

Analysis Document

Project: PharmaPartners

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Client: PharmaPartners
Version: 1.4
Version date: 07-09-2020
Status: Concept

Documentation history

Version	Changes	Author	Date
1.0	Structure of the document	Kevin van der Wouw	04-09-2020
1.1	Use-case diagram and use-case description, Requirements	Sibe van Etten, Kevin van der Wouw, Kacper Serewiś, Bart Blaak, Maarten Reimus, Hugo Mkandawire	04-09-2020
1.2	Global screen layout, Domain Model, Update Use-case Diagram, use-cases and requirements.	Sibe van Etten, Kevin van der Wouw, Kacper Serewiś, Bart Blaak, Maarten Reimus, Hugo Mkandawire	07-09-2020
1.3	Requirements aanpassen	Hugo Mkandawire	02-12-2020
1.4	Global Screen Layout vervangen	Maarten Reimus	07-12-2020

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Glossary

This chapter contains terms, used in this document.

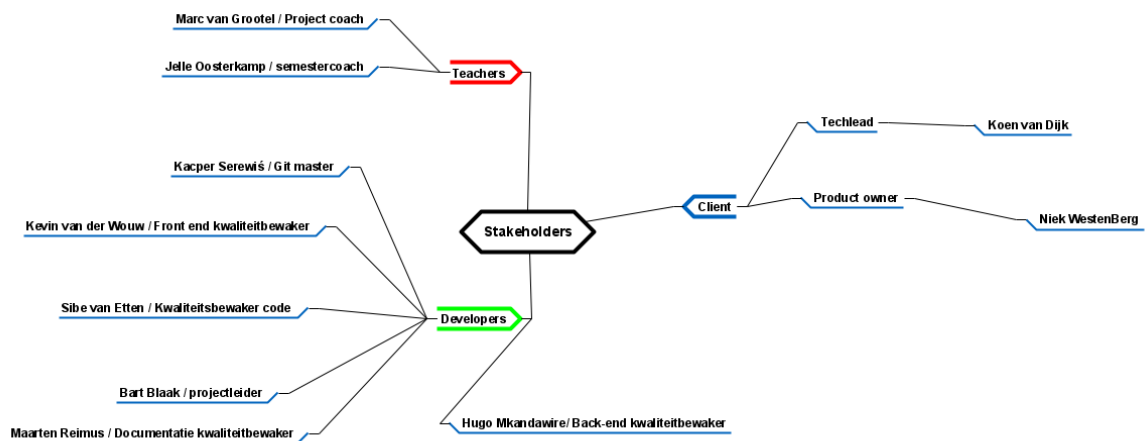
Term	Definition
GP	General practitioner

C1 Preface

PharmaPartners gave us the problem that too many people have a combination of medicines that cause trouble for the user. And may cause more issues than the disease of the patient.

The goal of this application is to make its user more aware of the possible side effects of taking multiple medications. Once the user has 2 medicines on their list that can cause problems, the application will show a warning which medication does not go well together.

The purpose of this analysis document is to create a view of which functional requirements and rules there are. From the functional requirements we can make global screen layouts and use cases to understand the interaction between the users and the system.



C2 Requirements

ID	Name	Description	Importance	Urgency	Use Case ID
F1	Register account	The user can register for an account.	Must	High	UC1
F2.1	Logging in	The user can login for his/her account.	Must	High	UC2
F2.2	Logging out	The user can logout for his/her account.	Must	High	
F3	Reset password	The user can reset his password.	Could	Low	UC3
F4.1	Show account-data	The user can see their account data	Should	Medium	UC4.1
F4.2	Change account-data	The user can change his/her records, including password.	Must	Medium	UC4.2
F5	Register medication	The user can register new entry.	Must	High	UC5
F6	Delete medication	The user can always remove their past entries.	Must	Medium	UC6
F7	Change medication	The user can always update their past entries.	Should	Medium	UC7
F8	Show medication list	The user can view medications used by himself/herself.	Must	Medium	UC8
F9	Show medication history	The user can view medications used by himself/herself in the past.	Should	Medium	UC9
F10.1	Add medical personal data	The user can add their blood pressure, weight and length.	Should	Medium	
F10.2	Change medical personal data.	The user can change their blood pressure, weight and length.	Should	Medium	UC10
F10.3	View medical personal data.	The user can view their blood pressure, weight and length.	Should	Medium	
F11	Show medical warning	The system shows a warning if two or more medications should not be mixed.	Must	High	UC11

F12	Add personal disease	The user can add their diseases into system.	Should	High	UC12
F13	Change personal disease	The user can change diseases inserted into system.	Should	Medium	UC13
F14	Delete personal disease	The user can remove diseases inserted into system.	Should	Medium	UC14
F15	Scan medication	The user can scan their medication using barcode.	Could	Medium	UC15
F16	Admin can add new rules	The admin can add new rules into system.	Could	Medium	UC16
F17	Live chat with doctor	The user can communicate (live) with her/his doctor.	Won't	Low	
F18	Users can login using 2FA	The user can login using a special code sent to their email account	Could	Medium	UC17
F19	User can login using social media	The user can login using platform's like Google, Facebook, Twitter	Won't	Low	
F20	Mark error as resolved	The user can mark an error as resolved	Should	Medium	UC18
NF1	Mobile scalable	The application has to be mobile scalable.	Must	High	
NF2	Medication logs should be deleted after 15 months	Logs should be kept no longer than 15 months	Should	High	

C3 Rules

This chapter provides rules that the system must meet to ensure platform security and usability.

