Software Requirements Specification
for
Treet - A self-monitoring application

Prepared by the analysts of company 4

Client: Region Östergötland
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Contents

Revision History

Revision	Date	Author(s)	Description
2.7	2020-12-08	Johan Mäkikaltio	Removed FR16 because the company lacks the resources to implement it.
2.6	2020-12-04	Johan Mäkikaltio	Removed unused headings; 3.1.2 Hardware Interfaces, 3.1.3 Software Interfaces, 3.1.4 Communications Interfaces, 3.6 Other Requirements, 4.1 Index and 4.2 Appendices. Updated 1.5 Overview to give a correct overview of the document.
2.5	2020-12-04	Matthew Soulaka / Fredrik Thorsson	Changed FR2 with a new output message, FR8 is changed and does not require pre-set alternatives such as Three months, FR4 is changed and includes all logins istead of just the first login, FR23 changed to not require a tree to start out as a sapling, FR4 & 1.3 is changed so that buttons upon a login are now called L1Btn, L2Btn, L3Btn.
2.4	2020-11-26	Albin Folkesson / Matthew Soulaka / Johan Mäki	Changed FR4, FR10 and MS1 to account for three levels of gamification, instead of the previous two. Removed YBtn and NBtn. Added MaxBtn, ModBtn and MinBtn. Removed FR32, FR33 and FR18. Changed FR11 to no longer reference FR34, which is no longer existent. Changed FR1 and FR2 to account for login with email and password instead of OAuth2.0. Changed "Login page"-text under 3.1.1 account for email-login. Specified more clearly what is different between gamification level 1, 2, and 3. Changed revision history numbering to align with the "$version_control.pdf" - document$
2.3	2020-11-26	Albin Folkesson / Matthew Soulaka	Added ingresses to Chapter 1, Chapter 2 and Chapter 3. Removed irrelevant user classes from 2.3. Removed irrelevant user stories and updated the use case diagram in 2.2. Fixed layout for tables and figures that got a bit misplaced. Added captions to tables and figures.
2.2	2020-11-25	Albin Folkesson / Matthew Soulaka	Majorly restructered and refined 1.1 Purpose, 1.2 Scope and 2.1 product perspective, more in line with current status of the project. Added content to 1.5 Overview. Fixed minor language-details (such as missing spaces). Fixed margins for certain paragraphs.
2.1	2020-11-21	Johan Mäki	Changed the context and priorities of all the FRs according to the input from the "Prioritizing specification" meeting. Removed FR12, FR22, FR19 and FR34 with regards to limited remaining resources in the project.
2.0	2020-11-19	Fredrik Thorsson / Johan Mäki / Matthew Soulaka / Albin Folkesson	Converted the document to LaTeX. Corrected the revision history according to the document Version Control.

