Keep Cycle

Software Requirements Specification

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# 1. Introduction

Keep Cycle is a free fitness app for everyone designed to make your fitness life easier. Keep Cycle is a cross-platform

## 1.1 Purpose

The general purpose of this application is to make user’s fitness life more enjoyable and easy to keep track of.

This application is intended for everyone who wants to be fit except people with health issues such as heart diseases,old people etc.

## 1.2 Scope

Our product is a general fitness tracker.

Keep Cycle will keep the records of the diet, body fat, ideal weight and exercise routines of the user. And it will help the user to keep track (total calories taken, number of repetitions for each exercise etc.). This application also supports calorie calculator, body fat calculator, ideal weight calculator, plate calculator, 1RM calculator. There will be a graphic for tracking the weights day by day. Also you can watch the correct form of the exercises. If you are taking pills there will be a countdown for you*.*

* This app won't support how many calories a food contains and also it won't offer coaching.
* Calorie calculator will calculate how many calories a person should take in a day. Considering the person's needs. You will see how much you need macro nutrition such as protein, carbohydrate and fat.
* Body fat calculator will calculate the body fat of a person with the formula considering the person's height, neck and waist.

## 1.3 Definitions, Acronyms, and Abbreviations

User : A person who wants to keep track of his own training program ,diet , body measurements.

RSD: Requirements Specification Document

UCD: Use Case Diagram

UI: User Interface

Dart: It is a programming language.

Flutter: It is a framework for mobile applications.

FireBase: Firebase is a Backend-as-a-Service (BaaS) app development platform.

Bmi : Body Mass index is a value used on healthy body weight calculations.

Supplement:A dietary supplement is a manufactured product intended to supplement one's diet by taking a [pill](https://en.wikipedia.org/wiki/Pill_(pharmacy)), [capsule](https://en.wikipedia.org/wiki/Capsule_(pharmacy)), [tablet](https://en.wikipedia.org/wiki/Tablet_(pharmacy)), powder, or liquid.

## 1.4 References

-<https://mimoza.marmara.edu.tr/~birol/Courses/CSE3044/lecture_notes.htm>

-- Ian Sommerville, Software Engineering, 8th ed. 2007

## 1.5 Overview

This Srs contains general description , specific requirements, uml diagrams and appendices.

# 2. General Description

Keep Cycle is a fitness app, we thought of it as a personal trainer with whom you can keep your weight in the ideal balance and create an exercise routine.

## 2.1 Product Perspective

Creating Personal Fitness Account:

Accounting is important because it allows users to store information and retain their data.

Adding Personal Information:

we will keep the records of name, gender, weight, ideal height and exercise routines of the user.

Setting Targets:

The user will be able to see the average number of calories burned by the exercises they do.

Activity Tracking:

If you are taking pills there will be a countdown for you.

## 2.2 Product Functions

| S. No. | Functions |
| --- | --- |
| 1 | Sign Up |
| 2 | Sign In |
| 3 | User Profile |
| 4 | Calorie Calculator |
| 5 | BMI Calculator |
| 6 | Medication / Supplements CountDown |
| 7 | Ideal Weight Calculator |
| 8 | Plate Calculator |
| 9 | Exercise Routine Tracker |
| 10 | Sign Out |

## 2.3 User Characteristics

People who are looking to get in shape and need some motivation.

People looking for a new workout routine.

Personal trainers.

People who would like to track their progress.

## 2.4 General Constraints

Software Limitations: System shall need any smartphone such as samsung. Application will be developed on Windows Operating System while using android studio for dart and flutter.

Hardware Limitations: Each user shall need an internet connection on their phones.

## 2.5 Assumptions and Dependencies

Assumptions:

1. It is assumed that the application will not work with a large number of people to facilitate implementation.
2. All group members will do their responsibility.

Dependencies:

1. Skill: The application that the user has enough skill to use on the phone.
2. Operating System: Android system is required.
3. Internet connection is needed.

# 3. Specific Requirements

## 3.1 External Interface Requirements

### 3.1.1 User Interfaces

The opening scene of the application will have options like sign in, sign up, support & feedback and contact us. The user can be able to touch the sign in button to access the account. The user can be able to touch the sign up button to create an account. The support & feedback part of the application will have a place for the user to send mails to the administrator. The contact part will give the user telecommunication information.

