

Hey Mom! : A Childcare Assistant App for New Mothers
A PROJECT REPORT

Submitted to



ASSAM DON BOSCO UNIVERSITY

by

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in partial fulfilment for completion of Major Project

of

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SCHOOL OF TECHNOLOGY

ASSAM DON BOSCO UNIVERSITY

AZARA, GUWAHATI 781017,

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BATCH (2022-2025)

CERTIFICATE

This is to certify that the Project Report entitled "**Hey Mom! : A Childcare Assistant App for New Mothers**" submitted by **ANSHUMAN SARMA (DC2022BCA0002)**, **OWEN WARLARPIH (DC2022BCA0009)** and **NYUBENLO SEB (DC2022BCA0010)** to the Assam Don Bosco University, Guwahati, Assam, in partial fulfilment of the requirement for Major project of 6th semester of Bachelor of Computer Applications. It is a Bonafide record of the project work carried out by them under my supervision during the semester January 2025 to June 2025.

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CERTIFICATE

This is to certify that the Project Report entitled “**Hey Mom! : A Childcare Assistant App For New Mothers**” submitted by **ANSHUMAN SARMA (DC2022BCA0002)**, **OWEN WARLARPIH (DC2022BCA0009)** and **NYUBENLO SEB (DC2022BCA0010)** to the Assam Don Bosco University, Guwahati, Assam, in partial fulfilment of the requirement for the Major project of 6th semester of Bachelor of Computer Applications. It is a Bonafide record of the project work carried out by them during the semester January 2025 to June 2025.

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EXAMINATION CERTIFICATE

This is to certify that **ANSHUMAN SARMA (DC2022BCA0002)**, **OWEN WARLARPIH (DC2022BCA0009)** and **NYUBENLO SEB (DC2022BCA0010)** of the Department of Computer Applications have carried out the Project Work in a manner satisfactory to warrant its acceptance and also defended it successfully.

I wish them all the success in their future endeavours.

Examiners:

01. External Examiner:

02. Internal Examiner:

DECLARATION

We hereby declare that the project work entitled “**Hey Mom! : A Childcare Assistant App For New Mothers**” submitted to the Assam Don Bosco University, Guwahati, Assam, in partial fulfilment of the requirement for Major project of 6th semester of Bachelor of Computer Applications. It is an original work done by us under the guidance of Dr. Moushumi Barman (*Assistant Professor (Senior), Dept. of Computer Applications, School of Technology, Assam Don Bosco University*) and has not been submitted for the award of any degree.

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ABSTRACT

KEYWORDS: *Routine Tracking, Weather-Based Alerts, Static Location Services*

“Hey Mom!” is an android mobile application developed to assist new mothers in tracking baby care in a convenient and cohesive fashion. The application allows mothers to log and set reminders for the important baby care activities such as feeding, sleeping, diaper changes, vaccinations, and growth tracking. The application collects real-time data on environmental conditions from WeatherAPI to provide baby care tips which allows mothers to take appropriate actions for the well-being of their baby. “Hey Mom!” uses static location data, that is only clinics and daycare centres in Guwahati city. The application was built using Android Studio and Kotlin programming language and also uses MySQL as the backend, allowing for a secure, reliable, performance-wise, and scalable application. It allows mothers to enjoy a user-friendly interface, having the ability to set periodic reminders advising them to check on important milestones while being present to new alerts. This application fills a void in the market for new child parent applications for children’s well-being.

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ABBREVIATIONS

API	Application Programming Interface
COCOMO	Constructive Cost Model
ER	Entity-Relationship
SQL	Structured Query Language
UI	User Interface
WAMP	Windows, Apache, MySQL, PHP
WBS	Work Breakdown Structure
WHO	World Health Organization
UML	Unified Modelling Language
GPS	Global Positioning System

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CHAPTER 1

INTRODUCTION

The fast-paced nature of modern life creates difficulties for new mothers to handle childcare duties because they lack dependable support networks. The mobile application “Hey Mom!” functions as a complete childcare assistant which helps parents manage their responsibilities through task organization. The application provides mothers to log and set reminders for the important baby care activities such as feeding, sleeping, diaper changes, vaccinations, and growth tracking and static location-based services to locate nearby clinics and daycare centres in Guwahati city. The WeatherAPI real-time environmental monitoring feature makes “Hey Mom!” stand out because it delivers weather-based alerts and baby care recommendations to improve child safety. The application uses Android Studio with Kotlin programming and MySQL backend support to provide scalability and user-friendly interface which addresses daily needs of new mothers.

1.1 Project Title

Hey Mom! : A Childcare Assistant App for New Mothers

1.2 Objective

- This application enables mothers to accurately log and manage all needful childcare routines such as feeding, sleeping, diaper changes and growth milestones.
- The WeatherAPI supplies real-time information report on weather and recommendation tips which allows mothers to better protect their child and give them a safe environment.
- The application provides static location-based information of daycare centres and clinics in Guwahati city to assist mothers in locating nearby childcare services.
- The system allows mothers to set reminder of feeding times, naps, and vaccination appointments to assist mothers to implement proper care at the right time.
- The mobile platform will combine every aspect of childcare into a single streamlined user-friendly system that will meet the needs of new mothers.

1.3 Existing Systems

Existing childcare applications such as Mylo Pregnancy and Parenting App, FirstCry India, and The Wonder Weeks provide parenting guidance, tracking tools, and health monitoring. However, these applications lack real-time environment monitoring. “Hey Mom!” aims to address these gaps by integrating multiple features in a single platform. The Table 1.1 mentions the features and limitations of the Most-used existing applications for childcare.

Table 1.1: Existing Systems Review

Application	Year of Launch	Features	Limitations
Mylo Pregnancy and Parenting App [1]	2018	Pregnancy tracker, Baby care tips, Parenting community, Personalized content, Baby sleep music, Vaccination reminders, etc	a) Limited focus on comprehensive childcare management b) Does not offer real-time environment monitoring
FirstCry India [2]	2010	Online shopping for baby products, Parenting advice, Baby care tips, Vaccination reminders, Growth charts, etc	a) Primarily an e-commerce platform b) No real-time environment monitoring
The Wonder Weeks [3]	2013	Baby development tracker, Growth spurts prediction, Cognitive leaps insights, Personalized tips for parents, etc	a) Focuses mainly on cognitive development tracking b) Lacks real-time environment monitoring

1.4 Proposed Plan

- The data for the app will be collected from reliable sources such as World Health Organization (WHO) [4].
- The app will employ Weather API [5] for environmental real-time monitoring.
- The implementation of location-based services will use static information that is limited to Guwahati city only with the help of Google Maps [6].
- User data will be stored securely by MySQL.

1.5 Proposed Block Diagram

The Figure 1.1 shows the block diagram layout of the “Hey Mom!” mobile application and its relationship with various system components.

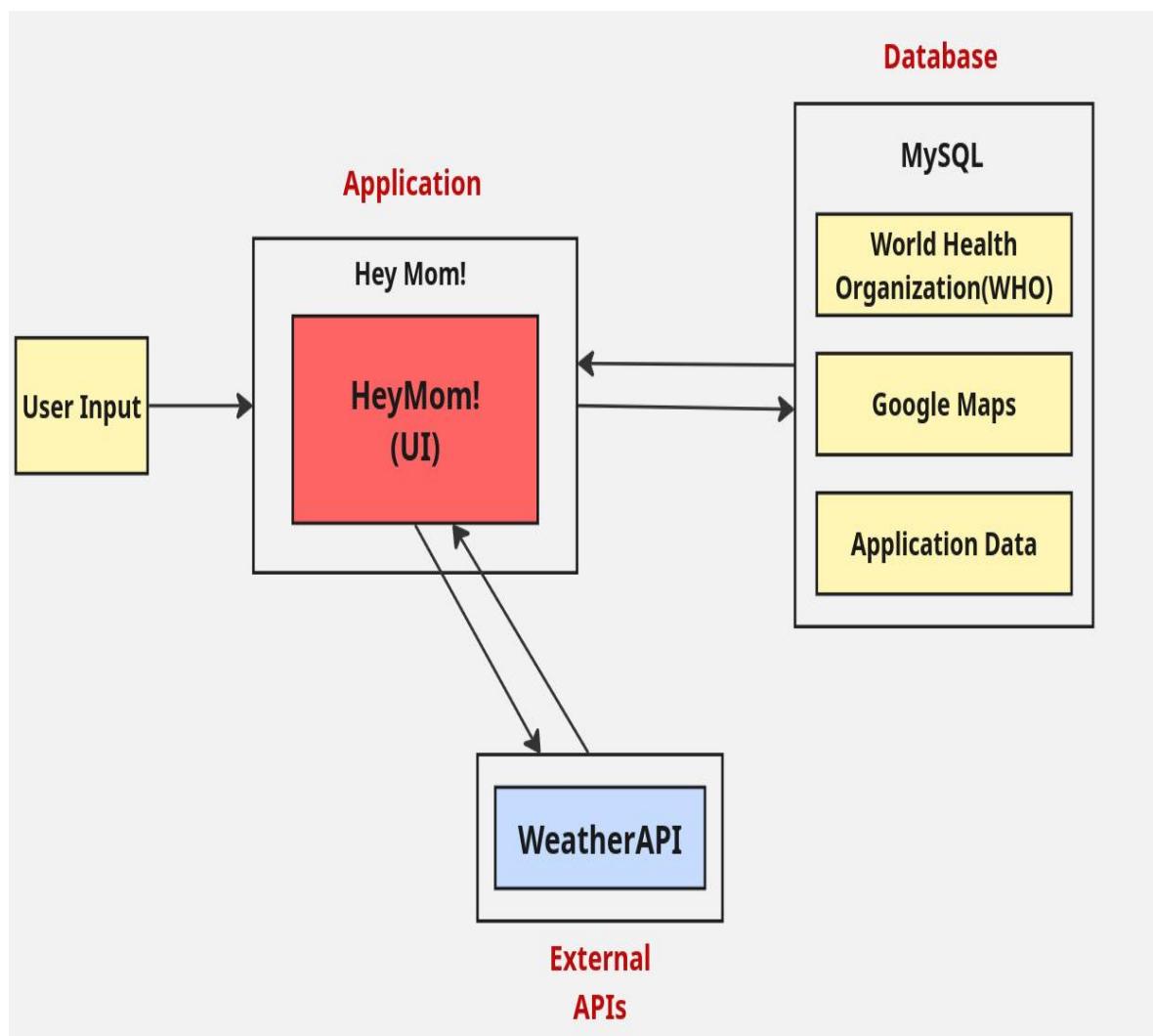


Figure 1.1: Proposed Block Diagram of Hey Mom!

- User Input: This input represents information supplied by end-users (e.g. feeding plans, reminders, and profile identification data, etc.), received directly from the app user interface.
- Hey Mom! (User Interface): It is the main platform that provides all user interaction. It serves as a central process unit and in particular, connects to both internal MySQL databases along with external APIs.
- Database (MySQL): This is the storage and retrieval unit for relevant application data which includes:
- World Health Organization (WHO): References of trusted health and vaccination data
- Google Maps: To retrieve static details for daycare centres and clinics of Guwahati city.
- Application data: User records, schedules, reminders, and other application data
- External API (WeatherAPI): The application communicates to WeatherAPI, to find weather information about the environment where the user lives. This weather data will provide a basis for warnings and health practices.
- Data Flow: The arrows give the appearance of data flow from the User Interface, database, and external APIs with user input, etc., implying result and interaction responsiveness.

