

COMP 3059 – Capstone Project I

Software Requirements Analysis and Design Assignment

MIND MANAGER APP

Team Members

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1.0 Introduction

This document will outline the purpose and scope of the presented Mind Manager App mobile application and the developments of the project. The document will also present the system overview of the project with detailed system context overview and a listing of the projects projected constraints and assumptions. These will be the updated versions based on review and new variables. In addition, a full report of the projects functional requirements regarding the system and its input and output requirements has been highlighted, along with a report on the non-functional requirements that could affect the project.

1.1 Purpose

The app will run on mobile devices, including Android and IOS. It will offer the users a service to handle user's feelings by giving them diverse options of activities.

While the software system's purpose is to relieve the user's mood and reflect suitable activities for it, including categories such as: music playing, sports, poetry, games and more, all accordingly to their mood.

Therefore, "Mood Query" feature will be introduced. This feature will show a short selection menu for the user about how they feel during the day, collect the information and will produce relative activities to it. The user might not be always certain about how they feel; therefore, they would be introduced to another feature, "Indecisive Mood Questionnaire" feature, that determines their mood by following a few interactive questions. After the user selects their mood or answers the questionnaire, they will be led to another screen showing different activities.

Another feature would be a "Seasonal Activity" feature that would suggest the user seasonal activities or local activities based on the time of the year and their location.

The system will be based on a database and will collect all information necessary to its efficiency. The user will have full history track of their moods, and preferred activities that were collected by the system. Once the login page is implemented, they will have also a personal account and their information will be saved into the database.

Our app will be available to any mobile users, with no restriction to age. Also, it will be suitable to indecisive people who are not certain what to do with their mood.

1.2 Scope

The project idea is to develop an app that will help users find activities to do when they feel different moods throughout the day. The scope of the software will only cover IOS and Android operating systems. The application will present the user with different suggestions of activities that could be done according to their current mood, and those activities will be updated according to what is happening in the city. The user will be able to filter the suggested list, randomize it, and also define a location range so they can adjust the total range of the activities suggested from their current location. The software will also keep track of the user's past result lists with selected moods, in case the user wants to go back to a certain suggestion. The software will not tell the user what to do, it will only be suggesting activities according to the selected mood(s). The application will also not suggest any kind of medication or food to the user, since none of the team members is a specialist in the subject.

2.0 System Overview

This app will be available for iOS and Android operating systems. This system's primary function is to offer various activities based on user mood data. The user interface will offer a choice among different types of moods and feelings or prompt the user to determine the mood using a questionnaire. Once the user's mood has been determined, the user will be presented with various options for actions that they can perform, including playlists of music, poetry, sports, games, etc.

2.1 Project Perspective

Our team goal was to develop and maintain a unique project that would be different from other existing applications in the market. Therefore, our team has made an extensive research to identify whether there are any similar applications with the similar functionality. After the research we identified that currently there are no projects like this. Also, we would like to mention, that we did not try to replace any other system or create a follow-on member of a system family. Our system is self-contained.

2.2 System Context

The system software that will be developed by this project will be an interactive activity selection software that will give randomized activity suggestions which will be influenced by the mood and question selection of the user.

The system is made to address the issues related to having a convenient mobile application that can help individuals correlate their activity plans with their current mood or overall wellness state. The system will operate with the presentation of mood options to the user in the form of a list, in which the user

can select one or more of them. After the selection, the software will generate a further listing of activity categories that contain randomized activities based on the user mood inputs.

If the user cannot decide or correlate to any of the moods presented, the user will be presented with a listing of a few questions they can answer to help narrow down their current mood state. This is to serve as a fail-safe as individuals mood states can be unique to any individual and may not be fully represented on the first screen. Consequently, the system will require proper questions to better narrow down the result. The activity suggestions can then be further refined with a filter option, distance limiter and a random option, that can offer new suggestions that still correlate to the user mood or questions selections, as the system will require flexibility to be as user-friendly as possible.

In addition, the software's interactive mood selection and activity filtering systems and focus on activity selection over simple mood tracking helps propel it away from similar products currently on the market whose software focus on mood in terms of tracking its state and what triggers its changes. Thusly a functioning system with this intent can fill a current gap in the market it terms of functionality.

2.3 General Constraints

Few constraints are in sight in terms of the technical aspect of Mind Manager app:

As documented, the app will be running on mobile devices and it is intended only to mobile users. The application will not be available through the web browser. This will be a great constraint in the business side knowing there is a major lost of potential clients that use other platforms or a Desktop. Furthermore, the app will be available on the most popular platforms: Android and IOS. Consequently, it won't be reachable on other less-known platforms in the market. Therefore, the app's audience might be limited to some extent.

