Baby's Book: A Multimedia Mobile Application for Keeping Baby's Health Records with Appointment Scheduling

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ABSTRACT

This capstone project is a mobile application that focuses on scheduling of the appointment for the babies for their monthly check-up, vaccination and consultation. The application enables the users especially the parents to observe their baby's development and condition monthly. The application aims to have alternative source of bringing information usually to the parents and babies. The use of this application is simple; the user just need to install it and have the permission from the pediatrician to create an account for them then will lead you to access the application. Most of the people nowadays has its own smartphone, so that is why mobile application will be essential for the selected user. The mobile application runs in Android OS and minimum KitKat 4.4 version and functional with internet connection; and also used is Android Tablet; it is for a single clinic only. The mobile application is available for the client of the clinic.

Keywords: *Baby's Book, Client Appointment Scheduling, Health Records, Mobile Application, Multimedia Application*

1.0 INTRODUCTION

Mobile application had huge increase in popularity in the last few years and this interest is still growing among users. [12] Everyone is using it every time and everywhere. It is also part of our daily lives and daily routine. Smartphones are therefore helpful to the medical and

health related professions because they are easy to use and can be used on the move. [1][8] Each smart phone requires an Android OS as interface and because Android OS is more in demand in the market rather than iOS.

"Baby's Book: A multimedia mobile application for keeping Babies Health Records with Appointment Scheduling" is a mobile application which benefited the parents. The objectives of this capstone project is to lessen the paper or the writing capacity work of the pediatrician. The doctor or the assistant will type only the given vaccination, month development, and medicines then the parents can see what is the previous or the next development of the baby. Including the next schedule of the vaccination and the pediatrician monthly checkup.

This mobile application focused on how parents understand the pediatrician writings; the pediatrician or his/her assistant will only input the baby's results and pediatrician recommendations. Also, for parents to lessen their time while waiting for their babies to have their vaccination and check-ups. This mobile application also used backup and security of cloud technology in securing data and avoiding loss of records.

The main purpose of this mobile application is to enhance the process in the clinic and manipulation of baby's health records through automation. The mobile application included adding and updating of the baby's information record such as personal data and baby's clinical monthly development. The pediatrician can also set an appointment in the free day and time schedule of the parent, so they will know when at what time they will visit the clinic to avoid long waiting time.

The researchers used Android Studio in creating the mobile application, JavaScript and PHP as our language and MySQL for its database.

The mobile application runs in Android OS with a minimum of KitKat version 4.4 and functional with internet connection. Can be used in Android smartphones and tablet. User are allowed to make an appointment with the doctor, edit their account, see their baby's growth and development and they can see what vaccine has been given to their baby and listen to the provided lullaby songs and nursery rhymes. On the other hand, the admin or the doctor can accept the appointment request, record all the baby's growth and development, and record all the vaccine that has been given to the baby. The mobile application can be used only by a user/single clinic and can be used by the clients or patients of the clinic.

1.1 Objectives of the Study

1. To develop a mobile application wherein parents can monitor their baby's growth and development
2. To improve the performance of clinics in terms of tracking all the baby's health records with the help of automation and innovation.

3. To enhance the process in the clinic and operation of baby's health records through automation.

2.0 LITERATURE REVIEW

Mobile-health: a review of current state in 2015

Mobile health services and application suggest healthcare bringing anytime and anywhere. In addition, based on the reviews, the authors think that Mobile-health services and application is now had an impact in daily life of the users specially to the patients and has an already a huge essential and determinant role in restructuring the old healthcare services and systems that still based on the physical communication between the patient and the doctor. Therefore, its purpose to be a major contribution in today's generation wherein innovation and automation is still in doubt. [9]

Mr. Doc: a doctor appointment application system

Life is growing to be very busy to get medical appointment in person and to uphold a proper health care. The main idea of this capstone project namely Mr. Doc: a doctor appointment application system is to provide ease and comfortable to patients while taking appointment from doctors and it also resolves the problems that had to face while making an appointment. [5]

The impact of social networks on parents' vaccination decisions

In this article, parents had strongly agreed with the use of social network to decide if their children should be vaccinated or not. Parents found in the social network which and what should vaccines is right for their children. Parents nowadays are influenced by their social network, generally defines as the people and considered social media as sources of their information, direction and improper advice. This research outcome strongly declare that social networks plays a crucial role in parents' vaccination decision-making. [2]

Findings from a hepatitis b birth dose assessment in health facilities in the Philippines: opportunities to engage the private sector

Hepatitis b vaccination started in early 1992 in the Philippines to prevent and reduce the problem of nonstop hepatitis b virus (HepB) infection in the Philippines. In year 2007, Hepb-Bd was existed and started as a birth dose defined as doses given within 24 hours of birth to prevent perinatal HBV transmission. Mostly of the private sectors hospitals in the Philippines had the least number of Hepb-Bd coverage which resulted the babies sickly and weak. Multiple ways exist to connect the private sectors in hepatitis b prevention including newborn health activities, hospital accreditation process and raising awareness to the people of the government free vaccine program. [7]

Benefits from immunization during the vaccines for children program era

The vaccines for children (VFC) program was created by the omnibus budget reconciliation act of 1993 (1) and first implemented in 1994 and continuing up to this year. Including 78.6 million children born throughout 1994 up to present who have the routine childhood immunization had been estimated to prevent 322 million illness, 21 million hospitalizations and stop 732,000 premature deaths from vaccine-preventable illnesses. Granting VFC has strengthened the U.S. immunization program, rolling attention is needed to guarantee that the program addresses trials and merge methods that could improve delivery. Also, even if VFC supplies has helped lessen the deficiencies. VFC, in combination with provisions of the affordable care act that abolish many co-payments for recommended vaccines and immunization, reduces financial barriers and in that what way help to protect children from vaccine-preventable diseases. [11]

Recommended childhood and adolescent immunization schedule

The 2017 recommended childhood and adolescent immunization schedules have been approved by the American Academy of Pediatrics. The schedules are revised every year to demonstrate current recommendations for the use of vaccines licensed by the US Food and Drug Administration. This article shows the recommended dose number by age. It also shows how a child and adolescent needs many immunizations throughout the age of 18. The vaccination and immunization are group together so it's easily notice when the right dose for the right year of age. [3]

Maternal immunization as a strategy to decrease susceptibility to infection in newborn infants

Maternal immunization provides protection to the newborn through the transfer of vaccine. The safety of recently process of immunization recommended maternal vaccines has been further in recent studies. A number of additional maternal vaccines are also in the study, which can be use in the future. Tetanus and some other vaccine are now recommended for use during pregnancy stage. Some new vaccines are being develop to prevent newborn babies from sickness and various kind of infection in the future. [4]

Vaccines in pregnancy

Maternal immunization has the possible to decrease the problem of infectious diseases in the pregnant woman and her infant. Many countries now advocate immunization at any stage during pregnancy so that the infant prevent for having diseases. Increasing confidence in both immunization providers and pregnant women by rising the evidence-based for the safety and effectiveness of the vaccines during pregnancy and improving the knowledge for vaccinating and attaining the pregnancy care are expected to improve upon approval. [6]

Effectiveness and net cost of reminder/recall for adolescent immunizations

This is to assess the success of reminder/recall (r/r) for immunizing adolescent in private pediatric practices and to depict the associated cost and revenues. Different percent from different immunization and vaccination was the result of this study. Several immunizations are not given in early age and did not recall when the time come when the child had already in adolescent stage. Reminder/recall(r/r) was successful at increasing immunization rates. And help also the children have to generate healthcare visit and keep children healthy. [10]

2.0 METHODS

This section provides a clear and precise description of how the study was conducted.

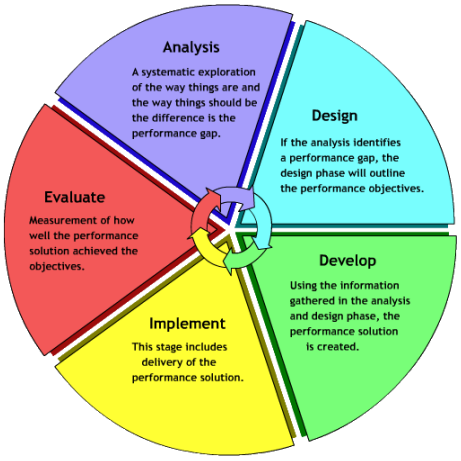

Figure 1: Addie Model

Data Process Modelling

The researchers used ADDIE project development model, researchers gathered methods and procedures for the completion of the mobile application project. ADDIE project development model is needed for developing a multimedia application. It helped the researchers to achieve the objectives of their proposed project. It is made up of five important phases which includes the following.

Analysis Phase

The researchers studied what can be the solution for the problem occurred when parents go to the clinic for baby's check-ups, vaccination and consultation.

Design Phase

The design made by the researchers was based on the doctor perspective. Some of the design was added and suggested by the researchers for the improvement of its mobile application layout.

