Med Finder App

IEEE Requirements Specification Document

Student name: Angela Darel

Student number: x15021386

Course Name: BSc (Honours) in Technology Management

Course Specialisation: Business Analyst

Project Supervisor: Dr Eugene F.M. O' Loughlin

Declaration Cover Sheet for BSHTM4 Project Submission

SECTION 1

Student to complete

Name	Angela Darel
Student ID	X15021386
Supervisor	Dr Eugene F.M. O'Loughlin

SECTION 2

Confirmation of Authorship

The acceptance of your work is subject to your signature on the following declaration:

I confirm that I have read the College statement on plagiarism (summarised overleaf and printed in full in the Student Handbook) and that the work I have submitted for this assessment is entirely my own work.

Signature: Angela Darel

Date: 5th May 2019.

NB. If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the College's Disciplinary Committee. Should the Committee be satisfied that plagiarism has occurred this is likely to lead to you failing the module and possibly to you being suspended or expelled from college.

Complete the sections above and attach it to the front of one of the copies of your assignment.

What constitutes plagiarism or cheating?

The following is extracted from the college's formal statement on plagiarism as quoted in the Student Handbooks. References to "assignments" should be taken to include any piece of work submitted for assessment.

Paraphrasing refers to taking the ideas, words or work of another, putting it into your own words and then crediting the source. This is an acceptable academic practice provided you ensure that credit is given to the author. Plagiarism refers to copying the ideas and work of another and misrepresenting it as your own. This is completely unacceptable and is prohibited in all academic institutions. It is a serious offence and may result in a fail grade and/or disciplinary action. All sources that you use in your writing must be acknowledged and included in the reference or bibliography section. If a particular piece of writing proves difficult to paraphrase, or you want to include it in its original form, it must be enclosed in quotation marks and credit given to the author.

When referring to the work of another author within the text of your project you must give the author's surname and the date the work was published. Full details for each source must then be given in the bibliography at the end of the project.

Penalties for Plagiarism

If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the college's Disciplinary Committee. Where the Disciplinary Committee makes a finding that there has been plagiarism, the Disciplinary Committee may recommend:

☐ That a student's marks shall be reduced.

☐ That the student be deemed not to have passed the assignment.

☐ That other forms of assessment undertaken in that academic year by the same student be

☐ That other examinations sat by the same student at the same sitting be declared void.

Further penalties are also possible including:

☐ Suspending a student from college for a specified time.

☐ Expelling a student from college.

☐ Prohibiting a student from sitting any examination or assessment.

☐ The imposition of a fine.

☐ The requirement that a student to attend additional or other lectures or courses or undertake

additional academic work.

Table of Contents

1. Requirements Elicitation and Analysis Planning

1.1. Introduction:

Med Finder is a web based application, to allow users for quick and accurate search for the medication they might need. When people travel they almost never know the medication names in the countries they travel to. Most medication, although used worldwide, have different brand name, depending on the country it is being sold in. Also, the inside leaflet does not contain any other, alternative name of the product, which leaves customer unaware of what to look or ask for in another country. Here lies the opportunity for medicine and supplements search application which ideally should provide the customer with the list of alternative names available in the country they are interested in.

The information provided by Med Finder is also available through internet search. However, when someone types in "aspirine" the results will contain aspirine sellers, pharmacies, retailers, prices and often times picture of the package. The search results will not provide alternatives names, nor will they provide alternatives for aspirine or latin name of the main ingredient / active agent. It is possible to find this information's over more searches, but it requires more time and browsing the result pages. Also, although results pages might show other names for the medication or supplement, they will not show global availability.

Checking the medication or supplements at home before leaving for a trip or vacation may be convenient but looking for all of this, while already on vacations, in the pharmacy, in need for the medication would be problematic. Med Finder will find the relevant information in merely few taps on the screen. Although the application is rather designed for desktops, as a web application, it will be automatically available on any mobile device with internet access.

Due to application design (as a web app), there is no need for the mobile device storage use to download it. It will be available globally, as long as the user device has an internet access. Due to the nature of Med Finder, there is no need to write the information down and possibly loose that written piece of paper and wet it and not be able to decipher the message afterwards.

The purpose for this project is to elicit requirements so that the application can be developed. As a business analyst in this project, I will utilize Business Analysis Book Of Knowledge (BABOK) to the best of my abilities. This project will gather and document requirements and will present variety of requirements eliciting techniques for different stakeholders' input.

Brainstorming session will be first used technique, to gather preliminary ideas and see how this project can be developed and how other ideas can be

incorporated. The survey will be then created and send out to reach more stakeholders and document their responses. Next technique that will be used is prototyping. Prototyping will be carried out in conjunction with interviews. This is to ensure stakeholders input in the visual side of the application, and to incorporate their opinion into application design. These two combined techniques are crucial to the project, as they will allow for easy and desirable function layout, thought the application. The second prototype wireframe will be developed afterwards. Second wireframe will incorporate the interview findings wherever possible.

For the final document, MoSCoW analysis will be used to prioritize elicited requirements. This detailed project will be developed with the help of IEEE Requirements Specification template.

1.2. Business Need:

For most people vacations and any kind of trips are both exciting and stressful enough, to think about emergency situations before going anywhere. There is so many things to do, that unforeseen circumstances follow behind.

At the same time, daily users of medication are almost always prepared in advanced. However, not always and they do not anticipate emergency situations like the medication being lost or stolen.

Taking original prescription on vacation, along with the needed medication seems risky, since not only the medication might get stolen or lost, but also the prescription.

Scanning and storing the prescription can solve at least one of the above problems. As this function will be available in Med finder, for both convenience and peace of mind.

Most places have internet access nowadays, so even lack of roaming will not be a problem. The application will be website based, so the pharmacies, GPs and non-medical user, will be able to access it on any internet connected device.

When talking about web based medical application, there are some disadvantages, that need to be taken into consideration:

Disadvantages of traditional GP/Pharmacy/browser search	Disadvantages of Med Finder
Lack of foreign language (to consult GP/pharmacist)	Too many marketing emails sent to the user
Costs of GP visit	Server downtime
Need to research multiple websites	Need to run on multiple platforms

Lack of brand name in foreign country	Problematic internet access
Mistake with medication due to misunderstanding	Issues to use by non-tech users

This web based application fulfil important business need. Due to more and more people travel the world or migrate to another country, there is a need for quick and easy way to find right medication, despite language barrier. Med Finder is suitable for everyone to use but it would be most beneficial for users with ling life conditions, that require daily medication. Often, this medication is of high importance such as diabetic or cardiac medication. In extreme situation, time to find right medication might make a life difference.

Customer base for this application would consist of medical related businesses (pharmacies, GP offices, retail places, that carry any type of medication or supplements, possibly even big pharma). Users of the application would consist of medicine users, families of these users, pharmacies and GP offices.

There would be variety of benefits to the customers. The benefits include, but are not limited to:

- ✓ Platform to present actual offer, without the need of printed materials and with ability to change and update the offer within couple of hours
- ✓ Advertising space with possibility of e-marketing
- ✓ Customer gain, as prior to use the application they might have not be aware of the offer or even existence of certain shop/ office
- ✓ Increase brand awareness (customers might not know, that they can visit their favourite pharmacy abroad)

Currently, there is no information available on various pharmacies websites. Their "conditions" tabs offer only advice, without any medication, information, usage, dosages etc., so the user is not able to look up various medication, side effects or interactions and discuss it with their doctor. Also search feature on these websites does not even show non-prescription medication. Users are just left in the dark and on their own.

1.3. Business Case

Idea behind the application is to provide a web based application which would benefit customers and users, by delivering reliable platform for medication

search, in the country of origin and abroad. The concept of this application came to live due to personal experience.

While on vacation outside Ireland, I was in need to some medication. Both base cases had a different ground for need of this application. In first case, I was visiting a country, that I could not speak the language of. Luckily, pharmacy staff understood enough English, to provide me much needed tablets. However, people's health and wellbeing cannot be based on luck. In second case, I was visiting the country, that I have no problems communicating in. This time the issue was, I knew the name of the medication in Ireland, but not the brand or trade name of the medication in Poland. I did not know if the same medication is even available in Poland and in what form or dosages.

While facing the second case, I was researching the information traditional way- with the help of internet browser and multiple websites. Eventually I have found much needed information, but I have wasted plenty of time and needed to search multiple web pages. None of the pages I have found provided full and extensive information. Mobile applications carry even less information and usually are limited to one pharmacy app/ offer only. There is clear need and gap on the market.

The reasoning behind this application is to design a platform that will allow users to find medication or supplement information quickly and in one place. To fill market gap rather than creating another standalone place, multiply elicitation techniques had to be used. These different techniques are to provide the assortment of requirements, that can be later included in the application.

1.4. Project Risks

As with any projects, there are risks associated with this one too. These risks should be recognized and managed, for both, customers and users. Some of the risks include, but are not limited to:

Customers Risks:

- ✓ Waste advertising opportunity
- ✓ Law regulations (some products might be illegal in certain locations, disabling sale)
- ✓ Loosing client due to checking the application instead of going to visit GP

Users Risks:

- ✓ User data breach
- ✓ Servers failure (lack of access to stored data such prescriptions)
- ✓ Inability to access internet and recover the information on time

Currently, the project has no sponsor. However, there are certain risks to the future sponsor.

Sponsor Risks:

- ✓ Poor choice of developing company
- ✓ Security breaches
- ✓ Investing in unknown technology
- ✓ Users distrust (due to medical nature of the application)

1.5. Stakeholders List

- ✓ Project Manager
- ✓ Business Analyst
- ✓ Application Developer
- ✓ Users
- ✓ Pharmacists
- ✓ GPs
- ✓ Sale Assistants
- ✓ Hospital Medical Staff
- ✓ Testers
- ✓ Data Analyst
- ✓ Project Sponsor

1.6. Power/Influence Matrix

STAKEHOLDERS	POWER	INFLUENCE
Project Manager	H	H
Business Analyst	H	H

Application Developer	L	M
Users	L	H
Pharmacists	L	M
GPs	L	M
Sale assistants	L	L
Hospital medical staff	L	M
Testers	L	M
Data Analyst	M	M
Project Sponsor	H	H

Legend	
High	H
Medium	M
Low	L

2. Requirements Elicitation Techniques

2.1. Brainstorming

Overview and Objectives:

The brainstorming session conducted at the beginning, will ensure large number of different views and opinions, that could be later transformed into requirements. The ideas of potential features and functionalities in the application were noted. The aim of this technique was to better understand what various stakeholders would expect and seek from proposed application.

Time and participants:

20th December 2018

NCI canteen, 3 PM.

5 potential consumers

The rules of brainstorming session were as follow:

1. Share any idea that comes to mind, no idea is stupid.
2. Do not discuss the ideas further.
3. Every participant should contribute, by sharing hers/his idea.
4. If anyone has something to add, they need to wait for the person sharing idea to finish and then present "add-on" as separate idea (this is to ensure generation of as many ideas as possible and not to developing detailed requirements list).
5. Participants were asked to remain professional by focusing on the session and avoid using their mobile phones at this time.

Brainstorming Document Deliverables:

List of session findings, regarding desirable features and functions.

2.2. Survey

Overview and objectives:

The survey aim is to gather more structured data regarding the application. This method of elicitation was successfully participated by over one hundred responders. Gathering responses this way helped keep the cost of this project to a minimum. It also helped reach big number of potential users.

To ensure quality and usability of survey question, I have had multiple consultations with my project supervisor.

For the actual survey medium, I have used Google Forms. This medium helped me to document the responses in clear, visual manner for the analysis.

Channels of distribution:
- ✓ The survey link was posted on Facebook multiple times
- ✓ The survey link was emailed to some participants
- ✓ The survey link was shared via Viber with some participants

Google Forms Survey Link:
https://docs.google.com/forms/d/e/1FAIpQLSckRDzg9SXLsrcnjVX0NCQM-x_u9LpbvfOFhWAiE8TpD48nrg/viewform?fbclid=IwAR0Iq4jYqqTV0Ps0tzfqopG7ckMVCgCL2LUp6K6RuvX1HVnoKskK4ZKV_-0

Questions:

*How do you like the idea behind this project? ***

I do not like it

> 1
> 2
> 3
> 4
> 5
> 6

I love it

*How helpful do you think application like this would be? ***

Useless

> 1
> 2
> 3
> 4
> 5
> 6

Very helpful

*How likely would you use the application like Med Finder? ***

Would not use it

> 1
> 2
> 3
> 4
> 5
> 6

Would use it all the time to find medication

*What devices are you using while traveling? You can choose more than one option. ***

- ➢ Mobile phone
- ➢ Tablet
- ➢ Laptop
- ➢ PC in internet café
- ➢ None of the above
- ➢ Other:
- ➢ …………………………………………………..

*What operating system(s) are you using? On which device would you use the application most likely? You can choose more than one option. ***

- ➢ Apple/ iPhone iOS
- ➢ Windows
- ➢ Android i.e. Samsung, Huawei
- ➢ Linux
- ➢ I am not sure

*What social media do you use the most? You can choose more than one option. ***

- ➢ Facebook
- ➢ Instagram
- ➢ Snapchat
- ➢ Forums i.e.estheticon.com
- ➢ YouTube
- ➢ None
- ➢ LinkedIn
- ➢ WhatsApp
- ➢ Other:
- ➢ ……………………………………………

*How often do you visit a pharmacy while traveling? ***

- ➢ Every time
- ➢ Sometimes
- ➢ Only when needed

➢ Never

*What gender are you? Please note, gender only helps determine promotional offers. ***

➢ Female
➢ Male
➢ Prefer not to say
➢ Other:
➢ ………………………………………………

*What age are you? Please note, age only helps determine promotional offers. ***

➢ 18-25
➢ 26-35
➢ 36-45
➢ 46-55
➢ 55+
➢ Prefer not to say

*What features would you like this application to have? You can choose more than one option. ***

➢ Create the account and log in
➢ Calendar with medical reminder
➢ Medical search history
➢ Prescription scanner and storage
➢ None of the above
➢ General information about medication
➢ Other:
➢ ………………………………………………

*What languages would you like Med Finder to be? ***

➢ As many languages as possible
➢ English
➢ Polish
➢ Spanish

- ➢ German
- ➢ French
- ➢ Other:
- ➢ …………………………………………………………

*How much would you like to see name of your condition in other country (to help the pharmacist or a doctor, to give you correct medication or supplement)? Example: Diabetes = Cukrzyca (Poland) ***

Hate the idea

- ➢ 1
- ➢ 2
- ➢ 3
- ➢ 4
- ➢ 5
- ➢ 6

Love the idea

*What information about the medication you are looking for, would you like to know? You can choose more than one option. ***

- ➢ Prescription only
- ➢ Medication you are looking for is not available in this country
- ➢ Dosages/ Warning (i.e. might cause drowsiness)
- ➢ Available form(injections/ointment/tablets)
- ➢ Estimated price
- ➢ Alternatives
- ➢ Other:
- ➢ …………………………………………..

Is there anything you would like to add / comment?

- ➢ ………………………………………………………………

2.3. Interviews

Overview and Objectives:

The aim of interviews was to gain better understanding of required features from various stakeholders' perspective. The interviews will be fitted and constructed to the meet the stakeholder area of interest. By creating these interviews so that they fit different stakeholders, I will gain better understanding of what is needed by the groups these stakeholders represent.

Interview 1

Responder:

Pharmacist

Questions:

1. What do you think about the idea behind this application?
2. What features do you find most helpful from your point of view?
3. What would you change (add / drop)?
4. Do you think this application would improve pharmacy services (by shortening time of searching for the medication / by customer being able to show you name of their condition, so you can advise correct medication etc.)?

Interview time and location:

6.30 PM, Dublin, City Centre

Interview Date:

1st May 2019

Interview 2

Responder:

GP

Questions:

1. What do you think about the idea behind this application?
2. What features do you find most helpful from your point of view?
3. What would you change (add / drop)?
4. Do you think this application would improve GP services (by customer being able to show you name of their condition, so you can advise correct

medication/ by instant translation to medication available in this country/ by instantly seeing latin name of medication etc.)?

Interview time and location:

5.30 PM, Dublin, Blanchardstown

Interview Date:

2nd April 2019

Interview 3

Responder:

Daily Medication User

Interview method:

Face to face

Questions:

1. What do you think about the idea behind this application?
2. What features do you find most helpful from your point of view?
3. What would you change (add / drop)?
4. Do you think this application would help you feel safe in another country, knowing the medication name and your condition is available for the medical services in another country, even without knowing the language?
5. Do you think the propose feature of scanning and storing your prescription would help you feel safe, by knowing you have an instant access to them and can show them to any medical staff may the need occur?

Interview date and location:

20th April 2019, Dublin, Phibsborough

Interview Time:

11.30 AM

Interview 4

Responder:

Occasional Medication User

Interview method:

Face to face

Questions:

1. What do you think about the idea behind this application?
2. What features do you find most helpful from your point of view?
3. What would you change (add / drop)?
4. Do you think it is useful application when traveling?

Interview date and location:

18th March 2019, Dublin City Centre

Interview time:

4.15 PM

2.4. Prototyping

Overview and Objectives:

The aim of prototyping is to visualise gathered requirements. This wireframe helps to visualize basic layout as well as help to improve the layout in version two of the prototype. The second version of the prototype will be created after the interviews, to accommodate any suggestions. It should accurately represent analysed requirements.

First version prototype will be preliminary representation of requirements gathered during brainstorming session and surveys. As this will be done before the interviews, it will be my own interpretation of the requirements. It is crucial to create this first version, as this will be used as base for the interview and will be shown to interviewees. Thanks to the visual form of the requirements, the stakeholders will have a chance to put forward any suggestions, feedback or critique, so the later version can be adjusted accordingly.