A Second technical constraint is the usage of database system. As known, database systems highly assist in growing efficiency in the app data organization. This tool will be consistently updated by the developers as the activities change all the time. Also, since the database connection may shut down due to any reason, the app won't be able to serve the clients.

As for testing constraint, testing may be a constraint since a physical phone is needed to run the final version of the app. Therefore, both Android smartphone device and iPhone device are physically required. Testing the app with a virtual machine on a PC is not adequate for the final test, since it won't be testing the full edge cases that might possibly be.

A Mac device will be needed to complete the app since XCode, the software needed to build on iOS, is available only throughout Mac devices, not on Windows. If Mac device is not available to developers, then a virtual machine is necessary throughout Windows. It must be installed to deploy Mac platform, thus, XCode will be available to the developers.

In terms of business constraint that the app may issue with is the business low budget. This is a college project and does not meant to have any source of foundation although there might be some expenses in the future on creation of the app. This constraint might be crucial and effect the developer's performance as personal motivation. Also, the budget may be needed for some requirements such as: publishing the app costs money, advanced software for developers (not the free version) may be necessary to enhance developer's performance, professional designing and more.

2.4 Assumptions and Dependencies

Assumptions

- The project will remain mostly focused on the creation of a mobile app. Any changes to the format of the deliverable will unlikely not change throughout the life of the product. Should changes occur, such as migrate the functionality to a web browser, they would have to go through a group approval and technical and business review to verify if the changes will bring any value to the project.
- The team will remain consistent from beginning of project begining to the end of the project with no members leaving or entering during its length. Should a new member be put into consideration to join the project, this individual would require the approval of the group before being brought on into the project. If a current team member decides to leave the group, a reasonable motive should be given for their departure, and the remaining team members should reorganize the tasks given.
- The overall project document and deliverable will likely go through several revisions before the final document is chosen and submitted. New features will be added often. We will work under the assumption that the core features and purpose of the deliverable will remain consistent throughout the project and the project goal will not change. In that the ultimate aim of the project will be the delivery of a mobile app the serves the purpose laid out in the documents.
- The software will go through testing, updating and maintaining every now and then, to make it better than the last version. A structured system will be implemented to undertake this and will remain consistent during the life of the project. Any changes to the process of testing and updating will be reviewed to ensure that it will not adversely effect the project or the final system deliverable.

- No substantial increase in budget will be put towards the project and the team will work with the equipment and software they have available. Any future increase in budget towards the project will be at the individual project members personal expense and willing contribution. Should the project ever receive an increase in official budget, a group committee will decide how it is used.
- The software, in the future, will be available in more languages, since the team members have different first languages, such as Portuguese, Hebrew and Russian. For now, the software will be implemented just in English.

Dependencies

Internal Dependencies

- Proper interpersonal collaboration between the development team.
- Limited budget
- Coding skills

External Dependencies

- User preferences and general consumer taste could change to the product's detriment, leading to the lack of consumer interest.

3.0 Functional Requirements

3.1 Functional Requirement

- **Introduction**

The app will give automatic suggestions to users based on various inputs the user selects after opening app. Based on these inputs in addition to any further filtering or alteration to the distance of the range the app will output the various suggestions to user.

- **Inputs**

The input for the operation is a series of selections made by the user from a listing of various moods presented on screen for the user. A user can select any number of the available moods' selection, such as energetic, tired, happy, etc. From these selections the app will begin the processing phase. Should the user select the "I don't know" option they will be directed to answer a series of questions as inputs.

- **Processing**

The system will then take their series of mood selections or question answers and process them through automatic selection generators that will present to the user a listing of random activity selections. The outputs