**3.1.2 Hardware Interfaces**

The application will be accessible through the touch screen on an Android device.The application also has access to the phone’s speaker for notifications.

### 3.1.3 Software Interfaces

Android 8.0 or higher operating system.

Dart programming language and flutter framework.

Email protocol for sending the emails and email authentication.

### 3.1.4 Communications Interfaces

This application will not communicate with other users using the same application.

This app however will communicate with the android device in ways like the speaker for notifications.

**3.2 Functional Requirements**

### 3.2.1 <Sign up>

3.2.1.1 Introduction / Description

Sign up function signs up the users to the app.

3.2.1.2 Inputs / Display

Users can sign up with their Facebook and Google accounts.

Users can also sign up by tapping the sign up button with their e-mails.

3.2.1.3 Processing

It sends information to the database.

3.2.1.4 Outputs

Successful, if the user signed up else the error message displayed.

3.2.1.5 Constraints

Passwords must be at least eight digit and at most 24 digit.

Emails must be in email format.

3.2.1.6 Error/Data Handling

### 

### 3.2.2 <Sign in>

3.2.2.1 Introduction / Description

This function authenticates the user information and allows them to access their accounts.

3.2.2.2 Inputs / Display

Users can sign in their Facebook and Google accounts.

Users can also sign in by tapping the sign in button by writing their email and password.

3.2.2.3 Processing

This function searches the database with the given parameters. If it finds the given email, check its password to allow the user to enter the app or not.

3.2.2.4 Outputs

Successfully enter the app or error message displayed.

3.2.2.5 Constraints

Users can enter passwords wrong at most five times consecutively.

3.2.2.6 Error/Data Handling

### 3.2.3 <Settings>

3.2.3.1 Introduction / Description

Set the app settings.

3.2.3.2 Inputs / Display

General settings

Feedback & Supports

Privacy policy

Terms of use

3.2.3.3 Processing

Set the chosen menu

3.2.3.4 Outputs

Applies the changed properties.

3.2.3.5 Constraints

3.2.3.6 Error/Data Handling

### 3.2.4 <Calorie Calculator>

3.2.4.1 Introduction / Description

This feature will calculate how many calories a person should take in a day. Considering the person's needs. You will see how much you need macro nutrition such as protein, carbohydrate and fat.

3.2.4.2 Inputs / Display

Age, body weight,gender, exercise level(easy/medium/hell mode)

3.2.4.3 Processing

There will be a formula for calculating the calorie should be taken a day for the user.

3.2.4.4 Outputs

This feature will output a calculated (approximate) calorie need for individuals.

3.2.4.5 Constraints

There are 3 different exercise modes.

### 3.2.5 <Body Mass Index (BMI) Calculator>

3.2.5.1 Introduction / Description

This feature will calculate the bmi of a person with the formula considering the person's height and body weight.

3.2.5.2 Inputs / Display

Gender, height, neck and waist measurements.

3.2.5.3 Processing

Bmi = Weight / (Height)^2

3.2.5.4 Outputs

This feature will output a calculated (approximate) bmi (body mass index ) for individuals.

3.2.5.5 Constraints

Height values should be in CM.

Weight values should be in KG.

**3.2.6 <Exercise Routine Tracker>**

3.2.6.1 Introduction / Description

With this feature, users will be able to enter their exercise routines to the app and they will be able to check the exercises after they complete them. With this feature they will not forget or skip the exercises. These routines can be daily or weekly routines.

3.2.6.2 Inputs / Display

Exercise routine/Each exercise, number of sets for each exercise and repetition for each set should be entered based on the individual’s exercise routine.

3.2.6.3 Processing

No processing is needed for this feature.

3.2.6.4 Outputs

This feature will include checkable boxes for each exercise.

3.2.6.5 Constraints

No constraint is needed for this feature since the routine will be entered by the user.

### 3.2.7 <Plate Calculator>

3.2.7.1 Introduction / Description

This feature calculates the number of plates and their weights on each side of the bar with specified total weight values.

3.2.7.2 Inputs / Display

Total weight and the weight of the bar must be provided.

