Software Design and Modeling

for

Nutrifit

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Use Case Diagram

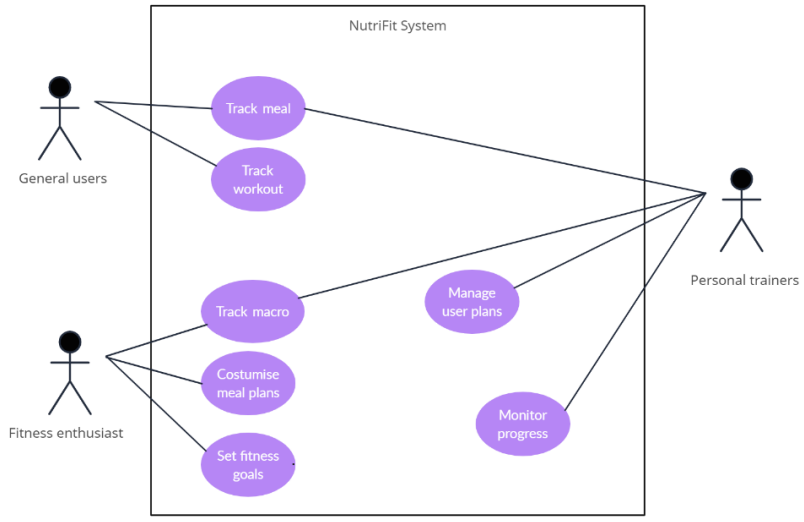
The use case diagram is a visual representation of the different actors and their interactions with the software application. In our case, there are three actors identified: general users, fitness enthusiasts, and personal trainers.

The general user is the most common actor and represents the average user who wants to use the software application to plan their meals and workouts. The general user can interact with the software application in several ways, including creating and managing their meal plans, creating and managing their workout plans, and tracking their progress.

The fitness enthusiast is another actor identified in the use case diagram. This actor represents users who have a higher level of fitness knowledge and experience than the general user. Fitness enthusiasts have access to more advanced features, such as creating customized workout plans based on specific fitness goals.

The personal trainer is the final actor identified in the use case diagram. This actor represents certified fitness professionals who use the software application to manage their clients' meal plans and workouts. Personal trainers have access to all of the features available to the general user and fitness enthusiast actors, as well as additional features such as client management and progress tracking.

The use case diagram shows the interactions between these actors and the different use cases that they can perform. For example, the general user can create and manage their meal plan, while the personal trainer can create and manage meal plans for multiple clients.



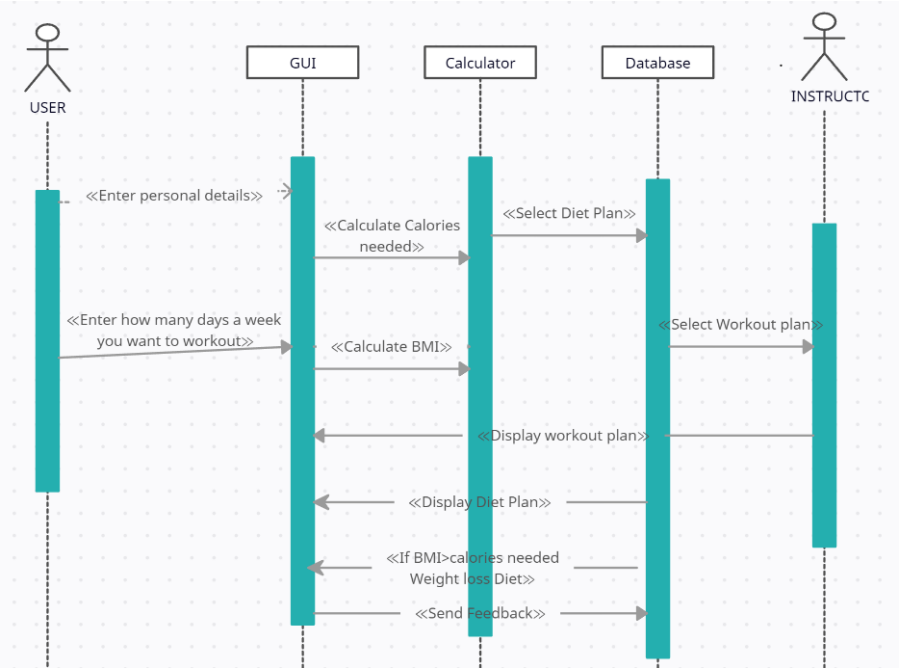
2. Sequence Diagrams

The sequence diagram is a visual representation of the interactions that take place in a specific use case. In this case, the use case involves the user entering their personal data and workout preferences to receive a customized meal and workout plan.

