



WE_UEE_64

Baby Care Mobile Application

Little Love

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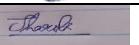
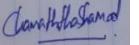
WE_UEE_64

User Experience Engineering SE3050

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Declaration

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Abstract

In this article, the Baby Care Mobile App is presented as a novel remedy for a world where modern women must meet unfathomable expectations and midwives are essential to the health of mothers as well as their kids. The issue statement lists the many difficulties of modern parenting together with the vital duties performed by midwives, indicating the need for an adaptable and user-friendly platform. In order to help parents and other providers monitor and manage their child's care, growth, and health, this report aims to provide an overall summary of the app's many features and functionalities.

The numerous features of the app—such as scheduling visits, monitoring vaccination records, obtaining clinic information, and conveniently buying baby necessities—are the primary topics of discussion. The method necessitates a thorough comprehension of the fast-paced pace of contemporary life, where women skilfully juggle a multitude of responsibilities, as well as an appreciation of the crucial role midwives play. The whole answer is in the Baby Care Mobile App, which attempts to increase the efficacy and efficiency of midwives' work while simplifying moms' daily routines by offering them with vital information. To sum up, the app is an essential time-saver for working mothers and a useful and user-friendly tool for midwives.

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1 Introduction

In a world where modern mothers face unprecedented demands, we've undertaken a mission to create a transformative solution that not only eases the challenges of contemporary parenting but also streamlines the vital work of midwives. Parenthood is a journey both enriching and demanding, and we're excited to introduce the Baby Care Mobile App—a comprehensive, user-friendly platform designed to empower parents and caregivers in effectively managing and tracking their baby's care, health, and development. Our app aims to unravel the complexities of childcare by offering an extensive array of features and functionalities that prioritize convenience, organization, and invaluable insights for parents on their unique parenting journey. It's our response to the diverse needs of today's mothers and midwives, enhancing their lives in profound ways. The Baby Care Mobile App is the result of a deep understanding of the rapid pace of modern life, where mothers gracefully balance a multitude of responsibilities. Our objective is clear to provide mothers with a versatile and intuitive tool that simplifies their daily routines and equips them with indispensable resources. In parallel, we're committed to elevating the efficiency and effectiveness of midwives' work, recognizing its critical importance. For busy mothers, our app serves as an indispensable lifeline. It offers an extensive range of features, effortlessly facilitating appointment scheduling, providing easy access to clinic details, and optimizing their baby's healthcare management. Moreover, our integrated online baby store brings convenience to their fingertips, simplifying the process of discovering and purchasing essential baby items. Acknowledging the pivotal role played by midwives in maternal and child healthcare, our app is thoughtfully designed to support them by streamlining tasks like clinic management and vaccination record keeping. We comprehend the exacting nature of their profession and strive to provide them with a dependable and user-friendly tool to enhance their effectiveness.

The Baby Care Mobile App encompasses a diverse range of features, each meticulously tailored to meet the distinctive needs of both mothers and midwives. Whether it's appointment scheduling, vaccination record management, access to clinic information, or seamless shopping for baby essentials, our app stands as the definitive all-in-one solution for the intricate journey of baby care.

2 Background

2.1 Problem identified:

Modern mothers and midwives confront a variety of obstacles in the quickly evolving field of maternity and child healthcare. These difficulties consist of: Because childcare is so complicated, modern women sometimes feel overwhelmed as they attempt to give their newborns the best care possible while juggling a number of obligations. As vital members of the healthcare team for mothers and children, midwives handle a variety of difficult tasks, such as running clinics and keeping up-to-date immunisation data.

2.2 Competitive product(s) and Identified Gaps:

While there are some solutions available in the present parenting and healthcare app environment, there are still large gaps: Current parenting applications don't provide a thorough and easy-to-use platform that meets the needs of parents and midwives in an efficient manner. One of the main shortcomings in the existing system is that parents do not have a single platform to handle all elements of baby care, including arranging appointments and keeping track of health records. The current solutions do not provide midwives with sufficient support for clinic administration and record-keeping. Parents who work full-time may find it inconvenient as there is insufficient integration with online baby merchants.

2.3 Solution:

The developers of the Baby Care Mobile App created it in response to these noted flaws and challenges. The following goals guide the creation of this software, which aims to be a comprehensive and inventive solution: Give parents and other carers the tools they need to effectively manage and keep an eye on their newborns' growth, wellbeing, and care. Simplify midwives' tasks to increase their productivity and efficiency in running clinics and keeping track of vaccination records.

2.4 System Overview Diagram

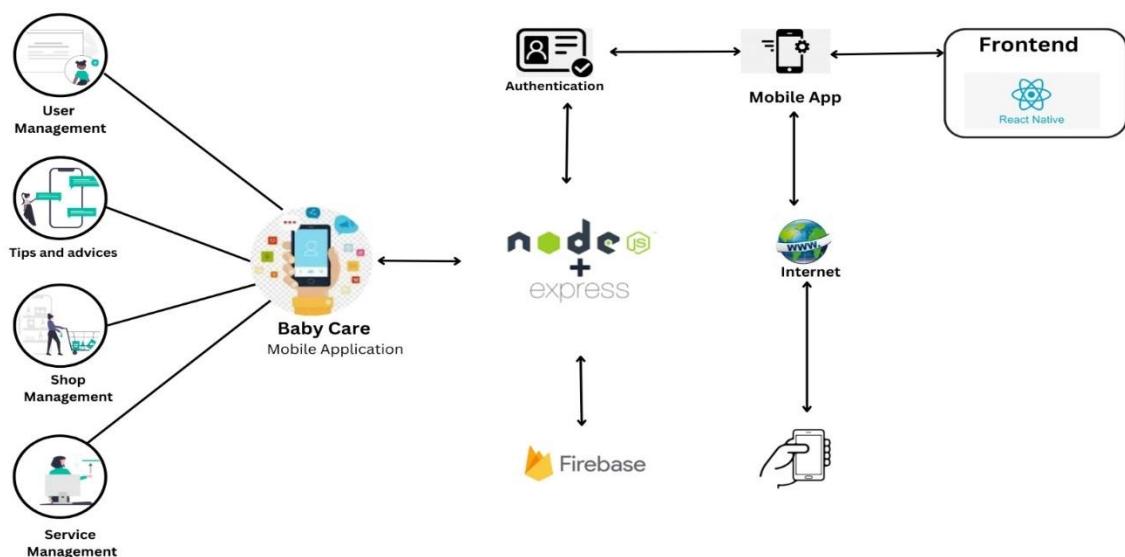


Figure 1-System Overview Diagram

System Overview

Using cutting-edge technologies, the Baby Care Mobile App is an extensive and painstakingly integrated platform. It was created with Firebase, Node.js with Express, and React Native to meet the various needs of contemporary moms and midwives. It securely maintains user accounts for moms, newborns, and midwives using Firebase Authentication, guaranteeing data privacy and authentication. The chatbox feature of the app allows moms to ask medical specialists for advice and support in real time. The integrated internet store also makes buying necessities for babies easier. The app improves midwives' productivity by streamlining clinic and appointment scheduling. Additionally, it makes keeping track of and registering immunization information simple. This stack of technologies protects user data with strong security features like encryption and Firebase authentication, while also guaranteeing a seamless, cross-platform user experience. Users are informed through push alerts, and the app offers insightful data and analytics on clinic performance and infant health. Essentially, this all-encompassing approach strengthens midwives' efficacy in providing healthcare for mothers and children while enabling contemporary moms to successfully manage the challenges of parenthood.

2.4 Design Goals:

The Baby Care Mobile App's goal is to fill in the gaps in the current market by offering a comprehensive solution that will benefit both parents and midwives. It seeks to simplify and expedite the difficult tasks related to midwifery services, mother healthcare, and infant care. By providing a user-friendly, all-in-one platform that empowers parents and supports the vital work of midwives, this app aims to improve the experience of modern parenting. The main objective of the Baby Care Mobile App is to improve the health of mothers and babies while also easing the burdens that contemporary mothers and midwives must bear.

2.5 Contribution Table

Create a table that lists everyone's contribution on each section. Multiple group members can contribute to any single section.

Table 1-Contribution Table

Registration No	Name	contribution
IT21288012	De Vass Gunawardane A.P.D.N	<ol style="list-style-type: none">1. Mother with a baby<ul style="list-style-type: none">• Persona 1• Empathy map 1• User Story 1• User Flow 12. User Research3. Sketching and Wireframes4. Figma Prototype designing5. User Feedback Collection6. Implementation – Medical Advice and Medical Tips Management
IT21210174	Lakshika V.G.T	<ol style="list-style-type: none">1. The midwife takes care of the pregnant mother until the baby is born<ul style="list-style-type: none">• Persona 1• Empathy map 1• User Story 1

		<ul style="list-style-type: none"> • User Flow 1 2. User Research 3. Sketching and Wireframes 4. Figma Prototype designing 5. User Feedback Collection 6. Implementation – Baby Shop management
IT21252754	Madhumalka K.C.S	<ul style="list-style-type: none"> 1. Pregnant Mother <ul style="list-style-type: none"> • Persona 1 • Empathy map 1 • User Story 1 • User Flow 1 2. User Research 3. Sketching and Wireframes 4. Figma Prototype designing 5. User Feedback Collection 6. Implementation – Vaccine and Clinic Management
IT21321368	Samarasinghe.V.R	<ul style="list-style-type: none"> 1. Midwife takes care of the mother after childbirth <ul style="list-style-type: none"> • Persona 1 • Empathy map 1 • User Story 1 • User Flow 1 2. User Research 3. Sketching and Wireframes 4. Figma Prototype designing 5. User Feedback Collection 6. Implementation – User Management

3 Design Process

3.1 User Involvement

We will use indirect approaches to fully comprehend the demands and difficulties faced by midwives and mothers in organizing clinic appointments and medical records in the absence of direct surveys with actual users. We will examine pertinent medical regulations and recommendations for providing maternity care. These instructions provide a wealth of knowledge on the required steps, data recording, and general healthcare management.

We will actively seek advice from skilled medical experts in the area, especially midwives. Their knowledge and practical experience will provide essential insights into the everyday activities and difficulties they face in their line of work. We will develop thorough user personas as part of our user-centered design process to reflect the many user groups who will interact with our mobile application, including midwives and moms. Throughout the design and development phases, these personas will act as guiding profiles, assisting us in comprehending and addressing the particular demands and preferences of our target audience. We will categories our user base into separate groups based on the data we have acquired. For instance, we could point out midwives who work in hospitals, those who do home visits, or mothers with various needs and levels of experience. The main aims and objectives of each user segment will be identified. For midwives, this can entail effective scheduling, simple access to patient files, and streamlined mother-to-mother contact. Mothers may need to monitor their child's health, use resources, or maintain contact with their midwives. We will set up visits to hospitals where midwives practice whenever possible. We will watch their everyday routines and procedures during these trips as they manage clinic appointments and patient records. This applies to how they coordinate with mothers, keep track of patient data, and plan appointments. We will talk with midwives informally in addition to making observations to learn more about their experiences. To entice people to discuss their struggles, discomforts, and suggestions for change, we will pose open-ended questions.

We are committed to developing a practical and user-friendly solution that caters to the requirements and preferences of our user personas as we move forward with the design of our mobile application. We'll start by creating low-fidelity wireframes for the application's fundamental organization and layout. Based on the information gleaned from our user personas and the study carried out, these wireframes will be developed. We'll make sure the wireframes reflect the goals and tastes of midwives and mothers that have been identified. Wireframe development will take place in stages throughout our iterative design process. The feedback we received from the contextual inquiry and other research initiatives will be taken into consideration. This comments will be used to improve the wireframes so they better meet our users' demands in the actual world. We will create interactive prototypes after the low-fidelity wireframes are complete. These prototypes will provide users a more accurate sense of the user interface for the application. They will be created to mimic user flows and interactions.

4 Milestone 1: Identify user groups

4.1 Persona(s) – 04 personas from a group

4.1.1 Pregnant mother - IT21252754



Kasuni Silva

Age: 29

Location: Colombo, Sri Lanka

Marital Status: Married

Occupation: Primary School Teacher

USER ROLE

(Pregnant Mother)

DESCRIPTION

Kasuni is a first-time mother, currently in her second trimester. She is happy about her pregnancy, and she and her husband are looking for trustworthy resources of knowledge and support. Priya is a bit tech savvy and owns a smartphone. For communication and enjoyment, she makes use of social media and other simple apps.

GOALS

Primary Goal:

- keeping track of her prenatal clinic appointments, vaccination schedules, and appointment.

Secondary Goals:

- Receive timely reminders for upcoming vaccination dates and appointments.
- seeking a convenient source of information about pregnancy, including vaccination schedules, nutrition, exercise, and general health tips.

MOTIVATIONS

- wants trustworthy and convenient pregnancy information.
- Values the convenience of managing clinic appointments and vaccination schedules in one place

CHALLENGES

- Managing her prenatal care schedule and ensuring she doesn't miss any appointments or vaccinations.
- Balancing her job and pregnancy leaves her with limited time to manage various aspects of her health and appointments.

TECHNICAL ABILITY:

- Knowledge of smartphone usage
- Basic literacy in health and medical terms.
- Limited experience with healthcare apps

NEEDS

- Reliable Information
- Appointment Management
- User-Friendly Interface
- Appointment Reminders

SOURCES OF INFO

- Books
- Online Resources
- Colleagues and Friends

Figure 2-Pregnant mother -persona

4.1.2 Mother with a baby - IT21288012



Alice

Age: 33

Location: Colombo, Sri Lanka

Occupation: Director Bank Director

DESCRIPTION

Alice, aged 33, is a successful bank director. Her career has been defined by her strategic acumen and quick ascent in the industry. Recently, she embraced a new role as a mother to a two-week-old baby, demonstrating her ability to manage both professional and personal responsibilities. With a robust support system, Alice continues to thrive in her career while embracing the joys of motherhood.

GOALS

- Balancing her demanding career with her newfound role as a mother is a priority for Alice.
- Alice's goal is to provide a nurturing and loving environment for her baby's growth and development.
- Alice is also passionate about giving back to her community and making a positive impact on society.

USER ROLES

(Mother with a baby)

CHALLENGES

- Time management
- Motherhood learning curve.
- Work-Life Balance
- Adapting to changes

PERSONAL

CHARACTERISTICS

- Face of challenges
- Adaptability
- Leadership

NEEDS

- Medical care
- Nutritional guidance
- Childcare support
- Time management tools

SOURCES OF INFO

- From Family
- From Doctor
- Online resources

Figure 3 -Mother with a baby persona

4.1.3 The midwife takes care of the pregnant mother until the baby is born. - IT21210174



*"Nurturing beginnings
empowering journey; a
midwife's caring touch
shapes lives."*

Shriyani De Silva

Age: 35

Location: Colombo , Sri Lanka

Occupation: Midwife

BACKGROUND

Shriyani, a compassionate midwife with extensive experience, dedicates herself to assisting expectant mothers on their unique journeys. Proficient in medical and emotional support, she empowers pregnant women to make informed choices. Her warm demeanor and deep understanding create a safe space for sharing concerns, ensuring individual needs are met, fostering empowerment on the path to motherhood.

SKILLS

- Understanding patience.
- Thrives in diverse social interaction.
- Good observation
- Problem Solving
- Maturity
- An ability to act on own initiative.

GOALS

- Monitoring and Assessing the mother's health.
- Ensuring healthy pregnancy.
- Promoting emotional well-being.
- Value-adding treatments for pregnant mothers.
- Promote a positive and supportive workplace culture that values teamwork and collaboration.
- Examining the data and generating reports to achieve the monthly target.

CHALLENGES

- Some women choose not to communicate their pregnancy to the midwife.
- Lack of tech knowledge makes using modern machines hard.
- Maternal and infant mortality risk rises when pregnant mothers neglect instructions.

USER ROLES

(Midwife - Takes care of the pregnant mother until the baby is born)

NEEDS

- Modern test equipment kits
- An active staff.
- Good technical knowledge.

SOURCES OF INFO

- Books
- Social Media
- Professional colleagues

Figure 4-The midwife takes care of the pregnant mother until the baby is born - persona

4.1.4 Midwife takes care of the mother after childbirth. - IT21321368



Nilanthi Balasooriya

Age: 36

Location: 4A Prince Street,Colombo,Sri Lanka

Occupation: Midwife

BACKGROUND

Highly trained, kind and sensitive certified Midwife who loves bringing new life into the world and assisting parents in their new lives. Always having a positive attitude, able to work under extreme pressure and keep a cool head in unexpected situations with unpredictable patients. Supporting women physically, but also emotionally throughout pregnancy.

SKILLS

- Kind and Understanding
- Strong Work Ethic
- Effectively Interacts with patients.
- Calm Under Pressure
- Exceptional Interpersonal Communication

GOALS

- Maintain and promote the health and well-being of mother and baby.
- Educate new parents on newborn behaviours, cues, and developmental milestones.
- Monitoring the mother and baby's progress for several weeks after birth.
- Explain the recommended vaccination schedule for newborns.
- Monitor the baby's health before and after vaccination.

CHALLENGES

- Limited Resources
- Gradual weight loss in newborns.
- Non-participation of mothers in maternity clinics

USER ROLES

(Midwife - Takes care of the mother after childbirth)

NEEDS

- Modern test equipment kits.
- An active staff.
- Technical knowledge

SOURCES OF INFO

- News
- Social Media
- Professional colleagues

Figure 5-Midwife takes care of the mother after childbirth - persona

4.2 Empathy map(s) – 04 Empathy maps from a group

4.2.1 Pregnant mother – IT21252754

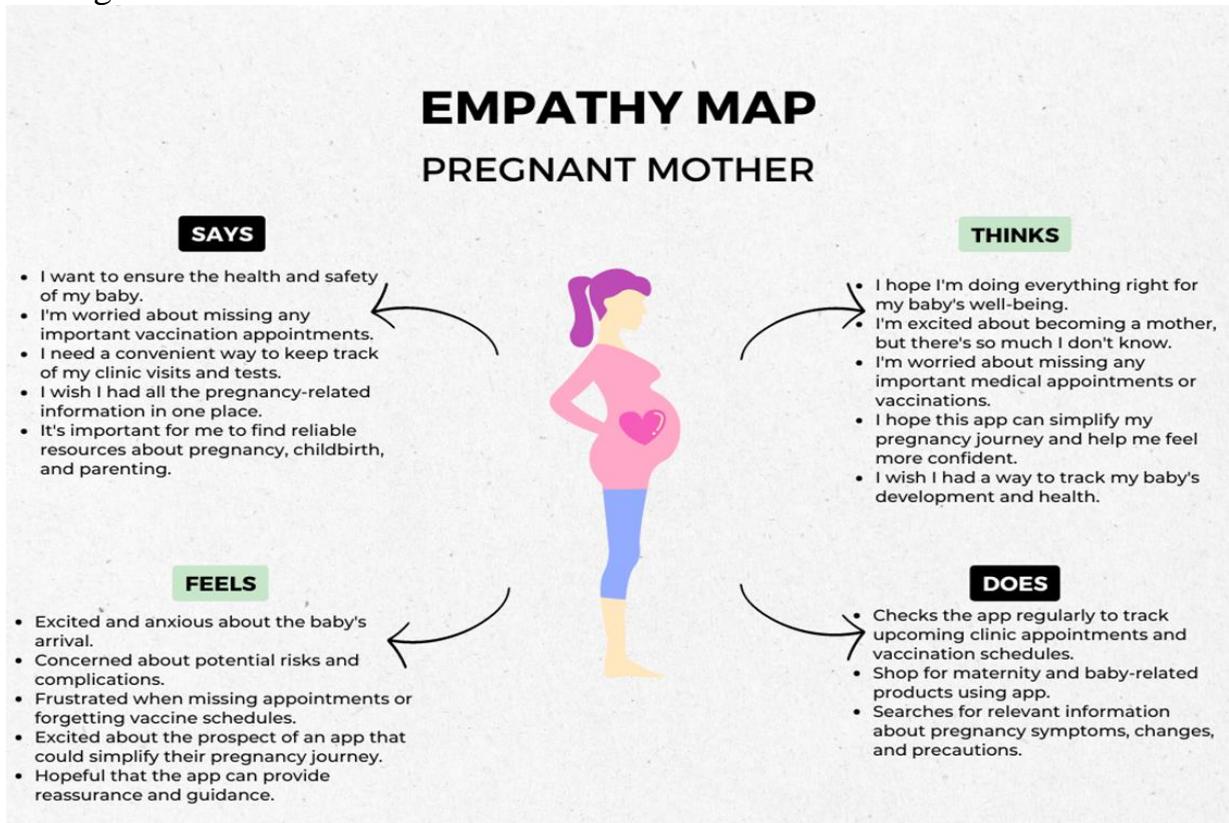


Figure 6-Pregnant mother -empathy map

4.2.2 Mother with a baby – IT21288012

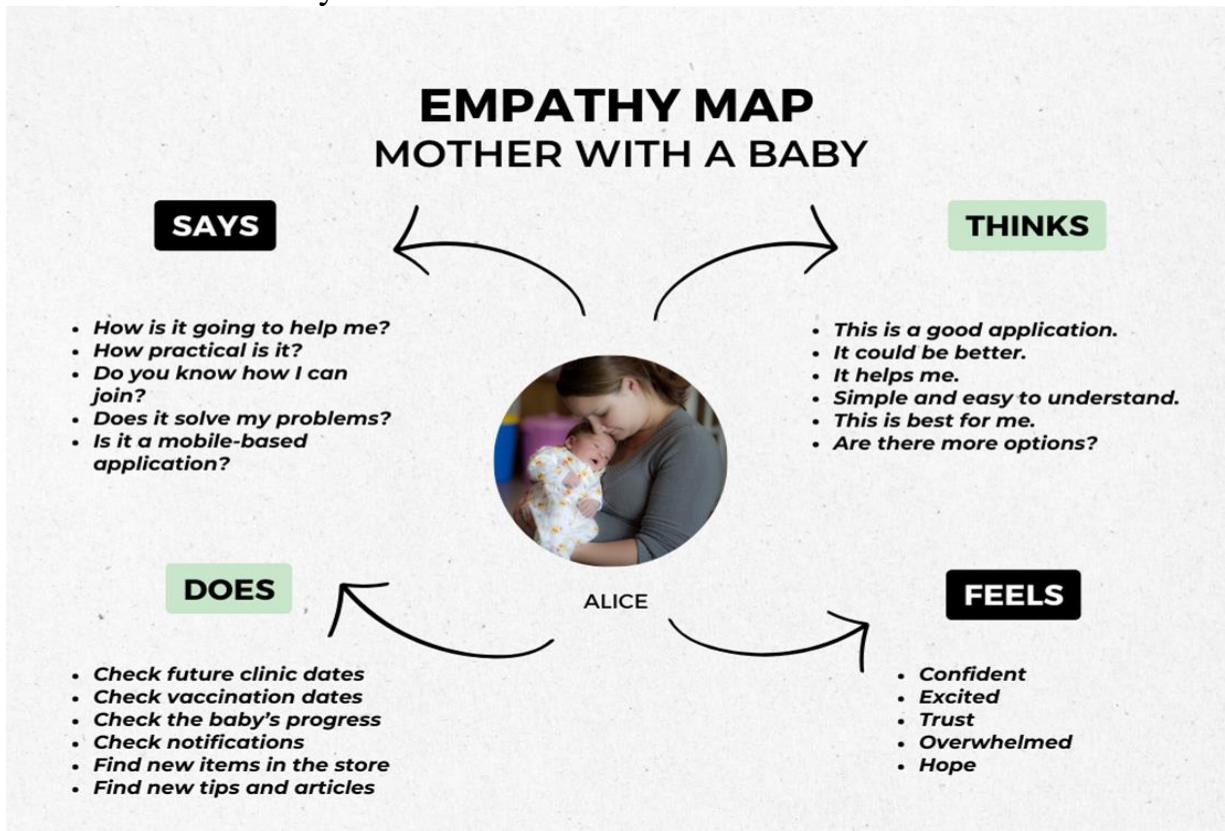


Figure 7 -Mother with a baby -empathy map

4.2.3 Midwife caring for the pregnant mother until the baby is born. -
IT21210174

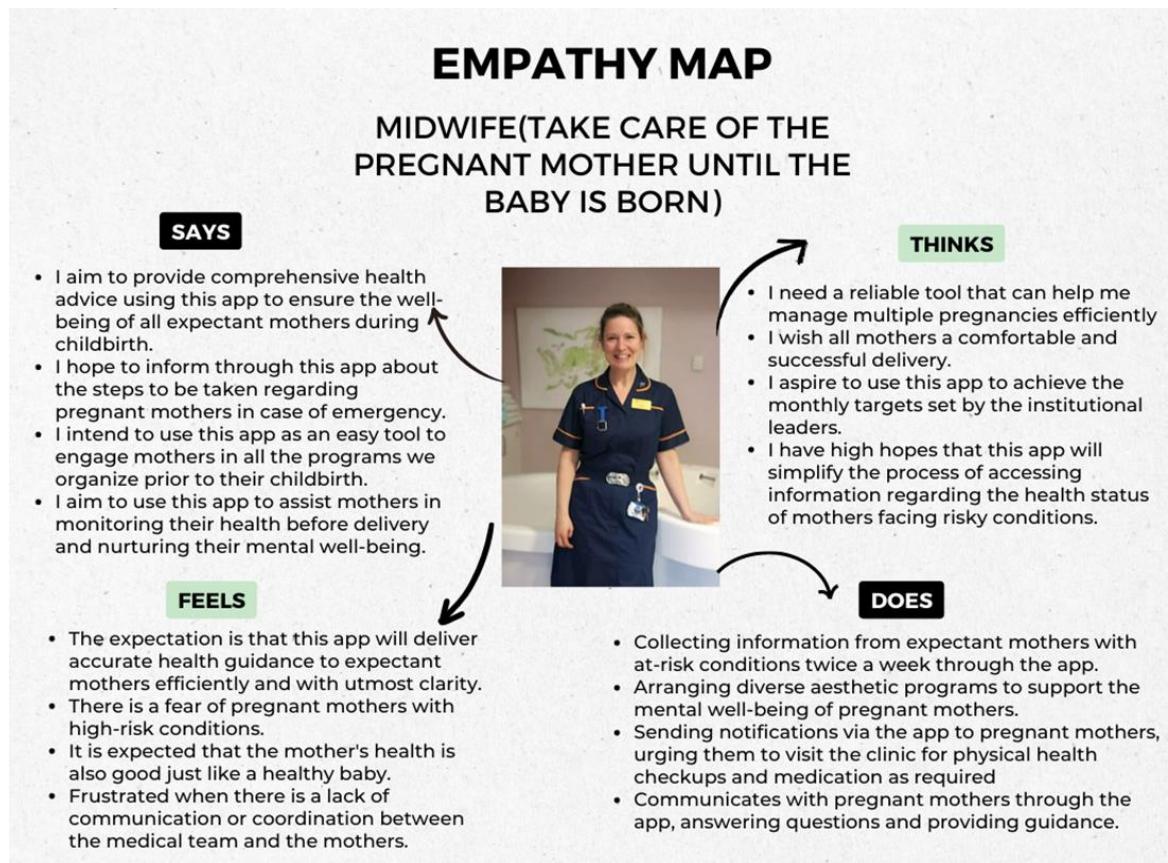


Figure 8-Midwife caring for the pregnant mother until the baby is born. - empathy map

4.2.4 Midwife taking care of the mother after childbirth. - IT21321368

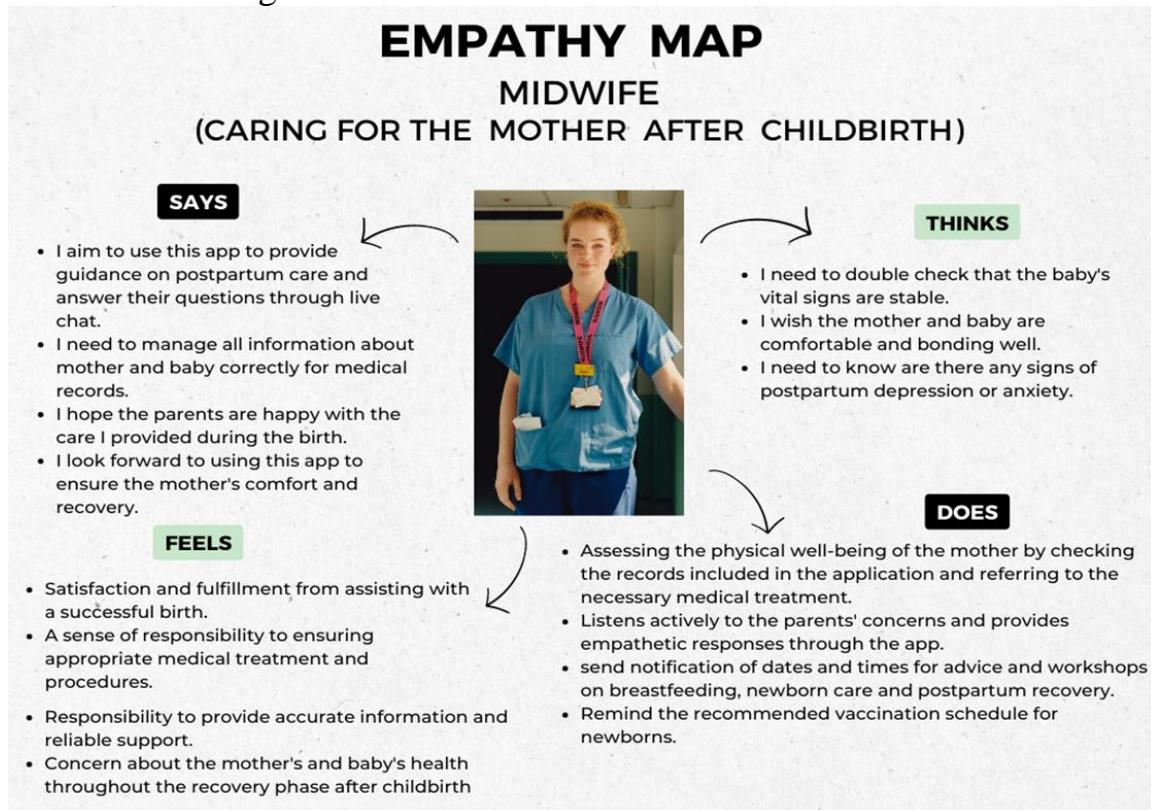


Figure 9-Midwife taking care of the mother after childbirth - empathy map

4.3 User stories – 04 User stories from a group

4.3.1 Pregnant mother - IT21252754

- As a pregnant mother, I want to manage the vaccination details, clinic details and upcoming clinic and vaccination days till the baby is born so that I can manage all the Clinic vaccine details and maintain good health without any added stress.

4.3.2 Mother with a baby. - IT21288012

- As a mother who just delivered the baby, I want to manage my baby's vaccination details, clinic details also I would like to receive health tips and advices so that I can manage my schedule and be prepared for emergencies.

4.3.3 Midwife caring for the pregnant mother until the baby is born. - IT21210174

- As a midwife, I want to ensure a safe and comfortable pregnancy journey for the expectant mother. I offer my support and expertise from the early stages of pregnancy until the baby is born so that both the mother and baby experience a healthy and positive birth experience.

4.3.4 Midwife taking care of the mother after childbirth. - IT21321368

- As a midwife, I want to calculate BMI value based on the newborn baby's weight and length; I can then ensure the immediate health and well-being of the newborn and provide appropriate care as needed.