Version two of the prototype will be constructed based on the feedback collected during the interviews. As all answers will be noted down, it should be better representation of stakeholder's requirements and fit their needs better,

with interpretation input from interviewees. Both versions will be made with the help of Balsamiq.

Prototype required resources:

- ✓ Preliminary requirements from brainstorming session
- ✓ Requirements list from survey
- ✓ Balsamiq to create wireframe

2.5. Interface Analysis

Overview and objectives:

UML use case diagram was developed as last technique. The aim was to illustrate two different ways of using the website – for registered and non-registered users. First diagram will visualise non-registered user interactions such medication search and registration. Second diagram will visualise registered user interactions such log in, medication search, prescription scan etc. Stakeholders are represented as "actors". The use case diagrams development is important, as it will help avoid discrepancies.

Required resources:

a) Online resource: www.draw.io
b) PC with internet access
c) Developed prototype

UML Use Case Diagram Development Checklist:

- ➤ Analyse similar projects.
- ➤ Use other elicitation techniques for interface evaluation.
- ➤ Revise prototype to establish possible user – website interactions.
- ➤ Generate UML user case diagrams for Med Finder Website.

UML Use Case Diagram Name:

a) Non- Registered Med Finder User

b) Registered Med Finder User.

UML Use Case Diagram Actors:

a) Non-Registered User
b) Registered User

3. Requirements Elicitation Techniques Results

3.1. Brainstorming

3.1.1. Pages findings

Home Page
Register
Login
My Account
My Prescriptions
Reminders
Feedback

3.1.2. Layout Findings

Easy to use
Reminders as easy to edit notes
Recent scan prescription first
Clear view of searched medication

3.1.3. Functionality Findings

Register / Delete account
Login / Logout
Double confirmation DELETE prescription
Add, edit and delete reminders
Ability to add comment to the prescription

Ability to scan and save prescription

The brainstorming session helped to elicit preliminary requirements. The participants obliged with the rules, so many ideas were voiced. Some ideas were voiced more than once (in either slightly changed form or with added feature), and these were underlined, to put special emphasis on them later.

Extended list of elicited preliminary requirements is as follow:

- ✓ Register / Create account
- ✓ Delete account
- ✓ Login and Logout
- ✓ Medication info page
- ✓ Reminder notes
- ✓ Scan and store prescriptions
- ✓ Condition check-up page
- ✓ My Account
- ✓ Warning pop-up box
- ✓ Delete prescriptions – double conformation
- ✓ Feedback page
- ✓ Newest prescription on top
- ✓ GP contact page
- ✓ Clutter free interface
- ✓ Ability to use page without creating the account

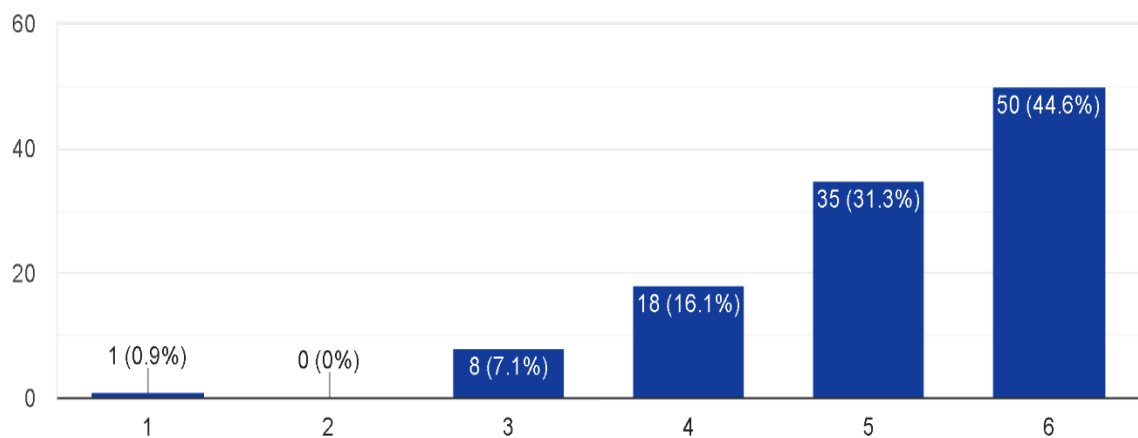## 3.2. Survey

3.2.1. Questions and answers

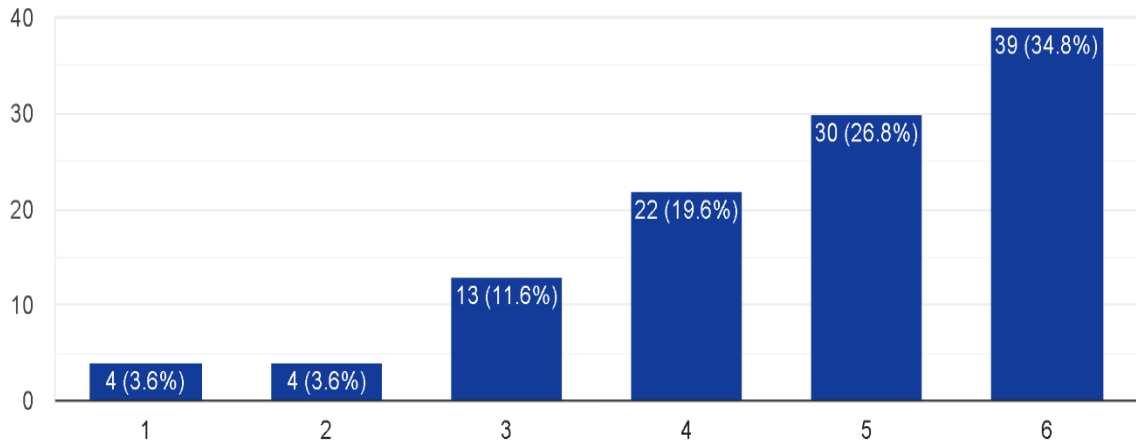## How do you like the idea behind this project?
112 responses
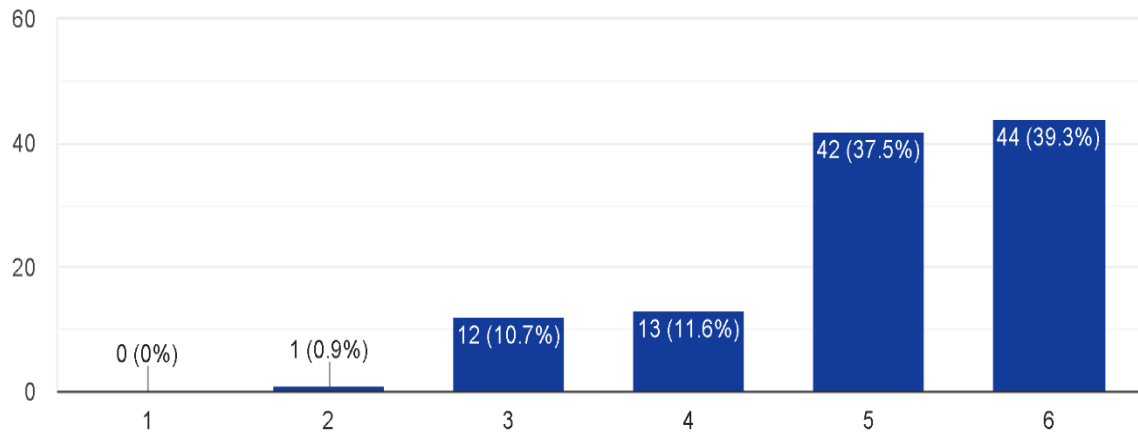
How helpful do you think application like this would be?
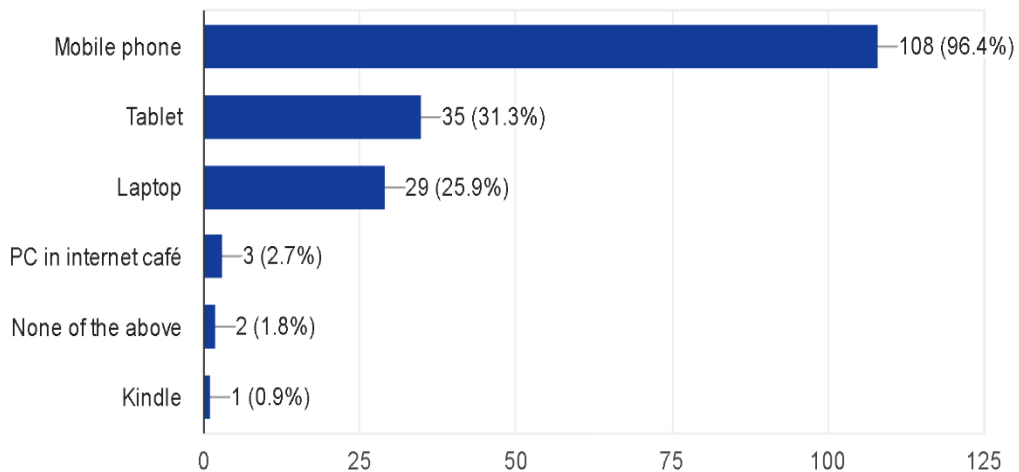112 responses

How likely would you use the application like Med Finder?

112 responses

What devices are you using while traveling? You can choose more than one option.

112 responses

What operating system(s) are you using? On which device would you use the application most likely?You can choose more than one option.

112 responses

Option	Count
Apple/ iPhone iOS	42 (37.5%)
Windows	32 (28.6%)
Android i.e. Samsung, Huawei	70 (62.5%)
Linux	1 (0.9%)
I am not sure	4 (3.6%)

What social media do you use the most? You can choose more than one option.

112 responses

Option	Count
Facebook	93 (83%)
Instagram	36 (32.1%)
Snapchat	17 (15.2%)
Forums i.e.estheticon.com	5 (4.5%)
YouTube	52 (46.4%)
None	1 (0.9%)
LinkedIn	10 (8.9%)
WhatsApp	39 (34.8%)
Viber	1 (0.9%)
Messenger	1 (0.9%)
Viber	1 (0.9%)
Twitter	1 (0.9%)
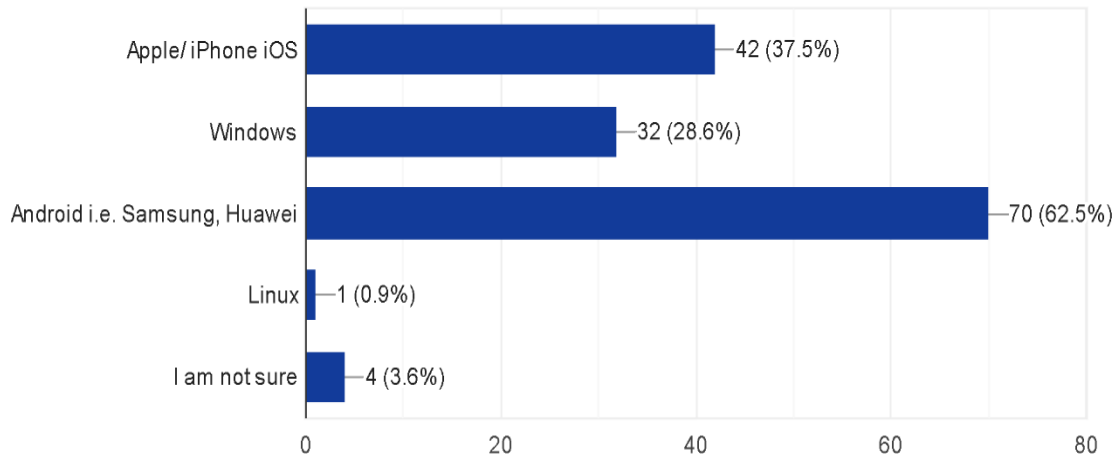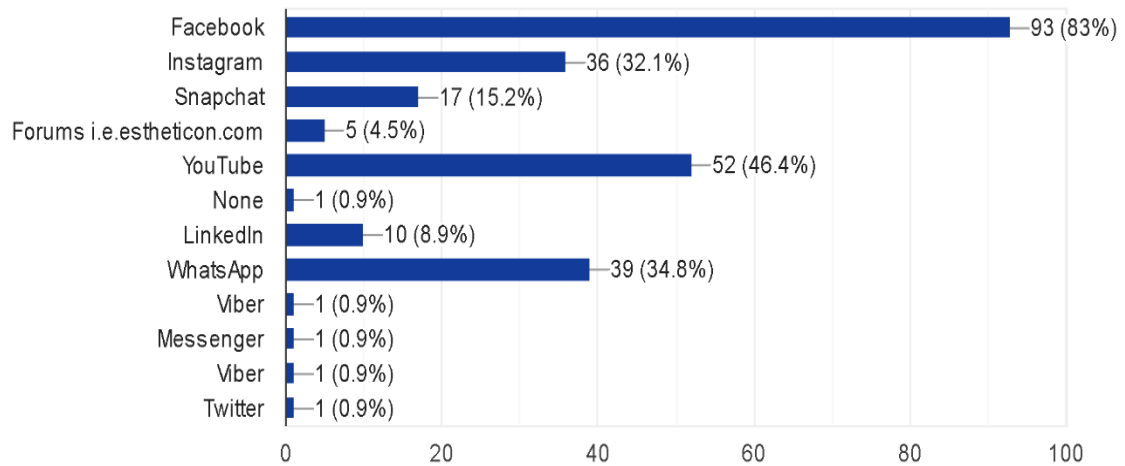
How often do you visit a pharmacy while traveling?

112 responses
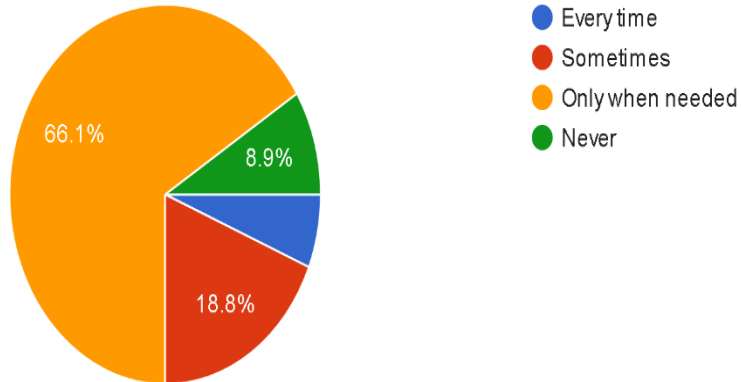
- ● Every time
- ● Sometimes
- ● Only when needed
- ● Never

66.1%

8.9%

18.8%

What gender are you? Please note, gender only helps determine promotional offers.

112 responses

- ● Female
- ● Male
- ● Prefer not to say

28.6%

70.5%

What age are you? Please note, age only helps determine promotional offers.

112 responses

- ● 18-25
- ● 26-35
- ● 36-45
- ● 46-55
- ● 55+
- ● Prefer not to say

25%
12.5%
9.8%
29.5%
22.3%

What features would you like this application to have? You can choose more than one option.

112 responses

Feature	Responses
Create the account and log in	57 (50.9%)
Calendar with medical reminder	69 (61.6%)
Medical search history	48 (42.9%)
Prescription scanner and storage	62 (55.4%)
None of the above	4 (3.6%)
General information about medication	68 (60.7%)
	1 (0.9%)
DNR and organ donor clause	1 (0.9%)
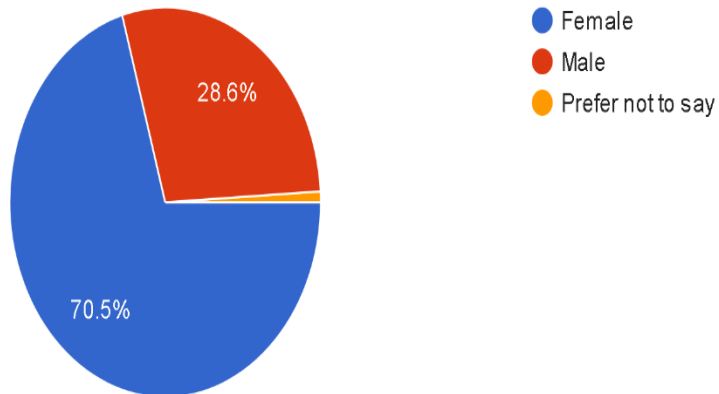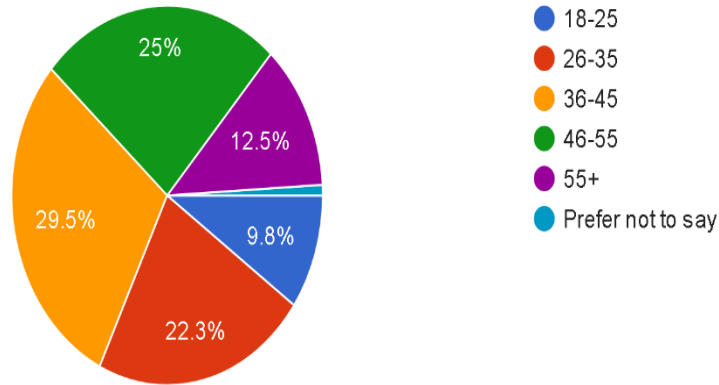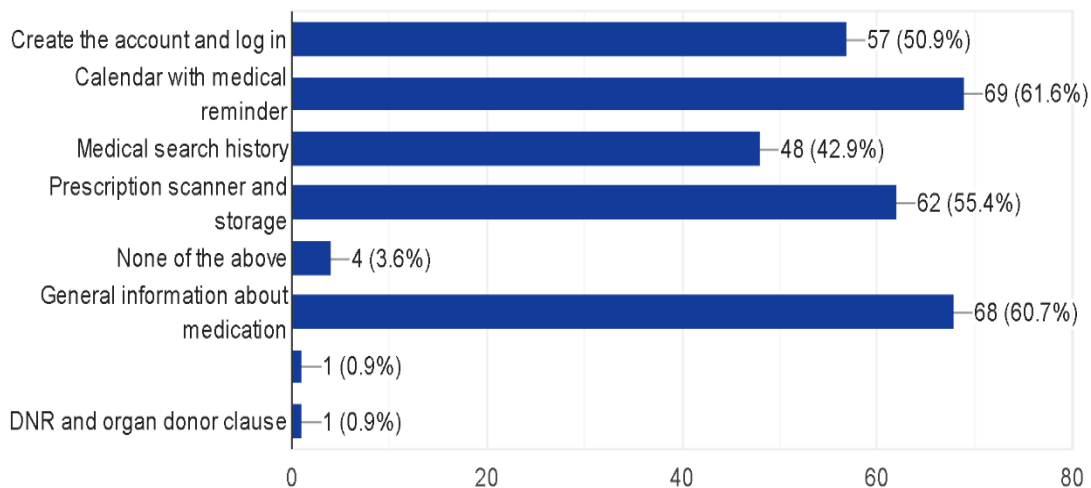
What languages would you like Med Finder to be?