The actors in the sequence diagram are the user and the instructor. The objects are the GUI (graphic user interface), calculator, and database. The calculator is used to calculate the user's BMI (body mass index), which is used to determine their recommended calorie intake. The database stores information such as the user's data, their BMI, and their workout and meal plans.

The sequence of interactions begins with the user entering their data, such as their age, height, weight, and gender. The user also enters how many days a week they want to work out. The GUI then sends this information to the calculator, which calculates the user's BMI based on their height and weight. Then the recommended diet plan is displayed to the user.

Next, the instructor suggests a workout plan based on the user's workout preferences and BMI. This workout plan is sent to the GUI, which displays it to the user.



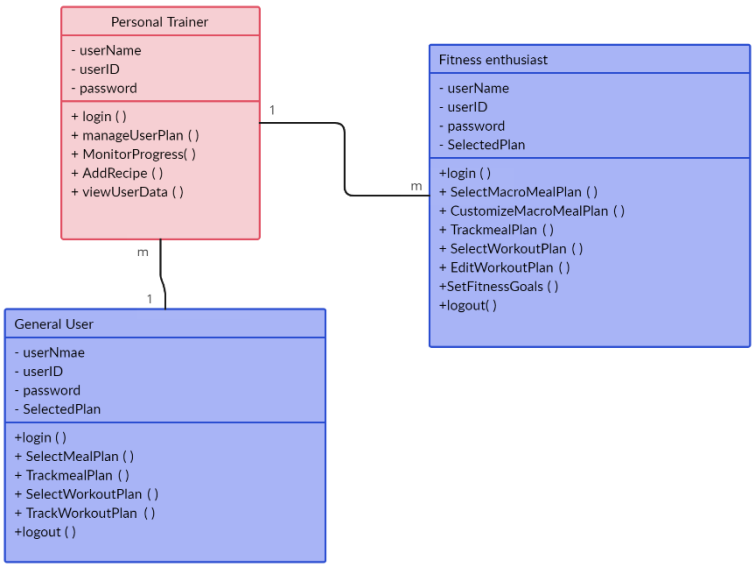
3. Class Diagram

The UML diagram is a visual representation of the different entities in the software application and their characteristics. In this case, the entities are the personal trainer, fitness enthusiast, and general user.

The personal trainer has the attributes of username, ID, and password. These attributes are used to identify and authenticate the personal trainer when they login to the software application. The personal trainer also has several methods, including login, manageUserPlan, MonitorProgress, AddRecipe, and viewUserData. These methods are used to manage the user plans, monitor progress, add recipes to the meal plan, and view user data.

The fitness enthusiast has the attributes of username, userid, password, and selected plan. The fitness enthusiast also has several methods, including login in, selecting and customizing the meal, tracking the meal plan, selecting and editing the workout plan, setting fitness goals, and logout. These methods are used to customize the meal and workout plan, track progress, and set fitness goals.

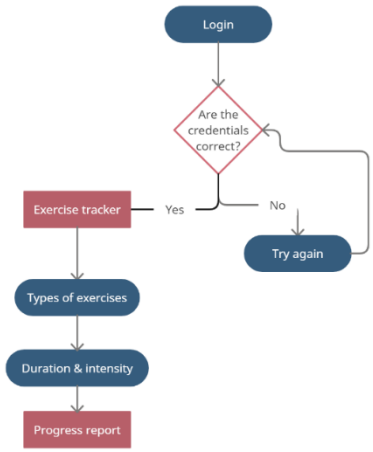
The general user has the same attributes as the fitness enthusiast, but they are not able to customize the meal and workout plan. This means that the general user can log in, select a pre-made meal and workout plan, track their progress, set fitness goals, and log out.



4. Activity Diagrams

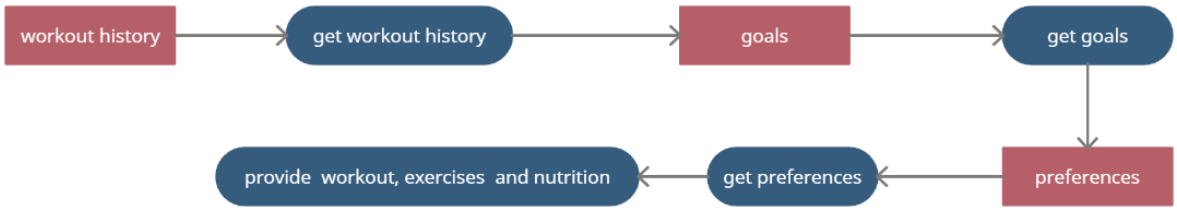
4.1 Credentials activity diagram

The user logs in to the app. If the credentials are not correct, an error shows up. If the credentials are correct the exercise tracker is displayed. In this area, the user will be able to find the types of exercise they want to perform. For each exercise type, there is a duration and intensity. The intensity level increases as the days go by. After each week, the user will be able to see their report.



