CERTIFICATION OF APPROVAL

MyMedicin : Medicine Management Application

by

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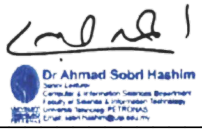

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Date: 29th November 2021

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SERI ISKANDAR, PERAK

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CERITIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original herein have not been undertaken or don by unspecified sources or persons.

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ABSTRACT

Technology has been prevalent in today's society. The growing number of mobile applications has been increasing day by day. These applications can be categorised into many different types which include the healthcare sector.

This project looks into the development of Mobile health applications within the current market and its implications on the elderly people through several testing method which include usability testing and evaluations.

In the current Malaysian market, there is currently no effective and efficient way for patients that are prescribed medicine to keep track of those medicine efficiently. The problem that is faced by most people having to take medicine is that when they are restocking their medicine, they will have to either write it down or take a picture of their medicine.

This project emphasises the importance on following a proper guideline when creating a mobile health application in order to help the people by creating convenience into their daily medical life.

ACKNOWLEDGEMENT

To begin with, I would like to thank Dr Ahmad Sobri Bin Hashim, my supervisor for guiding and supporting my journey through FYP1 and FYP2. He has show full support through my project and has help guide me to through it.

Furthermore, my coursemates and my lecturers are to thank for their full support and guidance that help me develop into the person that I am with the knowledge and experiences that they have passed down on me that has aided me into completing this project.

Lastly, I would like to express my deepest appreciation to my family, who has helped me though my studies with their endless support and help me get through the struggles of completing this project and as well as aided me through many feedback and suggestions for the project.

Table of Contents

Contents

(f) List of Figures

(g) List of Tables

Chapter 1: Introduction

1.1 Background

Chronic health issues are becoming more common as the world's population ages and life expectancy increases. As a result, the usage of medicine to treat these illnesses on a daily basis is on the rise. Polypharmacy, which refers to the practise of taking several prescriptions at once, is also on the rise. Polypharmacy grew from 0.7 percent to 3.1 percent among young people between the ages of 20 and 39, the largest rise in all age categories.

Taking many prescriptions at the same time or taking a new medication for the first time may be difficult for many people. Understanding the medicine and its effects and side effects, as well as questions regarding pharmaceutical safety and effectiveness, are some of the issues that may arise while taking medication. It is common for patients to desire to arrange their drugs, maintain an updated medication list, or monitor their symptoms in response to therapy. An effective medication management (MM) tool that encourages patient participation is essential to achieving these objectives. The research shows that when the patient is actively participating in the therapy, the patient's compliance with the treatment is greatly enhanced.

Patients and health consumers may benefit from mobile applications that help them better participate in their treatment and well-being. Due to the fact that the vast majority of people have access to mobile devices, smartphone applications are an attractive answer to MM's many problems. In addition, as most individuals have their phones with them all day, MM applications may be of support when needed.

Because of this, the market for mobile applications has grown significantly in recent years, with more and more MM apps on the market. There are, however, just a few studies that go into great depth into the present options. Software, telecommunications, and virtual health technologies are often referred to as "eHealth" solutions. Apps with specialised characteristics, such as medicine reminders and other adherence techniques, or studies of a specific demographic were the subject of some of the earliest research. For this reason, a thorough investigation of the current options on the market is critical to determining the demands and paths for future app development.

Apps that assist people understand and take their medicine were a primary focus of this research, which surveyed the mobile app industry. I looked at the current

applications and made recommendations for improvements based on the concepts of understanding and managing rather than strictly adhering to drug regimens as is traditionally done. With this notion, users will be empowered to take control of their own health, empowering them to work with other therapies or lifestyle modifications in order to obtain the best possible results.

As part of my research, I have outlined the specific characteristics of the available apps and sought to identify who designed each app and if health experts were involved in the development and design; identify key features defined as those features that are most prevalent; features that are novel or innovative and have potential to address the concept understand and manage; and create a framework to categorise mobile health solutions. I think this approach may help us better understand the present ecosystem of MM applications, as well as the creation of new solutions.

MyMedicin is an application that assists clients with monitoring their clinical medicines by giving a QR code that helps doctors or pharmacists to recognize the medication being recommended to the patient. The motivation behind why we have decided to make the application is on the grounds that individuals, explicitly the older, have trouble recalling the particular medication they are recommended when they need to buy the medication again or when they need to send somebody to purchase their medication for them then they will compose the given medication on paper and other identical strategy.

1.1.1Problem Statement

In the current Malaysian market, there is currently no effective and efficient way for patients that are prescribed medicine to keep track of those medicine efficiently. The problem that is faced by most people having to take medicine is that when they are restocking their medicine, they will have to either write it down or take a picture of their medicine.

Elderly people have trouble remembering the specific medicine they are prescribed when they want to purchase the medicine again or when they want to send someone to buy their medicine for them then they will write the given medicine on paper and other equivalent method.

1.1.2 Objectives and Scope of Study

Issues:

1) People getting the wrong medicine
2) There is no automated system to deal with this organizing of medicine

1.1.3Research Objectives

1. To identify the usability of the application by evaluating existing technology available
2. To create an application that will help the users increase the convenience in restocking their medicine
3. To measure the application's effectiveness at increasing the operation of hospital/pharmacies

1.1.4 Research Scope

The scope of this project is mostly target at users of elderly age that is tech savvy. The focus of this research is to investigate and create an application to store and display the medicine data based on the user needs.

The Software Design Description (SDD) designs a system to meet the requirements of both the stakeholder and the consumer of myMedicin application from previous Software Requirement Specification (SRS). The myMedicin application that is to be developed provides all-in-one application that can be used to check medicine details, set appointments as well as many other facilities to consumer. The myMedicin application is supposed to give the following features to the user:-

a) QR Code Scanning for Medicines

This system will have this function that will display medication information such as dosage and other related important information.

b) Location of nearest hospital

This application shall return to the user location of nearest hospitals based on their GPS location

c) Appointment and Reminder

The application can help users to set appointments and manage them by giving reminders to the user.

Chapter 2: Literature Review and/or Theory

2.1 Increasing population of Elderly

In 2019, there were 703 million people over the age of 65 in the globe. In 2050, the global population of the elderly is expected to increase to 1.5 billion people (Bureau, 2002). From 1990 to 2019, the percentage of the world's population aged 65 and older grew from 6% to 9% (Christensen, 2009). An additional 16 per cent of the world's population will be 65 or older by 2050, making it one in six individuals.

The number of Malaysians aged 60 and more is currently expected to be 1.4 million, with a projected increase to 3.3 million by 2020. The proportion of the population aged 60 and up has likewise risen over time, rising from 5.2 percent in 1970 to 5.7 percent in 1990 and 6.3 percent in 2000 (Mafauzy, 2000). This percentage is predicted to increase to 9.8% of the population by 2020. Malaysia's population is predicted to expand by 80 percent between 1990 and 2020, from 18.4 million to 33.3 million (Mafauzy, 2000). The elderly population, on the other hand, is predicted to grow from 1.05 million in 1990 to 3.26 million in the same time span, a 210 percent rise.

