IMPLEMENTATION DOCUMENT

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COMPONENTS

TrackFit consists of three main components:

1. The User
2. The Android System(System)
3. The Database

The User

The user is anyone who completes the system registration and uses the app.

The Android System

The Android System, referred to hereafter as the System, is the user interface that models the conceptual design. The System processes the data received from the user and manages the data submission to the Database.

The Database

The Database stores the user information and information related to the completion of user requests. The database sends and receives data to and from the System.

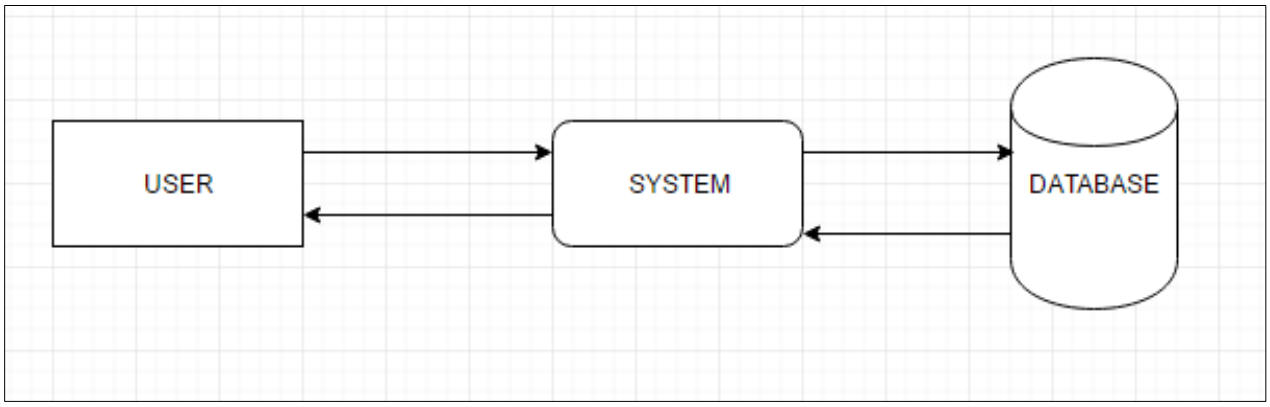

Figure 1 System Components

It is important to note that the user can not directly interact with the database. This maintains the integrity of the database.