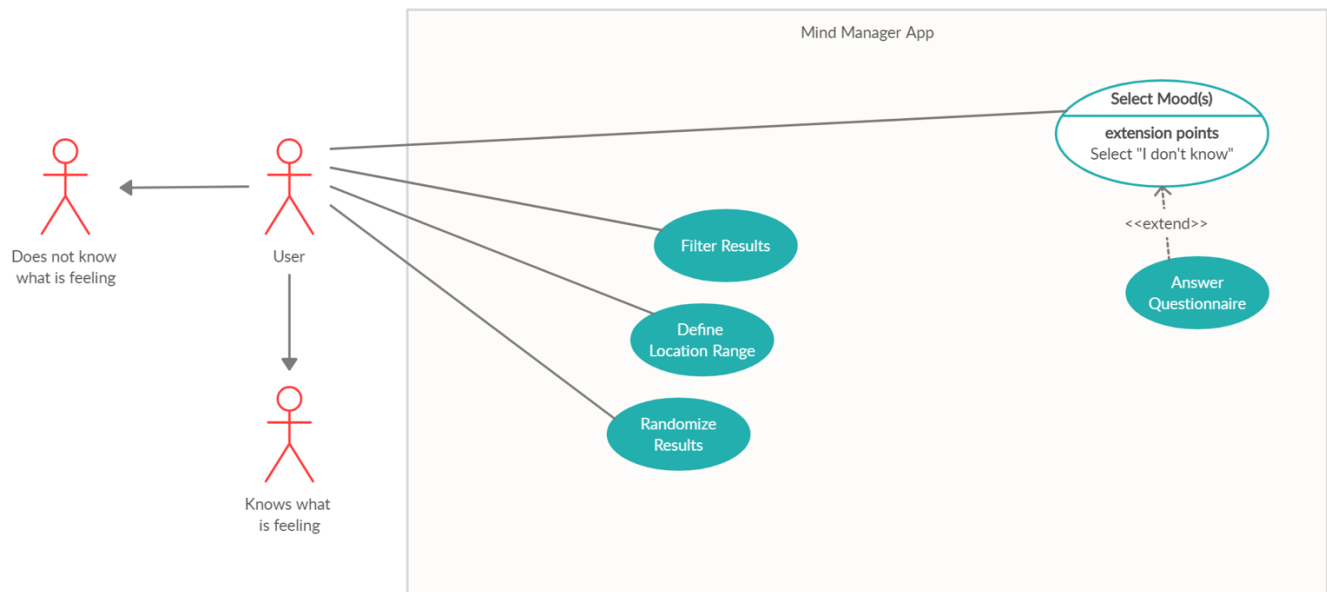
will be able to be further refined by the user through filtering and maximum distance caps that the user can alter to receive different results

- **Outputs**

The outputs of the system will be displayed to the user as a vertical listing of various subcategories of activities, tailored to the user mood based on input. The user can select a subcategory to receive their random selections of activities for that specific sub-category. The use of filtering and distance caps will alter the individual selections should the user not be satisfied with the results. Resulting in new random selections be presented that better match the users desires.