Aside from a growth in the elderly population, the elderly are also living longer, as indicated by rising life expectancy. Because women tend to live longer than men, the gap between males and females widens as they get older. The male-to-female ratio will decline from 90.1 in 1990 to 85.8 in 2020. The other element of the demographic changes that are projected to occur in the elderly population is urbanisation. From 24.5 percent in 1957 to 50.8 percent in 1990, the share of people living in cities has increased. As a result, it is projected that the proportion of the elderly population would be higher in urban areas than in rural areas, and this shift in the elderly population's demographic pattern will have an impact on the distribution of health-care resources.

2.2 Elderly and Healthcare

Elderly people throughout the globe are ageing at an alarming rate. In 2001, almost half of all community prescriptions written in the United Kingdom were for the elderly. It's still a struggle to prescribe drugs safely and effectively for the elderly. Less than half of randomised controlled trials have been designed specifically for those over 65 years old, even though they account for half of all drug use (Zaveri, 2010). Prescribers rely on data from younger people since there isn't enough information to advise them when prescribing medications for the elderly. This heterogeneity is attributed to variables including co-morbidities and interindividual variability in ageing processes, as well as variances in age-related pharmacokinetic and behavioural changes. This demographic is likely to have a high rate of drug abuse.

Polypharmacy and multiple medication usage is common among the elderly, putting them at risk for adverse reactions, drug interactions, higher treatment costs, and lapses in patient compliance. The incidence of adverse responses in the elderly has grown, and the severity of the reactions has also increased. Hospitalization due to adverse medication responses in the elderly is three times more common, and around half of these events may be prevented (Tove Jörgensen, 2001).

Identifying the patterns of improper use of drugs in the senior population is essential in order to avoid bad reactions from occurring. In 1997, Beers developed guidelines for evaluating the appropriateness of pharmaceuticals administered for the elderly, which were revised in 2003. PIMs (possibly inappropriate medications) are often prescribed to the elderly, according to Beers criteria (Mark, 1997).

2.3. The existing technologies supporting elderly medicine intake

Hundreds of applications exist in the marketplace to support medication self-management. However, their quality, content, and functionality are highly variable. Research is needed to determine optimal capabilities, evaluate utility, and determine clinical benefit (Choi, 2020).

Mobile applications represent promising tools in management of chronic diseases, both for patients and healthcare professionals, and especially in oncology (Brouard et al 2016). Among the large number of mobile health (mhealth) applications available

in mobile stores, it could be difficult for users to identify the most relevant ones. This study evaluated the business model and the scientific validation for mobile applications related to oncology.

There is a need to enforce independent review of mhealth applications in oncology. Meanwhile, patients and healthcare professionals should remain cautious about applications' contents. A systematic review was performed to describe the mobile applications related to oncology and it revealed a lack of information on scientific validation and funding (Brouard, 2016). Independent scientific review and the reporting of conflicts of interest should be encouraged. Users, and all health professionals, should be aware that health applications, whatever the quality of their content, do not actually embrace such an approach. Although the research conducted still lack data, it is something that requires a tremendous amount of resource and time to further continue and solidify the findings so it can meet the goals and objectives of the impacts of mhealth applications.

With the accessibility and widespread use of mobile phones, mobile phone apps targeting medication adherence may be useful tools to help patients take medications as prescribed.

A large number of mobile phone medication adherence apps are currently available. The majority of apps have features representing a behavioral approach to intervention. Findings of the content analysis offer mostly positive feedback as well as insights into current limitations and improvements that could be addressed in current and future medication adherence apps.Mobile health applications for the most prevalent conditions by the World Health Organization: review and analysis (Park et al 2018).

New possibilities for mHealth have arisen by means of the latest advances in mobile communications and technologies. With more than 1 billion smartphones and 100 million tablets around the world, these devices can be a valuable tool in health care management. Every aid for health care is welcome and necessary as shown by the more than 50 million estimated deaths caused by illnesses or health conditions in 2008 (Park, 2018). Some of these conditions have additional importance depending on their prevalence.

Distribution of work on mobile applications is not equal for the eight most prevalent conditions which are iron-deficiency anemia (IDA), hearing loss, migraine, low vision, asthma, diabetes mellitus, osteoarthritis (OA), and unipolar depressive disorder (Park,

2018). Whereas some conditions such as diabetes and depression have an overwhelming number of apps and research, there is a lack of apps related to other conditions, such as anemia, hearing loss, or low vision, which must be filled (Park et al 2018). This indicates a huge gap in the market for targeted mobile health applications that are needed to help manage people with these conditions. These conditions are something that can be benefitted by introducing these users to an application that can help sort out their medical needs.

Drug therapy is essential when caring for elderly patients, but clearly it is a double-edged sword. Elderly patients are at high risk of having drug interactions, but the prevalence of these interactions is not well documented. Several types of interactions exist drug-drug, drug-disease, drug-food, drug-alcohol, drug-herbal products, and drug-nutritional status. Factors such as age-related changes in pharmacokinetics and pharmacodynamics, frailty, interindividual variability, reduced homoeostatic mechanisms, and psychosocial issues need to be considered when drug interactions are assessed (Mallet, 2007). Software can help clinicians to detect drug interactions, but many programmes have not been updated with the evolving knowledge of these interactions, and do not take into consideration important factors needed to optimise drug treatment in elderly patients. Any generated recommendations have to be tempered by a holistic, geriatric, multiprofessional approach that is team-based (Mallet, 2007). Mallet, Spinewine and Huang (2007) proposed an approach to categorise drug interactions, along with strategies to assist in their detection, management, and prevention. This emphasizes the importance of refining and digitalizing the need of organizing medicine in order to help the people, specifically the elderly to ensure that they can get the most effective form of care that is readily available for them.

Usability heuristics: A systematic review

Figure 1: Nielsen's Heuristics for Usability

Figure (Jimenez et al 2016)

Chapter 3: Methodology/Project Work

3.1 Introduction

According to ("methodology - definition of methodology in English from the Oxford dictionary," n.d.), methodology is defined as a system of methods used to investigate the concept or theories in a particular area of study or activity.

In this chapter, author will describe the research methodology used for this project; explain how to design the proposed application, elaborate the procedures and process used in designing the application and data collection as well as provide methods on how to analyze the collected data.

3.2 Research Methodology

Based on Clarke, R.J (2005), he explains that there are four (4) main ideas when constructing research; exploring ideas, enquiring an issue, solving a problem and making arguments that induces author to turn into external help. He also described that

in doing research, there are two major research approaches; qualitative and quantitative methods.

Based on Hohmann (n.d.), he explains that qualitative approach is a constructive, naturalistic and interpretive perspective which is to use to gain insight into a problem, issue or theory. It is also used to study social and cultural phenomenon which includes structured and unstructured interviews, focus groups, case study, and diary accounts and so on.

For research and information gathering, author uses methods like interviewing experts to get their understanding and requirements and comparative studies on previous work of other authors in validating the feasibility and reliability of this project.

According to Hohmann (n.d.), a quantitative approach is traditional, experimental, and empirical advances to study natural phenomenon. He explains that quantitative methods are including surveys, laboratory experiments, econometrics and numerical methods like mathematical modelling.

Steps to achieve objective

1. To identify the usability of the application by evaluating existing technology available

To achieve this objective, there will be a need to conduct usability testing in order to develop an application that meets the requirement of the users using the application. This usability testing consists of observation through system competitors and as well as conducting primary investigations such as questionnaires and interviews.