CONCEPTUAL DESIGN

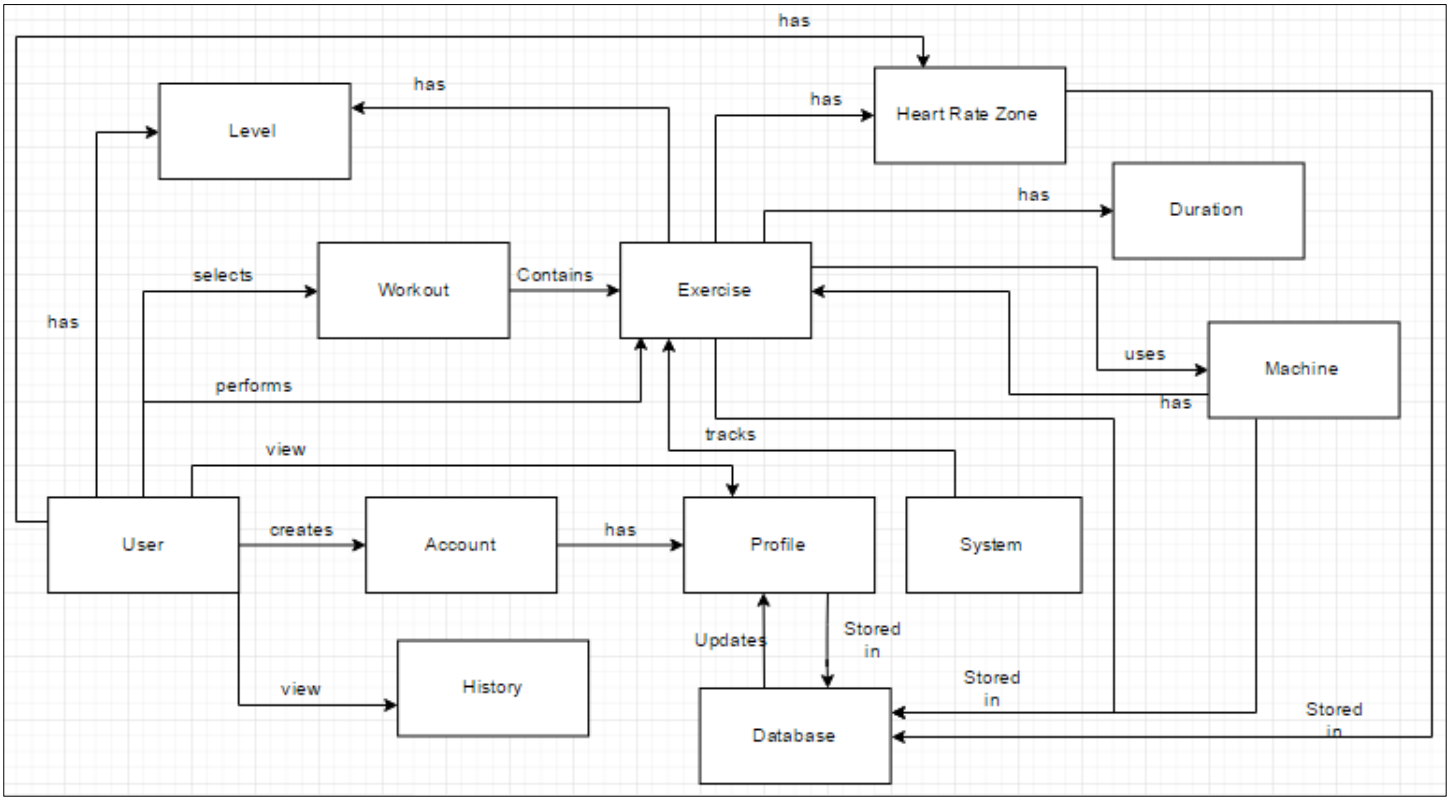

Figure 2 Conceptual Design of TrackFit System

The above diagram illustrates the concept of the TrackFit System. The system will be modelled using this design concept in more or less detail, relying on the system requirements for functionality.