4.4 User flow(s) - 04 User flows from a group

4.4.1 User flow about a pregnant mother - IT21252754

User Flow - Pregnant mother

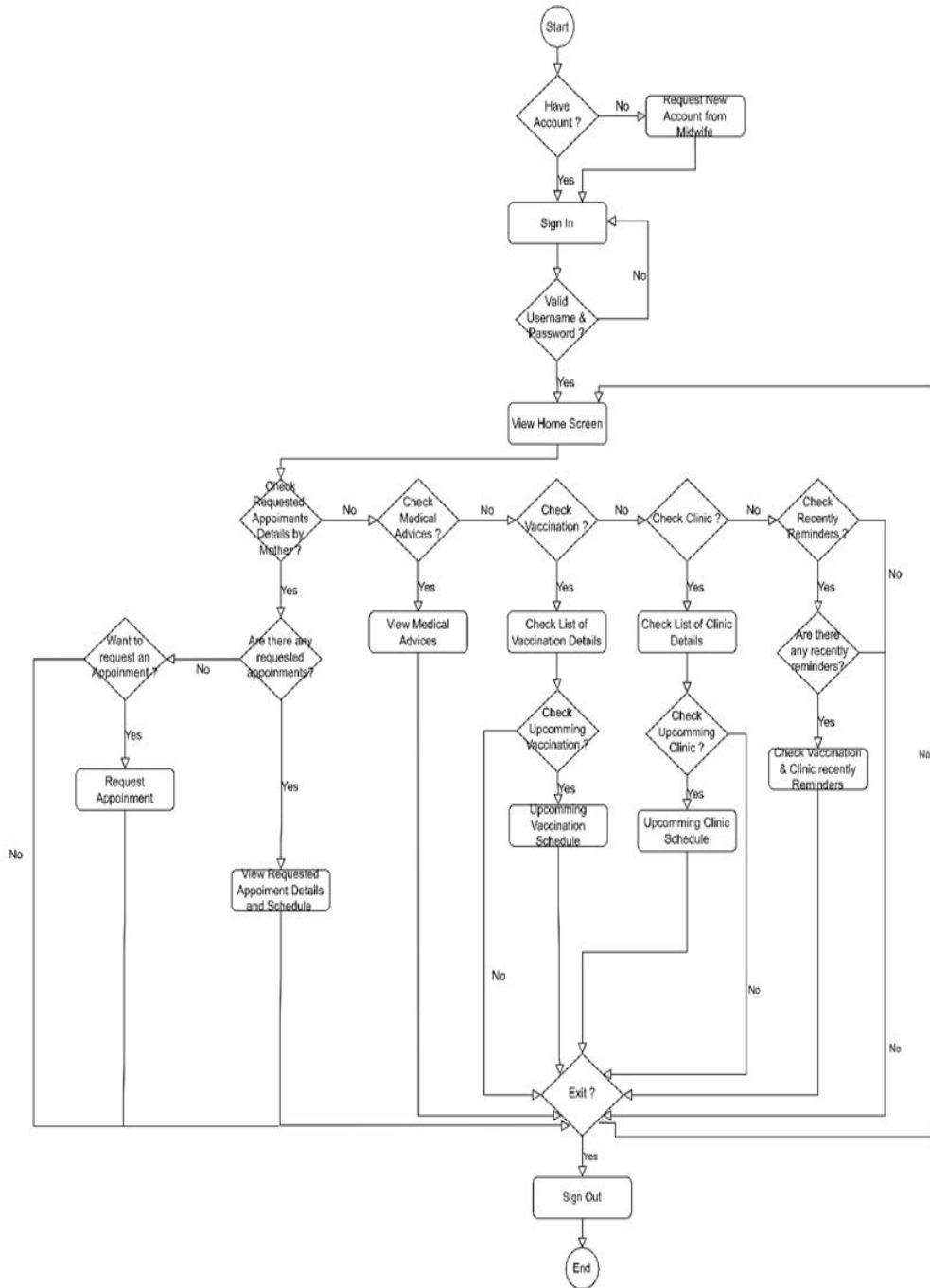


Figure 10-User flow about a pregnant mother

4.4.2 User flow about a mother having a baby. - IT21288012

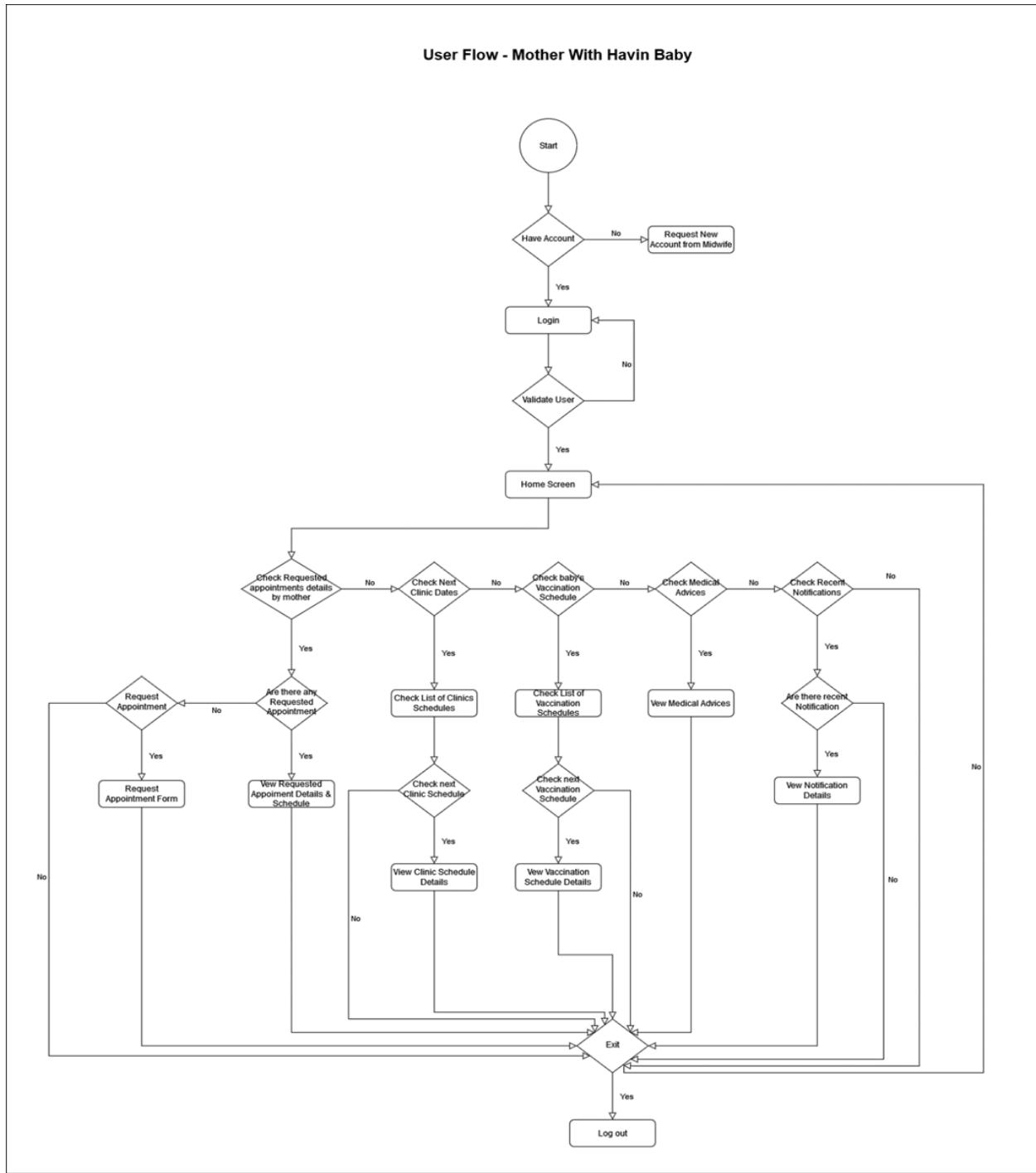


Figure 11-User flow about a mother having a baby

4.4.3 User flow about midwives caring for the pregnant mother until the baby is born. - IT21210174

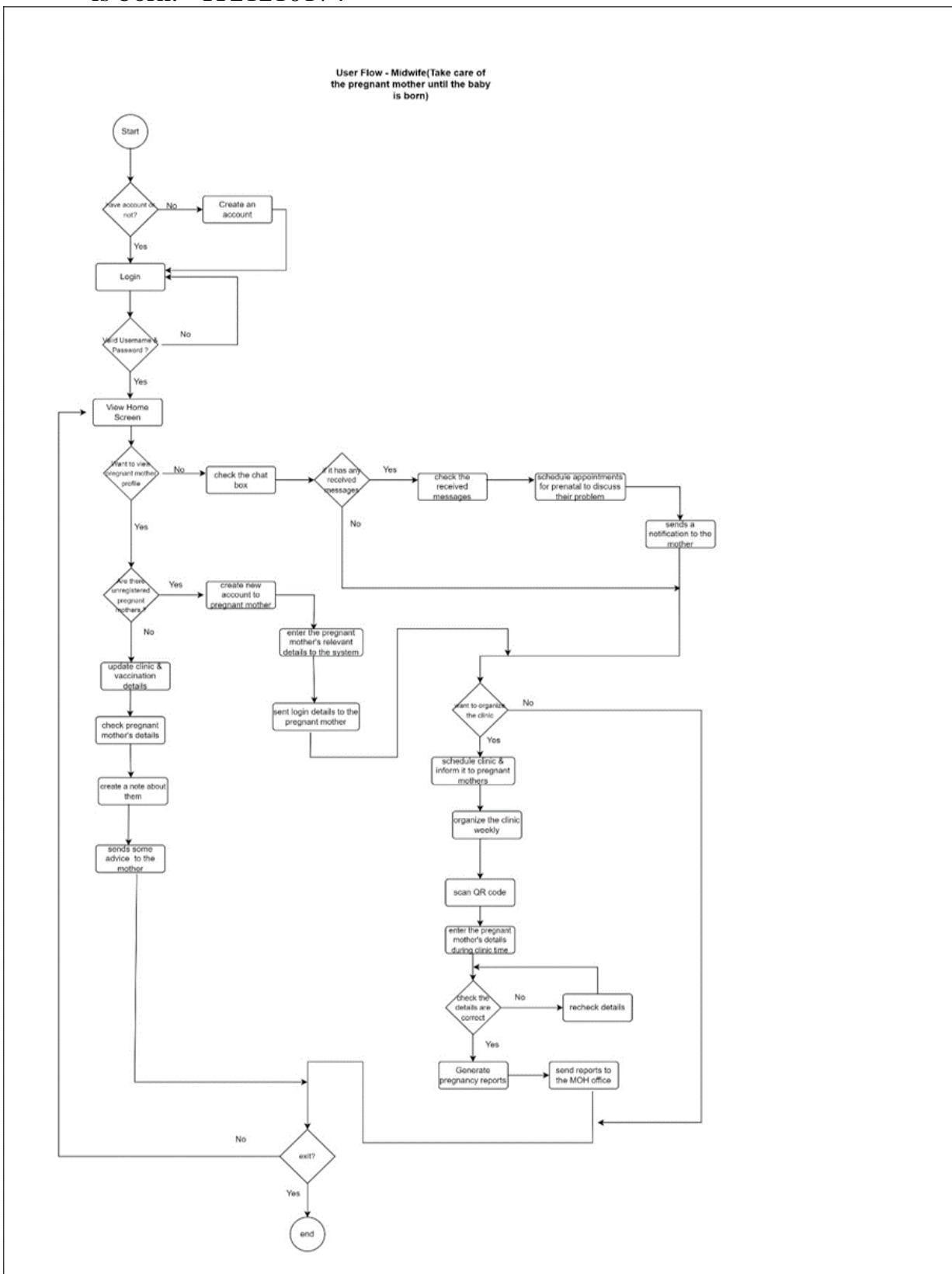


Figure 12 -User flow about midwives caring for the pregnant mother until the baby is born

4.4.4 User flow about midwives taking care of the mother after childbirth. - IT21321368

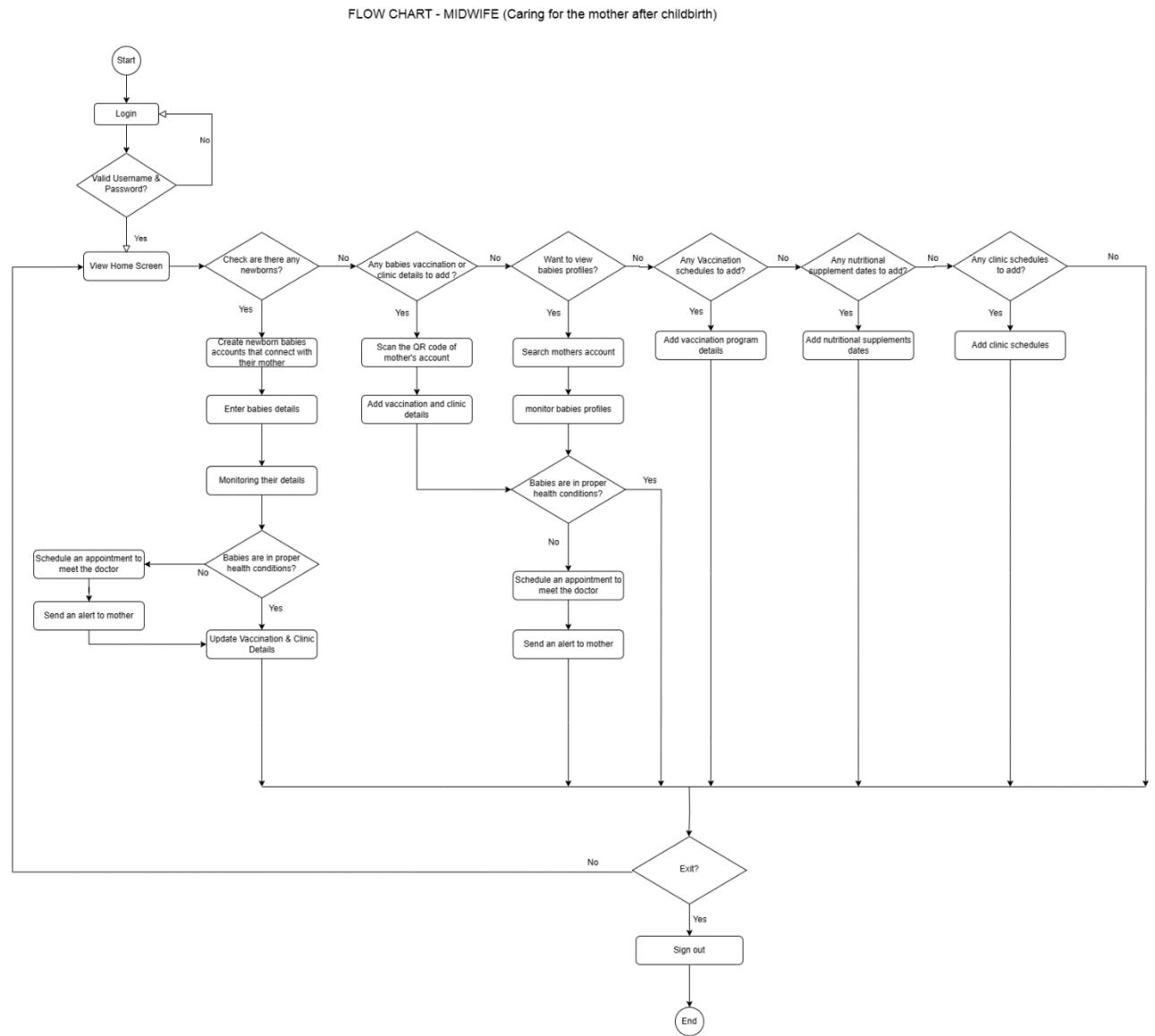


Figure 13-User flow about midwives taking care of the mother after childbirth

4.5 Service Blueprint(s) – 01 Service Blueprint from a group

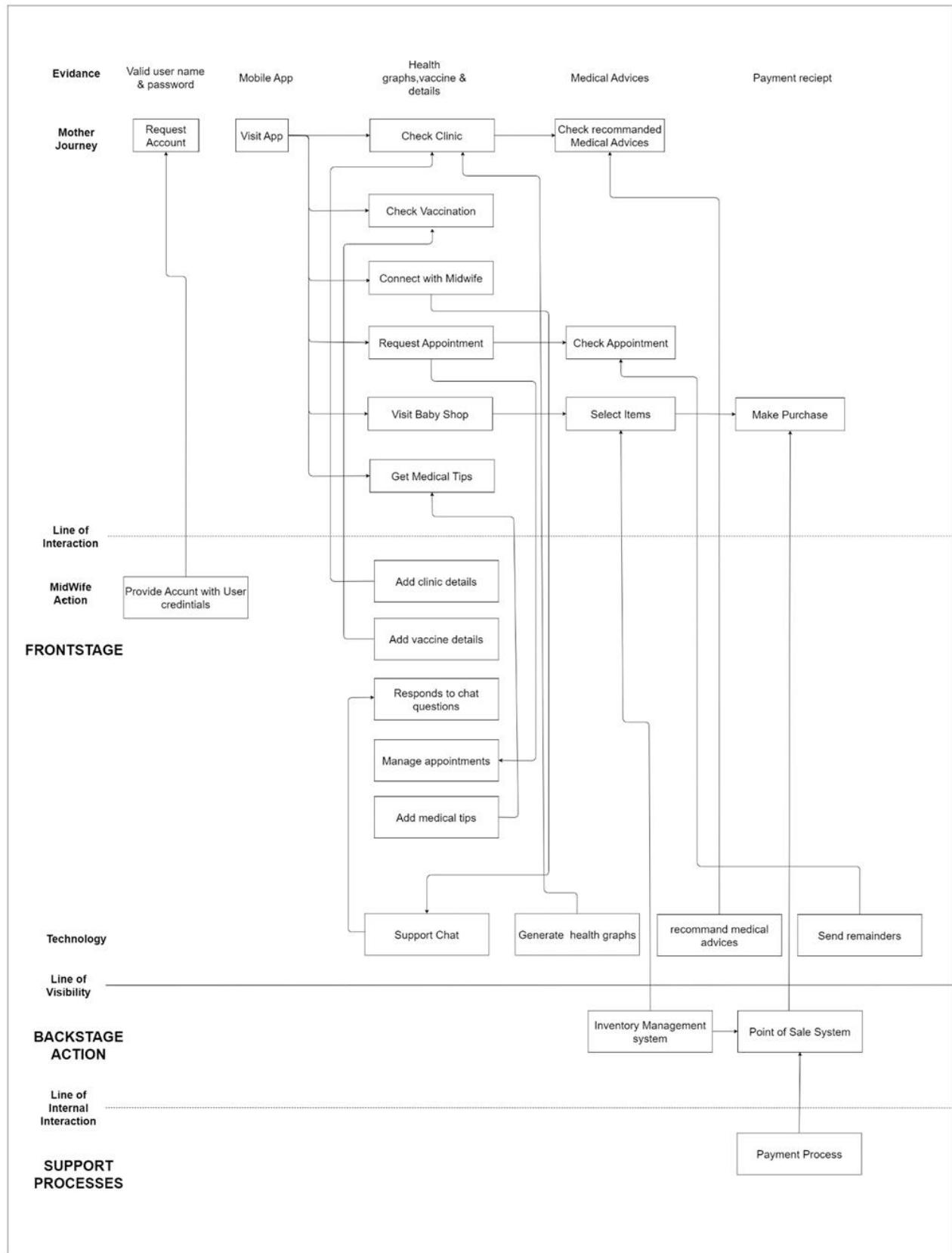


Figure 14-Service Blueprint

4.6 Identify basic functionality of the proposed system

- User Management - The app ensures secure access and data management for mothers and midwives.
- Vaccination & Clinic Management - Mothers can manage their own clinic and vaccine details, and midwives can assist in maintaining records for mothers and children. Health graphs are generated for mothers and children based on clinical data.
- Online Baby Shop - The inclusion of an online store offers added convenience, enabling mothers to purchase child materials through the app.
- Medical tips and advice - Tailored medical advice and tips are provided based on the health conditions of mothers and babies, promoting better health care decisions.

5 Milestone 2: Plan and conduct user research

Introduction

In a world where modern mothers face unprecedented demands, we've undertaken a mission to create a transformative solution that not only eases the challenges of contemporary parenting but also streamlines the vital work of midwives. Parenthood is a journey both enriching and demanding, and we're excited to introduce the Baby Care Mobile App—a comprehensive, user-friendly platform designed to empower parents and caregivers in effectively managing and tracking their baby's care, health, and development. Our app aims to unravel the complexities of childcare by offering an extensive array of features and functionalities that prioritize convenience, organization, and invaluable insights for parents on their unique parenting journey. It's our response to the diverse needs of today's mothers and midwives, enhancing their lives in profound ways. The Baby Care Mobile App is the result of a deep understanding of the rapid pace of modern life, where mothers gracefully balance a multitude of responsibilities. Our objective is clear to provide mothers with a versatile and intuitive tool that simplifies their daily routines and equips them with indispensable resources. In parallel, we're committed to elevating the efficiency and effectiveness of midwives' work, recognizing its critical importance. For busy mothers, our app serves as an indispensable lifeline. It offers an extensive range of features, effortlessly facilitating appointment scheduling, providing easy access to clinic details, and optimizing their baby's healthcare management. Moreover, our integrated online baby store brings convenience to their fingertips, simplifying the process of discovering and purchasing essential baby items. Acknowledging the pivotal role played by midwives in maternal and child healthcare, our app is thoughtfully designed to support them by streamlining tasks like clinic management and vaccination record keeping. We comprehend the exacting nature of their profession and strive to provide them with a dependable and user-friendly tool to enhance their effectiveness.

The Baby Care Mobile App encompasses a diverse range of features, each meticulously tailored to meet the distinctive needs of both mothers and midwives. Whether it's appointment scheduling, vaccination record management, access to clinic information, or seamless shopping for baby essentials, our app stands as the definitive all-in-one solution for the intricate journey of baby care.

Test Objectives

Pregnant Mother - IT21252754 – Madhumalka K.C.S

To assess the ease and efficiency of using a baby care mobile application to manage clinics, vaccinations and appointments of pregnant mothers relative to traditional clinic note systems.

Making an appointment to see a midwife efficiently and conveniently for the pregnant mother.

Identify the strengths and weaknesses of the mobile application in the interaction between the midwife and the pregnant mother and the provision of health services through the application.

Currently, maternal health cards are used to manage clinic details and vaccine details of the pregnant mother. But these details can be easily managed through this mobile application. There, the pregnant mother can easily get a good understanding of her health status with the help of graphs, charts and tables.

This application includes a system for recommending automated health advice to the mother based on the health condition of the pregnant mother. This allows the pregnant mother to easily get the information she needs.

Currently, a pregnant mother has to go to the clinic place to get an appointment to meet the midwife. But through this application, the mother can easily get an appointment to meet the midwife.

The app notifies the mother through a notification when the appointment date, clinic days, booked to meet the midwife is approaching. It can prevent the pregnant mother from missing the clinic, vaccinations and appointments.

By analyzing the strengths and weaknesses of immunization and clinic management for pregnant mothers, we will develop a baby care mobile application.

Mother with a baby - IT21288012 – De Vass Gunawardane A.P.D.N

1. To assess the ease and efficiency of using a baby care mobile application to manage clinics, vaccinations and appointments of babies relative to traditional clinic note systems.
2. Making an appointment to see a midwife efficiently and conveniently for the baby.
3. Identify the strengths and weaknesses of the mobile application in the interaction between the midwife and the pregnant mother and the provision of health services through the application.
4. Currently, maternal health cards are used to manage clinic details and vaccine details of the baby. But these details can be easily managed through this mobile application. There, the pregnant mother can easily get a good understanding of baby's health status with the help of graphs, charts and tables.
5. This application includes a system for recommending automated health advice to the mother based on the health condition of the baby. This allows the pregnant mother to easily get the information she needs.
6. Currently, a pregnant mother has to go to the clinic place with the baby to get an appointment to meet the midwife. But through this application, the mother can easily get an appointment to meet the midwife.
7. The app notifies the mother through a notification when the appointment date, clinic days, booked to meet the midwife is approaching. It can prevent the pregnant mother with the baby from missing the baby's clinic, vaccinations and appointments.
8. By analyzing the strengths and weaknesses of immunization and clinic management for mothers who have babies, we will develop a baby care mobile application.

The midwife takes care of the pregnant mother until the baby is born -
IT21210174 – Tharushi Lakshika V.G.

1. Assess the convenience and efficiency of using the Baby Care mobile application for managing the pregnant mothers' clinic and managing the midwife's duties, compared to traditional clinic scheduling methods
2. The effectiveness and convenience of making an appointment to check the health status of the pregnant mother and existing high-risk conditions and doing it in a fixed time frame.
3. Identify any strengths and weaknesses of the application concerning its role in improving midwife and mother interactions and healthcare delivery.
4. Test the features designed to enhance midwife and mother communication, and appointment scheduling and update clinic and vaccination details.
5. Using a QR code to access the pregnant mother's account very quickly and easily after coming to the clinic.
6. Currently in the clinic management, the midwives manage health appointments, and vaccination details management using manual methods of baby or mother health cards
7. The dates to come back to the clinic are mentioned in the card of the pregnant mothers and in some cases they are informed about it through phone calls or neighbors. However, through this app, it is possible to make the tasks easier and exchange information between the midwife and the pregnant mother as well as the clinic dates. There is also a notification system to remind the pregnant mother when it approaches.
8. By analyzing the strengths and weaknesses of the clinic management, we will be developing a Baby care mobile application.
9. While we are monitoring the traditional processes related to the clinic, we have made arrangements to introduce a series of necessary solution features through the mobile app that we are creating.
10. Weaknesses: Expectant mothers tend to forget the dates they should come to the clinic due to their busy schedule, there is a possibility that the midwife misses the check-up of mothers with high-risk conditions due to her busy schedule, it takes extra time to find her pregnancy card after the expectant mothers arrive at the clinic, pregnant The mother's inability to discuss her problems with the midwife quickly and get solutions.
11. Test the user-friendliness and ease of use of the Baby Care mobile application for scheduling appointments with midwives and pregnant mothers.
12. Evaluate the experience of receiving notifications and reminders for scheduled appointments, clinic and vaccination programs, and accessing advice services through the application.
13. Identify any advantages or disadvantages of using the application compared to traditional in-person healthcare visits.
14. Assess the features that enhance mother engagement, including secure communication with the midwife and convenient access to clinic details

Midwife takes care of the mother after childbirth - IT21321368 –
Samarasinghe.V.R

1. Assess the convenience and efficiency of using the Baby Care mobile application for managing the new born baby's clinic and managing the midwife's duties, compared to traditional clinic scheduling methods.

2. Assess the convenience and efficiency of using the mobile application for clinic information entering compared to traditional clinic information entering methods.
3. Identify any strengths and weaknesses of the application concerning its role in improving midwife and mother interactions and healthcare.
4. Test the features designed to enhance midwife and mother communication, update babies clinic and vaccination details and access to baby's medical history.
5. Assess the app's functionality and effectiveness by quickly and easily accessing the child's account by scanning the QR code on the mother's account upon arrival at the clinic.
6. Currently in the clinic management, the midwives manage baby's clinic, and vaccination details using manual methods like baby health cards.
7. The dates to come back to the clinic are mentioned in the card of the baby's and in some cases they are informed about it through phone calls. However, through this application, it is possible to facilitate tasks and exchange information as well as clinic dates between the midwife and the mother. There is a notification system to remind the mother when the next appointment date approaches.
8. By analysing the strengths and weaknesses of the clinic management, we will be developing a Baby care mobile application.
9. While we are monitoring the traditional processes related to the clinic, we have made arrangements to introduce a series of necessary solution features through the mobile app that we are creating.
10. Weaknesses: midwives tend to forget to give the nutrition supplements during the clinic time due to their busy schedule, there is a possibility that the midwife misses the check-up of babies with high-risk conditions due to her busy schedule.
11. Test the user-friendliness and ease of use of the Baby Care mobile application for scheduling appointments with midwives and mothers to check high risk health condition of babies.
12. Identify any advantages or disadvantages of using the application compared to traditional data entering process.
13. Assess the features that enhance mother engagement, including secure communication with the midwife and convenient access to baby's clinic details and vaccination details.

Methodology

As the members who have the responsibility of implementing and developing the BABY CARE mobile application, we conducted our user research with midwives who have wide experience in this field for a considerable amount of time, pregnant mother and a mother who has a baby. And we conducted this specific user research at a clinic.

While doing this interview we showed some of the sketches of basic level of the mobile application and asked if they were satisfied with basic structured diagrams. Also, we used User flow diagram which we have created in the milestone one and asked from them if they are agreeing with basic format of the flow when they use the application as a Midwife or mother.

Interviewing

Pregnant Mother - IT21252754 – Madhumalka K.C.S

01. **Question:** Can we know the mother's details? How old are you and do you have a job?

Answer: Age 35. Currently not working.

02. **Question:** What mobile apps does mom currently use?

Answer: Yes. Currently, mobile apps are used for daily activities.

03. **Question:** Current vaccine details, clinic details, how to manage mother's health information? Do you use any tool or app for that?

Answer: Not using an app. Details are obtained from clinic notes.

04. **Question:** What is your opinion about getting details about vaccinations and clinic details through an app?

Answer: That idea is good. It is very easy to get the details of the clinic and vaccinations because mobile phones are often used.

05. **Question:** What kind of clinic and vaccination details should you get?

Answer: Facility to get information about BMI details, details about clinic dates and make appointment request

06. **Question:** What do you think about showing special information about mother's health through tables and graphs? E.g. mother's BMI value

Answer: That's a good idea. BMI details are easily available. It is a great convenience for busy people.

07. **Question:** What is your opinion about using this app to get appointment with mid wife?

Answer: Currently, if you want to request an appointment, you have to come to the clinic and request it. If you can do it through a mobile app, it will be very convenient.

08. **Question:** What is your opinion about being informed by notification when the date of appointment with Midwife is near?

Answer: It is very easy to remind the scheduled clinic days by notification. Therefore, we can participate in the clinic days without having to miss them.

09. **Question:** How many days in advance will it be easy to receive such a notification?

Answer: It's easy to be informed a day in advance.

10. **Question:** What things do you think should be included in this app that we haven't talked about yet?

Answer: Facility to get all details in Sinhala. Ability to obtain medical advice.

Mother with a baby - IT21288012 – De Vass Gunawardane A.P.D.N

Me: Good Afternoon! We are planning to make a Health Care app. It will manage the details of vaccination, clinic and the growth of the baby. Can you briefly introduce yourself?

Answer: Hi! My name is Kasuni from Colombo. I'm working as an accountant. I have a 5-month-old baby.

Me: Do you use a health app to manage your day-to-day tasks regarding your baby?

Answer: No, I use the manual method.

Me: So, how this kind of health app will help a mother like you?

Answer: We only have a book to record the details, so it will be easier to have an app when we take our babies to the clinic because, as a mother who works full time, I might forget the book at home.

Me: Anything else to add?

Answer: We also can face emergencies where we need immediate responses from medical centres to solve our doubts.

Me: Thank you so much for allocating your time to give us some insightful ideas and recommendations. Have a nice day!

The midwife takes care of the pregnant mother until the baby is born - IT21210174 – Tharushi Lakshika V.G.

We intend to create a mobile app for midwives and pregnant mothers. We hope to get an idea from you and your work environment through this interview.

Me - As a midwife, I would like to know what kind of service you provide to society.

Midwife - When a woman and a man get married, we register them. After that, when they plan to have a baby, the midwife gives them all the necessary instructions. That is, how to be during pregnancy, how to be careful when the baby is born, and how to take care of the baby. The midwife informs them

Me - Can I know a little detail from you about the process that happens after a pregnant mother registers?

Midwife - After a mother is pregnant, we take her to the clinic. When she comes to the clinic, if there is medication, they are injected. The doctor examines the mother. In addition to this, we give them the necessary health advice

Me - What are the problems you face in the process you mentioned?

Midwife - The main challenge is that it is difficult to contact the mothers for the clinic. They have no way to communicate properly. In addition to that, the mothers forget the days of the clinic. Everyone is busy. With that work, they can forget this. Also, there is no proper process to discuss the health conditions of mothers with them. If there are problems like this.

Me - We hope to create a notification system and appointment system for that. Apart from this, are there any things that you think would be good to include in this app?

Midwife - There are some mothers with high-risk conditions. We need to check them three times a month. Because we are busy, sometimes we miss it. I think it would be good if we make the app so that we get a reminder like that. In addition to this, mothers ask us about a good market to buy the things they need when they are getting ready to give birth. I think it would be better if they get some help through this app to get the things they need with good quality and at an easy price.

Me - As a midwife, what kind of thing do you expect most from this app to get help for your duties?

Midwife - I think appointment system is the most useful feature for use

Me - We took a rough idea and created this user flow. That is, it describes the entire process related to a clinic. If there is anything to change in this, we would like to know your opinion about it.

Midwife – I think this step wants to change. We would look at the messages coming to the chat box and only if there is a situation that needs to be met and discussed, we would set aside a date to meet them. In addition, if there is a problem that can be easily answered without such discussion, it is better to provide the necessary solutions for that problem through the mobile app itself. It is suitable. This will make the work of the pregnant mother as well as us easier. So, another thing is since there are mothers with high-risk conditions, it is very important if it is possible to create the app so that we can set aside dates to check them and send a text message to inform the pregnant mothers.

Me - Thank you so much for your insights and suggestions. Your input will help us develop a comprehensive and valuable baby care mobile app.

Midwife takes care of the mother after childbirth - IT21321368 –
Samarasinghe.V.R

Me: How do you currently manage and access information about newborn babies and their care?

Client: Currently, after the baby is born, mother give us a call and inform us that they has come home. After that, within five days after the birth of the baby, the health condition of the baby and the mother should be checked. In that way, we should go from time to time to check the health condition of the child and the mother.

Me: Can you describe the challenges you face when keeping track of babies' health and appointments?

Client: We miss visiting the health conditions of the baby and the mother on the scheduled dates.

Me: What tools or methods do you currently use to keep track of baby and mother health records? Are there any digital solutions you currently use in your work?

Client: Currently we are not using any digital device to manage those details

Me: What are your thoughts on the feature that allows midwives to create profiles for newly born babies in mothers' accounts? How do you see this improving your workflow?

Client: Yes, then we can see mother's old clinic and vaccination information as well as babies clinic and vaccination details and BMI charts. Also, when a new child is born, it is very good to be able to monitor the mother's account and know all the details of the mother and the previously born children.

Me: How do you think the ability to scan a QR code within the mother's account to access the baby's account would impact your workflow as a midwife? Are there specific scenarios or situations where you believe this QR code scanning feature would be particularly valuable in your work?

Client: Currently, an average number of thirty to forty babies come to the clinic per day. Then it takes time to search separately and enter the information in the baby's account. By scanning the QR code and going to the account, the work can be done quickly. It's worth a lot.

Me: We are creating a feature in terms of adding clinic and vaccinations details, what do you think about that?

Client: Yes. By entering that information, even if we forget the days of clinics and vaccinations, we can be notified through notifications, which is very good.

Me: Can you describe how you currently handle situations where a baby's health is a cause for concern during your care?

Client: Currently, on the day of coming to the clinic to check the height and weight, if any problem is detected in the baby, it will be noted in the baby's book, telling to come to the clinic at this time of the day.

Me: How do you think the option to schedule doctor appointments via the app might contribute to a more efficient and effective care delivery system for mothers and their babies?

Client: Yes it is very good. We can quickly send the child to meet the doctor.

Me: Are there any additional features or functionalities you believe would be valuable for midwives in your daily work with mothers and babies?

Client: It would be nice if there was some way that the baby could get good hygiene and quality stuff.

Video recordings

Pregnant Mother - IT21252754 – Madhumalka K.C.S

<https://drive.google.com/file/d/1srUra76tRrFw3lO3ym1uUazLDqiMM-c/view?usp=sharing>

Mother with a baby - IT21288012 – De Vass Gunawardane A.P.D.N

<https://drive.google.com/file/d/1SjZw1T8iljxpQ57Dp8IqgqpqJ8rWkQRR/view?usp=sharing>

The midwife takes care of the pregnant mother until the baby is born –
IT21210174 - Tharushi Lakshika V.G. –

https://drive.google.com/file/d/1Aejx_X794y-PqTFKnpAba8D98IGimb1D/view?usp=sharing

The midwife takes care of the mother after childbirth - IT21321368 –
Samarasinghe. V.R -

https://drive.google.com/file/d/1nKaIcy-tOE9qWox_O60ijZPF8EM0QuDS/view?usp=sharing

Questionnaire

Pregnant Mother - IT21252754 – Madhumalka K.C.S

1. Questionnaire

- Are you currently using a mobile app to manage clinic and vaccination details?
Yes, No
 - As a pregnant mother, what were the problems in contacting the midwife and managing health details?
 - If a mobile app is used for that, what features should it include?
 - How important is the ease of interaction with midwives and mothers in a Baby Care app to you?
 - What is your opinion about the ability to request an appointment to see a midwife through the app?
 - As a pregnant mother, what features would you like to see that are not mentioned in the baby care app?
2. Then Format the Questionnaire by organizing the questions in a logical order and ensure they are clear and concise. Use a mix of multiple-choice questions, and rating scales for a comprehensive understanding of the user's perspective.
 3. Pilot Testing – Before distributing the questionnaire widely, consider conducting a pilot test with a small group of users to ensure the questions are clear and the survey flows smoothly.
 4. Distribute and Collect Data – Once satisfied with the questionnaire, distribute it to our target audience, which includes Midwives, mothers,
 5. Analyze the Data

Mother with a baby - IT21288012 – De Vass Gunawardane A.P.D.N

1. Questionnaire

- Why need this app for?
for managing daily plans, work life and child priorities.
- Do you like to use mobile apps rather than conventional child book?
Yes or no.
- Why is it more valuable than conventional book?
- Have you any better ideas to add to this app?

2. Then Format the Questionnaire by organizing the questions in a logical order and ensure they are clear and concise. Use a mix of multiple-choice questions, and rating scales for a comprehensive understanding of the user's perspective.
3. Pilot Testing – Before distributing the questionnaire widely, consider conducting a pilot test with a small group of users to ensure the questions are clear and the survey flows smoothly.
4. Distribute and Collect Data – Once satisfied with the questionnaire, distribute it to our target audience, which includes Midwives, mothers,
5. Analyze the Data

The midwife takes care of the pregnant mother until the baby is born -
IT21210174 – Tharushi Lakshika V.G.

1. Questionnaire

- How often do you use mobile or web applications for your related duties?

Daily, Weekly, Monthly, Rarely, Never

- Have you ever used a mobile or web application for your health duties?

Yes or No

- What challenges or difficulties have you encountered when doing your duties?
- What features or functionalities do you consider essential for a Baby Care mobile application?
- How important is the ease of interaction with midwives and mothers in a Baby Care app to you?
- Do you have any specific suggestions or ideas for improving the activities of the clinic?
- What do you think about the health scheduling appointments in a Baby Care App?
- Are there any features or functionalities you would like to see in a Baby Care app that hasn't been mentioned Baby Care App?

2. Then Format the Questionnaire by organizing the questions in a logical order and ensure they are clear and concise. Use a mix of multiple-choice questions, and rating scales for a comprehensive understanding of the user's perspective.

3. Pilot Testing – Before distributing the questionnaire widely, consider conducting a pilot test with a small group of users to ensure the questions are clear and the survey flows smoothly.

4. Distribute and Collect Data – Once satisfied with the questionnaire, distribute it to our target audience, which includes Midwives, mothers,

5. Analyze the Data -

Midwife takes care of the mother after childbirth - IT21321368 – Samarasinghe.V.R

1. Questionnaire

- How often do you use mobile or web applications for your clinic related duties?

Daily, Weekly, Monthly, Rarely, Never

- Have you ever used a mobile or web application for your clinic duties?

Yes or No

- If yes, please describe your experience.
- What challenges or difficulties have you encountered when doing your duties?

- What features or functionalities do you consider essential for a Baby Care mobile application?
- How important is the ease of interaction with midwives and mothers in a Baby Care app to you?
- Do you have specific suggestions or ideas to improve the clinic's activities through the mobile application?
- What do you think about the QR Code scanning feature in a Baby Care App?
- Are there any features or functionalities you would like to see in a Baby Care app that hasn't been mentioned Baby Care App?

2. Then Format the Questionnaire by organizing the questions in a logical order and ensure they are clear and concise. Use a mix of multiple-choice questions, and rating scales for a comprehensive understanding of the user's perspective.

3. Pilot Testing – Before distributing the questionnaire widely, consider conducting a pilot test with a small group of users to ensure the questions are clear and the survey flows smoothly.

4. Distribute and Collect Data – Once satisfied with the questionnaire, distribute it to our target audience, which includes Midwives and mothers.

5. Analyze the Data

- Participant Profiles

Table 2-Participant Profiles

Name	Demography	Location	Date	Time
Midwife	Take care of the pregnant mother, 30years experience	Colombo	10/08/2023	01.00 p.m.
Midwife	Take care of mother and baby,15years experience	Colombo	10/08/2023	01.00 p.m.
Pregnant mother	Primary School Teacher	Colombo	15/08/2023	03.00 p.m.
Mother	Bank Director	Colombo	17/08/2023	05.00 p.m.

- User Research – Tasks/Scenarios

We have assigned tasks to both pregnant mothers and midwives to gain a preliminary understanding of the requirements for our mobile app. These tasks involved basic mobile activities to assess the mothers' familiarity with using mobile phones and to gauge their proficiency in English. While we were informed that mothers generally possess a satisfactory level of mobile phone usage skills, challenges were noted in using mobile apps in the English language.

Furthermore, during the user testing sessions involving midwives, we underscored the importance of their proficiency in both English language and mobile app usage. Through these sessions, wherein we assigned straightforward tasks, we gained valuable insights into enhancing the app's user-friendliness.

- **Plan for data analysis**

To gather inspiration for developing our mobile app, we've devised a Google Form designed to collect ideas and recommendations from both mothers and midwives.