The main method of identifying the requirements needed to develop the application is to understand through trial and error of testing the products available on the market. The usability testing involves a focus group which will then be run through a series of tests and procedures on the selected applications. The data then will be collected through user experience and feedback from the group. This will allow a clear understanding on what makes the app successful in the eyes of the public and will help pinpoint on the key features that should be included within the application to optimize its function.

2. To create an application that will help the users increase the convenience in restocking their medicine.

To meet the requirements of the users based on the usability test conducted, It is important that a prototype is created in order to test the effectiveness of the data that was gathered and how accurate it is to fulfil the requirements. The data gathered from the usability testing will allow the creation of an application that should function in a way that is comfortable and the most convenient for the user as it is based on the users needs and feedbacks.

3. To measure the application's usability by the elderly people

Once the prototype has been sent for testing, there will a usability evaluation. There will be a focus group that will be given the prototype and they will engage and interact with the prototype based on the step by step criteria to understand how well the features function and what issues the user face during the testing phase. Once they have tested the application, the users will then have give feedback through evaluation of the application based on their experience of using the app. This method of testing will help identify any issues that are still present within the application and will also help judge how well the application meets the objective of the project.

3.3 Development of application

For the method of development, the main development structure that will be used is the waterfall methodology. Although most mobile application development usually adopt the Agile methodology. This project is considered a relatively small project and it is developed by a small team. So it is not necessary to follow such methodology and the waterfall methodology will allow a clear goal and aim forward in the development phase of the project. The first step is the requirement gathering, this step is the background study and research part of the project. This step will allow the understanding on the importance of the project and will help develop the goals and objectives of the project. The next step is the Analysis, this part involves linking the existing data and information to the current situation. So the data gathered through literature review and observation will then be use to solidify and strengthen my research purpose. The following step is the design step, this will be done after all the research and usability testing has been done as it is needed to ensure that the design

follows the requirements set through these testing. The coding or prototyping phase begins when the foundation and structure for the application has been developed to ensure that this phase can be done smoothly. Testing phase involves internal testing and usability testing of the created prototype. This will allow a clear understanding how it functions prior to public testing. Finally, is the operations, this step involves the usability evaluation testing, where the application will be given to a focus group which will then test and give feedback base on their experience using the application.

3.3.1Analysis

Functional and Non-Functional Requirements

Functional Requirements

Table 1: Functional Requirements

*Must Have	1.0	User (Patient)	User friendly interface for Elderly to - Log In system, - View homepage - Show QR Code - Set reminder - Contact Support - Set Appointment
	2.0	User	An easy to use online tool for Doctor/Pharmacist to

		(Doctor)	. - Add Medicine Data - Scan QR Code - Contact Patient
	3.0	System	- Register and add a user - Update user information - Delete user - Update record
*Should Have	1.0	User (Doctor)	- Auto populates email and approve button.
*Could	1.0 2.0	User	View and edit their details before sending - request. - Approve application through the system.

Non-functional requirements

Table 2: Non-functional Requirements

Performance	System responses should not be more than 10 seconds
	The system should be accessible concurrently to few hundred users with no performance degradation

Availability	The system should be online 24 x 7
Scalability	Phased roll out to other departments and employee between the organizations.
	Support unlimited users
Localization	Support multiple time zones
Security	Allow access to only authenticated users

How MyMedicin service is different from the others?

Given the examination available investigation, the have discovered MyMedicin's competitive advantage on the lookout. Competitive advantage alludes to factors that permit MyMedicin to create products or administrations preferred or all the more inexpensively over its opponents. These factors permit the beneficial element to create more deals or better edges thought about than the other market rivals. Thus, here is a competitive advantage or added values in its offered support.

Table 3: MyMedicin Features

Values	Description
Set time for appointment	MyMedicin gives admittance to a free online booking features through its cloud-based scheduled software. This is a hearty online schedule producer, which permits clients to plan a period for explicit kinds of appointments and services dependent on their area. What's more, the approach can be upheld with dropping and non-attendant charges can be programmed. Schedules are likewise adjusted with various gadgets and incorporated with other famous schedule applications.
Display nearby pharmacy	For the individuals who lead occupied ways of life and don't have the opportunity in the day to look through the nearer pharmacy, these are amazingly useful. Having the option to look nearer pharmacy for physician recommended medication from the solace of your own house

	is surely a preferable choice over the other option if that is the situation. The times of looking and stressing if the entire interaction is an exercise in futility on account of an administrative issue are well and finished.

3.3.2 Design

System architecture and design

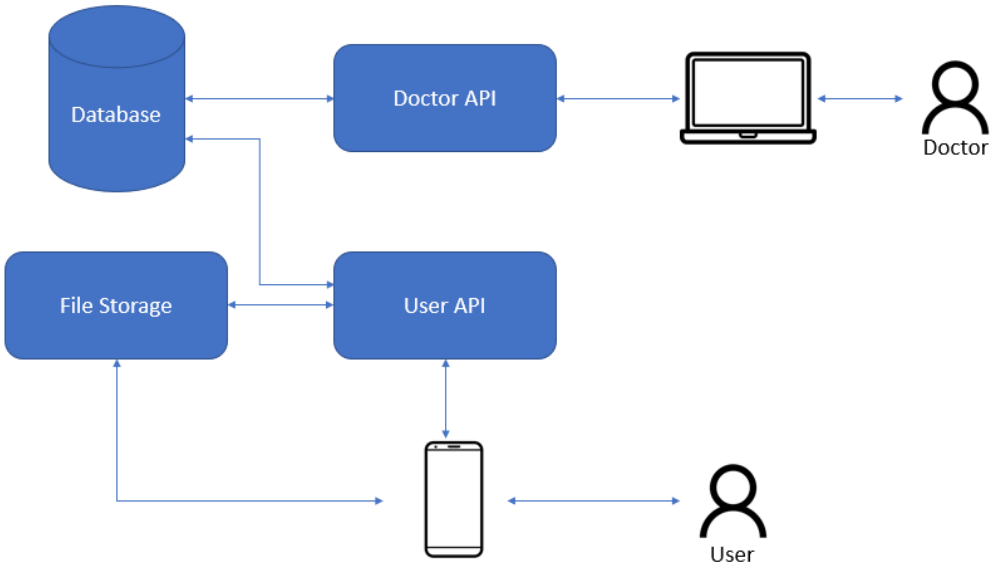

Figure 2: IT Architecture

IT Architecture

The IT architecture of the MyMedicin Application consists a few aspects that are connected to one another. The component starts from the doctor where they will input the data of the prescribed medicine into the database. This phase is done when the user is being prescribed by the doctor when they are at the hospital. Once the doctor has fill in the necessary data, they will then bind the information to the user's IC number. Following that, the user will then use their login to connect to the application through the mobile phone and be access to the user interface for patients, where they can login through their IC number which will then display a QR code that will list their prescribed medicine.

