

Technical Project Report - Android Module

Nutrition assistant

Subject: Universidade de Aveiro - Computação Móvel

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Project abstract: App for helping people making a nutrition plan and choose their meals in order to fulfill it

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1 Application concept

Overview

The main goal of this app is to allow users to create a meal planner and then choose their meals in order to complete their plan. The target users are the ones who aim to lose or gain weight and want to use the app to help guide them to achieve these objectives and control their evolution.

Essential journey map

The user journey begins when the user first opens the app and logs in.. After this step,, the user is either presented with their existing meal planner (if already created) or a blank form to start creating a new one. After the meal planner is done, the user can simulate a daily meal plan, choosing the food desired, being presented at the end a summary of the meals to do and respective quantities. It is also possible for the user to know his BMI, after inserting some physical attributes like height and weight.

2 Implemented solution

Architecture overview (technical design)

The architecture of the app follows a basic structure using Firebase Firestore for data storage and Firebase Authentication for user management. The app is designed to help users create and manage their meal plans.

The app backend logic is based on a model represented by the MealPlannerData class, which stores meal plan information (such as calories pretended to be on the food and frequency on water drinking). The Interface is built using Jetpack Compose, managed directly in Composables.

The MealPlannerRepository and UserRepository interact directly with Firestore, handling the CRUD methods of meal plans and users. With that, the data logic is separated from the UI layer. All data is stored online..

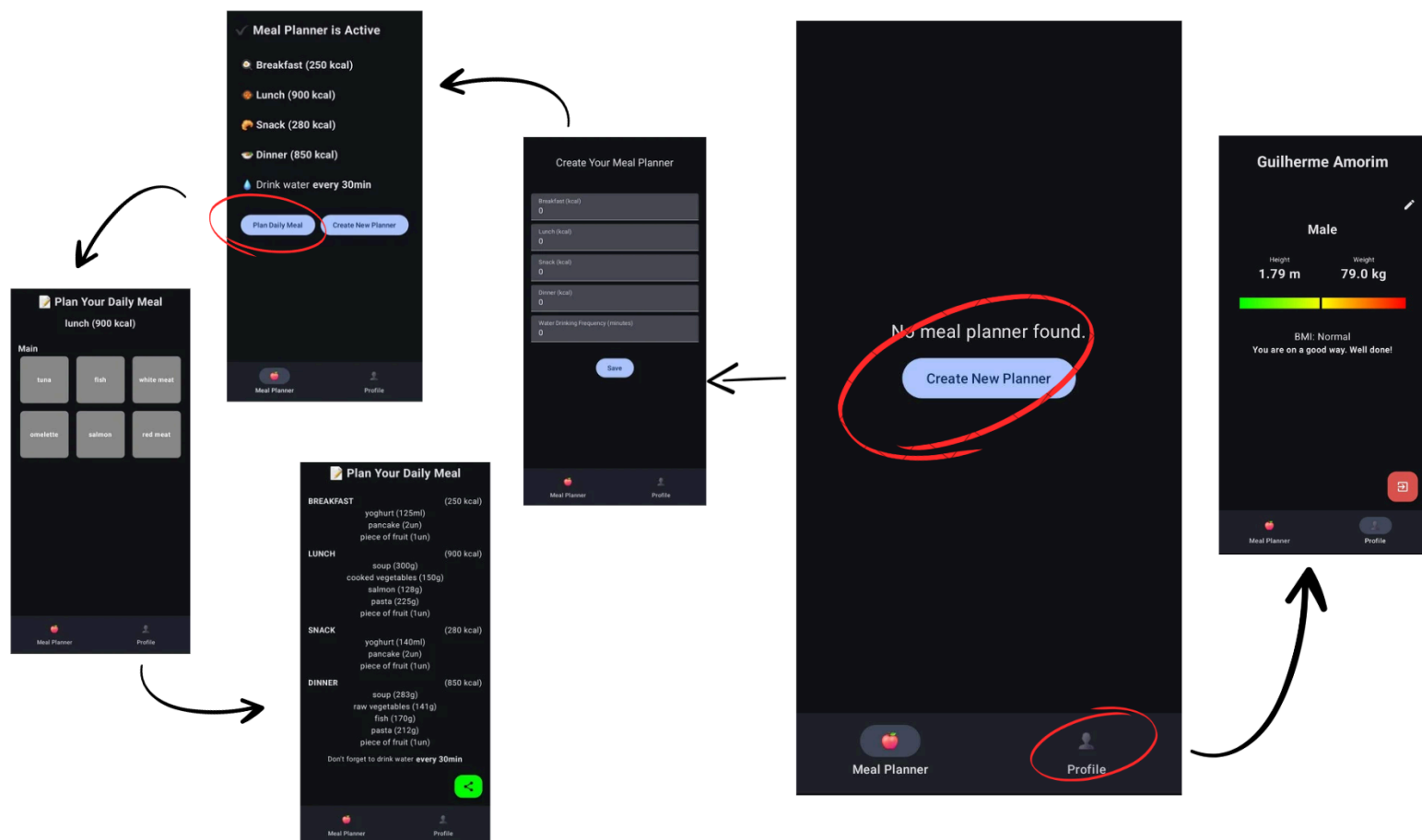
Finally, a push notifications system is implemented to alert the user to drink water, based on the time frequency defined at the meal planner.

Implemented interactions

There are two main tabs: the profile screen, where the user can set his attributes to calculate BMI or log out and the meal planner screen, where the main logic of the app is.

It's possible to create a meal planner, where the target calories for the meals and the drinking water frequency are defined. After the creation of the meal planner, the notifications are active and will be sent accordingly the time defined.

With the meal planner created, it's possible to define a daily plan to fulfill the plan set. For each time of the day, many types of food are shown for the user to choose their preferences. At the end of this process, a summary with these choices are shown and details provided with recommendations about the suggested quantity to eat. This resume has the possibility to be shared.



Project Limitations

- **Offline Functionality:** Currently, the app requires an internet connection to user Firestore
- **Customizable Meal Plans:** Currently, meal plans are basic,, with users only able to input calories for different meals. A more dynamic and customizable meal planner, with options to choose dietary restrictions and health goals is not yet implemented.
- **User Interface:** The user interface is still in its basic form. Future updates could include more accessibility UI features, and a more visually appealing design.
- **Functionalities Missing:** In my opinion, some relevant features for the context are missing, for example, scanning a product with the phone camera to reveal details about the meal or show recipes to help the user to cook healthy food

3 Conclusions and supporting resources

Lessons learned

I wasn't familiar with Firebase at the start of the project. However, I quickly realized its simplicity, such as using Firestore and Authentication for storing data, and for integration with Android made it easier to retrieve the data..

As a working student, I found it difficult to follow course material. However, this project allowed me to catch up on some of the essential concepts that I had missed and provided an opportunity also to develop my skills in Android development.

Project resources

Resource:	Available from:
Code repository:	https://github.com/GuiAmorim03/CM_ANDROID (at CMNutricao)
Ready-to-deploy APK:	https://github.com/GuiAmorim03/CM_ANDROID/blob/main/CMNutricao/app.apk
Demo video:	https://youtube.com/shorts/MiT7TqGlyxY