Development Phase

The researchers used their skills in programming and knowledge to make the mobile application. The researchers started the work based on the design given by the doctor and flowchart of all possible interaction.

Implementation Phase

The researchers conducted testing of the mobile application and integrating the codes. The researchers pretended to be pediatrician and client of the clinic for testing purposes.

Evaluation

The researchers conducted final testing as the secretary of the clinic used the mobile application.

4.0 DISCUSSIONS

FLOWCHART

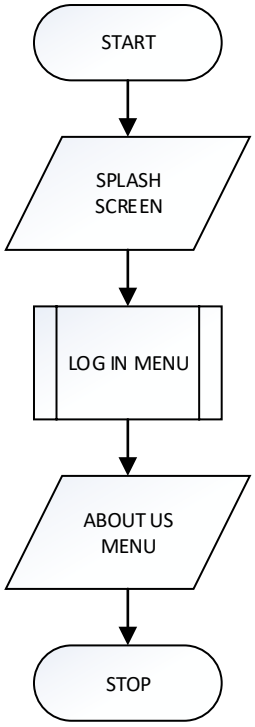

Figure 2: Loading Screen

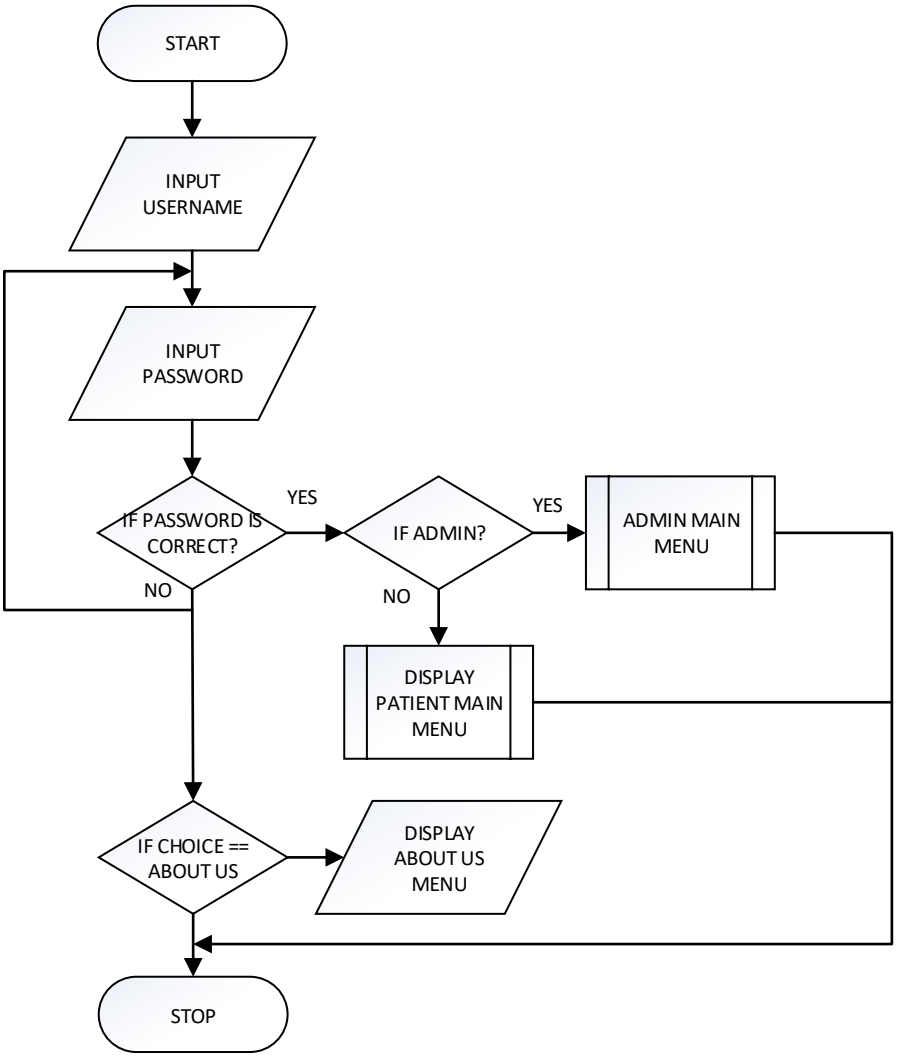

Figure 3: Log in Menu

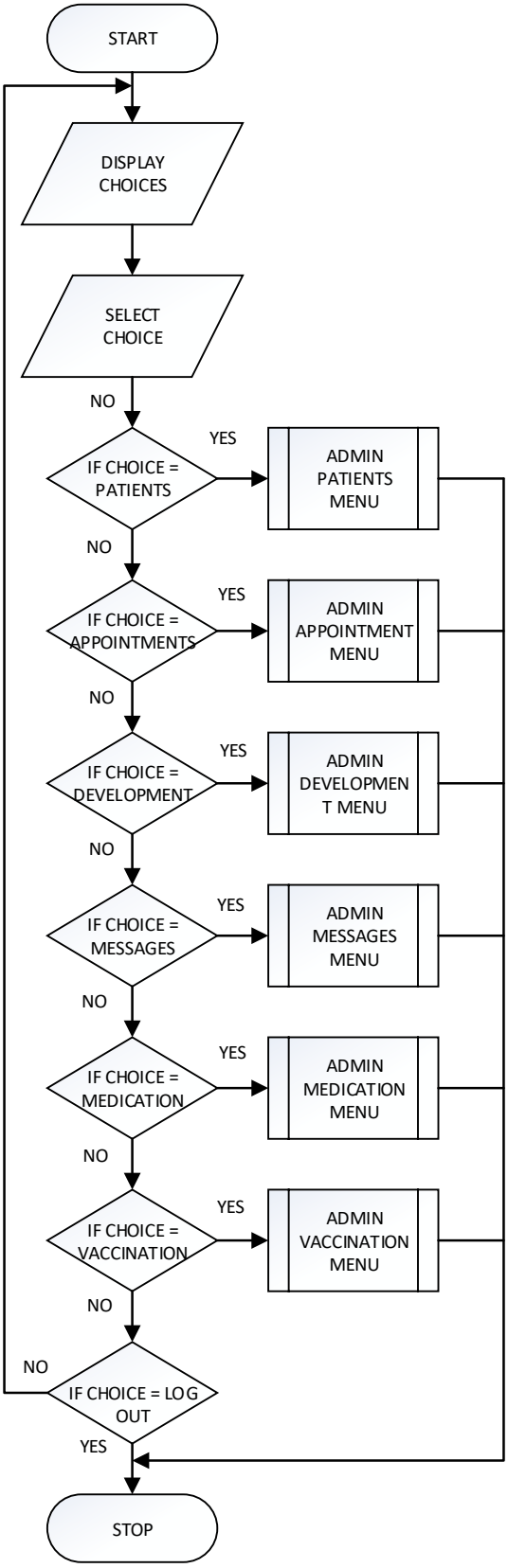

Figure 4: Admin - Main Menu

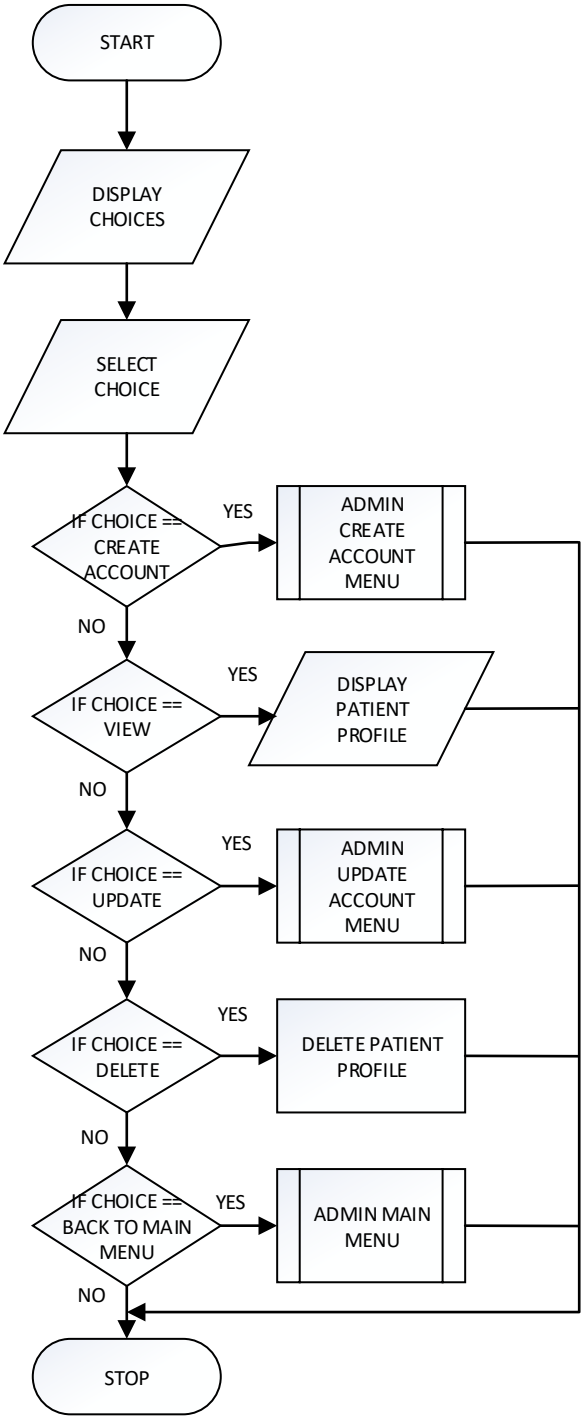

Figure 5: Admin – Patients Menu

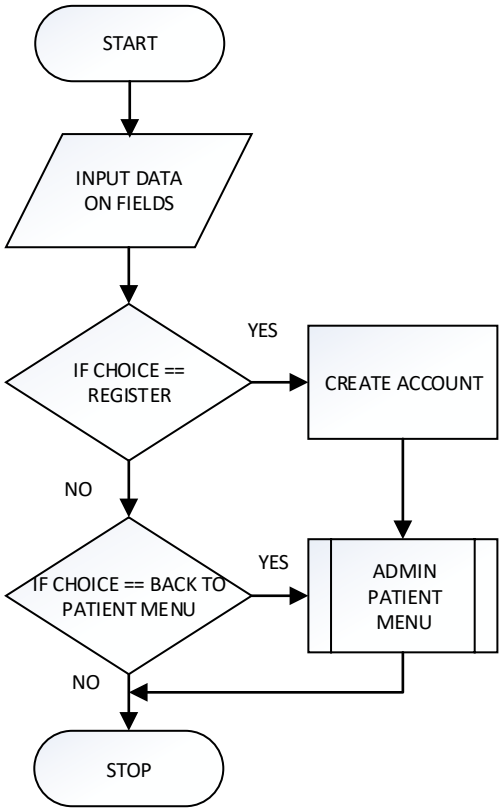

Figure 6: Admin - Create Account Menu

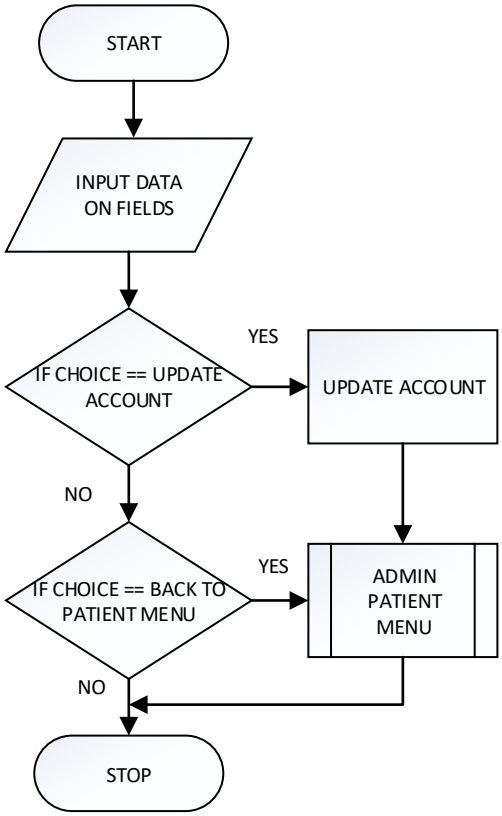

Figure 7: Admin - Update Account Menu

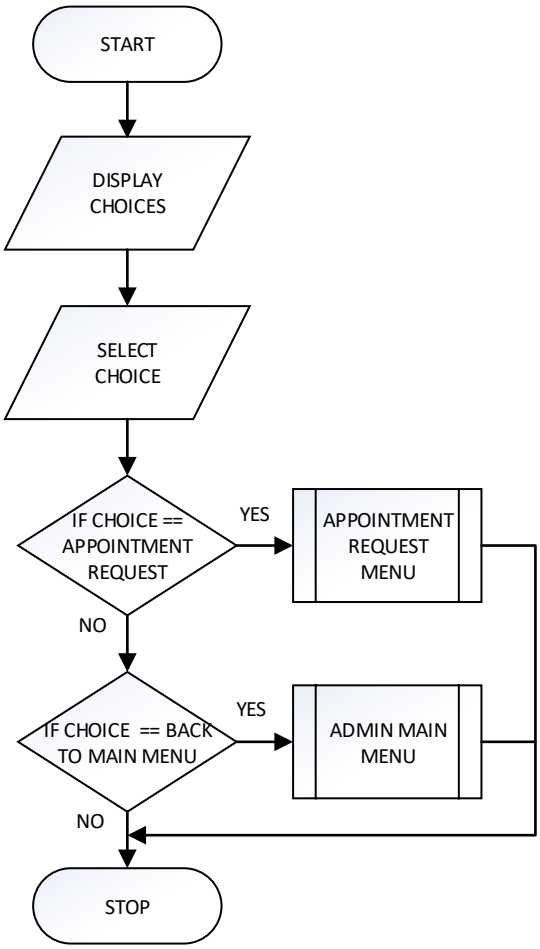

Figure 8: Admin - Appointment Menu

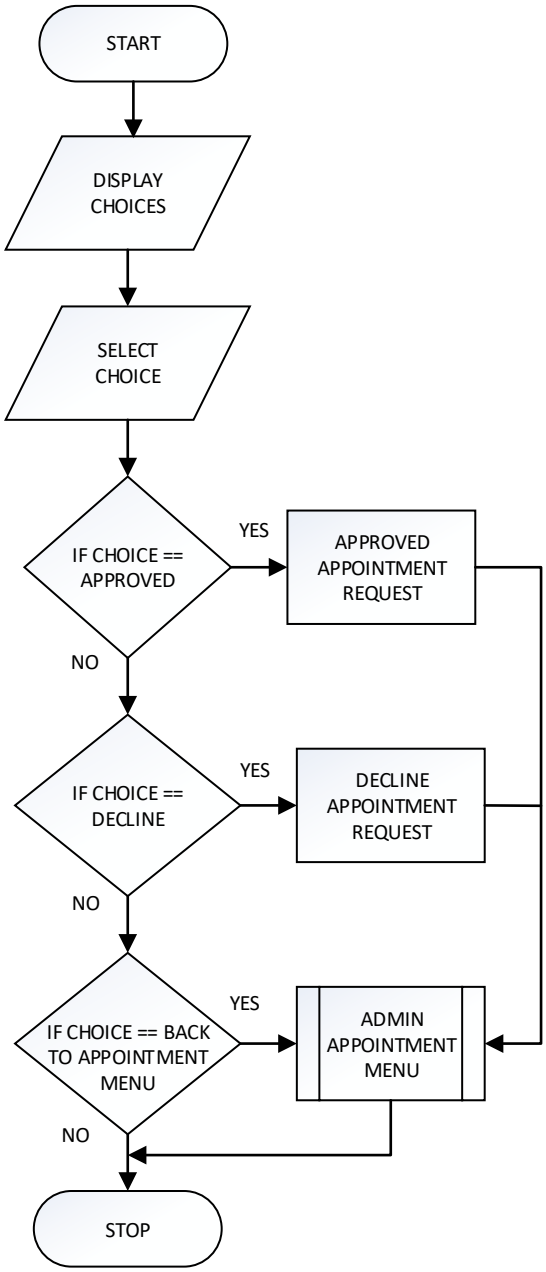

Figure 9: Admin - Appointment Request Menu

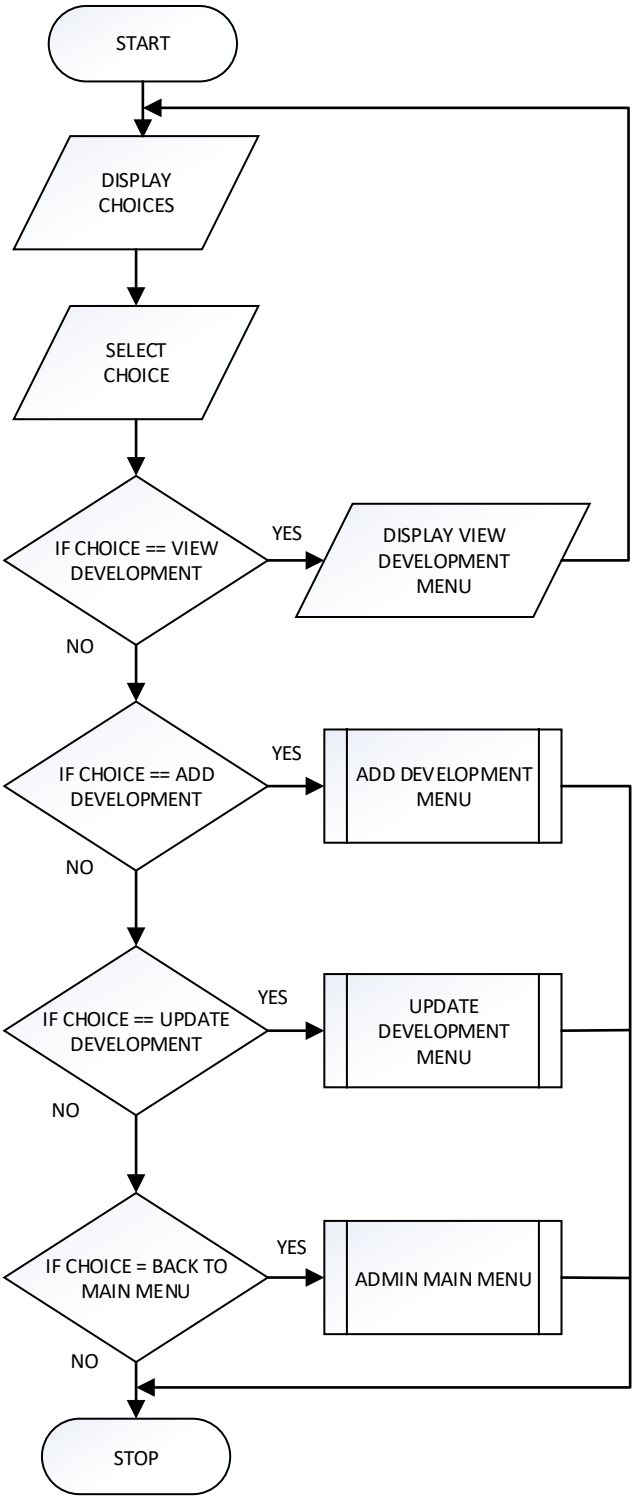

Figure 10: Admin - Development Menu

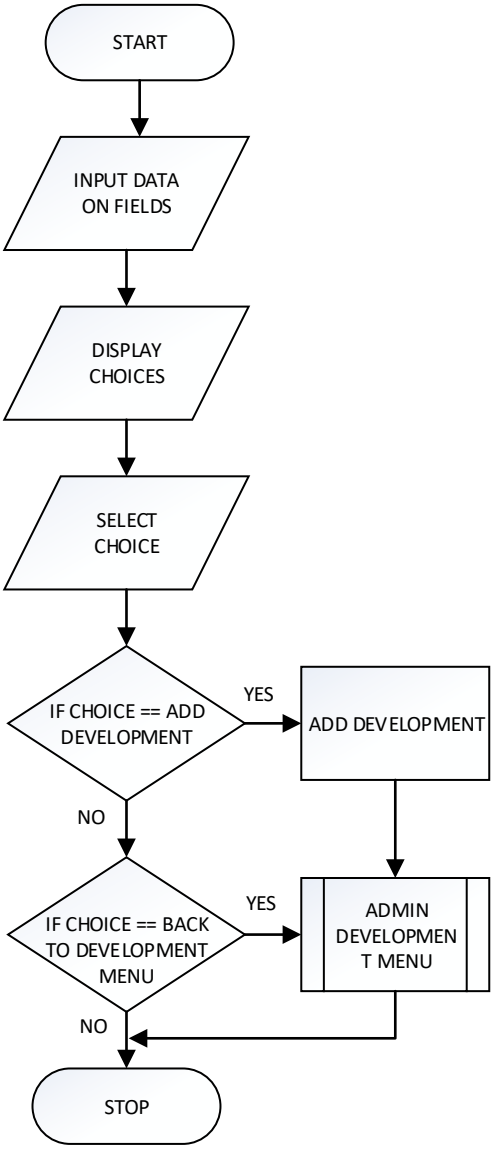

Figure 11: Admin - Add Development Menu

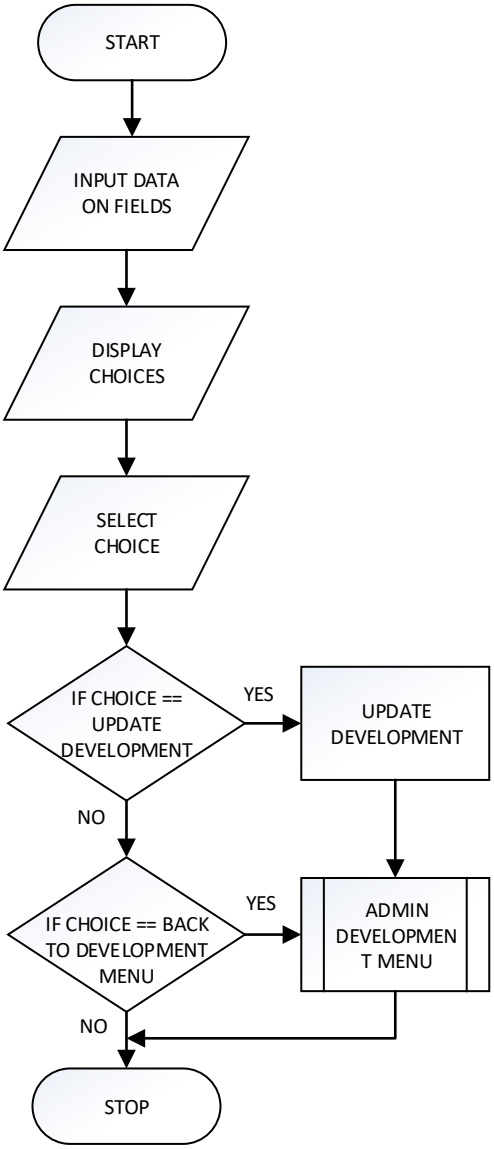

Figure 12: Admin - Update Development Menu