112 responses
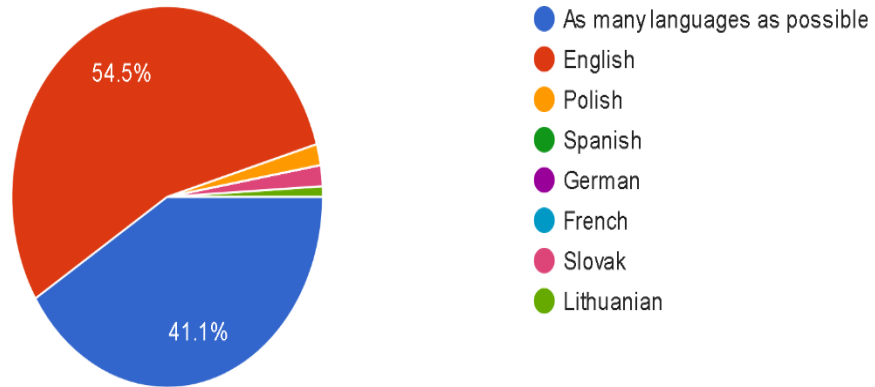
- As many languages as possible
- English
- Polish
- Spanish
- German
- French
- Slovak
- Lithuanian

54.5%

41.1%

How much would you like to see name of your condition in other country (to help the pharmacist or a doctor, to gi... Example: Diabetes = Cukrzyca (Poland)

112 responses
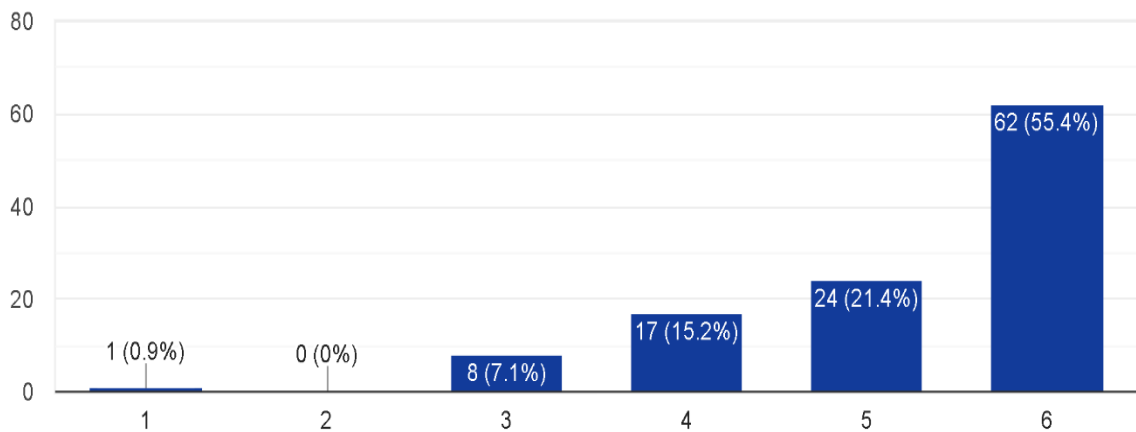
What information about the medication you are looking for, would you like to know? You can choose more than one option.

112 responses

Category	Value
Prescription only	64 (57.1%)
Medication you are lookin for is not av...	69 (61.6%)
Dosages/ Warning (i.e. might cause drow...	70 (62.5%)
Available form(injections/ ointment/tabl...	61 (54.5%)
Estimated price	74 (66.1%)
Alternatives	63 (56.3%)

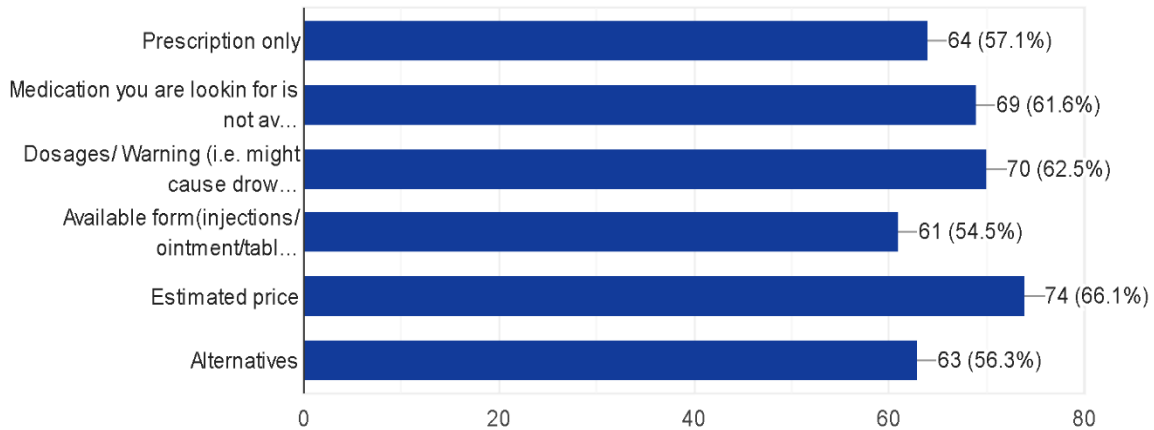## Is there anything you would like to add / comment?

9 responses

No

NA

looks good , and sounds like an great Idea !

I think this is a great idea!!

Med finder would be a great help to a lot of people.

Nothing to add.

This is a great idea.

Hope the online prescription is accepted by pharmacies worlwide!

3.2.2. Survey Conclusion

The survey was created with the help of Google Forms, as it allowed for graphic representation of responses, in form of various graphs. Responses, in visual form, were then inserted into this document. By the time of this project, 112 responses were registered. The responses mirror different age groups and different genders. There were no restrictions regarding taking part in this survey, although all participants had to be 18 yo. or older. No personal data

were collected, and all participants needed to confirm their age and give consent, in order for their responses to be recorded and processed.

The survey was answered by 70.5% of females and 28.6% of males. Age wise, majority of responders were between 26 and 55 years of age – around 80%. In this number, three age groups were quite evenly distributed, with 36-45 years group being the biggest with 29.5%. The smallest group of responders accounted for 9.8% of answers within the age group of 18-25. This question helped to gain good understanding of demographic. Other questions helped to gain understanding of what features were valued the highest and what responders are looking for.

Idea behind the project is was favoured by 76.8% (responses with two highest values 5 and 6, with 6 being highest value), with 61.6% responses of probable usage (again, two most valued responses groups with 5 and 6 being the highest).

Questions related directly to the application gave good base for MoSCoW analysis. Some of the features gained overwhelming response rates, with 69.6% for calendar with medical reminder as a winning feature. All medication related features received great interest, with lowest score 54.4% for information about available forms.

3.2.3. Requirements elicited from survey:

- ✓ Application must be accessible on mobile phones
- ✓ Calendar with medical reminder
- ✓ General information about the medication
- ✓ Prescription scanner and storage
- ✓ Create account and log in
- ✓ As many languages as possible, with English as main
- ✓ Names of the condition in other countries
- ✓ Estimated price
- ✓ Availability (as in the country)
- ✓ Warnings and dosages
- ✓ Additional information

3.3. Interviews

3.3.1. Interview one

Participant: Pharmacist

Questions:

1. *What do you think about the idea behind this application?*

It is a very good idea. It gives people reassurance, that they can let the medical professional know what medication they are on.

2. *What features do you find most helpful from your point of view?*

I think "translations" for country brand names, active agent/ ingredient and alternatives are the best. It does not apply to me as a pharmacist abroad, but I can see how this is helpful where there is a big choice of some medications, with the same active agent. You know, we are in the city centre and every day we have people from all over the world coming here, asking for their "home" medication, which I have no idea what these are! Every time I need to google it, to find the equivalent. And sometimes, we do not have license for these to be sold in Ireland. So, seeing the latin name (active agent rem.) would be a big help.

3. *What would you change (add / drop)?*

I would not like the autofill feature to be present when the patient types in the medication. There are many Sounds A Like and Look A Like medication and patient will not be aware of those most likely. Imagine autofill the heart medication for someone who is looking for simple painkiller? It is not as much as I would change in the application, as I would just like to be sure, that autofill is not part of it for the safety reasons. Proposed prescription scan and storage would take care of potential SAL or LLA medication to be avoided.

4. *Do you think this application would improve pharmacy services (by the customer being able to show you the name of their condition, so you can advise correct medication/ by instant translation to medication available in this country / by instantly seeing latin name of medication etc.)??*

It would help to certain extend. Like I have said before, many people coming here every day and with the "warning" label in the application, they would be able to see it is not available, so I could check for the alternatives available here

or I would advise them to visit the GP for the prescription. This application is a good starting point for any advice. Also, with SAL and LLA names, the condition name translated is brilliant, again for safety reasons. I could easily find out what do the patient really looking for.

Conclusion 1

The interview 1 was conducted with the pharmacist. The aim was to ensure good understanding of need of this type of users, as their needs and requirements are different, since they represent highly medical literate users.

Q1. This question was to make sure, that indeed, idea behind the project is welcomed and the project itself is needed.

Q2. The aim of this question was to gather better understanding of needs and requirements of pharmacists. The answer gave the most important features to this type of stakeholders. It also validated main features of the application: translations, brand names, warnings and latin name.

Q3. This question was to add feature that might have not come up prior to the interviews or to remove the ideas seen as clutter. The pharmacists pointed out important feature, that would help keep the patients safe.

Q4. Showed, that the user indeed finds a value in the application, as a good starting point for the advice and services.

Requirements from Interview 1:

- ✓ Prescription scan and storage
- ✓ Medication name in latin
- ✓ Medication name in other country
- ✓ Restrictions of the medication
- ✓ Lack of autofill option
- ✓ Alternatives
- ✓ Condition name translated

3.3.2. Interview two

Participant: GP

Questions:

1. *What do you think about the idea behind this application?*

It is very helpful for lament users (non-medical).

2. *What features do you find most helpful from your point of view?*

Everything. Especially, that I could see what the medication is for, despite not knowing the language. Prescription scanner is good too, so I can see what other medication the patient was taking in other country.

3. *What would you change (add / drop)?*

I would need to see what the medication is used for in this patient. Some medication is used for variety of conditions and just knowing the name would not help me. It would be good starting point of course, but I still need to know what condition it is used for. Lyrica is used for acute back pain, for neurological issues in elderly patients, for depression and epilepsy. You see how the consultation could go wrong if patient only told me he is taking Lyrica? These conditions are hugely different, so to give proper medication, name of the condition that patient can show me, is crucial.

4. *Do you think this application would improve GP services (by shortening time of searching for the medication/ by customer being able to show you the name of their condition, so you can advise correct medication etc.)?*

Yes, greatly, as patients come with their medication and we do not know what it is for. If the patient can show me the condition name, this would help.

Conclusion 2

The interview 2 was conducted with GP. The aim was to ensure good understanding of need of this type of users, as their needs and requirements are different from the users with no medical background.

Q1. This question was to make sure, that indeed, idea behind the project is welcomed and the project itself is needed. GP confirmed, that it would be useful for non-medical users.

Q2. The aim of this question was to gather better understanding of needs and requirements of GPs. The answer gave the most important features to the user, which would be translation. It was pointed out to me many times during the interview, how important this would be, due to international patients.

Q3. This question was to add feature that might have not come up prior to the interviews or to remove the ideas seen as clutter. The user would like to add the condition name, as some medication can be taken for entirely different conditions. This is important from the medical safety point of view.

Q4. Showed, that the user would appreciate, if he could see what condition he is dealing with early in the consultation. It also showed, that the application would save time of treatment and would make getting the correct medication easier and quicker.

Requirements from Interview 2:

- ✓ Prescription scan and storage
- ✓ Medication name in latin
- ✓ Medication name in other country
- ✓ Restrictions of the medication
- ✓ Multi- lingual
- ✓ Condition name translated

3.3.3. Interview three

Participant: Daily Medication User

Questions:

1. *What do you think about the idea behind this application?*

Absolutely love it. I think it would come handy, especially when traveling.

2. *What features do you find most helpful from your point of view?*

Quick translation of the medication used? And I think showing the latin name is also good, because it is easy to find for pharmacists, regardless of the name on the box. Also, alternatives and availability in country. I take lots of medication each day and I need it when traveling too. I need to know if I can get proper

help if anything happens or should I take some more with me just in case. Prescription storage is fantastic idea too. So, any doctor can see what I was prescribed, so I do not look like a drug addict or something.

3.   What would you change (add / drop)?

I would love if scanned prescriptions were recognized worldwide. But all countries have their own regulations, so I do not think this will be possible. I would also like the space to add other of my medications like paracetamol, vitamins, this kind of things.

4.   Do you think this application would help you feel safe in another country, knowing the medication name and your condition is available for the medical services in another country, even without knowing the language?

Yes, definitely. I do not speak Spanish or German or French, so going to the doctor in case of emergency would be hard for me in non- English or non-Bulgarian country. With this application I could show what medication I need and prove it with prescription. I would not have to worry about someone giving me wrong pills.

5.   Do you think the propose feature of scanning and storing your prescription would help you feel safe, by knowing you have an instant access to them and can show them to any medical staff may the need occur?

Like I have said before, I think this is very helpful and would put my mind on ease. But I think reminder feature is super helpful and would be enough to keep me covered for the trip.

Conclusion 3

The interview 3 was conducted with daily medication user. The aim was to ensure good understanding of need of this type of users, as their needs and requirements are different from occasional medication users.

Q1. This question was to make sure, that indeed, idea behind the project is welcomed and the project itself is needed.

Q2. The aim of this question was to gather better understanding of needs and requirements of daily medication users. The answer gave the most important features to the user.

Q3. This question was to add feature that might have not come up prior to the interviews or to remove the ideas seen as clutter. The user would like to add one feature, however, as she said, with local laws, I do not think this is possible at this moment in time.

Q4. Showed, that the user would feel safer while traveling with this application. It also showed, that the application would save time of treatment and would make getting the correct medication easier and quicker.

Q5. Validate the need for this project and impact it would make for the user.

Requirements from Interview 3:

- ✓ Prescription scan and storage
- ✓ Medication name in latin
- ✓ Medication name in other country
- ✓ Restrictions of the medication
- ✓ Multi- lingual
- ✓ Overall medication/ supplements space
- ✓ Medical reminders

3.3.4. Interview four

Participant: Occasional medication user

Questions:

1. *What do you think about the idea behind this application?*

I think it is a good idea, it might come in handy when abroad, even when looking for something for a headache or heartburn, as it is always a problem. When you go outside Europe you have a big problem finding medications. Sometimes there is completely different range available, some common (in Europe) medication is not available elsewhere. Also, finding out if you need

prescription is important information, as some countries treat painkillers as heavy drug and you will need prescription, especially in Middle Eastern or African countries. It might be helpful to check availability of medication, because I might need to go to the doctor here to prepare for the journey.

2. *What features do you find most helpful from your point of view?*

Availability in other country and if I need prescription for it. I would also need to know if there are any alternatives under different names. I would like to know if the meds I am taking with me to travel are legal in other country, or do I need a written permission to carry it with me from doctor or embassy. One thing that may be not most helpful, but I like it: no need to register, I can just open the page and use it.

3. *What would you change (add / drop)?*

Nothing. I like the idea behind it as is.

4. *Do you think it is useful application when traveling?*

Definitely yes.

Conclusion 4

Q1. Although the question was only about the likeliness of the idea, the responder decided to elaborate. This helped to understand, in what situations exactly the application could be used and what issues it would help address.

Q2. This question showed the most important features for non-daily medication user. It validated the need for legal status check-up, different brand names and time/ ease to use, without the need to create the account.