ID	Description	Importance	Urgency
R1	A password exists out of minimal 8 characters.	Must	High
R2	A password contains at least one uppercase and lowercase letter.	Must	High
R3	An Email can only be used once for account registration.	Must	High
R4	Error logs will never be removed but instead marked as "resolved" when its resolved.	Should	Medium
R5	Medicine logs will never be removed but instead marked as "removed" when its removed.	Should	Medium

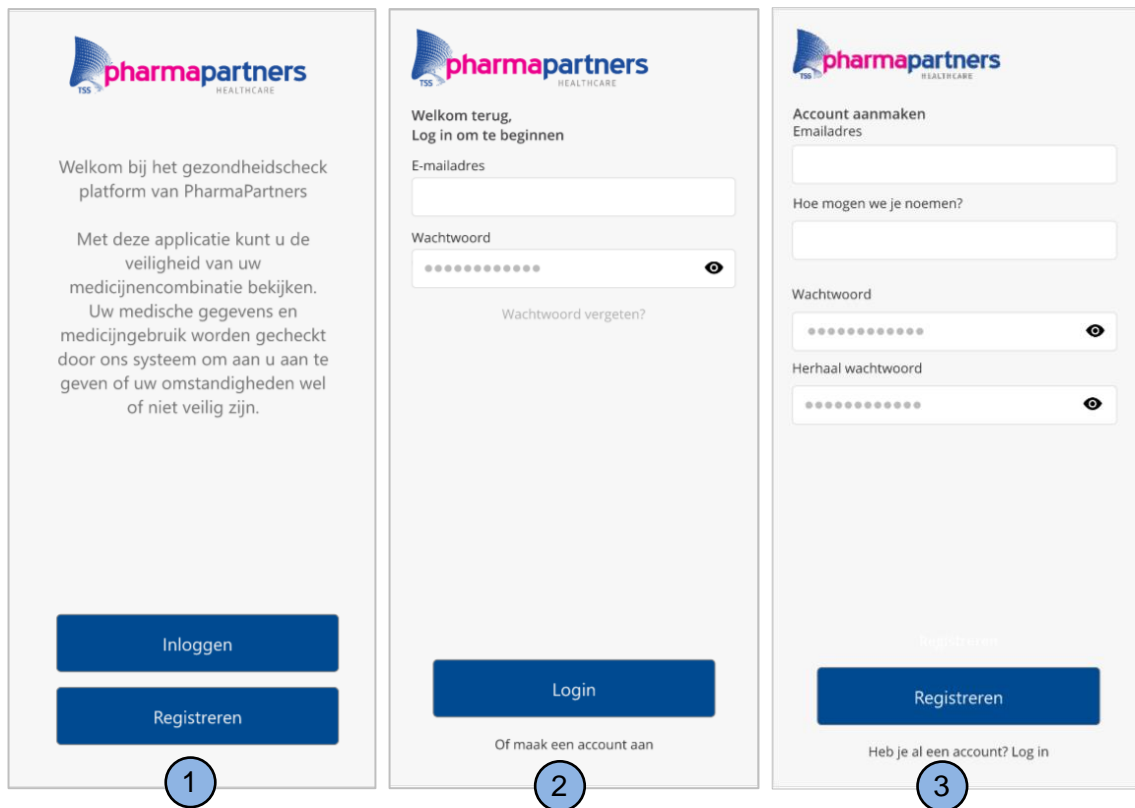
C4 Quality attributes

This chapter provides information about quality attributes that the system must meet. Categories of this attributes are in ISO-25010 standard.

