

# **Software Requirements Specification**

## **Mental Health Assistant**

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# Table of Contents

|  |    |
|--|----|
| 1. Introduction.....                                 | 3  |
| 1.1 Purpose.....                                     | 3  |
| 1.2 Intended Audience .....                          | 3  |
| 1.3 Product Scope.....                               | 3  |
| 1.4 Definitions, Acronyms and Abbreviations.....     | 4  |
| 1.5 References.....                                  | 4  |
| 2. Overall Description .....                         | 5  |
| 2.1 Product Perspective .....                        | 5  |
| 2.2 Product Functions.....                           | 5  |
| 2.3 User Characteristics .....                       | 5  |
| 2.4 Assumptions and Dependencies .....               | 5  |
| 3. Architecture to Follow .....                      | 6  |
| 4. Requirements .....                                | 8  |
| 4.1 User Interface.....                              | 8  |
| 4.2 Functional Requirements.....                     | 9  |
| 4.3 Non-Functional Requirements .....                | 11 |
| 4.4 Design Constraints .....                         | 12 |
| 5. Release .....                                     | 13 |
| 5.1 Release Plan .....                               | 14 |
| 6. Training .....                                    | 15 |
| 7. Use Case Diagram .....                            | 16 |
| 8. Activity Diagram (Included as separate PDF) ..... | 16 |

## **1. Introduction**

### **1.1 Purpose**

The purpose of this SRS document is to detail the requirements pertaining to the “Mental Health Assistant” mobile app. The contents of this SRS will describe the entire proposed project.

### **1.2 Intended Audience**

This SRS document is intended for developers, project managers, users and documentation writers. It will explain various requirements and constraints associated with the Mental Health Assistant. We also detail the release plan and usage of the app. A use case diagram has been included that give a visual representation of how the user interacts with the app, as well as an activity diagram showing the system activity.

### **1.3 Product Scope**

The Mental Health Assistant will be a free to download app which allows users to track medication usage and their own mental health. The user can benefit from other features such as a pill reminder and tracker, mood and mental health evaluator as well as an appointment tracker.

Health professionals will have access to the reports completed by their patient (the user). This will allow the health profession to view the patient’s mental wellbeing history, health bios and to ensure they have been taking their medication as directed.

The app will contain no “in-app purchases” and will be available on the Google Play Store under the “Health and Fitness” category. Internet access will be required as the user and health professional must be able to log in to use the MHA.

#### 1.4 Definitions, Acronyms and Abbreviations

| Term                | Definition  |
|---------------------|---|
| Appt.               | Appointment.  |
| Bios                | Biostatistics.  |
| BP                  | Blood pressure.   |
| DESC                | Description.  |
| Health Professional | A doctor, counsellor or psychiatrist who uses the app to                        |
| In-App Purchases    | Extra content that must be purchased at a separate cost.                        |
| Med.                | Medication.   |
| MHA                 | Mental Health Assistant. The name of the app.                                   |
| P.R                 | Pill reminder.  |
| Patient             | Refer to "User".  |
| RAT                 | Rational.   |
| User                | The person who uses the app to track mood, appointments and prescription usage. |

#### 1.5 References

[1]Software Development Models: Iterative and Incremental Development (January 21<sup>st</sup>,2014) Retrieved from <https://technologyconversations.com/2014/01/21/software-development-models-iterative-and-incremental-development/>

[2]Iterative and incremental development – Wikipedia (January 18<sup>th</sup>, 2018) Retrieved from [https://en.wikipedia.org/wiki/Iterative\\_and\\_incremental\\_development](https://en.wikipedia.org/wiki/Iterative_and_incremental_development)

## **2. Overall Description**

### **2.1 Product Perspective**

This product consists of a mobile app. The MHA will require internet access as the user and health professional will need to be able to connect through an internet service provider to log into the system. External data storage will be required to keep track of the user's evaluation and bios history. This will also allow the health professional to access this information.