System Design

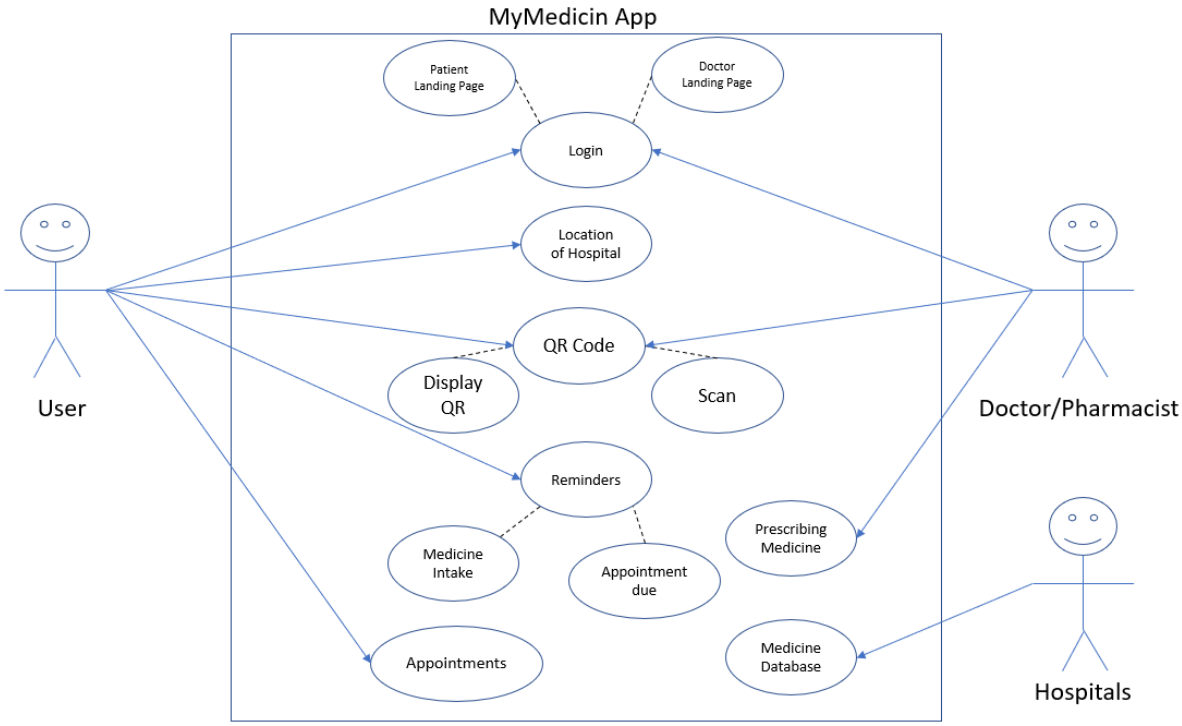

Figure 3:Usecase Diagram of MyMedicin

The user has the ability to login, Use the QR code feature, locate nearby hospital/pharmacies/clinics, set reminders and make appointments. As for the doctor/pharmacists, they will also be able to access the QR code feature and have the ability to login. However they have an additional feature of being able to edit and prescribe the medicine to the user. The hospital has access to the database.

Prescribing medicine

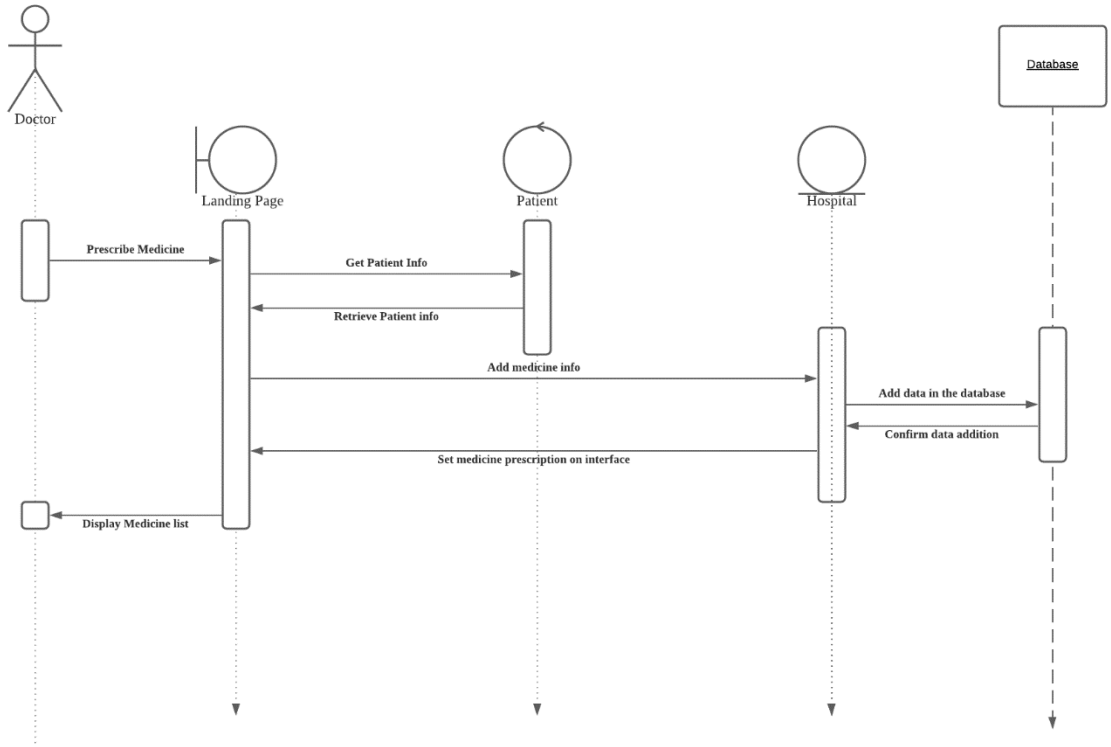

Figure 4: Prescribing Medicine sequence diagram

Description:

The sequence diagram describes how the doctor is able to set the data for the patients. It begins by the Doctor accessing the patient's information through the profile page of the user. Once the data is received and displayed, the doctor will then add or remove the medicine that is within that list. This will interact with the database and in turn the database will verify and store the data of the edit and will then display the new information on the interface.