CHAPTER 2

REQUIREMENT ANALYSIS AND FEASIBILITY STUDY

A feasibility analysis evaluates the viability of a suggested project or system. It assesses different factors like technical, operational, economic, and schedule feasibility to guarantee the project's success.

2.1 System Requirements

The table 2.1 below mentions the minimum hardware requirement specifications required by the developers and users.

2.1.1 Hardware Requirements

Table 2.1: Hardware requirements

Component	Specification
Device	Android devices supporting Android 10 or higher.
Development Machines	Laptops/PCs with minimum 4GB RAM, Intel i5/Ryzen 5.
Internet Connectivity	Stable Wi-Fi or mobile data connection
Storage	200 MB of free space for installation, with additional space required for data storage depending on the scale of operation. Minimum 2 GB RAM.

2.1.2 Software Requirements

The table 2.2 below mentions the minimum software requirement specifications required by the developers and users.

Table 2.2: Software requirements

Component	Specification
Operating System (Users)	Android OS 10 and above.
Development Platform	Android Studio with Kotlin
Database	MySQL for database.
Backend Services	WAMP Server with PHP for local backend management
APIs	Weather API for real-time environment monitoring.
Design Tools	Adobe Suite for User Interface design.

2.2 Feasibility Study

2.2.1 Economic Feasibility

Economic feasibility assesses the financial elements of the project, such as cost-benefit analysis, to establish if the project is financially feasible.

i) COCOMO Model:

The Basic COCOMO model is a static, single-valued model that computes software development effort (and cost) as a function of a program size expressed in estimated lines of code (LOC).

COCOMO Model Constructive Cost Model (COCOMO)

The basic COCOMO equations take the form:

Effort Applied (E) = ab (KLOC)bb, [person-months]

Development Time (D) - cb (Effort Applied) b * d [months]

People Required (P) = Effort Applied/Development Time [Count].

Where KLOC is the estimated number of delivered lines (expressed in thousands) of code.

The coefficients ab, bb, cb and db are given in the following table:

Table 2.3: COCOMO Model

Software Project	ab	bb	cb	db
Organic	2.4	1.05	2.5	0.38
Semi – de-tached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Our project type is Organic project, Estimate LOC = 6000

Now the basic COCOMO equation of our project is

$$\text{Effort Applied (E)} = ab \text{ (KLOC)} bb \text{ [person-months]}$$

$$= 2.4(6K)1.05 \text{ [person-months]} = 15.12 \text{ [person – months]}$$

$$\text{Development Time (D)} = cb \text{ (Effort Applied)} db \text{ [months]}$$

$$= 2.5 (15.12)0.38 \text{ [months]} = 14.36 \text{ [months]}$$

$$\text{People Required (P)} = \text{Effort Applied}/\text{Development Time} \text{ [count]}$$

$$= 15.12/14.36 \text{ [count]} = 1.05 \text{ [count]}$$

The development time for this project is 14.36 months which will require approximately 1 person. As we have a limited time of approximately 5 months to complete this project. Therefore, we will require more people to develop this project. Meanwhile we have 3 members in our group the project development time is justified.

$$\text{Development time with 3 members} = 14.36/3 = 4.78 \text{ [months]}$$

2.2.2 Technical Feasibility

The project implements stable technologies which are widely used for developing Android-based solutions:

- **Android Studio with Kotlin:** The development of the application is done using Android Studio with Kotlin, which serves as a powerful official environment that provides both compatibility and high performance.

- MySQL: The application uses MySQL as its backend solution to store user data including feeding schedules and vaccination dates and routine logs in a secure manner.
- Weather API: The Weather API delivers real-time environmental condition updates which helps mothers keep their children safe while raising their awareness.
- The application uses static location-based data restricted to Guwahati for easier implementation while keeping the content relevant to local users.

2.2.3 Operational Feasibility

The “Hey Mom!” app delivers a simple user experience that matches the needs of its target audience:

- New Mothers: The application provides new mothers with an easy-to-use interface to handle childcare responsibilities including feeding schedules and health alerts and vaccination schedules which helps decrease daily stress and enhance child care consistency.
- Spouses/Parents: The application targets mothers but it also allows spouses or guardians to use it together for joint childcare management and to maintain coordinated information sharing.
- Local Users: The application delivers targeted information to users in Guwahati through its location-based service restriction and static data for nearby clinics and daycare centres which eliminates the need for external map services thus making it easier to use.

2.2.4 Scheduled Feasibility

Schedule feasibility involves examining the project timeline to confirm it can be finished within the specified time limit.

i) Work Breakdown Structure

The Work Breakdown Structure (WBS) breaks down the project into smaller segments, outlining the individual tasks and goals to be accomplished.

The total project development time (in hours), for our web application is 420 hours. To further explain the calculation of ours,

Start date of the project = 22/01/2025.

Total number of weeks = 21 weeks

Number of work days per week= 5 days

Thus,

Total number of days = 105 days

One day = 4 hours of work

So now,

Total hours = Total number of days * No of work hours per day

= 420 hours

Thus, the total number of hours applicable for this project according to the schedule allotted is 420. The WBS Diagram (Fig 2.1) shown below, further describes the work hour load allotted for each task.

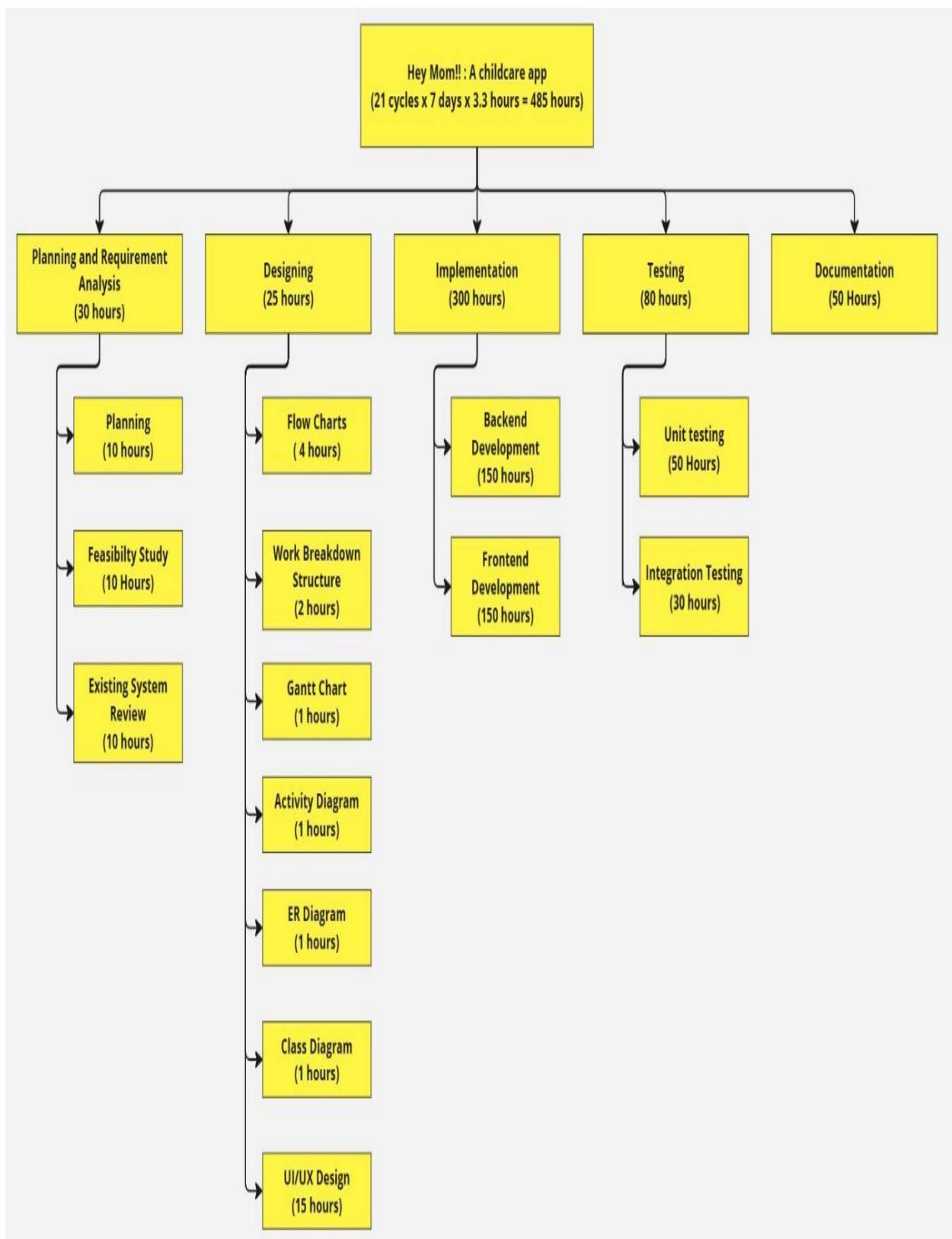


Figure 2.1: Work Breakdown Structure for Hey Mom!

ii) Gantt Chart

A Gantt chart portrays the project timeline by displaying the start and end dates of each task along with the project's overall schedule. The Gantt Chart (Fig 2.2) illustrated below shows the estimated timeline of completion of individual project task.