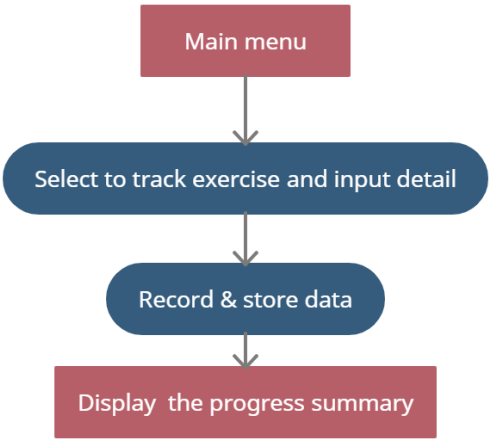
4.2 The workout plan activity diagram

The angled rectangles show the state while the rounded ones represent the states. After the workout history is checked, as well as the user goals and preferences, a workout plan and a meal plan are provided.



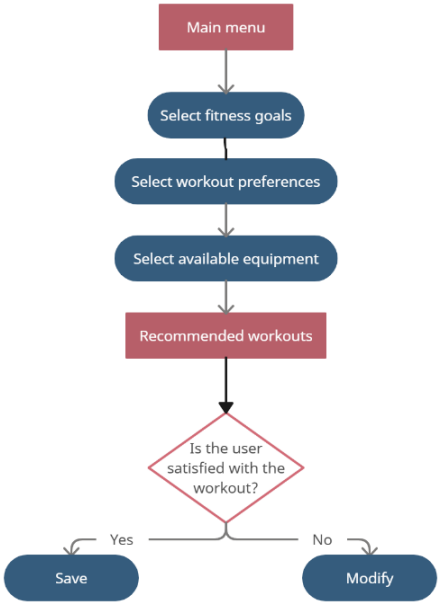
4.3 Storing exercise data activity diagram

This diagram shows the process of recording and storing the exercises data.



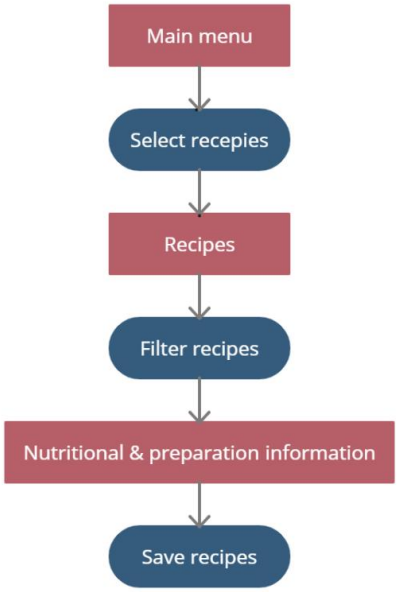
4.4 User satisfaction activity diagram

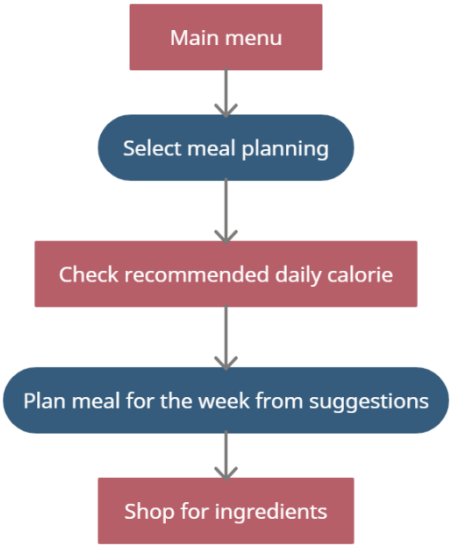
This diagram shows whether the user is satisfied with the provided workout after they have put details about the plan preferences. If the user is not satisfied, the plan needs to be modified. The rhombus represents a decision activity.



4.5 Recipe planning activity diagram

This is the activity of selecting the meal plan from a range of alternatives. After you pick the recipe that you prefer you can save it.


Main menu
Select recepies
Recipes
Filter recipes
Nutritional & preparation information
Save recipes


Main menu
Select meal planning
Check recommended daily calorie
Plan meal for the week from suggestions
Shop for ingredients