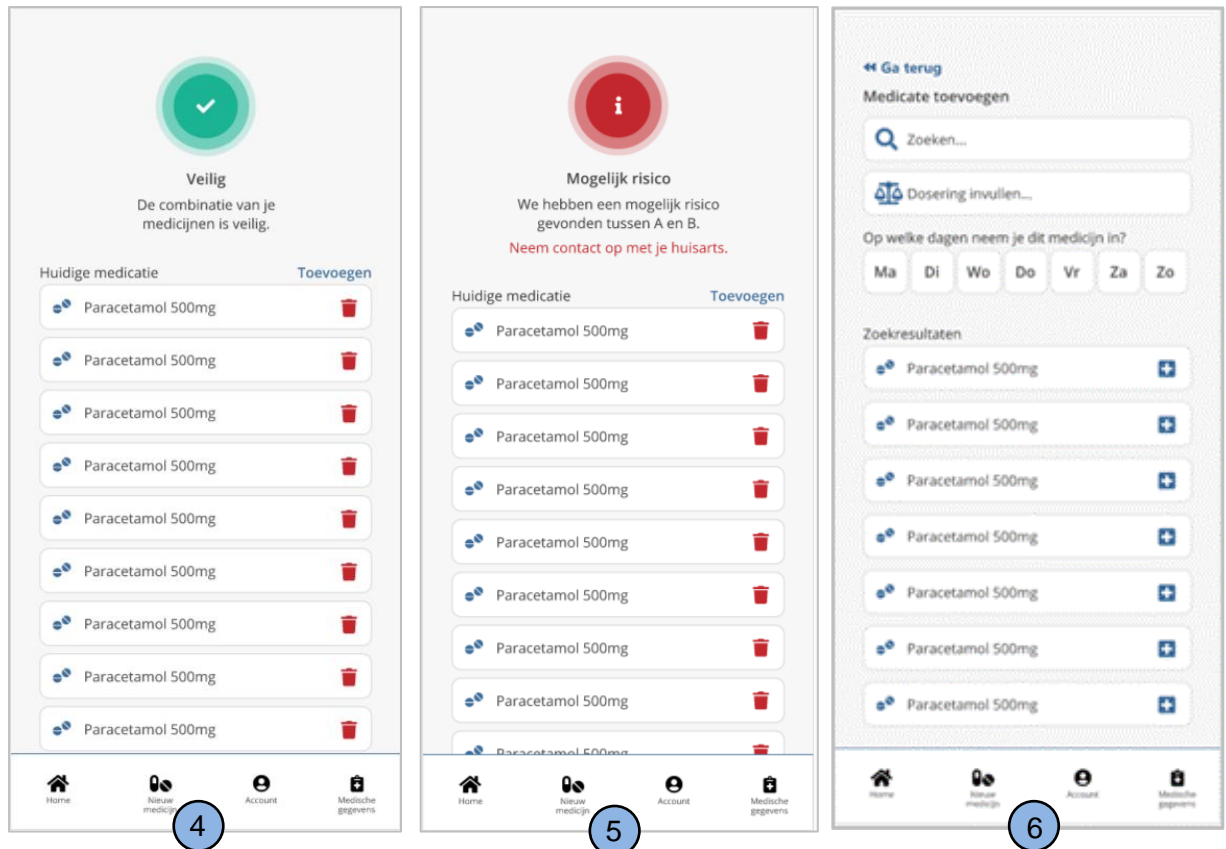
ID	Category ISO 25010	Description
Q1	Performance	The response time is at maximum 0.5 seconds
Q2	Performance	The application is not taking a lot of resources to run.
Q3	Compatibility	Documentation of interfaces is available at the software architecture document.
Q4	Usability	The system can be accessed by 95% of the target group 5 minutes.
Q5	Reliability	The system is available at least 95% of the time.
Q6	Reliability	The system is not available for a maximum of 1 hour per 24 hours.
Q7	Security	Data is sent over a secure connection.
Q8	Security	Passwords are stored encrypted.
Q9	Maintainability	The system is modular.
Q10	Maintainability	Source code is written according to the IntelliJ and Angular code standard.
Q11	Maintainability	Source code is documented.
Q12	Maintainability	At least 50 % of the source code is tested with unit tests.

C5 Global screen layout

This chapter provides information about early design of the application. The screens are made to get a better understanding of the user experience and screens needed.



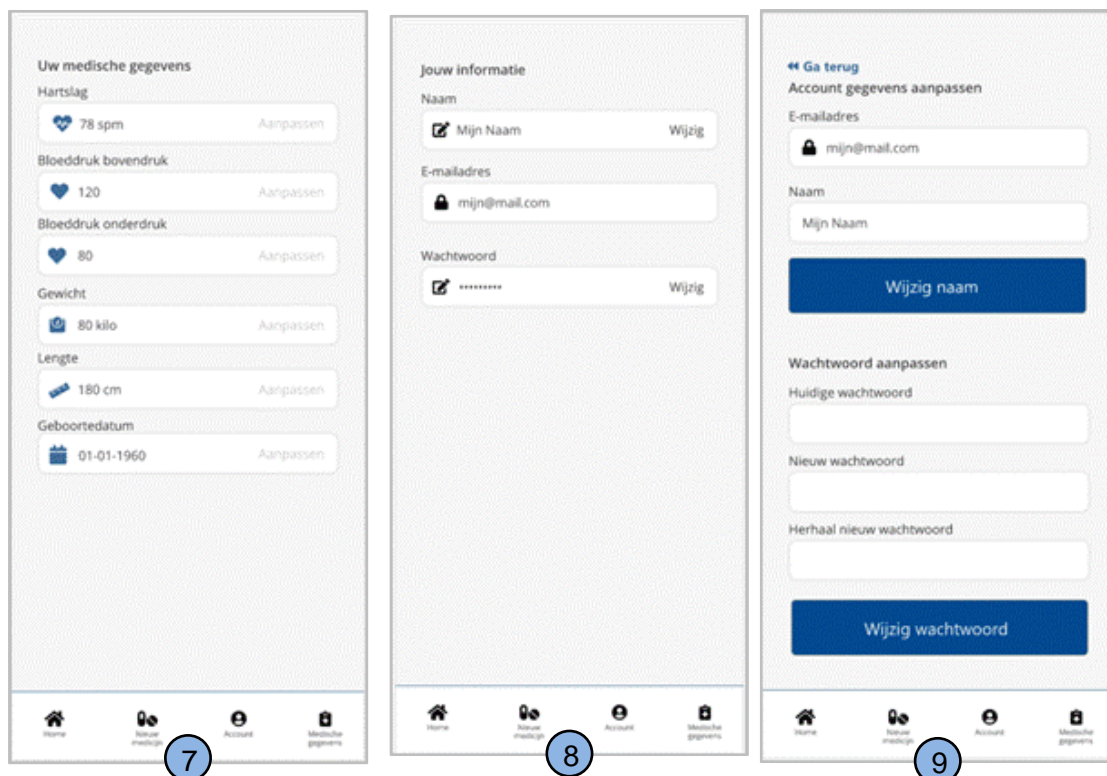
1. This is the landing screen on Mobile. It is only shown when the patient is not logged in. It can include more information about the overall application and usage.
2. This is the login page on Mobile.
3. This is the register screen on Mobile. The user needs to complete multiple steps to register a valid account.