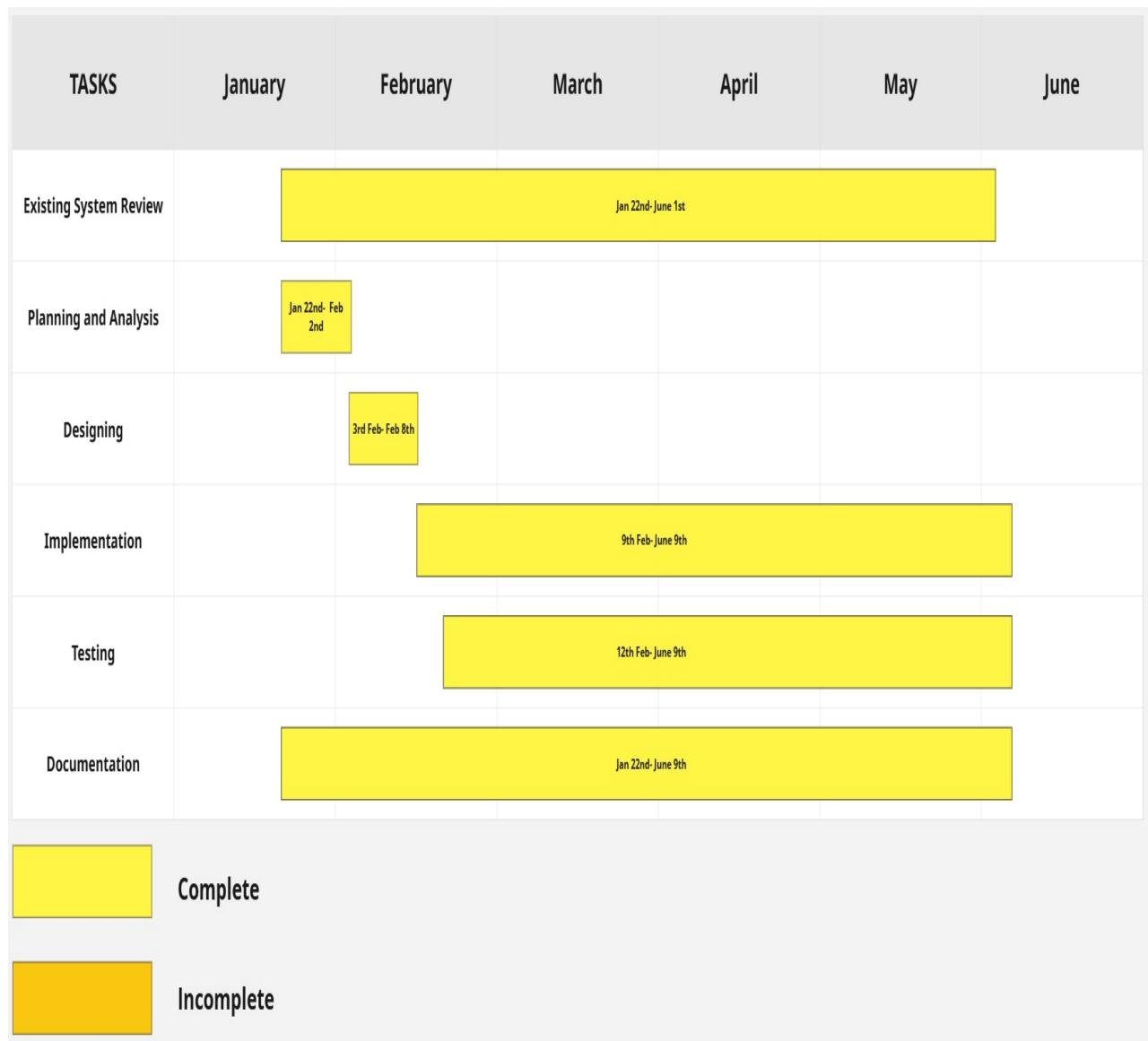


Figure 2.2: Gantt Chart for Hey Mom!

CHAPTER 3

DESIGN DIAGRAMS

The “Hey Mom!” application design diagrams function as system architecture and functionality blueprints to establish an organized development process. The flowcharts demonstrate the logical order of operations which include user login procedures and location access and routine and baby detail management and complete app navigation. The activity diagram shows the system’s dynamic behaviour by illustrating user interactions and application responses during different tasks. The class diagram presents the object-oriented framework of the application through its definition of classes and attributes and methods and system component relationships. The Entity-Relationship (ER) diagram presents a visual representation of the database schema which demonstrates how users and schedules and notifications relate to each other. The diagrams work together to create a well-organized system design which enhances clarity and scalability and maintainability.

3.1 Flowchart

A flowchart is a visual representation of a process using symbols like arrows, rectangles, and diamonds to show steps, decisions, and the flow of information.