1.8	2020-11-17	Matthew Soulaka / Johan Mäki	Made sure the FRs had consistent IDs across the versions of the SRS. Added priorities to FR22-FR34.
1.7	2020-11-13	Matthew Soulaka / Fredrik Thorsson	Added U17 and FR33 and FR34 in accordance with the development issues.
1.6	2020-11-11	Johan Mäki	Added FR23. Added NOT3 in 1.3 Definitions, acronyms, and abbreviations. Updated FR1 and FR2 to require OAuth 2.0 upon login
1.5	2020-11-09	Johan Mäki / Fredrik Thorsson / Matthew Soulaka	Updated 3.1.1 with the updated interfaces. Changed functional requirements to have three levels of gamification. The SRS and the prototype are now aligned.
1.4	2020-11-08	Matthew Soulaka	Added description of Forest Page under 3.1.1. Added U16 which corresponds to the forest page (and FOREST in 1.3). Added FR21, FR22, FR26 corresponding to Forest page and dependents.
1.3	2020-11-07	Albin Folkesson / Johan Mäki	Defined the 3.1.1 User Interfaces.
1.2	2020-11-04	Johan Mäki	Corrected the acronyms in the table of definitions. FR5-6 are now clear and testable. Gave the User Stories IDs for enabling backtracking. Added U15 which corresponds to the idea of a growing tree.
1.1	2020-11-04	Albin Folkesson	Login page specified under interface requirements
1.0	2020-11-04	Albin Folkesson	Functional requirements 21-28 is added to account for new gamification-functionality related to the "forest" idea
0.9	2020-11-04	Albin Folkesson	Added FR11 to account for conversion of physical activity to a unified unit that can be displayed graphically
0.8	2020-11-04	Albin Folkesson	Placed interface component definitions list more appropriately in the table of definitions
0.7	2020-11-04	Albin Folkesson	More refined language in functional requirements (using "shall" etc.)
0.6	2020-11-02	Albin Folkesson	Physical activity is defined.
0.5	2020-11-02	Albin Folkesson	Interface components from requirements are defined
0.4	2020-11-02	Albin Folkesson	Outdated use-case diagram, now updated.
0.3	2020-11-02	Albin Folkesson	Now focus on diabetes, tailored SRS for that purpose.
0.2	2020-11-02	Johan Mäki / Albin Folkesson	Replaced interface components in FR with acronyms in order to be more general. Updated all the FR to be testable and feasible.
0.1	2020-10-08	Matthew Soulaka	Made SRS unitary (font, size etc). Modified structure on FR and added priority. Added content to 1.3, and 3.1.1 (login-page). Changed two FR's in accordance with new focus

Chapter 1

Introduction

This chapter covers the purpose of the SRS and describes its intended audience. Moreover, it specifies the scope of the project and provides definitions of terms that is used throughout the document. It also provides an overview of the structure and content of the SRS.

1.1 Purpose

This requirements specification covers the self-monitoring system developed by Company 4, to be delivered to Region Östergötland. The main purpose of the SRS is to ensure elicited requirements from the customer are documented and presented, so that it can be considered and fulfilled when developing the product. More specifically, the product specified is a self-monitoring solution with significant gamification elements for patients with diabetes. Even though this system is constructed with diabetes in mind, it is supposed to carry transferability to other relevant conditions.

The intended audience of this document is managers, developers, testers and designers of company 4. This is supposed to be a document these members can refer to and use for guiding purposes when contributing to the intended solution. The document also ensures the members of company 4 have a uniform view of requirements, which ensures consistency in the development process. It lays the framework for what the application must be capable of and sets relevant boundaries. The requirements can be referenced throughout the project, to ensure traceability. This is useful to help sort out possible ambiguities.

1.2 Scope

The main idea is to create a self-monitoring that is more incentivizing and satisfying for patients to use than the customer's current solution. This is supposed to be realized primarily through gamification. The intended gamification solution includes the use of streaks - a number that keeps track of how many days in a row that the patient has complied with their self-monitoring plan. It also includes the use of achievements - a sort of virtual reward - awarded to patients upon reaching certain milestones. Lastly, it also includes a solution that lets patients grow a virtual tree, when complying to their self-monitoring plan. The tree will eventually be fully grown and added to the patient's collection, and a different kind of tree is given for future growth. Besides, the gamification elements, that are of focus for this project, the solution will fulfill the basic functionality of a self-monitoring application. This includes adding measurements, overviewing historical measurements and being presented with what measurements to take.

The main focus of this project is to explore the use of gamification to increase compliance in the context of self-monitoring applications. This is ultimately a patient-facing issue. Thus, this system emphasizes the patient facing aspects of the application. Therefore, the medical professional side of the application will not directly be developed. Only the patient interface will be developed since this is more in line with the goal of

the project. This is what Region Östergötland primarily is interested in given our focus area of gamification and compliance, thus this constraint is set.

As a result of the singular focus on the patients' interface, the only concrete user class for this application is the patient. For this system, the main attention will be given to diabetes patients, as suggested by Region Östergötland. The goal is to change the patient's mind-set from "have to monitor", to "want to monitor". The main purpose is to increase patient's compliance with their health plans. This gives a better foundation for monitorization which is beneficial for individual patient's health. There is a implicit user class representing medical professionals but its implementation is out of scope for this project, as previously discussed. The intended effect of this application implies that Region Östergötland do not have to remind patients as much. Furthermore, better monitorization means fewer emergency cases that need to be handled. Ultimately, this can free up time for medical professionals that can be redistributed elsewhere.