3.2.7.3 Processing

At first total weight minus the weight of the bar will be calculated. Afterwards weight will be distributed to each side.

3.2.7.4 Outputs

This feature will output the plates that will be used for the desired total weight.

3.2.7.5 Constraints

Weight values should be in KG.

### 3.2.8 <Medication / Supplements Countdown>

3.2.8.1 Introduction / Description

This feature will count down daily or hourly for each pill or supplement that users take and it will inform the users when they need to take their medications.

3.2.8.2 Inputs / Display

Medications and how often they should be taken will be provided.

3.2.8.3 Processing

Processing will be the count down for each pill.

3.2.8.4 Outputs

A notification when the countdown of a medication ends.

3.2.8.5 Constraints

No constraints needed for this feature.

**3.2.9 <Ideal Weight Calculator>**

3.2.9.1 Introduction / Description

This feature will calculate the ideal weight of the individual based on the height and the gender.

3.2.9.2 Inputs / Display

Gender, height, and body weight calculator.

3.2.9.3 Processing

20\*(Height)^2 **<** Ideal Weight < 25\*(Height)^2

3.2.9.4 Outputs

This feature will output a calculated (approximate) ideal weight for individuals. Additionally it will output if the user’s body weight is in the healthy range.

3.2.9.5 Constraints

Height values should be in CM.

Weight values should be in KG.

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### 3.2.10 <Sign out>

3.2.10.1 Introduction / Description

Sign out the account.

3.2.10.2 Inputs / Display

Sign out button.

3.2.10.3 Processing

Sign out the user from the account and return the app’s main interface.

3.2.10.4 Outputs

3.2.10.5 Constraints

3.2.11.6 Error/Data Handling

## 3.3 Non-Functional Requirements

### 3.3.1 Performance

3.3.1.1 Response Time – The app should take approximately 10-15 seconds to load. Once an icon is clicked it should take about 5 seconds to.

3.3.1.2 Scalability – Updates will be available as the app grows in popularity for every increment of 10,000 users. This will allow for more memory and fixes that need to be made.

3.3.1.3 Platform – The Keep Cycle app will be for software android versions 8.0 and up.

### 3.3.2 Reliability

3.3.2.1 The Application Shall not crash or close under any circumstances.

3.3.2.2 The Application shall be able to recover in the event of a system failure in at least the time it takes to close the application and restart.

3.3.2.3 The Application shall recover after a system crash in no longer than 5 minutes.

3.3.2.4 The Application Shall always be available to be used by the user.

### 3.3.3 Availability

3.3.3.1 The application will always be available in the app store.

3.3.3.2 The applications will always be free to use.

### 3.3.4 Security

3.3.4.1 The Application shall not grant Access to an unauthorized user.

3.3.4.2 The Application shall not communicate with any other devices or servers while in use by the user.

### 3.3.5 Maintainability

3.3.5.1The Application Shall Be maintained by the developers in unison with System or hardware updates.

3.3.5.2 The Application shall be modified by the Developers if the application is found to have a flaw or bug.

3.3.5.3 If the Application is to be changed, The Application shall go through detailed testing to determine the Reliability and Security of the Application.

### 3.3.6 Portability

3.3.6.1 This Application and its data should not be transferred to any other devices.

3.3.6.2 The Application shall be available for download onto any android system via the android app store.

3.3.6.3 The application shall not share the same data from any system to any other system by any means or data transfer.

3.3.6.4The Application shall be able to be downloaded and shall perform without error in the presence of other android applications.