Mother - <https://forms.gle/ga4KSH8cbkAwYJwn8>

Midwife - <https://forms.gle/BsfTMwS3B8QpdvBC6>

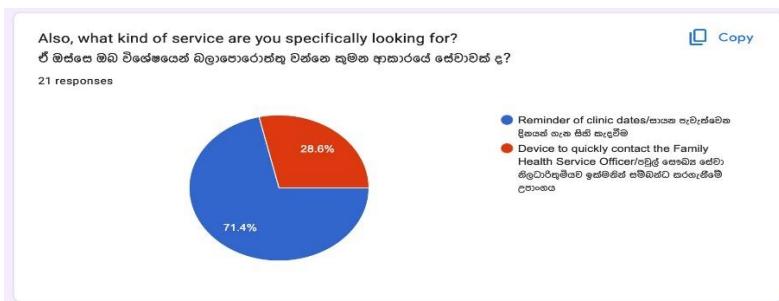


Figure 15-chart 1

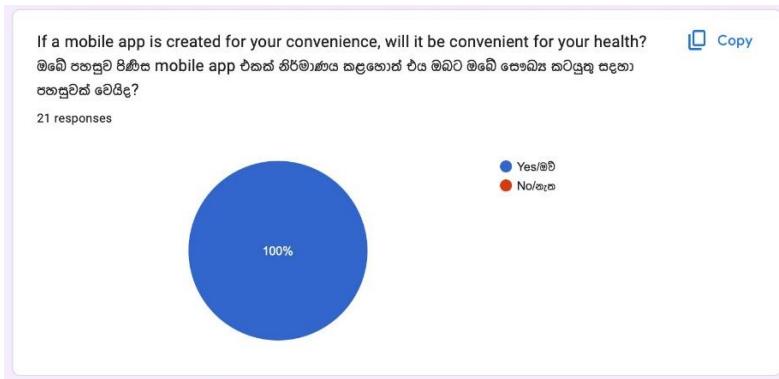


Figure 16-chart 2

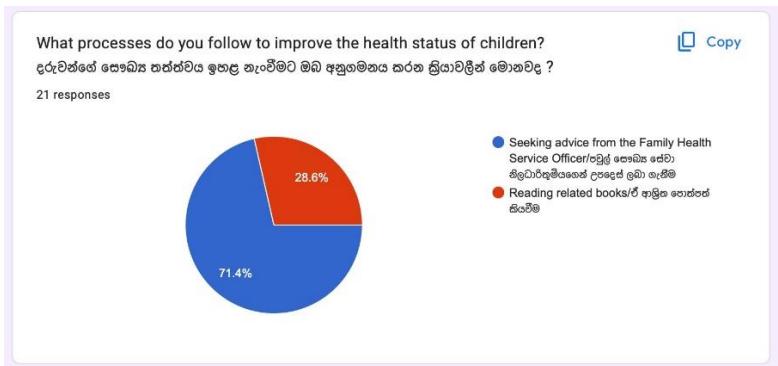


Figure 17-chart 4



Figure 18 -chart 5

6 Milestone 3: Verify the key-user flow(s)

6.1 Verify the identified functionality (Milestone 1) of the proposed system

6.1.1 IT21252754 – Pregnant Mother

User flow - Before the user research

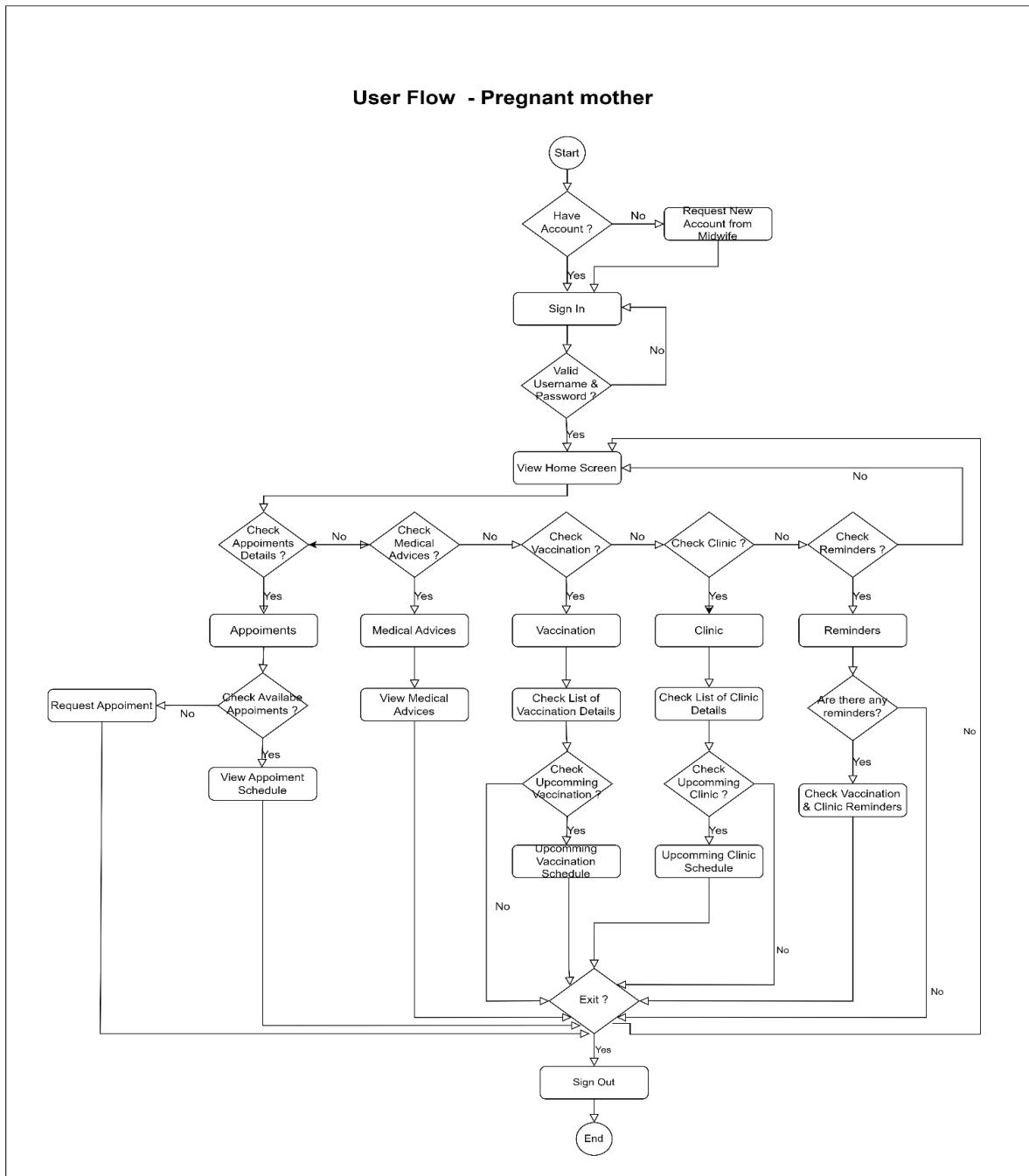


Figure 19-User flow - Before the user research - pregnant mother

After the user research

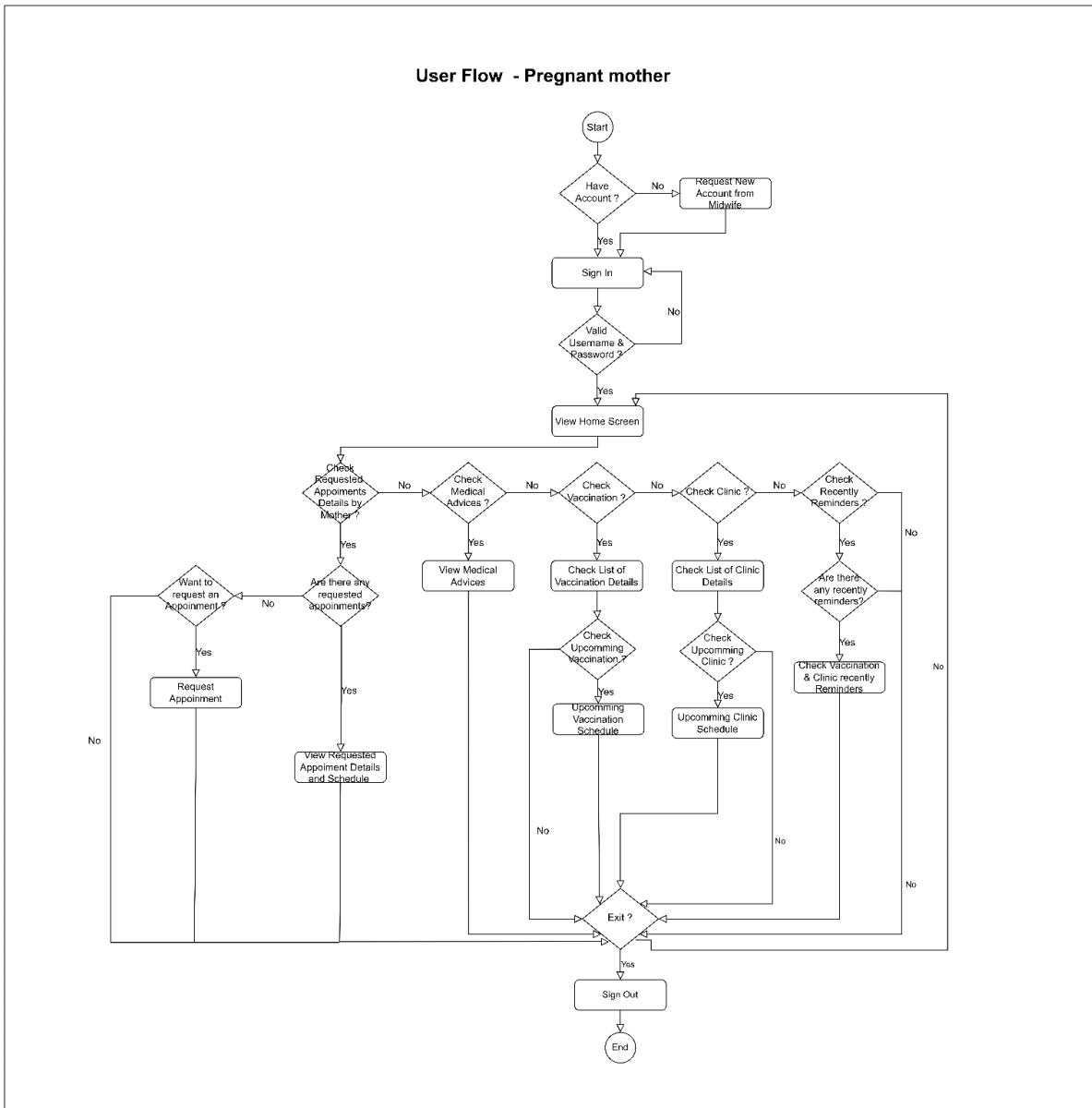


Figure 20-User flow - After the user research - pregnant mother

6.1.2 IT21288012 - Mother with baby

User flow - Before the user research.

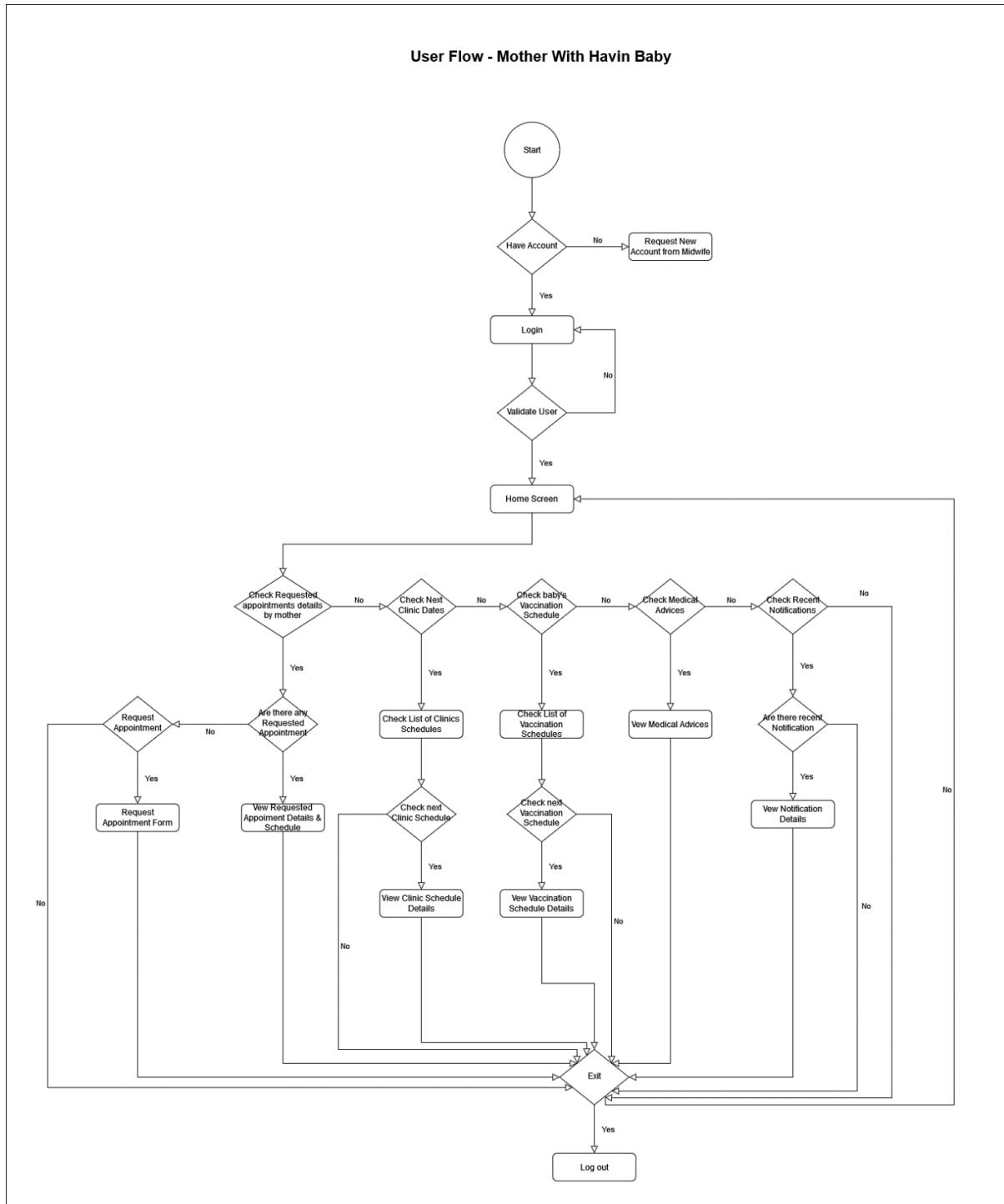


Figure 21-User flow - Before the user research - Mother with baby

After the user research

- After the user research, we designed to add to the system a health support feature for users.

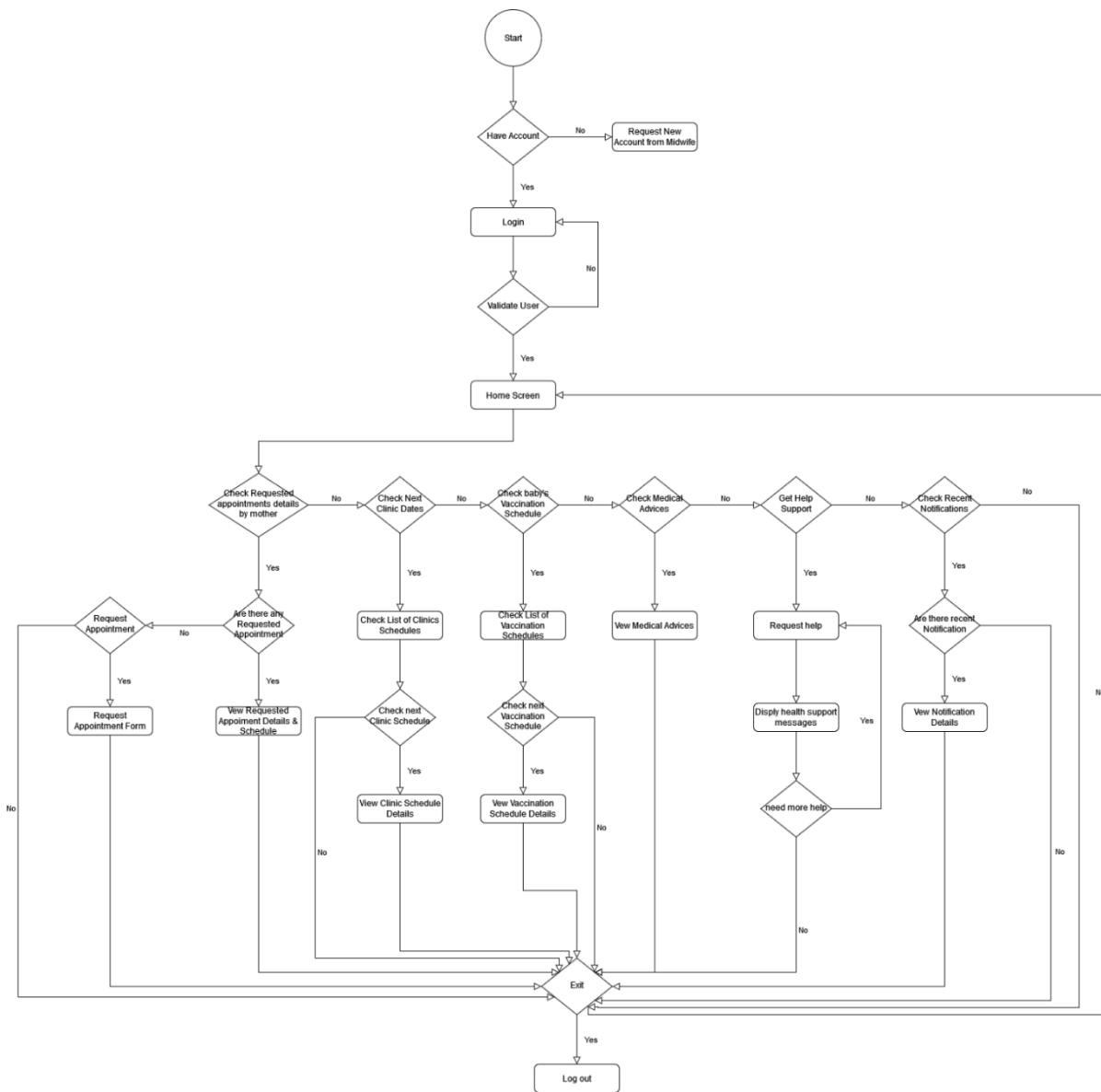


Figure 22-After the user research - Mother with baby

6.1.3 IT21210174 - The midwife takes care of the pregnant mother until the baby is born

Before the user research

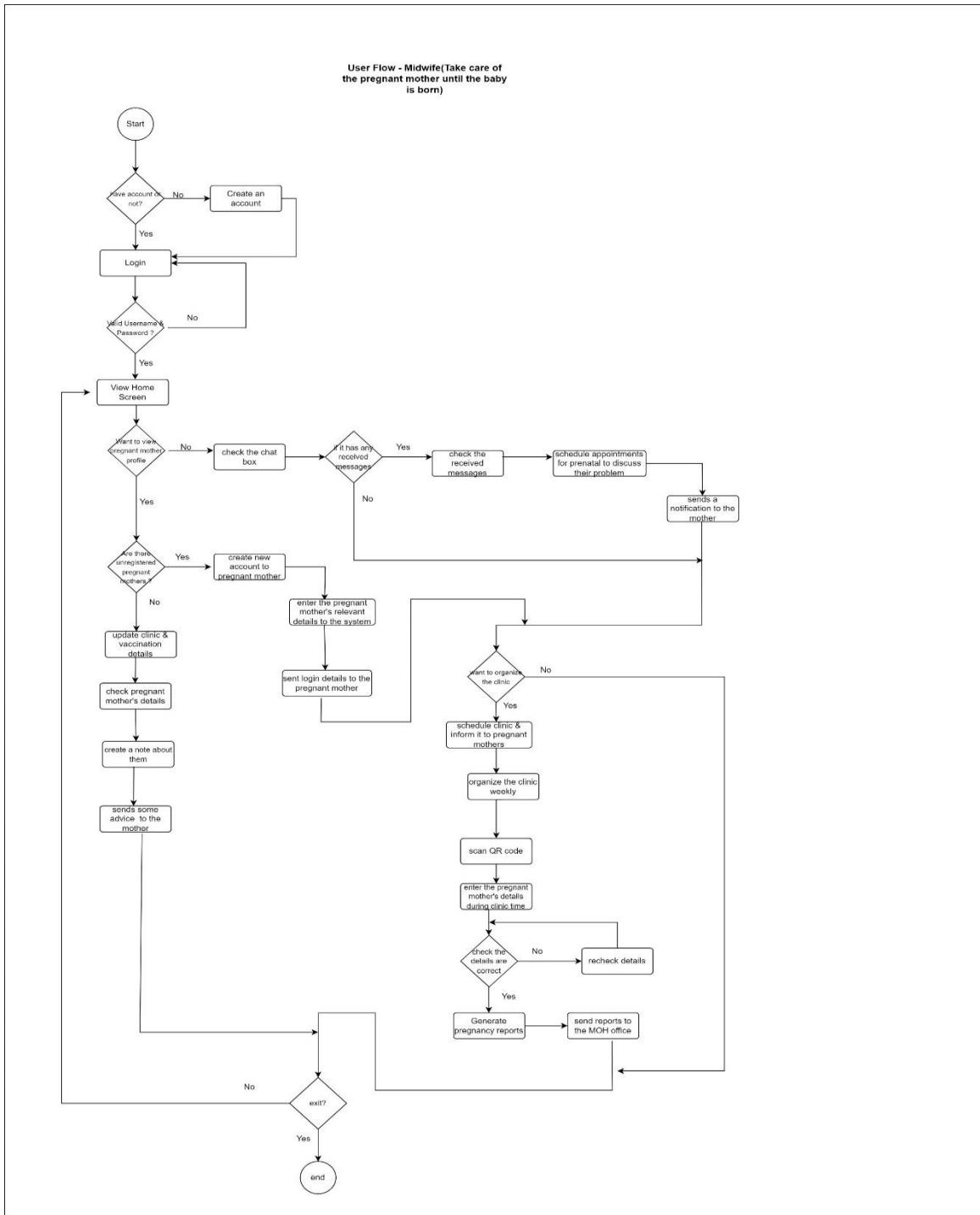


Figure 23 -User flow Before the user research - The midwife takes care of the pregnant mother until the baby is born

After the user research

Before the interview, I created a user flow where the midwife who is in charge of pregnant mothers checks the chat box using this mobile app. I created the user flow so that a date is set aside for mothers to come to meet the midwife, and that day is also notified to the pregnant mother. However, in the interview with the midwife who is in charge of the pregnant mothers, I had to make changes in the user flow that I created. The midwife said that they would look at the messages coming to the chat box, and only if there is a situation that needs to be met and discussed, would they set aside a date to meet them. In addition, if there is a problem that can be quickly answered without such discussion, it is better to provide the necessary solutions for that problem through the mobile app itself. It is suitable. This will make the work of the pregnant mother and the midwife easier. In the interview, the midwife said that since there are mothers with high-risk conditions, it is very important if it is possible to create the app so that they can set aside dates to check them and send a text message to inform the pregnant mothers. Therefore, the user flow that I created before, according to one midwife's suggestion, I also included and changed a process for examining mothers with high-risk conditions.

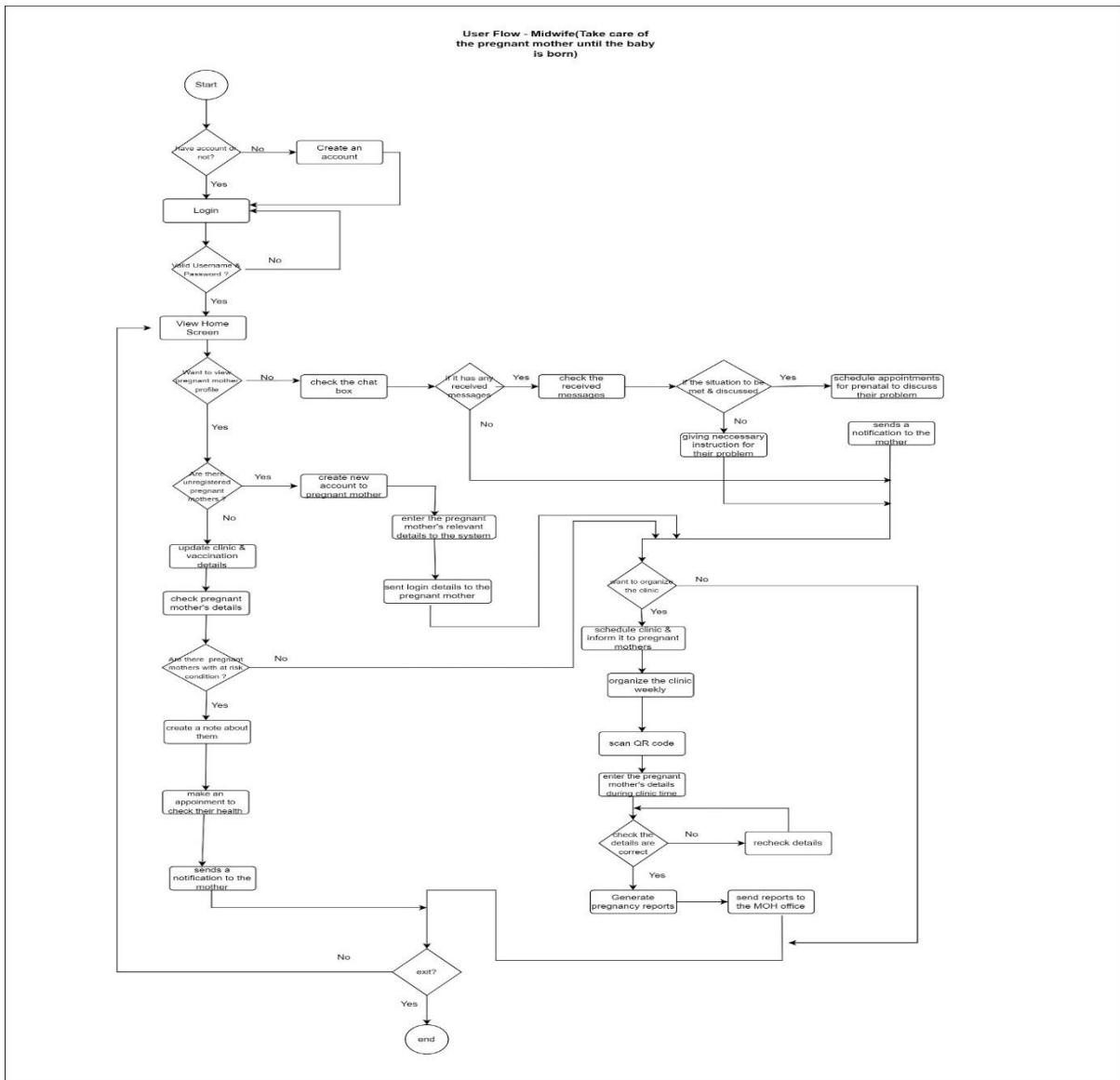


Figure 24-User flow After the user research - The midwife takes care of the pregnant mother until the baby is born

6.1.4 IT21321368 – Midwife takes care of the mother after childbirth

User flow - Before the user research.

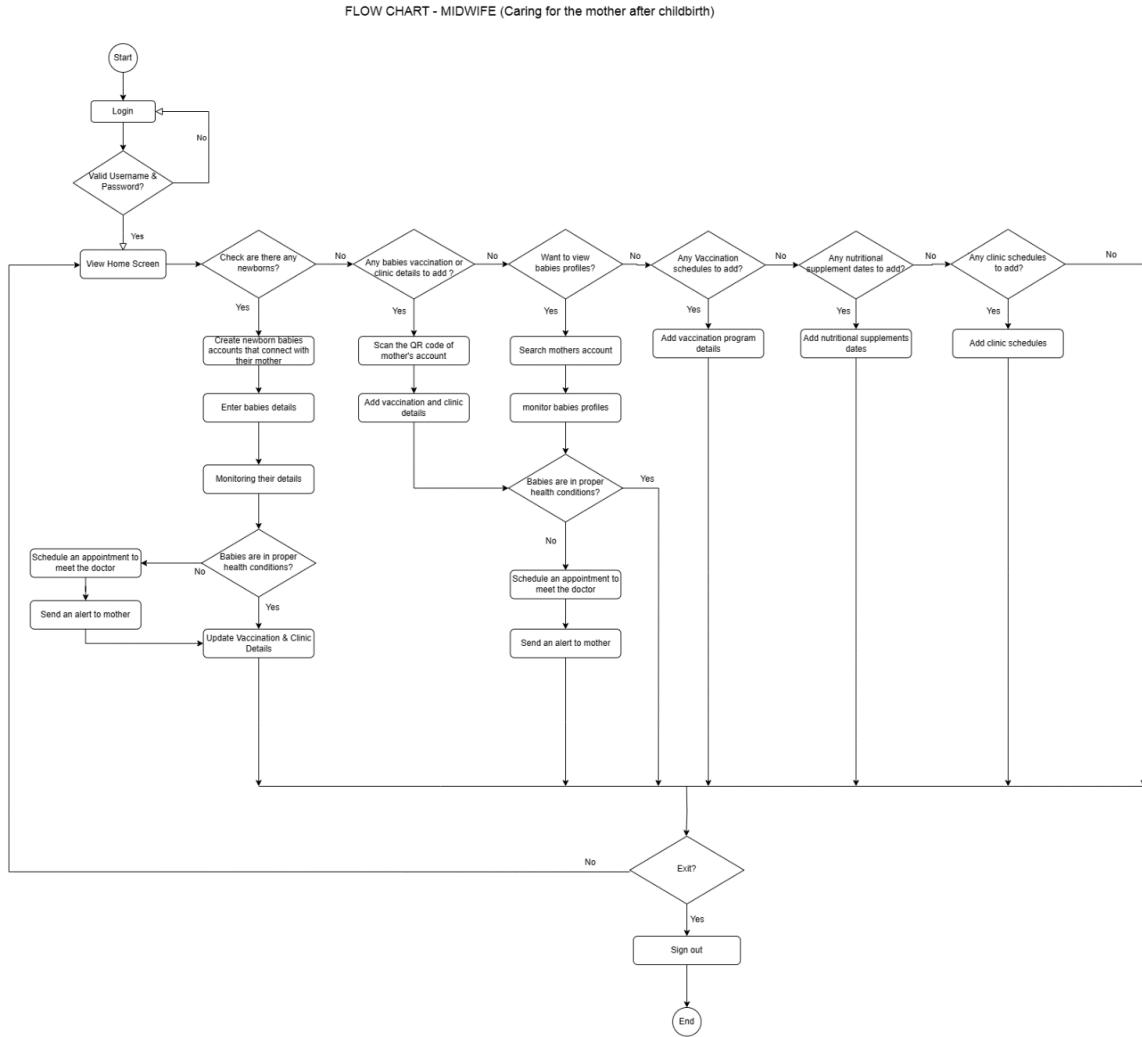


Figure 25 -User flow - Before the user research - Midwife takes care of the mother after childbirth

After the user research

Before the interview, I thought there were separate dates to do the vaccinations and to give nutritional supplements.so I drew the user flow that the midwife could add those vaccination dates and nutritional supplements giving dates separately as they might forget those dates. When I showed the user flow to the midwife during the interview, she said that all vaccinations and nutritional supplements are given on the clinic day.so I change the above user flow according to that. If there is a date when a specific vaccination or nutritional supplement is given, the midwife can add a special note under the clinic program details.

User flow - After the user research.