1.3 Definitions, acronyms, and abbreviations

Term	Definition
Registered User	General concept of someone who interacts with the application
Medical professional	A registered user who interacts with the application of care-taking purposes
Diabetes patient	A registered user who interacts with the application of self-monitoring purposes with regards to their diabetes.
Dependent	Someone who is related and/or is in custody of a patient
Physical activity	Minutes of moderate exercise (e.g. a brisk walk) or high intensity exercise (e.g. a run)
LogIn1	The button on the log in-page that a user can press when having entered his/her login information secured by OAuth 2.0 to make a log-in attempt
LO1	The button that a logged in user can press to log out.
L3Btn	Present upon a log-in. Displayed adjacent to message MS1. Pressing it will set the initial gamification setting to "Level 3" and redirect the user to the starting page
L2Btn	Present upon a log-in. Displayed adjacent to message MS1. Pressing it will set the initial gamification setting to "Level 2" and redirect the user to the starting page
L1Btn	Present upon a log-in. Displayed adjacent to message MS1. Pressing it will set the initial gamification setting to "Level 1" and redirect the user to the starting page
MS1	Contains the string: "How much do you want to enhance your experience, using gamification elements? At "Level 1" you have streaks that keep track of your progress. At "Level 2", achievements can be awarded when reaching certain milestones. At "Level 3", a virtual tree is introduced, that grows on compliance. When the tree is fully grown it is added to your collection, and you are given a new kind of tree to keep growing. This setting can be changed at any time when you are logged in."
MS2	Contains the string: "The entered number is not reasonable. Please check so that you have entered a correct measurement."
MS3	Contains the string: "Wow! You have completed all tasks for the day! Good job! New tasks will appear tomorrow, so remember to swing by then!".
NOT1	Notification displaying the information on what measurements to take that day
NOT2	Notification displaying the following string: "You still have measurements to enter today. Enter them within three hours to not risk losing your streak!"
NOT3	Notification displaying the measurements of the patient that day, in accordance with their self-monitoring plan
MGRS	The set of progress graphs, each portraying the development of one of the user's types of measurements, as well as a horizontal reference line representing the goal for that measurement
VT	The patient's currently growing virtual tree. Can be of different appearances and growing times needed
FOREST	The patient's collection of all virtual trees that have fully grown and are stored as badges

Table 1.1: Definitions

1.4 References

1.5 Overview

The content of this SRS covers the context in which the product is developed, with regards to users, business value, constraints and similar. It also provides a description of the product through user stories and a use case diagram. Finally, it lists all requirements to be met by the product, both functional and non-functional.

The structure of the SRS is as follows:

2. Overall description

Provides a context for the product in terms of business value, users, constraints and similar. It also provides a description of its functionality. It is specified under the following subtitles:

2.1 Product perspective

The business case and value of this product, external interfaces, constraints

2.2 Product functions

Describes the crucial functionality of this product. Utilizes user stories and a use case diagram.

2.3 User classes characteristics

Describes the user classes intended for this product, what functionality is available to them, the technical skills demanded and how they are prioritized in this project.

3. Specific requirements

Describes the requirements under the following subcategories:

3.1 Interface requirements

3.2 Functional requirements

3.3 Performance requirements

3.4 Design constraints

3.5 Software system attributes

Chapter 2

Overall Description

This chapter describes the business case for the solution, Treet, and how it will be of operational benefit for Region Östergötland. Furtheremore, it covers the solution's main functional capacity. It also specifies the technical skills needed for the main user class.