CLASS DIAGRAMS

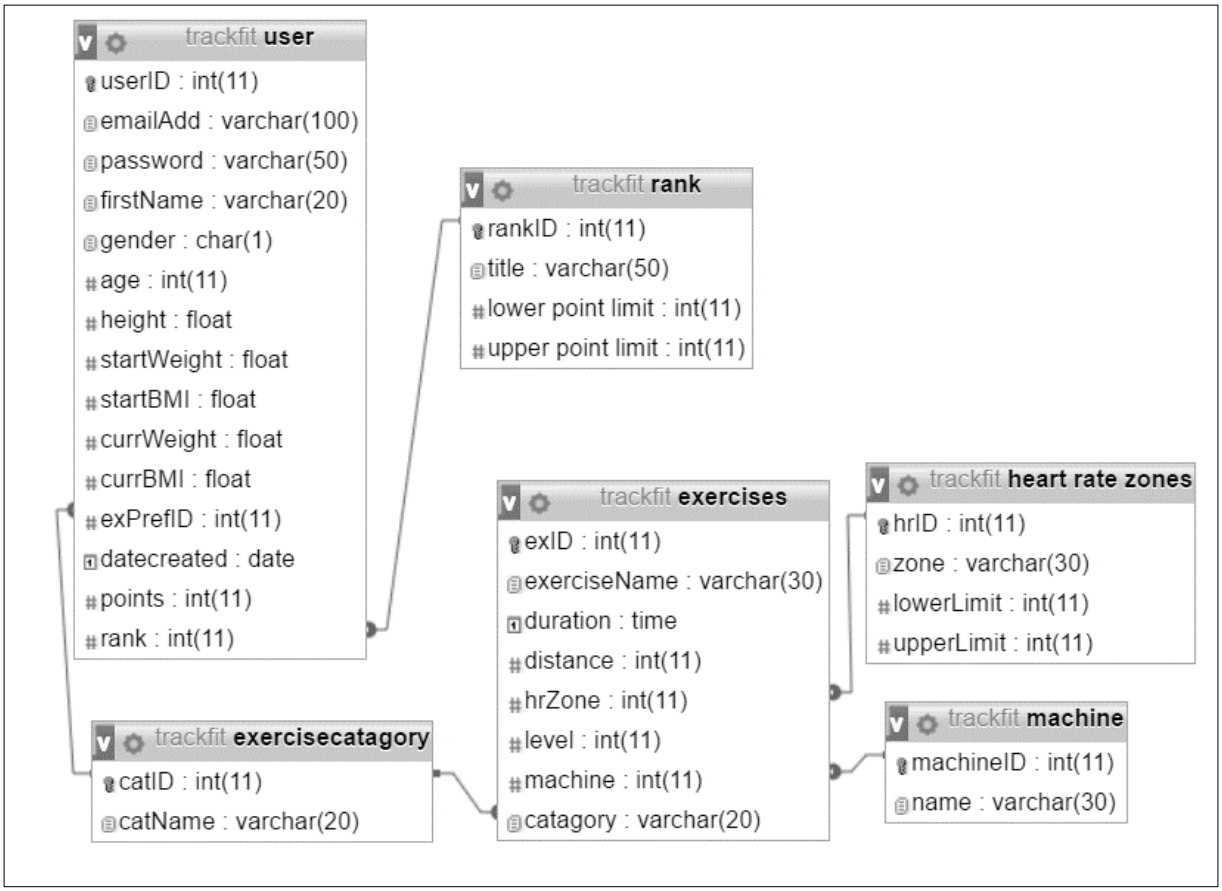

Figure 3 Class Diagram

The above diagram illustrates the classes used in the system design, their attributes and relationships. These classes contain the data that the system will use to implement its' features, success as notifying the user if his heart rate is in the danger zone for a particular exercise. These classes are used to detail the database schema.

[1]Each class has methods that allow for the processing of data. For example, the user class contains a createUser(), which creates the user using the information retrieved from the user.

[1] The initial class diagram was lost and replaced with the relationship model. Therefore methods are not displayed

USE CASES AND SEQUENCE DIAGRAMS

The following diagrams illustrate the main use cases and the corresponding sequence diagram.

Login

The user enters the login credentials and selects login.