4. This is the main dashboard. The patient can view his / her medical information and current status about their medicines.

5. This is the alt main dashboard when the combination of medicines may cause an issue. The patient can view his / her medical information and current status about their medicines.

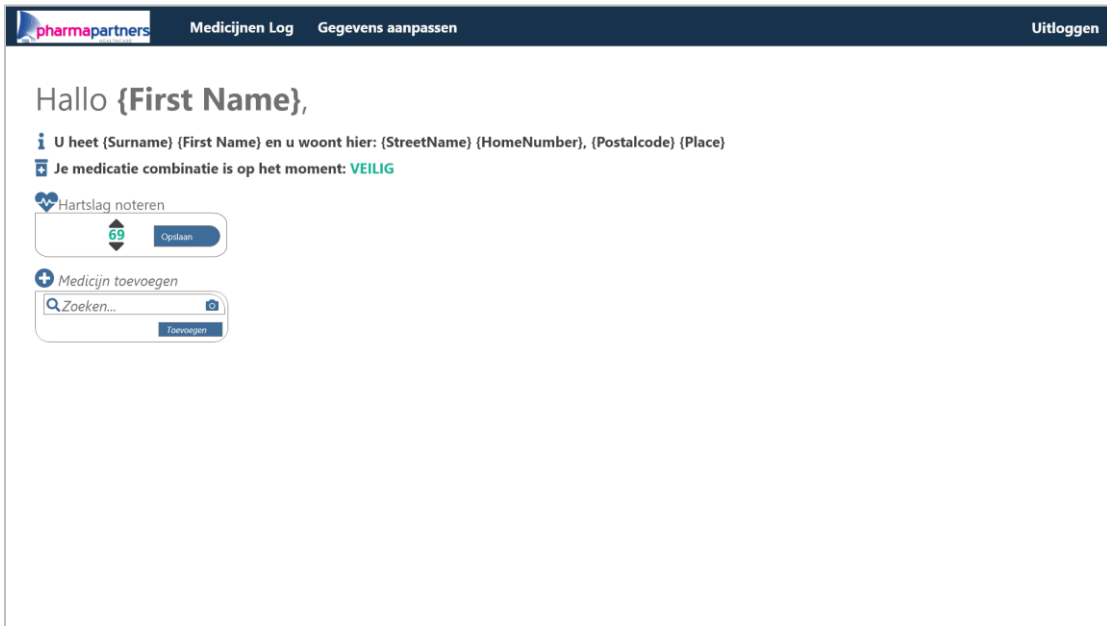
6. This is the add medicine screen. The patient can search for available medicines and add them to their personal list.