Setting Reminders

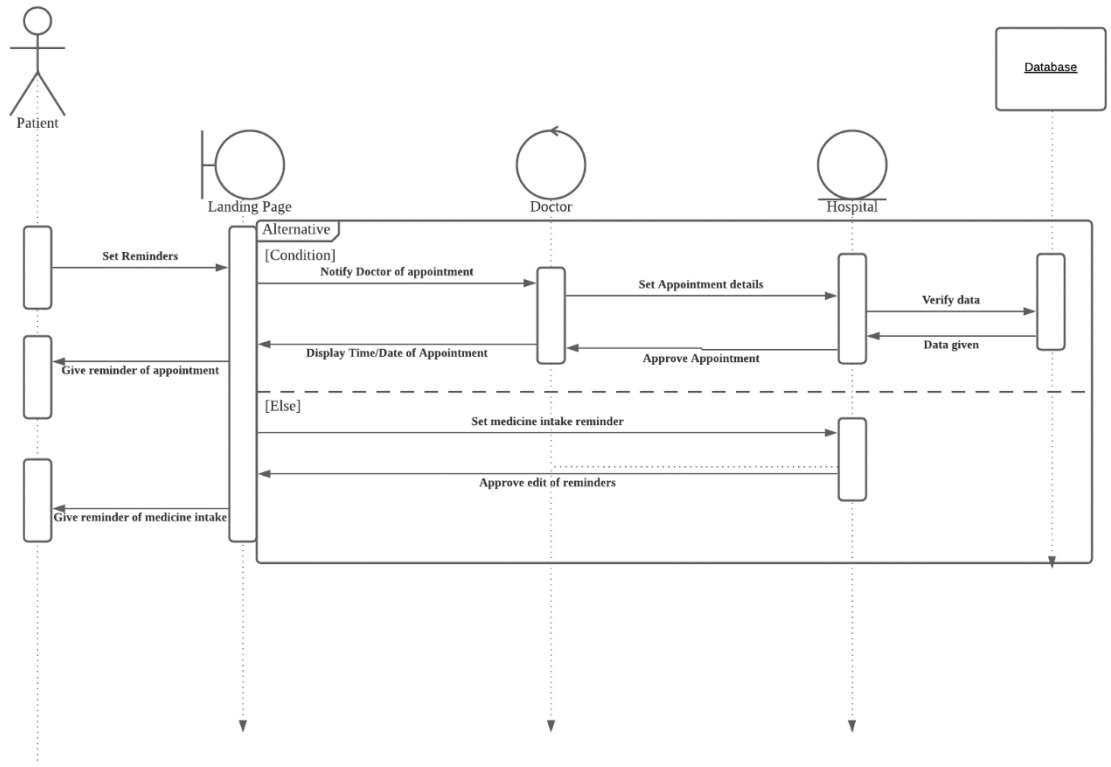

Figure 5: Reminder sequence diagram

Description:

The sequence diagram describes how the patients are able to set reminder either for appointments or for their medicine intake. It starts by the user interacting with the reminder feature on the landing page. Then the user will have an option to interact either with the appointment or medicine option. If the user pick the appointment option, it will then notify the doctor of the appointment and the doctor will then check the database if the appointment is possible. If it is then it will approve and the doctor will set and approve the time and date of the appointment and will then give a reminder for the user. If the user chose the medicine option, the user will have an option to set their medicine time intake and this will then be set in the database. Then it will appear in the list of reminders and will give the user the reminder.

Find Location

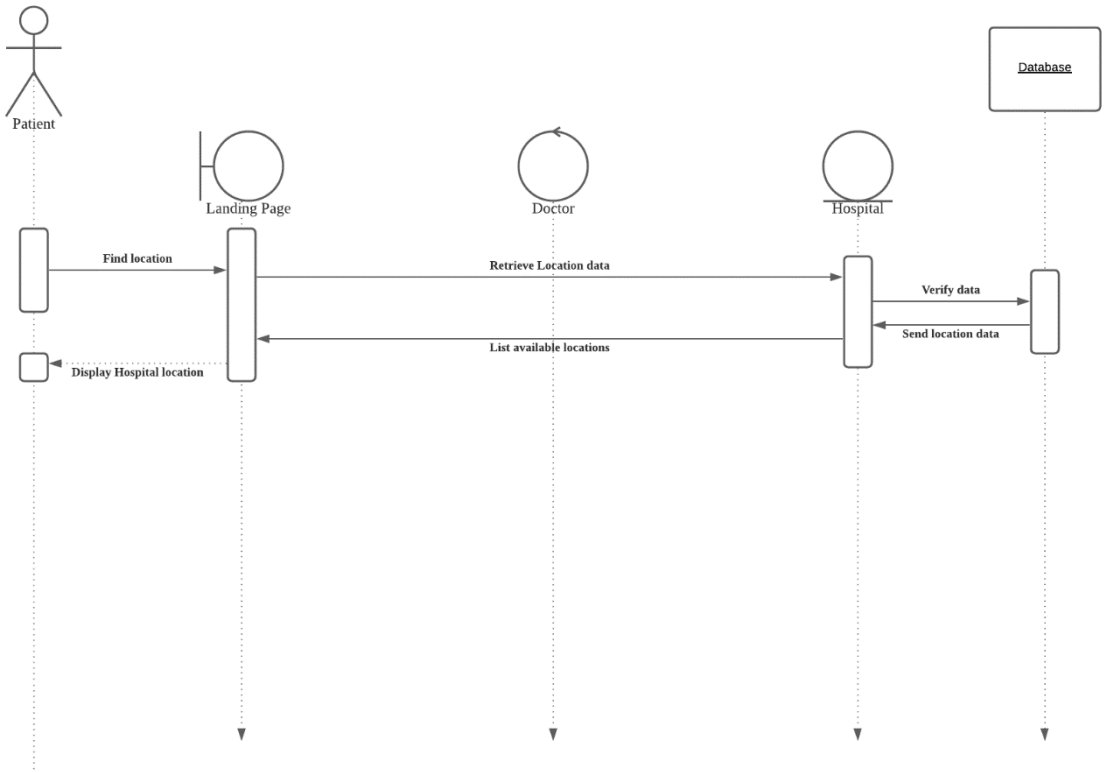

Figure 6: Find Location sequence diagram

QR Code scanner

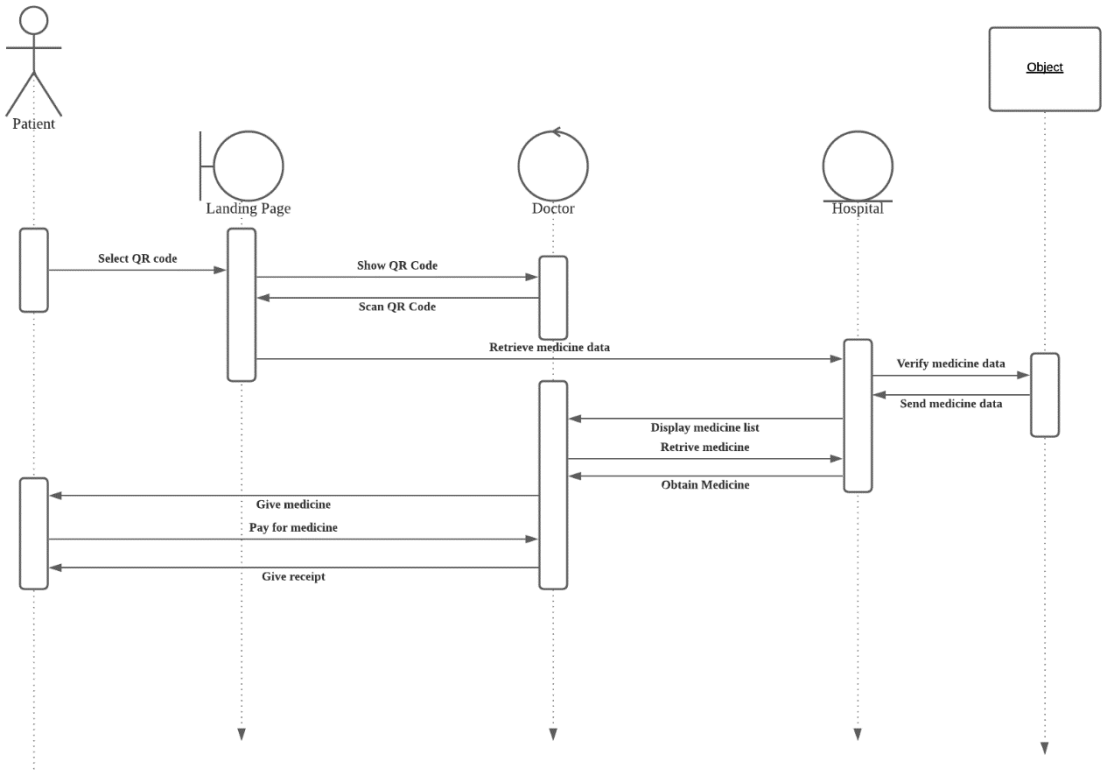

Figure 7: QR Code Scanner sequence diagram

Description:

The sequence diagram describes how the user can use the QR code feature to display their medicine prescription. The user will interact with the QR code feature on the landing page and will then show the QR code to the doctor. The doctor will scan the QR code and then the data will be retrieved and verified on the database of the hospital. Once verified the medicine list will be displayed for the doctor and will allow the doctor to retrieve the necessary medicine for the patient.