## 3.4 Inverse Requirements

3.4.1 The app won't support how many calories a food contains

3.4.2 The app won't offer exercise routines.

3.4.3 The app wont support online training.

## 3.5 Design Constraints

3.5.1 Hardware limitations

3.5.1.1 At least 2 gb of ram is needed.

3.5.1.2 At least 50 mb of device storage is needed.

3.5.1.3 Proper internet connection is needed.

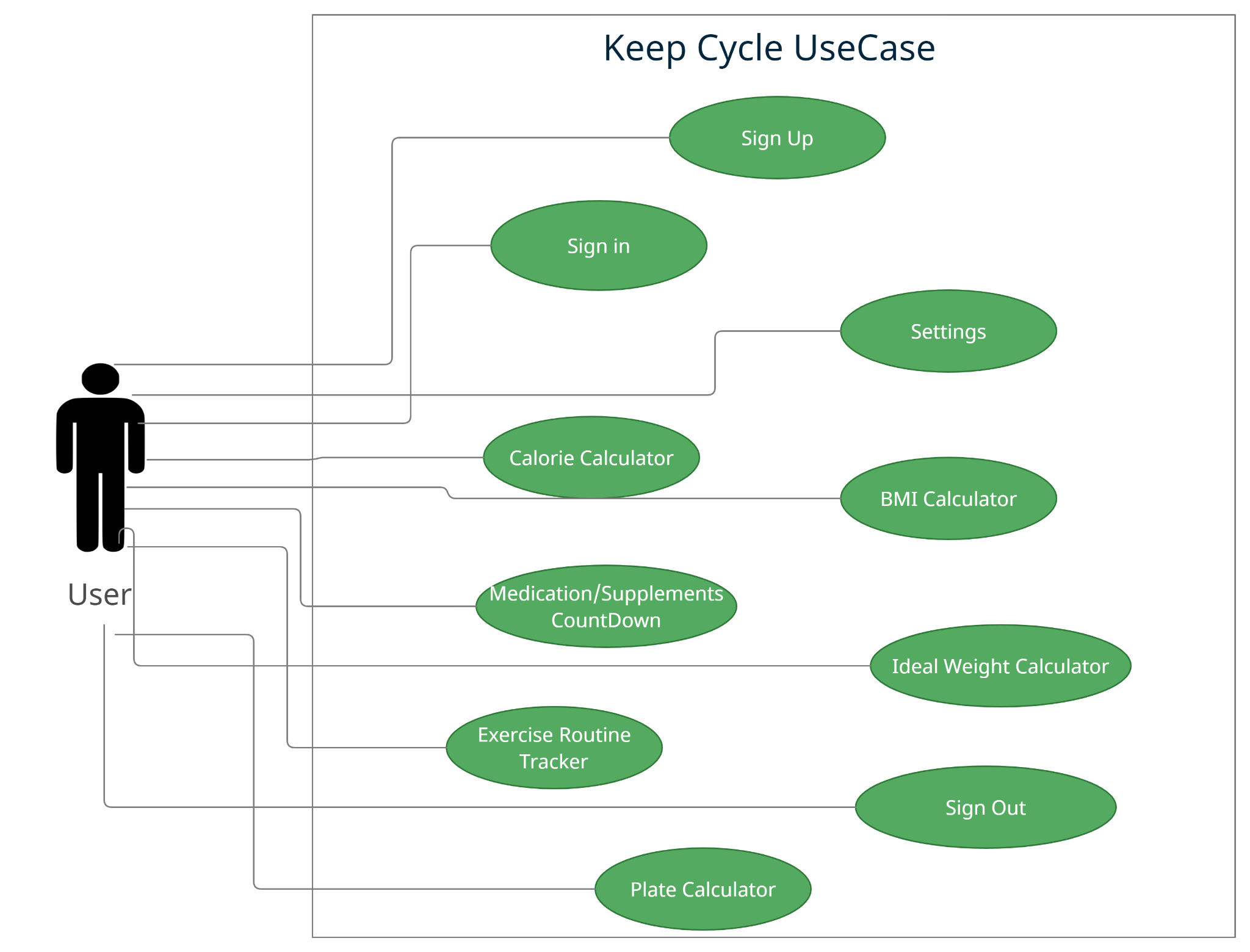
3.5.1.4 At least 1 Ghz processor is needed.

## 3.6 Logical Database Requirements

Firebase will be used with this app. The database keeps the email and password records for the users.For each user there are only two tables which are username and password. The database also keeps the user information also either facebook or google accounts if they are signed up via facebook or google account.