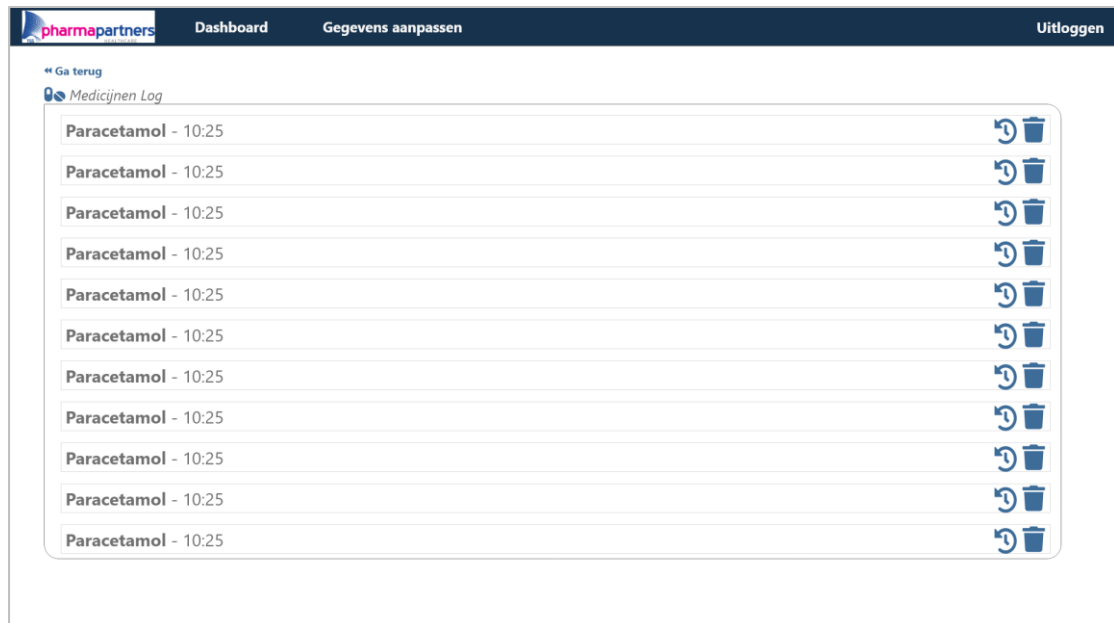
7. This is the screen where the patient can view and edit their medical information.

8. This is the screen where the patient can view their personal information.

9. This is the screen where the patient can edit their personal information.



This is the dashboard for web (computer), where user can use the most important features.



This is the medicine log page for web (computer), where user can see medicines used in the past.

pharmapartners
HEALTHCARE

Stap 1: account aanmaken
Stap 2: medische gegevens invullen
Stap 3: overige gegevens invullen
Stap 4: gegevens controleren en bevestigen

Registreren

Welkom, hier kun je een nieuwe account aanmaken.

Email

Wachtwoord

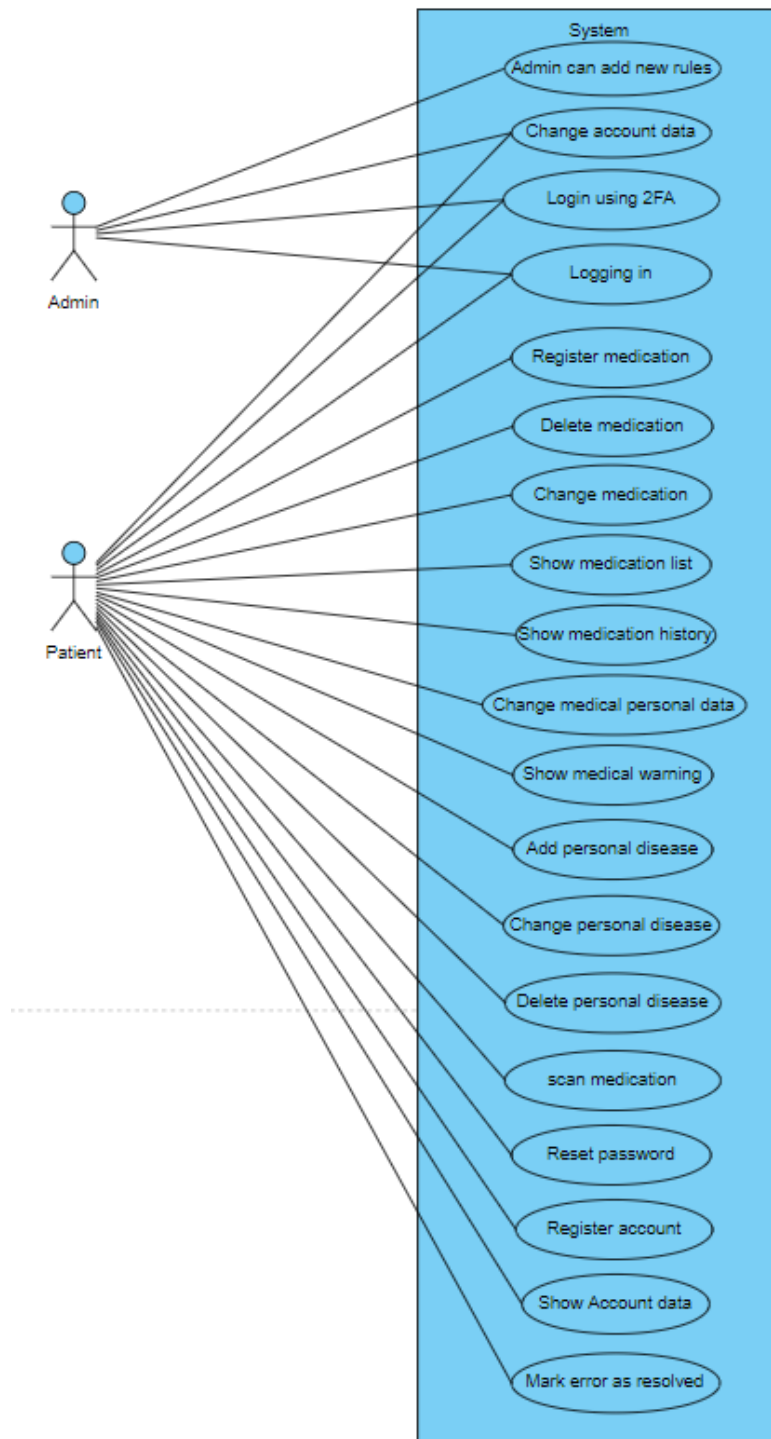
Herhaal wachtwoord

Volgende stap

This is the register page for web (computer), the patient can create an account here.