Q3. This validated, that preliminary requirements and requirements elicited from survey fulfil the needs of the user, as he would not add nor remove anything from the application.
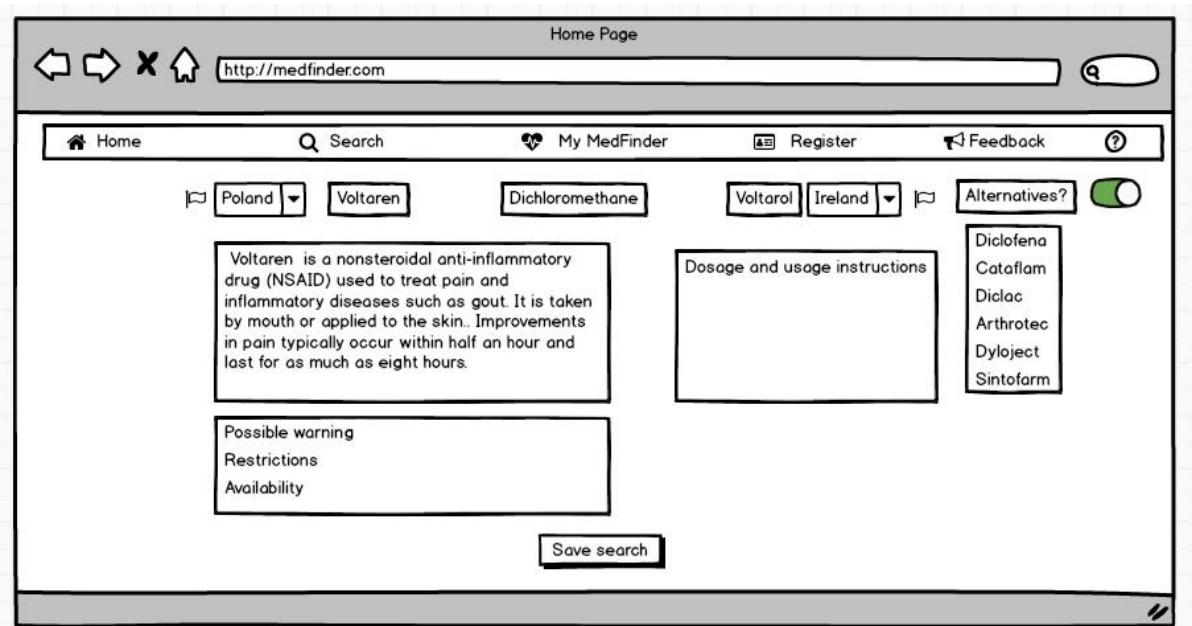
Q4. Validated, that the initial idea behind the project is a real business need and would be helpful.

Requirements from Interview 4:

- ✓ Quick check for medication
- ✓ Warnings and restrictions
- ✓ Availability
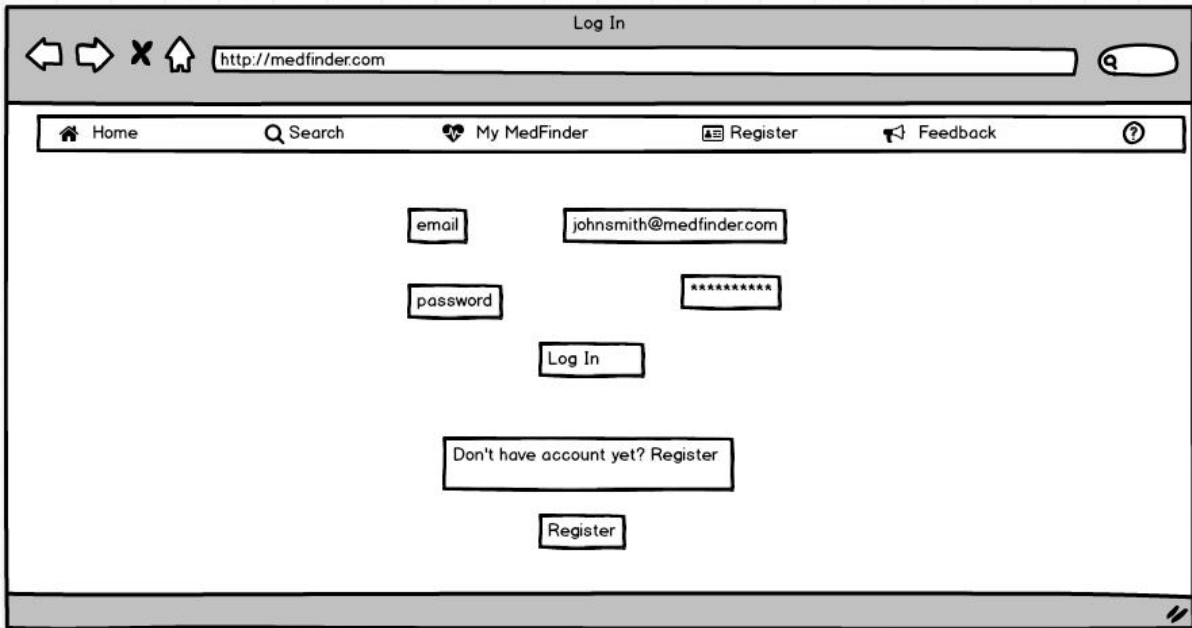- ✓ Non-prescription medication check
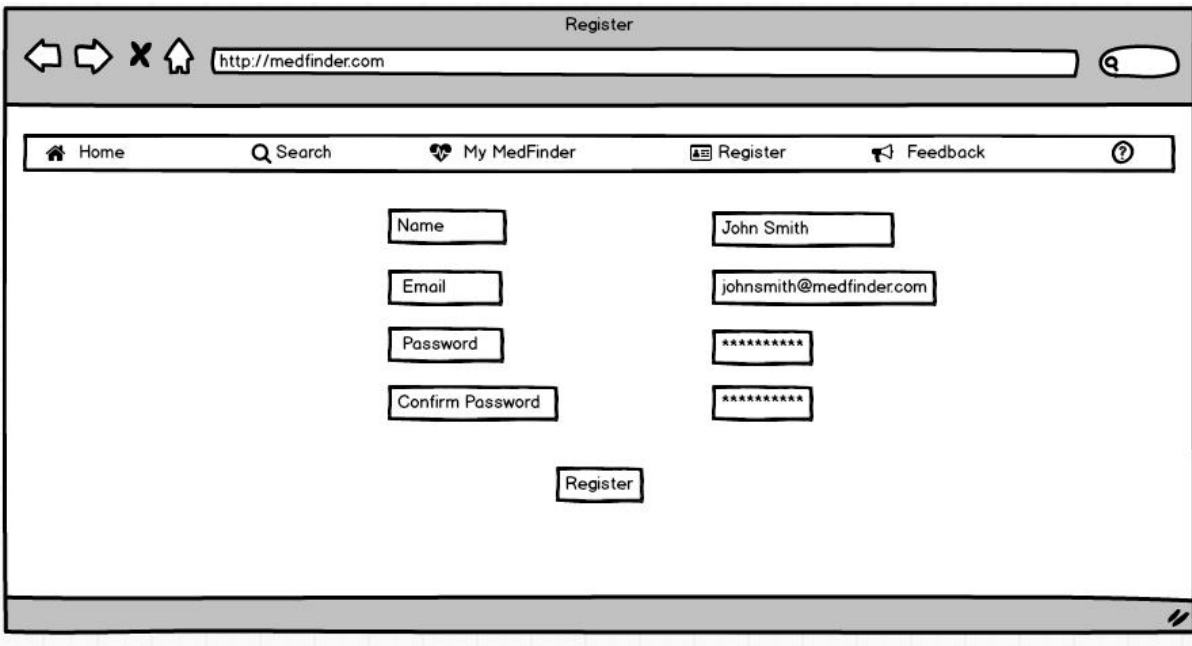
3.4. Prototyping

3.4.1. Prototype Version 1

Home page with search feature, since it does not require login in to use the main feature
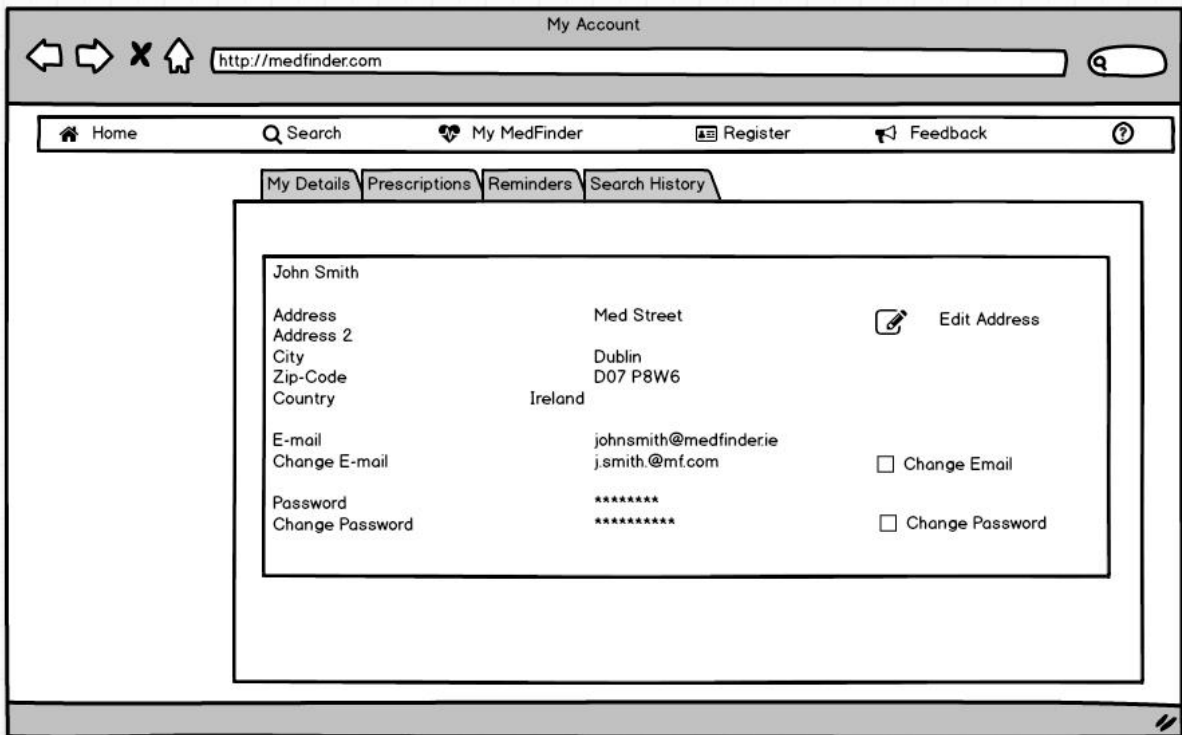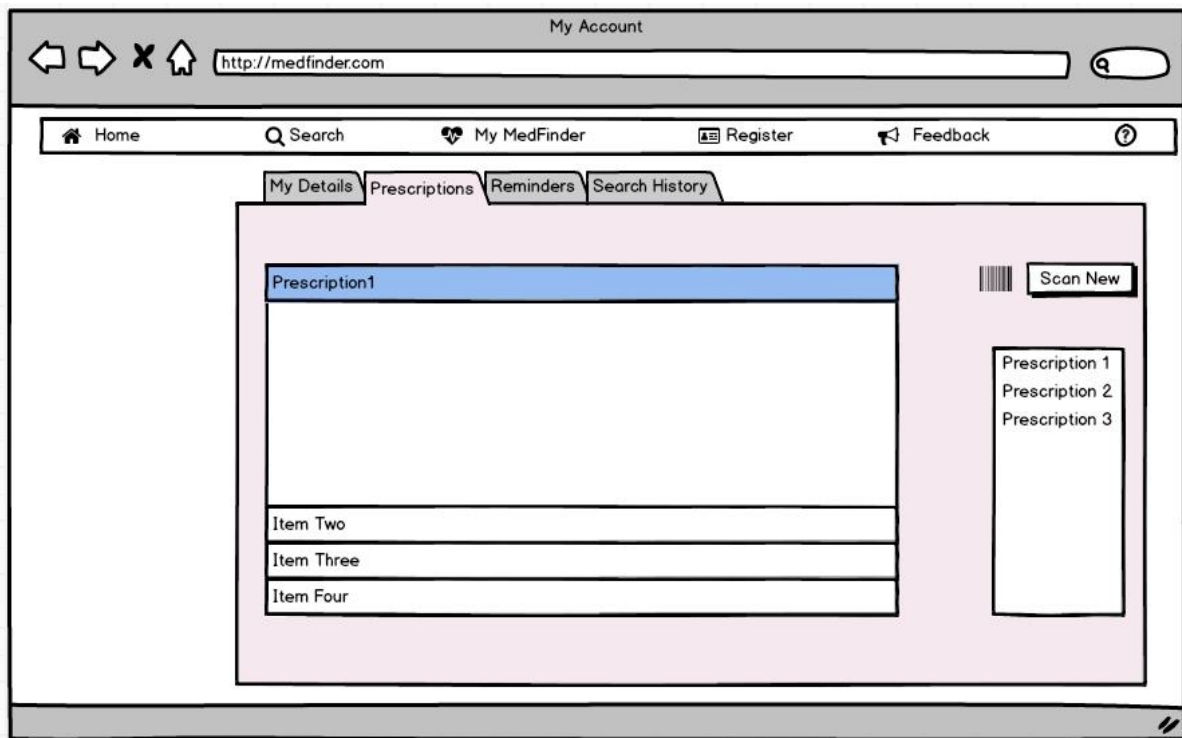
Graphic 2

Log in page

Graphic 3

Create account page

Graphic 4

User Details page

Graphic 5

Prescription scan and storage page
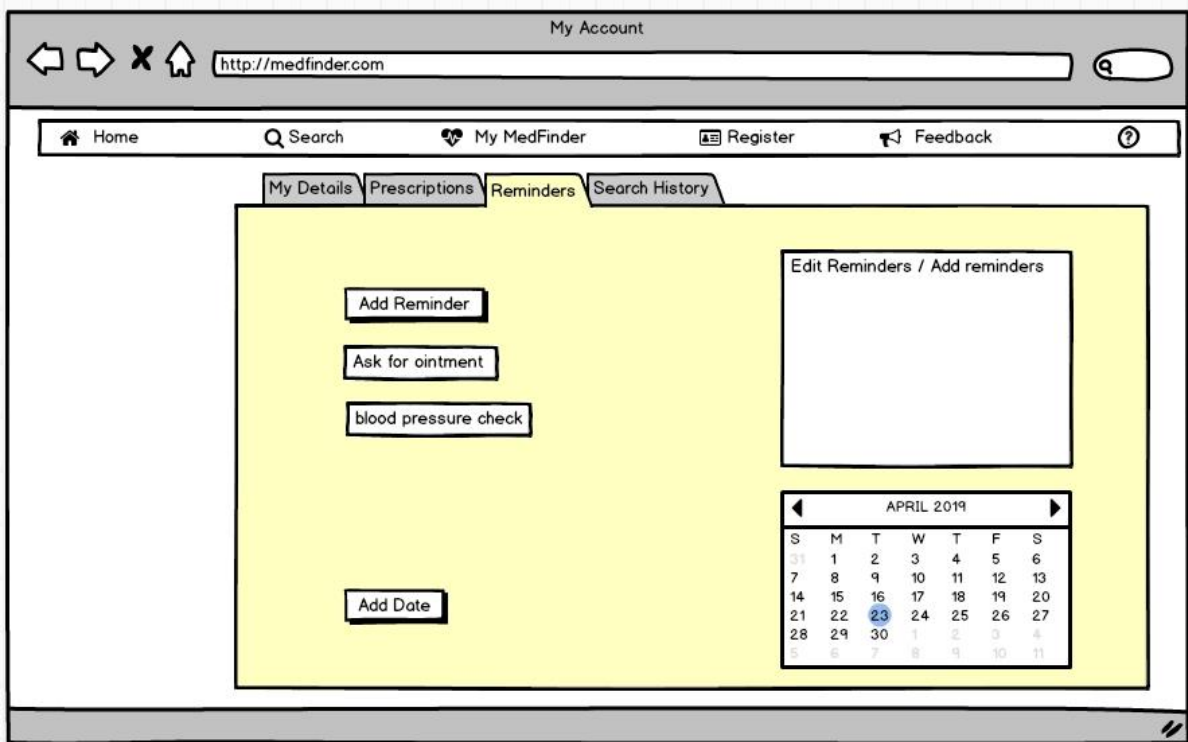
Graphic 6