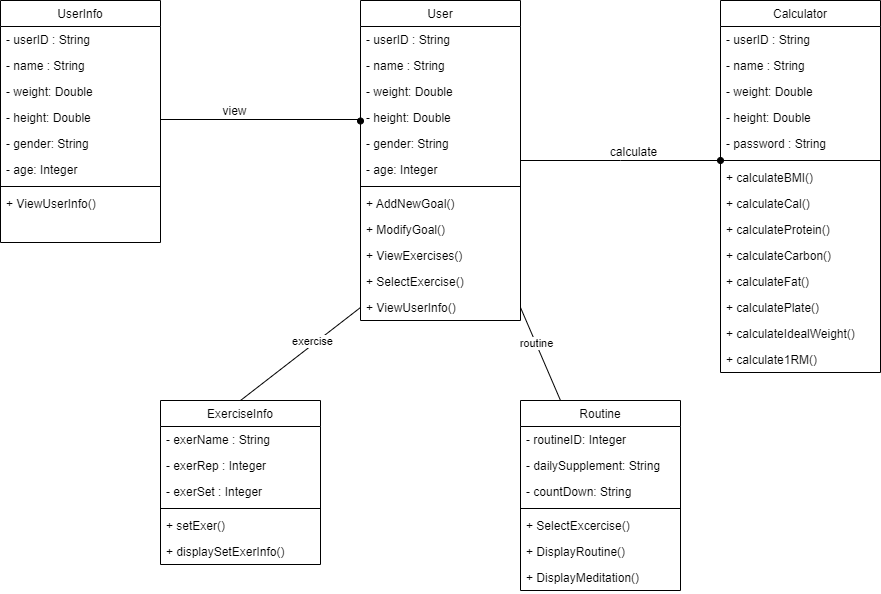
**4. UML Diagrams**

## 4.1 Use Cases

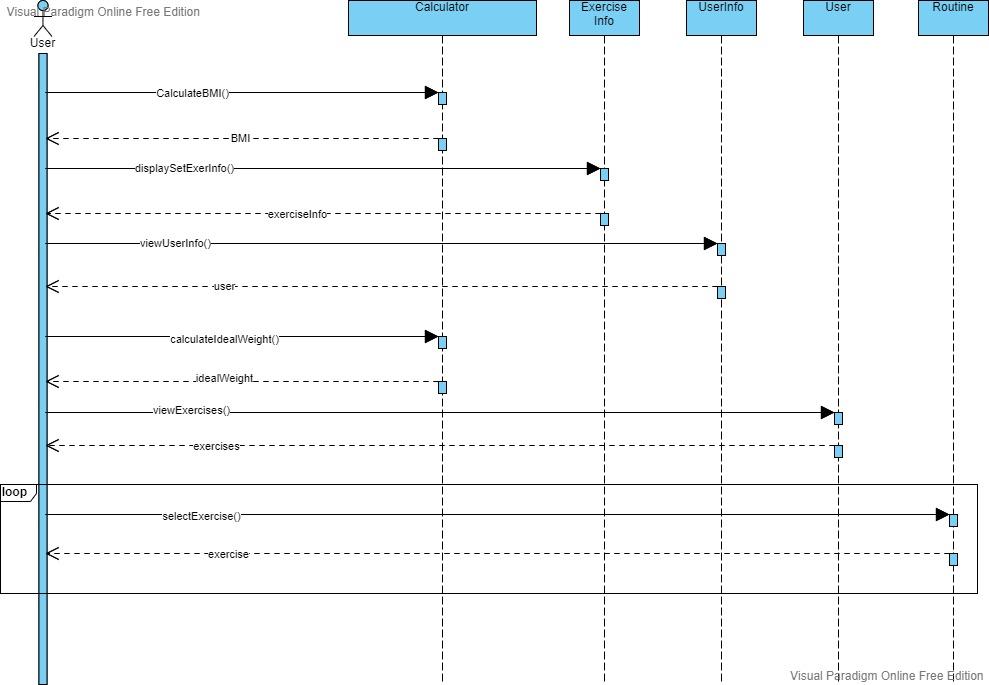


## 4.2 Classes / Objects

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## 4.3 Sequence Diagrams



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| **Serkan Koç** | Sequence Diagram and Use Case Diagram |
| --- | --- |
| **Ramazan Karkin** | Uml Class Diagram and General Description |
| **Atila İlhan Yatağan** | Functional Requirements and Introduction |
| **İbrahim Hakkı Candan** | Non-Functional Requirements, External Interface Requirements |
| **Aykut Başyiğit** | Inverse Requirements, Design Constraints, Logical Database Requirements |