Chapter 4: Results and Discussion

4.1 Evaluation of competitor

Competitor analysis in marketing and key administration is an evaluation of the qualities and shortcomings of current and expected contenders. This analysis gives the setting of an assaulting and protective methodology to recognize openings and threats. I have examined my rival's dependent on the assets accessible through the Internet and its authority site. As I direct examination, my rivals are generally international. From its sources, I have done the examination and I depict their presentation as demonstrated in the chart.

Table 4: Competitor Analysis

	Accessibility on mobile	Useful resources	Functionality	Affordable	User interface
Medsmart Meds & Pill Reminder	/	/	/	X	/
Drug Barcode Scanner Pro	/	/	/	/	X

4.2 Usability Testing

An important part of any product's usability testing process is ensuring that it is simple for people to use. Observing people as they try to execute tasks is the most common method, but it may be used to a variety of designs. From the beginning of a product's creation all the way to its release, it is common to do this kind of testing.

For the testing of MyMedicin Application, usability testing is done in order to test the features of the application. To get an overall functional view of the application, a focus group is selected of users age above 60 years old to conduct test based on scenarios that have been set to achieve. The scenarios include:

1. Scanning QR Code

2. Finding Nearest Hospital Location

3. Setting a medicine reminder

Once the scenarios have been completed by the users, they will then be given questionnaires to fill out in order to rate their experience. The questionnaire is used to calculate the System Usability (SUS) score. The SUS is a tool that is used to measure the usability of a software or system. It is tested through a series of questions which include:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

The System Usability Scale is not diagnostic and will not tell you what specific problems you face, but it will give you a red or green light to know how badly your usability needs work.

The System Usability Scale is a method that will not give a diagnostic and does not serve the purpose of identifying the specific problems of the application, rather it will give a clear indication of how well or bad the application is performing in terms of its usability.

The average score for the System Usability scale score is 68. If the score that is received for the application is under 68 then it is considered to have problems.

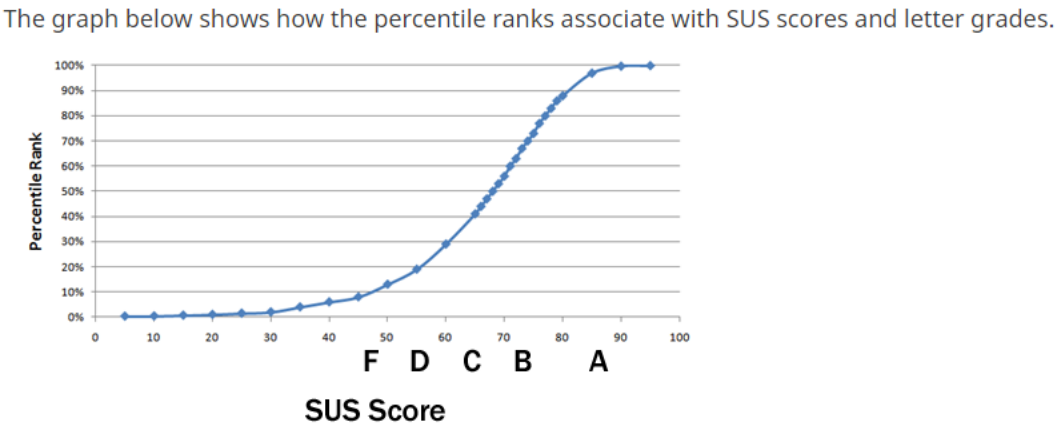

Figure 8 : SUS Score scale

The data for the MyMedicin usability testing included a testing of five users. Each user identified as the target users of this application which is users above the age of 60. The data for the SUS Scores can be seen below:

Table 3: SUS Score for MyMedicin

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS Raw Score	SUS Final Score
USER 1	4	2	5	2	3	2	5	2	4	2	31	77.5
USER 2	3	2	4	1	2	2	4	2	4	2	28	70
USER 3	5	1	4	2	4	1	5	2	4	1	35	87.5
USER 4	5	2	5	1	5	1	5	1	5	1	39	97.5
USER 5	4	2	4	1	4	3	4	2	4	2	30	75

Overall Scoring for the application is relatively high and above average. All scoring for the application scores a grade of B and above based on the SUS score scale. 5

4.3 Development of MyMedicin

Homepage

Figure 9: Homepage UI

Description: The Main user Page consist of Identification Card number text box, Password text box, Sign in button, remember me button, Forgot Password button, Sign Up Here button. To log in, enter IC Number and Password then click on Sign In button. To create new user account, click on Sign Up Here button. If the user forgot the password can click on he Forgot Password button. To reduce frequent input of credentials, user can click on the Remember Me button.

Landing page for the user's view

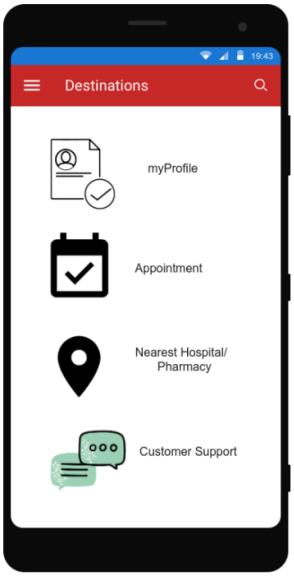

Figure 10: Landing Page UI

Description: Landing Page shows the few option user has on what they would like to choose based on their preference. There are myProfile where the user can view and edit their profile data, Appointment feature where user can check or set an appointment with doctor, Nearest Hospital/Pharmacy feature for the user to find the nearest health support they can get and Customer Support to see FAQ, get help or report their issues.

Sign up Page

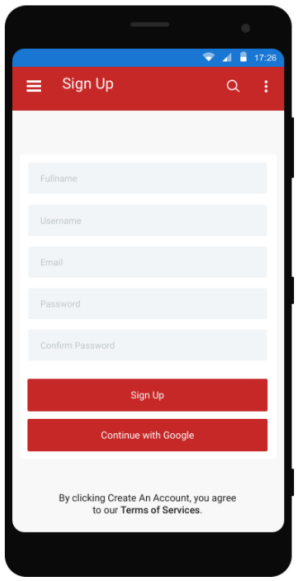

Figure 11: Sign Up UI

Description: The Sign Up Page consist of Full Name text box, Username text box, Email text box, Password text box, Confirm Password text box, Sign Up button, Continue with Google button and Terms of Services button. To sign up, user have to enter Full Name, Username, Email, Password and Confirm the Password then click on Sign Up button. If the user chose to use their existing Google Account they can click on continue with Google button. Before signing up, they can click and agree on Terms of Services.