C6 Use cases

This chapter shows the Use-Case diagram and a description of every Use-Case.



Name	UC1: Account registration
Summary	The user can make an account.
Actors	Patient
Assumptions	1. The actor does have an email account.
Description	<ol style="list-style-type: none"> 1. The actor visits the registration page. 2. The actor fills in the basic data (Email, Password) and clicks on "Register" button. 3. System verifies if email is valid and if password met defined conditions ^{[1][2][3]}. 4. System sends email verification to the actor. 5. System shows the following message: "Please verify your account using the link sent to you". 6. The actor visits their email account and clicks on the link inside verification mail. 7. System validates the link and activates actor's account ^[4] 8. The actor can log in now.
Exception	<p>[1] Actor's email already exists in system, actor can use another email or reset password for the selected mail.</p> <p>[2] Actor's email is not valid, actor is asked to verify their email.</p> <p>[3] Actor's password did not met system's conditions, actor needs to update their password.</p> <p>[4] Actor's verification link is malformed, actor is asked to resend verification mail.</p>
Result	The actor does have active account now and can login.

Name	UC2: Account login
Summary	The user can login using their email and password.
Actors	Patient
Assumptions	1. The actor does have an active account.
Description	<ol style="list-style-type: none"> 1. The actor visits the login page. 2. The actor fills in email and password and clicks on "Login" button. 3. System verifies if account with this email/password combination exists and if it is active. ^{[1][2]} 4. The actor is redirected to their dashboard.
Exception	<p>[1] Actor tries to login with invalid password and/or email, show message: "Invalid email/password combination".</p> <p>[2] Actor tries to login with valid account but not verified one, show message: "You need to active your account first."</p>
Result	The actor is logged in and can view their dashboard.

Name	UC2.1: Account login (using 2FA / fake DigiD)
Summary	The user can login using their email and a special code sent to their email inbox.
Actors	Patient
Assumptions	1. The actor does have an active account. 2. The actor configured 2FA earlier.
Description	1. The actor visits the login page and chooses to login using 2FA. 2. The actor fills in his/her email and clicks on "Login using 2FA". 3. System verifies email. [1][2] 4. System asks for 6 digit PIN sent to the actor's inbox. 5. Actor visits their email inbox and uses PIN to continue. 6. System validates entered PIN. [3] 7. The actor is redirected to his/her dashboard.
Exception	[1] Actor tries to login with email which does not exist in our system, show message: "Invalid email". [2] Actor tries to login without configured 2FA, show message: "2FA is not available, use email/password combination". [3] Actor enters wrong PIN, show message: "This PIN is not valid, try again".
Result	The actor is logged in and can view their dashboard.

Name	UC3: Password reset
Summary	The user can reset his/her password.
Actors	Patient
Assumptions	1. The actor does have an active account.
Description	1. The actor visits the login page. 2. The actor fills in email and password and clicks on "Login" button. 3. System verifies if account with this email/password combination exists and if it is active. [1][2] 4. The actor is redirected to their dashboard.
Exception	[1] Actor tries to login with invalid password and/or email, show message: "Invalid email/password combination". [2] Actor tries to login with valid account but not verified one, show message: "You need to active your account first."
Result	The actor is logged in and can view their dashboard.

Name	UC3.1: Password reset (while logged in)
Summary	The user can reset his/her password.
Actors	Patient
Assumptions	1. The actor is logged in.
Description	<ol style="list-style-type: none"> 1. The actor visits the settings page. 2. The actor selects "Password reset" option. 2. The actor fills: old password and the new password. 3. System verifies the old password and checks if the new one meets system requirements. ^[1]^[2] 4. The actor can use new password now.
Exception	<p>[1] Actor entered wrong old password, show message: "old password is invalid".</p> <p>[2] Actor entered new password which does not meet system requirements, show message: "your new password does not meet our requirements".</p>
Result	The actor's password is changed to the new one.

Name	UC4.1: View account information
Summary	The patient can view his account information.
Actors	Patient
Assumptions	The actor has an account, logged in and on the home page.
Description	<ol style="list-style-type: none"> 1. The actor clicks on the profile icon. 2. The system shows a dropdown menu with options. 3. The actor clicks the "account info" link from the dropdown menu. 4. The system shows the account information page.
Exception	~
Result	Actor is on the account information page where he can view his username, email, name, change password option.

