Cambodia Academy of Digital Technology
Institute of Digital Technology

CADT

Department: Computer Science
Specialization: Software Engineering

SmartMeal Improvement Report

Course: Mobile Development
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SmartMeal Project Improvement

SmartMeal was originally a simple meal browsing app that allowed users to view meals by category and see basic nutrition information and add new meals. But now we improved to make it more interactive, data-driven, and realistic.

1. Model Improvements

The app now uses additional models such as **DailyLog** and **Recommendation** to track what users eat in a day and compare it with recommended nutrition limits. Nutrition data is no longer static. It is calculated dynamically based on user actions.

2. Logic Improvements

What we improve now:

- Calculates total calories, protein, sugar, and fat when meals are selected
- Detects when nutrition exceeds daily or weekly limits
- Shows health status as **Healthy, Moderate, or Warning**
- Generates warnings and suggestions based on user select meal
- Take daily data into a weekly summary
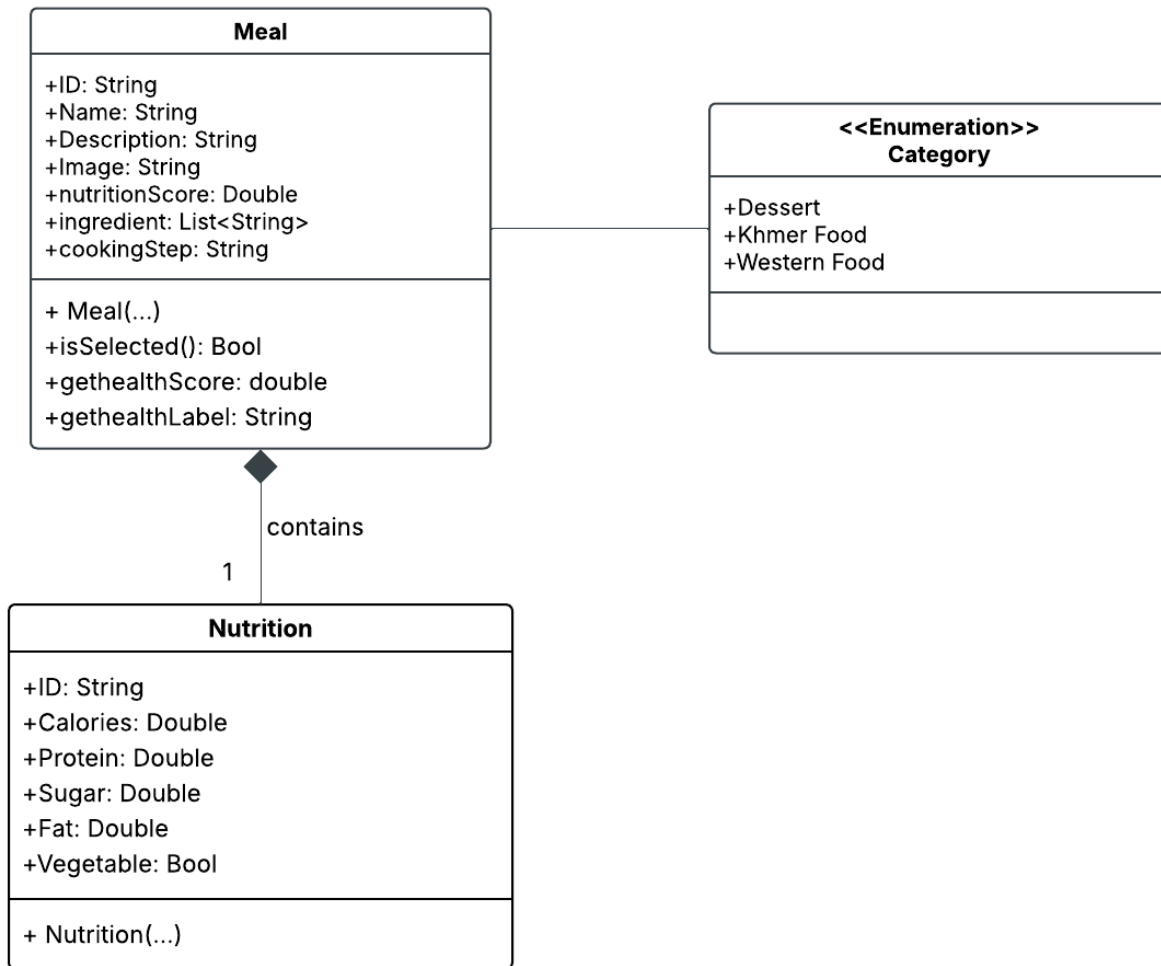
3. UI & Interaction Improvements

Users now interact with the app and receive feedback. The Home Screen is upgraded with:

- Today's nutrition summary
- Warning and suggestion cards when they have chosen meal
- Weekly nutrition summary with charts
- Clear messages when no meals are selected
- When user unselect the meal it show the small dialog to confirm and remove from tracking

4. Uml Comparision

Before

```
                Meal
─────────────────────────────
+ID: String
+Name: String
+Description: String
+Image: String
+nutritionScore: Double
+ingredient: List<String>
+cookingStep: String
─────────────────────────────
+ Meal(...)
+isSelected(): Bool
+gethealthScore: double
+gethealthLabel: String
```

```
        <<Enumeration>>
          Category
─────────────────────────────
+Dessert
+Khmer Food
+Western Food
─────────────────────────────
```

contains

1

```
              Nutrition
─────────────────────────────
+ID: String
+Calories: Double
+Protein: Double
+Sugar: Double
+Fat: Double
+Vegetable: Bool
─────────────────────────────
+ Nutrition(...)
```

After

<<Enumeration>> MealTime

+Breakfast
+Lunch
+Dinner

SelectedMeal

+ID: String
+MealID: String
+mealTime: MealTime
+Date: DateTime

+getLabel: String
+selectedMeal()

Meal

+ID: String
+Name: String
+Description: String
+Image: String
+nutritionScore: Double
+ingredient: List<String>
+CookingInstruction: String

+Meal()
+generateDisplayID(): String
+healthScore:double
+healthLabel:String

<<Enumeration>> Category

+Dessert
+Khmer Food
+Western Food

DailyLog

+date:DateTime
+meals: List<Meal>
+total: Nutrition

+dailylog()
+isCalorieshigh
+isFathigh
+isSugarhigh
+status
+sugestion()
+weeklytotal()

Nutrition

+Calories: Double
+Protein: Double
+Sugar: Double
+Fat: Double
+Vegetable: Bool

+ NutritionLevel(...)

1 contains

<<extension>> NutritionLevel

+CaloriesLevel(): String
+ProteinLevel(): String
+SugarLevel(): String
+FatLevel(): String
+VegetableLevel():String

extend Nutrition

Recommendation

+protein: double
+sugar: double
+fat: double
+calories: double
+vegetable: int