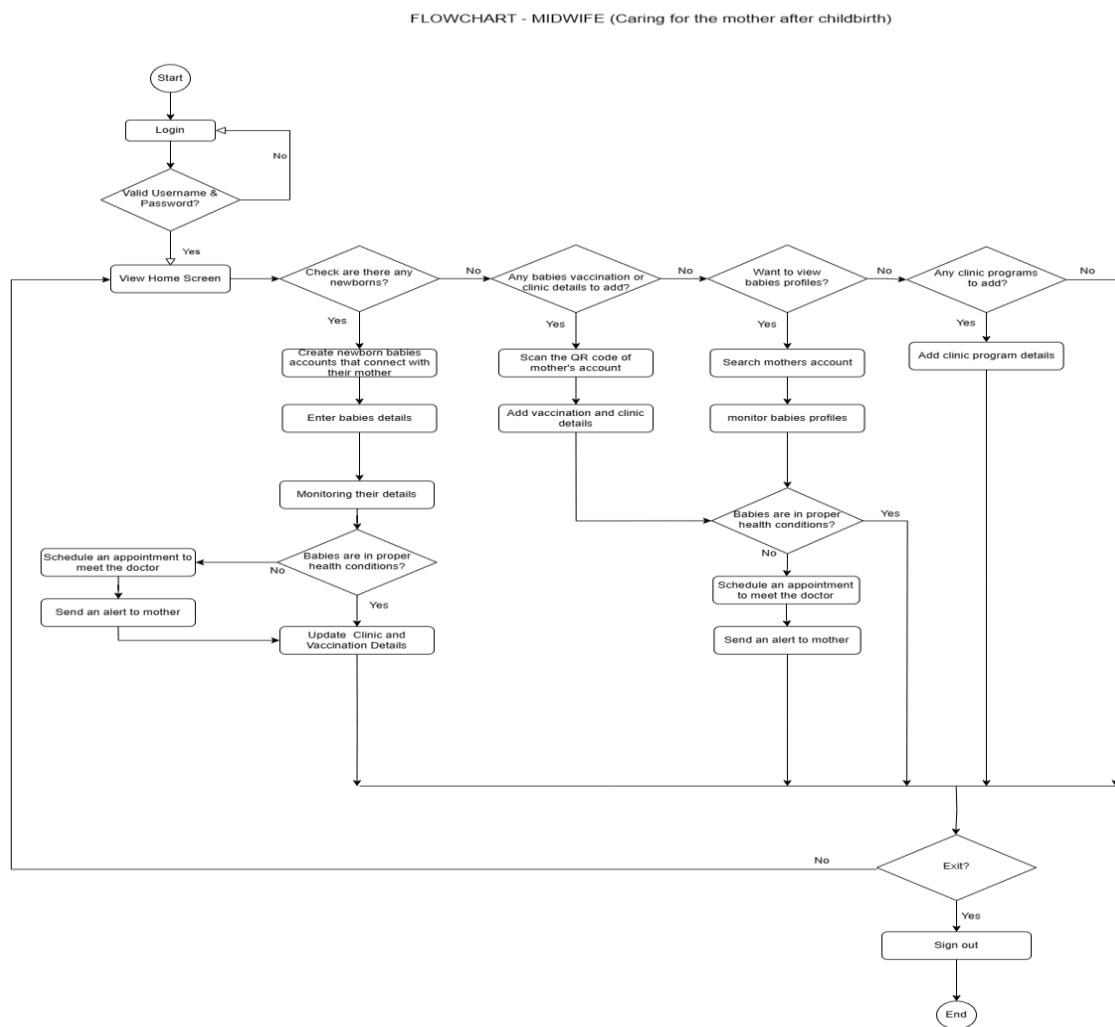


Figure 26-Midwife takes care of the mother after childbirth

7 Milestone 4: Sketching & Wireframes

7.1 Sketching

➤ User Management – IT21321368

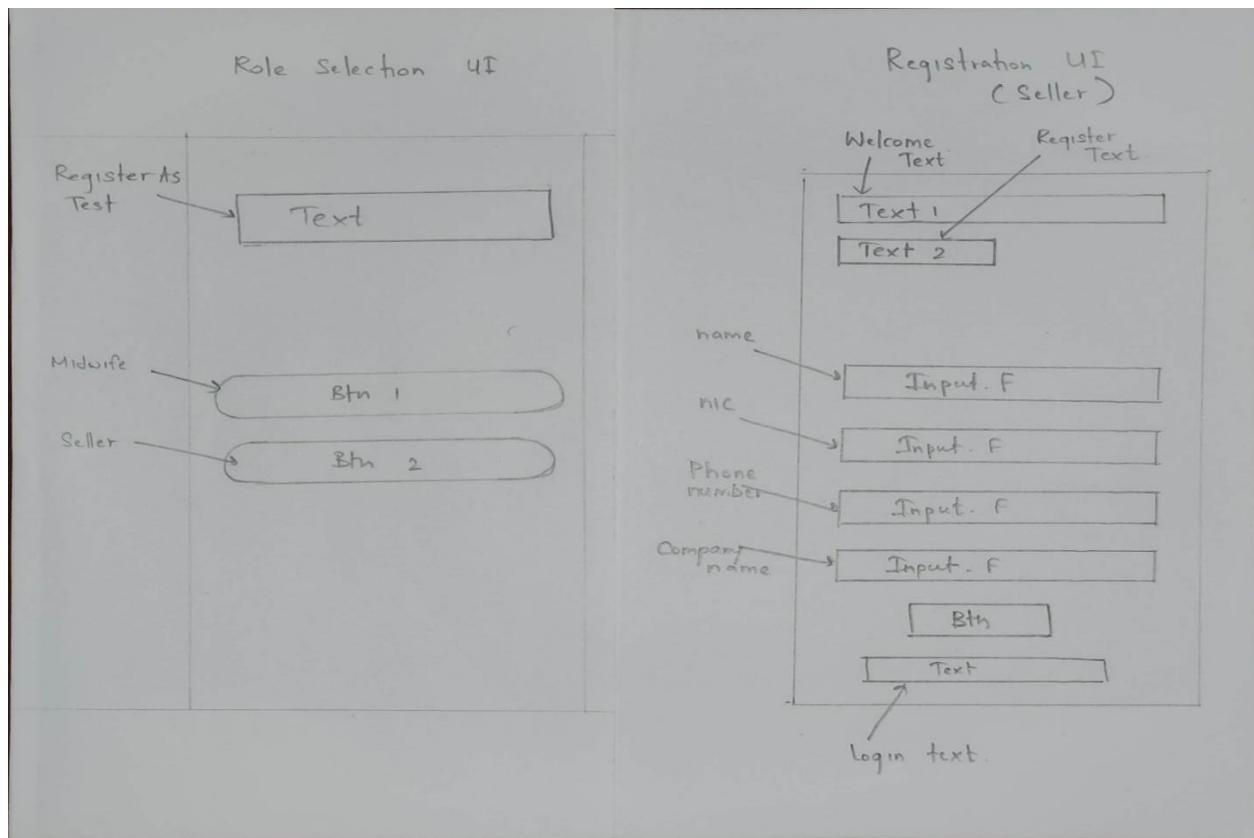


Figure 27-roleselection and seller register sketching

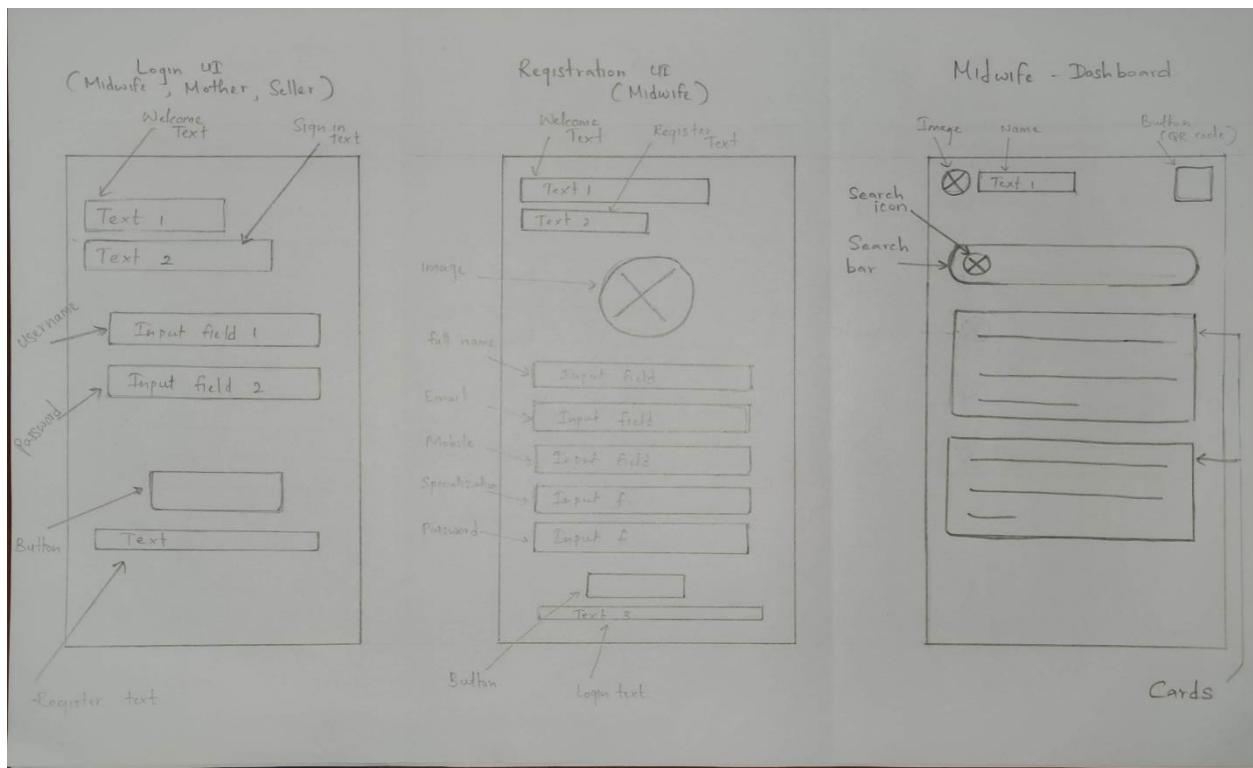


Figure 28-login, midwife(register ,dashboard) sketching

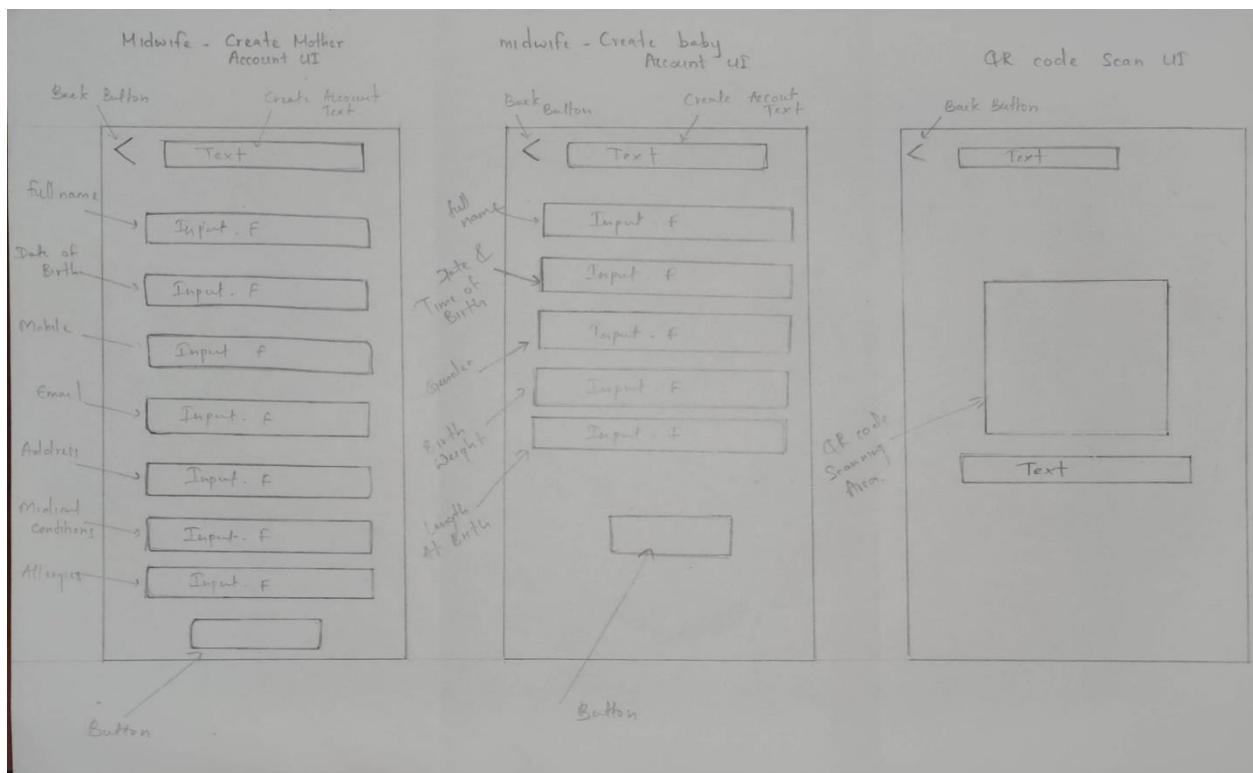


Figure 29-add mother account, add baby account, QR code scan sketching

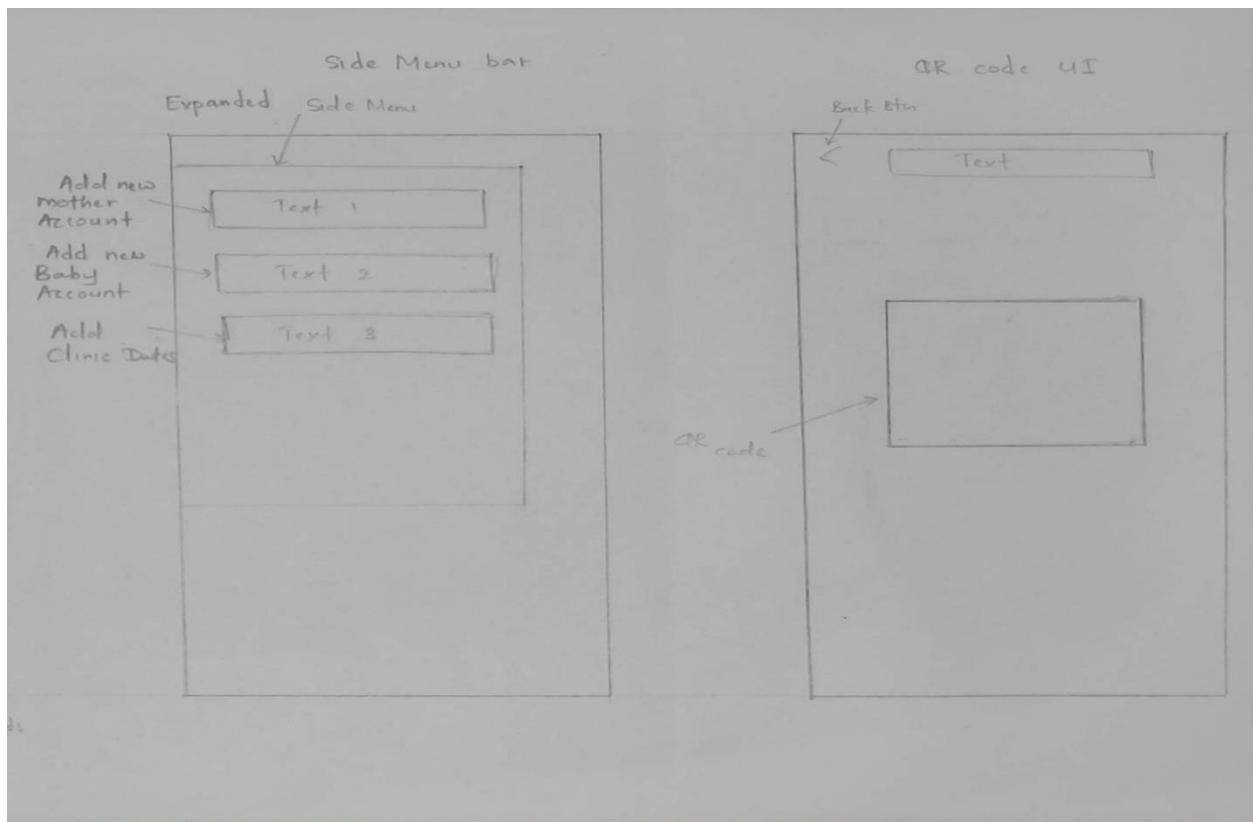


Figure 30--ExpandedSidebar,QRcode sketching

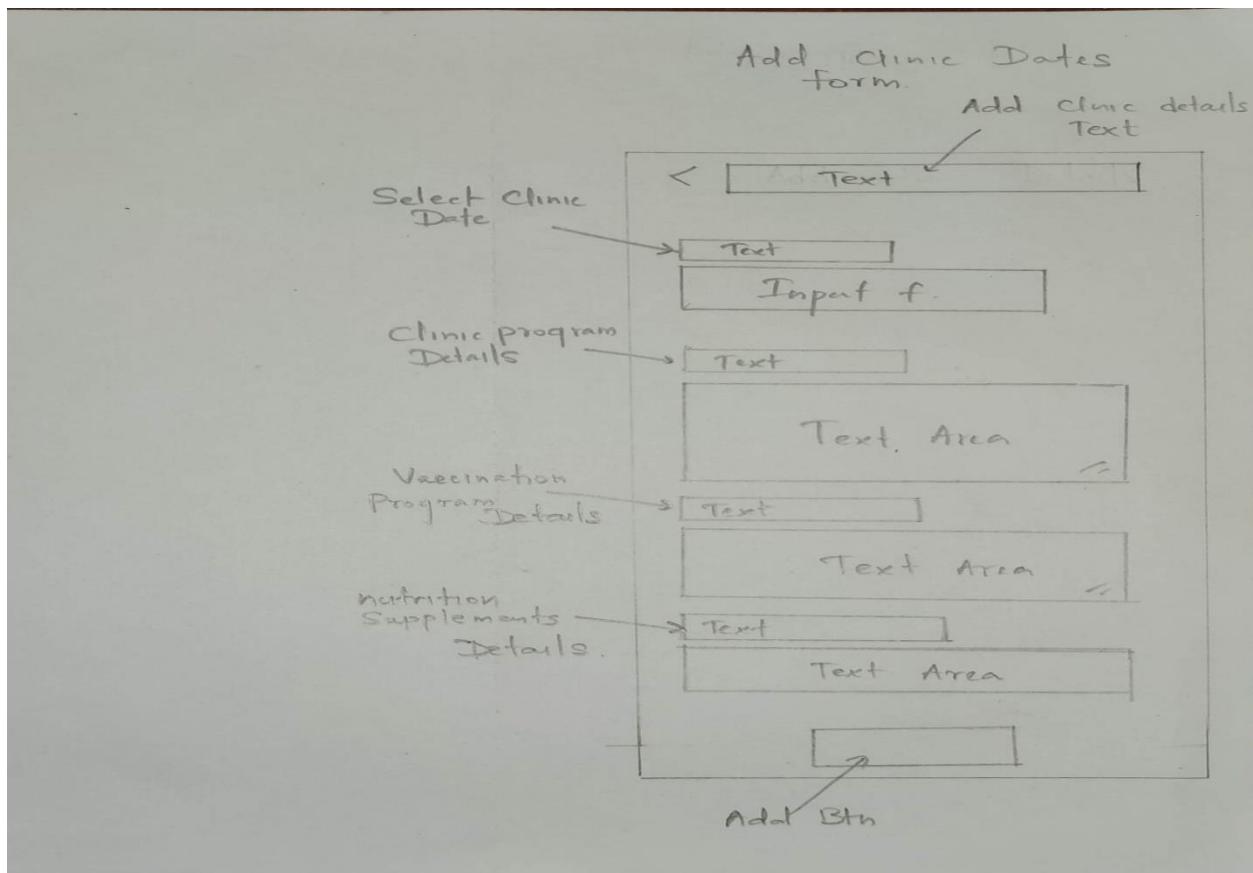


Figure 31-add clinic details sketching-midwife

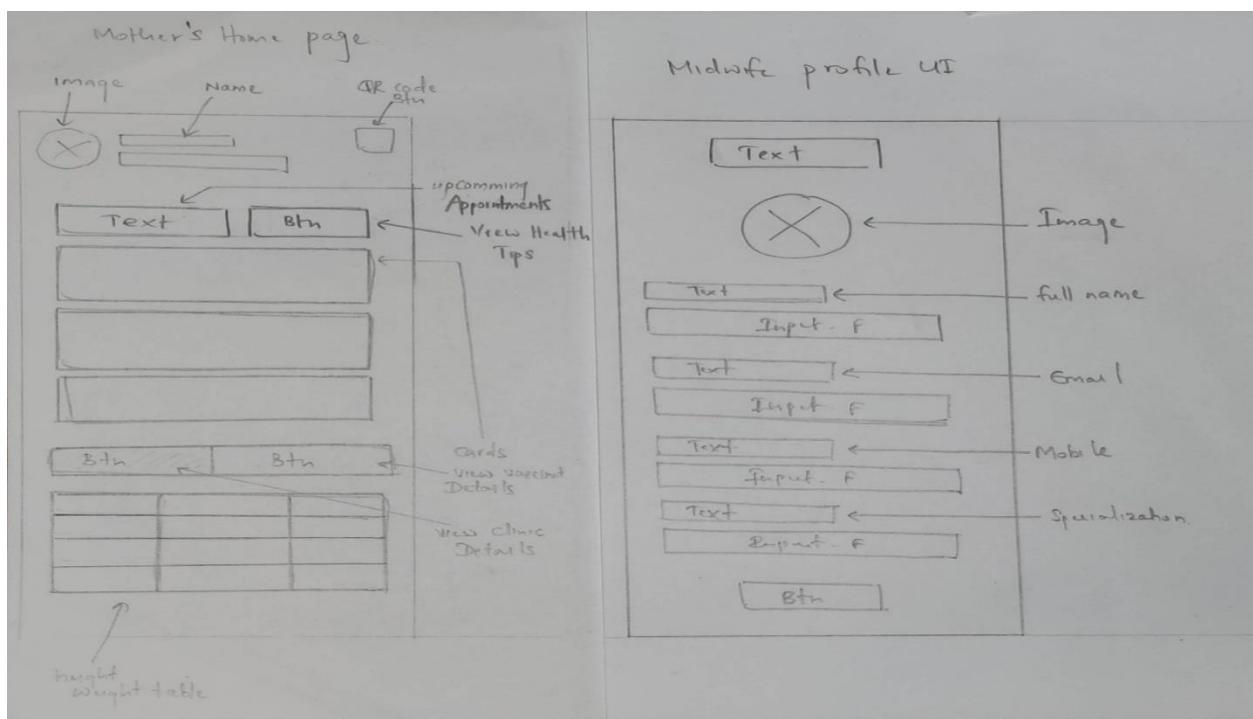


Figure 32-motherHome page, midwife profile sketching

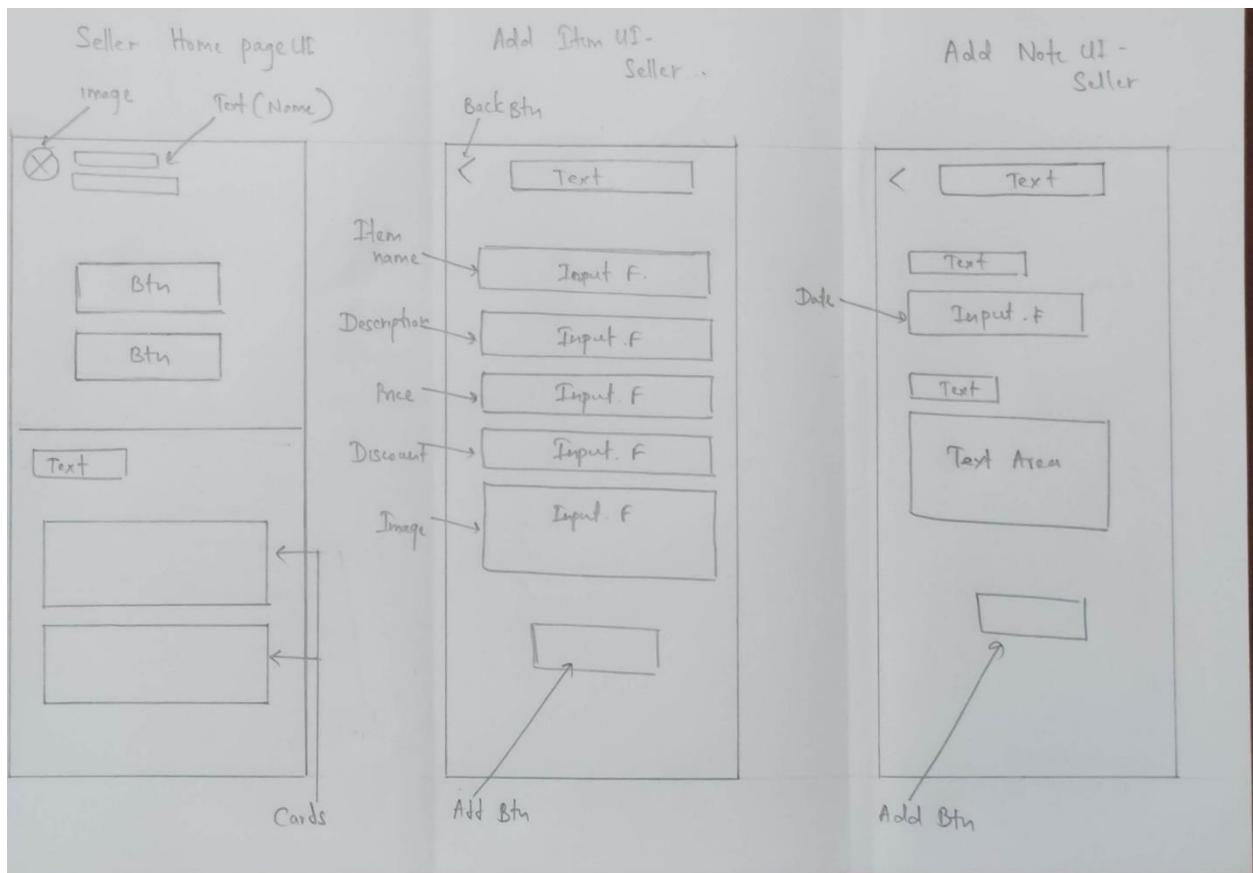


Figure 33--(homepage, add Items, add Note) sketching-seller

➤ Vaccination Scheduling & Clinic Scheduling – IT21252754

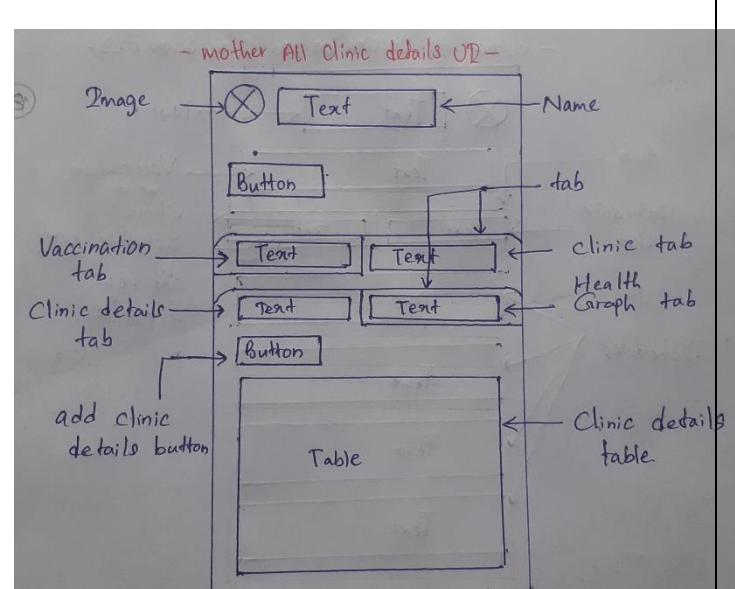
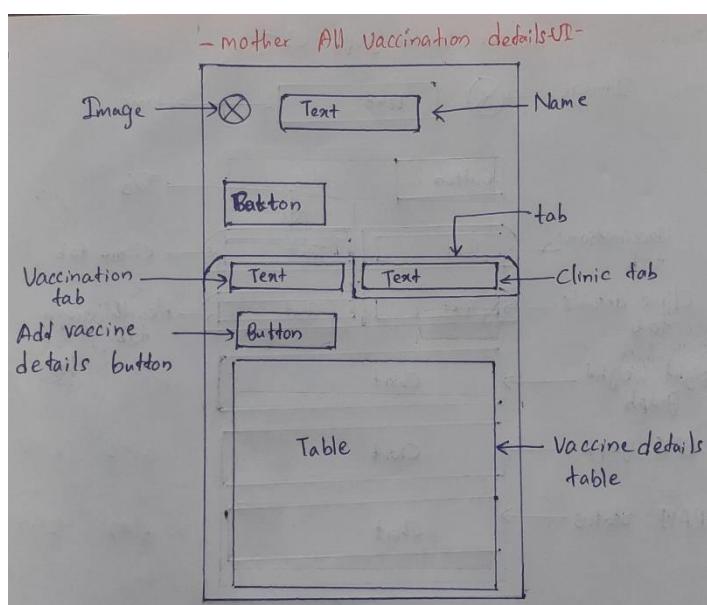


Figure 34 mother all vaccination details - sketching

Figure 35-mother all clinic details - sketching

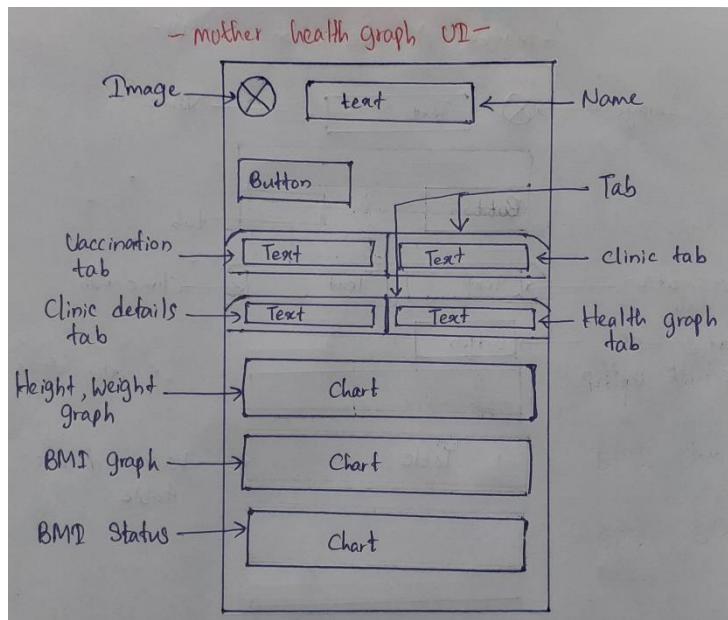


Figure 36-mother health graphs - sketching

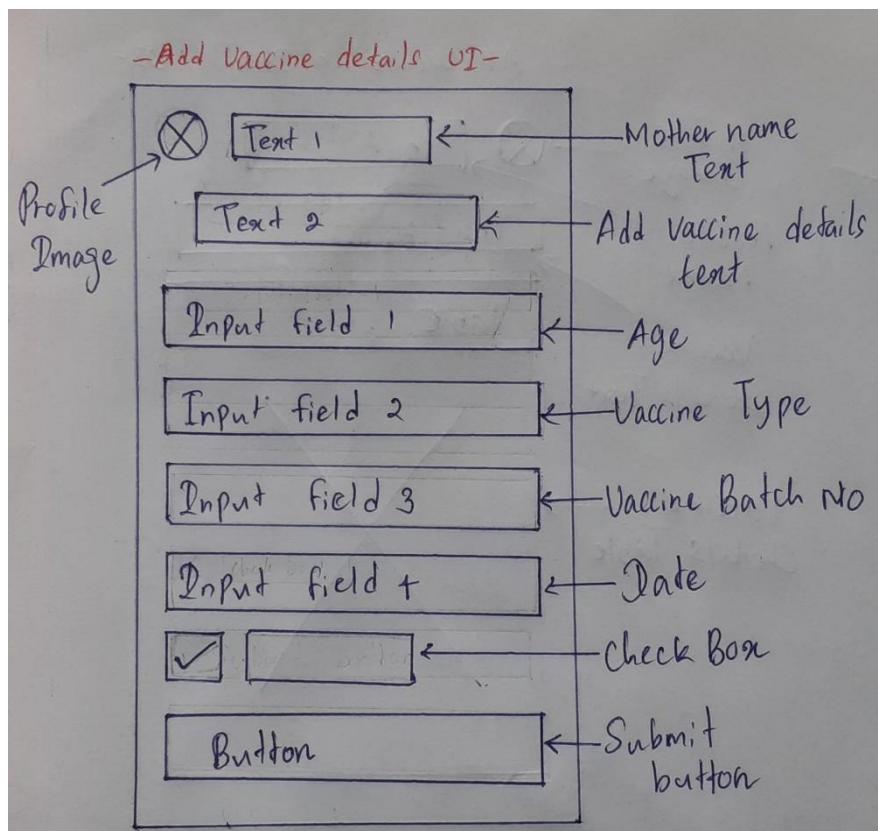


Figure 37 add vaccine details - sketching.

