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Software Requirements Analysis and Design

Topfit Application

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# Introduction

## Purpose

The primary purpose of this document is to present a detailed insight of the TopFit application. It will explain the intended use and functionality of the system and the graphical representation (the interface). Details about the application’s limitations will also be provided. This report is intended for both the stakeholders’ and the developers’ use and acts as a support documentation of the application.

## Scope

The final product will be presented in a form of mobile fitness application. The application will be designed to provide users with exercise routines that can be completed from home. By following the guidelines, users will be able to save time and money on attending a regular fitness facility. In order to not miss a session, it will be possible to synchronize the workout schedule with the personal calendar. Upon doing this, the user can opt for receiving notifications about upcoming sessions. Moreover, users will be encouraged to move more throughout the day by the GPS tracking feature and tracking their progress in the dedicated section of the application.

# System Overview

## Project Perspective

TopFit application is a new system designed based on the market demand. It takes origin from other fitness applications on the market and contains the most popular exercise routines among different categories of people. It is intended to use in place of attending a fitness facility: the content is free and can be used from any convenient place. The first release will be only available for use on Android devices.

## System Context

TopFit application seeks to improve the fitness experience by offering free content and user-friendly interface. By utilizing it, people with sedentary lifestyle and a lack of time / money to attend regular fitness facilities will be able to exercise at any convenient place. TopFit offers well-balanced routines developed by professionals and confirmed to be effective and safe to perform without supervision. By undertaking the development, the team hopes to advance the knowledge of mobile application development and design. Conducting the project is also supposed to promote the company and enhance its reputation among competitors. While at the current moment generating revenue is not the primary purpose, it will likely serve as a long-term goal.

## General Constraints

The TH application is restricted with the following constraints:

Cost – the project has no budget because open-source technologies are used. Thus, no costs should be involved in the development.

Scope – development of a native Android application

Quality - application must be of high performance and store user data securely despite the absence of cost and the type of technology chosen. All the testing will be performed on developers’ hardware, all of which has similar capacity.

Customer Satisfaction – the application should have sufficient functionality to satisfy the target audience and thus to withstand the market competition

Risk – the team has very limited resources and time; thus, losing a team member will significantly impact the development process. Another critical risk is failing hardware: due to the absence of budget the team is unlikely to afford new equipment

Resources – the team members are consistent and will not change during the development. The work is conducted on the developers’ own hardware with the open-source software that can be accessed at no cost

## Assumptions

In order for the project to move forward according to the plan, the following assumptions must be valid:

**Resources**

* Users will be able to test the Beta-version of the product at the agreed time
* Hardware used by developers will be properly configured (all the necessary software present and functional)
* Estimated development time and cost are not exceeded
* The necessary training for developers will be conducted independently with no additional expenses

**Solution**

* The first release of the application will be free of charge and available for download for Android OS phones
* All the defined functions will be implemented and working without interruption

**Scope**

* Project scope will remain consistent after the scope statement is signed by the involved parties

**Methodology**

* Project will follow agile methodology throughout the development cycle, with every sprint delivering all the defined outcomes

**Technology**

* The primary technology used for development will be the Java programming language.
* Android Studio will be used as the IDE.
* Alpha-testing will be conducted on developers’ own devices, while beta-testing will take place of testers’ Android phones.

## Dependencies

**Internal**

* Workouts are complete sets of exercises
* All workouts are safe to perform
* User accounts are well-protected from external access
* Application content receives positive feedback from users
* Content is periodically reviewed and renewed.

**External**

The success of the project is greatly dependent on the market demand for fitness applications.

* Opening of a big number of fitness facilities in a city will make them more accessible that might decrease the demand for the *TopFit* application
* If prices for gym membership decrease, customers are likely to choose a traditional way of exercising over using the application.

The project also depends on competitors’ success:

* If a similar application with more features is released by a competitor company, market share might change in favor of the competitors.
* On the opposite, if no significant activity is performed by other companies, *TopFit* might eventually dominate the market.

3.0 Functional Requirements

3.1 <Functional Requirement or Feature #1>

Introduction

Inputs

Processing

Outputs

3.2 Use Cases

3.2.1 Use Case #1 ...

3.3 Data Modelling and Analysis

Normalized Data Model Diagram

Activity Diagrams

Sequence Diagrams

UML Class Diagram

3.4 Process Modelling

Data Flow Diagram

# Non-Functional Requirements

Non-Functional Requirements (NFR) of the system define its quality attribute. They represent a set of standards used to judge the specific operation of a system disregarding the functionality. For example, how fast does TopFit application load? Properly identifying non-functional requirements in the project is essential for the usability and effectiveness of the entire application. Failing to meet NFR can result in producing a system that fails to satisfy the users.

The development team has come up with the list of NFR for the TopFit application:

* **Performance**: The performance of the application can be measured by its response time or time to complete a task. For example, the start up time for TopFit shouldn’t exceed 3 seconds.
* **Scalability**: App should able to adjust to increased usage rates and handle more data as time progress. When the user adds their workout schedule, the system should be capable of storing and manipulating the data without delays. This will be achieved by optimizing the database access.
* **Usability**: The user should be able to easily navigate the application, i.e. not require any guidelines or help from experts/support documentation. To fulfill this requirement, a simple intuitive interface will be designed.
* **Security**: All the application data should be securely stored so that it’s inaccessible from outside environment and invulnerable for hacker attacks. An authentication token will be saved on local devices to be used with a pair of keys (public and private).
* **Availability**: The first release of the application will be available at Google Play Market and via Direct Installs in the APK format. As previously mentioned, this version of TopFit will only be intended to use on Android devices, with a potential of future expansion.
* **Maintainability**: This development team chose to use Git VCS to conduct the project. Should a bug be found, it will be easy to roll back to a stable version. Automatic and manual testing will also be performed prior to releasing the application to the market to ensure its full functionality. If a user happens to discover an inconsistency, they have an option to contact the development team.

# Logical Database Requirements

Will a database be used? If so, what logical requirements exist for data formats, storage capabilities, data retention, data integrity, etc?

## 

# Other Requirements

Additional requirements, if any.

# Approval

The signatures below indicate the approval of this document.

|  |  |  |
| --- | --- | --- |
| Project Role | Name | Date |
| Back-end Developer, project leader | Nadezhda Mokhireva | October 23, 2019 |
| Front-end Developer, UI Designer | Vladyslav Bordiug | October 23, 2019 |
| Back-end Developer, Database administrator | Mahdi Esmaeelpour | October 23, 2019 |
| Developer, Tester | Parisa Khataei | October 23, 2019 |