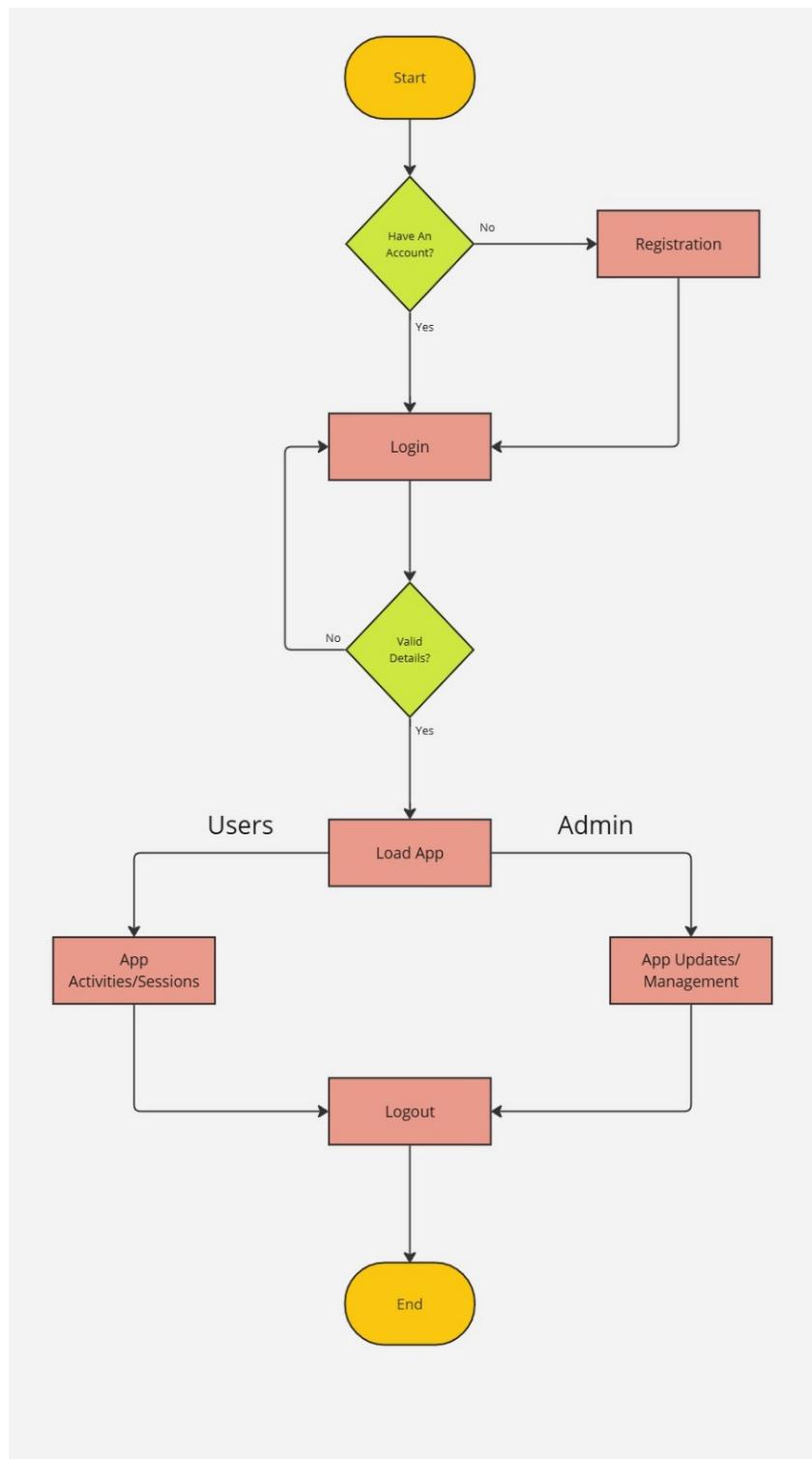


Figure 3.1: Login Flowchart

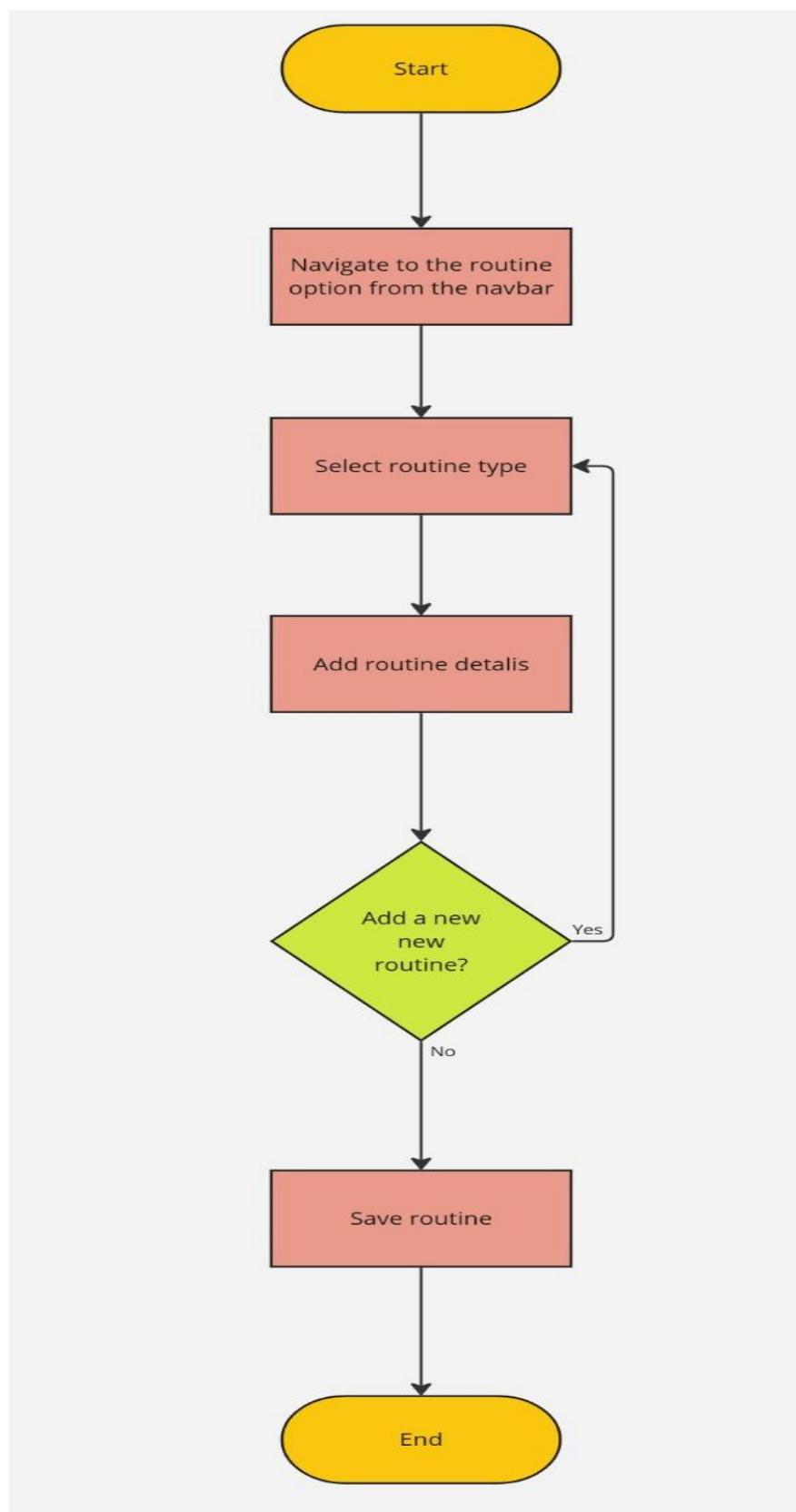


Figure 3.2: Routine Detail Process Flowchart

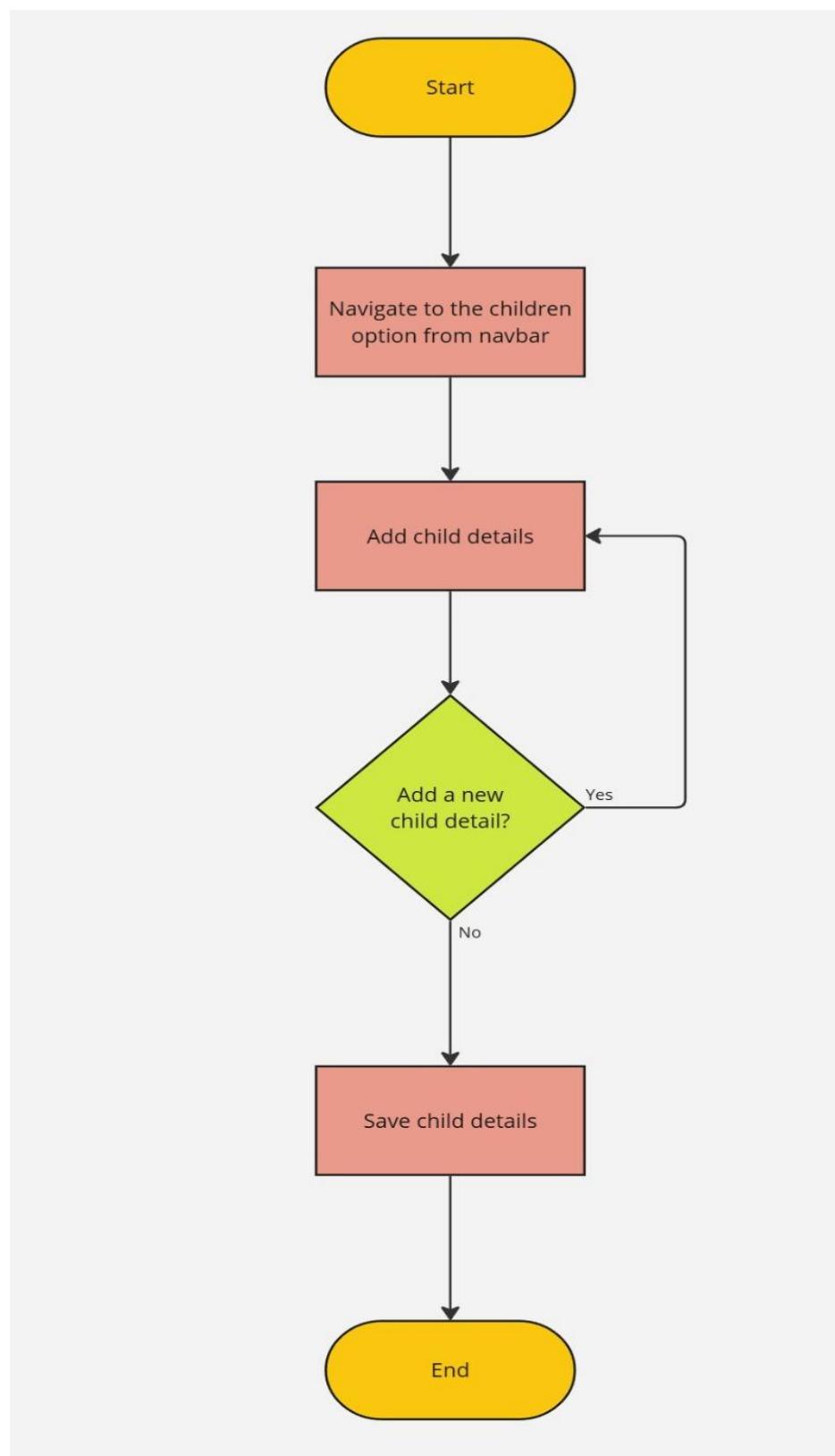


Figure 3.3: Baby Detail Process Flowchart

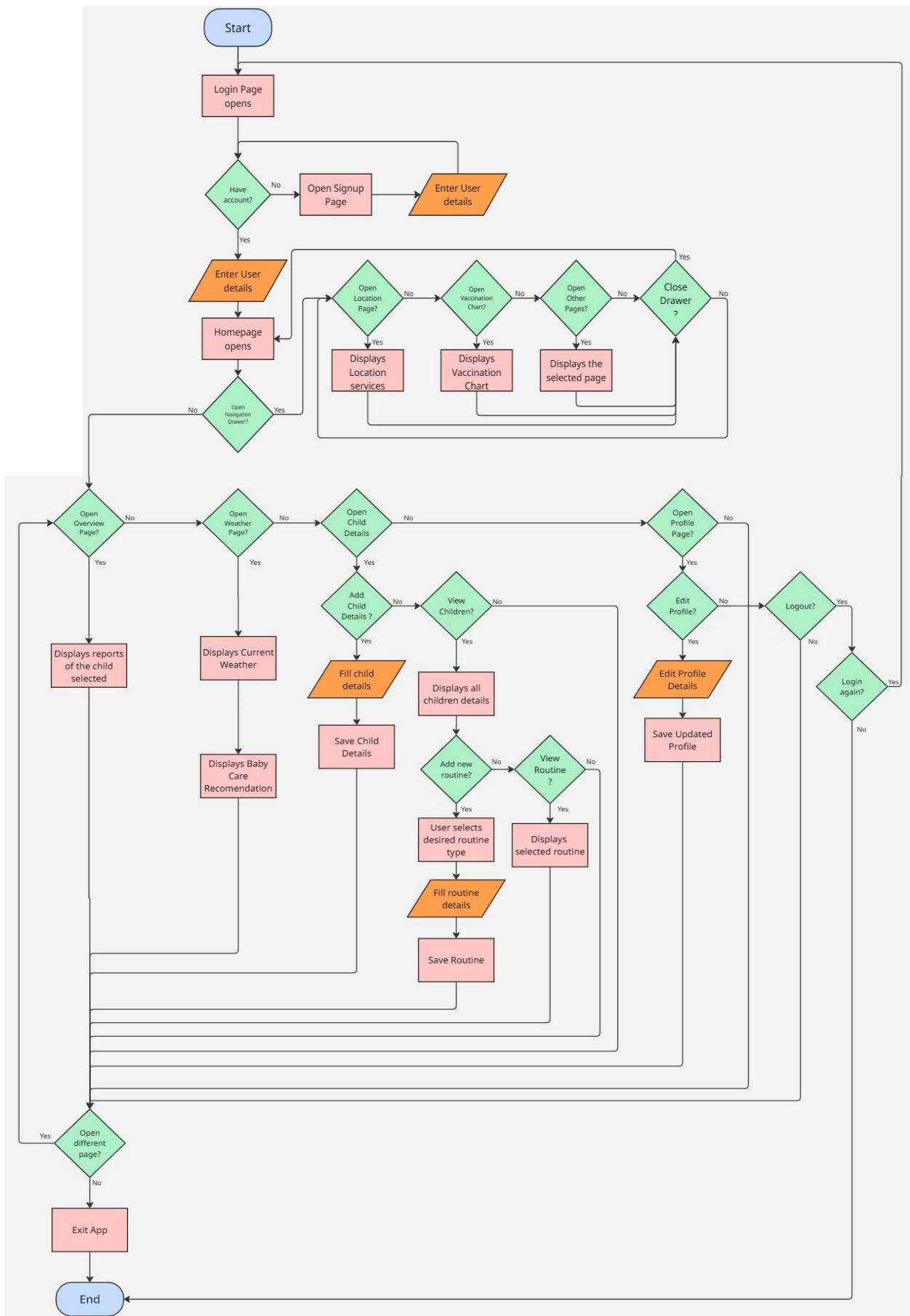


Figure 3.4: Hey Mom! Application Flowchart

3.2 Activity Diagram

An activity diagram is a visual representation of workflows in a system, showing the sequence of activities, decisions, and parallel processes using symbols like ovals, arrows, and diamonds.

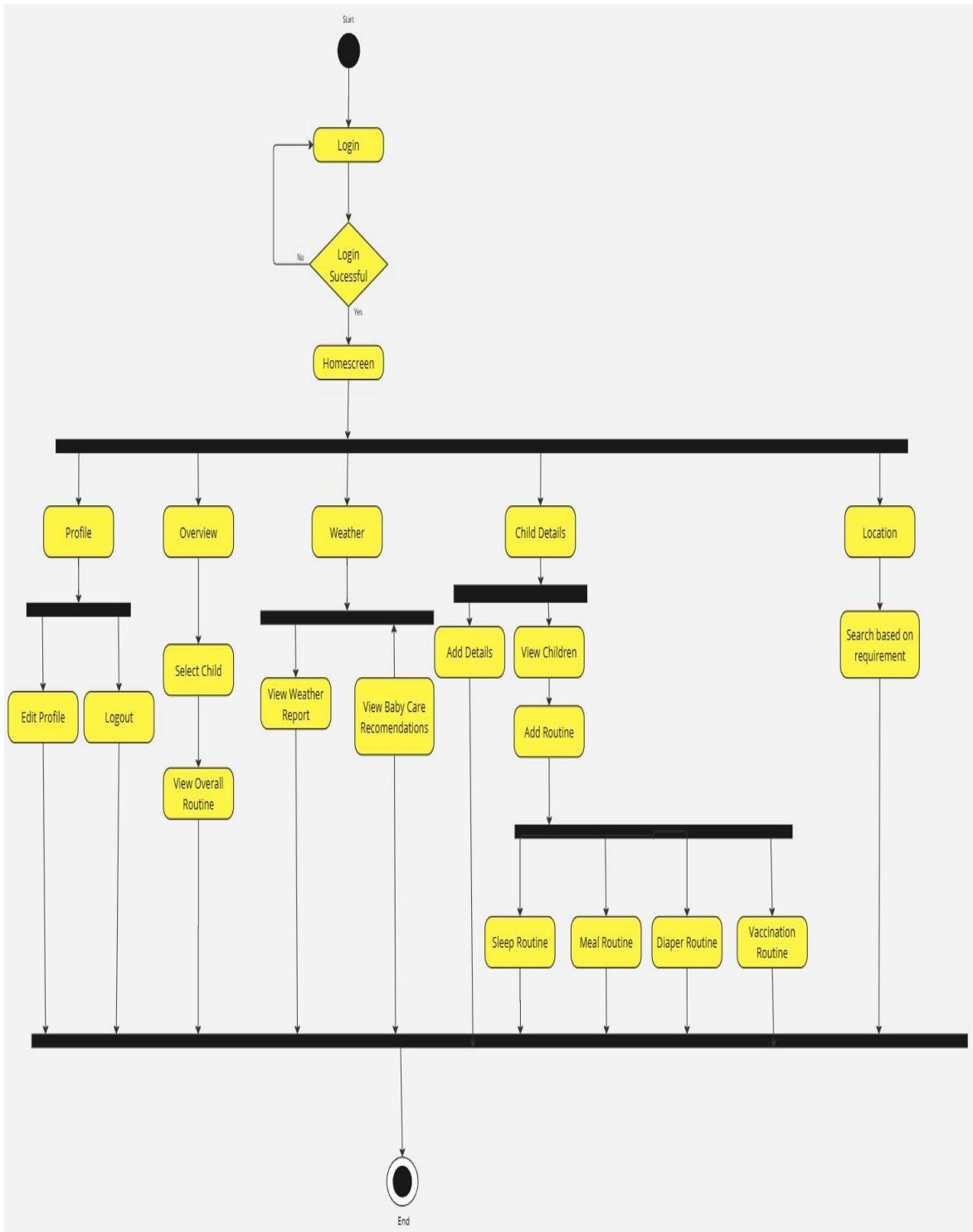


Figure 3.5: Activity Diagram of the application

3.3 Class Diagram

A class diagram is a Unified Modelling Language (UML) diagram that represents the structure of a system by showing its classes, attributes, methods, and relationships (like inheritance, association, and aggregation) between objects. It is used in object-oriented design to model the blueprint of a system.