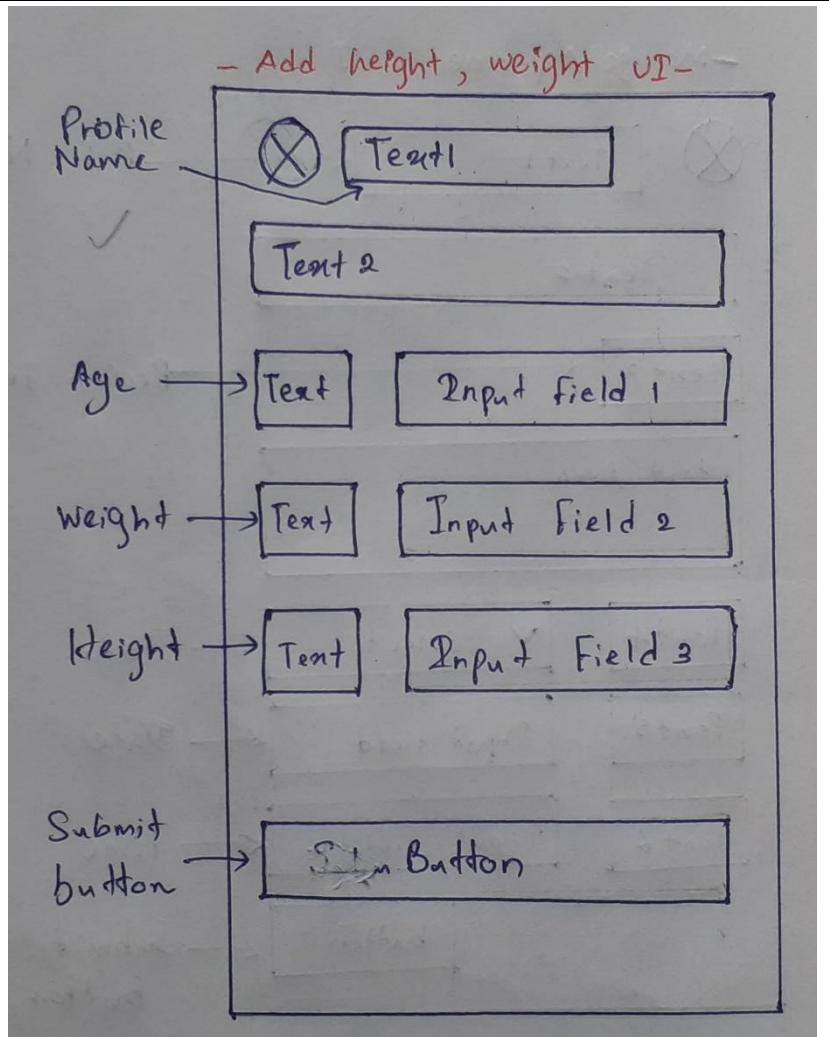


Figure 38- add height and weight sketching

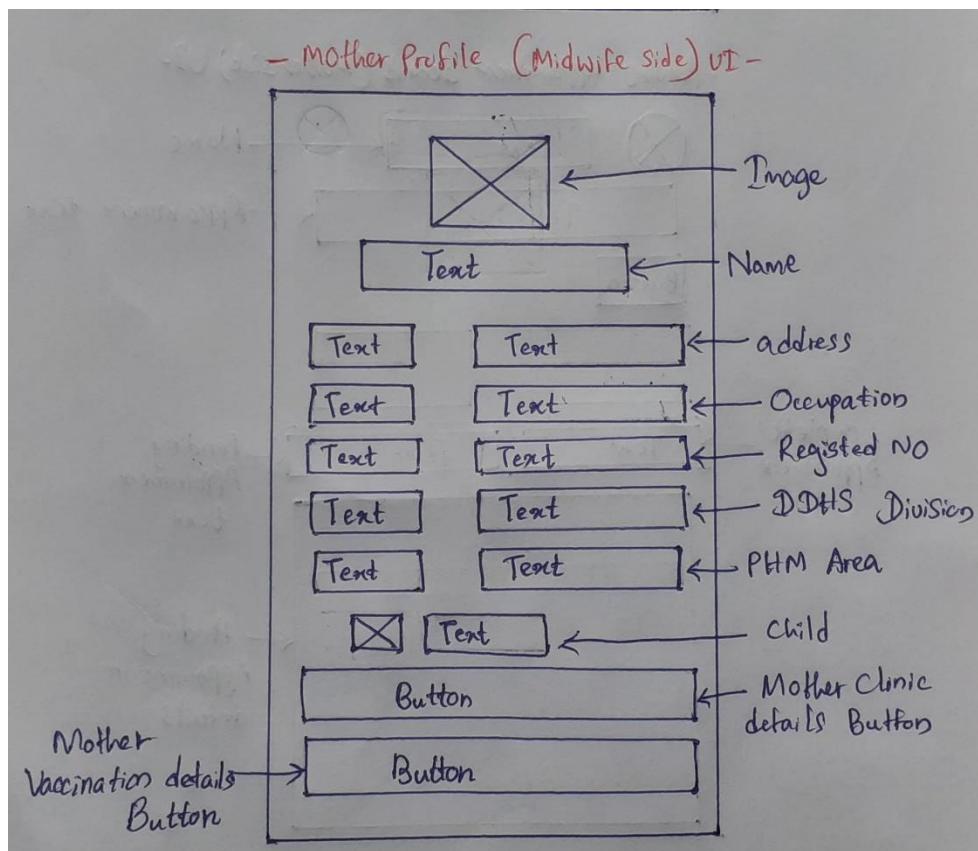


Figure 39-mother profile sketching

-Child Profile UI (midwife side)-

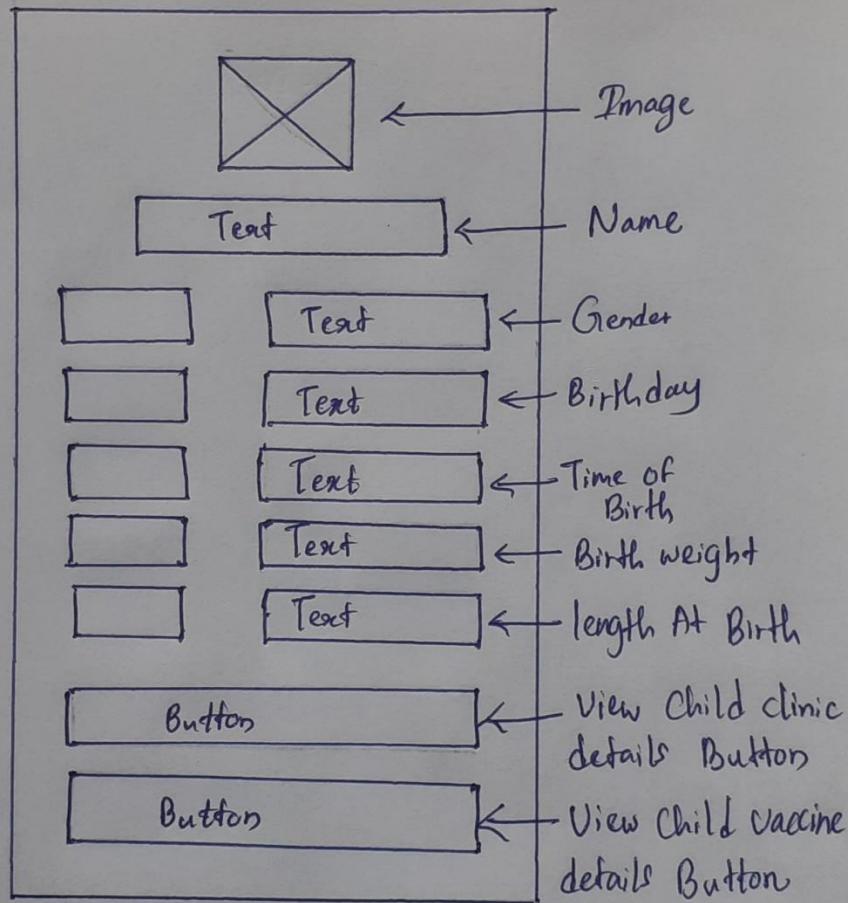


Figure 40-child profile sketching

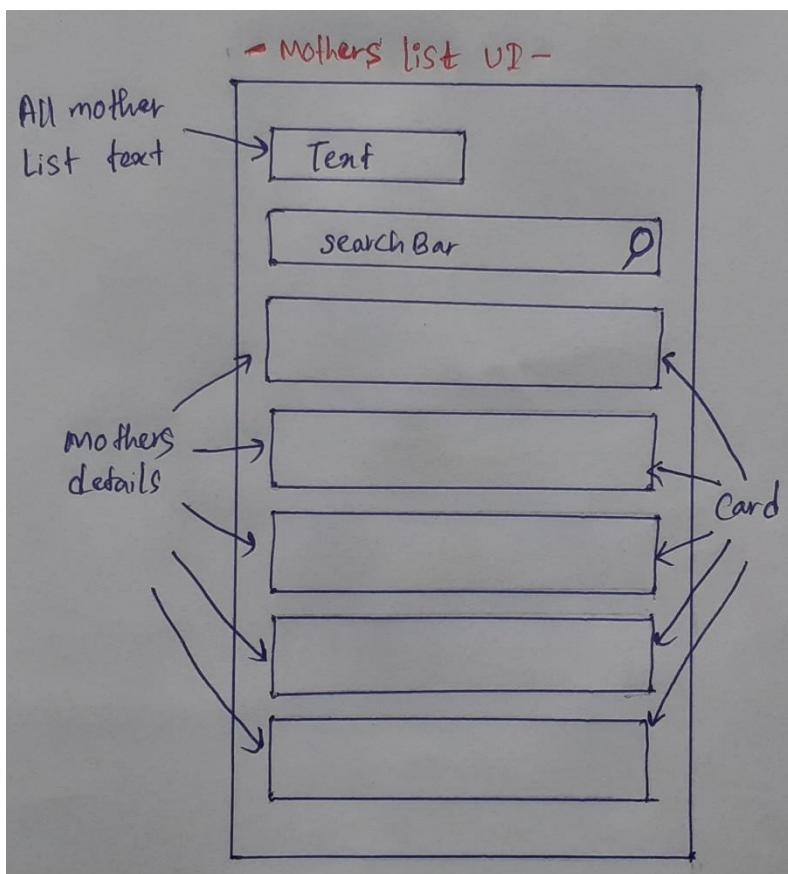


Figure 41-mother list sketching

➤ Online Baby Shop – IT21210174

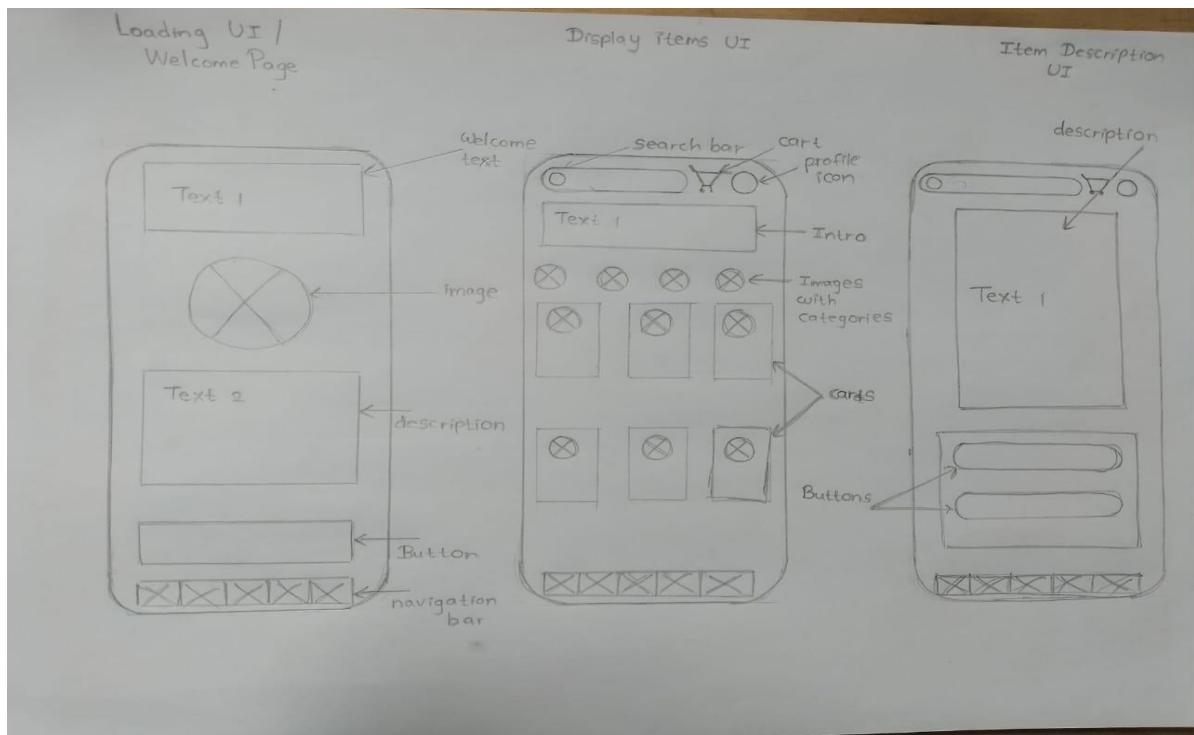


Figure 42-Welcome page, Load page, and description page sketches

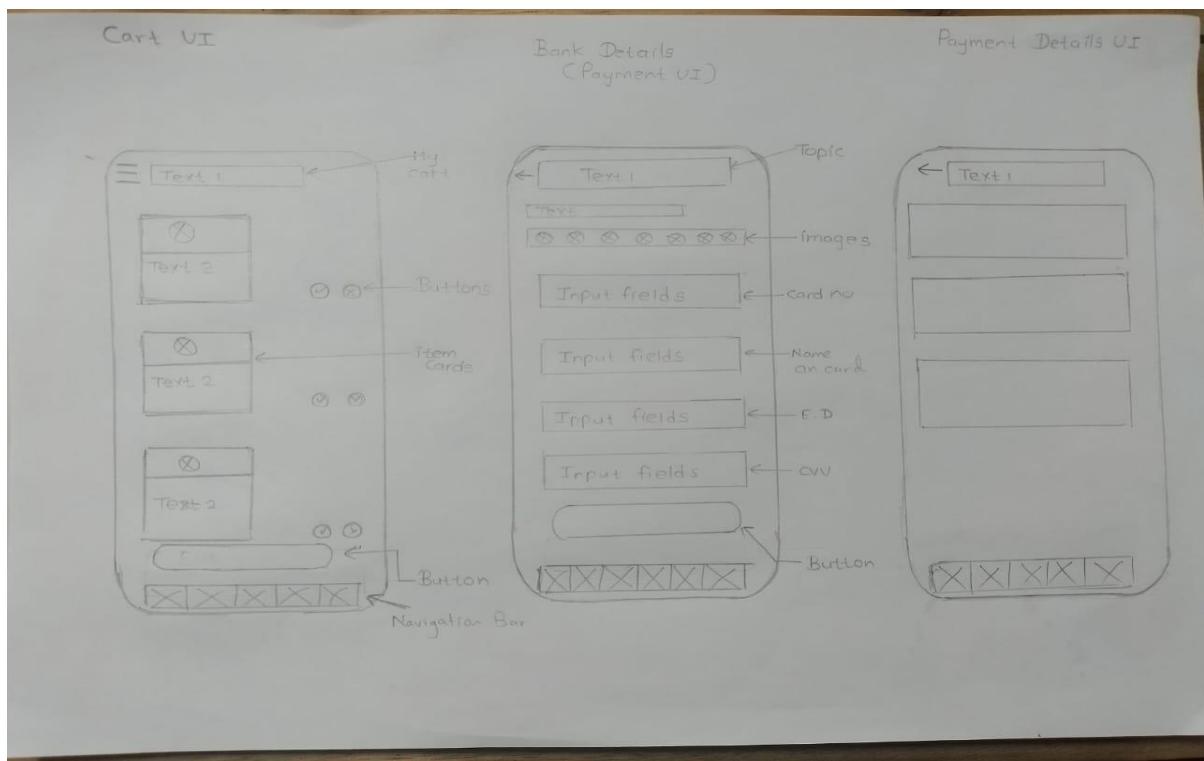


Figure 43-Cart ui, payment ui and payment details sketching

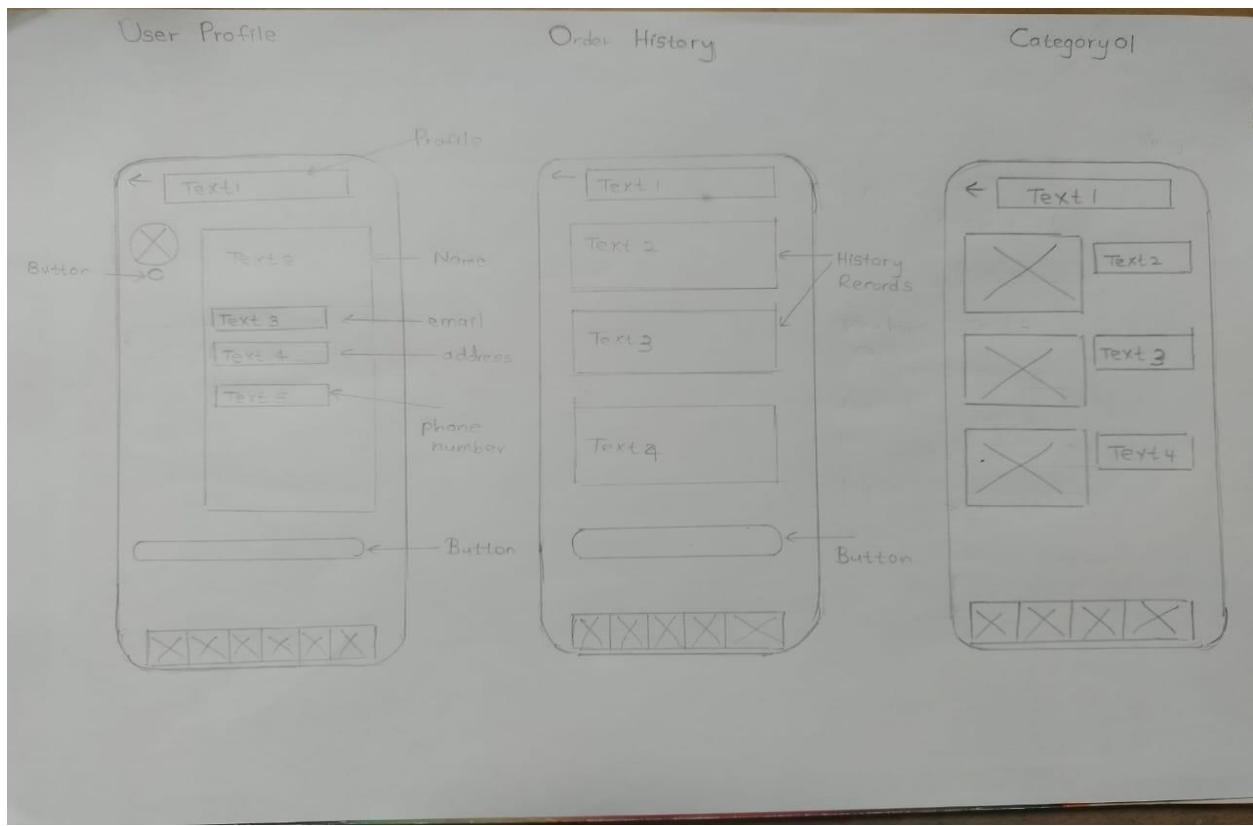


Figure 44-user profile, order history, and category 1 sketching

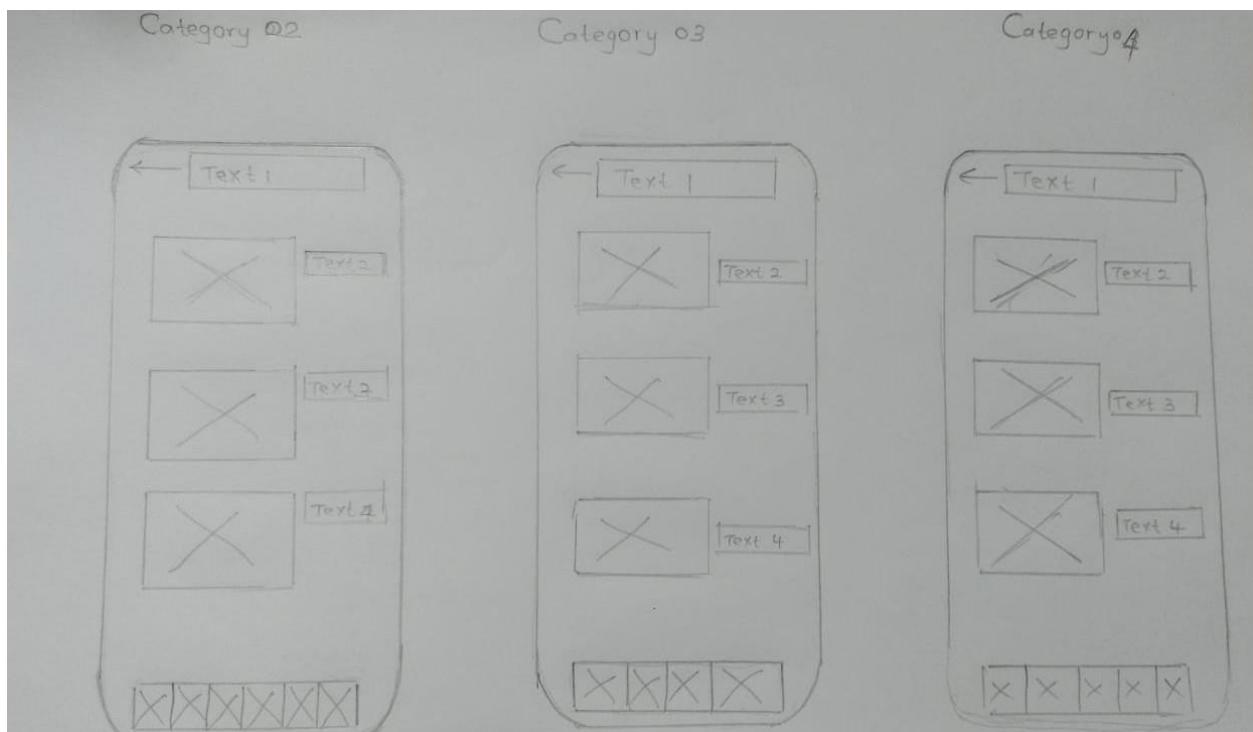


Figure 45-Category 2,3,4 sketching

➤ Medical tips and advice - IT21288012

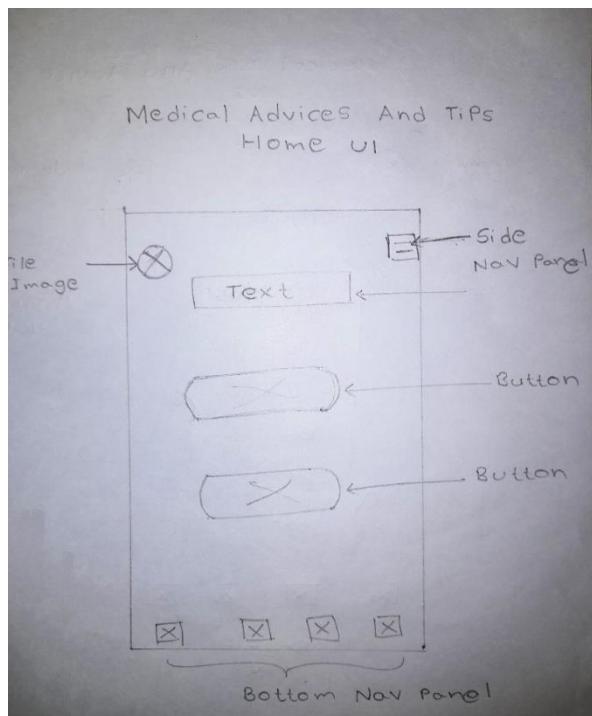


Figure 47-Medical Tips Selector Sketching

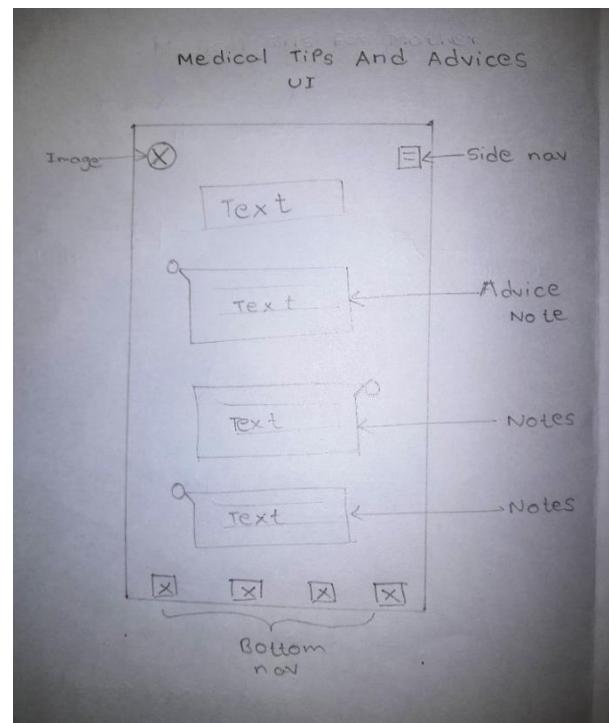


Figure 46-All Medical Tips Sketching

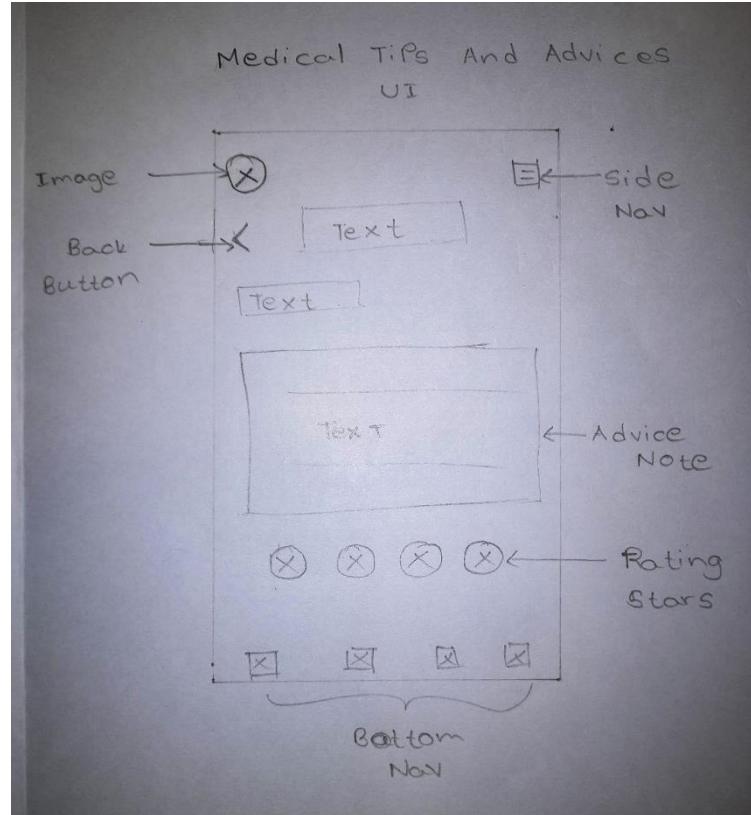


Figure 48-Medical Tips More Details Sketching

7.2 Wireframes

➤ User Management – IT21321368

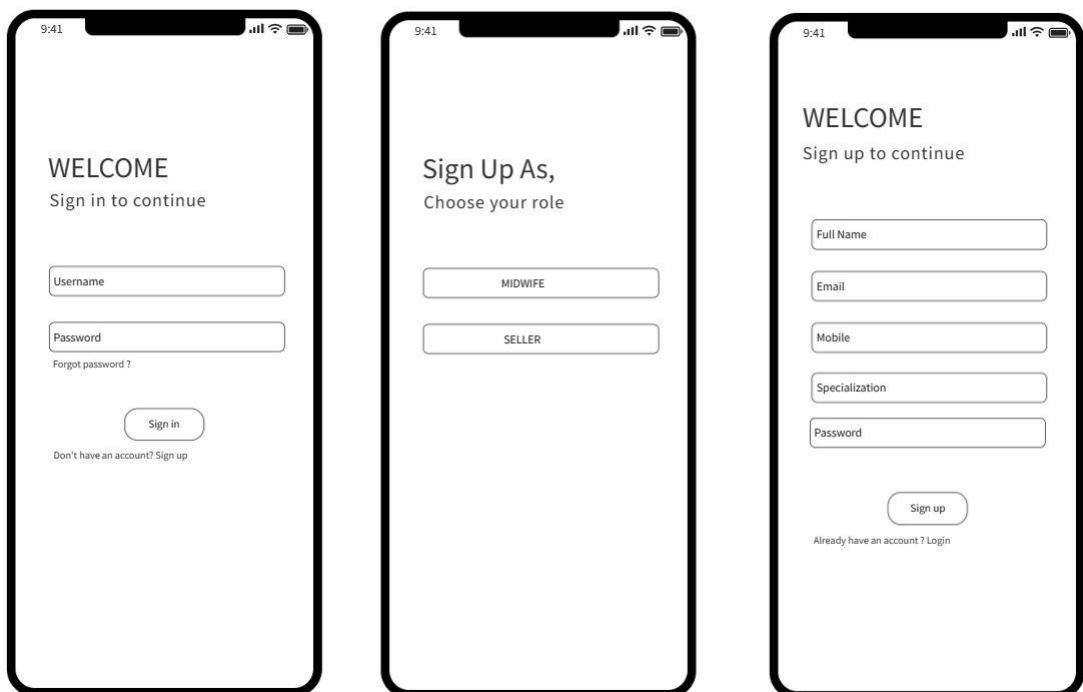


Figure 49-sign in, role selection and sign up wireframes

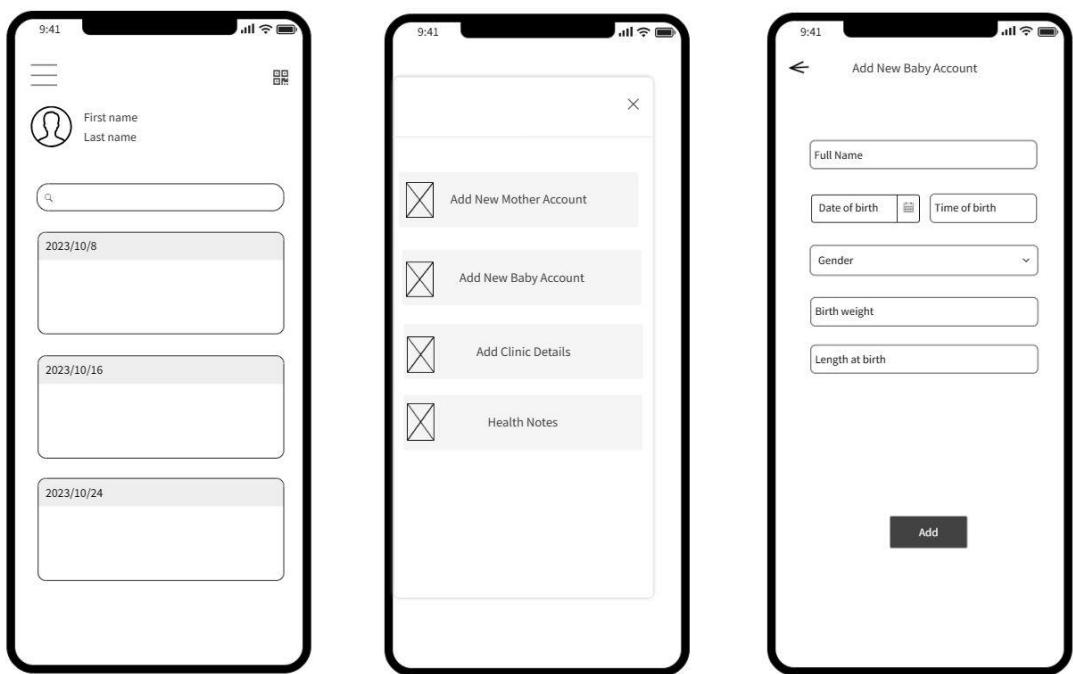


Figure 50-midwife home page, expanded sidebar and add baby account wireframes

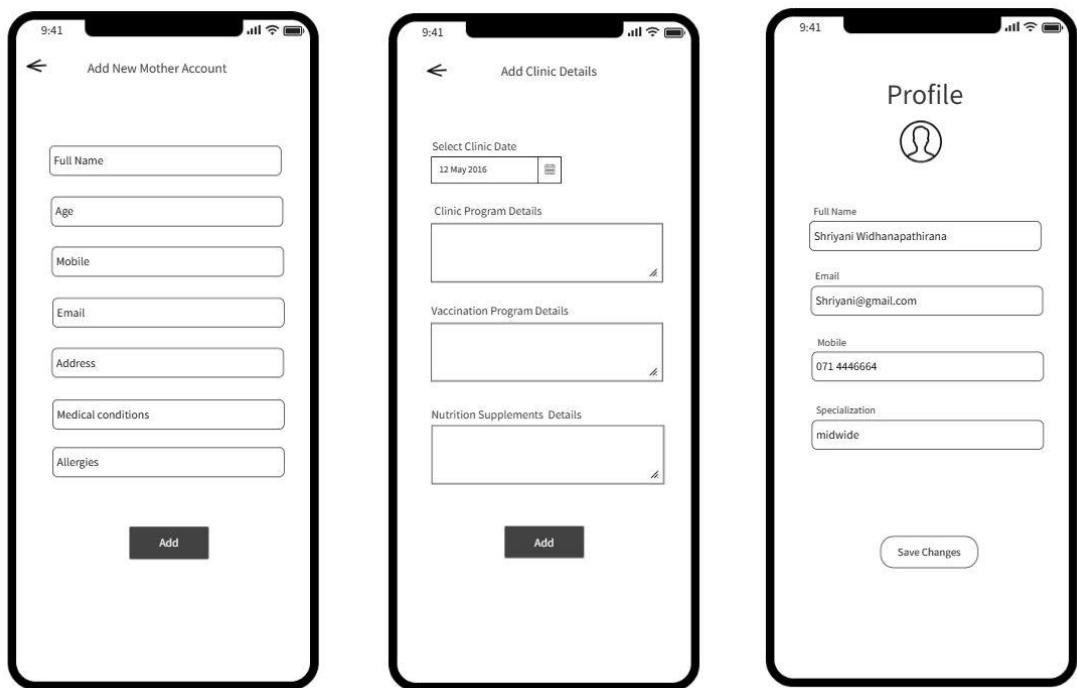


Figure 51-add mother account, add clinic details and midwife profile wireframes

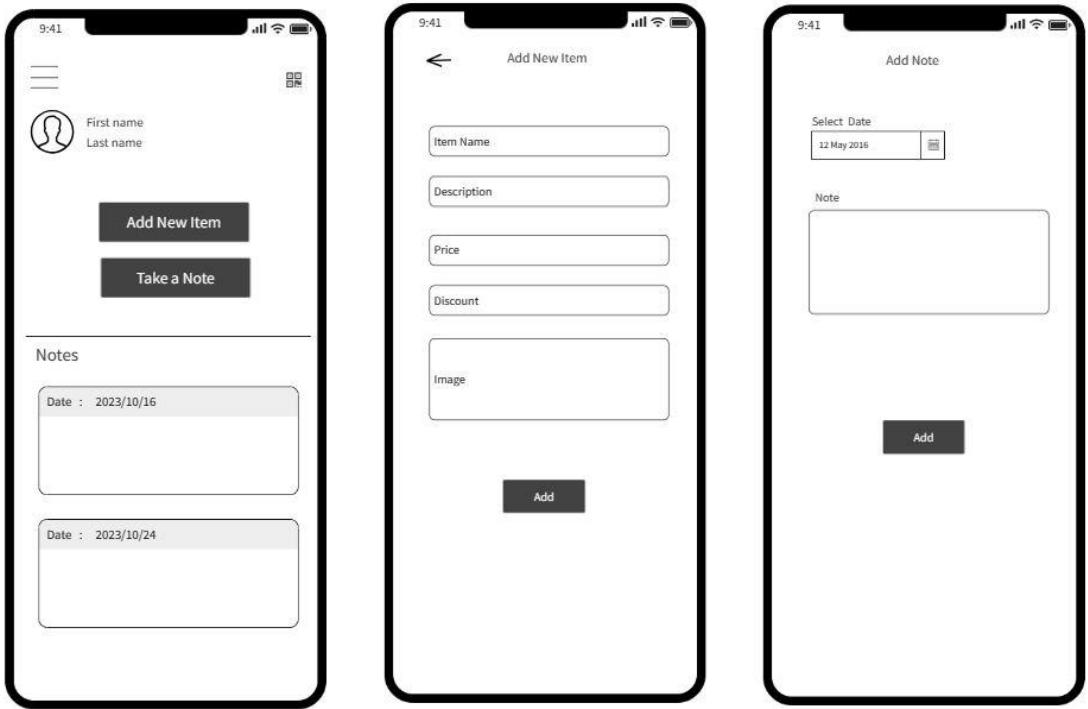


Figure 52-seller home page, add new item and add note wireframes