Name	UC4.2: change account data.
Summary	The patient can change the information of his account.
Actors	Patient
Assumptions	The Actor has an account, is logged in and is on the account info page.
Description	<ol style="list-style-type: none"> 1. The actor clicks on the “edit account information” button. 2. The system shows the edit information screen. 3. The actor changes his information. 4. The actor clicks on the “save changes” button. 5. The system saves the new information. ^[1] 6. The system returns to the account info page. 7. The system shows an “edit successful” message.
Exception	[1]. The actor didn’t fill in the fields correctly. System stays on the edit information screen.
Result	Actor successfully changed his account information.

Name	UC5: Register medication.
Summary	The patient registers a medication for use.
Actors	Patient
Assumptions	Actor has an account, is logged in and on the home page.
Description	<ol style="list-style-type: none"> 1. The actor clicks on the “add medication” button. 2. The system shows the add medication page. 3. The actor types the name of his medication in the search bar. 4. The system starts filtering the list of available medications. 5. The system shows the medication the actor searched for based on the entered search parameters. ^[1] 6. The actor selects the right medication from the shown list. 7. The Actor clicks the “add medication” button. 8. The system adds the medication to the actors medication list. ^[2] 9. System shows message: “medication added to medication list”.
Exception	<p>[1]. The search parameters given don’t give a search hit. System shows message: “No products found with given search parameters”.</p> <p>[2]. System failed to add the medication to the list. System shows message: “failed to add medication to your list. Please try again.”. Actor returns to step 7.</p>
Result	Actor successfully added a new medication to his medication list.

Name	UC6: Delete medication.
Summary	The Patient removes a medication from his medication list.
Actors	Patient
Assumptions	Actor has an account, is logged in and is on the medication history page.
Description	<ol style="list-style-type: none"> 1. The actor clicks on the medication he wants to remove. 2. The system shows the “remove” button. 3. The actor clicks on the “remove” button. 4. The system removes the medication from the actors medication list. ^[1] 5. System returns to the medication history page. 6. System shows message: “medication successfully removed”.
Exception	[1]. System couldn't remove the medication. System shows message: “could not remove the medication from your list. Please try again”.
Result	Actor successfully removed medication from his list.

Name	UC7: Change medication
Summary	The user can view their current medications.
Actors	Patient
Assumptions	<ol style="list-style-type: none"> 1. The actor is logged in. 2. The actor has already medication on the system.
Description	<ol style="list-style-type: none"> 1. The actor selects the medication, which needs to be changed. 2. The system loads the view for changing medication. 3. The actor finds and selects a medication from the possible medications. 4. The actor confirms the change. ^[1] 5. The system checks and saves the change.
Exception	[1] The medication is blank: warn the actor to select the medication.
Result	The medication is different now on the system.

Name	UC8: Show medication list
Summary	The user can view their previously used medications.
Actors	Patient
Assumptions	1. The actor is logged in. 2. The actor has already medications on the list
Description	1. The actor selects the medication history. 2. The system loads the medication history view. ^[1]
Exception	[1] If there are no used medications, notify the actor the history is empty.
Result	The medication history is viewed with used medications.

Name	UC9: Change medical personal data.
Summary	The user can change their personal information such as blood pressure, weight and length.
Actors	Patient
Assumptions	1. The actor is logged in. 2. The actor has already personal information.
Description	1. The actor selects personal information. 2. The system loads the personal information view. 3. The actor rewrites the personal information. ^[1] 4. The actor saves the personal information. 5. The system checks the personal information. ^[2] 6. The system saves the personal information.
Exception	[1] The actor leaves without saving his changes. The system asks the actor if he wants to leave without saving his changes. If confirms, then cancel the changes, else returns to the personal information view. [2] The personal information is blank or invalid. The system sends the actor back to step 3.
Result	The personal information is different now on the system.

Name	UC10: Change medical personal data.
Summary	The user can change their blood pressure, weight and length.
Actors	Patient
Assumptions	<ol style="list-style-type: none"> 1. The actor is already logged in. 2. The actor is on the site with his account medical details.
Description	<ol style="list-style-type: none"> 1. The actor selects edit medical account. 2. The system shows the actors medical records. 3. The actor changes his medical records and clicks on save. 4. The systems checks the records and save them. ^[1]^[2]
Exception	<p>[1] The records are not valid. The system sends user back to step 3.</p> <p>[2] The actor does not confirm his changes and leaves the page. Cancel use case.</p>
Result	The medical records are changed.

Name	UC11: Show medical warning.
Summary	The system shows a warning if two or more medications should not be mixed.
Actors	Patient
Assumptions	1. The actor is already logged in with a valid network connection. 2. The actor inserted or changed their medical records.
Description	1. The system shows a message whether their medicine combination is safe or not. [1] 1.1 In case a medicine combination is unsafe, the system displays the names of the medicines which are unsafe. [1]
Exception	[1] The medicine is unknown. Show error message.
Result	The actor has received information about the safety of their medicine combination.