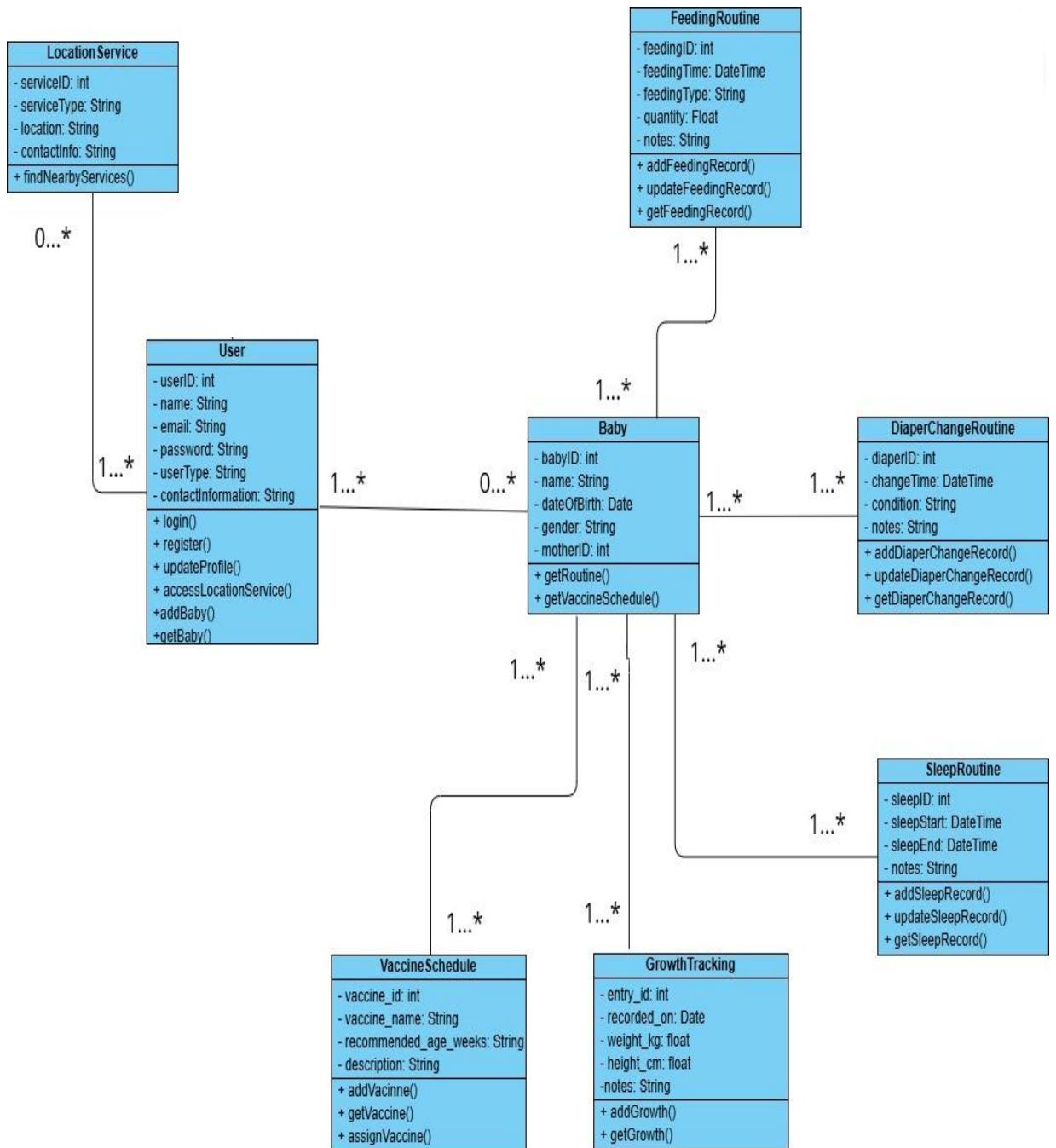


Figure 3.6: Class Diagram of the application

3.4 Entity-Relationship (ER) Diagram

An ER (Entity-Relationship) diagram is a visual representation of a database structure, showing entities (objects), attributes (properties), and relationships between them. It helps in designing and understanding databases.

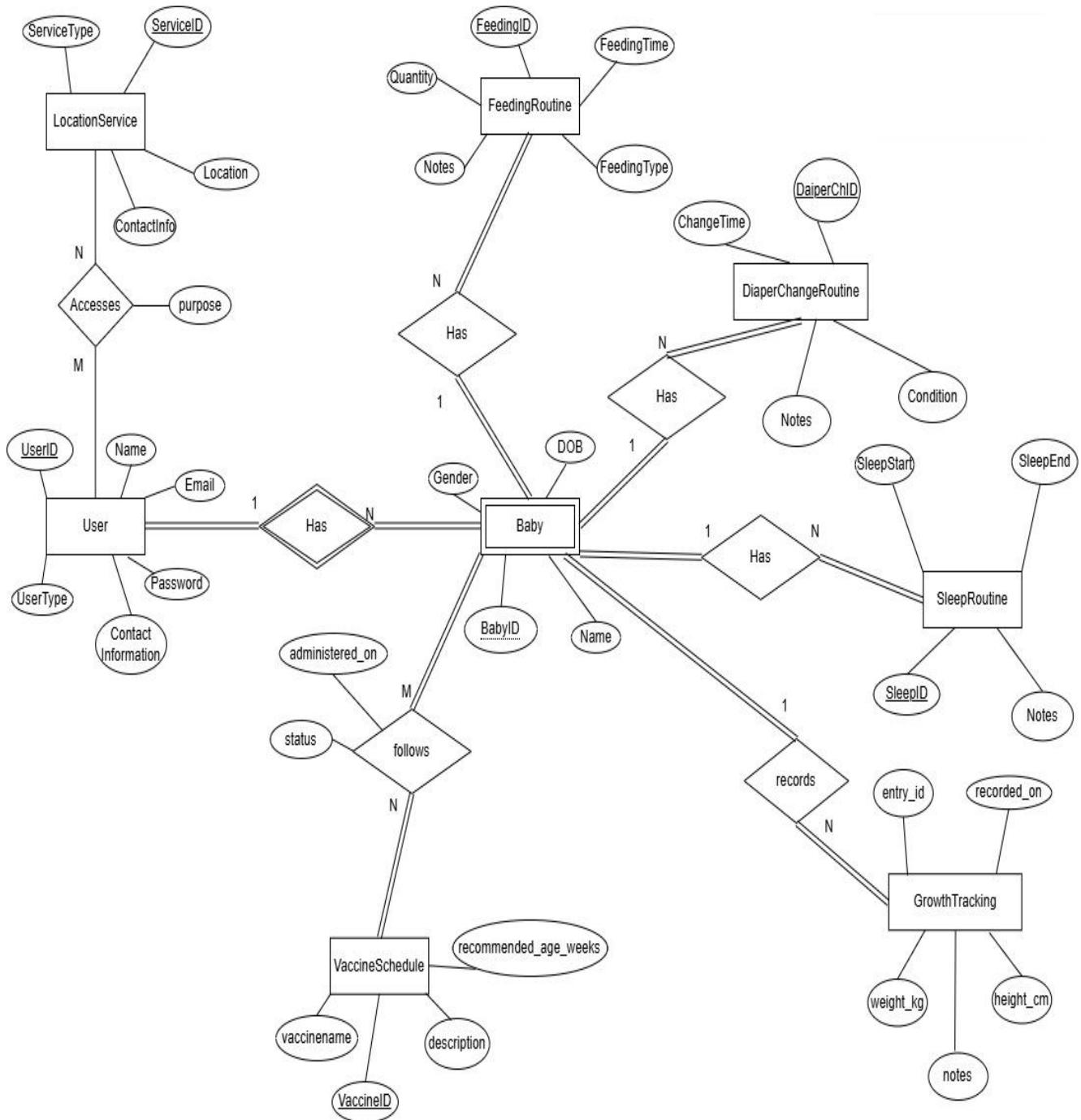


Figure 3.7: Entity-Relationship of the application

CHAPTER 4

IMPLEMENTATION

The “Hey Mom!” application used Android Studio and Kotlin programming languages to create the modular structure which handled user input, routines, and weather alerts. The application used MySQL for backend storage and PHP with WAMP Server. The WeatherAPI provided real-time weather data while static Guwahati-specific data served as the foundation for location-based features. The Adobe Suite created the user interface while each feature received individual testing before the developers integrated them.

4.1 User Registration/Login

This module enables the secured registration and login of users to access the application using their unique credentials. This facilitates authorized access and the storage of the login data safely in development.

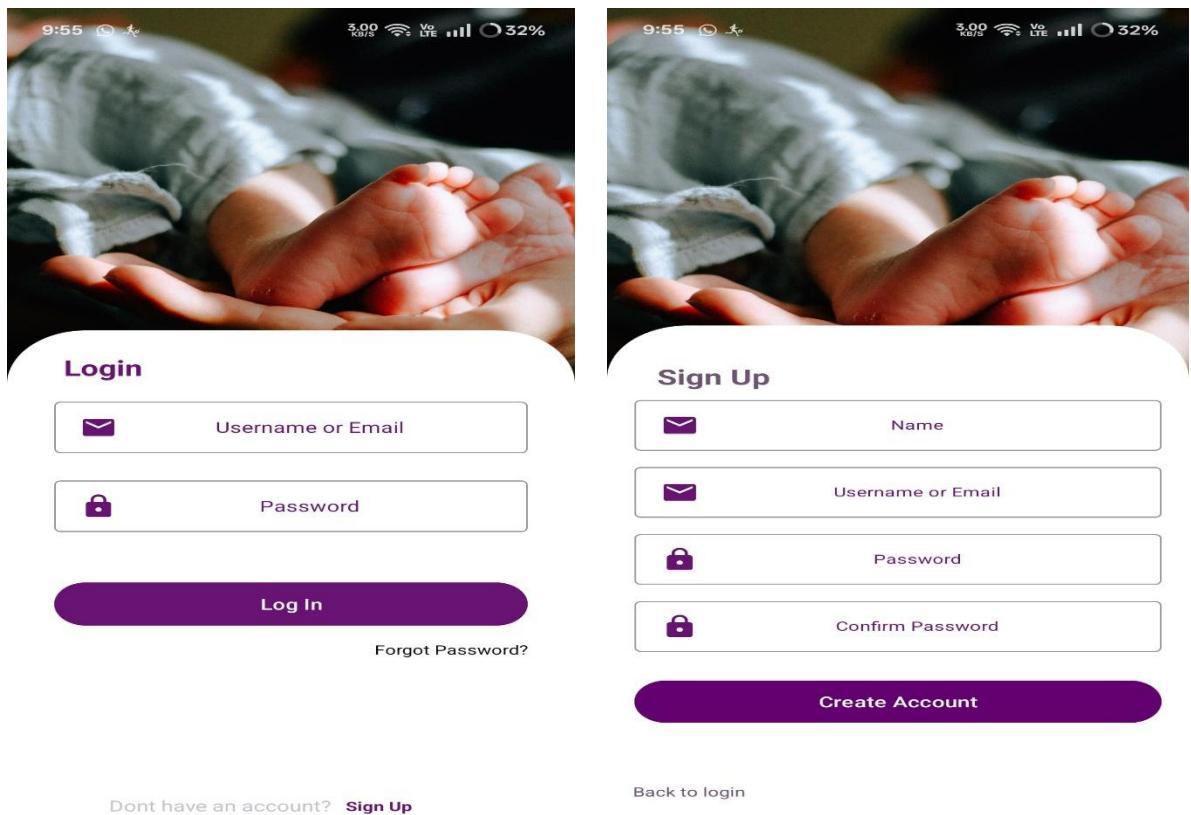


Figure 4.1: Login and Registration of the application

4.2 Adding/Retrieving Child Details

Users are able to provide basic child details such as name, age, birthdate, etc. This data is stored in the database and linked to user-specific profiles.