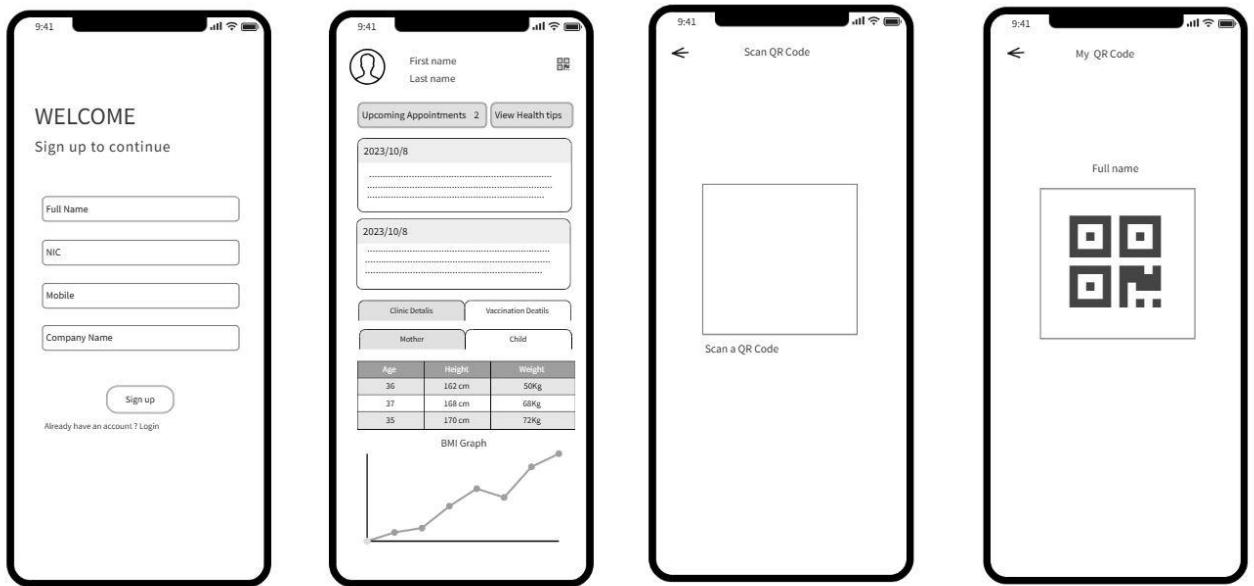


Figure 53-seller sign up, mother homepage, scan QR code and QR code wireframes

➤ Vaccination Scheduling & Clinic Scheduling - IT21252754

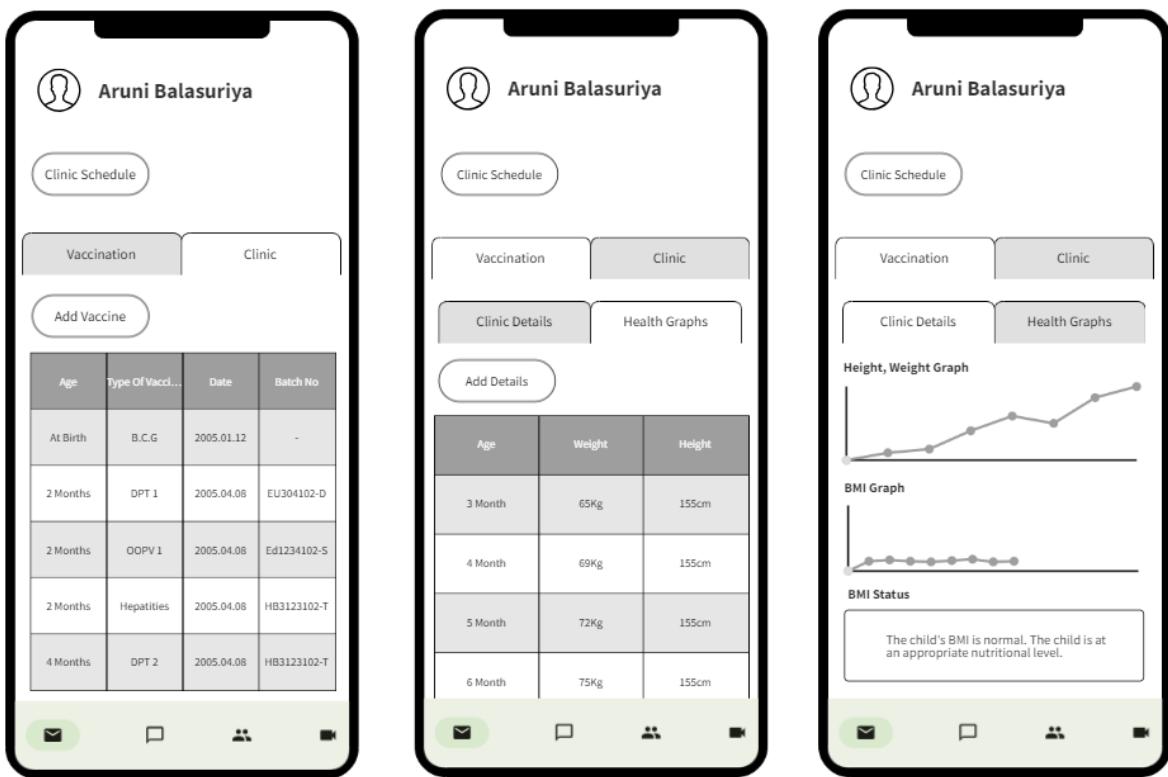


Figure 54-mother all vaccine, all clinic, health graphs wireframes

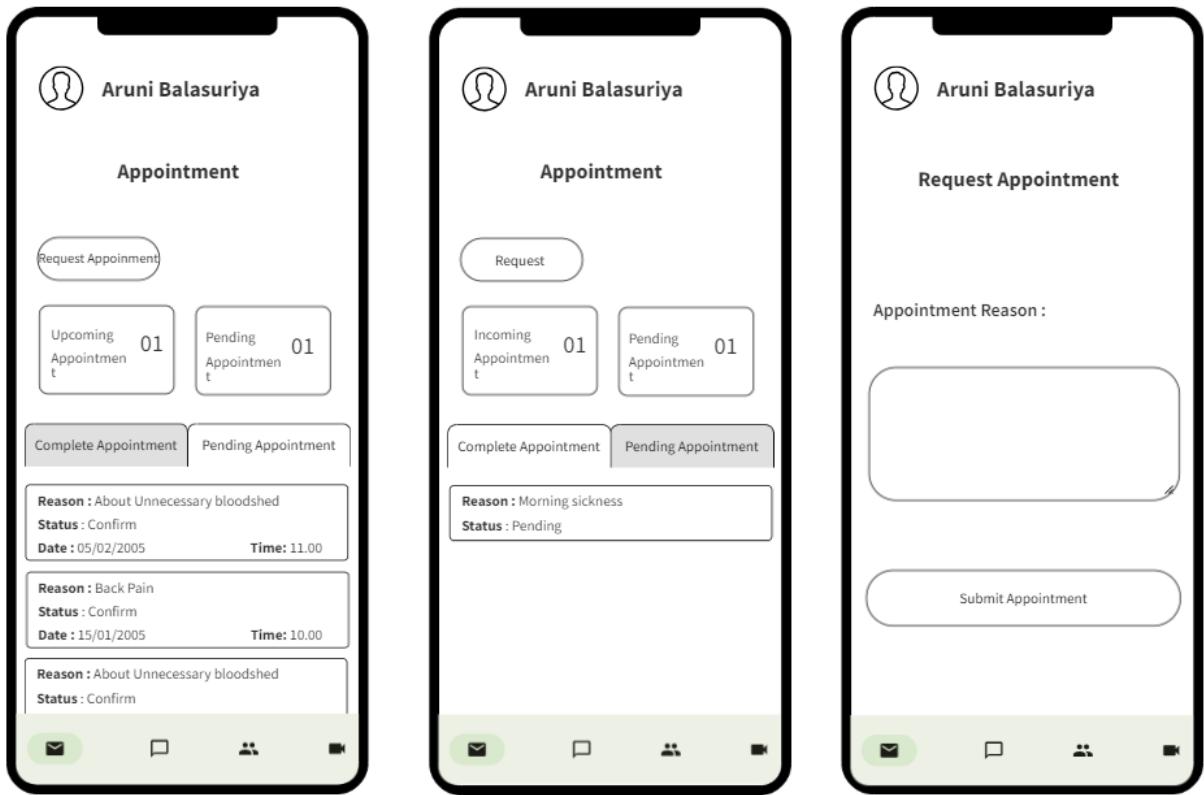


Figure 55-appointment management wireframes

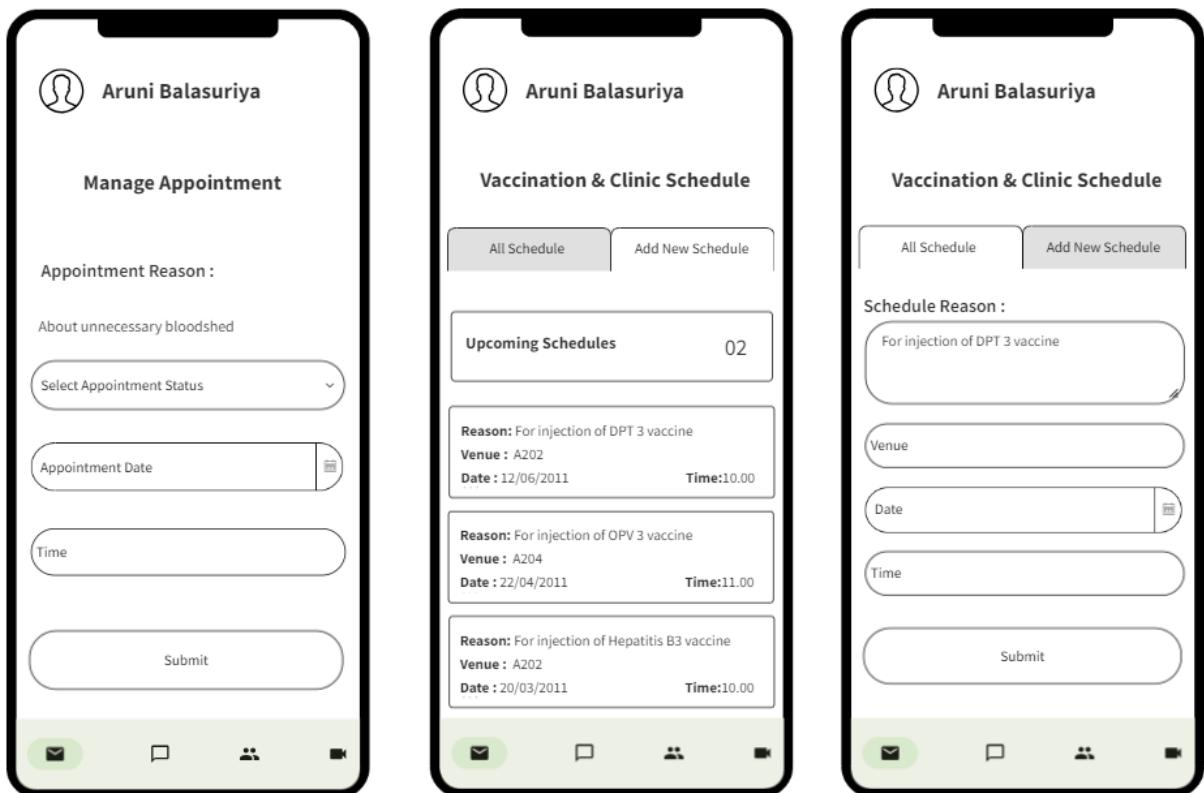


Figure 56 - vaccination and clinic schedules wireframes

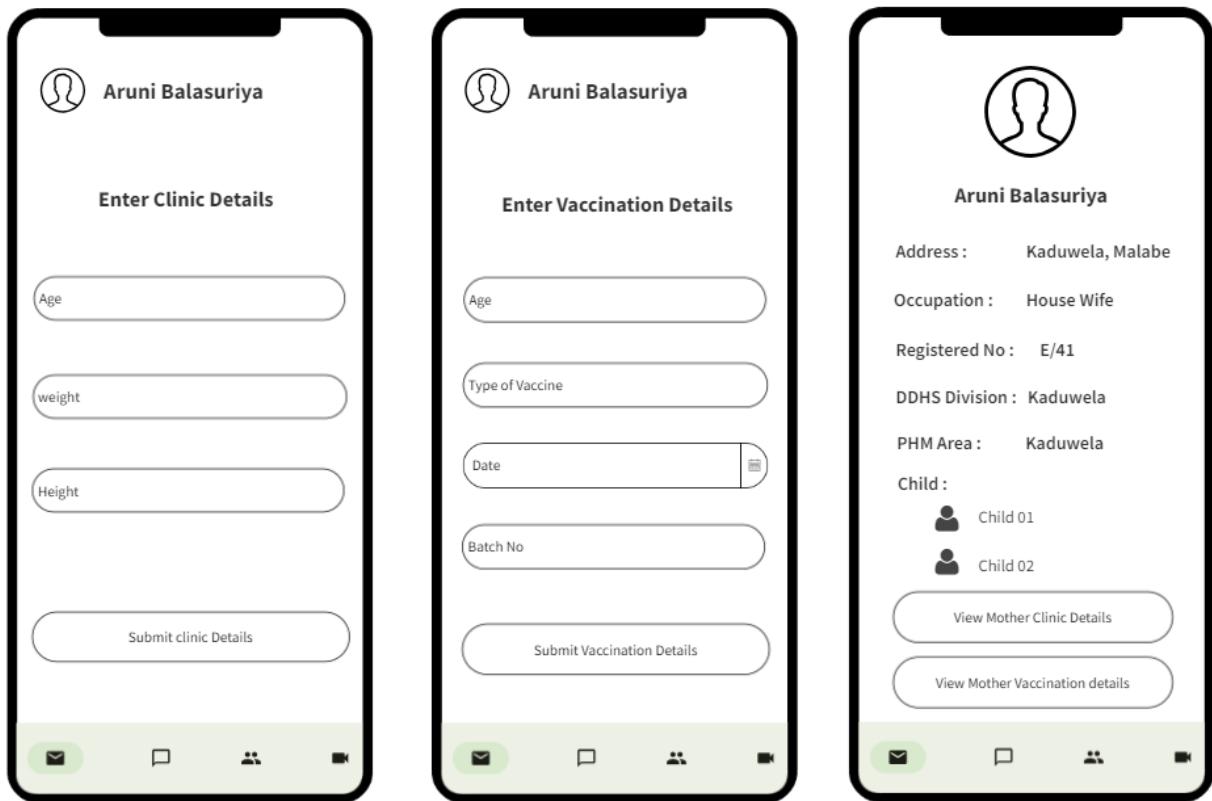


Figure 57-add clinic details, add vaccination details, mother profile wireframes

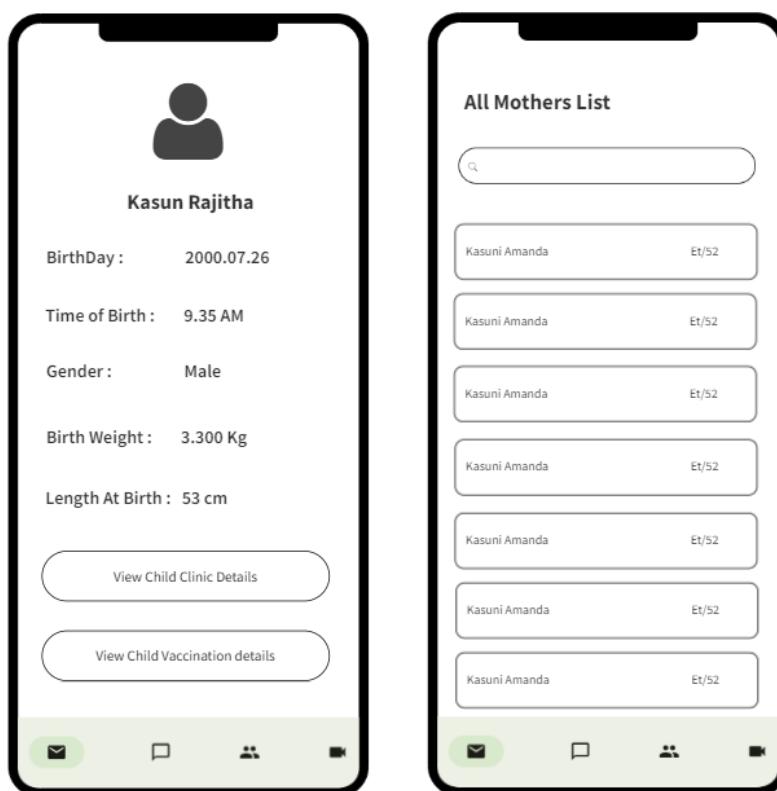


Figure 58-child profile, mother list wireframes

➤ Online Baby Shop – IT21210174

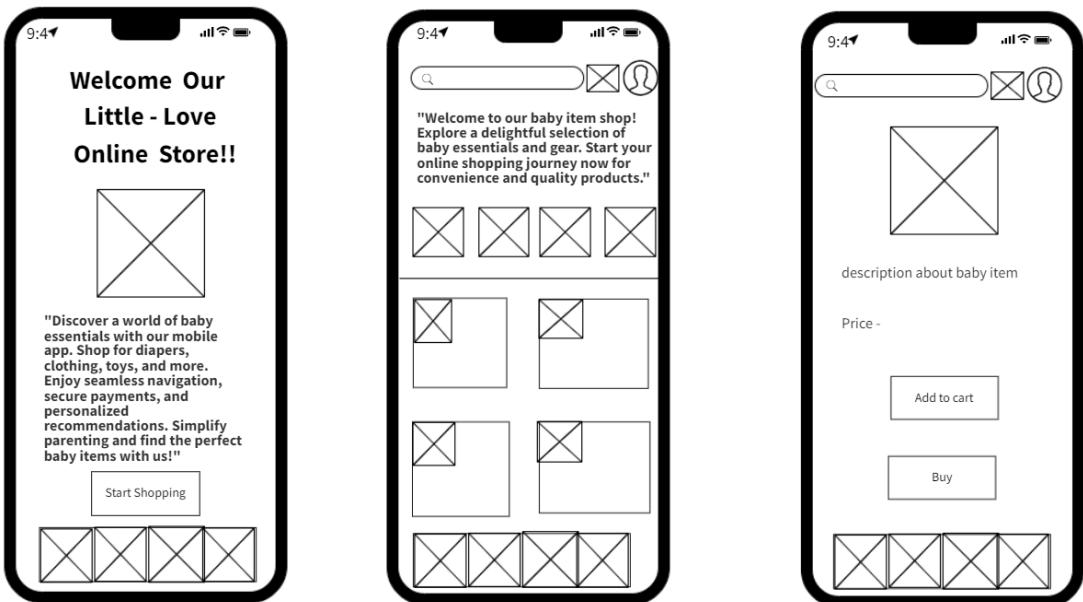


Figure 59-Loading ui, welcome ui, description page wireframes

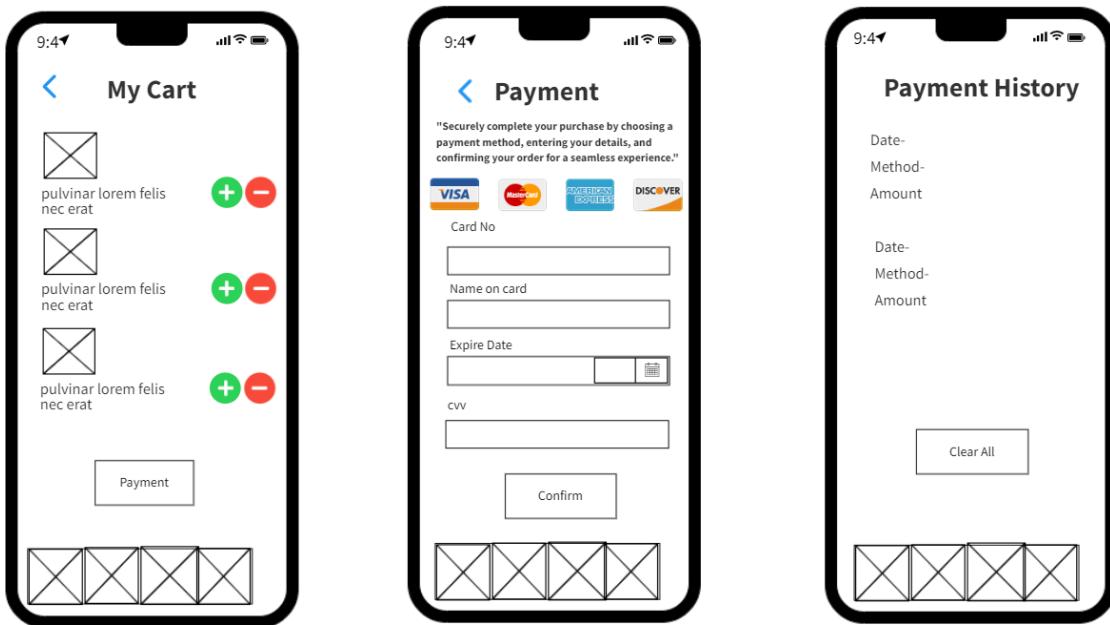


Figure 60-Cart page, payment page and payment history wireframes

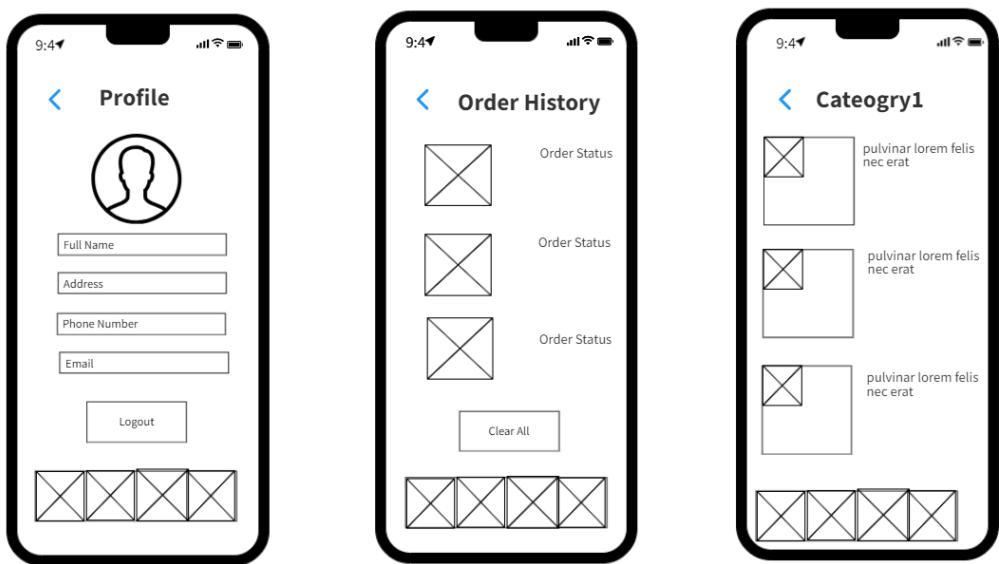


Figure 61-profile, order history and category 1 wireframes

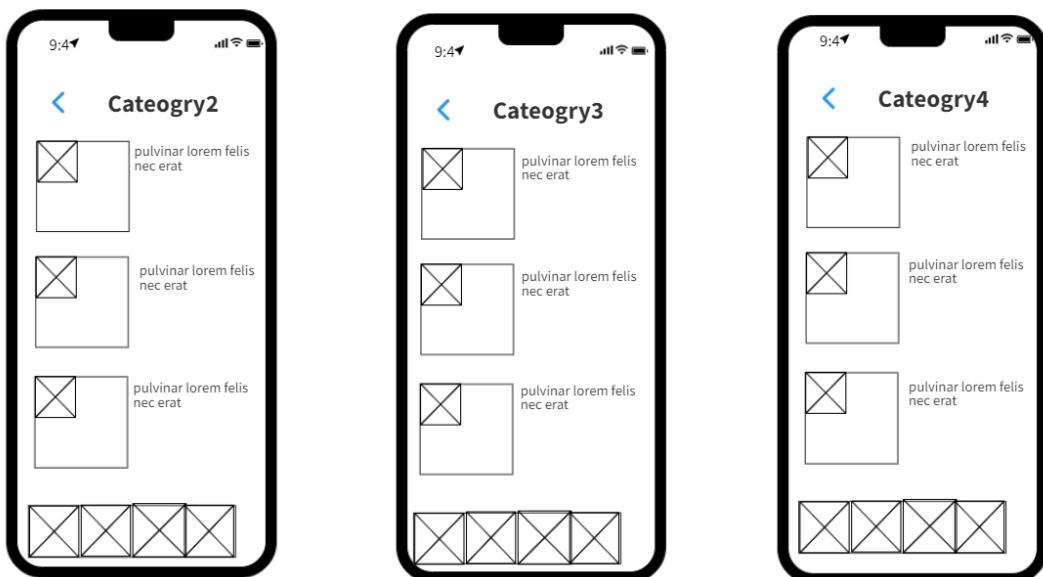


Figure 62-Category 2,3,4 wireframes

➤ Medical tips and advice - IT21288012

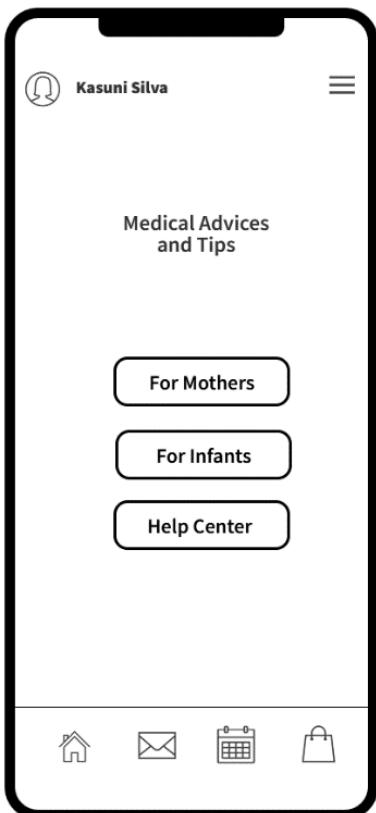


Figure 64-Medical Tips Selector Wireframe

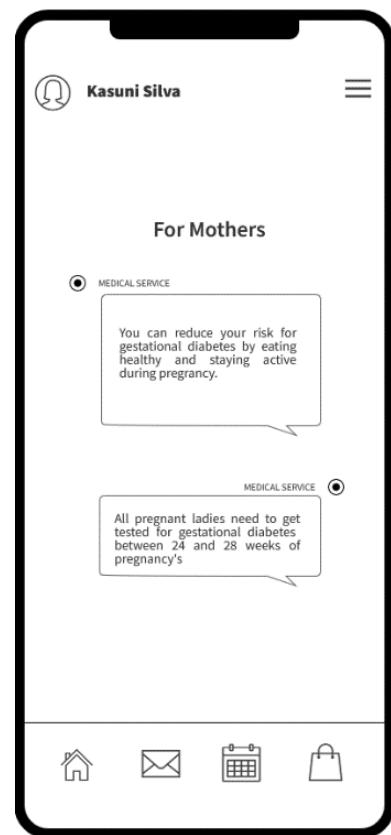
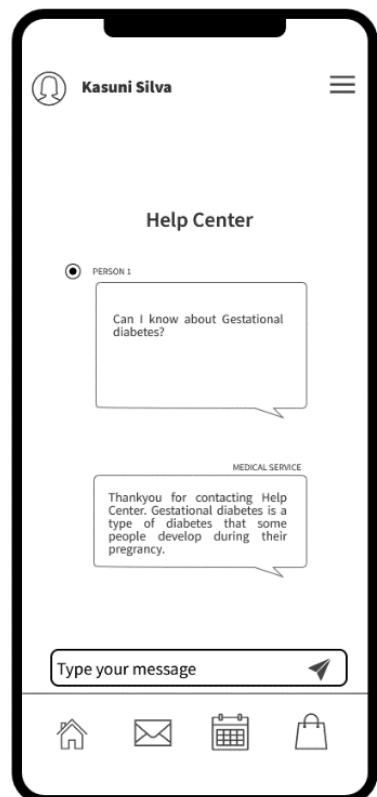


Figure 63-All Medical Tips Wireframe



Figure 65-Medical Tips More Information Wireframe



8 Milestone 5: Figma Prototype

<https://www.figma.com/file/MNE179IlzKbxefT8uaFZ8Q/Untitled?type=design&node-id=0%3A1&mode=design&t=gFHwx3mIov7mjt2B-1>