### **2.2 Product Functions**

The user will be able to evaluate their current mood, set reminders to take and refill their prescriptions, keep track of appointments as well as record their bios such as pulse and blood pressure.

The health professional will be able to view the progress of the user, ensure they are checking in regularly and monitor their overall mental health.

### **2.3 User Characteristics**

The users of this app will be the patient and the health professional. The user will only be able to use the app to complete evaluations, record bios and organize their prescriptions and appointments.

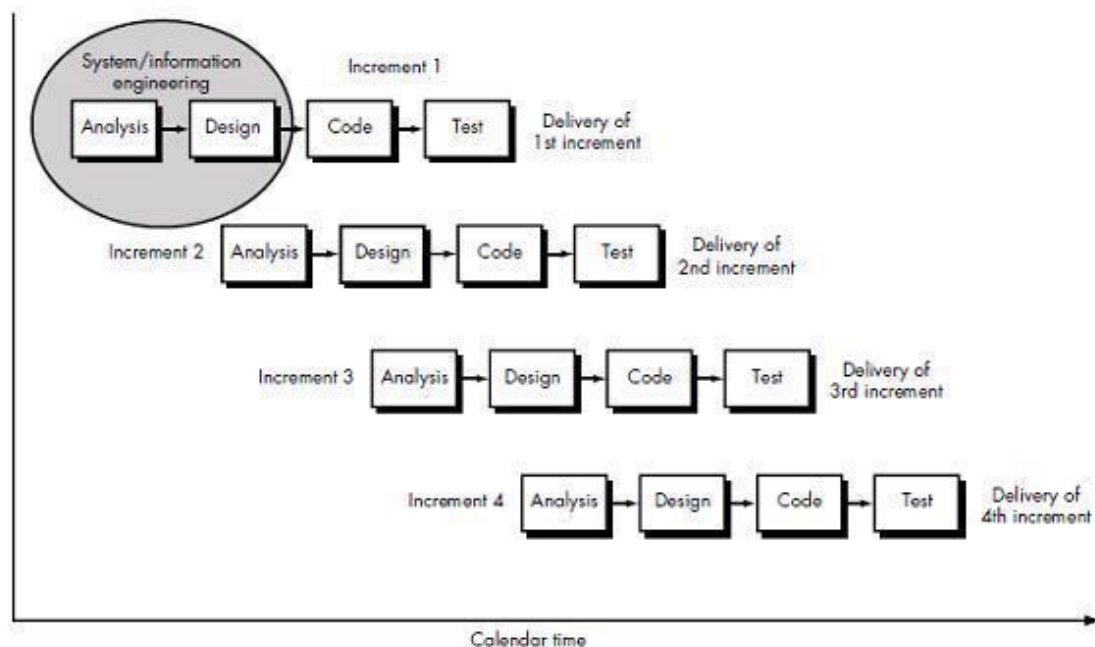
The health professional will have access to a patient list as well as bring able to generate reports for a patient. Should time and budget allow it, we hope to include a feedback option where the health professional inform the user just how he/she is doing in terms of their goals and progress.

### **2.4 Assumptions and Dependencies**

MHA will work under the assumption that the user and health professional will be connected to the internet via their mobile device. Also, it will be assumed that the device will have the resources available to run this product.

### 3. Architecture to Follow

Two different way of looking at the iterative design process.



Iterative development was created as a response to problems found in the waterfall model. The general idea is to develop the software in iterations, small portions at a time. Many developers use an iterative approach. Select a requirement, analyse / design / implement / test / & repeat. This has the advantage of getting a basic version working early and then develop it step-by step, from one working version to the next. After the initial gathering and discovery of requirements and initial planning, the iterative approach lends itself well to breaking the design into modules and therefore object-oriented design and programming.