2.1 Product Perspective

The customer, Region Östergötland, has a system for self-monitoring in place. The purpose is to provide asystem for patients with chronic conditions that require continuous measurements taken to effectively monitortheir condition. The system enables patients as well as medical professionals to monitor their condition. Patients get accessto the system and gets assigned certain types of measurements to be taken with a certain frequency. Theyhave identified some problems with their current solution. One such problem is that some patients tend tostop entering their measurements. When this occurs, effective monitorization is not possible. This can havehealth-implications for patients and more emergency cases must be handled by medical professionals, tying upresources that could have been used elsewhere.

The product specified in this SRS is meant to expand upon the current solution and address the problem of compliance. The product is a self-monitoring system with gamification elements. Gamification is a well-known method used to incentivize users to comply. An example is the language-app Duolingo, that uses streaks and similar gamification elements to keep users regularly training their language skills. In this instance, diabetes will be used to represent the chronic conditions. Thus, the system will be implemented for diabetes self-monitoring, but is supposed to carry transferability to other conditions.

The product is to be built so that patients access the services through a web application in their smartphone. The smartphone is a very mobile instrument that people always tend to bring along. Therefore, this choice is good for compliance since it is the option that provides the most consistent availability.

The product is to be built so that medical professionals access the services through a web application at their computer. These users do not have the need for mobility, but rather overview. This is something a computer allows for with its larger screen size, and it is an already established way of working for the customer.

2.2 Product Functions

The major functions of the product are listed below, in the form of user stories:

U1: As a user I want to be able to log in and log out of the system.

U2: As a patient, I want to be able to be able to see what measurements I should take and when.

U3: As a patient I want to be able to register measurements as well as edit previous entries.

U6: As a patient, I want to be able to automatically import data from my fitness related third party applications into the application to have all health-related data stored in the single application.

U8: As a patient, I want to be able to get streaks depending on how continuous I have been with my measurements to receive positive feedback.

U9: As a patient, I want my high score in terms of streaks to be recorded and displayed for me to be incentivised to break it.

U10: As a patient, I want to be rewarded with achievements, a sort of virtual reward, when reaching milestones and I want these to be stored in the application, to increase incentive to comply and be motivated by previous accomplishments.

U12: As a patient, I want to be able to view my progress towards certain health related goals to easily track my results and attain incentives to act up on the progression.

U13: As a patient I want to be able to view my personal health related records through visual elements to process my data and increase the gamification feeling of the self-monitoring more easily.

U14: As a patient, I want the option to change the level of 'Gamification' mode that is applied to me, to make the use of it feel more satisfying while keeping it at a suitable level.

U15: As a patient, I want to have a virtual tree that grows when I keep following my self-monitoring plan, to create a more satisfying and incentivising experience.

U16: As a patient, I want to be able to store and view my previously fully-grown trees as collectables, to be reminded of previous accomplishments, thus increasing motivation.

Figure 2.1: Use case diagram

2.3   User Classes and Characteristics

Patient. When using this expression in the context of this SRS, diabetes patients are what is intended. Although, the goal is for the system to have applicability in a wider context, with other types of conditions. Patients are the using the app for their personal self-monitoring after getting access to it by a medical professional. Thus, they are the ones that use the app for inserting measurements and other tasks related to their personal monitoring. Therefore, they are also the targeted audience for the gamification functionality meant to increase their compliance. To operate the application, patients need the basic technical skills of navigating a mobile web application.

Chapter 3

Specific Requirements

This chapter describes the requirements that are to be met by the solution. Because of the focus on patient-facing front-end aspects, emphasis is put on functional requirements and user interfaces.

3.1 Interface Requirements

3.1.1 User Interfaces

This section covers different interfaces that a patient will interact with in the application.

Login page

When starting the application, patients shall be met by a login page. This shall contain a field for email as well as one for password. It shall also contain a checkbox that can be checked if the patient wants to be kept logged in. The page shall contain a login-button, for making a login attempt, during which the system acts according to FR1 and FR2. Upon successful login the patient is redirected to the start page.

The first time a patient logs in, the system will set the initial gamification setting by asking the patient about their preferences, in accordance with FR4. This will affect the interface that the patient is presented with, where the interface is stripped of gamification elements (i.e. current streak, streak record, virtual collectables, tree collection and current tree, VT) if the patient chooses to have this option turned off.