User’s profile and their data

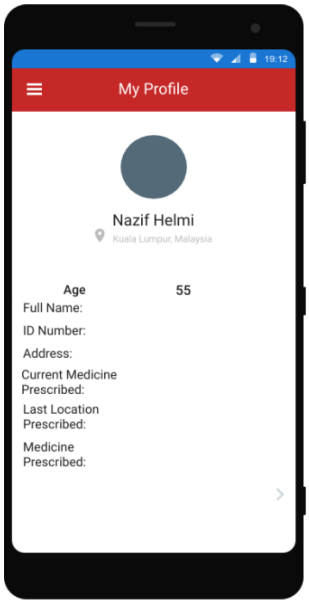

Figure 12: User Profile UI

Description: This interface shows the user can click on the myProfile to check and update their latest personal data. myProfile interface consist of Full Name, ID Number, Address, Current Medicine Prescribed, Last location Prescribed, and Medicine Prescribed options for the user.

QR Code

Figure 13: QR Code UI

Description: The QR code interface displays a QR Code where the user can use this to display their medicine prescription. The user will interact with the QR code feature on the landing page and will then show the QR code to the doctor to retrieve the necessary medicine for the patient.

Nearest Hospital/Pharmacy

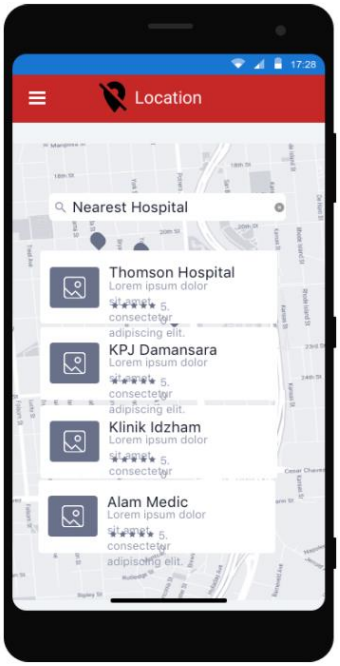

Figure 14: Nearest Hospital UI

Description: This location interface consist of search engine and GPS tracker where it search and displays latest list of nearest hospital/pharmacy. The information will retrieve the location data from the database based on their current location. Then it will list all the available location and then display it to the user.

Pending appointment & Reminder

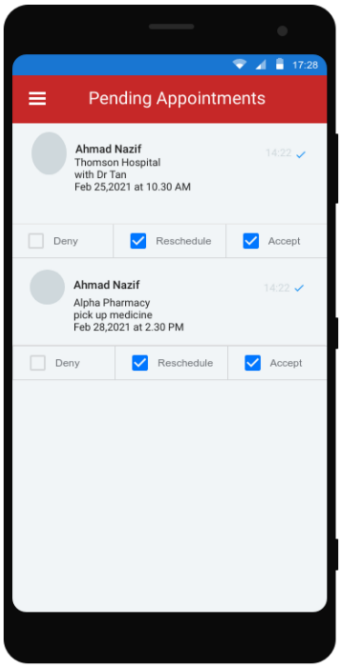

Figure 15: Reminder UI

Description: Pending Appointment & Reminder interface consist of user's information and name of the hospital/pharmacy which was appointed for their medical support. It has Deny button, Reschedule button and Accept button where the user can deny, reschedule or either accept the appointment which was assigned for them based on doctor's availability. If the user pick the appointment option, it will then notify the doctor of the appointment and the doctor will then check the database if the appointment is possible. If it is then it will approve and the doctor will set and approve the time and date of the appointment and will then give a reminder for the user. If the user chose the medicine option, the user will have an option to set their medicine time intake and this will then be set in the database. Then it will appear in the list of reminders and will give the user the reminder.

Chapter 5: Conclusion and Recommendation

This idea of creating an application for medicine purchasing will be a benefit to everyone especially elderly people. Just a QR code scanning, then they will get their prescribed medicines. We would create a platform to them to store and rundown their endorsed medication for simple access and review for both the patient and pharmacist. The possibility of this arrangement is to guarantee their negligible danger of being given some unacceptable medication by making the association between the emergency clinic data straightforwardly to the pharmacist as they will give precise data. This could ease the situation for both parties.

Recommendation would be we would set reminders in the application to stock up the medications. Moreover, as an example if an elder people purchased medicine, their children or guardians can receive text via the application that they purchased the medicine at which location. This is for a security purpose. All in all, the application could really helpful in re-stocking medicine without hoping anyone help.

Moreover, we can even invent into like a online pharmacy, where people can order and the medications will be delivered right on their doorstep. For example, an elder man who has chronic disease who is undergoing regular treatment and medication can set in the app about his medication, even if he forgets the app will remind him at any cost to re-purchase the medication.

All in all, this is a very beneficial application that everyone needs not just old people who has no supports beside them. This application is very efficient meanwhile saves time by doing this. The present is period of web and with Smartphones coming to each niche and corner, individuals living in country and remote can likewise hope to get best wellbeing administrations. The on-request applications causes them to book meeting with specialists and purchase prescriptions online without venturing out to the emergency clinic.

Furthermore, they can likewise get data about significant medical services tips every now and then through pop-up messages. Hence, this invention could be really great for everyone’s usage especially elder people

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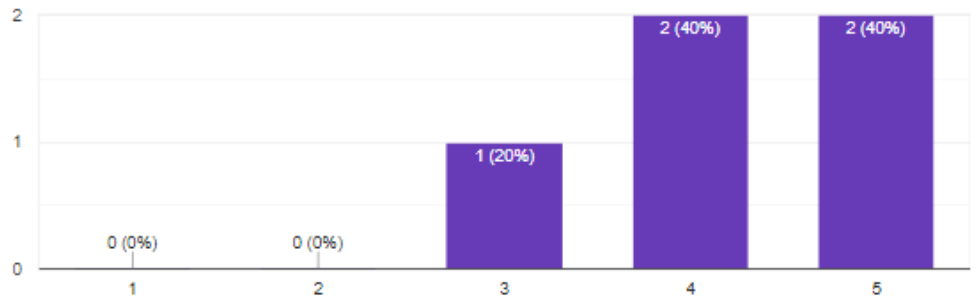
Appendices

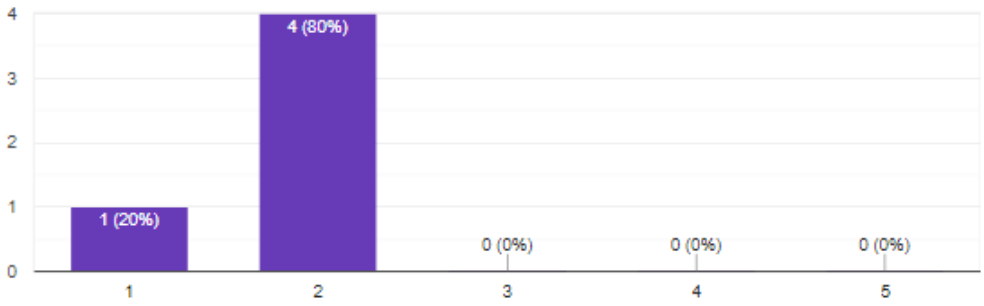
I think that I would like to use this system frequently.