User notes/ Reminders page
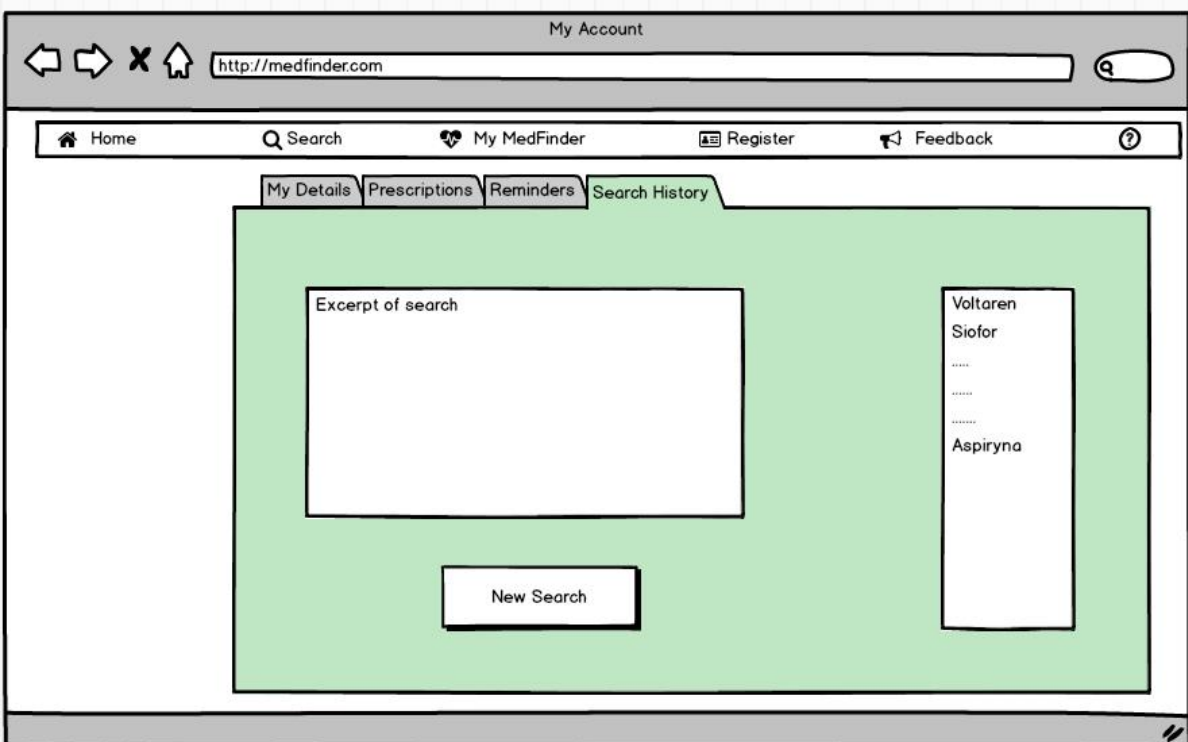
Graphic 7
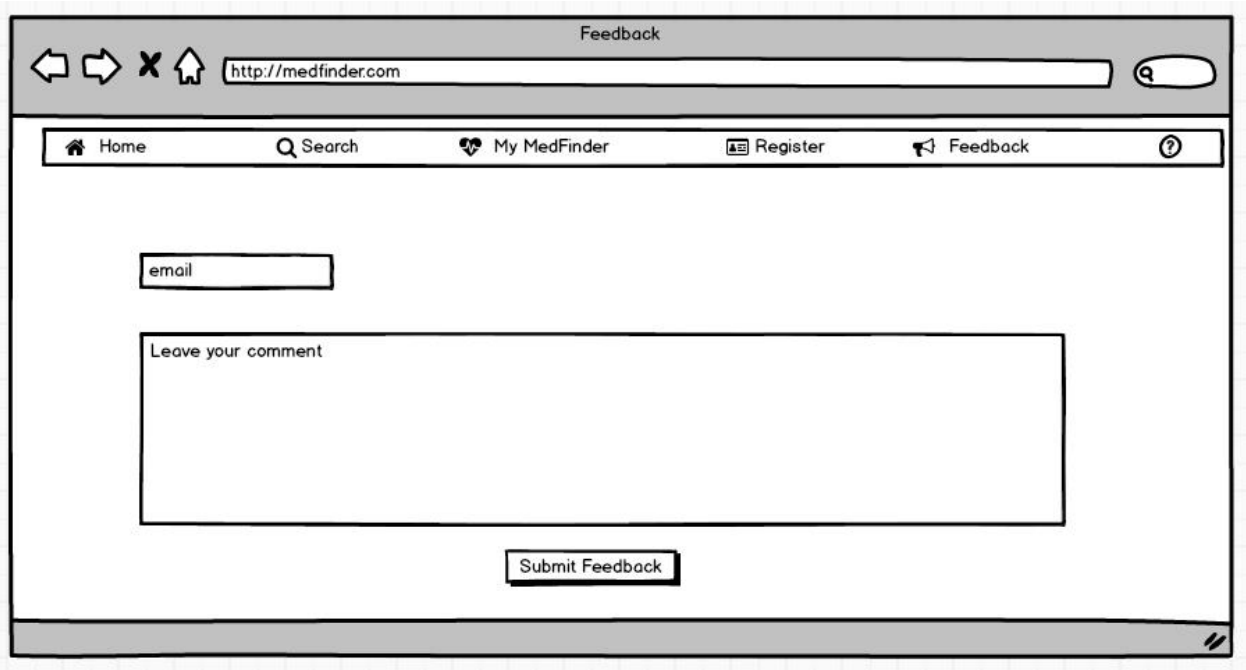
Graphic 8

Feedback page

Conclusion of Version One:

This prototype version was created with help of requirements gathered during brainstorming session and survey. They were not entirely analysed nor were they prioritized with the help of MoSCoW analysis at this stage.

The main idea behind the project was visualised on the home page, to ensure quick and easy access to main feature of the application. Additional pages were added to represent requirements for the whole application. Number of pages added up to 8 and seemingly fulfil all of the requirements.

This version was shown during the interviews for evaluation purposes. The interviewed stakeholders than had a chance to voice their opinion about the requirements and functionality. The layout of the application was discussed outside the official part of the interview, as a secondary feature.

3.4.2. Prototype version 2
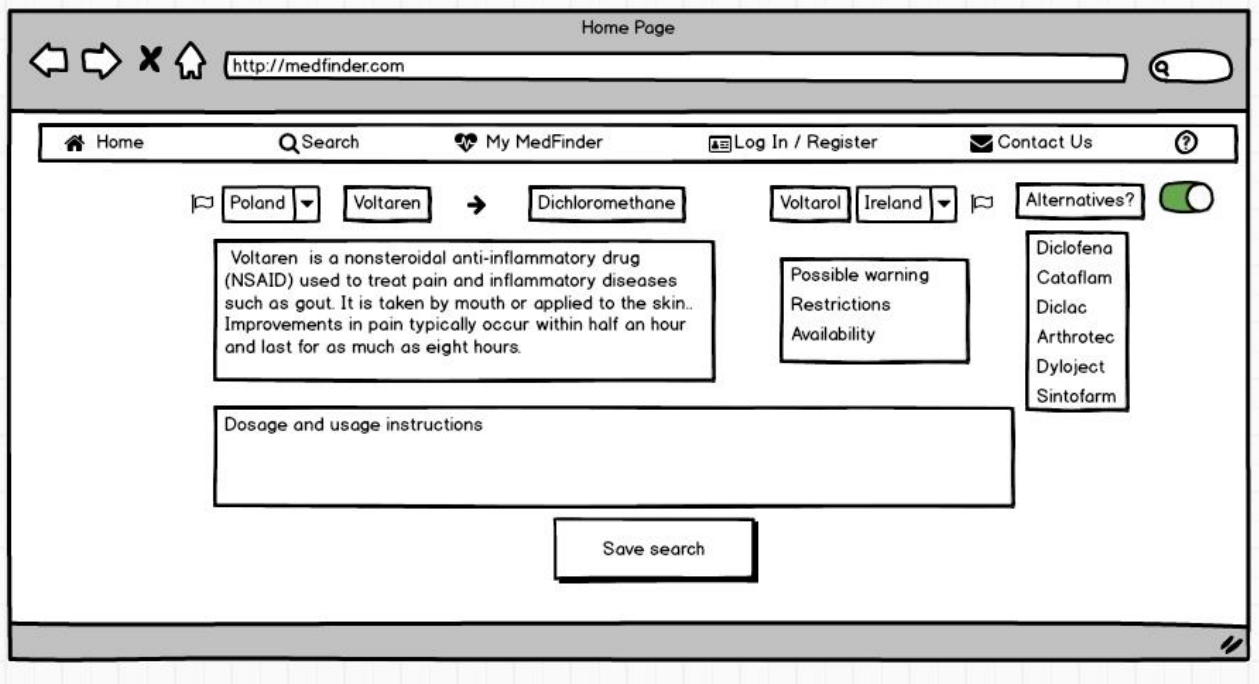
Graphic 9

Home page with search feature
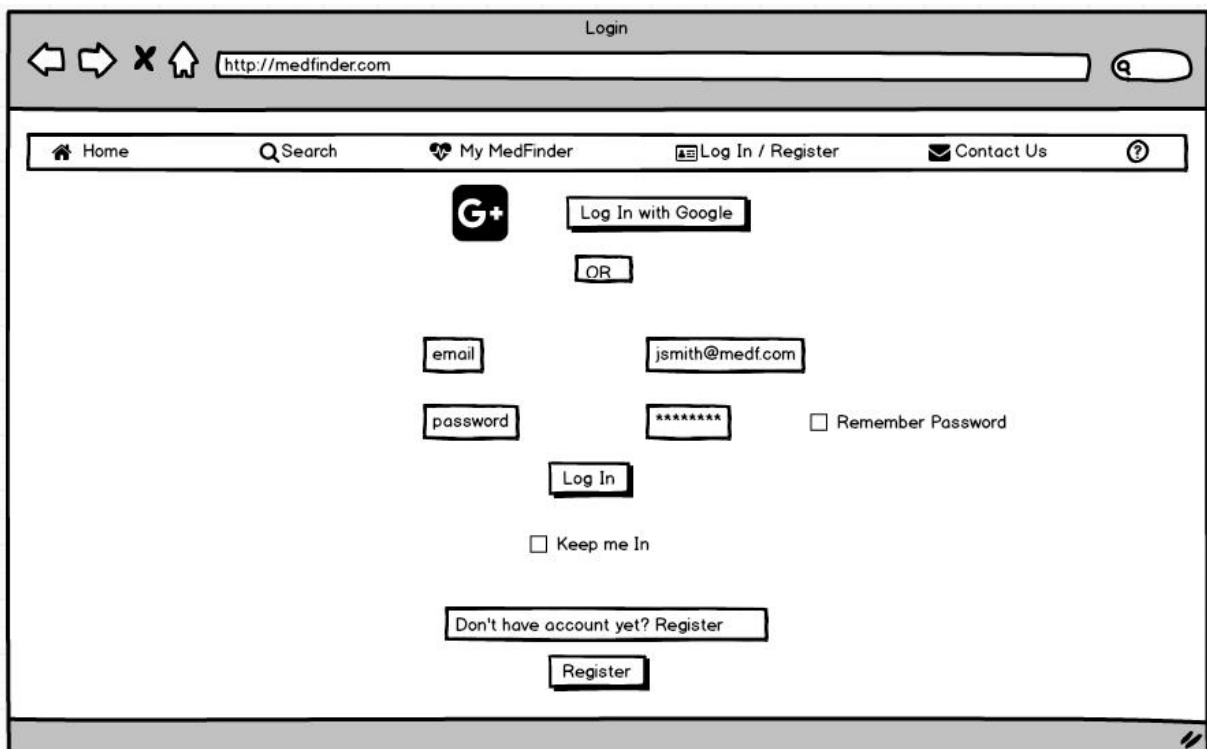
Graphic 10

Log in Page with possibility of login with Google
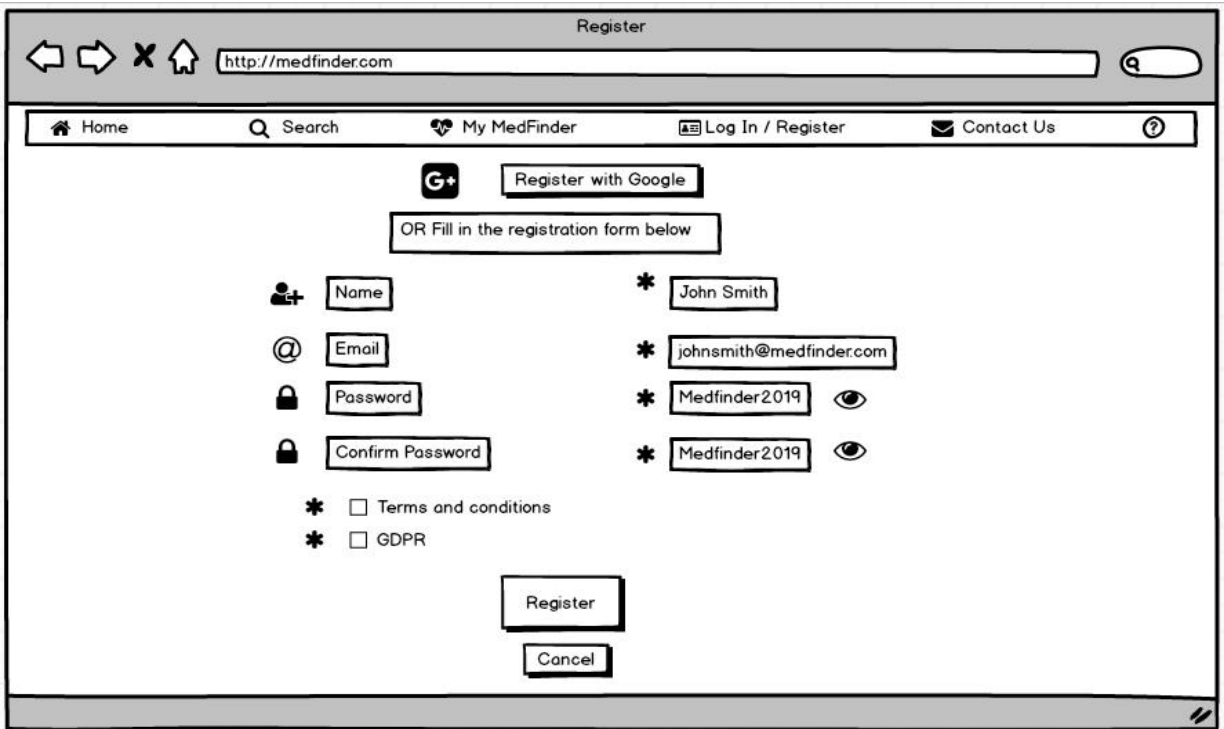
Graphic 11

Create account or register with Google page
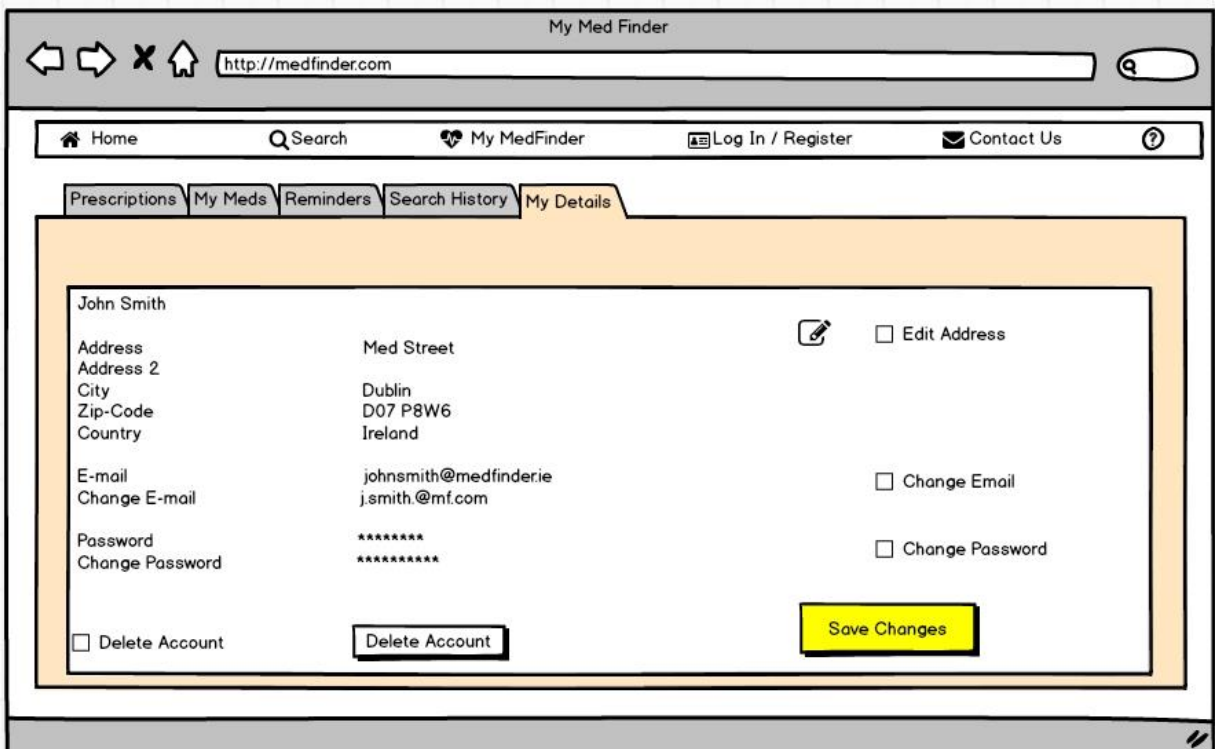
Graphic 12

My Med Finder / opens as my details page
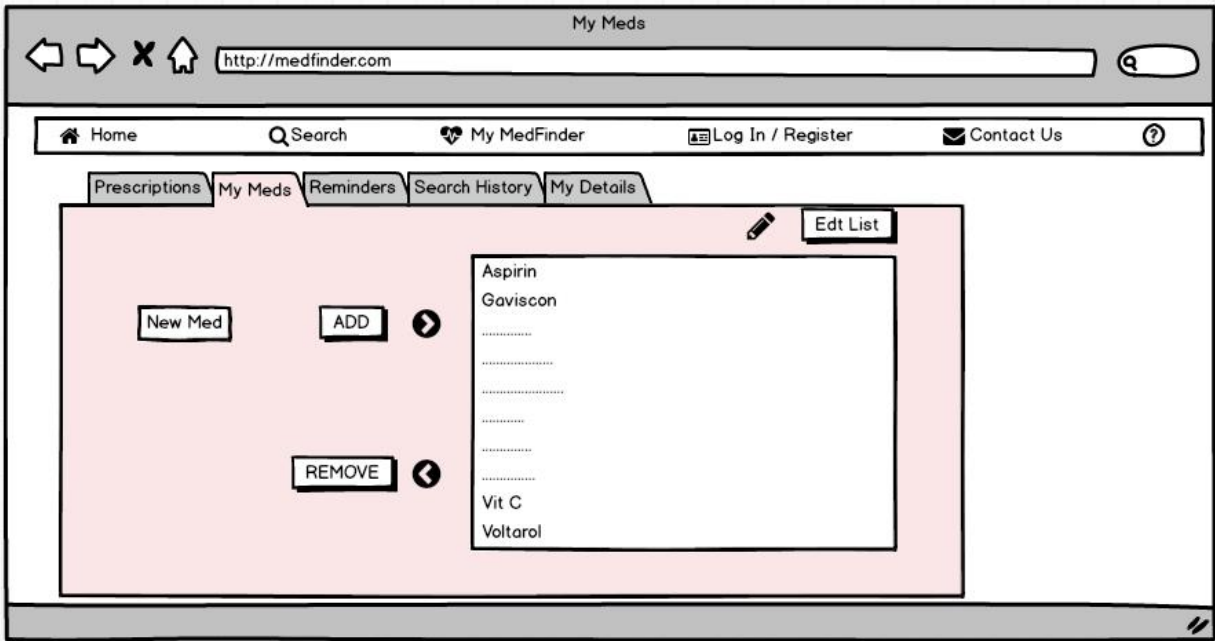
Graphic 13