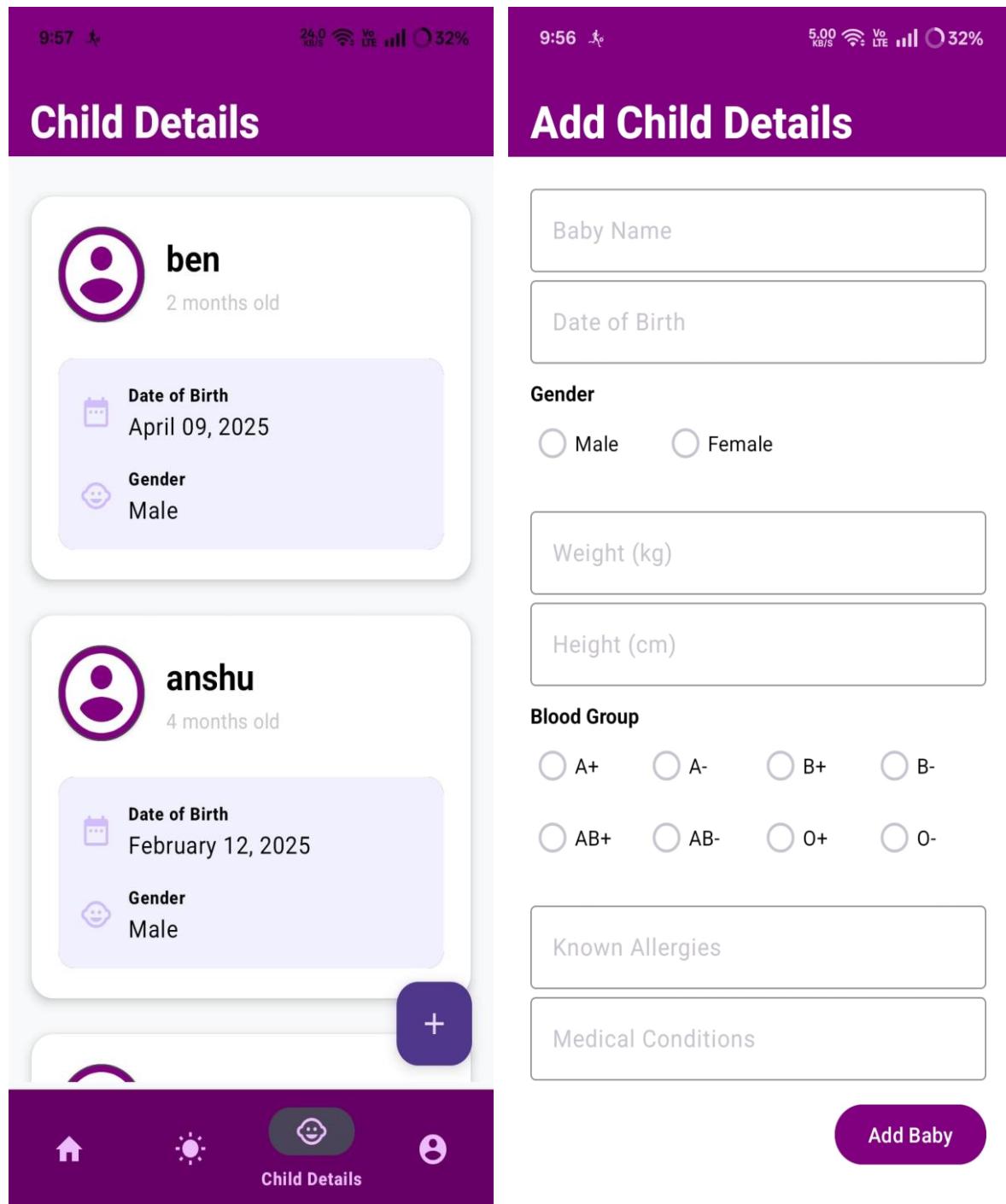


Figure 4.2: Adding/Viewing Child Details of the application

4.3 Adding/Updating Various Routines

Users can add routines for feeding, sleep, and diaper changes, which will be stored in the application with corresponding scheduled reminders. When the user adds entries into a routine, the app will automatically enable an alarm so that users can be notified at the scheduled times. The user can go back to their routine logs and change any information that was previously entered at their convenience.

