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Subject: JavaScript

Calorie and Nutrient Tracker

1. Introduction to the Mini Project

With increasing awareness about health and fitness, monitoring daily calorie intake and nutritional balance has become essential. Many people consume food without understanding its nutritional value, which can lead to health issues such as obesity, malnutrition, or lifestyle diseases. This case study focuses on developing a **Daily Calorie & Nutrition Tracker** using JavaScript that helps users record their food intake and visualize nutritional data in a simple and interactive way.

2. Problem Statement

The problem addressed in this case study is the lack of a simple and beginner-friendly system to track daily calorie consumption and macronutrients (protein, fat, and carbohydrates). Existing applications are often complex or require databases and advanced concepts. This project aims to design a lightweight, browser-based solution using only basic JavaScript concepts taught in the syllabus, such as arrays, objects, loops, DOM manipulation, and charts.

3. Mini Project Design

The system is designed as a web-based calorie and nutrition tracker where users can:

- Enter the date and details of food items consumed
- Store food data
- Display entered data in a structured table
- Calculate total calories and macronutrients
- Visualize nutritional data using bar charts
- View calorie intake separated by days

The design follows a modular approach where each functionality is handled by a separate JavaScript function, making the code easy to understand and maintain.

4. Methods & Algorithms Technology Applied in the Problem Statement / Case Study

Technologies Used

- **HTML** for structure and input elements
- **CSS** for basic styling
- **JavaScript** for logic and data processing
- **Chart.js** library for data visualization

Methods and Algorithms

- **Arrays** are used to store multiple food entries
 - **Objects** represent individual food items with properties like date, calories, protein, fat, and carbs
 - **Loops (for loop)** are used to iterate through food data for calculations
 - **Conditional statements (if-else)** are used for validation and grouping data by date
 - **DOM manipulation** is used to dynamically update tables and values
 - **Chart rendering and destruction** ensures updated and non-overlapping charts
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5. Mini Project Implementation Details

Implementation Details

- Each food item is stored as an object and pushed into an array named **foods**
- The **addFood()** function handles input validation and data storage
- The **displayTable()** function dynamically updates the food table
- The **calculateTotals()** function computes total calories and macronutrients
- The **updateNutritionChart()** function displays macro-nutrient distribution
- The **updateDailyCalorieChart()** function groups calorie intake by date and displays it in a bar chart
- The **clearInputs()** function resets input fields after submission



6. Mini Project Results and Conclusion

Results

- The system successfully records daily food intake
- Total calories and macronutrients are calculated accurately
- Nutrition data is clearly visualized using charts
- Calorie intake is effectively separated and displayed by day
- The project meets all syllabus requirements

Conclusion

The Daily Calorie & Nutrition Tracker demonstrates how core JavaScript concepts can be applied to solve real-world problems. The project is simple, efficient, and suitable for beginners. It provides a strong foundation for understanding arrays, objects, functions, and data visualization, making it an ideal academic mini-project.

7. References

1. HTML & CSS Tutorials – W3Schools
2. Course Notes and Lecture Material