Name	UC14: Delete personal disease
Summary	The user can remove diseases inserted into system.
Actors	Patient
Assumptions	1. The actor is already logged in. 2. The actor is on the site with his account medical details.
Description	1. The actor selects edit medical account. 2. The system shows the actors medical records. 3. The actor removes his medical records and clicks on save. 4. The systems checks the records and save them. [1]
Exception	[1] The actor does not confirm his changes and leaves the page. Cancel use case.
Result	The medical records are removed.

Name	UC15: Scan medication
Summary	The user can scan their medication using barcode.
Actors	Patient
Assumptions	Patient is logged in on the system. Patient is using a device with a camera.
Description	1. The actor indicates wanting to scan their medication [1]. 2. The actor scans their medication. 3. The system checks if the scanned medicine valid [2]. 4. The system saves the information of the medicine [3].
Exception	[1] No camera attached to the device. Show error message. [2] Medicine information is not valid. Show error message. Give actor the option to try again. [3] No internet connection. Upload failed. Show error message.
Result	The medicine information is added to the actor's data.

Name	UC16: Admin can add new rules
Summary	The admin can add new rules into system.
Actors	Admin
Assumptions	1. The actor is already logged in. 2. The actor is on the dashboard page.
Description	1. The actor selects edit medical rules. 2. The system shows the current medical rules. 3. The actor adds new medical rules and clicks on save. 4. The systems checks the records and save them [1][2].
Exception	[1] The records are not valid. The system sends user back to step 3. [2] The actor does not confirm his changes and leaves the page. Cancel use case.
Result	The medical records are added.

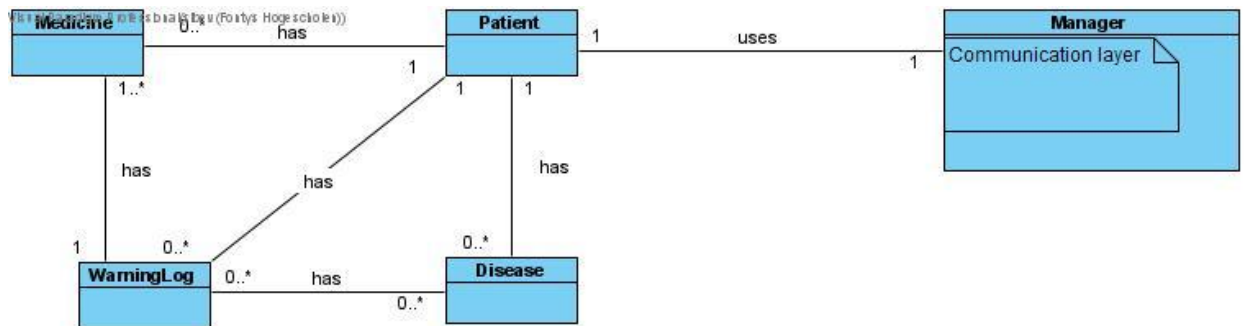
Name	UC17: Users can login using 2FA
Summary	The user can login using a special code sent to their email account.
Actors	Patient
Assumptions	1. Patient is not logged in on the system. Patient has setup 2FA on their account.
Description	1. The actor indicates wanting to log in. [1] 2. The actor fills in their user credentials. [2] 3. The system sends an email to the user's email address with a verification code. 3. The system displays a screen asking the actor to fill in the verification code that's send to their email address. 4. The actor inserts the verification code. 5. The actor successfully logs in to the system. [3]
Exception	[1] No internet connection. Process cancelled. [2] Invalid credentials. Show error. [3] Invalid verification code entered. Show error. Actor can try again.
Result	The medicine information is added to the actor's data.

Name	UC18: Resolve error
Summary	The patient can look at a log of all his medical errors and mark them as resolved.
Actors	Patient
Assumptions	Actor has an account, is logged in, multiple medicines on his list and just got a notification.
Description	<ol style="list-style-type: none"> 1. Actor goes to the error log page. 2. System loads error log page. 3. Actor selects an error log. 4. System shows error log. 5. Actor clicks the “resolved” button. 6. System sets error status to resolved. [1] 7. System shows message: “Error resolved”. 8. System return to error log screen.
Exception	[1] System could not mark the error as resolved. System shows message: “unable to mark the error as resolved, please try again”.
Result	The Actor successfully marked a medical error as resolved.

Name	UC11.2: Show medical warning when viewing medicine log
Summary	The system shows a warning if two or more medications should not be mixed while visiting medication log
Actors	Patient
Assumptions	1. The actor is already logged in. 2. The actor is on the medication log site
Description	1. The system shows a message that the medications does not combine.
Exception	
Result	The actor has got a warning.

C7 Domain model

This chapter shows a model of the relations between different components of the application.



Medicine: The medicine class holds all the data required for a medicine. Like what it is made of side effects and short description.

Patient: Holds the user's data.

Disease: Holds all the information about a disease.

Warning Log: Holds the information for a medical warning. Like time when event was created and the reason of creation.

Manager: This class will be responsible for the managing the application and communicate with the different architectural layers.