Criterion A: Planning

Client and Scenario

The client is a Grade 10 IB MYP student at my school who is an amateur ice cream maker and has made gelato and soft serve in vanilla, red bean, mocha, and chocolate flavors.

My client takes a somewhat scientific and chemical approach in ice cream-making, constantly experimenting with different ingredients, quantities and proportions to find the perfect mix. She has identified a need for a more systematically way to record and organize her recipes. She keeps physical and digital notes and takes photos and videos of her experimentations; however, she has expressed how, as she loses these notes over time, this method is ineffective and time-consuming, and therefore would love to try new solutions (A.1).

Having observed this problem, I interviewed my client two times (A.1 & A.4), trying to understand the issue in depth. To summarize our interviews, my client had asked for a program to help her organize her recipes. She believes that instead of keeping scattered notes, she needs a personalized program that 1) stores all her past trials and recipes, 2) does quick calculations for the amounts of ingredients, and 3) keeps track of her budget for ice-cream making. This program would save her time and energy from having to reference multiple tabs or apps while making ice cream by performing the tasks mentioned above for her.

Rationale

After two lengthy conversations with my client (A.1 & A.4), and consultation from my supervisor, we decided that the product should be an application software that runs and stores locally on her MacBook, allowing her to create and record ice cream recipes and helps her with portions calculations and budgeting. The goal is to make the process of ice cream-making more convenient and efficient for her.

To decide on which coding language to use, I made a comparison table to synthesize my research results (A.3). After considerable secondary research and thorough discussion with my supervisor (A.2), I decided that Swift is the most suitable language for this project because:

- Swift is a high-level language, making it easier to write, read, learn and debug (with concise and clean syntax), which I value as a beginner to programming (Aston).
- Swift is open-source, meaning there is a lot of high quality tutorials and resources online on it, which is beneficial for inexperienced programmers. Specifically, Apple releases comprehensive developer documentation online for Swift programmers.
- In Swift, memory is automatically managed, variables are initialized before usage, and integers and arrays are tested for overflow. Thus, the security of the user's information is ensured.
- SwiftUI provides a modern, minimalistic, and standardized GUI (graphical user interface) and easy-to-use GUI libraries for macOS applications, which suits my client's request—a personalized and easy-to-navigate UI (Coursera Staff).

Overall, my supervisor agrees that Swift (A.2), due to its modern syntax, extensive online support community, and advanced UI design, is most suitable for meeting my client's requirements. More importantly, it is perfectly designed for Apple devices, which my client use.

Success Criteria

1. Program will have a “Home” page that has buttons which link to the three other pages (Recipes, Calculator, and Budget). The client can also return to the “Home” page through the “Home” button in each of the three other pages.

2. Program will have a “Recipes” page that allows the client to add, edit, and delete recipes stored in a scrollable list.
3. Each recipe may include name (mandatory field), ingredients, date the ice cream was last made, links to videos/online tutorials, and notes. This data will remain saved and unchanged after the application has been closed and quitted (A.1).

4. Program will have a “Calculator” page that allows the user to perform basic arithmetic calculations, including addition, subtraction, multiplication, and division, if possible, with doubles, if not, integers also work.
5. The client is able to enter numbers and operators, and then obtain automatically computed double/integer results (A.5).

6. Program will have a “Budget” page that helps keep track of the client’s budget for purchasing ingredients and ice-cream making materials.
7. It allows the client to add, edit, and delete individual income and expenses and see how much money is left in her savings.

8. Program’s User Interface follows a color scheme selected by the client.
9. All texts, images, buttons/tabs, text fields, and lists are highly visible and clearly indicated by different colors/shades, shapes, and/or apple icons/symbols/emojis (A.6).