My Meds page- with all medication (not just prescriptions)
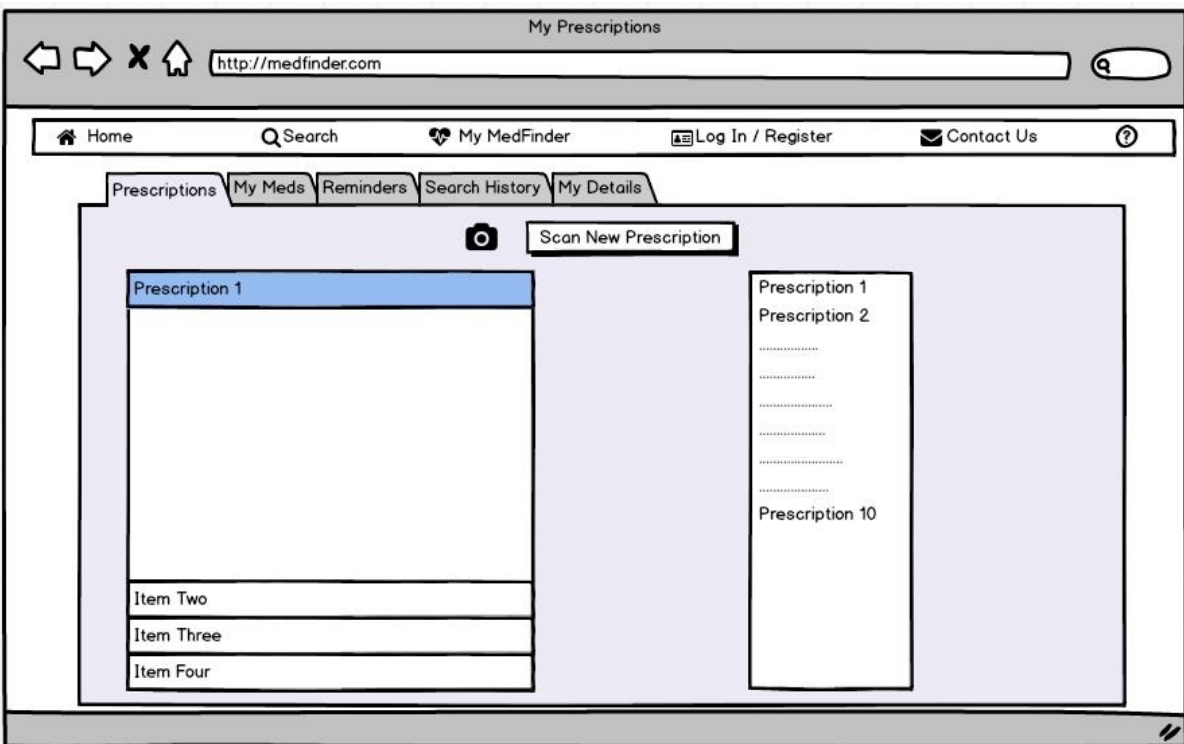
Graphic 14

Prescriptions page, with scan and storage
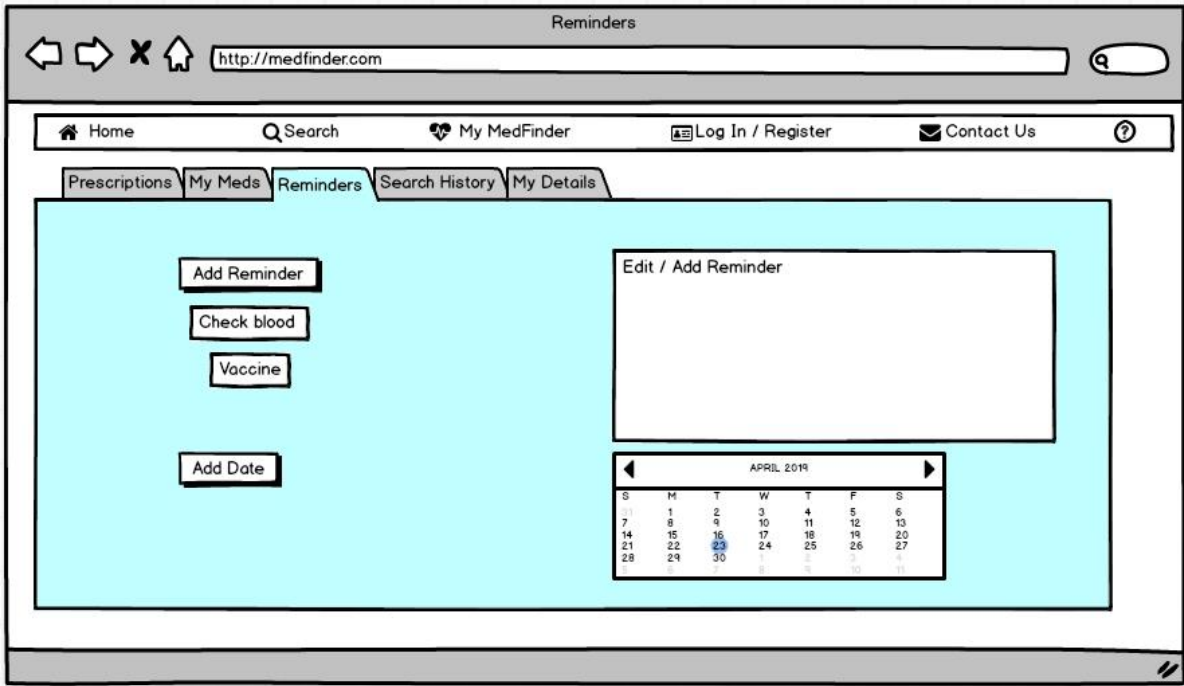
Graphic 15

Reminders page, with medical appointments, vaccinations etc.
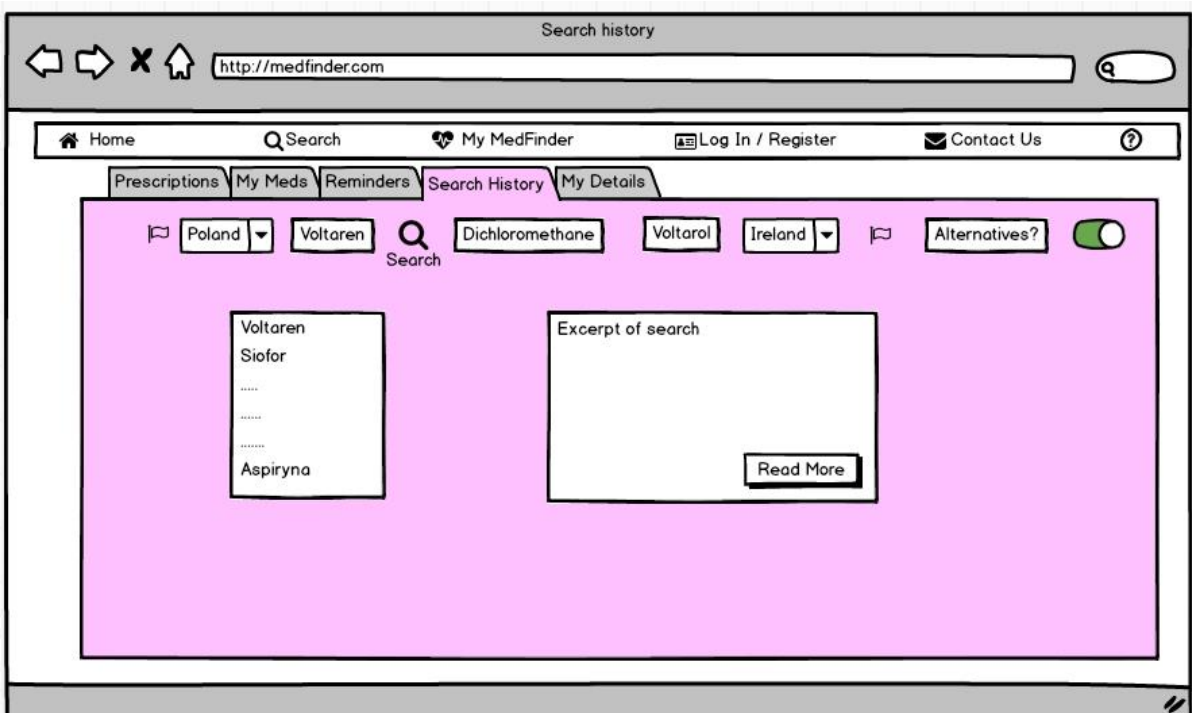
Graphic 16

Search history page with excerpt and possibility to go back to see full results
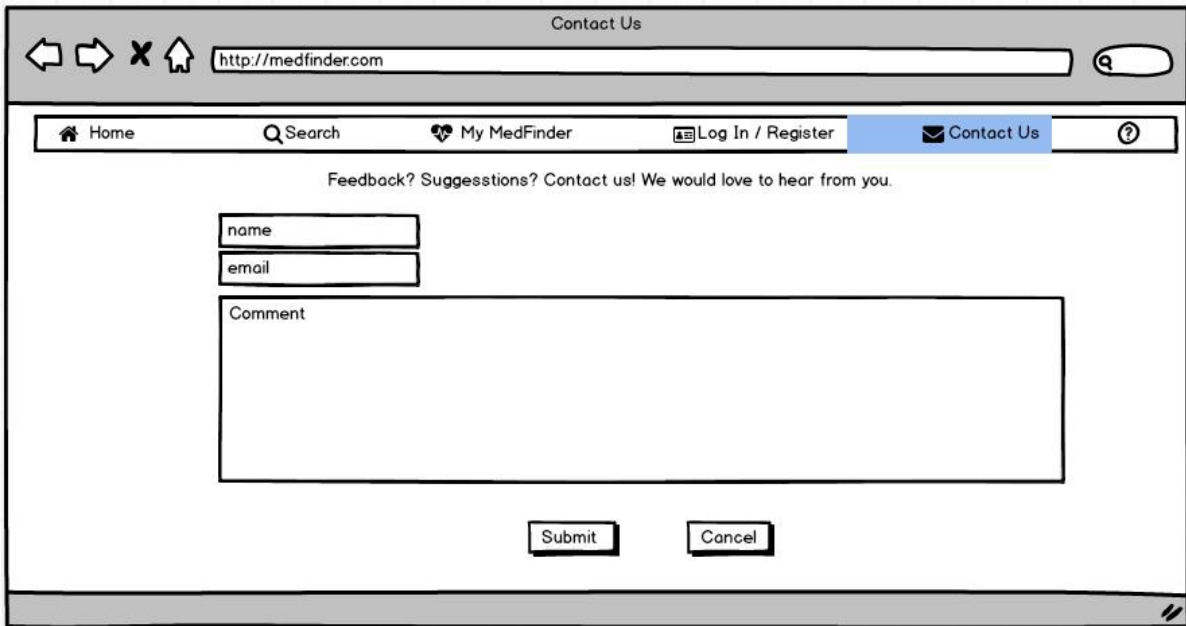
Conclusion of Version Two:

Version Two was created after the interviews and added up to 9 pages total. One page was added as per requirement from interview 3, to give the user space for non-prescription medication and supplements notes, since those might interact with prescribed medication.

Google registration and login possibility were added as an answer to interview 4 – ease of use. This will give the users quick and easy way to register and login, if they wish to do so and keep their searches.

Legal requirement consent box was added (GDPR), to comply with EU laws. Also "feedback" page was changed for "contact us" page, so the users have a chance to send any suggestions, critique and future requirements.

3.5. Interface Analysis

3.5.1. Non-Registered user UML Diagram
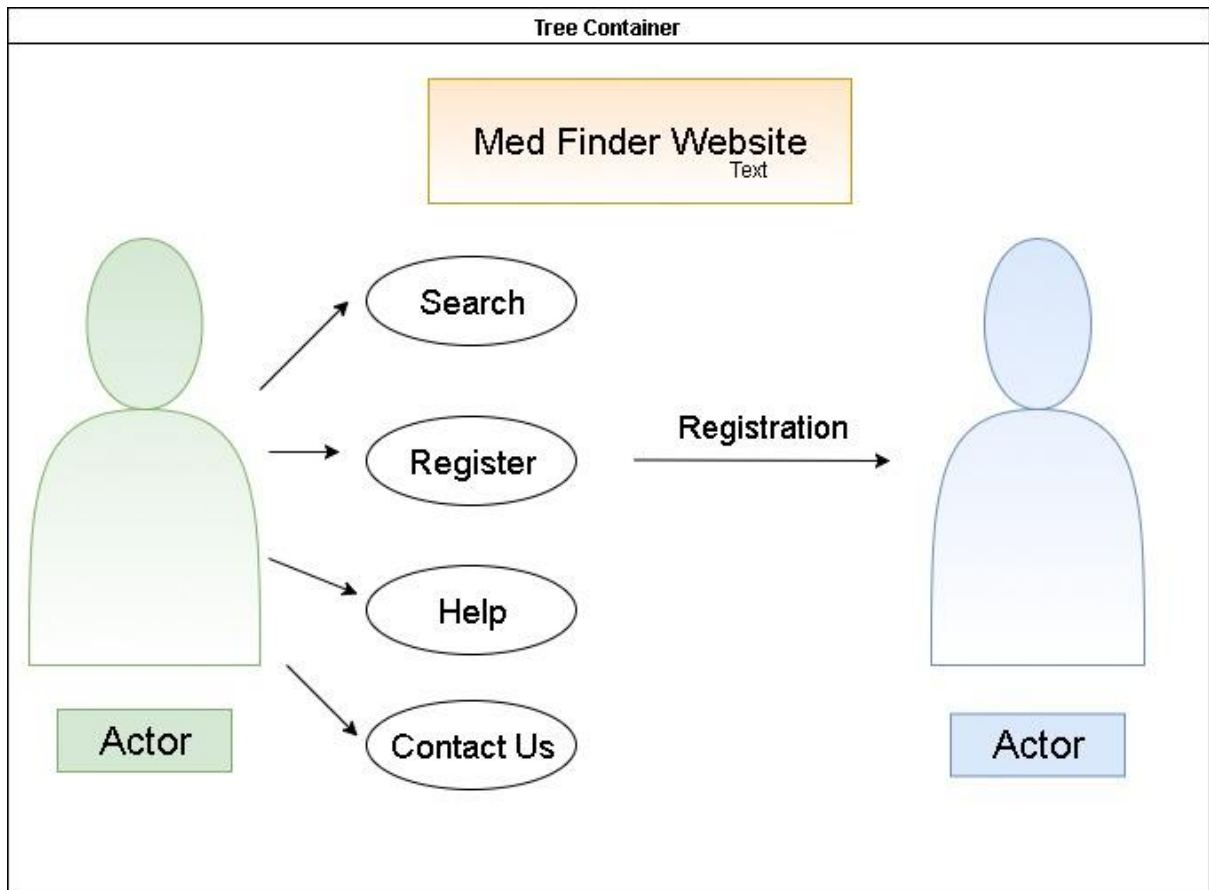
Name: Non-Registered User UML Diagram

Possible Usage: The actor is able to perform four different actions when entering the Med Finder Website. One of the actions – Register – will transform him to becoming "Registered User" and therefore have access to extended version of the website and will give him possibility to perform additional actions (portrayed in Registered User UML Diagram).

Registration process transforms Non-Register User (Actor on the left) into Register User (Actor on the right).

3.5.2. Register User UML Diagram
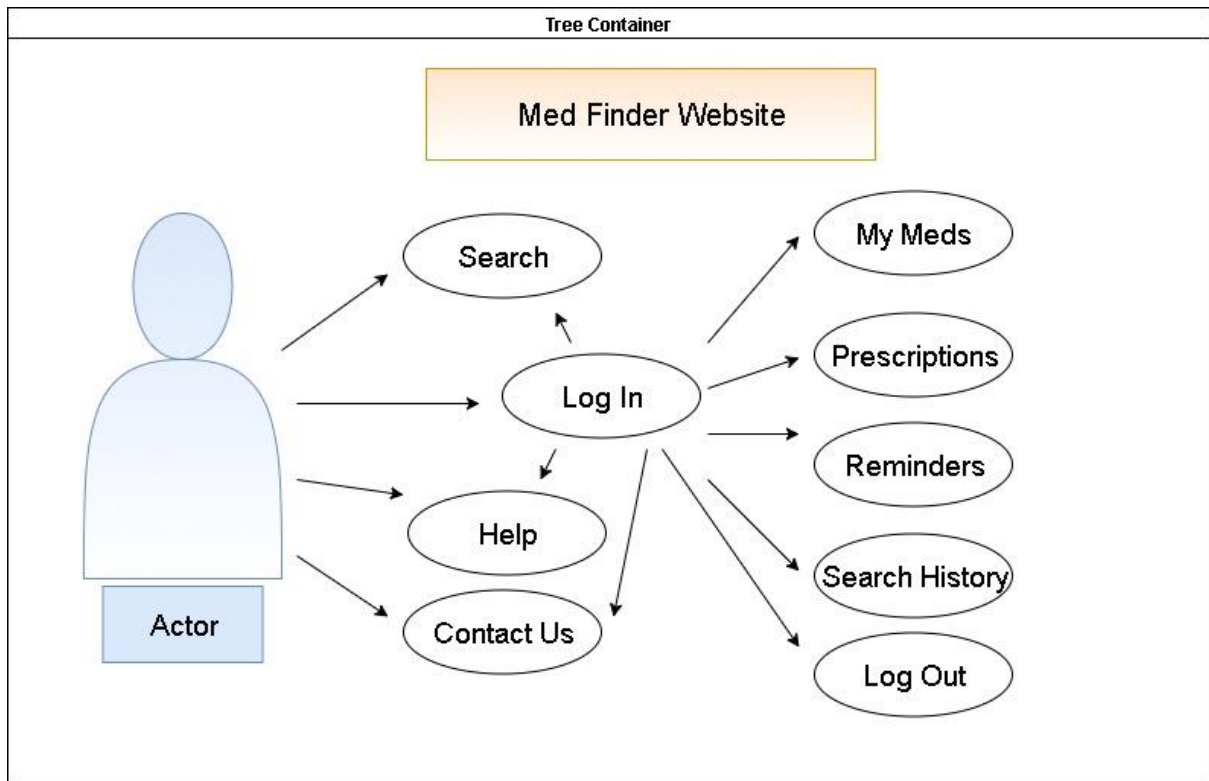
Name: Registered User UML Diagram

Possible Usage: The actor is able to perform nine different actions when entering the Med Finder Website. After performing log in action, actor is still able to access the same features that non-registered and non-logged in user, however, he has a choice of other actions, available only to registered users.