8.1 Vaccine and Clinic Management – IT21252754

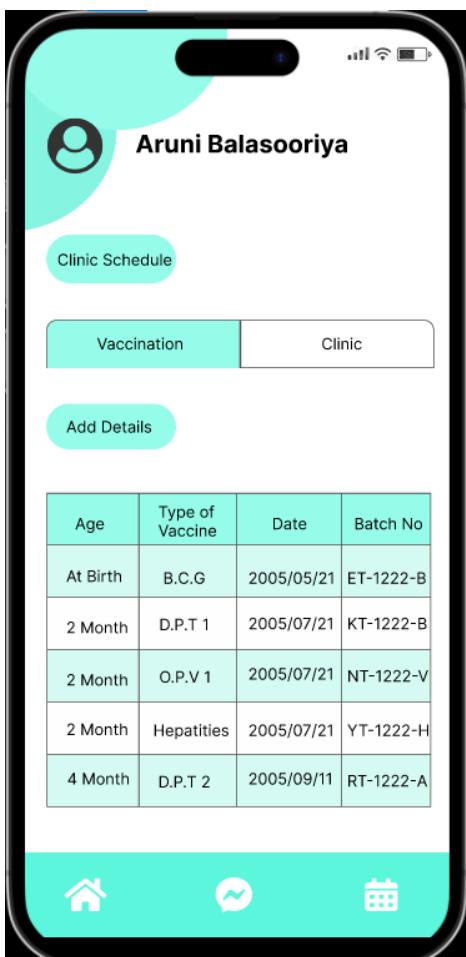


Figure 68-mother vaccine details prototype

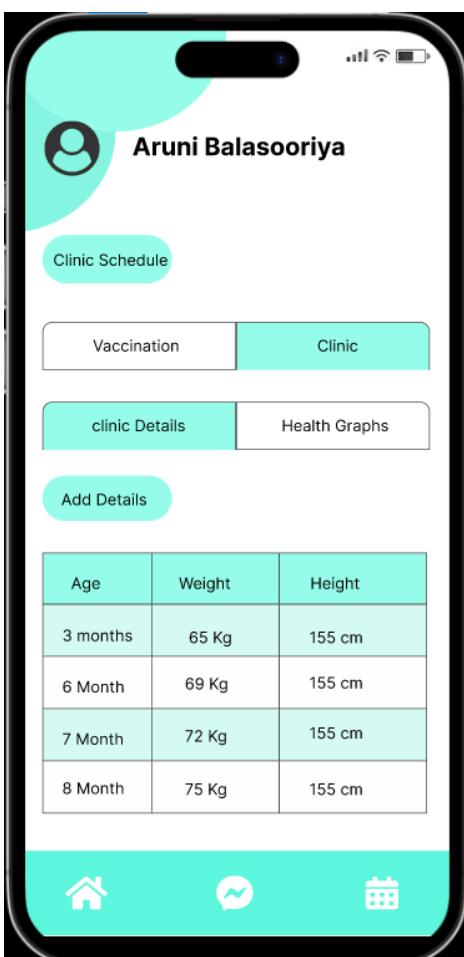


Figure 67-mother clinic details prototype

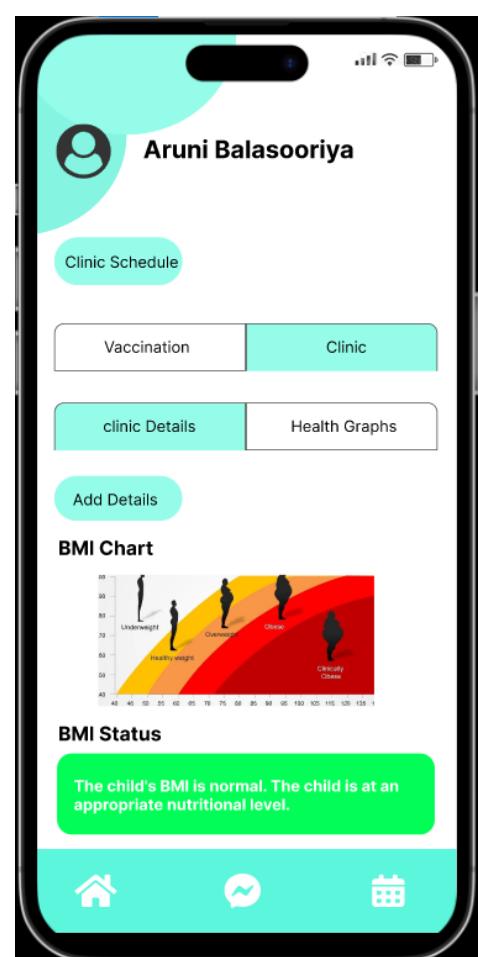


Figure 66-mother health graphs prototype

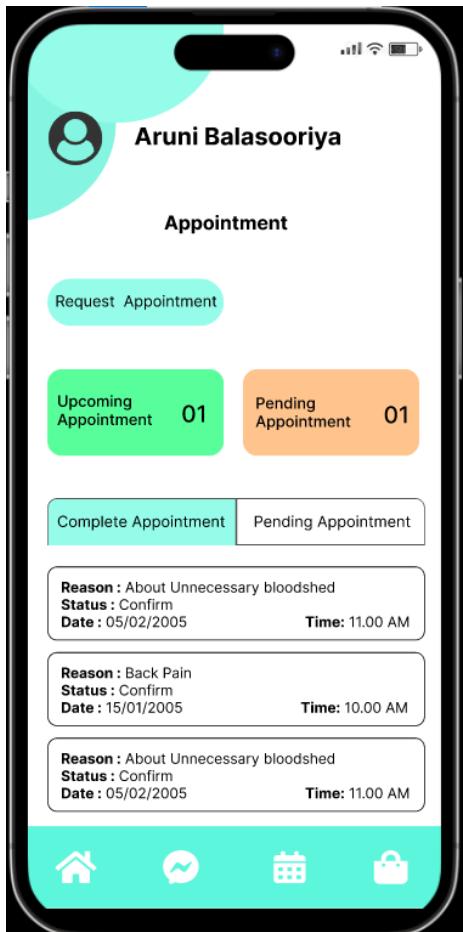


Figure 71-complete appointment prototype

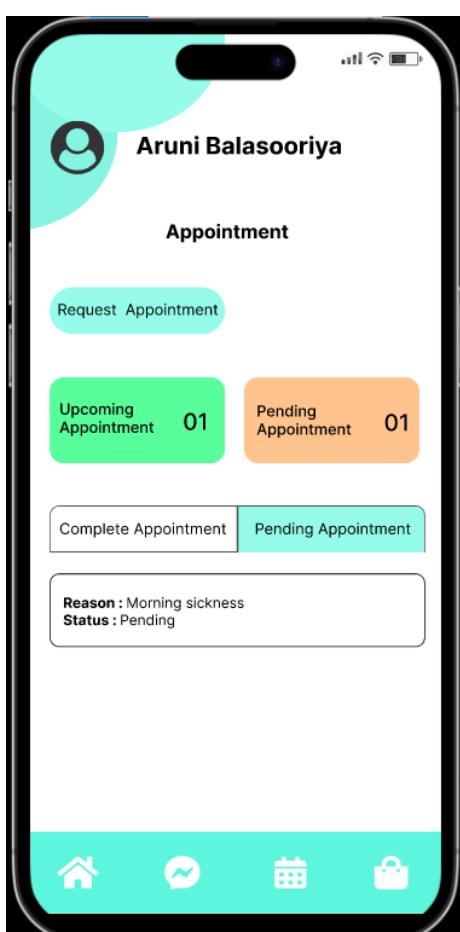


Figure 69-pending appointment prototype

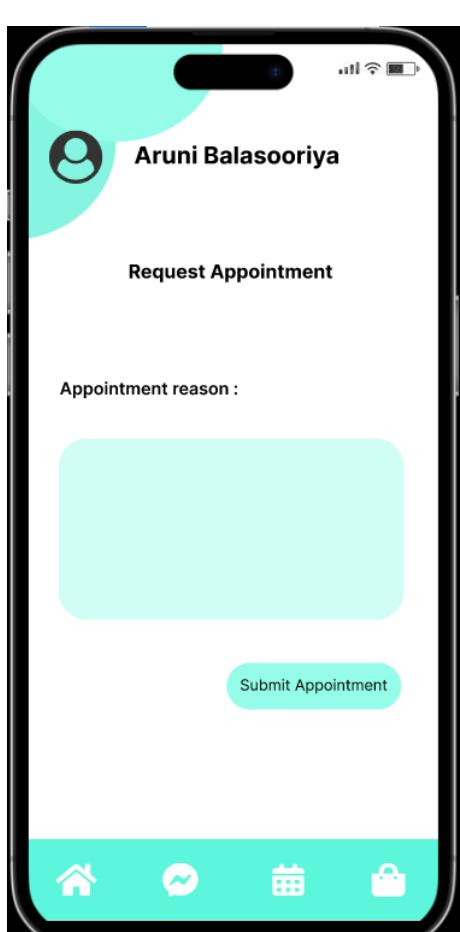


Figure 70-request appointment prototype

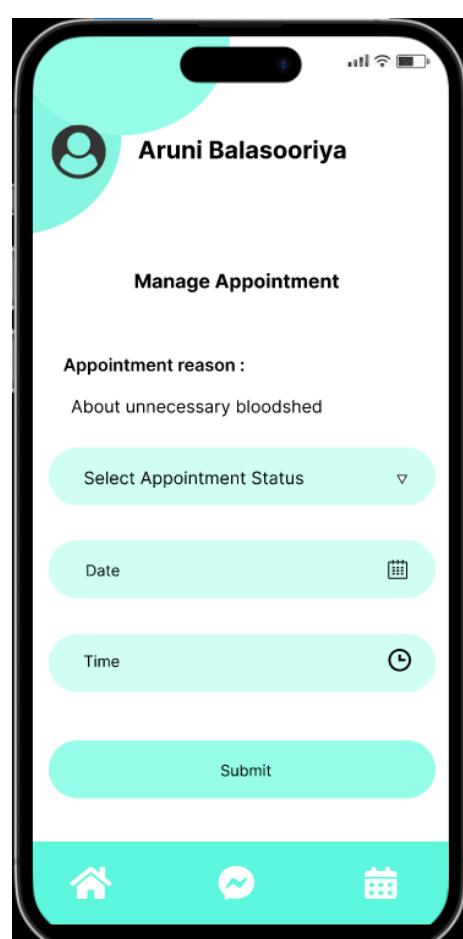


Figure 74-manage appointment prototype

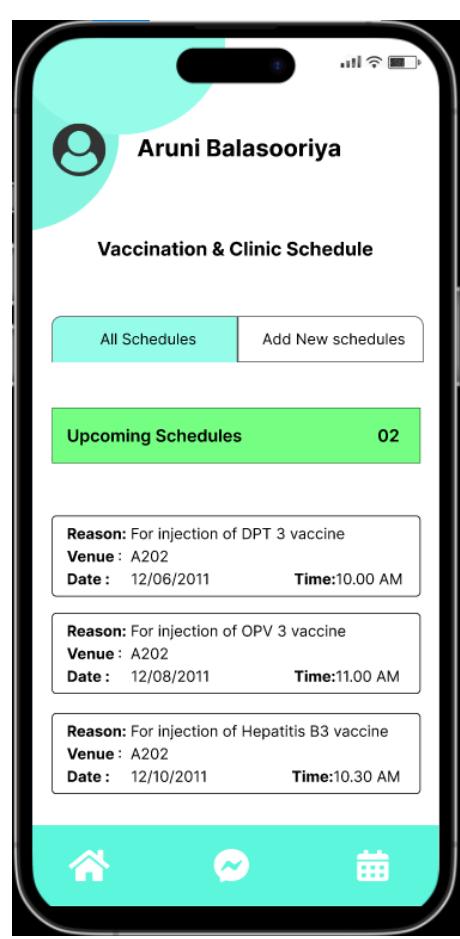


Figure 72-vaccination schedule prototype

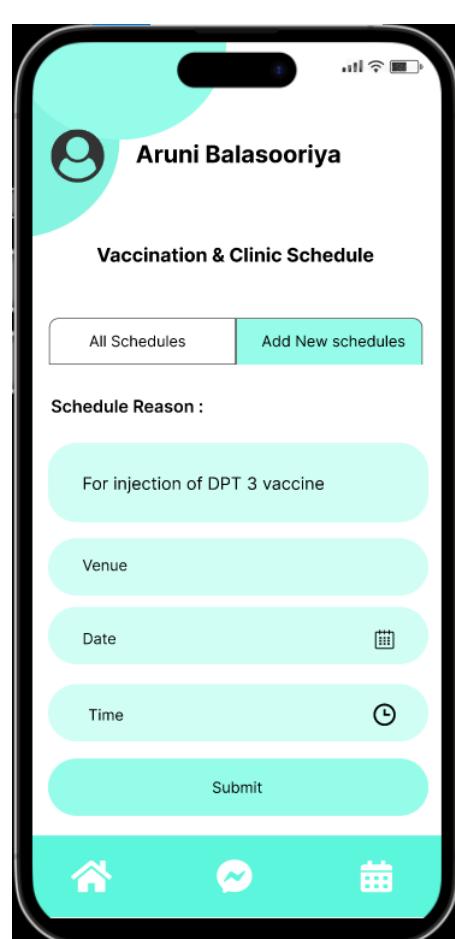


Figure 73-add schedule prototype

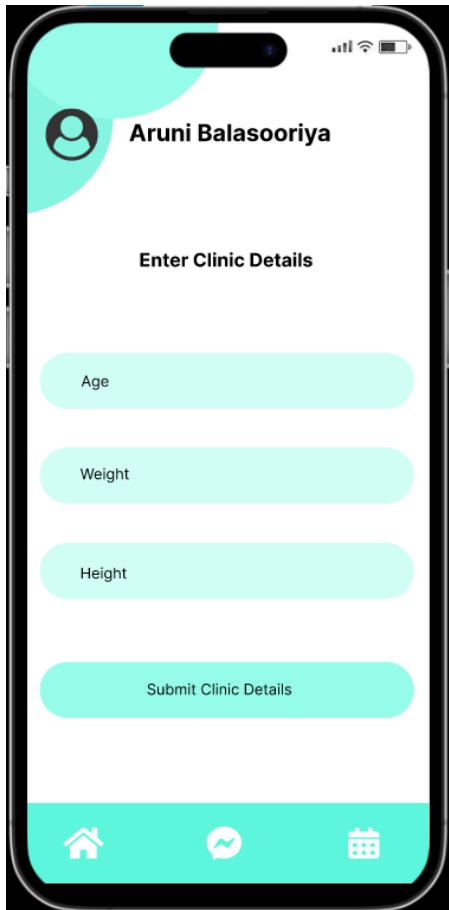


Figure 75-add clinic details prototype

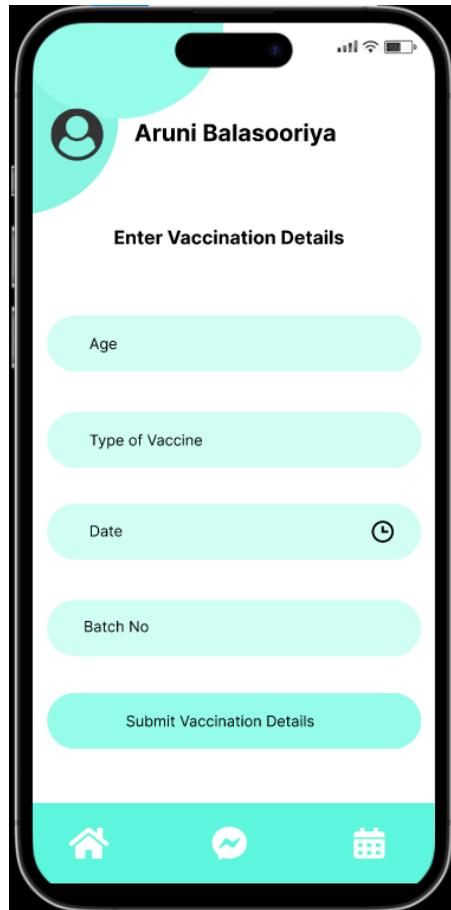


Figure 76-add vaccine details prototype



Figure 77-mother profile prototype

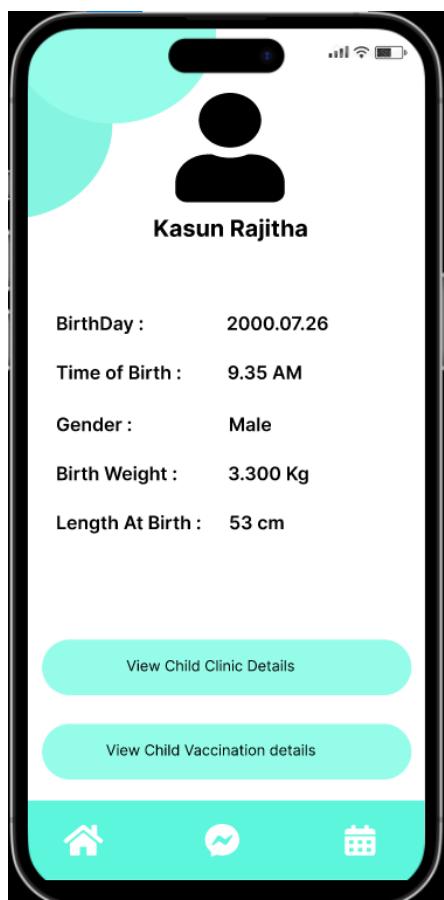


Figure 79-child profile prototype

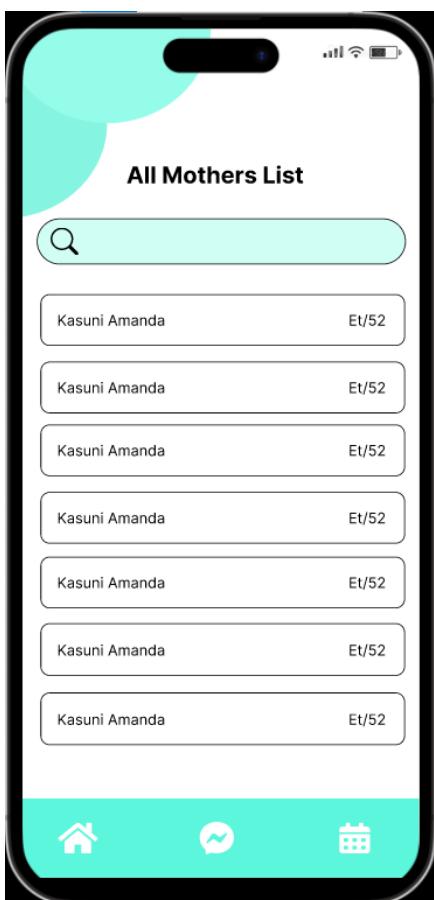


Figure 78-mother list prototype

8.2 User Management – IT21321368

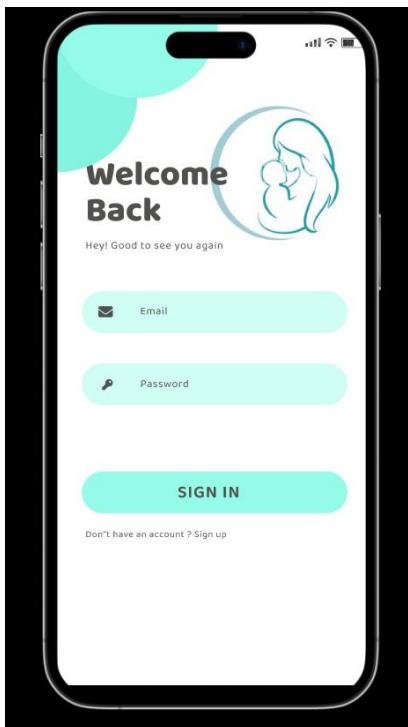


Figure 80-sign in prototype

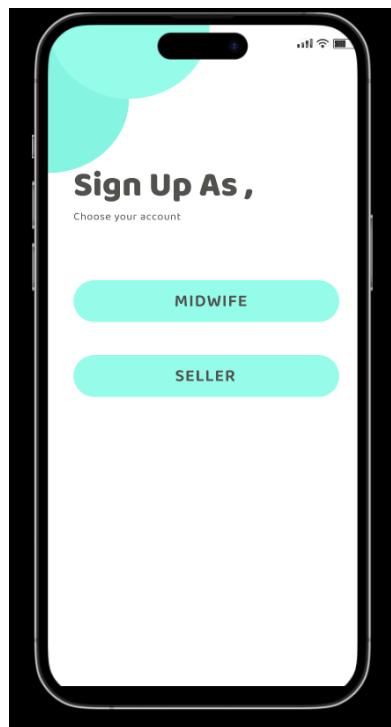


Figure 81- role selection prototype

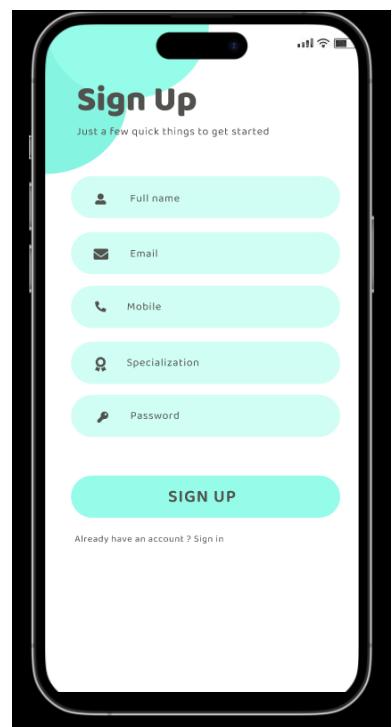


Figure 82-midwife registration prototype

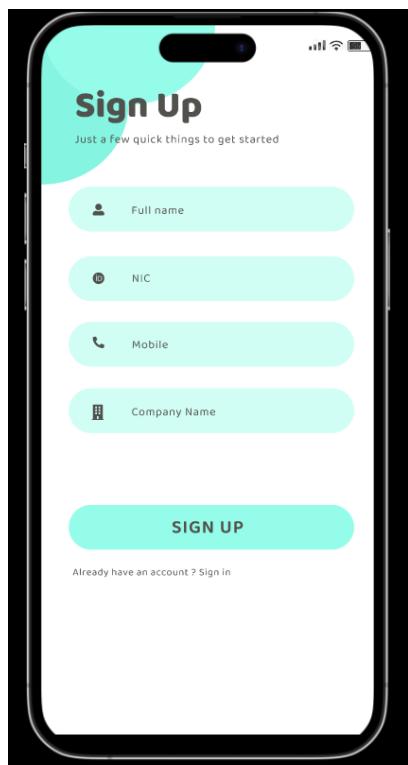


Figure 83-seller registration prototype



Figure 84-midwife home page prototype

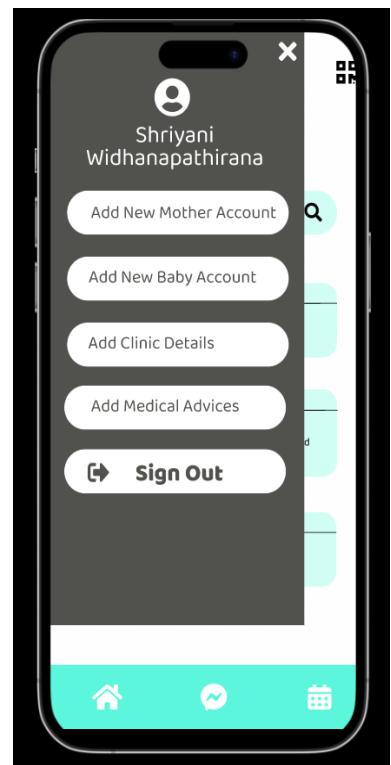


Figure 85-expanded sidebar prototype

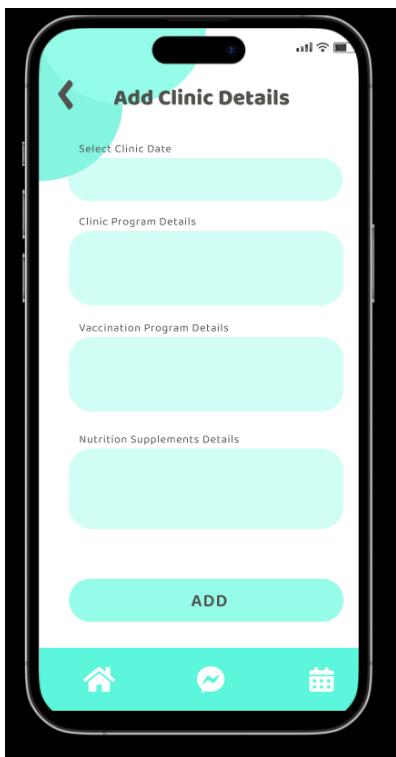


Figure 86-add clinic details prototype

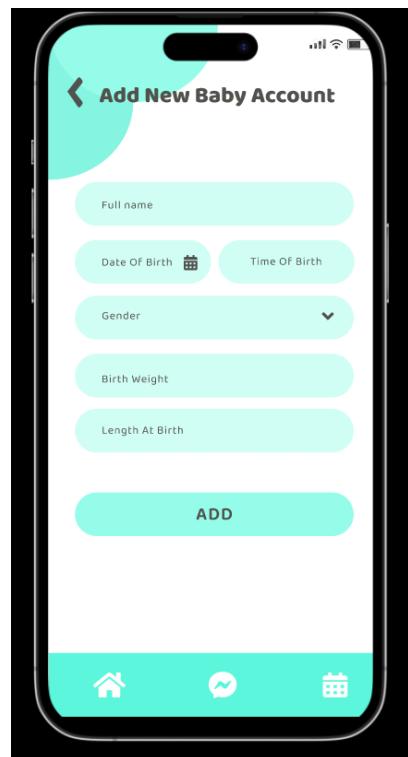


Figure 87-add new baby prototype

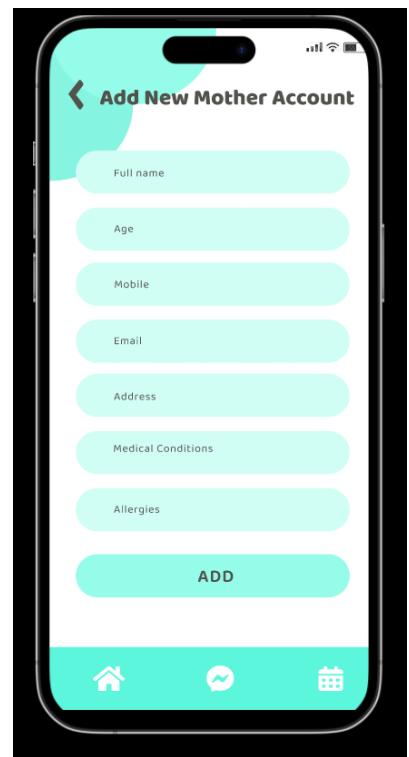


Figure 88--add new mother prototype

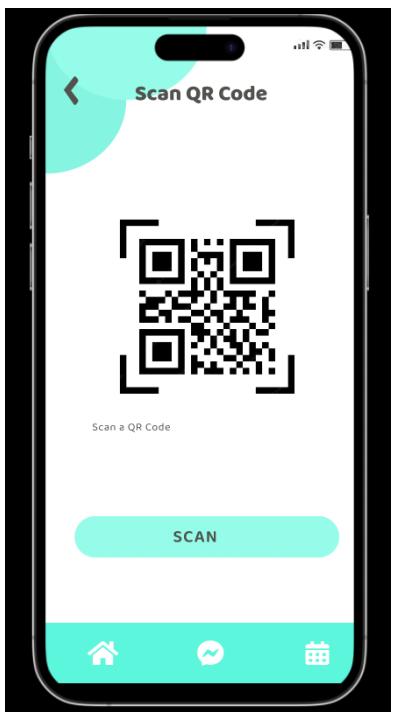


Figure 89-QRcode scan prototype



Figure 90-QRcode display prototype

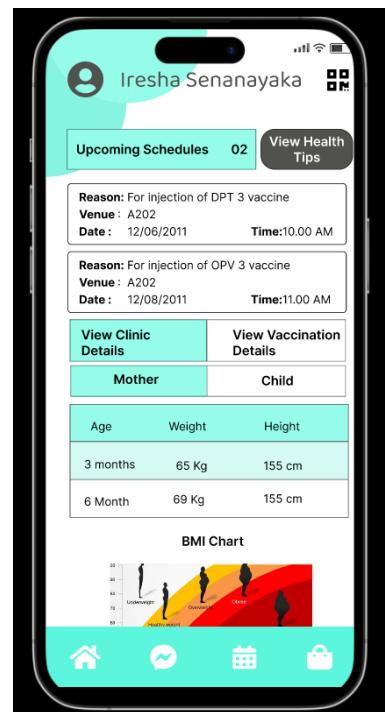


Figure 91-mother home page prototype

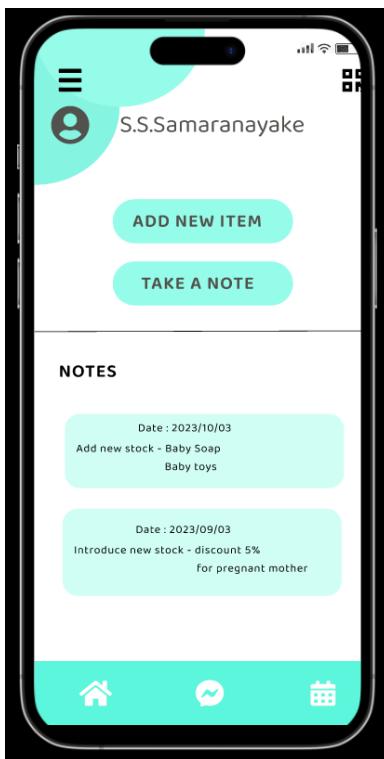


Figure 92-seller home page prototype

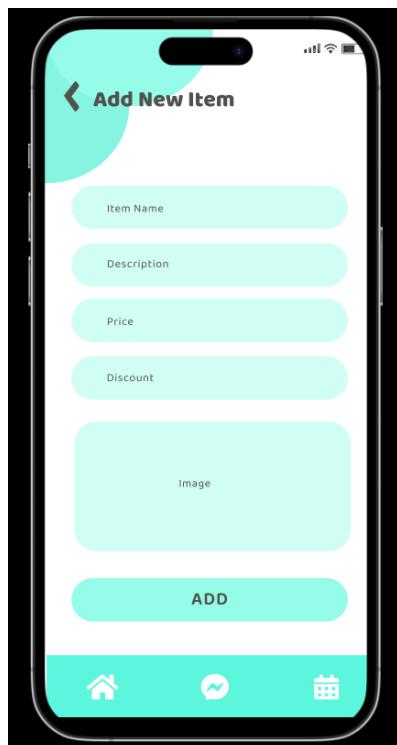


Figure 93-add new item prototype

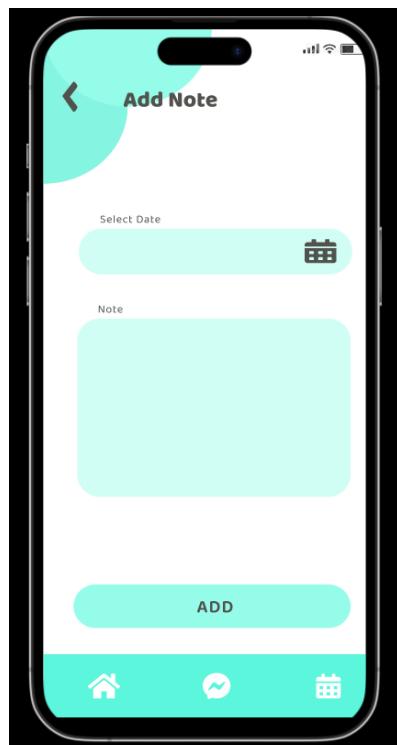


Figure 94-add note prototype



Figure 95-midwife profile prototype

8.3 Online Shop Management – IT21210174

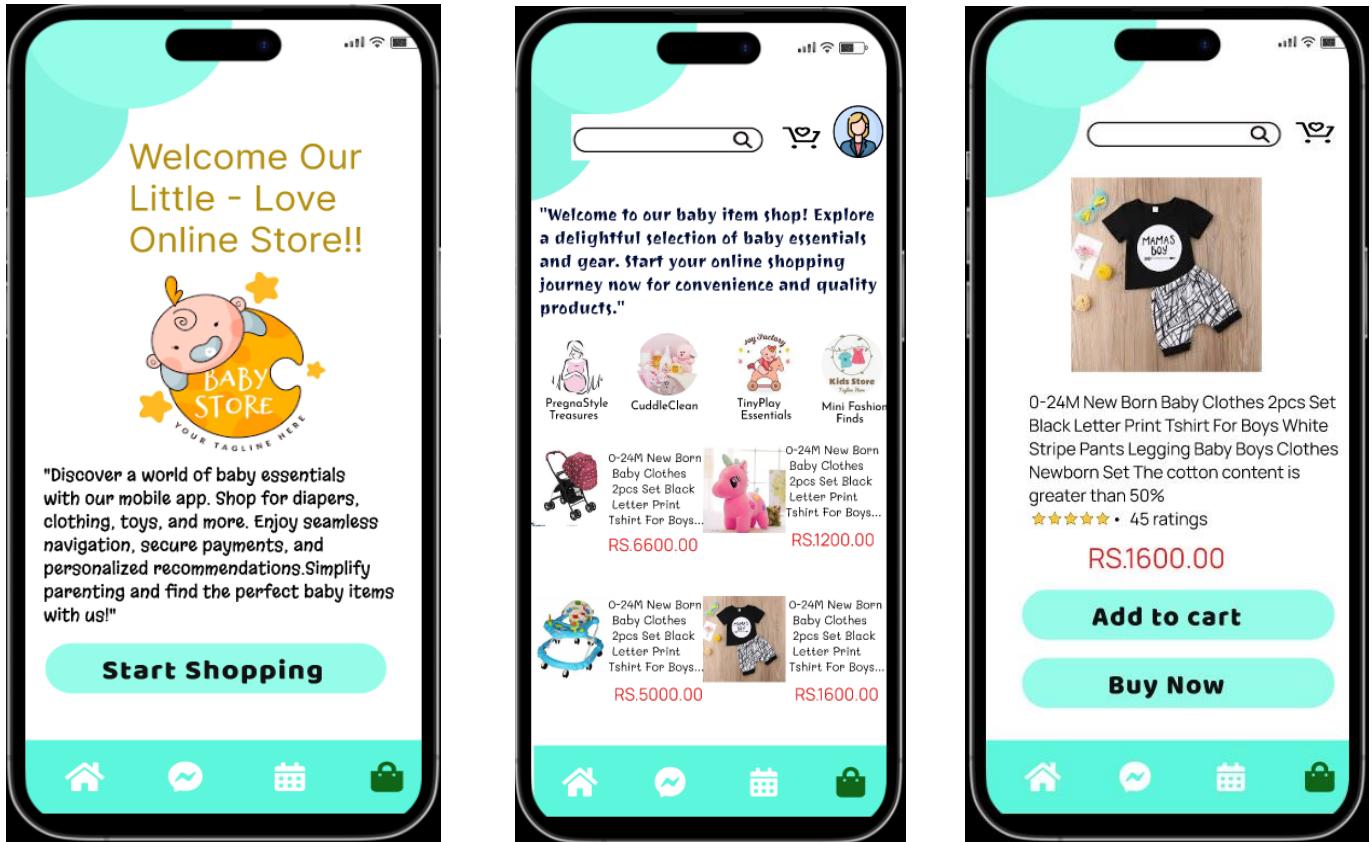


Figure 96-- Welcome page, loading page and description page prototype

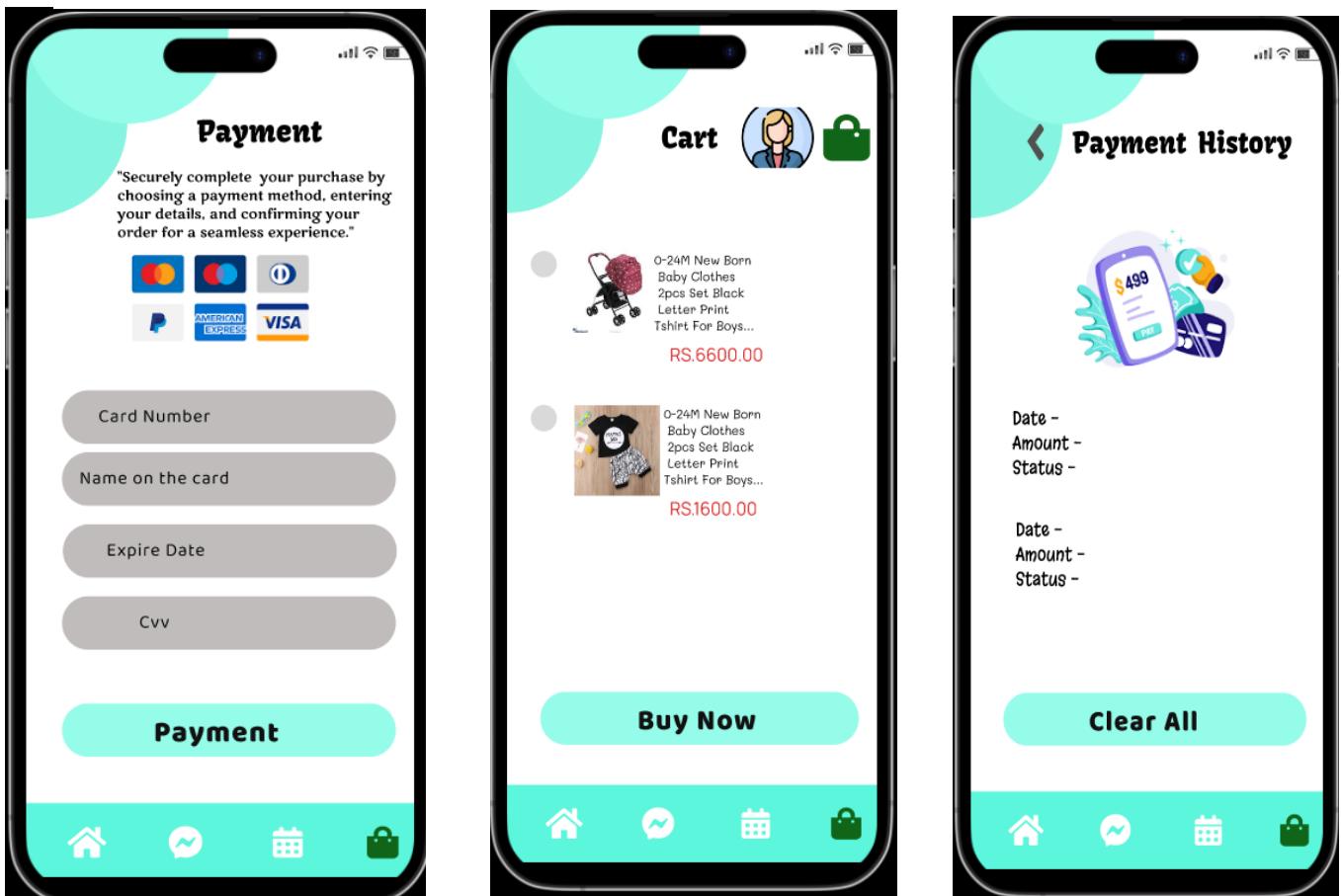


Figure 97-- payment, cart, payment history prototypes

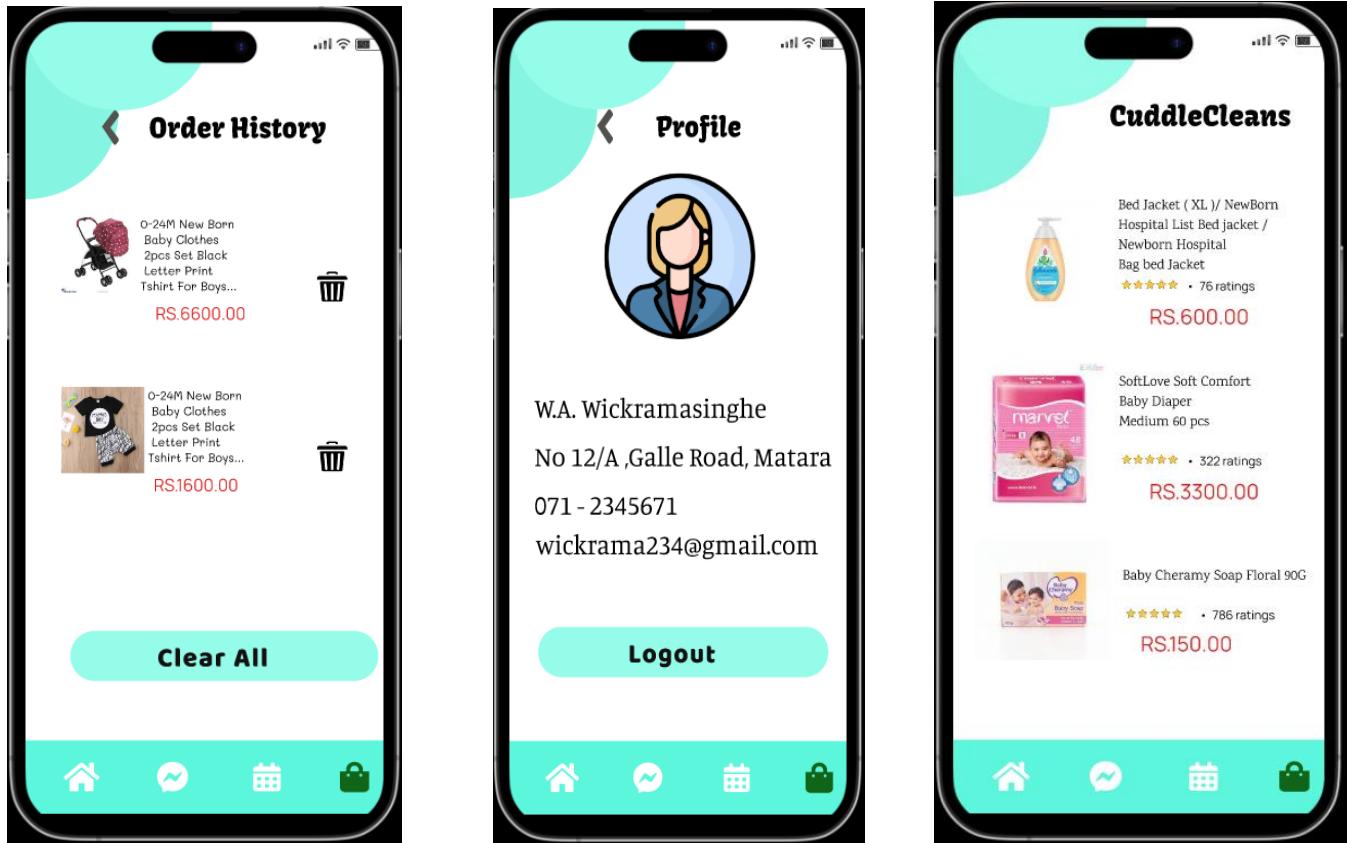


Figure 98-order history,profile,category 1 prototype

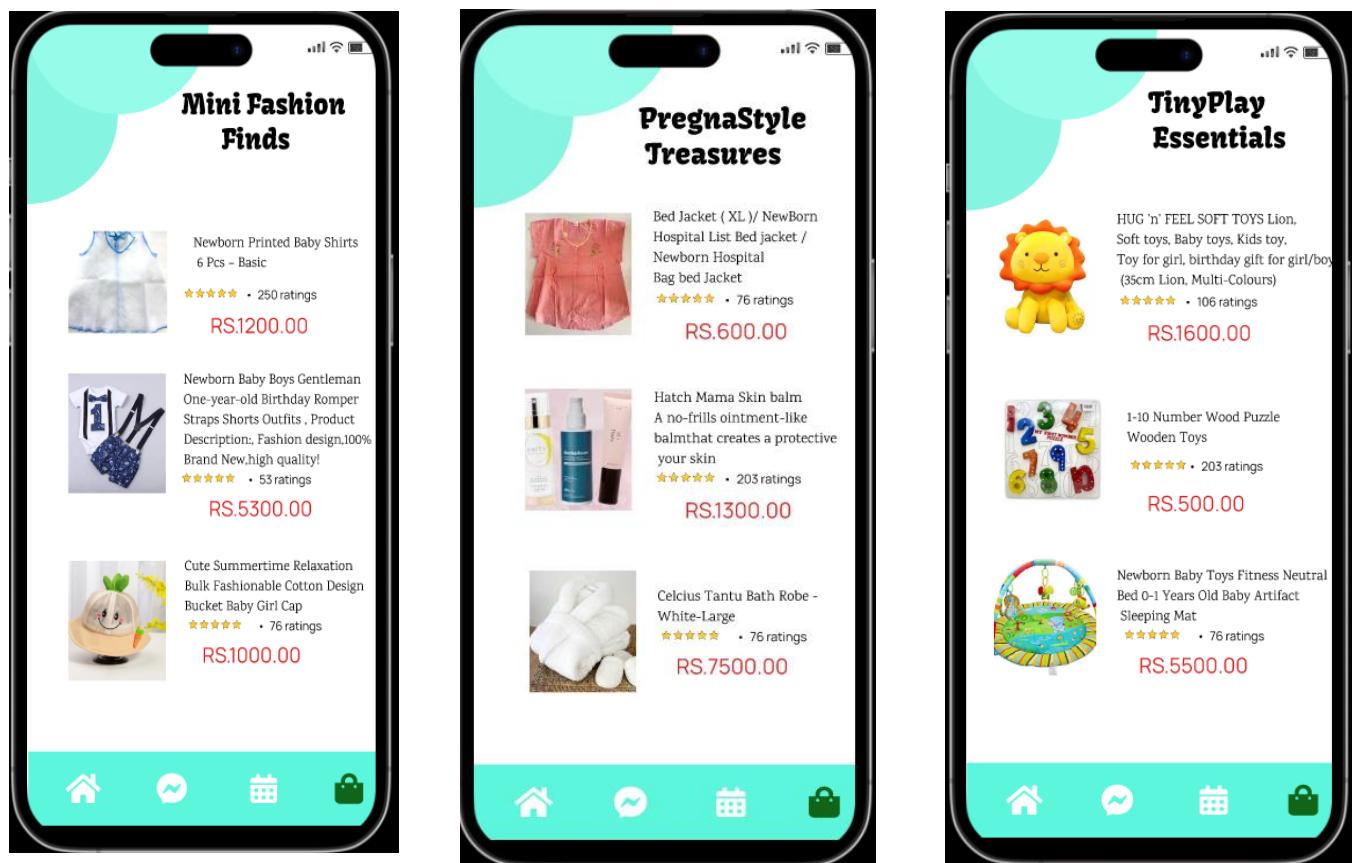


Figure 99-category 2,3,4 prototypes

8.4 Medical Tips and Advice - IT21288012

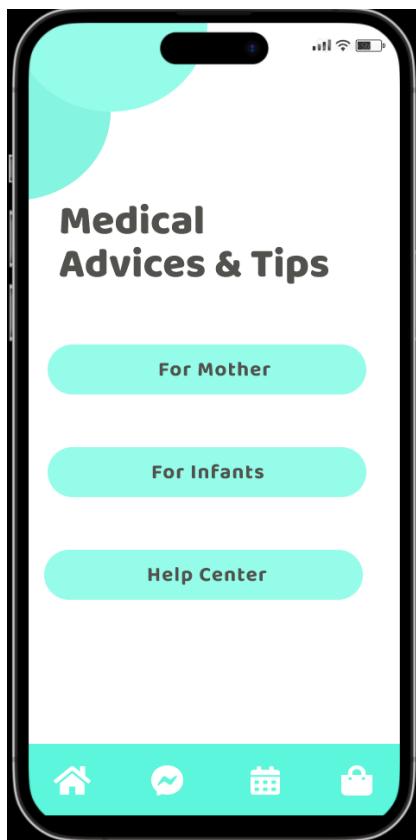


Figure 100-Medical Tips Selector Prototype

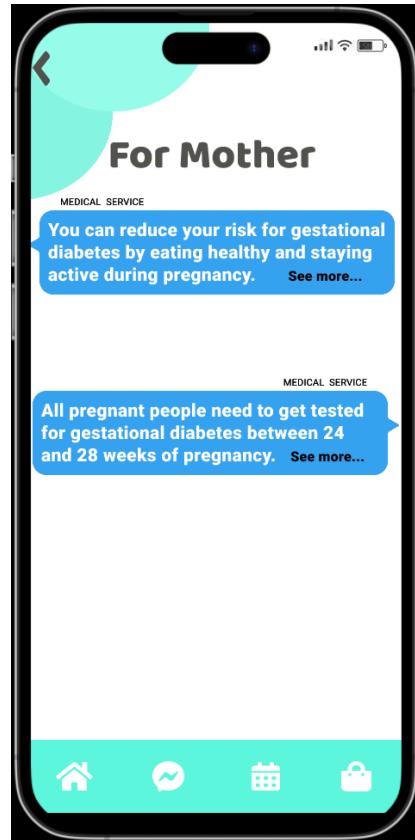


Figure 101-Medical Tips Selector Prototype

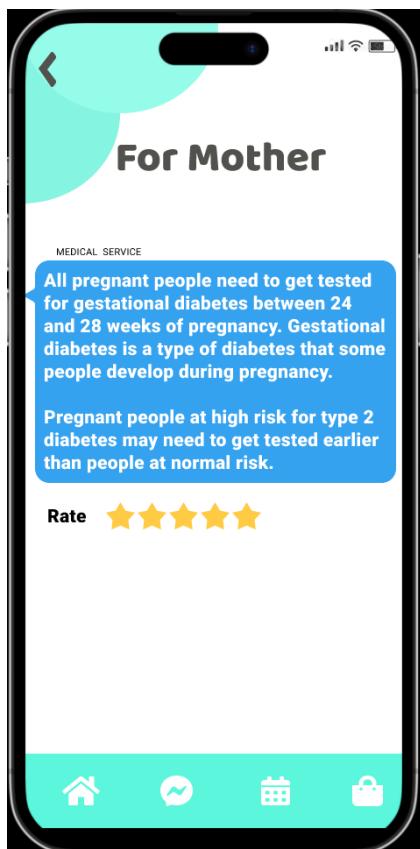


Figure 103-Medical Tips More Information Prototype

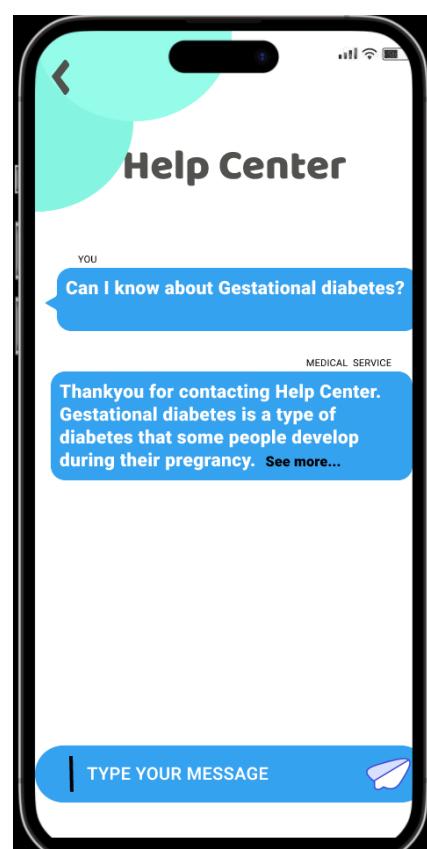


Figure 102-Medical Tips More Information Prototype

9 Milestone 6: User Feedback for your Prototype

9.1 Midwife takes care of the mother after childbirth - IT21321368

User Test Script

Explain the process.

After clicking the Get Start button, you will go to the login form. If you have already registered, you can login to the system by providing login details. If you are not registered, you must be registered. To register, click the Register button and you will be taken to the role selection page. After clicking the midwife button you will be navigated to the registration page.

Me : On the registration page we get midwives full name, email, mobile number, specialization and password for registration. Do you have more information to add or changes to make? What about the font size? Should the font size be larger or the existing size is enough?

Client : It is better to get the area instead of specialization. And it would be better if the font size were a little bigger.

After signup you will be navigated to the login page, after providing necessary login details you can go to the home page. There you can see the clinic dates and details. When you click the side menu bar there is a button to add new babaies. By clicking that button you can add new babies to the system.

Me : During the child registration process we collect the child's full name, date of birth, time of birth, gender, and birth weight and birth length. Are there any changes that need to be made? Are these details sufficient?

Client : The time when the child was born was not so important. And it would be better if the font size were a little bigger. The rest was fine.

After creating the child account you can view that profile. Child profile has two buttons to view clinic details and vaccination details. Clicking these buttons will take you to the baby clinic details and vaccination details display page. You can add clinic details by clicking the add clinic details button. There you can enter the child's height, weight and age and add vaccination details by clicking the add vaccination details button on the vaccination details display page. There you can add the child's age, vaccination date, and vaccine type and batch number. And you can easily add clinic details during the clinic time by scanning the mother's QR code. Clicking the QR code icon on the home page will navigate you to the QR code scanning page. There you can scan the QR code.

Me : That's the whole process. Are there any problems?

Client : It would be better if the font size of the input fields were bigger. The Rest was fine.

- Told to increase the font size of input fields text and told to remove the time of birth input field of the registration form.

The image shows two side-by-side smartphone screens. Both screens have a teal header bar with a back arrow and the text 'Add New Baby Account'. Below the header are five input fields: 'Full name', 'Date Of Birth' (with a calendar icon), 'Time Of Birth' (disabled), 'Gender' (with a dropdown arrow), 'Birth Weight', and 'Length At Birth'. At the bottom is a teal 'ADD' button and a teal navigation bar with icons for Home, Chat, and Calendar.

Add New Baby Account - Version 1

Add New Baby Account - Version 2

Figure 104-add baby account version1 and version2

- Told to increase the font size of input fields text and told to change the specialization input field of the registration form to area.

The image shows two side-by-side smartphone screens. Both screens have a teal header bar with the text 'Sign Up' and the subtext 'Just a few quick things to get started'. Below the header are five input fields: 'Full name' (with a person icon), 'Email' (with an envelope icon), 'Mobile' (with a phone icon), 'Specialization' (with a person icon), and 'Password' (with a key icon). At the bottom is a teal 'SIGN UP' button and a teal navigation bar with icons for Home, Chat, and Calendar.

Midwife registration form - Version 1

Midwife registration form - Version 2

Figure 105-midwife registration form version1 and version2

9.2 The midwife takes care of the pregnant mother until the baby is born - IT21210174

User Test Script

Explain the process

After clicking the Get Start button, you will go to the login form. If you have already registered, you can log in to the system by providing login details. If you are not registered, you must be registered. To register, click the Register button and you will be taken to the role selection page. After clicking the midwife button you will be navigated to the registration page.

Me: On the registration page we get the midwife's full name, email, mobile number, specialization, and password for registration. Do you have more information to add or changes to make? What about the font size? Should the font size be larger or the existing size is enough?

Client: It is better to get the area instead of specialization. And it would be better if the font size were a little bigger.

After signup, you will be navigated to the login page, after providing the necessary login details you can go to the home page. There you can see the clinic dates and details. When you click the side menu bar there is a button to add a new mother account. By clicking that button you can add new mothers to the system.

Me: During the mother registration process we collect the mother's full name, age, mobile number, email, address, medical conditions, and allergies. Are there any changes that need to be made? Are these details sufficient?

Client: I think it would be better to have two mobile numbers because if one number doesn't work, we can contact the mother through the other mobile number. And it would be better if the font size were a little bigger. The rest was fine.

After creating the mother account you can view that profile. The mother's profile has two buttons to view clinic details and vaccination details. Clicking these buttons will take you to the mother clinic details and vaccination details display page. You can add clinic details by clicking the add clinic details button. There you can enter the mother's height, weight age and add vaccination details by clicking the add vaccination details button on the vaccination details display page. There you can add the mother's age, vaccination date, and vaccine type and batch number.

Me: That's the whole process. Are there any problems?

Client: After the pregnant mothers come to the clinic, in addition to measuring their height and weight, we also measure their blood pressure. Because pregnant mothers can have high blood pressure and diabetes during their pregnancy. Therefore, it is good to add that to the clinic details. Also, when adding vaccination details, we should also add the expiration date. Those corrections should be made.

Me: When the mothers come to the clinic so that the midwife can go to the pregnant mother's account very easily, we are creating this app so that she can scan a QR code. Then the midwife can quickly enter the relevant data.

Client: It is very valuable. I think these features are sufficient

- In the interview with the midwife, she said that after the pregnant mothers come to the clinic, their weight, height, and blood pressure are measured. Accordingly, we have included that and reconstructed it.

