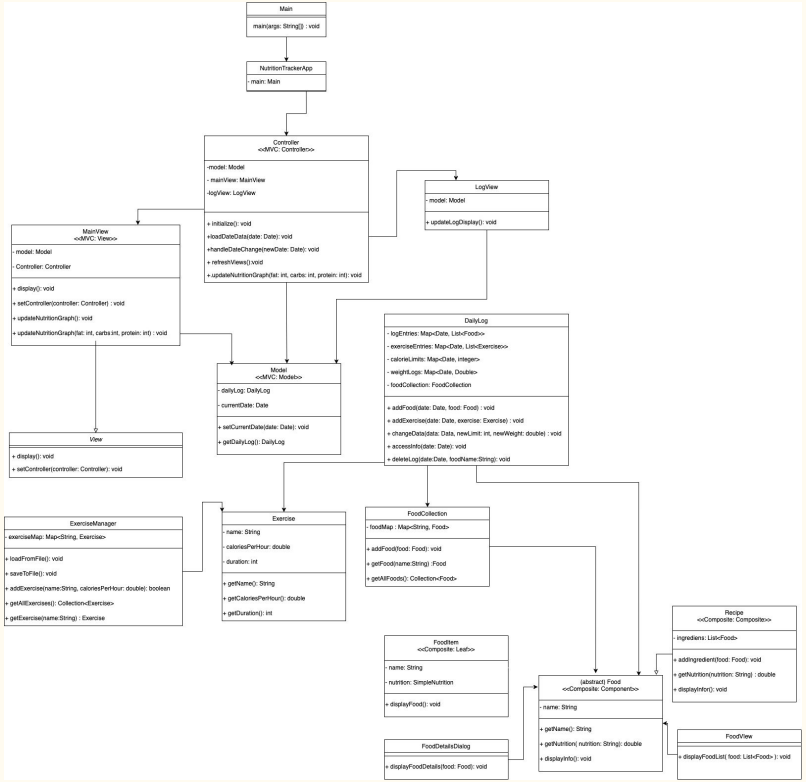
GUI → User interacts through MainView, LogVIew and FoodView. Buttons and dropdowns, date pickers, text fields.

Controller→ Handles user input events. Updates Model and triggers View refresh.

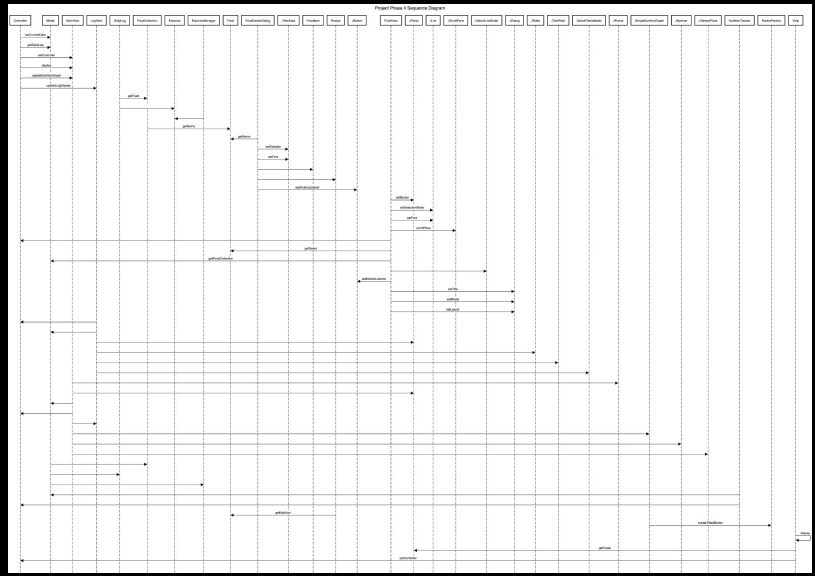
Model→ Holds the current selected Date. Interfaces with DailyLog & FoodCollection.

Nutrition Graph Update → View updated with macros: Fat %, carbs %, Protein %

UML -CLASS DIAGRAM



SEQUENCE DIAGRAM



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Design Patterns Used:

1. MVC Pattern - separates concerns between model (Daily Log & Food Collection), View (all GUI classes - FoodView, LogView, MainView), and Controller