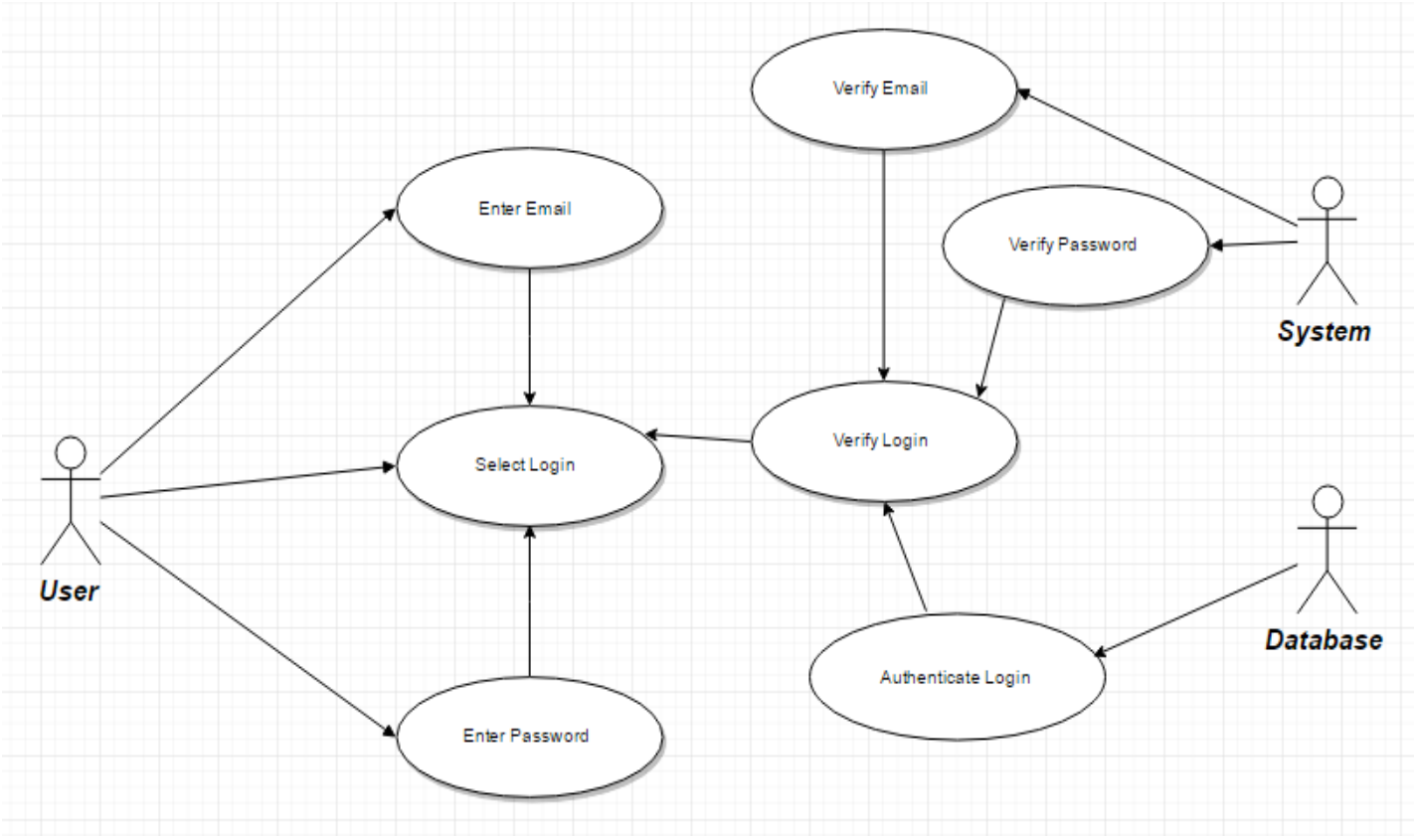

Figure 4 Login Use Case DIagram

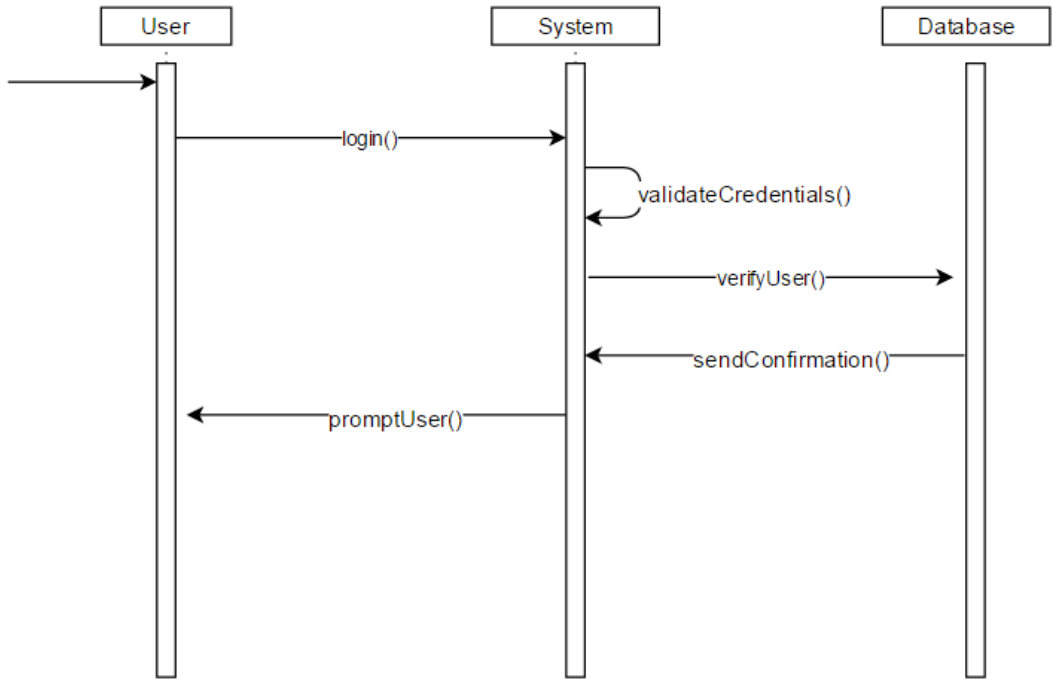

Figure 5 Login Sequence Diagram

Register

User selects register and enters the necessary information such as name, date of birth and weight, and selects submit.