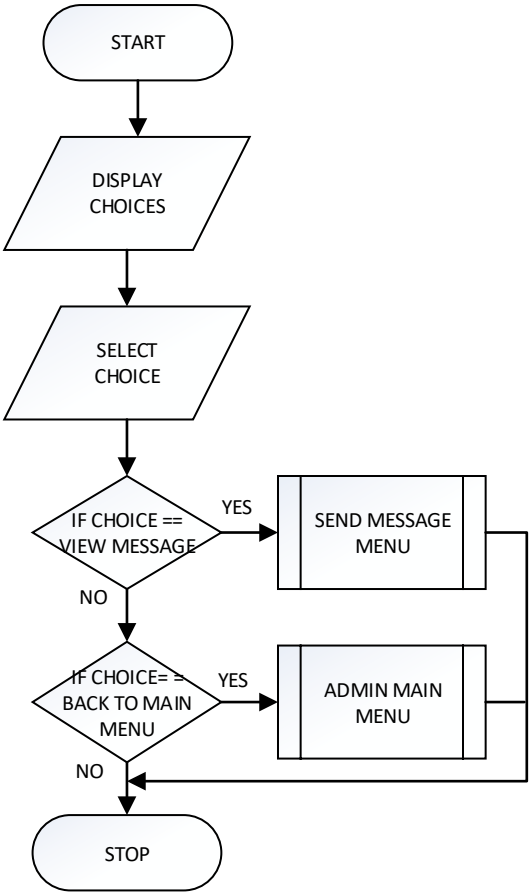

Figure 13: Admin - Message Menu

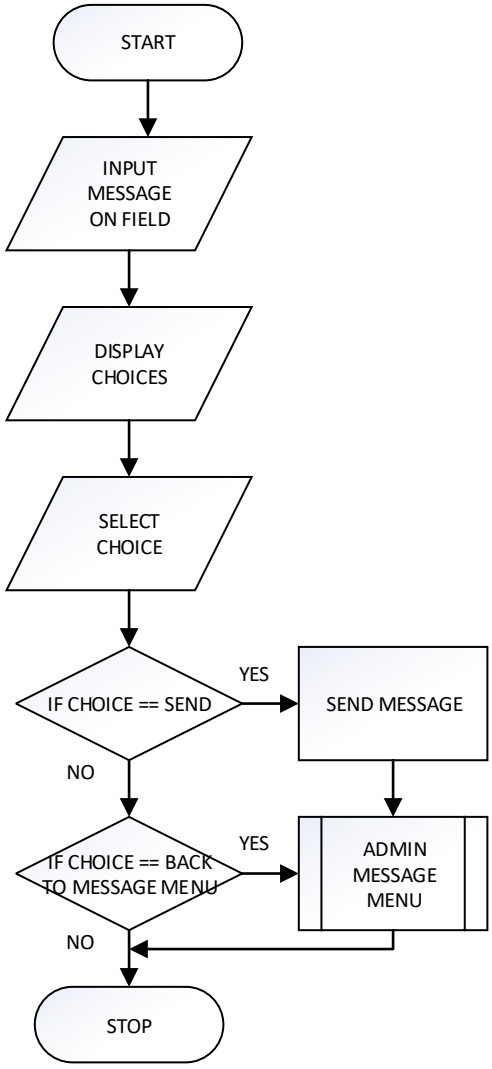

Figure 14: Admin - Send Message Menu

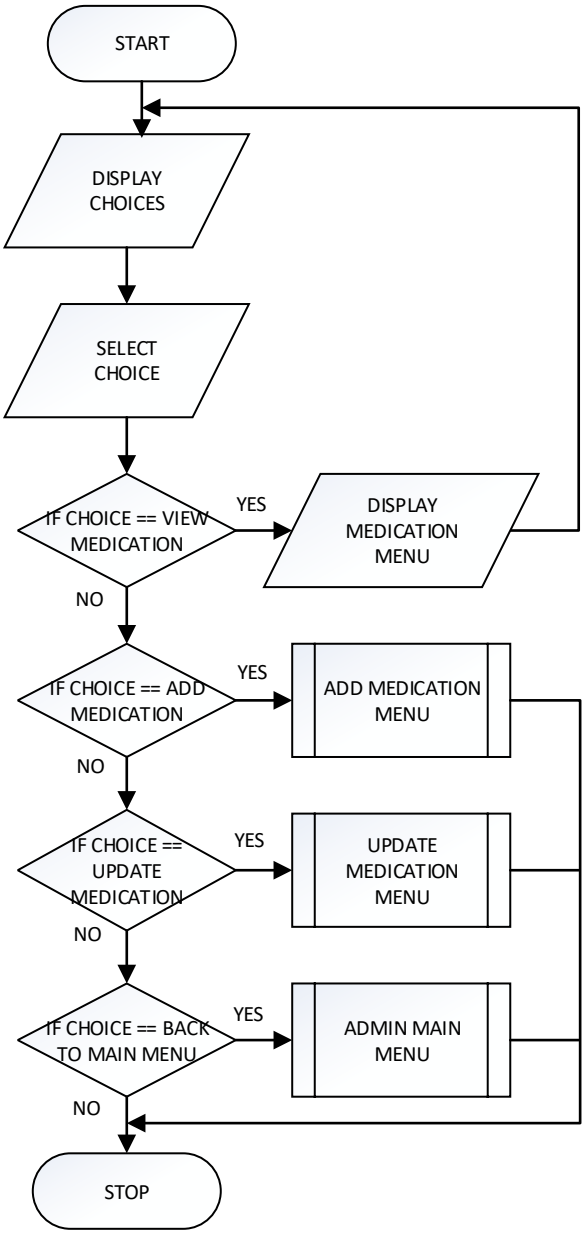

Figure 15: Admin - Medication Menu

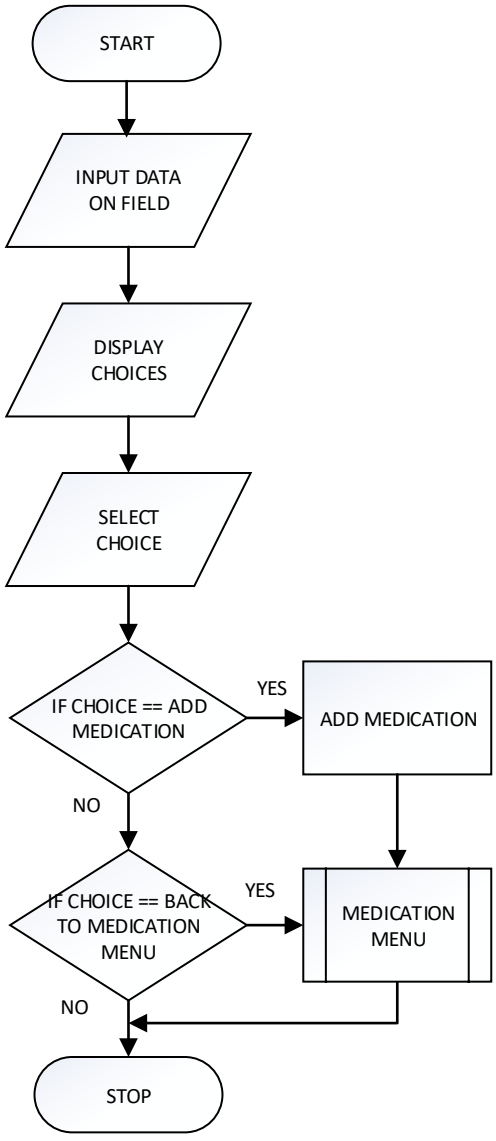

Figure 16: Admin - Add Medication Menu

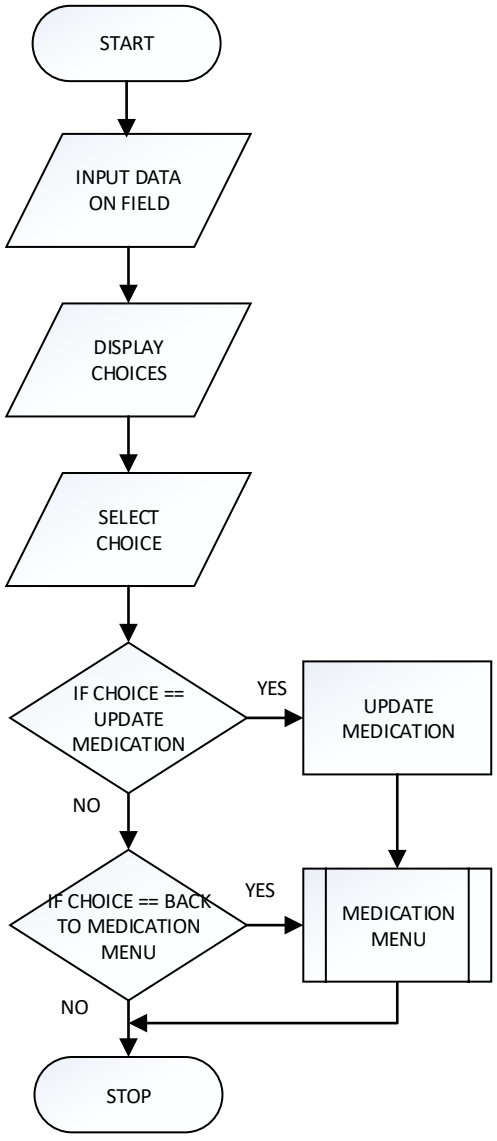

Figure 17: Admin - Update Medication Menu

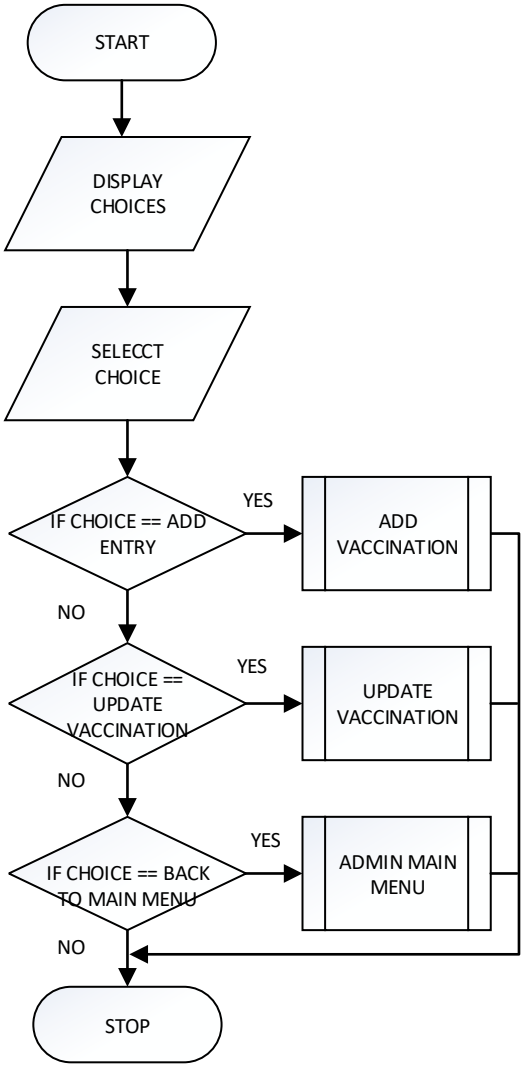

Figure 18: Admin - Vaccination Menu

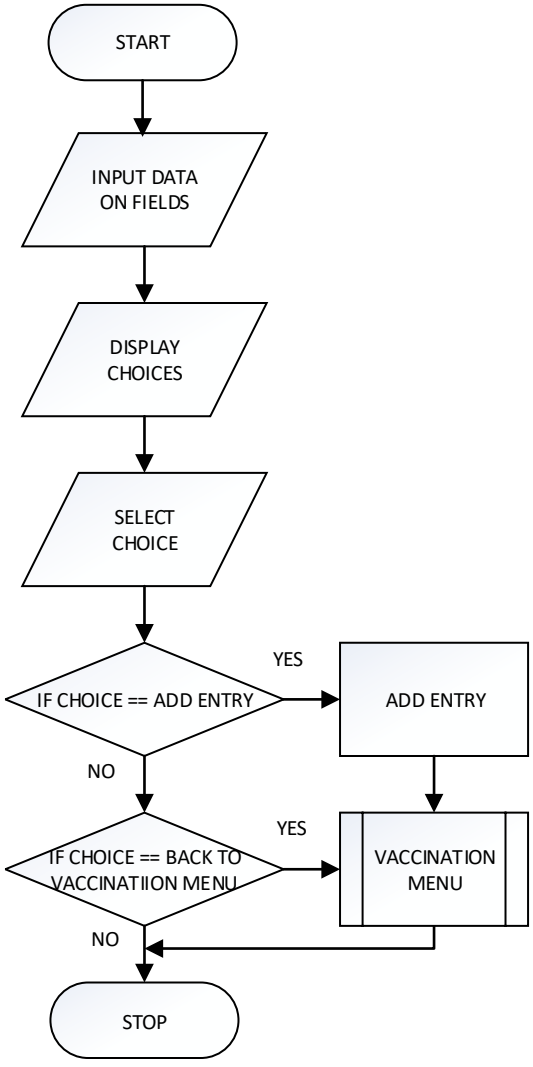

Figure 19: Admin - Add Vaccination Menu

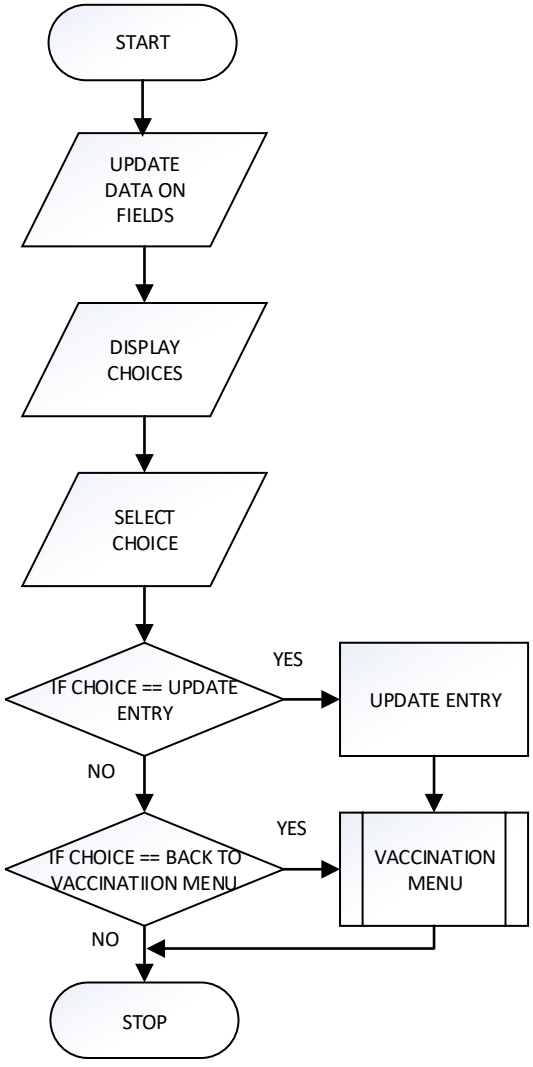

Figure 20: Admin - Update Vaccination Menu

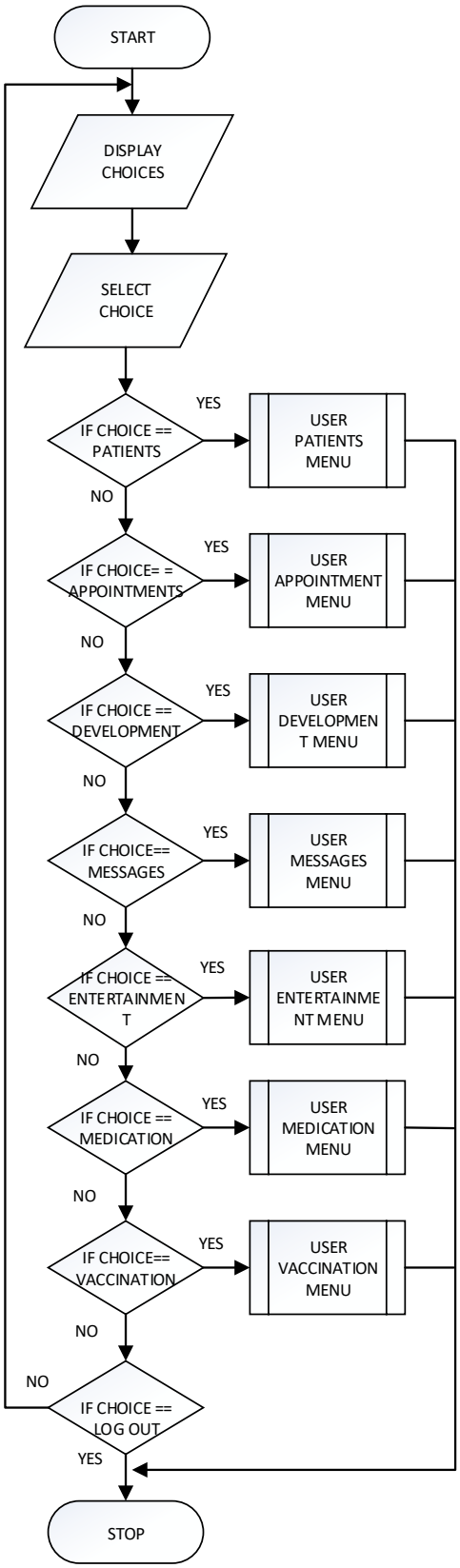

Figure 21: User Main Menu

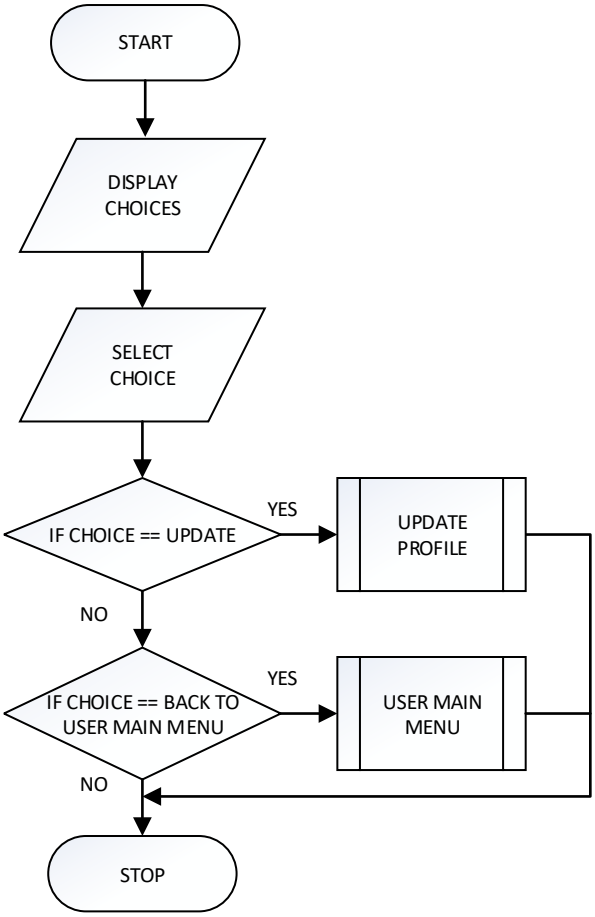

Figure 22: User - Patient Menu

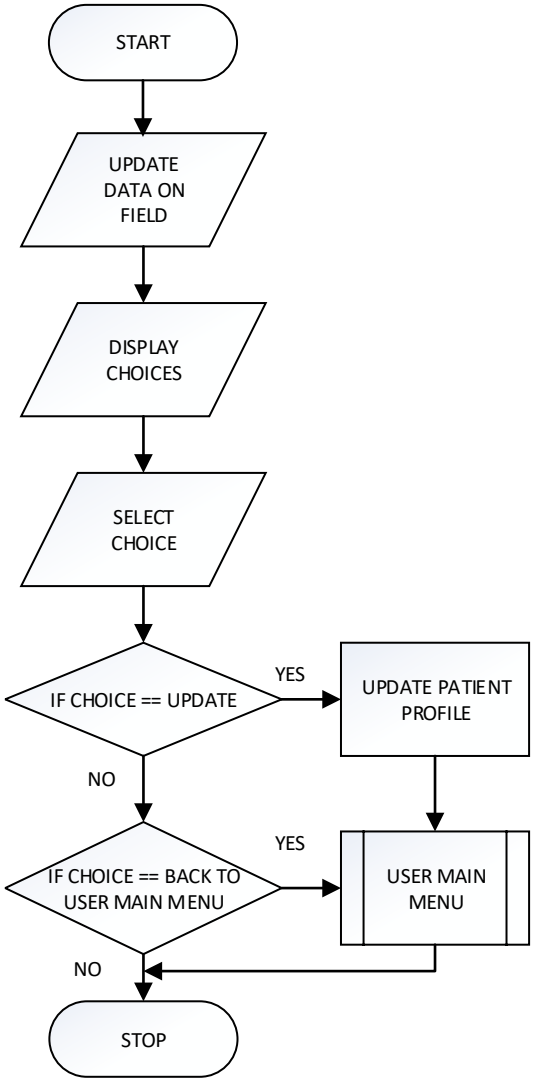

Figure 23: User – Update Patient Menu

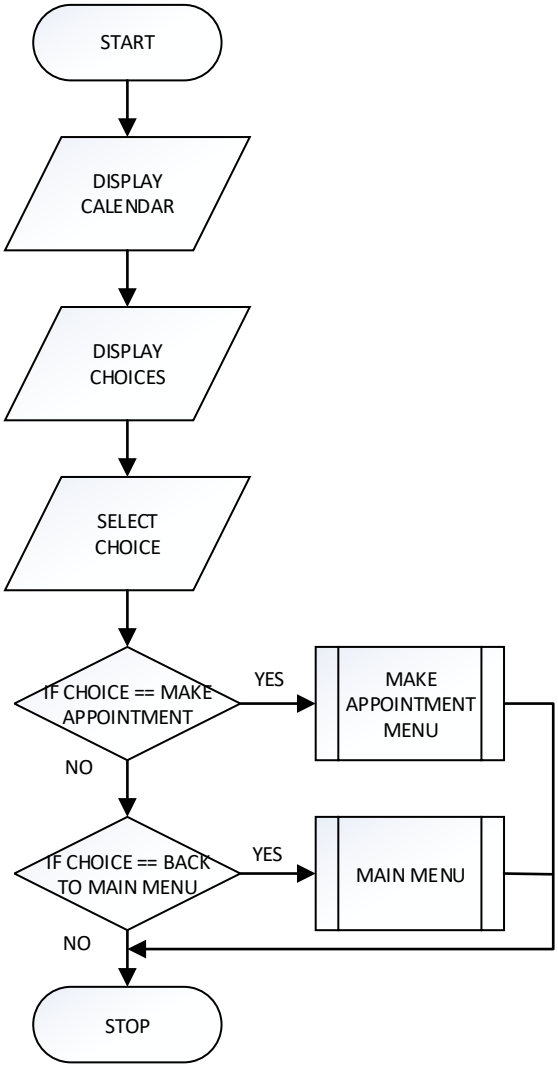

Figure 24: User – Appointment Menu

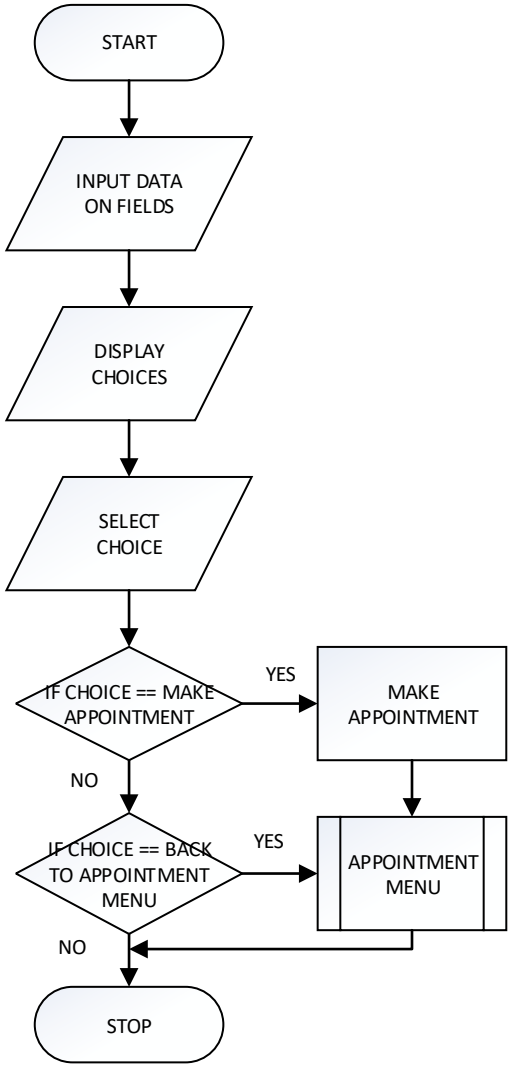

Figure 25: User – Make Appointment Menu

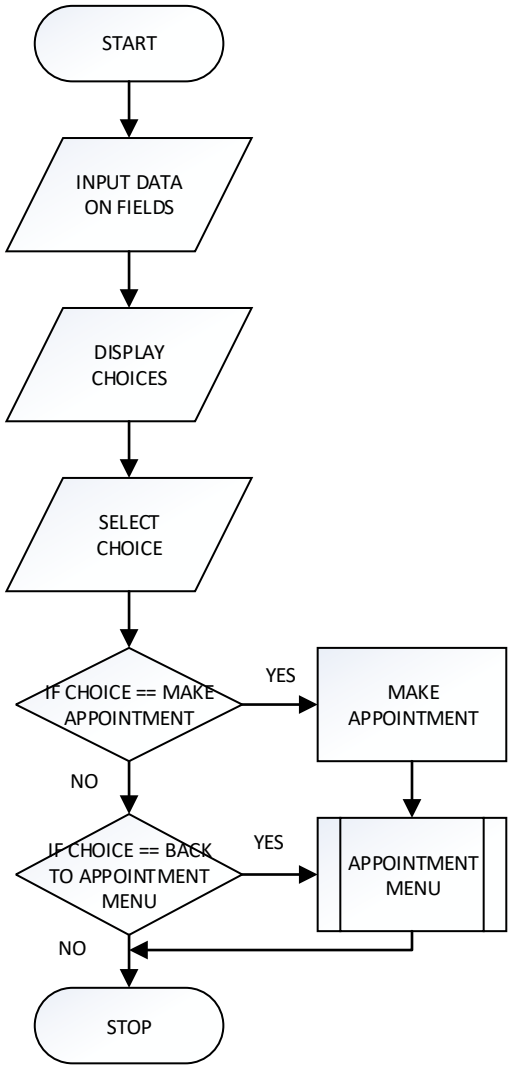

Figure 26: User – Development Menu

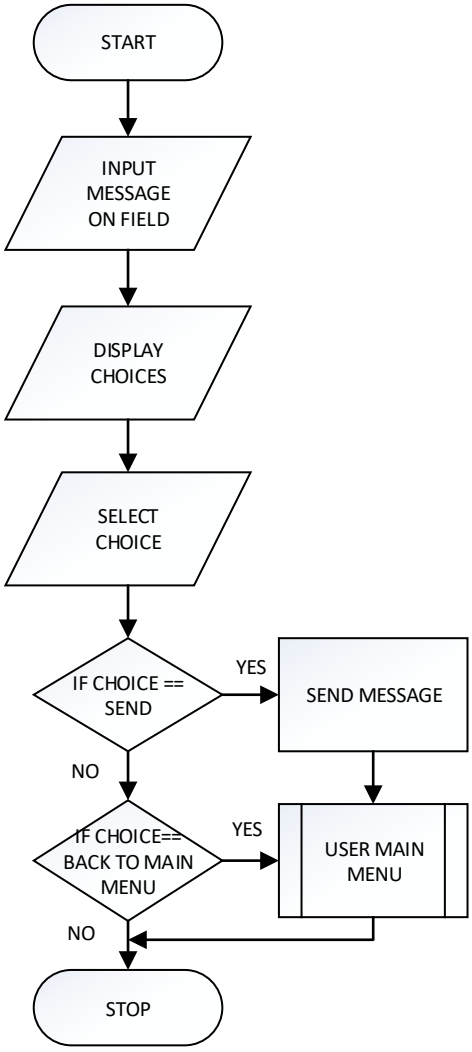

Figure 27: User – Message Menu

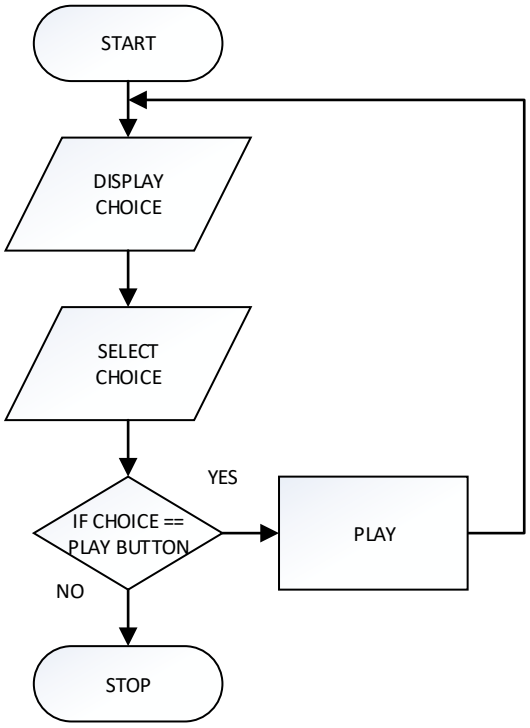

Figure 28: User - Entertainment Menu

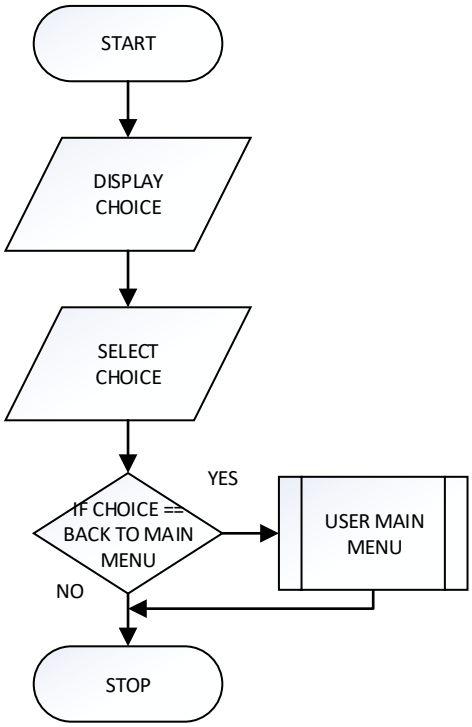

Figure 29: User – Medication Menu

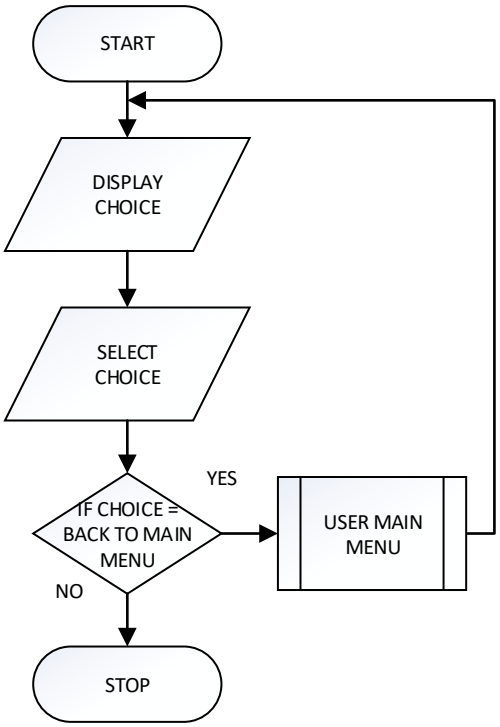

Figure 30: User - Vaccination Menu