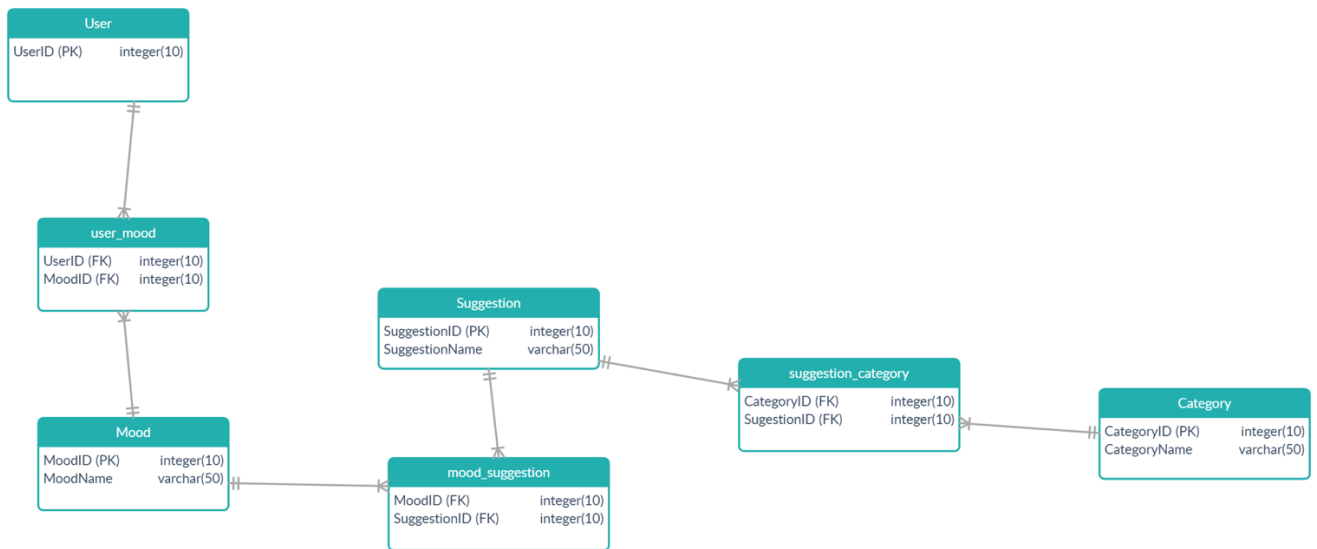
3.2 Use Cases

3.2.1 Use Case #1

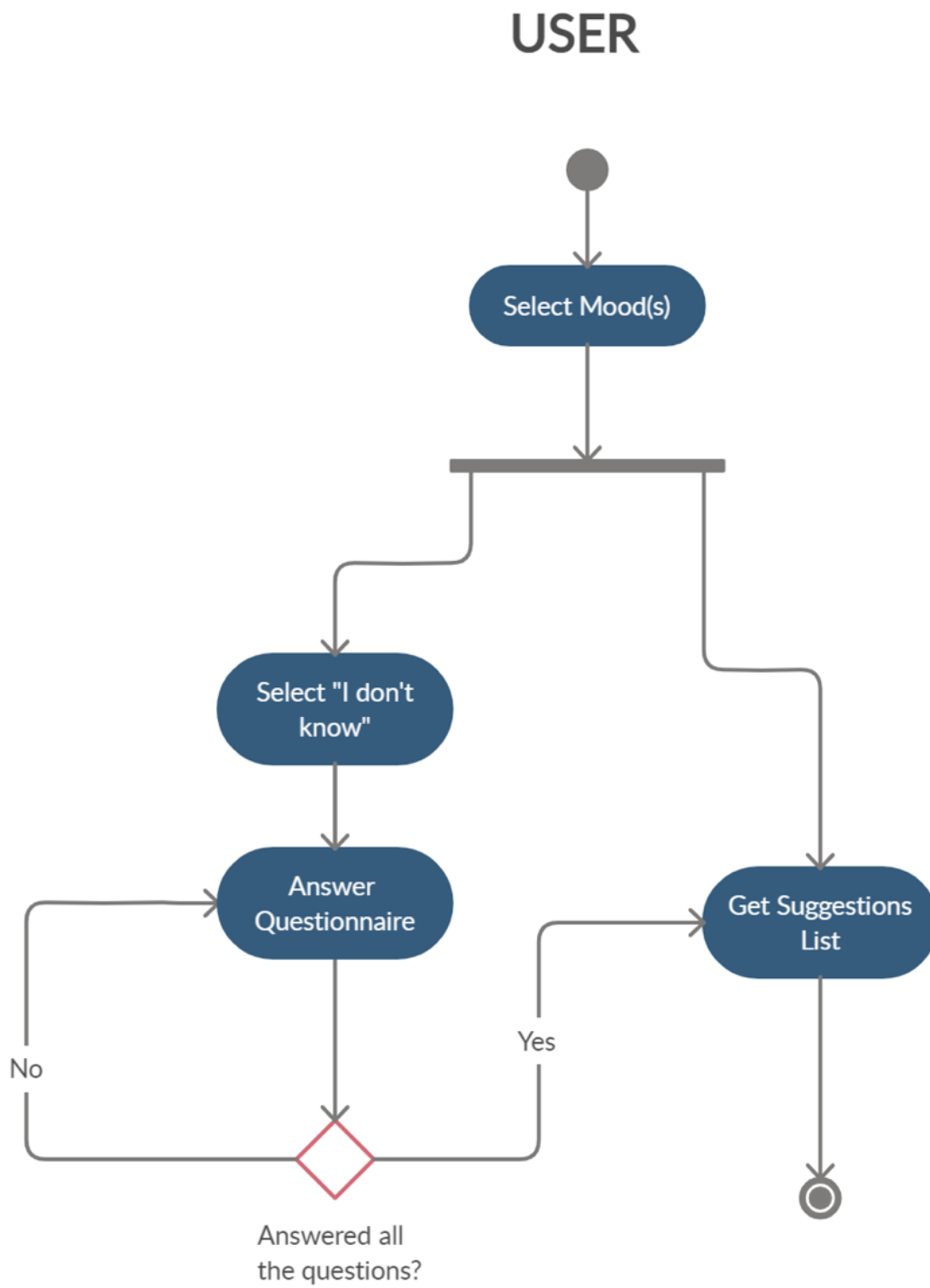


3.3 Data Modelling and Analysis

- Normalized Data Model Diagram

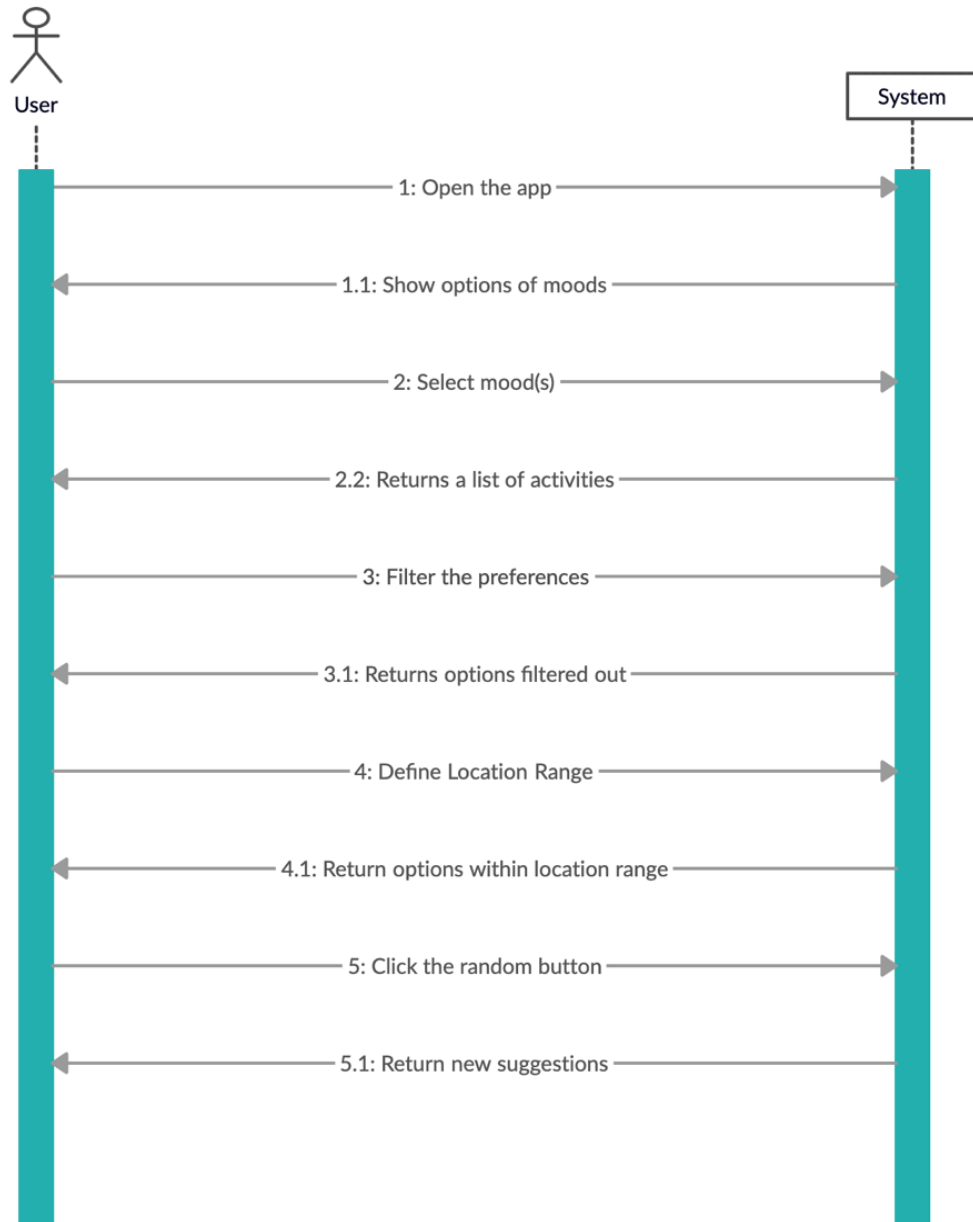


- Activity Diagram

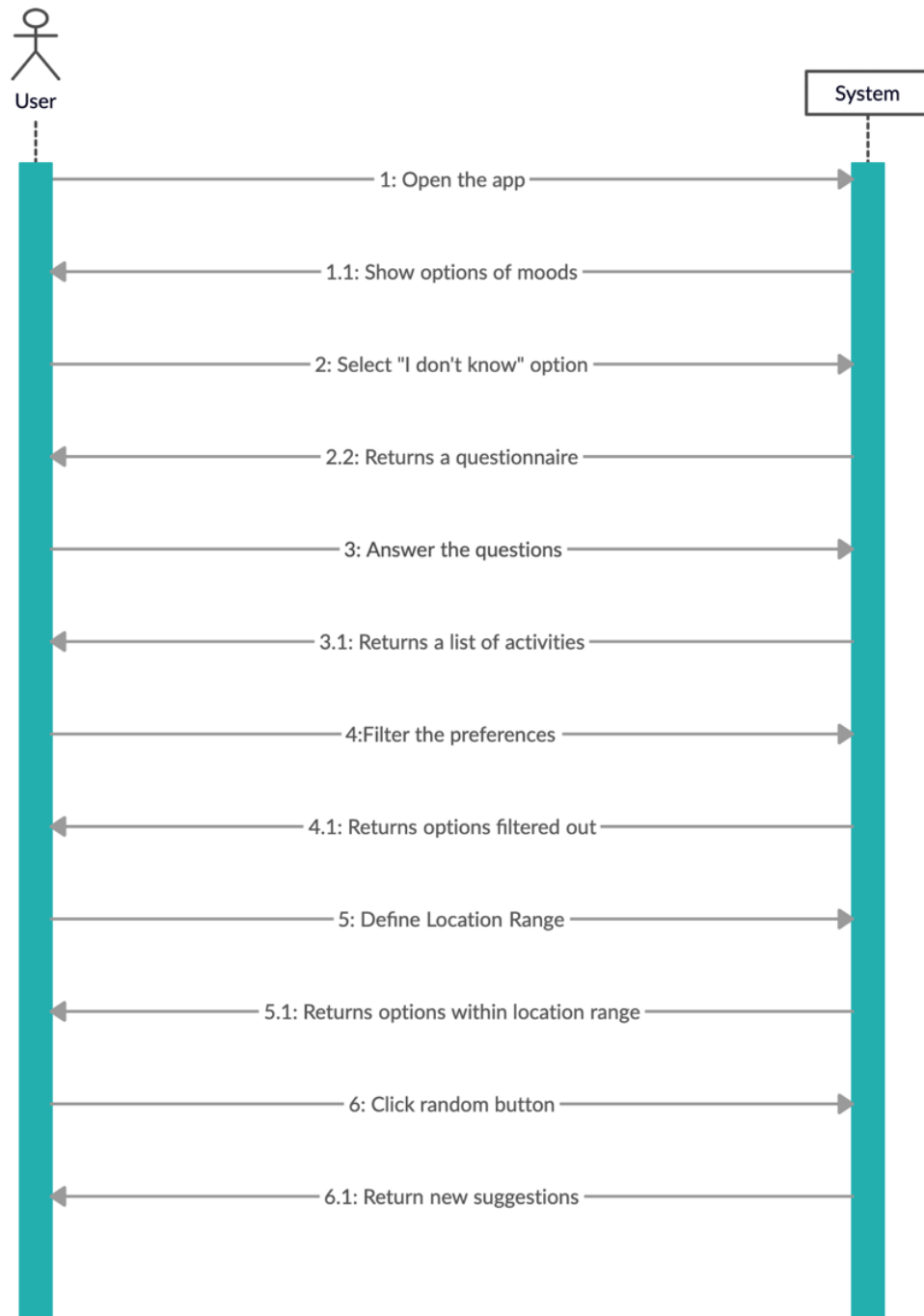


- Sequence Diagrams

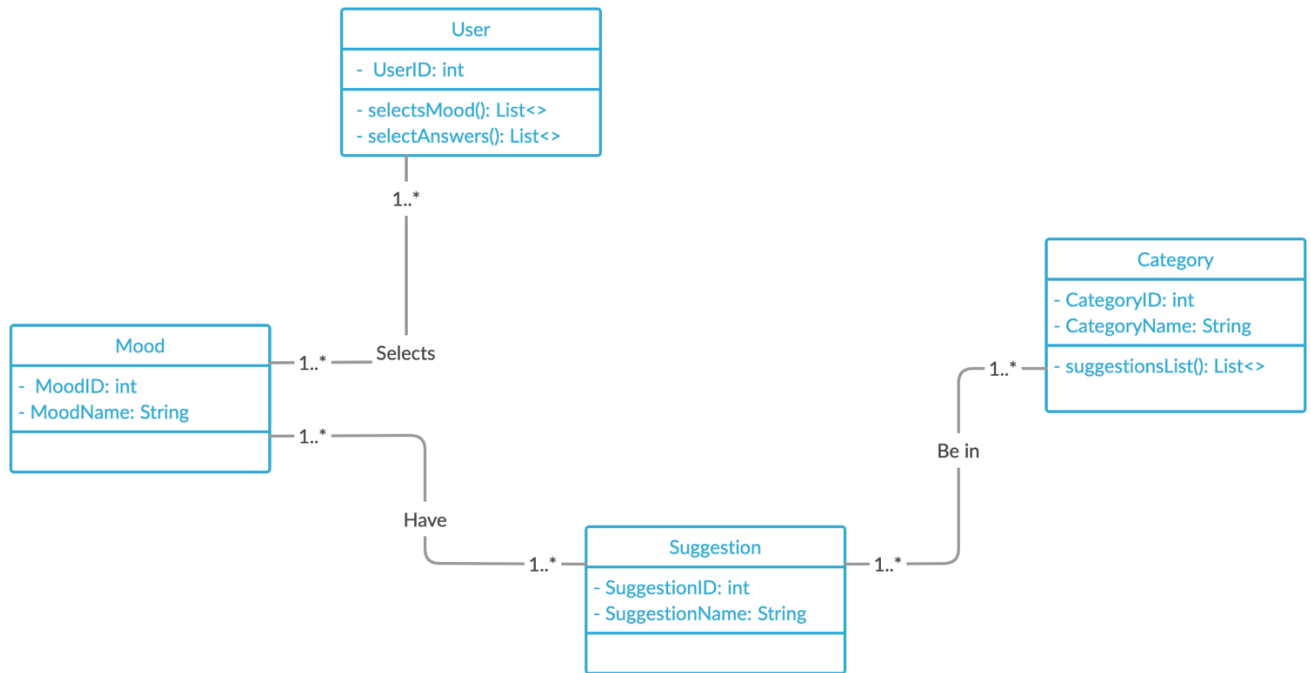
USER: KNOWS WHAT IS FEELING



USER: DOES NOT KNOW WHAT IS FEELING

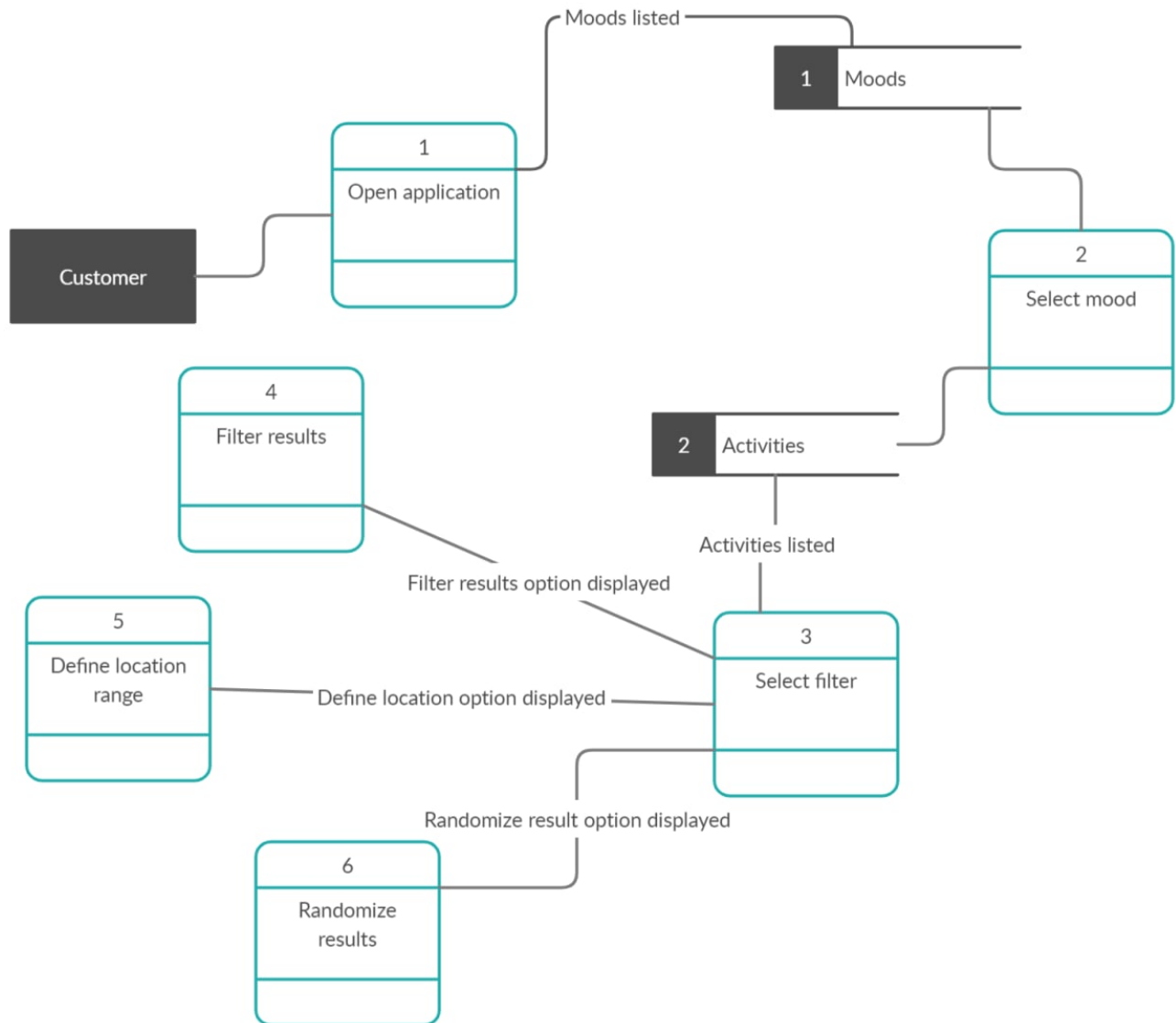


- UML Class Diagram



3.4 Process Modelling

- Data Flow Diagram



4.0 Non-Functional Requirements

Performance. *Response and processing times:* Application loading should occur in 1 second. Once the login page is implemented, the user will enter their data on the login page, the search for the user's login and password in the database and the transition to the main page of the application, or the system's refusal to authorize the user should be carried out in 1 second. The interface refresh time