Main pages

When a user is logged in, the application is structured in four main pages:

1. Home page

2. History page

3. Goals

4. Profile page

Home page

This page is displayed immediately after the patient logs in. Here, information regarding the most recent, and the measurements to be performed that day, is displayed for the user. Both the already entered measurements and today's planned ones are editable by pressing a symbol to the far right of the measurement. Upon pressing it, a new window pops up. In this window it is clearly conveyed what measurement it is and an appropriate scale to enter this specific measurement. In other words, this box must somewhat be tailored to every condition, but this should be fine since there is a very finite number of conditions. When having entered the number and

pressed the button to confirm, a message is displayed confirming that the measurement is entered, as well as giving the user immediate feedback on how the measurement lines up in relation to the set target as well as the previous measurement.

History page

This page displays the history of a patient's measurements and activities. At the top of the page a rectangular button "All measurements", which gives the option to view all previously taken measurements, is displayed. Below the "All measurements" button, an overview of the patient's current progress for each of the topical measurement is displayed. This is displayed in a large box with scroll-functionality where each measurement is presented in a smaller box. Progress for a specific measurement, such as Blood pressure, is displayed in a box that has a title, a graph representing the progress of the values of measurement and two smaller boxes below the graph which show the latest measurement-value and the goal-value. Each specific measurement-progress is clickable and redirects the patients to a more detailed view of the progress for that specific measurement.

This page shall only contain statistical information. The patient shall not be able to do any form of input here. Their previously entered measurements and their current health status are visually displayed from graphs that covers most of the page, MGRS. This is done with a graph of 2 lines, one that is generated from the previous measurements, and one that acts as a reference line based on the goal of the patient. As we have decided on Diabetics as the condition to display in our application, the daily activity should be displayed as the value to the graph.

- **All measurements**

  This is where previous measurements are listed. Each measurement (both taken and not taken) are represented with boxes. The user can press this box, and a similar window as to when entering a new measurement shows up. The previously entered information (if applicable) is auto filled and the user can here alter it, and save, to change a measurement or enter it for the first time (if forgotten). The boxes are presented in chronological order. It shall clearly be shown what date they belong to, what type of measurement it is and what value is recorded. A button to open a calendar should be at the top of the page, so users can be redirected the measurements of a specific date easily

- **Progress of a specific measurement**

  Once a patient clicks on a specific measurement-progress box in the History page they are redirected to this page. This page displays a deep dive of the progress of the chosen measurement (such as Blood pressure). At the top of the page progress and goal values are displayed in two separate boxes. In the middle of the page a graph is displayed, representing the historic development of the values from the measurements taken and how they relate to the overall goal. The interval for the graph can be changed by choosing "From-Date" and "To-Date". Moreover, below the graph, a complete history of previously taken measurements of this type is displayed in a list. The list is like the sub-page All Measurements but in this case only one type of measurement is shown (such as Blood pressure).

Goals page

The Goals page first displays all different types of diseases that measurements are being taken for. These diseases are clickable boxes and redirects the patients to a page where goals, records and streaks related to that disease are displayed. Depending on the gamification level that has been set a patient can view all achievements (level 2 and 3) by clicking on a button at the top of the page. For gamification level 3, the patient can also find a button called Forest. These buttons redirect the patient to pages in accordance with below descriptions.

- **Specific disease-goals page**

  Once a patient clicks on a disease at the Goals-page they are redirected to this page. Which displays the current streak that the patient has and the longest streak that they have had. These two numbers are displayed in two separate boxes at the top of the page. Below the streaks, goals for the specific disease can be found in a list which is scrollable. Each goal is represented in a rectangular shape and is clickable. Below the current goals, a patient can find goals that already have been reached in a similar list to the

one previously described. When a finished or current goal is pressed the patient is presented with some specific information related to that goal.

If the patient has a gamification level of 2, the longest streak is no longer displayed in the box at the top of the page. Instead, the box displays an achievement that is close to becoming completed. This box is clickable and takes the patient to an overview of all achievements. If the patient is using the gamification level 3, the current streak box is replaced by the virtual tree of the patient. The virtual tree is also clickable and redirects the patient to a page showing more information about the tree (name, description, growth level etc.).