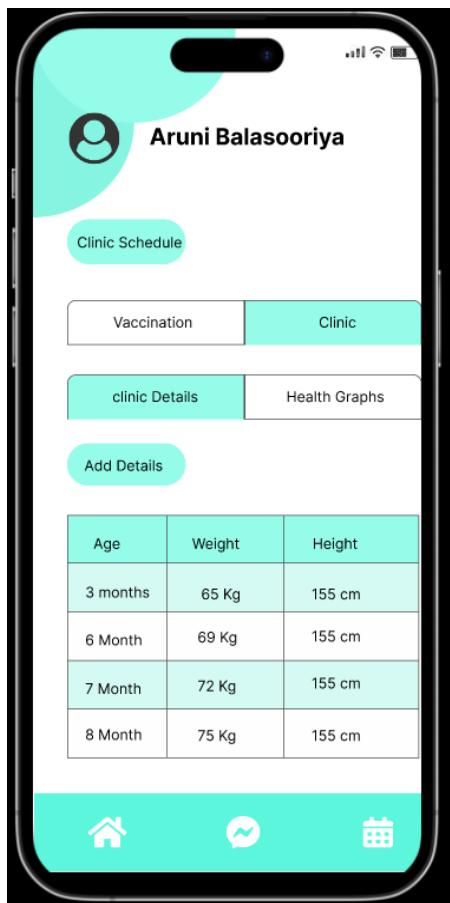


Figure 107-Add clinic details form – Version 01

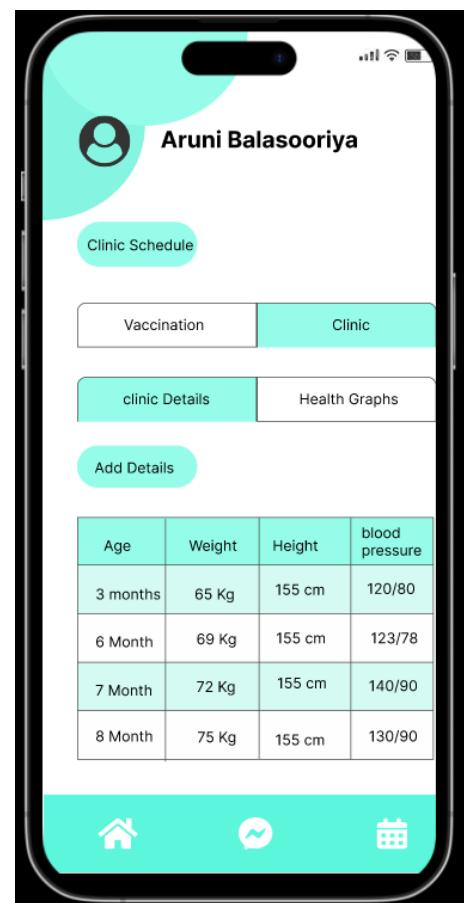


Figure 106-Add clinic details form – Version 02

- In the interview with the mother, she said that it would have been better if the color of the input fields where the payment details were added in the UI of the online shop for purchasing goods had been lighter.

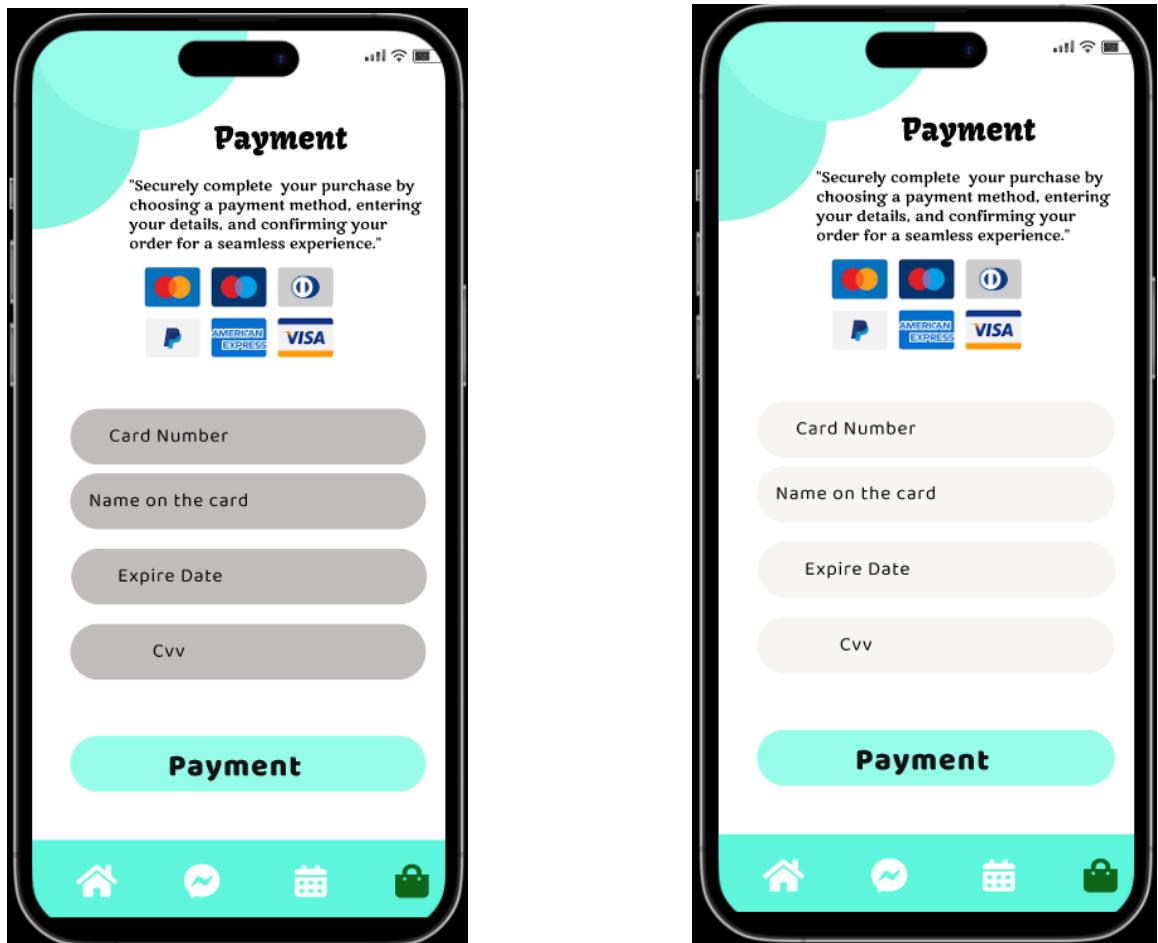


Figure 108-Add payment details version 1 and 2

Add payment details form – Version 01
02

Add payment details form – Version

9.3 Pregnant Mother - IT21252754

User Test Script

01.. Explain the process.

02.. **Question:** We have used light blue as the theme color of the app. What is your opinion about that?

Answer : It is best to use a light color. If it was a dark color, it would be difficult for our eyes to use the app for a long time.

03.. **Question:** What is your opinion about the font size we have used for our prototype design?

Answer : The font size is user friendly. But it would be better if the font size of the cards showing appointment details was a little bigger.

04.. **Question:** In addition, what flaws have you seen in this design?

Answer : The size of the submit appointment button is a little small. Enlarging the button sign in an easy-to-use manner is a great convenience for us.

- Increase font size of the Appointment details cards.

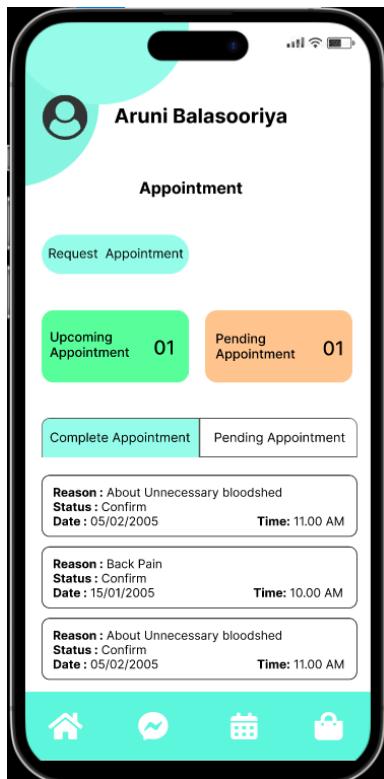


Figure 109-Appointment Details – version 1

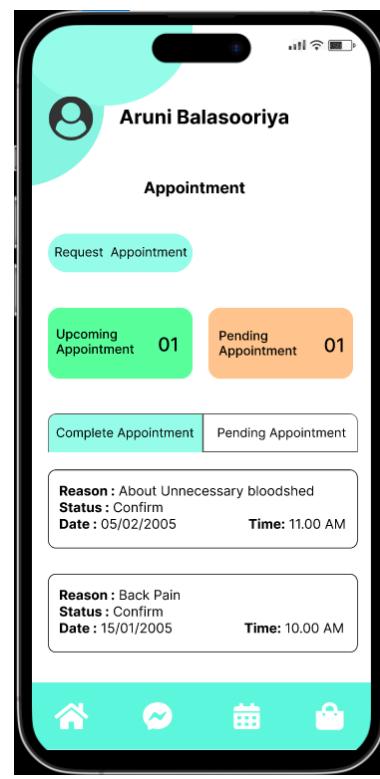


Figure 110-Appointment Details – version 2

- Increase Button size of request appoint page.

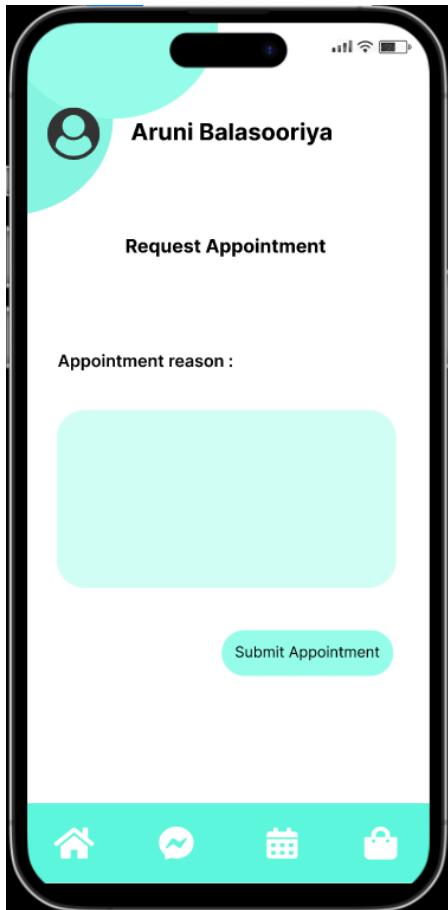


Figure 111-Request appointment – version 1

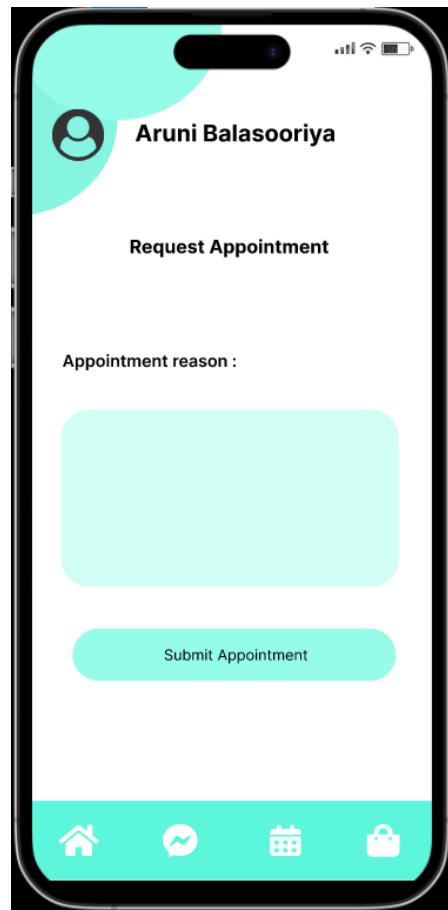


Figure 112 - Request appointment – version 2

9.4 Mother with baby - IT21288012 – De Vass Gunawardane A.P.D.N

User Test Script

1. Explain the process of the app and go through it step by step.
2. Questions 01 – what do you think about the app's appearance and colours?
 - a. Answer – I appreciate the excellent, very light colour and very user-friendly appearance it has. I like how it was designed.
3. Question 02 – is there any confusing steps or process in the app?
 - a. Answer – I think I can understand all the steps and get used to it very quickly it's an outstanding design, and it has a consistent flow to it. My only complaint is in the medical tips I like to have more than 2 to 3 tips if you can improve that section this is a very helpful app for me with babies.

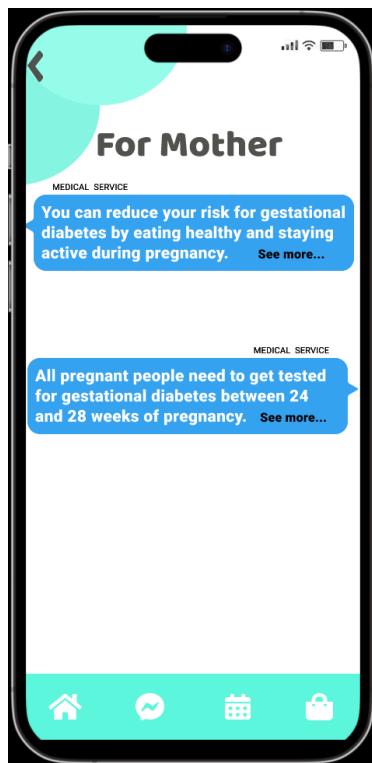


Figure 113-All Medical Tips New Version

9.5 Video recording

9.5.1 Pregnant Mother - IT21252754 – Madhumalka K.C.S

<https://drive.google.com/file/d/1NjBFKtY8QYJ-edNcvit5gEKvKxah6mXG/view?usp=sharing>

9.5.2 Mother with baby- IT21288012 – De Vass Gunawardane A.P.D.N

<https://drive.google.com/file/d/1SjZw1T8iljxpO57Dp8IqgqpqJ8rWkQRR/view?usp=sharing>

9.5.3 The midwife takes care of the pregnant mother until the baby is born - IT21210174 - Tharushi Lakshika V.G.

https://drive.google.com/file/d/1O-IRlr5nXgXQsSULs3_xtZi2B3ZvpDAQ/view?usp=sharing

9.6 Midwife takes care of the mother after childbirth- IT21321368 – Samarasinghe.V.R

<https://drive.google.com/file/d/1zK6dEnwGuIunJzkoGxoCk1ivryRiXIFW/view?usp=sharing>

10 Milestone 7: Implementation

<https://github.com/User-Experience-Engineering-SE3050/uee-assignment-we-uee-64.git>

11. Requirement Specification

11.1 Usability Goals

Usability goals are precise objectives and benchmarks established to improve the way users interact with software, websites, and other systems, as well as the overall user experience. The following are the usability goals that your mobile app for moms and midwives aims to accomplish:

Easy Navigation: Creating an intuitive and user-friendly navigation system for the app is the main objective. Regardless of their role as midwives or mothers, users should be able to navigate the app with ease and not get lost or confused. Because of its intuitive interface, users with different degrees of technological proficiency can utilize the app with less of a learning curve.

Effective Data Management: The usability aim is to make sure that mothers can effectively maintain their children's and themselves' clinic and vaccination records. It should be simple for midwives to contribute and access this data as well. Errors are less likely to occur when duties pertaining to healthcare management are accomplished quickly and with little effort thanks to efficient data management.

Seamless Shopping: For the online baby shop, the usability goal is to provide a shopping experience that is seamless and user-friendly. Mothers should easily browse through the catalog of child materials, add items to their cart, and complete purchases without encountering obstacles or confusion. A seamless shopping experience encourages users to make purchases and return to the app in the future.

Clear Data Visualization: Presenting data in a visually clear and intelligible way is the aim when it comes to health-related information. Mothers and midwives should be able to easily comprehend health graphs and track health trends. When data is visualized well, it improves user comprehension and motivates consistent use of the app for tracking medical conditions.

11.2 User Experience Goals

There are a lot of features in mobile app for mothers and midwives that seem to be intended to improve the user experience. It's critical to think about the goals and results we hope to

accomplish with these features when defining specific User Experience (UX) goals. The following are some UX objectives for application.

- When the mother goes to meet the midwife, the mother's profile should be found to enter the clinic details of the mother and the baby. There, instead of searching for the profile from the list of mothers, finding the profile through a QR code has been included in the app. A specific qr code is automatically generated for each mother's profile. The midwife can easily find the mother's profile by scanning the qr code.
- The basic requirement here is for the midwife to enter the clinic and vaccine information of the mother and the child. After entering the information, the mother and the midwife can get the health status of the mother and the child through health charts. Also, after entering the clinic details, the BMI value will be automatically calculated. The graphs show the changes in BMI during each clinical period. Also, the vaccination process of the mother and the child is calculated, and it is shown as a percentage by the progress bar.
- The app calculates the child's BMI automatically. It shows whether the child is malnourished, healthy or malnourished. If the child is in a malnourished state or in a malnourished state, medical advice and medical tips should be given to get rid of it and if the child is in a healthy state to maintain it. Based on the calculated BMI value, the child's health condition is identified and the necessary medical tips and advices are given to the child.
- An online baby shop has been included as a business feature of the app, and by using it, mothers can purchase the necessary accessories. In order to increase the user experience, review ads have been added to the app for purchased devices.

11.3 Functional Requirements

- The ability to create and manage user profiles with personal data and preferences is available to mothers and midwives.
- Give mothers and midwives the ability to enter, edit, and view information on clinics and vaccinations for both women and infants.
- Create an online store with features like a shopping cart, safe payment methods, and a catalog of kid-friendly products.
- Health Graph Generation: Utilizing clinic information for mothers and infants, automatically create health graphs.
- BMI Calculation: Automatically calculate and display BMI rates for babies.
- Provide customized medical tips and advice based on clinic details and health conditions.
- Automatically generate QR codes for mothers' profiles to allow easy access for midwives.
- Review System: Integrate a review system with features for rating and providing feedback on the online baby shop.

11.4 Non-Functional Requirements

- Performance: Make sure the application runs smoothly and is responsive, even when it has a sizable user database and intricate data visualizations.
- Security: To safeguard sensitive user information and financial transactions in the online store, put strong security measures in place.
- Usability: Reduce the learning curve for mothers and midwives by emphasizing an intuitive and user-friendly interface design.
- Reliability: Reduce downtime and data loss by guaranteeing the app's availability and data integrity.
- Accuracy: Ensure that the data presented in the app, especially health-related information, is highly accurate to support informed decision-making and healthcare management.

11.5 Hierarchical Task Analysis

11.5.1 User registration and management

- Mother registration
- Midwife registration
- Mother manages her clinic details using mother profile.
- Mother manages her child's clinic details using child profile

11.5.2 QR Code Generation

- Generate a unique QR code for each mother.
- Scan QR code to find mother's profile.

11.5.3 Clinic and Vaccine Management

- Midwife adds clinic details for mothers.
- Midwife adds clinic details for children.
- Midwife adds vaccine details for mothers.
- Midwife adds vaccine details for children.

11.5.4 Health Graphs and BMI Calculation

- Generate health graphs for mothers
- Generate health graphs for children
- Automatically calculate and display BMI for children
- Automatically calculate and display vaccine progress for children
- Automatically calculate and display vaccine progress for mother

- Provide specific notices for baby BMI rate

11.5.5 Medical Tips and Advice

- Analyze health conditions of mothers
- Analyze health conditions of children
- Generate medical tips and advice for mothers
- Generate medical tips and advice for children

11.5.6 Online Baby Shop

- Browse products
- Add products to the cart
- Make a purchase
- Payment processing

12 Design Principles

Adherence to specific design standards is critical to ensure that the application is user-friendly and efficient. In the application we can identify the following design principles:

User-Centered Design: It is obvious that users were the main focus of the app's design. It meets the needs of moms and midwives by enabling them to purchase infant supplies, keep track of vaccine records, and manage clinic information.

Task-Oriented: The app concentrates on particular duties and features that are necessary for maternity and midwifery care. It's very task-oriented and user-centric because it lets users do clinic and immunization management activities.

Role-Based User Management: One important design element that we have put into practice is role-based user management. By doing this, the user experience is improved and mothers and midwives are given access to the features that are pertinent to their responsibilities.

Accessibility: It's critical to make sure a variety of people can utilize the program. We are offering mothers with a range of health ailments and needs useful information by including features like health graphs, BMI calculations, and medical suggestions.

Information Hierarchy: In order to make the app easy to use, you probably arranged the information in a logical hierarchy that makes it simple for users to locate and access the most crucial elements, such health graphs, clinic and vaccination records, and baby shops.

Data Visualization: The app makes complex medical information simple for mothers to understand by using data visualization to display health charts and BMI ratios. This design idea makes it easy for mothers to efficiently monitor both their health and that of their babies.

Business Integration:

Adding an online baby shop is a smart business integration feature that can generate revenue for the app while providing an additional service for mothers.

13 Project Management

13.1 Meetings

Conducting meetings is a crucial part of the application development process. Here we conducted meetings under two categories: team meeting and stakeholder meeting. We held team meetings together with the group about once a week. In team meetings, we discussed the project progress, existing problems and what to do for the rest of the week. Likewise, we held meetings with stakeholders when their support was needed. Here we regularly held meetings with mothers and midwives to get information, review for wireframes and prototypes. We set specific deadlines for milestones, such as requirement gathering, designing, and getting reviews for wireframes, prototypes, app features, bug fixes, and updates. There we set those deadlines as realistic and achievable. Often, in team meetings, we used ms teams to conduct meetings. With the facilities there, we were able to do our work easily. Also, we often went to the stations where the maternity clinics were held to hold meetings with the stakeholders. We used a meeting structure when conducting team meetings. After we start the meeting, we will present the meeting agenda to everyone in the team. First, we will discuss the progress we have completed so far and the problems there. There, the team members will present their progress and the problems that have arisen. After that we will discuss those problems. After it is finished, we will discuss what should be done on upcoming weeks and the task will be shared among the members.

13.2 Risk Management

Midwives use this app to add clinic details of mothers and children. Using one information, BMI values are automatically calculated by the system. Based on the calculated BMI value, medical tips and medical advice are automatically given to the mother or child. Here, we had to pay great attention to the correct calculations in the app, because if there is a mistake in the automatically calculated BMI value, wrong medical tips and advice may be given to the mother and the child. If these instructions are followed, the child and the mother may be harmed. It is a big risk and a risk factor. Therefore, only a certain level of medical advice is given. So, we constantly interacted with the medical officials and created the app based on the correct medical information and under their supervision.

13.3 Milestones

Milestone No	Timeline
Milestone 1	July 31 - August 6
Milestone 2	July 31 - August 6
Milestone 3	31 July - 6 August
Milestone 4	7 August - 13 August
Milestone 5	14 August - 20 August
Milestone 6	21 August - 7 September
Milestone 7	22 October – 26 October
Milestone 8	22 October – 31 October

Table 3-Milestone Timelines

13.4 Problems Encountered

- Technical Challenges: Several errors were found while displaying the health graphs and vaccine process by taking the clinic details from the database.
- Health Graphs and BMI Calculation: Getting the most accurate values while calculating health parameters and BMI values.

14Conclusion

In summary, this project has successfully developed a mobile application tailored to the specific needs of mothers and midwives. The app's multifaceted functionality provides a holistic approach to maternal and child healthcare management. Key features of the app include Clinic and Vaccine Management, Role-Based User Management, Online Baby Shop, Health Graphs and BMI Calculations, Medical Tips and Advice and QR Code Integration.

This project has highlighted the importance of user-centric design and the value of technology in addressing critical healthcare needs. Key lessons learned include User-Centered Approach, Data Security and Privacy, Continuous Improvement, Interdisciplinary Collaboration, and Scalability and Maintenance.

In conclusion, this project has successfully addressed the healthcare needs of mothers and midwives by providing a comprehensive mobile application. By implementing the lessons learned and continuously seeking to enhance the app's functionality, it has the potential to make a significant positive impact on maternal and child healthcare.

15. Appendix

15.1 Initial User Survey Responses

To gather inspiration for developing our mobile app, we've devised a Google Form designed to collect ideas and recommendations from both mothers and midwives.

Mother - <https://forms.gle/ga4KSH8cbkAwYJwn8>

Midwife - <https://forms.gle/BsfTMwS3B8QpdyBC6>

15.2 Meeting Minutes

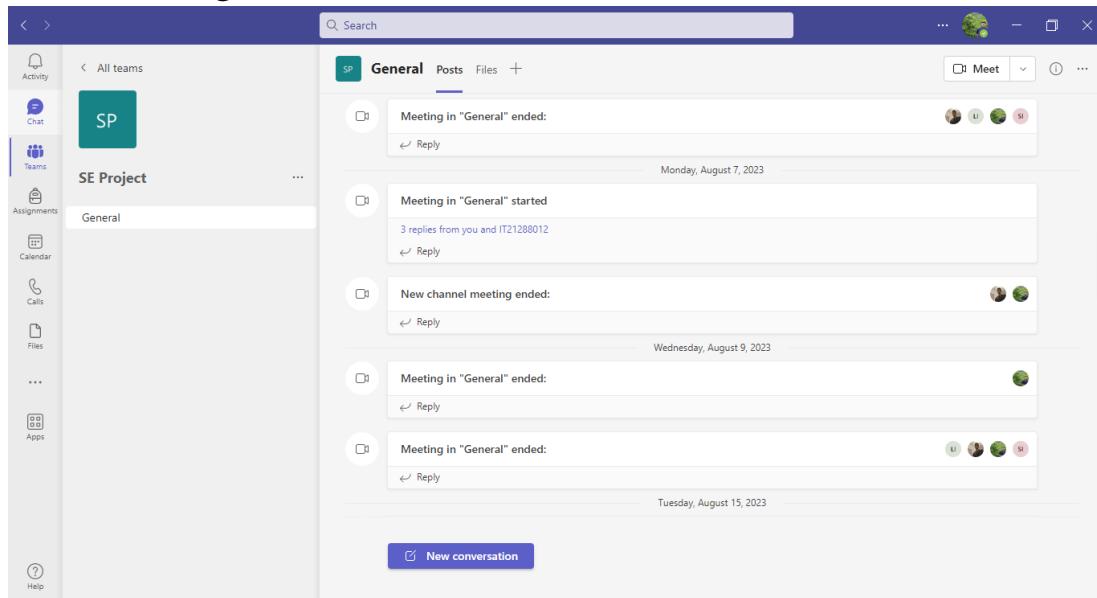


Figure 114 - meeting minutes 1

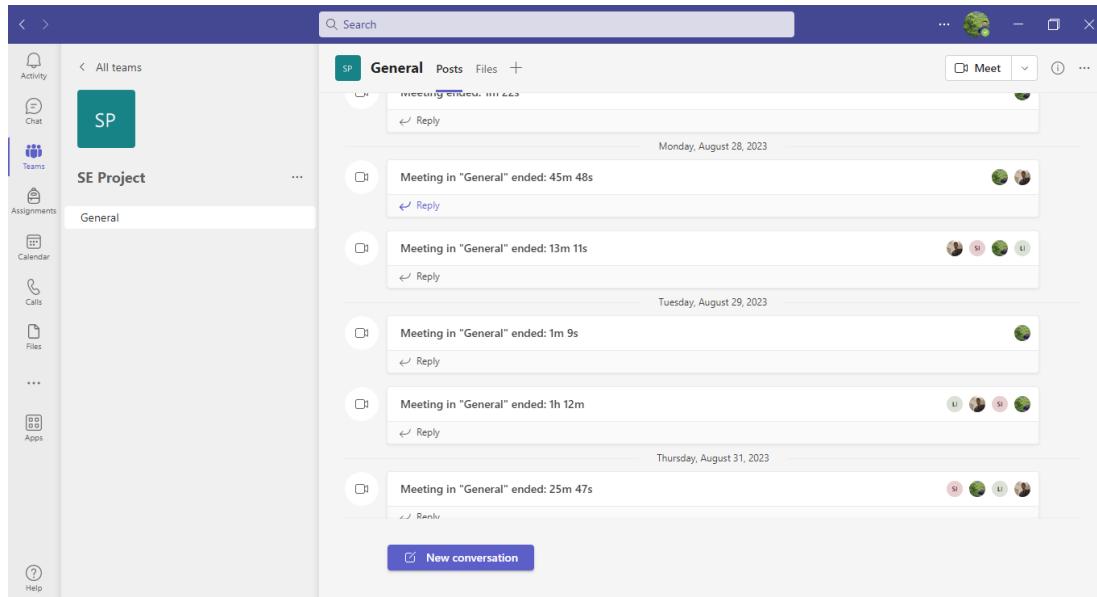


Figure 115 - meeting minutes 2

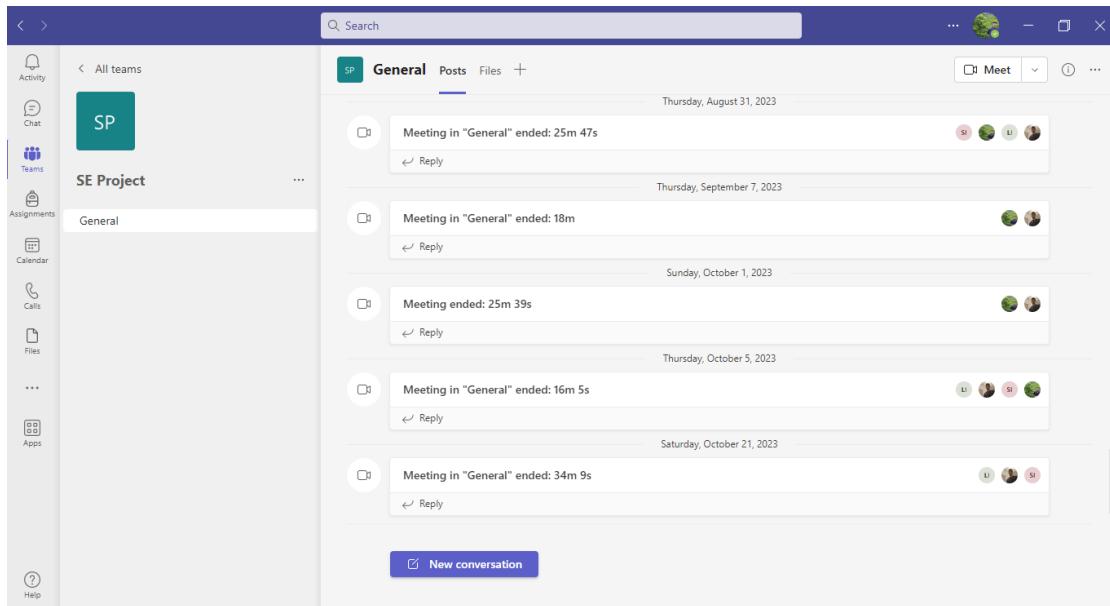


Figure 116 - meeting minutes 3

15.3 Record Keeping

A screenshot of a project management board with four columns: "TO DO" (3 items), "IN PROGRESS" (1 item), "COMPLETED" (3 items), and "REVIEW" (2 items).

- TO DO:** UEE final document (+ ADD SUBTASK), Milestone 6 (+ ADD SUBTASK), Milestone 7 (+ ADD SUBTASK).
- IN PROGRESS:** Implementation (4 subtasks: User Management [Oct 24], Vaccine and Clinic Management [Oct 24], Baby Shop management [Oct 24], Medical Advice and Medical Tips Management [Oct 24]).
- COMPLETED:** Milestone 1 (+ ADD SUBTASK), Milestone 3 (+ ADD SUBTASK), Milestone 4 (+ ADD SUBTASK).
- REVIEW:** Milestone 2 (+ ADD SUBTASK), Milestone 5 (+ ADD SUBTASK).

Figure 117 - records

15.4 Toggl tracking

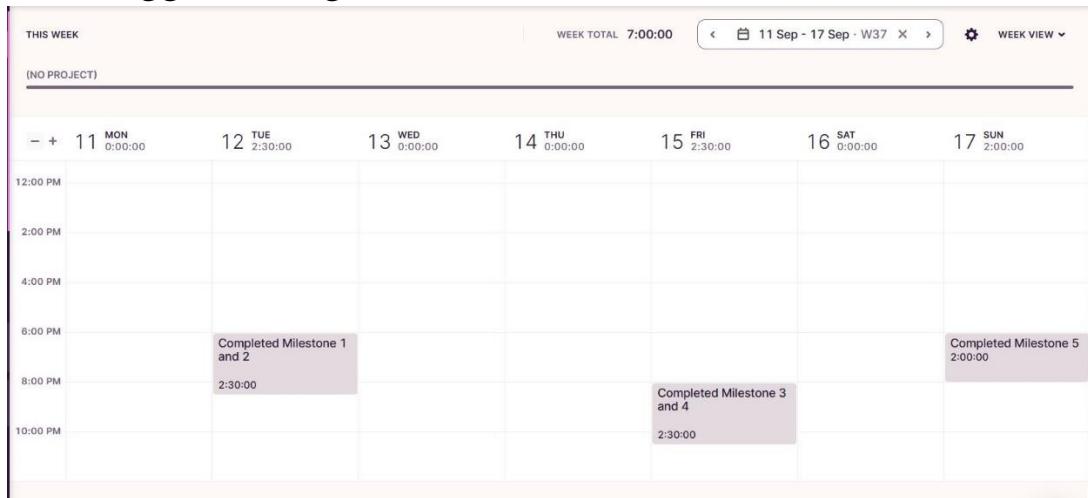


Figure 118 - toggl tracking 1

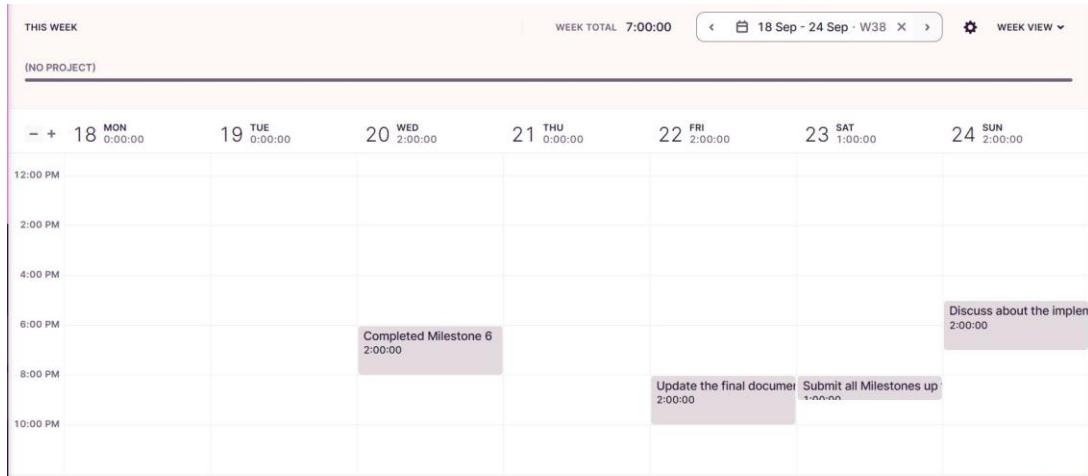


Figure 119 - toggl tracking 2

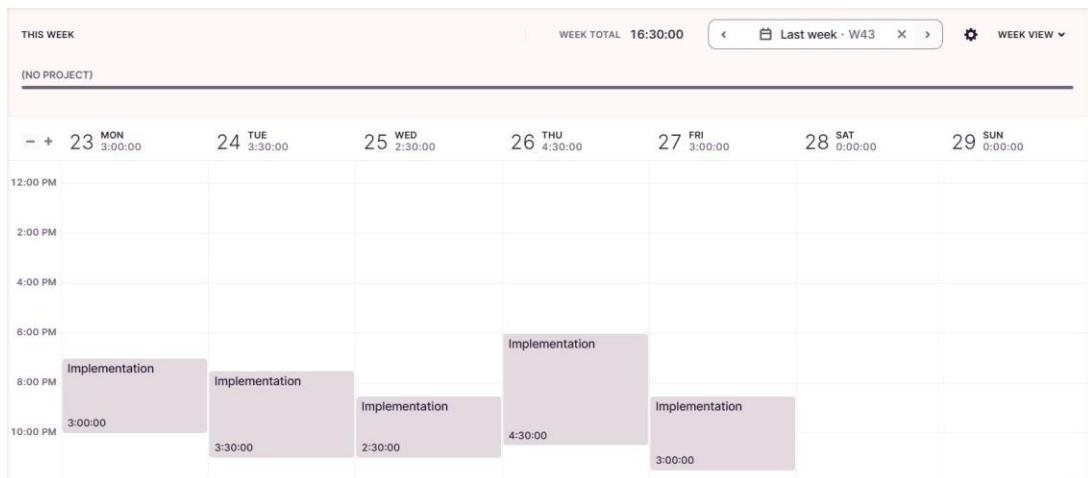


Figure 120 - toggl tracking 3

15.5 Contribution Table

Table 4 - contribution table 2

Registration No	Name	contribution
IT21288012	De Vass Gunawardane A.P.D.N	1.Requirement Specification 2. Project Management 3.Conclusion
IT21210174	Lakshika V.G.T	1.Introduction 2.Abstract 3.Background 4.Requirement Specification
IT21252754	Madhumalka K.C.S	1.Requirement Specification 2.Design Principles 3.Project Management
IT21321368	Samarasinghe.V.R	1.Design Process 2.Background 3.Requirement Specification