SCREEN LAYOUT

Figure 31: Logo

This is the logo of our proposed mobile application.

Figure 32: Loading Screen

This is the loading screen of our proposed application.

Figure 33: Log In

In this interface, you can log in to this if you have an account already. Put your username and password.

Figure 34: About Us Menu

In this interface, it contains the main goal and the mission of the developers. Also the name of the developers.

Figure 35: Pediatrician - Main Menu

In this interface, there are six buttons displayed: Patients, Development, Appointments, Messages, Medication, Vaccination and Logout.

Figure 36: Pediatrician - Patient List Menu

In this interface, the pediatrician can create new account for the client. And also can view and edit their accounts.

Figure 37: Pediatrician – Create Account Menu

In this interface, the pediatrician will input the personal information, baby's information and the username and password of the patient.

Figure 38: Pediatrician – View Account Menu

In this interface, pediatrician can see its patient's information including the baby's information and his/her picture.

Figure 39: Pediatrician – Update Account Menu

In this interface, the pediatrician can update the account of the existing patient if there's any changes in their accounts.

Figure 40: Pediatrician – Appointment Menu

In this interface, the pediatrician can see the upcoming and past schedules of the patients. In this interface the pediatrician can approve and decline appointment from its patients.

Figure 41: Pediatrician – Appointment Request Menu

In this interface, pediatrician will set the patients name, appointment type, date and time of the appointment of its patient. The pediatrician will choose if the appointment is approved or declined.

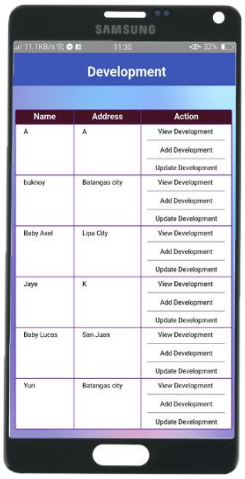

Figure 42: Pediatrician - Development Menu

In this interface, pediatrician can view, update and add development of the babies.

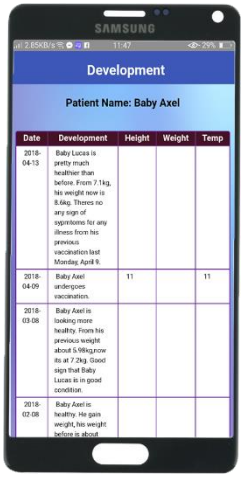

Figure 43: Pediatrician – View Development Menu

Is the interface, pediatrician can check the development of the baby which include development, height, weight and temperature of the baby.

Figure 44: Pediatrician – Add Development Menu

Is the interface, pediatrician can add the development, weight, height and temperature of the baby.

Figure 45: Pediatrician – Update Development Menu

Is the interface, pediatrician can update the development, weight, height and temperature of the baby.

Figure 46: Pediatrician – Message Menu

This interface pediatrician can see if someone of the client message him/her.

Figure 48: Pediatrician - Medication Menu

In this interface, pediatrician can view and add medication of the babies.

Figure 47: Pediatrician – View Message Menu

This will show message conversation.

Figure 49: Pediatrician – Add Medication Menu