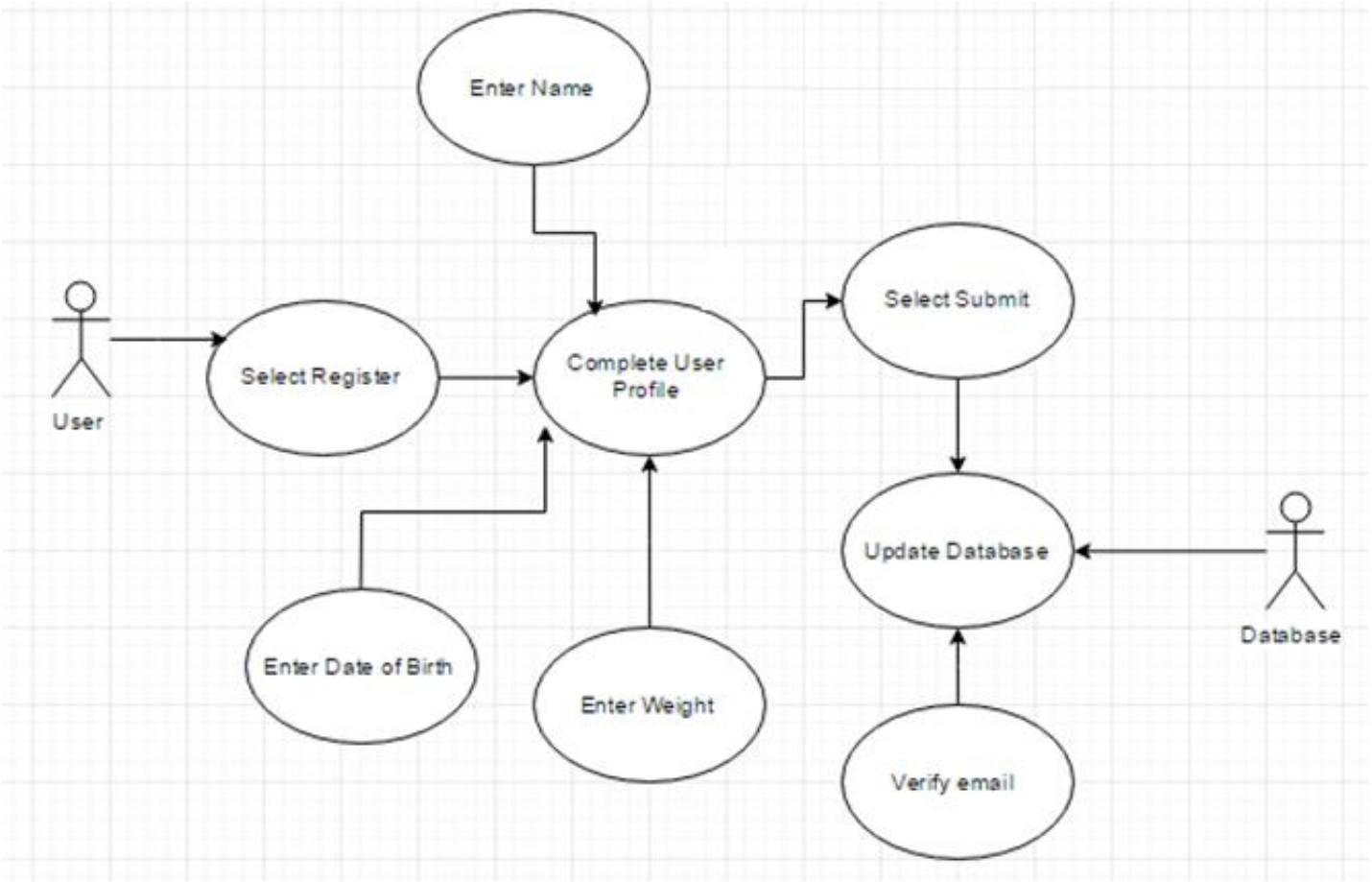

Figure 6 Register Use Case Diagram

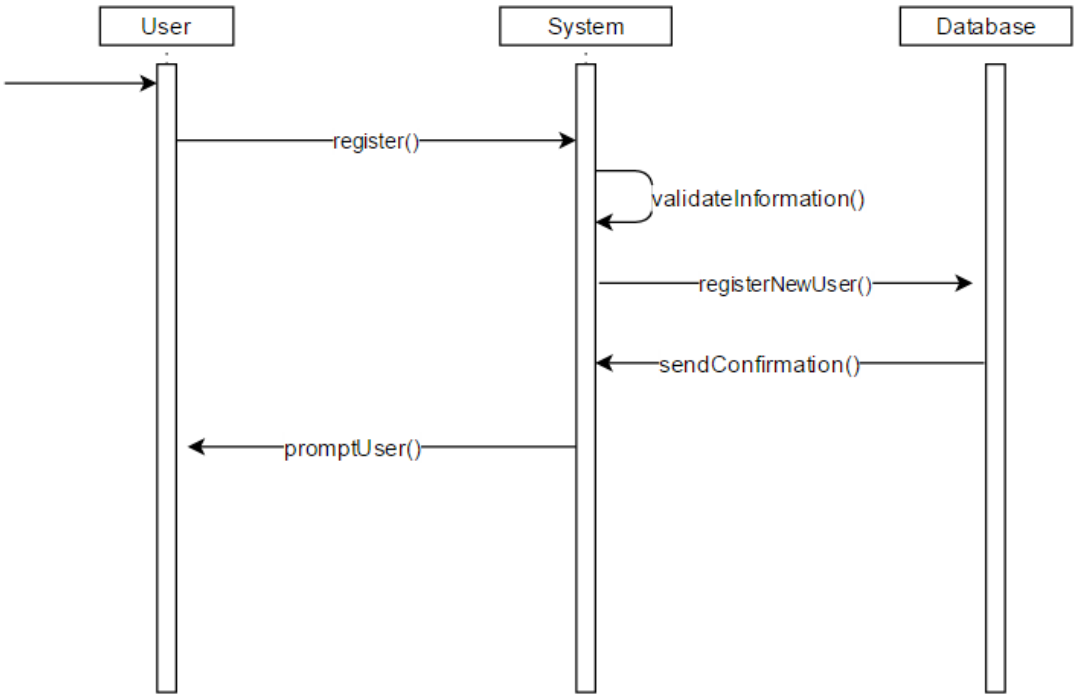

Figure 7 Register Sequence Diagram

Workout

The User selects workout and opts to start an exercise.