ought to be 2 seconds. When users choose their type of mood through a direct choice or through a choice using a questionnaire, they should receive a system response with recommendations for activities in 4 seconds. The filtering of the proposed activities is carried out by the user manually with the filter and should take no more than 2 seconds. Any functions and calculations should occur in 1 second.

Portability. The mobile application will work on both Android and iOS. Porting the system for use on stationary computers is not planned at the initial stage of application development.

Reliability. The mobile application probability of failure on demand shall be 0.001 (1 out of 1000). Failure means the app fails to operate, and the software must be restarted to correct the failure.

Availability. The program will work for the GTA region and will be available to users at any time of the day, except for the time for maintenance work. Unless the system is non-operational, the system shall present a user with notification informing them that the system is unavailable.

Maintainability. Shutdowns due to maintenance work will be carried out as needed during business days of business hours. The system will be developed using many links to external resources. For example, the application will contain links to music, links to websites of various organizations, such as sports clubs, community centers, concert halls, etc. A lot of external links will make the maintainability of the system is considered low. System developers will strive to write functional code with a lot of comments to make it easier to repair the system when it needed.

Security. In the future, when the login page is implemented, users will be prompted to change their password every 6 months. Users shall be forced to change their password the next time they log in if they have not changed it within the length of time established as "password expiration