3.6. MoSCoW Analysis

FR/NF	MUST	SHOULD	COULD	WON'T
FR 1	✗			
FR 2	✗			
FR 3	✗			
FR 4		✗		
FR 5	✗			
FR 6	✗			
FR 7	✗			
FR 8	✗			
FR 9	✗			

FR 10	✗			
FR 11	✗			
FR 12	✗			
FR 13	✗			
FR 14	✗			
FR 15	✗			
FR 16	✗			
FR 17	✗			
FR 18	✗			
FR 19	✗			
FR 20	✗			
FR 21	✗			
FR 22	✗			
FR 23	✗			
FR 24		✗		
FR 25		✗		
FR 26		✗		
FR 27		✗		
FR 28		✗		
FR 29		✗		
FR 30			✗	
FR 31			✗	
FR 32				✗
FR 33				✗
FR 34				✗
FR 35				✗
NF 1	✗			
NF 2	✗			
NF 3	✗			
NF 4				✗

4. IEEE Website Requirements Specification

4.1. Introduction

4.1.1. Purpose

The purpose of IEEE Med Finder Application specification document is to clearly specify functional and non- functional requirements for this web based application. The document itself need to be reviewed by the stakeholders, before being delivered for development and any additional requests or requirements need to be added, prior to website being developed. The stakeholder's revision also ensures that the application will meet their requirements and expectations.

4.1.2. Scope

The website is being developed for variety of stakeholders. The concept behind the website is to provide quick, reliable and accurate search and store tool, for the benefits of any user needing medication or providing medication or supplements. Currently, the pharmacies page provides only overview of their services. There is no medication A-Z database, the medication does not show in searches, so the user lack of proper information.

Users of Med Finder web application will be able to search the medication, analyse the information given such dosages, usage, purpose and warnings. Registered users will be able to save their searches as well, to expand excerpt for the full information at their convenience.

4.1.3. Definitions, Acronyms, Abbreviations

User: A stakeholder that can interact with Med Finder Web Application.

Stakeholder: person, who has interest in the application and can interact with it.

Customer: medical retailers, services and retailers (that sell non-prescription medication).

4.1.4. References

IEEE Software Engineering Standards Committee, "IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications", October 20, 1998.

4.2. Functional Requirements

Requirement Id Code	FR 1
Title	Start Page
Description	Home Page for Med Finder Web Application
Location	Home Page
Reasoning	Base page for the application to run on. User can perform some actions on the page, including most important action: search the medication.
Source	Brainstorming
Priority	Must

Requirement Id Code	FR 2
Title	Log In Page Link
Description	Link that enable register users to log in. Clicking on the link will bring user to login page.
Location	All pages
Reasoning	Let register user to log in and access additional actions.
Source	Brainstorming, Survey
Priority	Must

Requirement Id Code	FR 3
Title	Registration Page Link
Description	Link that enables user to create the account. Clicking on the link will bring the user to registration page.
Location	All pages
Reasoning	Will let interested user to create the account and access additional actions, available only for registered users after login in.
Source	Brainstorming, Survey
Priority	Must

Requirement Id Code	FR 4
Title	Contact Page Link

Description	Link that enables user to send any type of message. Clicking the link will bring user to contact page.
Location	All Pages
Reasoning	Will let the user send feedback, comments, suggestions or any type of message to the page owner / contact/ support/ admin etc. Contact page will have contact form, for ease of use and to give possibility of sending the message directly from Med Finder website, without the need of logging to personal email box.
Source	Brainstorming
Priority	Should

Requirement Id Code	FR 5
Title	My Med Finder Link
Description	Link that enables the user to access full version of the application. Clicking will bring the user to My Med Finder page. In brainstorming session called "my account".
Location	All Pages
Reasoning	Will bring user to internal application tabs, to let user access to personalised features such as: prescriptions, reminders, my meds, search history and my details tabs.
Source	Brainstorming
Priority	Must

Requirement Id Code	FR 6
Title	Reminders Tab
Description	Tab, that holds user reminders.
Location	My Med Finder Page
Reasoning	Will show users their list of reminders. The tab will hold any reminders, that user will add to the text box such as: "check blood pressure", "vaccination" or other reminders/ comments. Reminder tab can be accessed from My Med Finder Page and from other tabs available on My Med Finder Page.
Source	Brainstorming, Survey, Interview 3
Priority	Must

Requirement Id Code	FR 7
Title	Manage Reminders actions
Description	Action buttons on the reminders tab. Located on My Med Finder page, under Reminders tab.
Location	Reminders Tab
Reasoning	The user needs to be able to ADD, EDIT, DELETE reminders. Locating these actions buttons on the Reminders tab will allow user to take the called actions. Appropriate action will occur after user clicks on the button.
Source	Brainstorming, Interview 3
Priority	Must

Requirement Id Code	FR 8
Title	Search action
Description	Search is main feature of the Med Finder. The user needs to pick base country name for the medication he would like to check the name for, next, the user needs to pick the translation country name and press the search action icon.
Location	Home Page and Search History Tab (on My Med Finder Page)
Reasoning	Base action on Med Finder application, available for non-registered and registered user. Both types of users can perform the medical search action on the Home Page. Additionally, registered and logged in user can perform action on Search History Tab.
Source	Brainstorming, Interview 4
Priority	Must

Requirement Id Code	FR 9
Title	Prescription Tab
Description	Visible from the My Med Finder Page to allow registered and logged in user to perform actions related to his prescriptions. The tab holds Prescriptions list and action buttons related to the prescription.
Location	My Med Finder Page
Reasoning	One of the main features for the registered and logged in user. Clicking on the tab will allow to choose other

	actions related to the prescriptions. List of saved prescriptions will be showed on the tab and chosen prescription will be enlarged to show details when picked from the list.
Source	Brainstorming, Survey
Priority	Must

Requirement Id Code	FR 10
Title	Manage Prescriptions actions
Description	Action buttons on the prescriptions tab. Located on My Med Finder page, under Prescriptions tab. Available for registered and logged in users.
Location	Prescriptions Tab
Reasoning	The user needs to be able to ADD, EDIT, DELETE prescriptions. Locating these actions buttons on the Prescriptions tab will allow user to take the called actions. Appropriate action will occur after user clicks on the button. ADD action will appear under "scan new prescription" button.
Source	Brainstorming, Survey
Priority	Must

Requirement Id Code	FR 11
Title	Scan New Prescription action
Description	Allowing registered and logged in user to scan the new prescription and add it to the list.
Location	Prescriptions Tab
Reasoning	For user to be able to add new prescription, he needs to be able to scan it. Clicking on scan action button should lead to camera permission and if allowed by the user, picture should be taken and stored. Given the action is completed successfully, the new prescription should appear on the prescription list and detailed scan should appear on the side for the user to view.
Source	Brainstorming, Survey
Priority	Must

Requirement Id Code	FR 12
Title	Delete account action
Description	Allowing registered and logged in user to delete user data completely from the application. Can be completed when the user no longer wishes to stay registered.
Location	My Details Tab (on My Med Finder page).
Reasoning	The user may want to remove any personal data remaining on the registered account and close off the account. Deleting account action will be available on My Details Tab and after clicking, it will remove user account with all data it contains permanently.
Source	Brainstorming, Interview 3
Priority	Must

Requirement Id Code	FR 13
Title	My Meds Tab
Description	Available for registered and logged in user, can hold information and action buttons for those users.
Location	My Med Finder Page
Reasoning	Enables user to add non-prescription medication such as "aspirine", "voltarol" and any other medication or supplements. As there may be interactions with prescribed medication, user can easily and quick check for anything else he might be taking.
Source	Brainstorming, Interview 3
Priority	Must

Requirement Id Code	FR 14
Title	Manage My Meds
Description	Action buttons and text box for the registered and logged in users, enabling them to manage their non-prescription medication.
Location	My Meds Tab
Reasoning	Registered and logged in user can manage their non-prescription medication information with use of action buttons. By clicking the buttons, user can ADD, DELETE or EDIT medication and supplements, that are available

	without prescription. This is to keep all the information in one place, may any medication interactions occur.
Source	Brainstorming, Interview 3
Priority	Must

Requirement Id Code	FR 15
Title	Medical Warnings
Description	Warning information about the searched medication such as: "may cause drowsiness".
Location	Home Page and Search History Tab
Reasoning	Some medication may cause variety of serious side effects. GIVEN that this information is available i.e. may cause drowsiness / do not drive after use etc., the warning will appear on the screen in designed text box, as part of the search result.
Source	Survey, Interview 3, Interview 4
Priority	Must

Requirement Id Code	FR 16
Title	Double Delete
Description	Prescription delete needs to have double confirmation, not to delete t by accident.
Location	Prescriptions Tab
Reasoning	Registered and logged in user have the possibility of managing his prescriptions with the help of actions buttons. To keep the user prescriptions safe and avoid accidental deletion, deleting prescription requires double confirmation. When the user clicks DELETE, pop up will appear, asking for confirmation of the chosen action. When confirmed, the prescription will be deleted permanently.
Source	Brainstorming
Priority	Must

Requirement Id Code	FR 17
Title	Price
Description	Information about estimated price of the medication.

Location	Home Page and Search History Tab
Reasoning	The user will be able to see the estimated price for the medication they are searching for. The information will appear in the search results, in warnings / available form box.
Source	Survey
Priority	Must

Requirement Id Code	FR 18
Title	Availability
Description	Information about the availability of the medication (in the search country).
Location	Home Page and Search History Tab
Reasoning	The information about the availability in search country will appear as one of the search results, as not all the medication available in one country, is available in another country. This information is of great importance, as user may have to bring the medication with him while traveling, or discuss alternatives with the doctor, in case when unavailable medication is deemed illegal in the country of travel and cannot be carried in. This information will be shown in search results, in warnings/ availability box.
Source	Survey, Interview 4
Priority	Must

Requirement Id Code	FR 19
Title	Condition name
Description	Name of the condition searched will be available for search.
Location	Home Page and Search History Tab
Reasoning	Name of the condition will be available to search, and results will show in General information results box. This is to ensure, that the user can accurately "describe" the condition to medical staff and to get faster and more reliable service and / or medication.
Source	Survey, Interview 3
Priority	Must

Requirement Id Code	FR 20
Title	Multilingual
Description	The application will be available in many languages. Language icon will be available on all pages, so user can click the icon and choose desired language from drop down menu (give, the chosen language is already available).
Location	All Pages
Reasoning	As the application is made to help people who travel or migrate, it needs to be available in as many languages as possible, to be easy to use by as many users as possible. English will be the default language of the application.
Source	Survey, Interview 3
Priority	Must

Requirement Id Code	FR 21
Title	Latin Name
Description	Latin name must appear as part of search results. This is main ingredient of the searched medication.
Location	Home Page and Search History Tab
Reasoning	User of the application will see the latin name of searched medication in the separate box, between default medication name and searched country. This is to ensure accuracy and help medical staff such a pharmacists or GPs to confirm the correct medication is administrated / prescribed/ given.
Source	Interview 2, Interview 3
Priority	Must

Requirement Id Code	FR 22
Title	Logout button
Description	Logout button will enable registered and logged in user to logout off My Med Finder part of the application. When clicked on, the user will then logout and page will refresh for Home Page.
Location	My Med Finder All Tabs
Reasoning	This feature is to keep the user private data safe, which is especially important, when Med Finder application will

	be used on any public device i.e. internet café or on mobile device owned by someone else than registered and logged in user.
Source	Brainstorming
Priority	Must

Requirement Id Code	FR 23
Title	Pop Up Box
Description	Available for registered and logged in users, who wish to delete their prescription.
Location	Prescriptions Tab
Reasoning	The pop-up box will serve as a warning and double "opt-out" option when user tries to delete prescription. This is to ensure double confirmation before deleting prescription permanently.
Source	Brainstorming
Priority	Must

Requirement Id Code	FR 24
Title	Prescription Only
Description	Information appearing in the search results, so the user knows that in order to get the medication they are searching for, they will need a prescription.
Location	Home Page and Search History Tab
Reasoning	Different countries have different regulations and laws regarding medication. This information is important feature, so the user knows if he needs to visit the doctor prior to going abroad.
Source	Survey, Interview 4
Priority	Should

Requirement Id Code	FR 25
Title	Available forms
Description	Information appearing in search results, informing the user what forms of dosages are available.
Location	Home Page and Search History

Reasoning	As some medication is available in multiple forms such as: ointment, tablets, patches etc. this search result will keep the user informed, so he can take any corrective action if required. Example: user have difficulties swallowing, so he may ask for injections instead IF this form of medication is available.
Source	Survey
Priority	Should

Requirement Id Code	FR 26
Title	Dosages
Description	General information about the recommended dosages.
Location	Home Page and Search History Tab
Reasoning	Medication that was never taken before is not familiar in the dosage terms. This information will appear below general information box, in dosages and usage instructions information box.
Source	Survey
Priority	Should

Requirement Id Code	FR 27
Title	Alternatives
Description	Search information about the alternatives f the searched medication. This result will appear IF user opt in by moving the opt in choice button to ON position (THEN the box colour is green).
Location	Home Page and Search History Tab
Reasoning	Many medications share the same active agent (showed in search results as latin name) while having different trade/ brand name. The user will be able to search for the alternatives with the same main ingredient, to have access to extended medical options IF he wishes to do so. Alternatives will be shown in the results on the "opt -in" basis.
Source	Survey, Interview 2
Priority	Should

Requirement Id Code	FR 28
Title	Search History
Description	Feature that shows previous searches as a list and excerpt. User can click on the list to see excerpt. After excerpt appears in the box, user can click "read more" action button, to see detailed search.
Location	Search History Tab
Reasoning	User can forget previous search and require new one. Instead of searching for same thing again, user will be able to see excerpt to remind him the results. IF he wishes to expand it to full details, he can click action button "read more", which brings back whole search results.
Source	Prototype, Interviews
Priority	Should

Requirement Id Code	FR 29
Title	Newest Prescription First
Description	Newest scanned prescription appears first on the list.
Location	Prescription Tab
Reasoning	Newest prescription is most actual one usually, so it should appear as the top one on the prescriptions list, for easiest access and check-up.
Source	Brainstorming
Priority	Should

Requirement Id Code	FR 30
Title	Google Login
Description	Google Login Icon, clicked by the user, will automatically log the user in with google credentials.
Location	Login Page
Reasoning	To make log in more convenient, the user can click on Google Icon for instant log in with google credentials. This will make keying in the login information unnecessary, however, the user can still choose to manually log in.
Source	Prototype, Interviews

Priority	Could

Requirement Id Code	FR 31
Title	Google Registration
Description	Google Registration Icon, clicked by the user will bring in register page and fill part of the details, for easier registration process.
Location	Registration Page
Reasoning	To make registration more convenient, the user can click on Google Icon for easier registration with google credentials. This will make keying in all registration information unnecessary, however, the user can still choose full manual registration.
Source	Prototype, Interviews
Priority	Could

Requirement Id Code	FR 32
Title	GP contact page
Description	Page, that holds and displays GP information such as contact details.
Location	GP Contact Page/ Tab
Reasoning	Scanned prescriptions are not always clear. This feature would allow for easy and quick access to the user GP. This in result would allow for fast medication confirmation or advise.
Source	Brainstorming
Priority	Won't

Requirement Id Code	FR 33
Title	DNR Clause
Description	Do Not Resuscitate clause visible as small information box in the case of emergency.
Location	My Details Tab
Reasoning	The clause would be visible in details page, so medical staff would be aware of the user wishes.
Source	Survey
Priority	Won't

Requirement Id Code	FR 34
Title	Organ Donor Clause
Description	Organ Donor clause visible as small information box in the case of emergency.
Location	My Details Tab
Reasoning	The clause would be visible in details page, so medical staff would be aware of the user wishes.
Source	Survey
Priority	Won't

4.3. Non-Functional Requirements

Requirement Id Code	NF 1
Title	GDPR
Description	The user needs to check GDPR consent box when registering. This will be available for EU users.
Location	Registration Page
Reasoning	GDPR clause confirmation is needed feature, as to comply with laws.
Source	Legal Requirement
Priority	Must

Requirement Id Code	NF 2
Title	Privacy and Cookies Policy
Description	The user needs to check consent box for privacy policy. This feature will be presented to non-EU users.
Location	Registration Page
Reasoning	Privacy and cookies check box is needed to be confirmed for legal reasons.
Source	Legal Requirement
Priority	Must

Requirement Id Code	NF 3

Title	Cross platform
Description	The application needs to look good on any mobile device.
Location	All Pages
Reasoning	As most users use mobile devices, including laptops while abroad, the application need to be responsive, to work flawlessly on different types of devices, without the need of creating separate applications for different systems.
Source	Survey
Priority	Must

Requirement Id Code	NF 4
Title	Online Prescription Worldwide Recognition
Reasoning	Worldwide prescription recognition would make it easier for the users to travel and receive needed medication while oh the vacations, IF they ran out of their needed medication while abroad.
Source	Survey
Priority	Won't

5. Bibliography

Boots.ie. (2018). [online] Available at: https://www.boots.ie/ [Accessed 20 Sep. 2018].