- **Achievements page (Only available from gamification level 2)**

  When you have completed an achievement, you will receive a badge as an award. How each badge will look is up to the design team to decide. A personal goal will have a general badge. When you click on badge a box with information will appear. This will tell the user what date the badge was received and what the user did to achieve it. This means that the achievements page displays the following in the chronological order: latest achievements, upcoming achievements and all achievements. The first mentioned shows all the latest achievements that the patient has accomplished. The second shows achievements that are close to become accomplished, there is a bar indicating how close the patients are to reaching the achievement below each badge. The last shows all possible achievements in a large box which is scrollable.

- **Forest page (Only available on gamification level 3)**

  In the forest page the virtual tree that the patient is currently growing and the previously fully-grown virtual trees as collectibles are displayed. This page is only shown in the gamification mode level 3. The current virtual tree is displayed at the top of the Forest page with an animated picture of the specific tree. The page also displays upcoming trees that will soon be unlocked. These trees are presented as tree-icons which are blurred out. The previously fully-grown trees are displayed as smaller pictures in a catalogue underneath the upcoming trees box. The catalogue has the header "Your fully grown trees". All the pictures of trees in the Forest page are clickable. Once the patient clicks on a specific tree in the Forest page, the tree is displayed in a page with an enlarged picture and a description underneath the picture. If an already fully-grown tree is clicked additional information about when the tree was current is displayed

Profile page

Entering the profile page, you will see your profile picture on the top of the page with your name stated below. From this location you can navigate to the additional pages Personal information, Authorized relatives, Gamification level, Change password, Third party applications and Help.

- **Personal information**

  On this subpage the users first name, last name, sex, date of birth and phone number is stated. As a user you will not be able you change this information. Instead, you will find contact information at the bottom of the page of whom you shall contact to get the information changed.

- **Authorized relatives**

  It is up to the user to choose which information you want shared with your relatives. Each relative will be presented as a card with different access options. You can choose to share, or not share, goals, achievements and measurements. You can also choose to completely disable the relative.

- **Gamification level**

  This subpage allows you choose your level of gamification. There are three levels and the information I stated on each selectable level. For more information about the levels see the section goals.

  - Level 1 has streaks, that keep track of how many days in a row the patient has complied with their self-monitoring plan.

  - Level 2 adds achievements, that are awarded to the patient upon reaching certain milestones.

- Level 3 adds a virtual tree, that grows on continued compliance. When the tree is fully grown it is added to the patients tree-collection, FOREST, and they are given a new kind of tree to keep growing.

- **Change password**

  This subpage consists of three text fields. If the user wants to change its password it is required to first fill in the existing password followed by the new one. To avoid mistyping the new password it as to be filled in twice.

- **Third party applications**

  This subpage display which available third party applications the user can utilize together with the existing application. They are displayed horizontal with both title and logo. Third party applications are handled outside the existing application.

3.2 Functional Requirements

FR1: If a user enters a correct email and password combination at the log in-view and presses the log-in button, LogIn1, the user shall be logged in and redirected to their start page.
Priority: 5

FR2: If a user enters an incorrect email and password combination at the log in-view and presses the log-in button, LogIn1, a message shall be prompt telling the user "Wrong email or password".
Priority: 5

FR3: When a logged in user presses the log out-button, LO1, he/she shall be logged out and sent to the log in-view.
Priority: 5

FR4: When a patient logs in, a message, MS1, containing the question of how gamified the patient want their experience to be. The message shall be accompanied by three buttons; one representing "Level 3", L3Btn, one representing "Level 2", L2Btn, and one representing "Level 1", L1Btn. Upon pressing one of these, the patient's gamification setting shall be set accordingly.
Priority: 4

FR5: When a patient enters a new measurement, the system shall check for feasibility and display a message, MS2, asking the user to check their entry if deemed infeasible. The entry is deemed infeasible if the number is negative or contains any other characters than numbers.
Priority: 1