In this interface, pediatrician will add the proper medication for the baby.

Figure 50: Pediatrician – Vaccination Menu

This will show the vaccination list of the patients. Pediatrician can also add entry, so the parents will know what vaccine was given to their baby. Pediatrician can also update vaccination.

Figure 51: Pediatrician – Add Vaccination Menu

In this interface, doctor can add the type of vaccine and when the vaccine was given.

Figure 52: Pediatrician – Update Vaccination Menu

In this interface, doctor can update the type of vaccine and when the vaccine was given.

Figure 53: Patient – Patient Menu

This interface is for parents to see the baby's profile.

Figure 54: Patient – Update Patient Menu

In this interface, patient can update its own personal information.

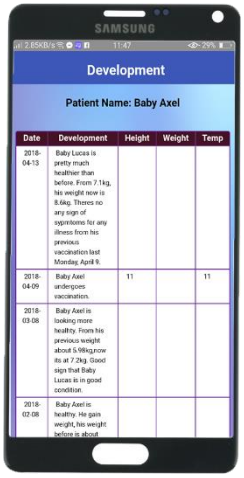

Figure 55: Patient – Development Menu

In this interface, the parents can see the development and observation of the pediatrician of their baby.

Figure 56: Patient – Appointment Menu

In this interface, parents can make an appointment with the doctor. Parents can show automatically if the appointment is approved by having highlight in the date they set.

Figure 57: Patient – Make Appointment Menu

In this interface, the parents make an appointment with the doctor. The will

input patient name, appointment type, date, time and description.

