UNIVERSIDAD DE LAS FUERZAS ARMADAS “ESPE”

DEPARTAMENTO DE CIENCIAS DE LA COMPUTACIÓN

DEGREE:

Software Engineering

SUBJECT:

Advanced Web Development

NRC:

27819

TOPIC:

Recipe Management System - DishDash

TEAM N°3

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Problem

A system is needed to reduce significant challenges in recipe management and cost estimation that lead to operational inefficiencies and financial losses for a gastronomy student who currently rely on paper-based calculations. Therefore, the system will automate unit conversions, manage and scale recipes accurately, calculate costs based on real ingredient prices,in order to save time, eliminate calculation errors, and enable accurate pricing of culinary services.

Overview

The Recipe Management System (DishDash) is a web-based application designed to help gastronomy students and clients efficiently manage culinary information and quotations. The platform centralizes ingredient data, automates unit conversions, calculates recipe costs, and generates professional quotations for events.

The system provides an intuitive interface where students can create and organize recipes, adjust portion sizes, track ingredient prices, and obtain accurate cost estimations. Additionally, clients will be able to register, access a personalized dashboard, review their quotation history, explore the available recipes, and request new quotations directly from the platform. DishDash streamlines the culinary planning process by reducing manual errors, improving productivity, and ensuring consistent and transparent pricing for culinary services.

Background

This system will include database design and management, measurement system conversions, cost calculation methods, and user interface design principles.

A database will be necessary to store all recipe information, including ingredients, suppliers, prices, and quotations. Understanding entity-relationship modeling, normalization, and CRUD operations will ensure data integrity and efficient information retrieval. Knowledge of relational databases and basic querying (SQL or NoSQL) will allow developers to manage recipes, ingredients, and cost data effectively.

Another key area involves cost and pricing computation. Each ingredient has a unit price and the system must calculate the total cost of a recipe and determine the cost per portion, profit margins, and selling price based on user-defined parameters. Understanding basic cost structures, fixed and variable costs, and percentage-based margins is necessary to ensure accurate financial results.

For usability, the system requires a clear and intuitive graphical interface. Knowledge of user interface and user experience design principles (UI/UX) will help create an accessible and organized environment, suitable for cooks without technical backgrounds. This involves

understanding layout design, interaction flow, and data input validation. Familiarity with web technologies such as HTML, CSS, and JavaScript will be essential for implementation.

Finally, to maintain good software structure, the project should apply principles of modular programming and clean architecture. This separation of concerns will help keep the code organized, with independent modules for data management, business logic, and interface presentation.

Recipe Management System

To evaluate and organize the performance of quotations, our user uses the Recipe Management System, which allows the creation and modification of recipes and event budgets through simulated transactions.

Within the system, users can create recipes with detailed descriptions, ingredient lists, preparation steps, and cooking times. Each recipe can include photos, be classified by type (starter, main course, dessert, beverage, etc.), and have a version history to record modifications over time.

The system includes an intelligent unit conversion module that automatically transforms ingredient quantities between metric and imperial systems. It also considers density differences between ingredients (for example, 1 cup of flour ≠ 1 cup of sugar in weight) and allows users to scale recipes automatically when the number of portions changes.

All ingredients are stored in a centralized ingredient database that includes density, equivalence, and conversion data, as well as unit prices (per kilogram, liter, or unit) and supplier information. Prices can be updated manually, allowing accurate and up-to-date cost calculations.

Based on this information, the system calculates the total cost per recipe, the cost per portion, quantity of ingredients needed and suggests a selling price according to a configurable profit margin. It can also compare costs when substituting ingredients, helping planners make efficient and profitable decisions.

Finally, the system enables the generation of event quotations. Planners can select multiple recipes, adjust portions according to the number of guests, and automatically calculate the total cost, taxes, and possible discounts. Each quotation can be exported as a professional PDF document and stored in a quotation history for later reference.