FR6: When a patient tries to edit a previous measurement, the system shall check for feasibility and display a message, MS2, asking the user to check their entry if deemed infeasible. The entry is deemed infeasible if the number is negative or contains any other characters than numbers.
Priority: 1

FR7a: Measurement graphs, MGRS, shall display the progress of the patient's measurements.
Priority: 4

FR7b: Measurement graphs, MGRS, should display one graph for each type of measurement in the patient's self-monitoring plan.
Priority: 1

FR8: There shall be an option to change the time frame of the graphs, MGRS, between two set dates.
Priority: 4

FR9: Each of the patient's personal health goals shall be represented as a horizontal reference line in the graph, that is one of MGRS, with measurements relating to that goal.
Priority: 2

FR10: A patient shall be able to alter the degree the application is gamified between level 1 (Minimal), 2 (Moderate), and 3 (Maximum).
Priority: 5

FR11:A patient shall have the option to import data automatically from GoogleFit regarding the patient's physical activity, and have it registered to the corresponding measurement.
Priority: 3

FR13: When a patient has completed an achievement, virtual collectables shall be rewarded to the patient, to be stored and viewed in their profile.
Priority: 4

FR14: A streak shall be displayed for the patient, representing how many days in a row that the patient has complied with their self-monitoring plan.
Priority: 5

FR15: When a patient has entered all their planned measurements for the day the streak shall be incremented by 1.
Priority: 5

FR17: When all the daily measurements, in accordance with their self-monitoring plan, have been completed, the system shall display a message, MS3, praising the patient.
Priority: 2

FR20: A patient shall be able to set dependents. A dependent is set by entering the name and e-mail address of the dependent.
Priority: 2

FR21:A patient shall be able to alter between the option of whether added dependents shall receive notifications, about the patient's health status, per e-mail.
Priority: 2

FR23: A patient shall be presented with a virtual tree, VT.
Priority: 5

FR24: A patient's virtual tree, VT, shall grow when the patient's streak is being incremented.
Priority: 5

FR25: When a patient's virtual tree, VT, is fully grown, it shall be added to the patient's collection, FOREST.
Priority: 5

FR26: A patient shall be able to view their collection of fully-grown virtual trees, FOREST.
Priority: 5

FR27: When a patient's virtual tree, VT, is fully grown, a new one shall be given, with a new appearance and growing time, and replace the previous one as the currently growing one.
Priority: 5

FR28: When a patient breaks their streak, their virtual tree, VT, shall go into a depressed state, halting its growth.
Priority: 5

FR29: When a patient's virtual tree, VT, has entered a depressed state, a five-day streak shall be required for it to return to the previous state, continuing its growth.
Priority: 5

FR30: When a patient presses their virtual tree, VT, it shall give out a sound resembling the rustling of leaves.
Priority: 3

FR31: When a patient presses their virtual tree, VT, the tree shall visually shake slightly, and some leaves shall be displayed falling from the tree.
Priority: 1

3.3   Performance Requirements

PR1: When pressing the save button of your changed settings there shall be no longer delay than 2s until the changes are applied.

PR2: If the entered login information is correct, the user shall be redirected to the front page with a maximum delay of 2s.

PR3: At least 10 number of users must be able to use the application simultaneously without drawbacks in performance of the application.

PR4: The system with its database has be able to handle at least 10 000 registered users without drawbacks in performance of the application.

3.4   Design Constraints

DC1: For frontend mark up, HTML shall be used.

DC2: For frontend style and presentation, CSS shall be used, using the Bootstrap 5 framework.

DC3: For the interactive frontend parts, Typescript shall be used, using the ReactJS framework.

DC4: The backend shall be implemented using Python and the Flask-framework.

3.5   Software System Attributes

Availability

SA1: If the patients internet connection gets disrupted while saving information regarding a measurement, the data is saved locally to be sent again upon reconnecting.

Security

SA2: If incorrect login information is used three times to login, the system shall disable further attempts for 30 minutes in order to prevent illicit logins.