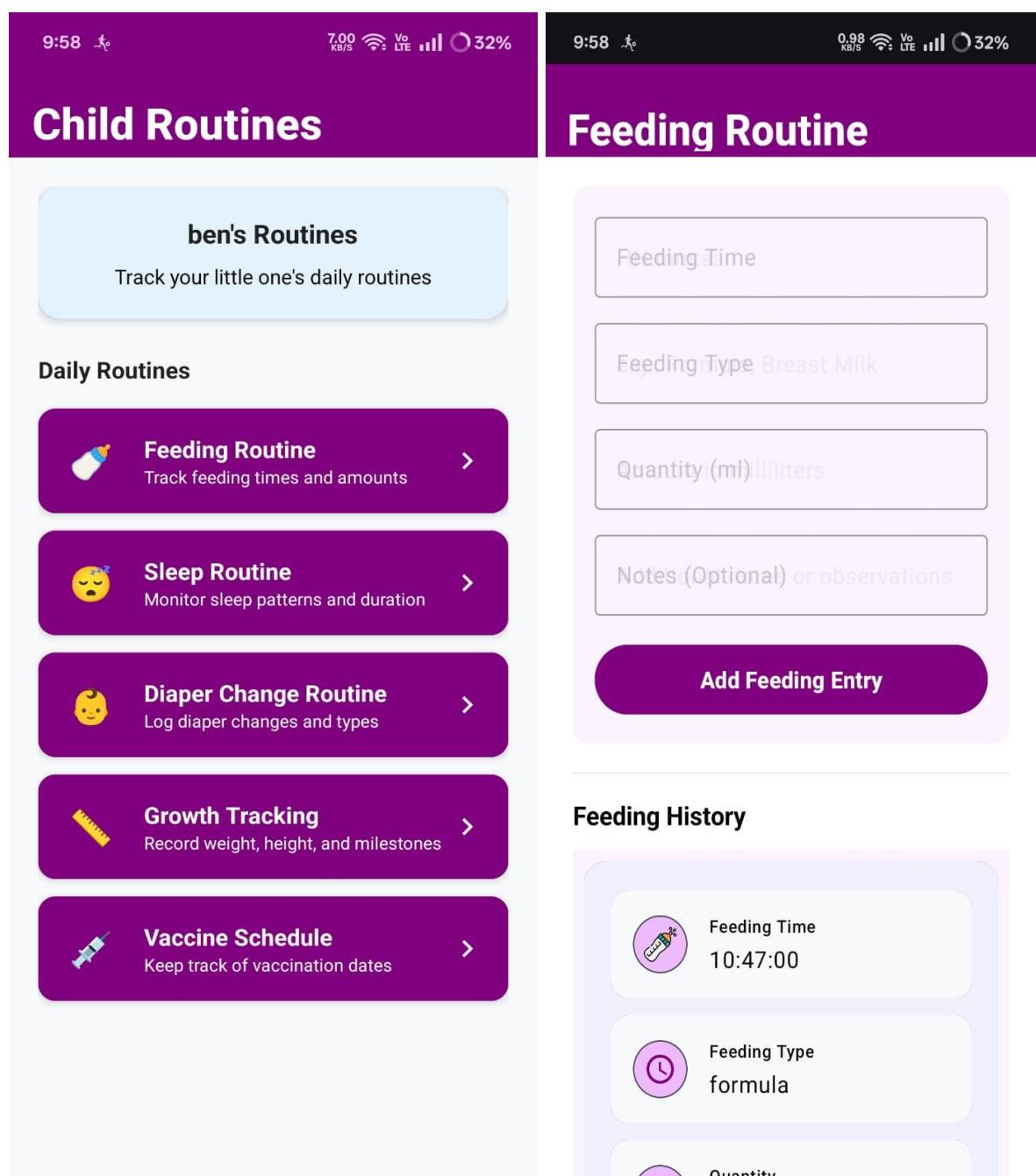


Figure 4.3: Overview and Feeding Routine for the application

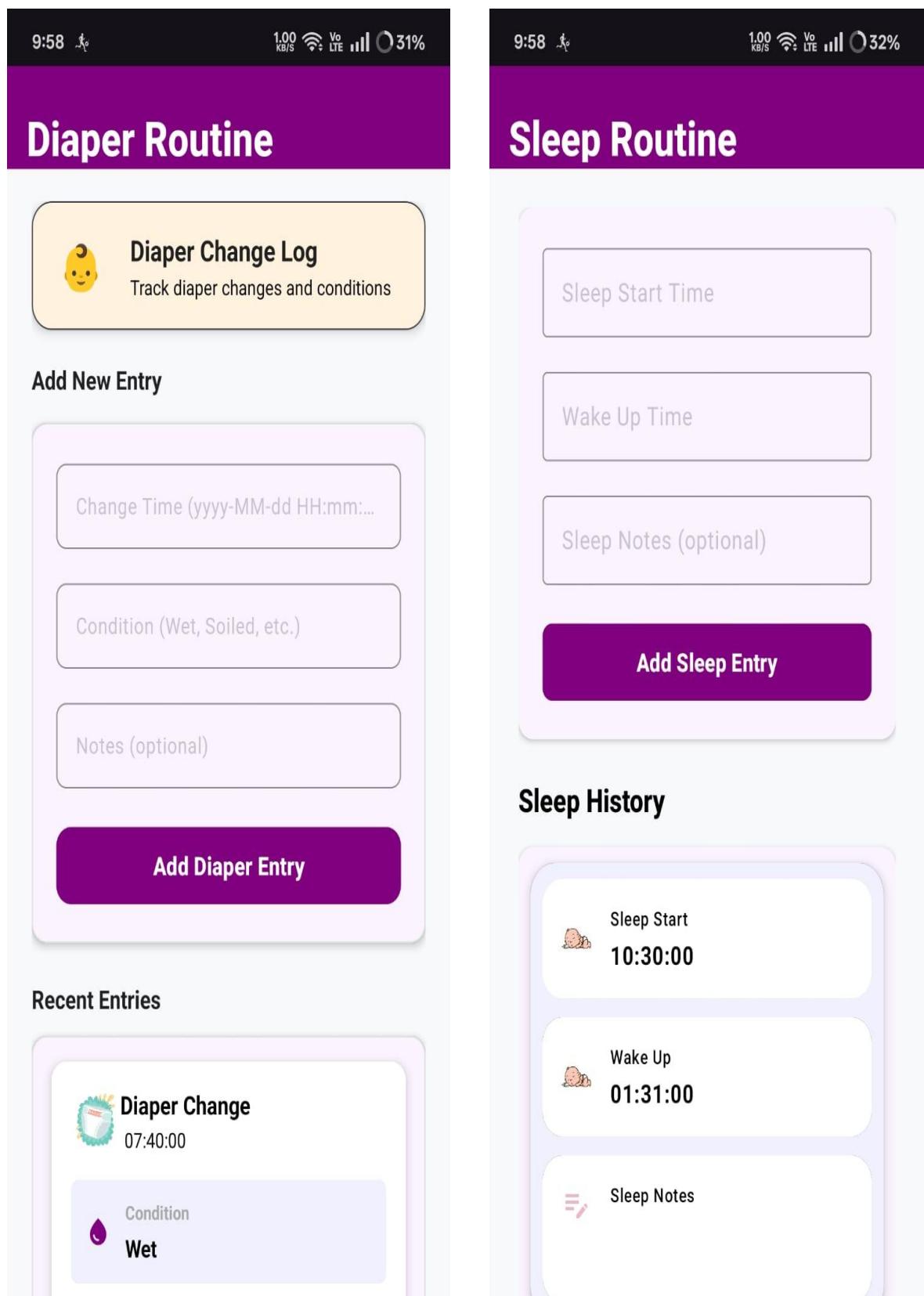


Figure 4.4: Diaper Change and Sleep Routine for the application

4.4 Vaccination Scheduling

The vaccination plan is automatically generated for each baby based on the Indian standard vaccination chart from trusted medical sources. The user can mark that vaccines have been given, and the app sends reminders to assist mothers with upcoming vaccines based on the age of the baby and the overall schedule of doses.

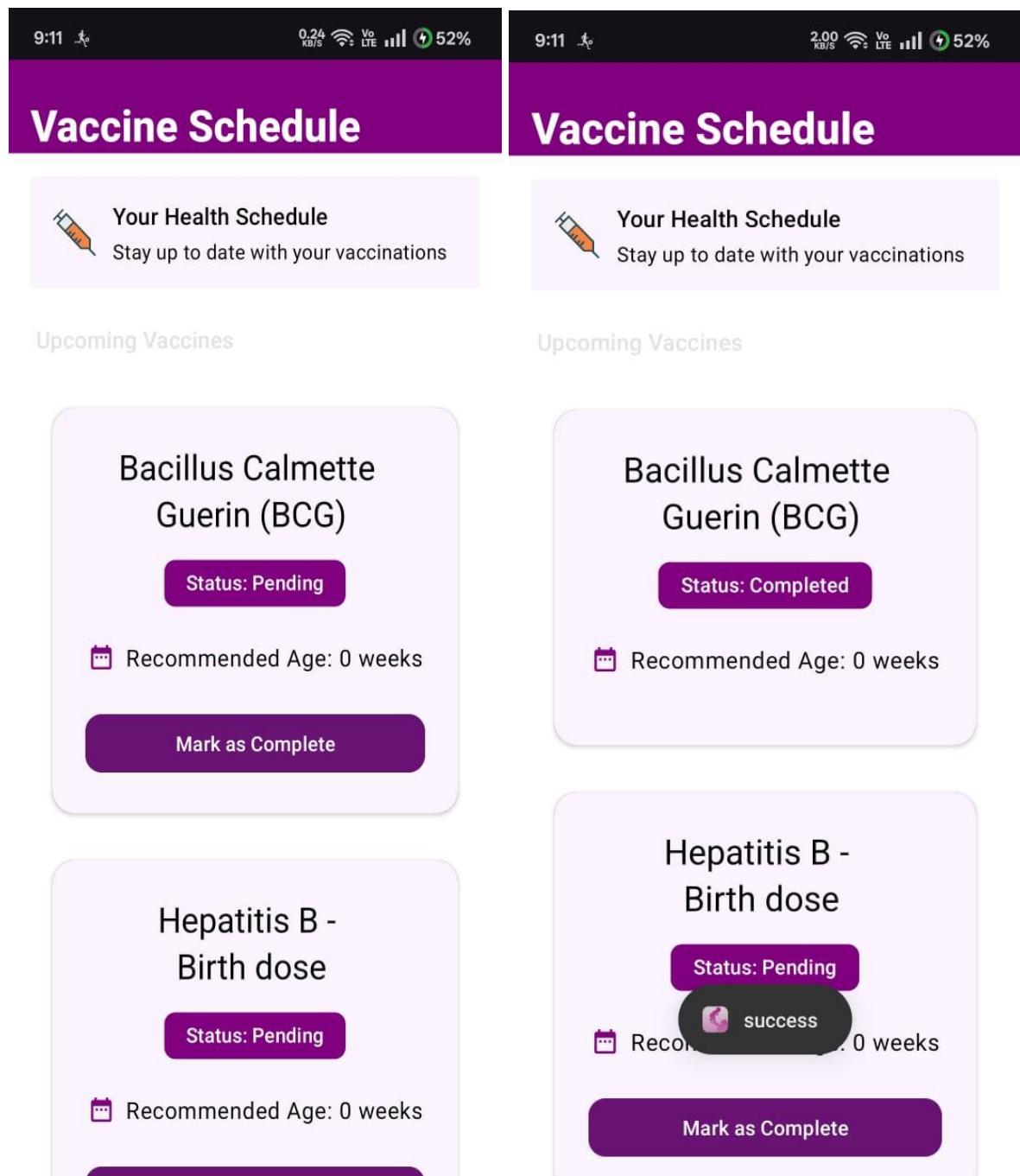


Figure 4.5: Vaccination Scheduling of the application

4.5 Growth Tracking

Users can record and keep track of a child's markers for growth over the sessions, such as weight and height, providing a basic look at children progress and development.

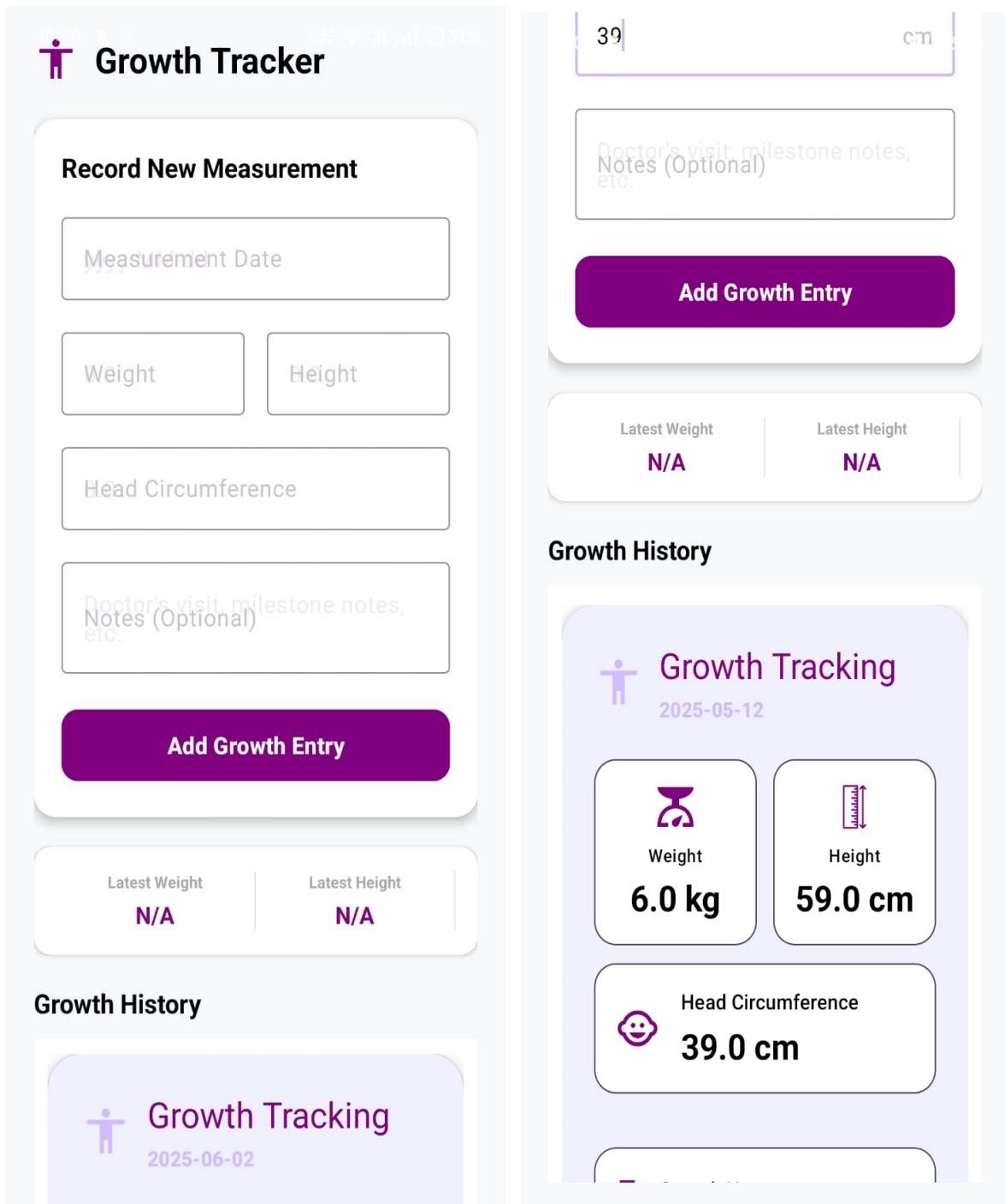


Figure 4.6: Growth Tracking of the application

4.6 Location-Based Services

Currently, the app's location-based service only provides static information about clinics and daycare centres in Guwahati. Users can find details on clinics and daycare centres near to them, where users can click on a location card to be directed to Google Maps, giving them directions from their location to the desired or selected clinic or daycare centre.