Hickey's Pharmacy. (2018). Hickey's Pharmacy | Late Night Pharmacy | Local Pharmacy. [online] Available at: https://www.hickeyspharmacies.ie/ [Accessed 20 Sep. 2018].

Hickey's Pharmacy. (2018). Diabetes. [online] Available at: https://www.hickeyspharmacies.ie/conditions-wellbeing/diabetes/ [Accessed 20 Sep. 2018].

Brandenburg, L. (2014). What Questions Do I Ask During Requirements Elicitation?. [online] Bridging-the-gap.com. Available at: https://www.bridging-the-gap.com/what-questions-do-i-ask-during-requirements-elicitation/ [Accessed 8 Oct. 2018].

Business Analysis Excellence. (2015). Requirement Gathering Techniques for Business Analysts. [online] Available at: http://business-analysis-excellence.com/requirement-gathering/ [Accessed 8 Oct. 2018].

Smith, R. (2019). Balsamiq Mockups: Beginner Tutorial. [image] Available at: https://www.youtube.com/watch?v=6ec8YIrfbhk [Accessed 11 Jan. 2019].

Mochal, T. (2008). News, Tips, and Advice for Technology Professionals - TechRepublic. [online] TechRepublic. Available at: http://www.techrepublic.com/blog/tech-decision-maker/use-prototyping-to-visualize-project-requirements/ [Accessed 6 Apr. 2019].

Varvoutas, K. (2017). Software Requirements Specification for Gephi. [online] Gephi.org. Available at: https://gephi.org/users/gephi_srs_document.pdf [Accessed 18 Apr. 2019].

Smartdraw.com. (2019). Use Case Diagrams - Use Case Diagrams Online, Examples, and Tools. [online] Available at: https://www.smartdraw.com/use-case-diagram/ [Accessed 20 Apr. 2019].

Madsen, S. (2017). How to Prioritize with the MoSCoW Technique - Leadership Training. [online] YouTube. Available at: https://www.youtube.com/watch?v=v__x5O_E5Ho [Accessed 23 Apr. 2019].

O'Loughlin, E. (2010). Problem-Solving Techniques #12: MoSCoW Analysis. [online] YouTube. Available at: https://www.youtube.com/watch?v=EmAm0xnvfqk [Accessed 23 Apr. 2019].

International institute of business analysis (2015) "A guide to the business analysis body of knowledge" Guide v3. National College of Ireland

O'Loughlin, E. (2009), An Introduction to Business Systems Analysis, Problem Solving Techniques and Strategies, The Liffey Press.

Cadle, J., Paul, D. and Turner, P. (2010), Business Analysis Techniques, 72 Essential Tools for Success, BCS The Chartered Institute for IT.

6. Appendix

6.1 Project Proposal

6.1.1. Objectives:

The main objective for this final year project is to elicit and develop precise and exhaustive requirements specification report. The report is dedicated for online based application, Med Finder. Since the project is based on non- existing application, the detailed list of potential stakeholders should be prepared, and elicitation techniques should be prepared and conducted on these stakeholders.

The requirements should provide details such: design, colours, languages, navigation and any other features. These will be gathered by various techniques (survey, prototype, focus group, stakeholder's personas. Above elicitation will be conducted using tasks like prepare, conduct, document etc.

 Objectives for the application would consist of providing detailed medication information for medical staff, pharmacy staff and non-medical background users. As this application main purpose will be to present the users with required medication information, it is not planned to be divided into registered and non-registered user areas. Although if this requirement will be marked as important during surveys, it will be added.

All elicitation techniques will be used in various combinations and presented / conducted to different groups of stakeholders.

6.1.2. Background:

While visiting the pharmacy and doctor's office, I have faced prescription and overall medication issues. For people like me, who are either traveling or simply migrate to a different location, taking any medication might pose big issue. Many times, I have had witnessed foreigners, asking for certain medication the pharmacy staff, while not knowing the medication name, in the country they are currently living or visiting. As the pharmacy employee's knowledge is also limited, it creates real problem.

In XXI century, the World is mainly open and there is no physical possibility for neither doctors nor pharmacists to know every medication name and equivalent in any given country. Also, not many people know medical related language, to clearly explain to doctor or a pharmacist what they need, what they are looking for or even describe the symptoms in a medical way.

Another background point was realised, while visiting my home country. This time my mother was looking for some medication and I knew the name of this

medication, sold in Ireland, but I have had no idea of what this could be in Poland. As I wanted to help, I have started to look in the internet and found out, that this medication is being sold in Poland. I have also found all the market names of it and I was able to take note of the latin name. All this information was presented on one of the polish pharmacy website. I could not find any kind or type of international information.

As I have realized that there are more people like me, traveling and looking for medical advice or prescription, I have taken the note of the market need for such application. In my opinion, it will benefit all three groups of users. I think it will shorten consultation time in doctor's office and in the pharmacy, as anyone will be able to check the required medication name and "translate" it for the country of interest. As paracetamol is being sold as paracetamol in many countries, pronunciation differs. This in itself might create dangers of different medication being given to the patient. Also, other medication trade name differs from country to country i.e. Siofor from Poland is equal to Glucophage in Ireland.

Summarising, the application will be helpful to check all kinds of medication, including latin name of the main agent and all the trade names of the country of interest. This will shorten consultation time and help to keep dangers of misunderstanding to a minimum.

6.1.3. Technical approach:

For creating the final year project presentation web page, I have chosen few applications and programs, to help me show the potential of this project.

The programs and applications I would like to use, are as follow:

- WordPress (base website with all that it has to offer)

- PhotoFiltre (graphics and pictures)

- LightShot (to provide accurate print screens of prototype to discuss during focus group, ideas and sample gathering)

- Various utilities and add-ons on WordPress

I have used other web page building spaces such WIX or Zoho, but I have never used WordPress. After reading some manuals and watching video tutorials, I have decided it will be good platform for the application, as it also provides tablet and mobile view during creation process.

As various points of the project require some of the others, basic tools, I will also use: MS Word, MS Excel, One Drive, Paint and voice recording application.

Since this project is based on requirement elicitation, I am planning on using Business Analysis Book of Knowledge as my base. BABOK provides great understanding of elicitation techniques, tasks and points to be aware of. I am also planning on using independent consulting of some NCI lecturers, that are not involved in this project.

The project will be divided into 3 different types of deliverables:

1.   Idea forming, project draft, acquiring techniques use consents (i.e. asking pharmacy staff if they are willing to help, once the ethics form is approved), documenting both, the techniques and results and elicited requirements.

2.   Prototype and Showcase website development, creation of wireframe, gathering and/or creating graphics and pictures, creating code for Word Press.

3.   Final project documentation, Gantt chart, supervisor advices, independent consulting results, highly detailed documentation and reports and lastly journals.

6.1.4. Special Resources Required:

As I have never worked with WordPress, I will need to gather more information regarding constructing the web page on this platform. For this I will use blog posts, articles and visual tutorials on the topic.

I also plan to do my journals as voice recordings, so I will use recording application to do so. I might also use Audacity with Lame library to edit the recordings.

6.1.5. Project Plan:

6.1.6. Technical Details:

After researching different platforms for creating the project website, I have decided to utilize WordPress. The decision is based on few key points:

- Word Press as blog and websites building platform is free to use, but can be upgraded to fit extended user needs

- The platform offers many plug-ins and add-ons, that add usability

- The platform offers ready-made themes, free to use (also can be upgraded to paid versions), which are highly customizable

- Word Press offers coding space, so any areas the developer is unhappy with, can be altered by manual written code and imbedded in the web page, for customized presentation

- Any part of either build in code I will be working on can be saved automatically

- The website can be built in a period of time and changed, override as many times as needed, and stored in a form of a draft

I have decided to build the website along with the requirements elicitation, as it will give me a chance, to use it as prototype, without the need of building the prototype separately. The flexibility of the WordPress will allow for easy changes and implementation of changes and different requirements as they become more apparent.

The final version will be used as a vital, visual part of the requirements elicitation project.

6.1.7. Evaluation:

To elicit requirements needed for the Med Finder project, I am going to use variety of techniques. To better understand the techniques and chose the ones that look most relevant to my project, I will be supporting myself with BABOK ®, various other literature and videos.

As the intended application is designed for different types of users, I am planning on using below techniques:

- Survey

- Interview, based and combined with

- Prototyping

- Focus groups

I might also utilize Personas, data dictionary and data flow diagram. For the full list of techniques, I will discuss the best options with my project supervisor.

Lastly, I will create MoSCoW matrix. MoSCoW will allow for evaluation of elicited requirements and listing them in order of importance.

6.1.8. Preliminary report

Because this project is based on requirement elicitation, I have focused on getting to know the elicitation techniques. As I would like the final report to be very detailed document, that would allow for developing of the project, I have chosen multiple elicitation techniques. Techniques I am planning on using are as follow:

Brainstorming, focus group, interviews, surveys and prototyping.

Background for the Med Finder app is simple- as people migrate and travel, they are not always taking the medication they need with them, and they might simply fell ill while on the trip or after moving to another country. This application satisfies customer need, for finding the correct medication in shortest time possible, with latin name alongside the trade names, to eliminates mistakes to a minimum.

6.1.9. Business Need

Nowadays world is often called a global village. And as borders are easier to cross, people decide to travel more. Some, who seeks something else in their life, change the country the reside in. Everyone falls ill occasionally. When this happens in the country we live in, it is easy to get help and get needed medication. But what when this happen while we are on vacations? When we are in the country, we do not know the language? And when we are in the country, when surely, we do not know the trade name of the medication we might be looking for? Even simple aspirin has a different name in different countries. If the trade name looks similar, pronunciation might be completely different. This means, that doctor or pharmacy staff will not understand what we need.

Second need exists due to life illnesses. Let the diabetes be an example: if diabetic person goes for a trip and forgets their medication, they might not be able to explain to the medical staff, what do they need. And as we know, diabetics need the medication few times a day. Forgetting or losing the medication during trip is dangerous to this person. Having medication converting application on hand is a must in such dangerous time. The app would make it fast and easy for such person, to key in their usual medication and to find the trade name of the same medication. In such serious cases, doctors' consultation would be needed at least for prescription, but it would already give the name of medication, that patient need.

So, as we can see, casual user needs it as well as someone, who is taking lifelong medication.

6.1.10. Med Finder benefits:

1.   Decreased time of finding correct medication: whether in the doctor's office or pharmacy, user will be able to find correct medication fast, without knowing the language.

2.   Lessen danger of getting wrong medication: in between original name and new trade name of the medication user is looking for, there will be latin name shown. This is to ensure, any medical staff will be sure of medication, the patient or the customer is looking for.

3.   Better and faster customer/ patient service: instead of stressing the patient with the questions about the medication they are looking for, in the language they probably do not understand and cannot speak, the patient can show what they are looking for. This way service is faster, and users are less stressed.

4.   The app will create marketing opportunity, as there is plenty of space left for the business to use. Med Find space is limited to showing needed medications, and rest of the space is great opportunity to show another product.

5.   App might give the data for both business and data analysis. This also creates business opportunities for the companies, as they can use the application for better analysis and therefore for better customization of shown offers.

Disadvantages:

1.   The app will be available as online application. Internet connection of any sort will be needed to connect to the application database.

2.   Difficulty of developing cross platform application, so website and mobile users would be able to use it.

6.1.11. Mid Point and going forward

Elicitation techniques – development and conduct

Brainstorming

Purpose of the session would be to generate as many ideas as possible, as those would present different opinions and points of view. As mentioned before, the application should serve more than users group and conducting brainstorming would give me better view and understanding of the needs of different groups.

Survey

Purpose of survey would be to elicit most requirements, as given answers in the survey. They are helpful tool as they can reach more users than brainstorming session or a focus group session. Survey should also help me to determine business opportunities for this application and since they will be conducted as online form, their results will be easily measurable and clear to present.

7.Journals

7.1. September

A journal. Pff. As a little girl I couldn't even keep up with the diary! It's end of October. And I have failed with my ethics form in first term. It's first time I've failed something in first term in this god forsaken college. Today I've mixed the days and went to school for non-existing classes. I mean, they sure do exist. Just not in Wednesday. Then, on my way back, got in Londis for baguettes. Lovely deli girl was trying to charge me almost 4 euros for 4 plain pieces of demi baguettes. Right, hold my beer while I rob the bank across the street. No idea what is wrong with me this week, but it is not going well.

Do you know the feeling when you have so much to do, that you have no idea where or how to start it? Yeah. I need questions for the project and I don't know what I should be asking. I need a website-

that much I can do on the weekend. Given, that I find the strength and will and tiny bit of motivation. I'm guessing something in light blue, gray-ish and purple maybe? I know, it's medical stuff and green might be better choice, but thinking about color blind people here. I think I will just start with the wire frame and get the questions on that. Seems reasonable and easier to do than just ask random things. Hardest thing to do about this project is talking to people. Since I know what it needs to be, yet I need other people to know it and want it and find it useful.

7.2. October

Another month, what a joke. I would like to see that…. Who came up with ethics. Seriously, most idiotic idea ever. At least as long as someone does not collect data, that can be traced back. I totally get it for vulnerable responders, for minors and such but for "regular Joes"? Overzeals in its finest. I have no words.

I was trying to discuss it with Eugene- no point. Just need to send this form and be done with it. Meanwhile I can think about developing my med idea further. Problem is, how to get others to see it my way and add all the requirements? Business Analyst first world problems.

At least conversation with Dermot was success and we all can enjoy his classes now. I am bit surprised how he is trying to change things to make it more "technology" like than business talk with no end. Although if I hear paper bags story one more time, I will jump out that window.

At least one good news though! My project plan stays where it is- in my head and on the piece of paper in the notebook. No Gannt chart for me. Got to love Eugene!

7.3. November

And here we go with this ethics insanity again. Rejected. How sweet. Like the template itself is not hard enough to fill in. Not to mention, I have clearly stated, that I will not collect any data that can be traced back to anyone. That alone should get me approval.

I had been talking to Eugene but again, can't move with the project since the approval is god in here it seems, no matter the logic. Will fix that one silly mistake I have made in the form and re-send it. Hopefully it will be enough to get it signed.

To be honest, project is last thing on my mind right now. Some other subject is just killing me instead. Slides are copied from Laudon book and here we are, year fourth, being told about plagiarism every minute of every CA. Joke. It is a joke.

7.4. December

6th Dec finally! Stupid ethics form approved. For change I can start actually working on the project. About time. Seen Eugene, so now time to work on some survey questions. Will start with brainstorming but that is easy enough.

Seeing supervisor is always fun… Especially, when your paper bleeds with his red pen afterwards. Oh well, that was some learning curve and easy one to follow: no YES/ NO questions. That much I can do. Happy days. Will catch people in canteen later for quick brainstorming session. Should be enough.

7.5. January

Slowly but surely getting there. Not overly happy with everything but happy enough to move forward and work on things. With exams on the way, it is good that I could work on project in the meantime. Now will just focus on what I have to do for exams and how to go about interviews for my project. As I am planning on interviewing GP and pharmacist too. Sure, they will not be happy with me taking their time. Oh well, it is just one time.

Talked to Anna in Boots and she agree to do the interview. No idea how I will cover GP though. My GP is always so busy and with other GP to cover in that practice I have no idea how it will go.

7.6. February

Survey out and about, going well. I think I will get that 100 answers. Not that it will be easy, as I had to ask few times already. But I think I have covered majority of the requirements, now just need to validate the need for them and read the comments, to see what else people want.

I wish someone would develop this project. Yes, I am biased, it is my project after all. Still, from what I can tell, people think it is a brilliant idea. I know it would help so much. Pity, they never show us how to get the sponsors and make it really happen.

7.7. March

I feel like this semester is extremely short. Just got exams and off we go for next exams in April.

I am procrastinating business process management CA and it is killing me. It is like I have no idea what I am doing. Six Sigma is great thing to implement but gathering all the information and following the requirements that James want is not the easiest part ever. I am dragging it really.

On top of it all, He will be gone for some time, because why not to take 4th year students' lecturers away at the end of the semester and at the end of their college journey. Well done NCI.

I better end this journal, or I will use all the words, that society finds offensive.

7.8. April

Sooo, my pharmacist decided she is not going to help. Fantastic. Another good thing is, she forgot to even mention that. She just keeps ignoring my emails and then asked when I need the answers and… did not reply with them. Now I need to figure it out to get another pharmacist.

GP was easier. Kind of. I needed to go there anyway and -of course- my GP is gone. Thankfully, after explaining what I need, reception said they will let me in anyway and tell another GP to talk to me about the project. Happy days. Got what I needed and quite interesting what he said about same meds for different conditions. It never crossed my mind that this might have been an issue. Guess adding the condition name is a MUST now.

Off to MoSCoW I go.

7.9. May

Ahhh finally! The project is done, almost. Just got it back from check-up – bless my cousin and her good heart. She agreed to check the project for me for any stupid mistakes. And then, she asked for additional time, to read it all over again. Bet she liked the pictures haha.

Now off me go make the poster. Or so I thought. We got two different ones as sample pieces. Completely different ones. Thanks Eamon. That helps. Not.

Got on lucidpress and made something I think will work. Not super happy with it but it is what it is. Will do. Problem is downloading it for print as PDF and in 300 dpi. They want you to subscribe for almost 20 euros to be able to do it. For FREE trial?! Good joke. Checked other websites for poster, was about to make it all over but then I've seen they want money too, per download. Dear Lord. Whyyyy?

Anyhow, it is done. Now just presentation slides and I am free.