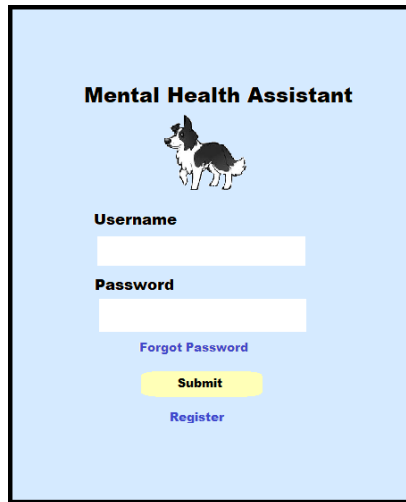
Each iteration focuses on one or more parts or modules of the project. When it is developed that iteration is implemented, deployed and tested. This quickly gives the client a version to look at and give feedback about. Any needed changes can be incorporated into the next or later iteration. During testing and evaluation of an iteration the next iteration can already be adding additional requirements and working on analysis and design. This process repeats until all requirements are met.

There are several advantages to this type of process. Quickly getting a version to the client helps to keep the client happy and seeing that process is being made. This also helps to identify any issues or changes that the client wants early in the process. It also has the advantage that different stages can be happening at the same time. While Iteration (n) is being tested and evaluated, iteration (n+1) can also be in analysis and design, with different people working on the different stages at the same time. This process is also flexible, being much easier to make changes part way thru than say the waterfall method. Testing is focused on one part that allows for faster detection of problems and greater reliability. Another advantage is that this method, with its early releases and greater flexibility, often leads to a cost and time savings. The iterative process can be used in both small and large projects.


The modularity, flexibility, efficiency, and quick deliverables of the iterative process are the reasons we choose to use this software development cycle.

## 4. Requirements

### 4.1 User Interface



**Mental Health Assistant**



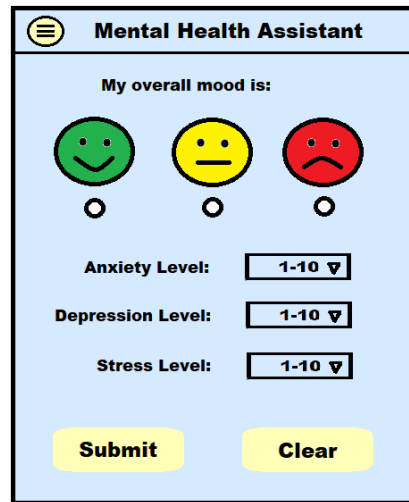
Username

Password

[Forgot Password](#)




[Register](#)

Login Screen



**Mental Health Assistant**

My overall mood is:

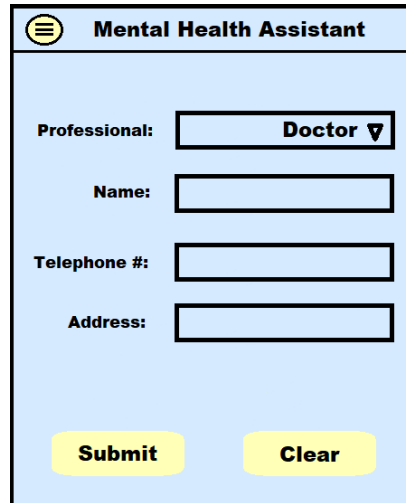
☐  ☐  ☐ 

Anxiety Level:

Depression Level:

Stress Level:

Mood Tracker



**Mental Health Assistant**

Professional:

Name:

Telephone #:

Address:

Doctor/Counsellor Info



**Mental Health Assistant**

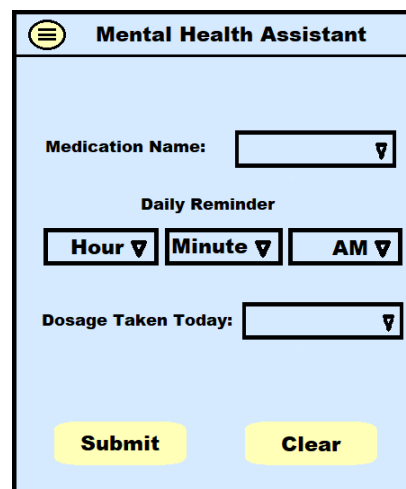
Medication Name:

Dosage:

Pill Frequency:

Refill Reminder:

Medication Info



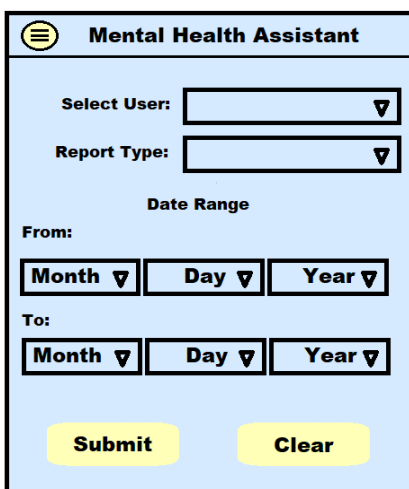
**Mental Health Assistant**

Medication Name:

Daily Reminder

Dosage Taken Today:

Pill Reminder/Tracker



**Mental Health Assistant**

Select User:

Report Type:

Date Range

From:

To:

User Report Selection



## 4.2 Functional Requirements

ID: FR1

TITLE: Download App.

DESC: The MHA will be made available through the Google Play Store. The user can search for the MHA by name or find it in the "Health & Fitness" category. The MHA will be free for the user to download and will contain no in app purchases.

RAT: Allows a user to be able to download the app for use.

ID: FR2

TITLE: User Registration.

DESC: The user registration will allow the user to submit their username (e-mail address), password, address and age to create their own profile. Registration allows the user to be able to log in, so they can track their progress and update medication or doctor information.

RAT: Allows a user to create their own account.

ID: FR3

TITLE: User Log In

DESC: Logging in allows the user to access the main menu which acts as a hub for the other features the MHA offers. The MHA does require registration and log in for the user to be able to it's features.

RAT: Allows a user to be able to log into their account.

ID: FR4

TITLE: Pill Reminder/Tracker

DESC: Setting the pill reminder will sound an alarm prompting the user to take their medication at the specified time. Also included is a pill tracker which allows the user to confirm that they have taken their pill. In the case the user has forgotten whether they have taken their medication, they can refer to the pill tracker.

RAT: Allows a user to set a reminder to take their pill, as well as a "pill taken" reference.

ID: FR5

TITLE: Medication Info

DESC: The user can organize the medication they're currently taking in one place. The user can add the name, dosage amount, pill frequency as well as set a prescription refill date reminder. Furthermore, the user can edit their medication info as well as delete entries.

RAT: Allows the user to add, edit or delete medication information.

ID: FR6

TITLE: Health Professional Info

DESC: The user can add the name, phone number and address of their health professionals for quick reference. This may include doctors, psychiatrists or counsellors. After adding a health professional, the user may edit or delete entries.

RAT: Allows the user to add, edit or delete health professional information.

ID: FR7

TITLE: Personal Evaluations

DESC: The user can complete various health level evaluations pertaining to their overall and mental health. Regarding overall mood, the user can select one of three images: a green smiley face signifying "great" overall mood, a yellow straight face signifying "okay" overall mood and a red sad face signifying "poor" overall mood. The user may also select from a scale of 1 (low) to 10 (high) their current level of anxiety, depression and stress.

RAT: Allows a user to complete overall and mental health evaluations.

ID: FR8

TITLE: View User Evaluation Reports

DESC: The health professional can access a patient list which will give them the option to view patient evaluation reports. These reports include user health evaluations, including overall mood, anxiety, depression and stress levels.

RAT: Allows the health professional to view their patient's own evaluations.

ID: FR9

TITLE: Appointment Tracker

DESC: The user is given the ability to create and store an appointment location and time which will sound an alarm ahead of time, ensuring they do not miss an important meeting with their health professional. The user is also able to edit and delete appointments.