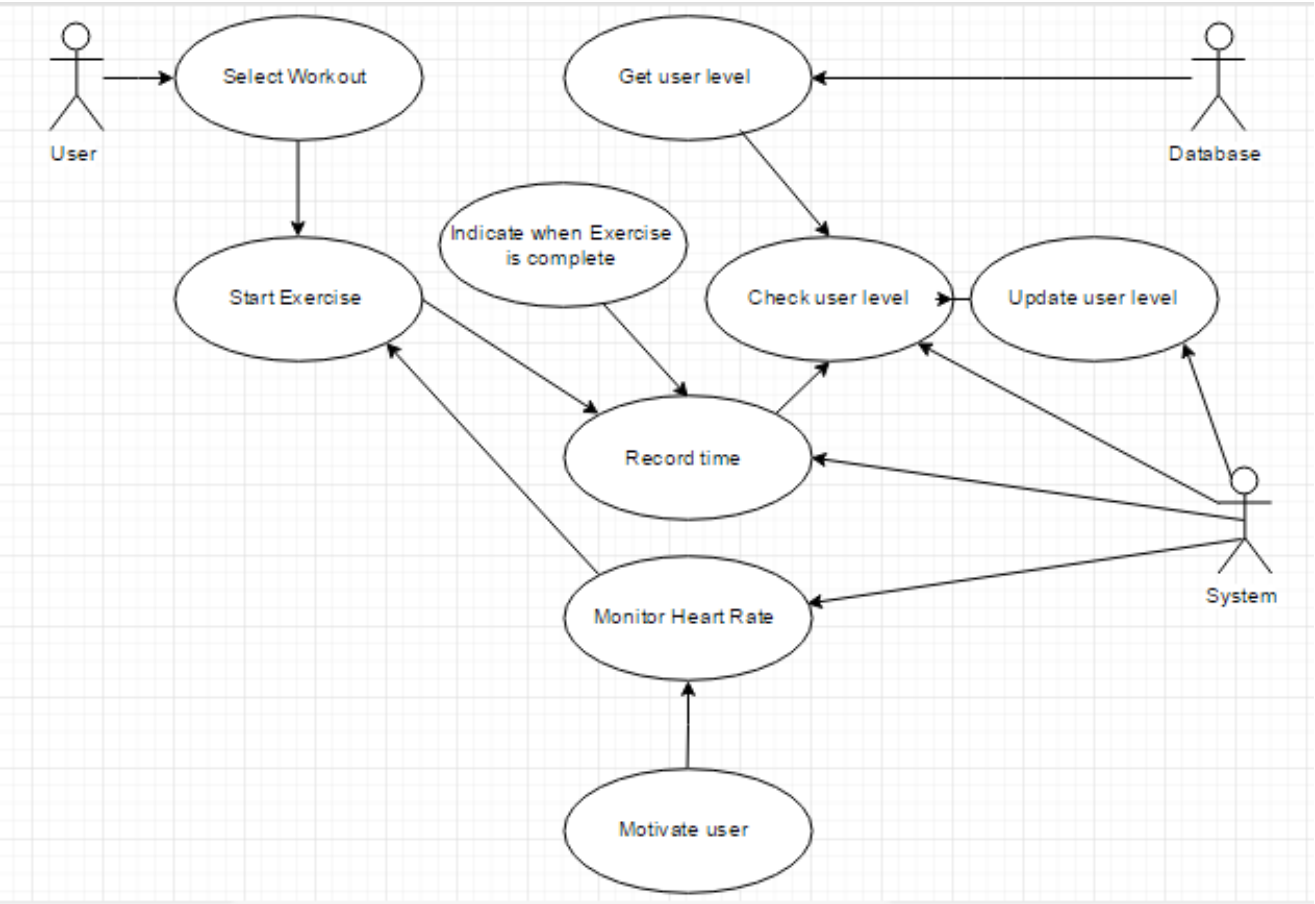

Figure 8 Workout Use Case Diagram

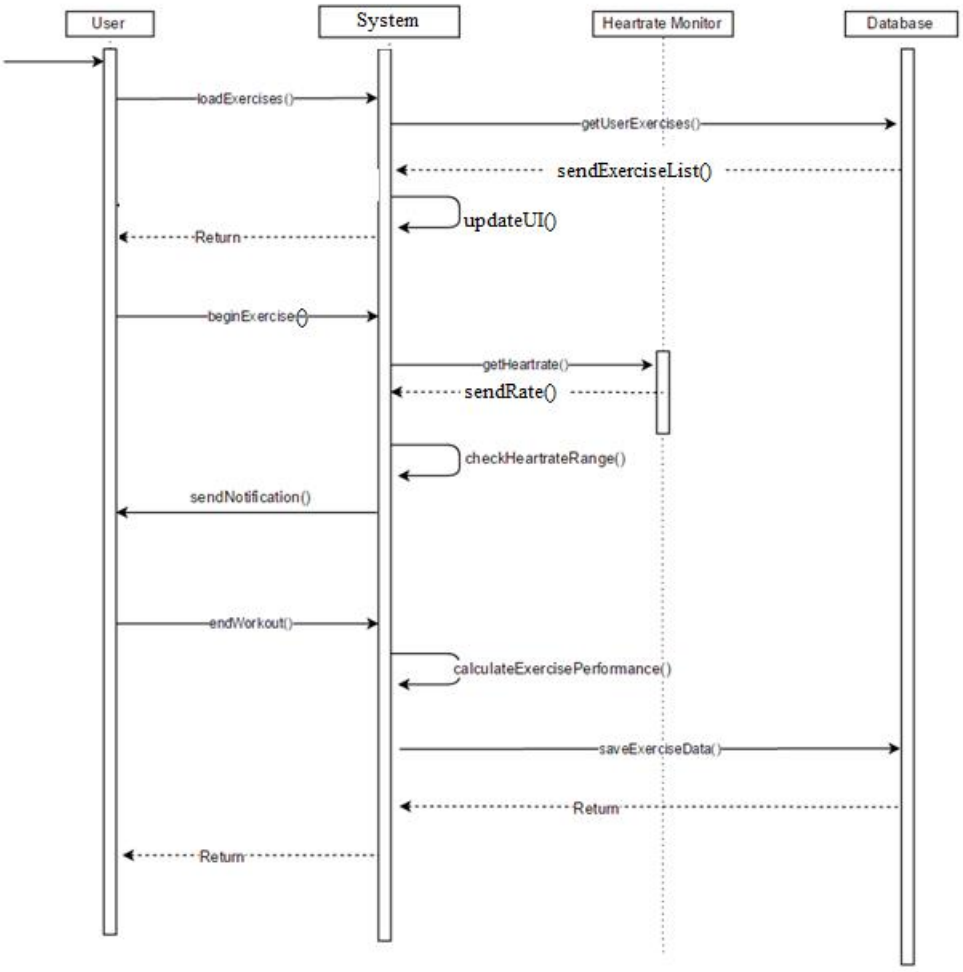

Figure 9 Workout Sequence Diagram

TECHNOLOGY

Software and Programming Language

TrackFit is a highly technical system.

The software is designed using Android Studio where the system is modelled using Java. Java provides more flexibility that C or C++ allows. Android Studio allows easy design of the user interface

The Database is designed using MySQL. As the developers are more familiar with the construction of this type of database, it was selected over other possibilities. While this method is highly detailed and less flexible than others, it provides clarity on the essential data needed for the software's functionality.

Hardware

TrackFit is being designed a mobile application. Therefore, any mobile device classified as a 'smartphone', with the minimum specifications of the application, will allow the application to operate as designed.

'Smartphones' are a modern technological device that most persons between the ages of 18 – 28 years, the scope of the project, possess. The prevalence of android devices over iOS devices, mainly due to cost, makes it more feasible to design the application for android devices, ensuring a large market of potential users.

The mobile device is paired with any mobile android wear device, for example a watch. The watch sends the wearer's heart rate to the application for processing. The mobility of the wear device allows the user to perform a range of activity without having to hold the device which would limit the number of activities the user can perform.