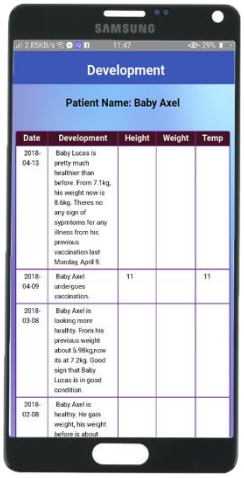

Figure 58: Patient – Development Menu

In this interface, parents can see the development of the baby.

Figure 59: Patient –Entertainment Menu

In this interface, babies can be entertained by the sound and picture from the Entertainment Menu.

Figure 60: Patient –Message Menu

In this interface, parents can easily message the pediatrician if they have some questions and clarifications.

Figure 61: Patient – Vaccination Menu

In this interface, parents can see what vaccine was given to their baby.

5.0 SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Summary

This research entitled Baby's Book. A mobile application that helped parents to monitor their baby's development, made easier to get appointment through pediatrician and provide entertainment for your baby. The mobile application can installed in android smartphones and tablets. This application allows to monitor the baby's development and to make sure that the baby get the right vaccinations, medication, and proper nutrients with the help of the pediatrician. The application contains several features like notification that will notify the user if they have appointment to the pediatrician. It also provides message feature that you can use to asked directly the pediatrician if you have some questions and clarifications. The application also has entertainment feature that contains lullaby songs, nursery rhymes and educational pictures that helped to make your child to gain knowledge from this feature.

Conclusion

1. Upon the development of mobile application, the researchers provided users or the parents to further understand the monitoring and observing their baby's growth and development.
2. With the help of the application, the users were able to utilize the use of modern technology to successfully automate and innovate the tracking of the baby's health record.
3. The users were provided enhancements in the procedure of both clinical process and operation through computerization.

Recommendations

Future researchers who have the same or related project may further include notifications feature such as reminder of the schedule of the appointment 2 hours before the exact time requested by the user. Future researchers may develop an offline version of the mobile application. The viewing and monitoring of the growth and development of the baby can be seen even without internet connection. Future researchers can also propose that the mobile application be made available for Apple or iOS users. Future researchers can also modify in such a way that, it can support multiple clinics for enhancement of the clinical process of the pediatrician and the parents. Other improvements are also recommended for further

development for functionality of the application.

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