RAT: Allows a user to create, edit or delete an appointment time.

ID: FR10

TITLE: Record Health Bios

DESC: Working with a device capable of reading blood pressure and pulse, the user can record those numbers. This will allow them to track their bios history, giving a visual representation of improvement or decline in health.

RAT: Allows the user to record health bios such as blood pressure and pulse.

ID: FR11

TITLE: Mental "Pick Me Up"

DESC: The user is given access to a "joke" or "funny picture" bank. Consists of inoffensive jokes or images that serve the purpose of making the user laugh or smile to relieve stress.

RAT: Allows the user to view or read something that may "perk" them up.

ID: FR12

TITLE: View User Bios Reports

DESC: The health professional can access a patient list which will give them the option to view patient health bios numbers. This report will show the patient's blood pressure and recorded pulse history.

RAT: Allows the health professional to view their patient's health bios.

ID: FR13

TITLE: List of Patients

DESC: A form of patient management. The health professional can view, add, edit or delete their patients.

RAT: Allows the health professional to view and alter their list of patients.

ID:FR14

TITLE: Provide Feedback

DESC: The health professional is given the ability to provide feedback to the user based on their recorded progress.

RAT: Allows the health professional to provide feedback to the user based on the given reports.

### **4.3 Non-Functional Requirements**

ID: NFR1

TITLE: User & Password Storage.

DECS: The password will not be stored in human readable form. They will either be store in an encrypted format. Or a combination of encrypted user name and a hash of the password. Storing a hash of the password make the password more secure as the actual password is not stored directly.

RAT: Creates security for the login information.

ID: NFR2

TITLE: Storage of evaluations on device.

DECS: Storing all the information for evaluations on the device. This includes a complete list of all questions and the scoring of each question for each evaluation created. Also, a history of date taken for each evaluation, the answer for each question, and the total score on each date it is taken.

RAT: Allows the user to complete evaluations quickly and allows the user to complete them while off-line.

ID: NFR3

TITLE: Storage of biological stats (bio) on device.

DECS: When the use manually enters their pulse or blood pressure at a specific date and time, or when pulse is read by a wearable device, the date, time and stats are recorded on the device. Also, a history of each for each stat is maintained on the device.

RAT: Allows the user to store their biological stats while off-line. Also, allows user to view a history of each stat while off-line.

ID: NFR4

TITLE: Storage of medication info and pill reminders (p.r.) on device.

DESC: Storage of medication information, whether manually entered or a picture of the prescription or pill bottle, will be stored on the device. User set pill reminder times will also be stored on the device. Also, if a pill time is done or needs another reminder is also stored on device.

RAT: Pill reminders are very important and will not require the device to be on-line.

ID: NFR5

TITLE: Storage professional the user interacts with on device.

DECS: Storage of a list of Doctors and other professions, like counsellors, that the user interacts with. This could be by manually entering the data or by taking a picture of a business card. Also, can maintain a list of appointments with each professional and provide reminders of appointments.

RAT: Allows the user to keep all needed info in one place and can access it off-line.

ID: NFR6

TITLE: Uploading of stored data to outside server.

DESC: The stored information, evaluation dates and scores, history of biological stats, medication info and pill reminders, and list of professionals, will be able to be uploaded to a dedicated server. This accomplishes two different things. One is to backup of the user's information. Two is the ability for their information to be view by professionals who the user gives permission. This upload of stored information can be done as it is entered, or postponed, queued, for when an internet connection is available. For viewing by a profession an internet connection is required. The storage off the device will be in a SQL based database.

RAT: Security of the stored data via a backup. Viewing data by authorized professionals.

#### **4.4 Design Constraints**

The design constraints associated with this project are the following:

- Internet connectivity: the MHA will require internet access to use it.
- Platform: the MHA will be developed for a mobile phone, using Android Studio. We will be using Android 4.4 KitKat since 90% of the market will be able to use it.
- Storage: we will utilize external storage in an SQL database.