duration." The password requirements will be set - length, use of numbers and special characters. Passwords shall never be viewable at the point of entry or at any other time. Users shall receive notification of profile changes via preferred communication method of record when profile information is modified. The access permissions for system data will occur only for the system's data administrators. The system will distinguish if user is authorized or unauthorized on each page of the application. Authorized users will be allowed to interact with the system. Unauthorized users will be returned to the login page. An inactivity timeout of 5 minutes will be defined. If the user is not active during that time, the system will deauthorize the user and redirect them to the login page.

5.0 Logical Database Requirements

Database format.

The system must store all the user account information as well as the mood records, suggestion categories, activities. The amount of data stored will be large, so, we decided to use SQLite database due to the fact that it perfectly deals with big data flows. All tables with the user history track of lists and moods will be stored in the user's mobile memory, so the user can access past suggestions of activities.

Accessibility and Security

Once the login option is implemented, only the user with a created account can access user data that belongs to the account. No users have a permission to modify data.

6.0 Other Requirements

React-Native or Android Studio and XCode, SQLite.

7.0 Approval

The signatures below indicate their approval of the contents of this document.

Project Role	Name	Signature	Date
Developer	Bruna Bispo Abatepaulo	Bruna Bispo	11/14/2020
Marketing Analyst	Evgenyia Zhukova	Evgenyia Zhukova	11/14/2020
System Analyst	Gordon Wells	Gordon Wells	11/14/2020
Developer	Karin Zigdon	Karin Zigdon	11/14/2020
Developer	Marina Savochkina	Marina Savochkina	11/14/2020