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

In the field of culinary arts education, gastronomy students must manage multiple recipes with precise ingredient measurements, calculate accurate costs, and provide professional quotations to potential clients. When a student relies on manual calculations and paper-based records, they are prone to calculation errors, wasted ingredients and time, repetitive tasks, lost business opportunities, and unprofitable pricing; which problems this system will address.

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.