## **5. Release**

We are planning on releasing the MHA in four phases which are detailed below.

Phase one will be to release a downloadable app that allows a user to create an account and log in. From there the user will be able to use the pill reminder/tracker as well as the medication info features. These are vital requirements which will be depended on by other features in future releases.

Phase two will see the addition of adding and editing health professional information as well as completing personal evaluations. While these are important features, they are not vital in getting the app “up and running”, hence the reason they are released in the second phase. Features to follow will depend on these requirements.

Phase three will introduce features to be used by health professionals, an appointment tracker, reading bios from an external device as well as a mental “Pick Me Up”. Because reports are generated from user evaluations and readings, the health professional's access cannot be introduced until these reports are created. This is the earliest phase in which “view user evaluation reports” and “view user bios reports” can be introduced.

Phase four will only be implemented if time and budget permits as this is not a vital requirement in the performance of the MHA.

### 5.1 Release Plan

| RE:  | Dependencies | Description                  | Motivation  | Release |
|------|--------------|------------------------------|---|---------|
| FR1  | -            | Download the App             | Makes the MHA available for users. Must be included in first release.   | 1       |
| FR2  | FR1          | User Registration            | Allows user to create an account to access the service. Must be included in first release.  | 1       |
| FR3  | FR1, FR2     | User Log In                  | Allows user to log into account. Must be included in first release.   | 1       |
| FR4  | FR5          | Pill Reminder/Tracker        | This is expected to be one of the most used functions in MHA. Must be included in first release.  | 1       |
| FR5  | -            | Medication Info              | To track medication, the item must first be added. Must be included in first release.   | 1       |
| FR6  | -            | Health Professional Info     | Add-on feature which allows the user store health professional information. Not vital enough to require a first release inclusion.                                | 2       |
| FR7  | -            | Personal Evaluations         | Needed to begin to track user mood. Included in release 2 as this is vital for FR8 and can give the health professional better insight into user's state of mind. | 2       |
| FR8  | FR7, FR13    | View User Evaluation Reports | Personal user evaluations must be included before a report can be generated. Included in third release due to evaluations being in second release.                | 3       |
| FR9  | -            | Appointment Tracker          | Strictly used for organization. Included in third release.  | 3       |
| FR10 | -            | Record Health Bios           | Must be released before or during the release of FR12.  | 3       |

|      |            |                        |   |   |
|------|------------|------------------------|---|---|
| FR11 | -          | Mental “Pick Me Up”    | A bonus feature that is not vital to the main purpose of MHA. It can be included in the third release at the earliest.  | 3 |
| FR12 | FR10, FR13 | View User Bios Reports | Recording health bios must be included before bios reports can be added. Released no earlier than FR10.   | 3 |
| FR13 | -          | List of Patients       | To view patient reports, the health professional must be able to view a list of patients. Included in the third release.  | 3 |
| FR14 | FR13       | Provide Feedback       | Only implemented if time and budget permits. The user and health professional most likely maintain regular communication, so this function is not necessarily a large priority. | 4 |

## 6. Training

### IMPORTANT NOTES:

- If you have any concerns for your health, please contact your Physician, or Counsellor.
- If you feel it is an emergency, call 911 immediately.
- If you feel yourself or others are in any danger, call 911 immediately.
- If you are unsure of whether to call, call a help-line, other professional, or 911.
- This application is only an aid. It is not a substitute for the advice of your Physician or Counsellor. Follow all instructions by your Doctor, Pharmacist, Counsellors, or other health professional.

A link will be included to a site with information about the application.

This site will include:

- Basic operating instructions and navigation of the application.
- A section for Frequently Asked Questions, a FAQ.
- A page to email questions to, included in the subscription to off device storage.
- May also include a forum section for more detailed information and questions.

## 7. Use Case Diagram



## 8. Activity Diagram

Our Activity Diagram is too large to display in this document, so we have included it as a separate PDF file accompanying this submission.