5 responses



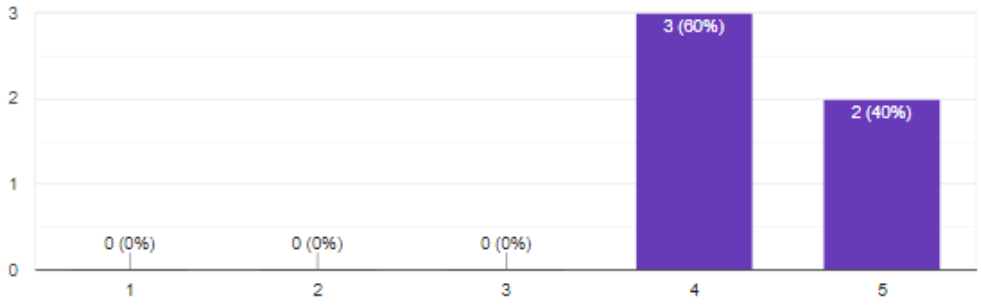
I found the system unnecessarily complex.

5 responses



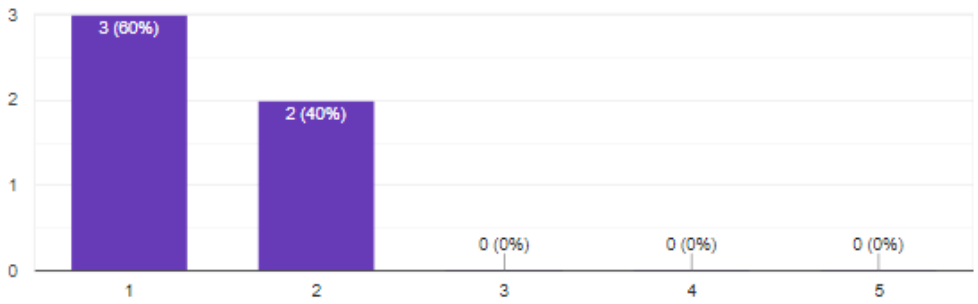
I thought the system was easy to use.

5 responses



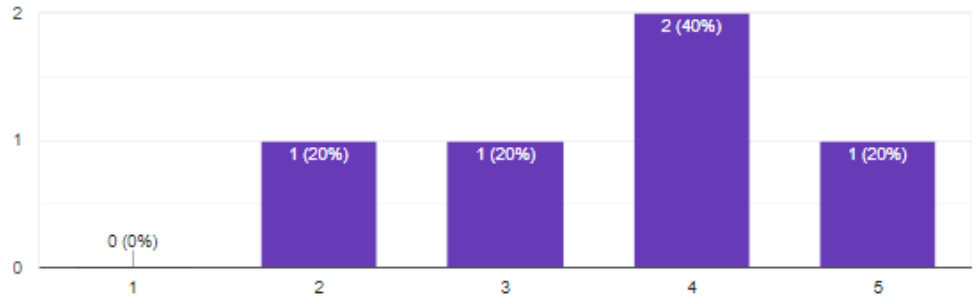
I think that I would need the support of a technical person to be able to use this system.

5 responses



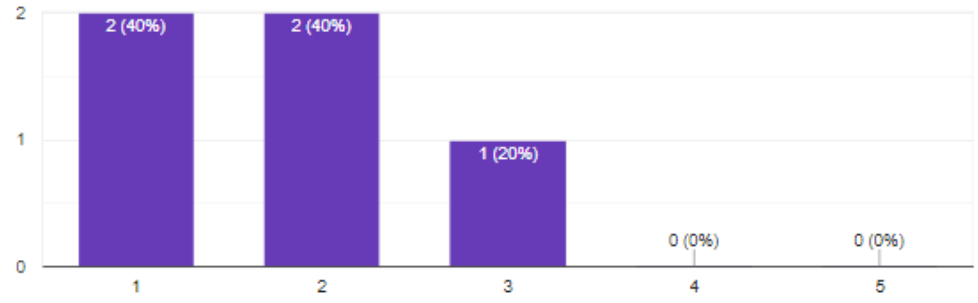
I found the various functions in this system were well integrated.

5 responses



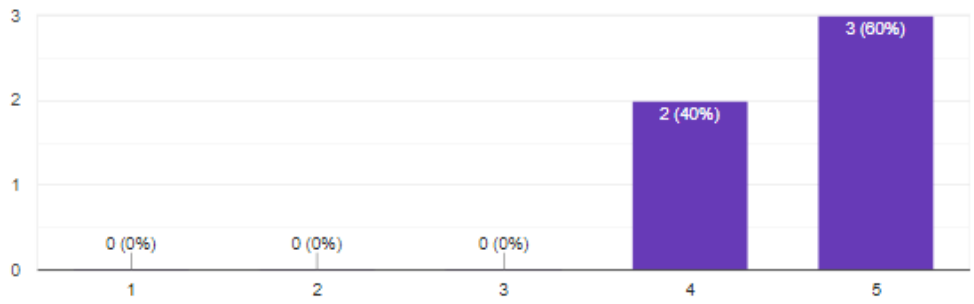
I thought there was too much inconsistency in this system.

5 responses



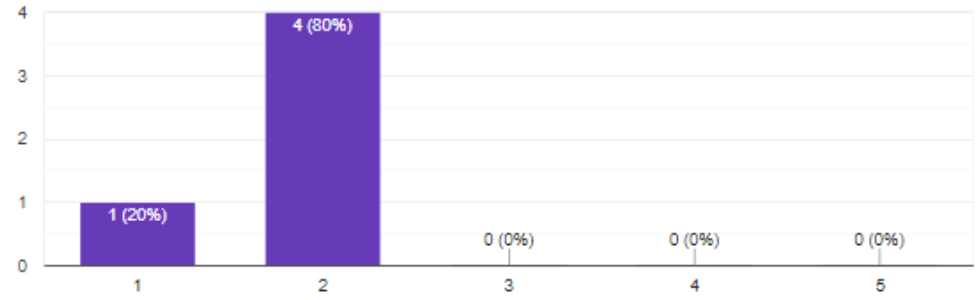
I would imagine that most people would learn to use this system very quickly.

5 responses



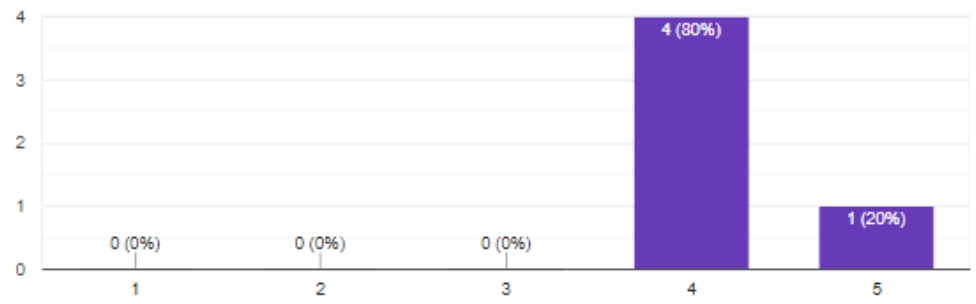
I found the system very cumbersome to use.

5 responses



I felt very confident using the system.

5 responses



I needed to learn a lot of things before I could get going with this system.

5 responses