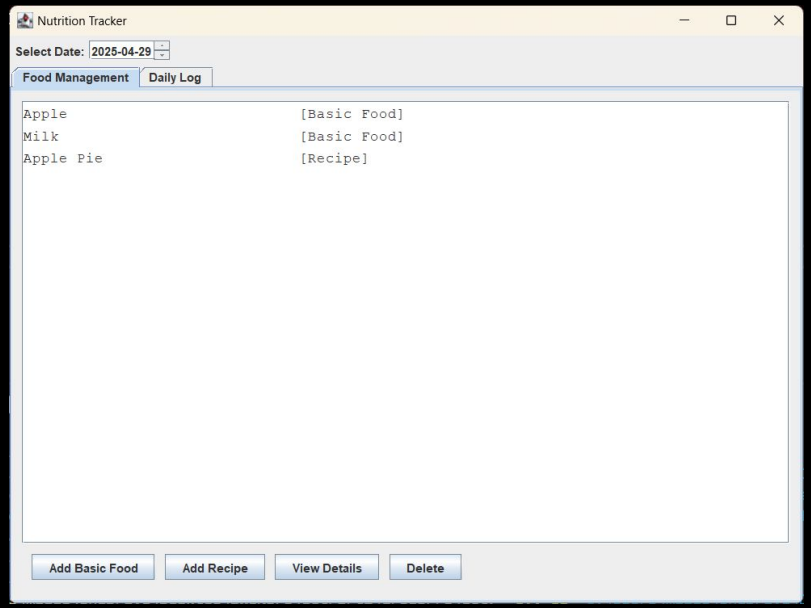
2. Composite Pattern - used in FoodCollection.java to allow treating individual FoodItems and Recipes uniformly

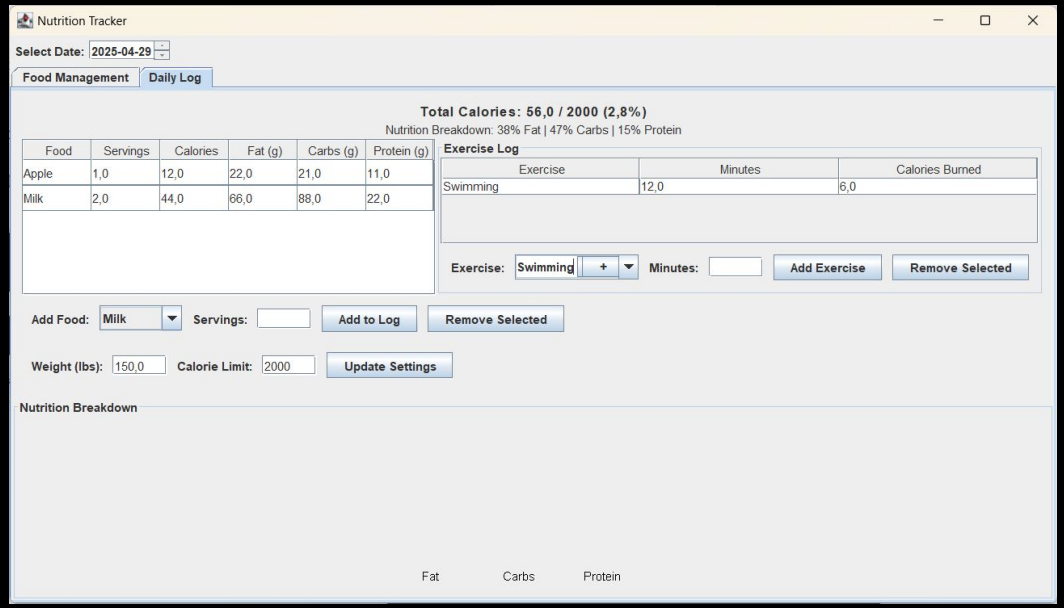
3. Adapter Pattern - To allow Recipe objects and FoodItem objects to be treated in the same way, even though they have different interfaces

4. Observer Pattern - the Controller manually notifies views, and the views update dynamically when the Model changes

5. Facade Pattern - MainView.java acts as a facade by providing a simplified interface to manage and coordinate multiple complex subsystems

GUI Implementation





Challenges:

Extending Functionality :

- Integrating exercise logging alongside food entries
- Expanding support for recipes and serving sizes.

Design Pattern Implementation: :

- Applying the patterns to unify food items and recipes along with the MVC and total access to full logs.
- Strengthening MVC architecture to support dynamic updates.

Data Persistence :

- Updating log.csv to store both exercise and servings.
- Handling edge cases when reading malformed or incomplete entries.

GUI Enhancements :

- Implementing nutrition graphs based on macro distribution
- Maintaining separation of concerns between Model and View.
- Ensuring real-time interaction for daily logs and goals.

Conclusion

Phase I Accomplishments:

- Successfully implemented core features: food logging, calorie limit management, weight tracking, and a GUI for easier interaction.
- Data is saved in CSV files, and the system allows users to track and update their daily logs efficiently.

Phase II Accomplishments:

- Successfully implemented new features: exercise tracking, calorie goals, and weight logging
- Improvement of the Composite Pattern for recipes and strengthened MVC Pattern

Next Steps:

- Complete the Bar Chart incorporation

Thank you!

SWEN PROJECT: Phase II
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