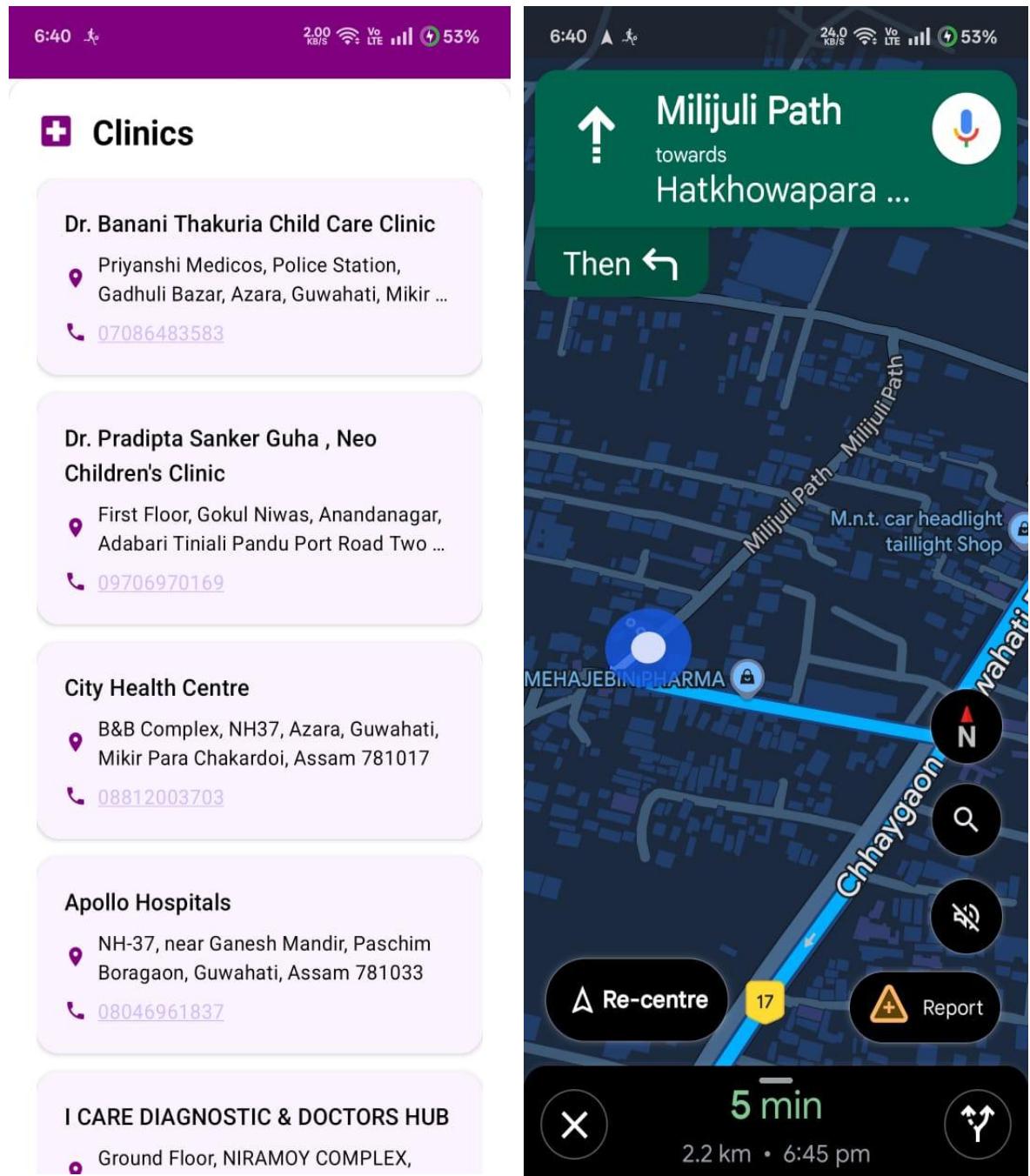


Figure 4.7: Location-Based Service of the application

4.7 Weather Report and Tips

The weather report feature retrieves real-time weather data from WeatherAPI.com through their free API to show information based on the user's current location. The application also shows weather updates together with condition-specific baby care advice to assist mothers in making suitable decisions for their children.



Figure 4.8: Weather Report and Tips of the application

4.8 Notification Systems

Push notification reminders are automatically sent to remind the parent of feeding, naps, vaccinations, and other schedules, keeping consistent, organized, and scheduled care for the child throughout the day over time.

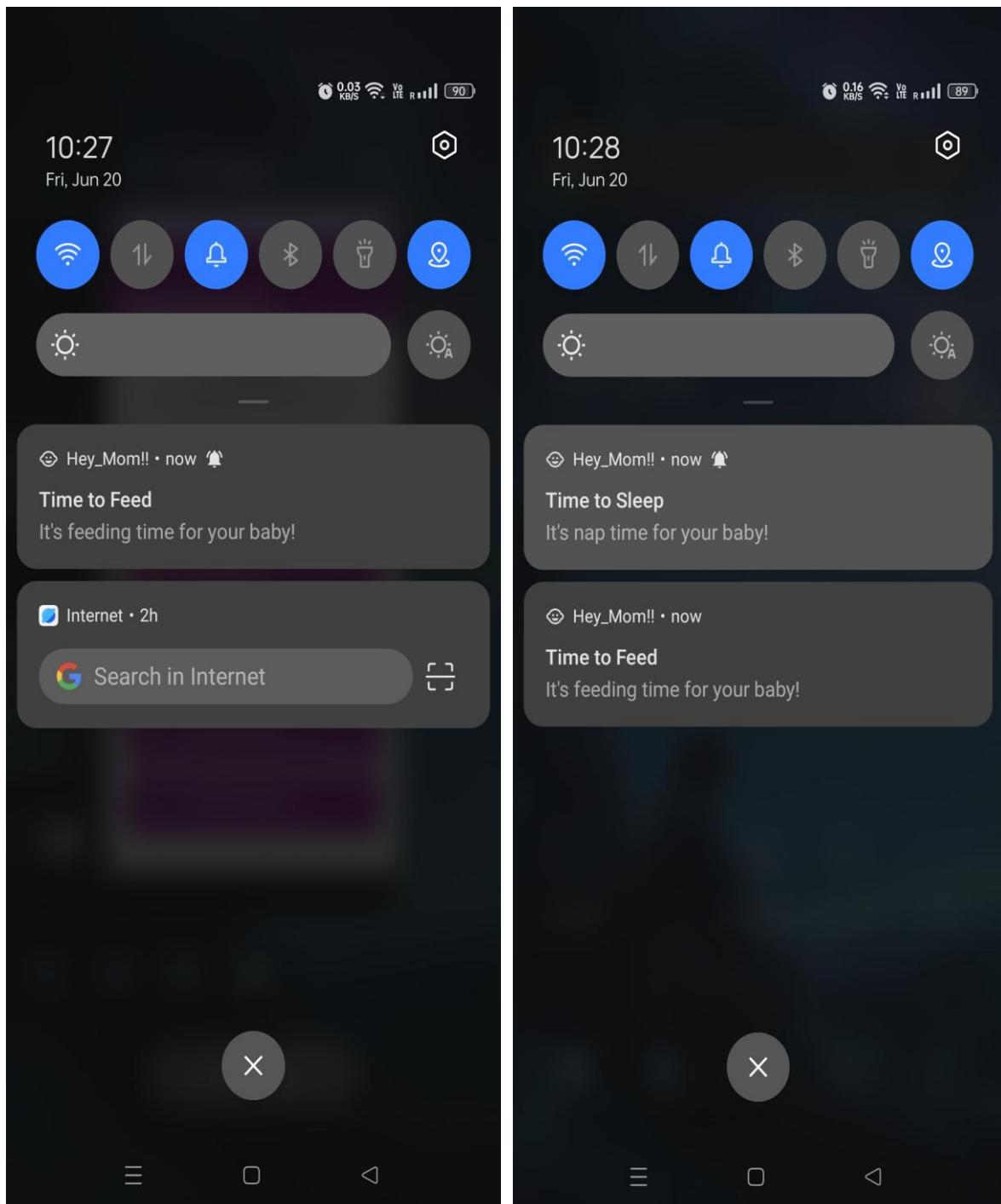


Figure 4.9: Notifications for Feeding and Sleeping time of the application

CHAPTER 5

TESTING

The application requires testing to verify its performance in actual operational conditions. The “Hey Mom!” application underwent basic manual testing to verify its core features such as registration, routine tracking and weather health tips functionality. The testing process included unit testing for individual modules and integration testing to verify component communication. The following sections present the tested modules together with their corresponding test cases.

5.1 User Authentication Testing

This Table 5.1 verifies that users can securely register, log in, and access the app using valid credentials.

Table 5.1: Test Cases for User Authentication

Feature Tested	Test Case Description	Expected Result	Status
User Registration/ Login	Register new user with valid input	Account created and redirected to dashboard	Pass
User Registration/ Login	Login with correct credentials	User successfully logged in	Pass
User Registration/ Login	Login with incorrect password	Error message displayed	Pass

5.2 Child Profile Management Testing

Table 5.2 ensures correct handling of adding and retrieving children’s data.

Table 5.2: Test Cases for Child Profile Management

Feature Tested	Test Case Description	Expected Result	Status
Adding Child Details	Add child profile with valid data	Child profile saved and displayed	Pass
Retrieving Child Details	View existing child details	Data retrieved correctly	Pass

5.3 Routine Management Testing

Table 5.3 covers feeding, sleeping, and diaper tracking routines, including updates.

Table 5.3: Test Cases for Routine Management

Feature Tested	Test Case Description	Expected Result	Status
Feeding Routine	Add new feeding routine entry	Routine saved and listed	Pass
Sleeping Routine	Set nap time in routine module	Nap time alert scheduled	Pass
Diaper Change Tracking	Log a diaper change event	Event saved to routine history	Pass
Editing Routine	Update feeding routine time	Updated time reflected in routine view	Pass

5.4 Vaccination Reminder Testing

Table 5.4 tests the scheduling and delivery of vaccination alerts.

Table 5.4: Test Cases for Vaccination Reminder

Feature Tested	Test Case Description	Expected Result	Status
Vaccination Reminders	Add vaccination date and time	Reminder scheduled	Pass
Vaccination Reminders	Receive vaccination alert	Push notification received	Pass

5.5 Growth Tracking Testing

Table 5.5 validates functionality for recording and viewing developmental metrics.

Table 5.5: Test Cases for Growth Tracking

Feature Tested	Test Case Description	Expected Result	Status
Growth Tracking	Enter weight and height data	Growth entry saved	Pass
Growth Tracking	View growth history	Previous entries listed correctly	Pass

5.6 Location Services Testing

Table 5.6 tests the functionality of static Guwahati-based clinic and daycare listings.

Table 5.6: Test Cases for Location-based services

Feature Tested	Test Case Description	Expected Result	Status
Location-Based Services	Load list of clinics/daycare in Guwahati	Static list shown	Pass

5.7 Weather Report and Tips Testing

Table 5.7 covers the retrieval of weather data and corresponding safety tips.

Table 5.7: Test Cases for Weather Report and Tips

Feature Tested	Test Case Description	Expected Result	Status
Weather Report	Retrieve current weather from API	Weather data displayed	Pass
Weather Tips	Give baby care recommendation based on weather	Recommended Tips	Pass

5.8 Notification System Testing

Table 5.8 confirms that reminders and notifications trigger as expected.

Table 5.8: Test Cases for Notification System

Feature Tested	Test Case Description	Expected Result	Status
Notification System	Receive feeding reminder at scheduled time	Notification appears on device	Pass
Notification System	Modify reminder settings	Alerts updated as per new settings	Pass

5.9 Integration Testing

The “Hey Mom!” application underwent integration testing following unit testing to verify that its complete system functioned correctly with all individual modules. The testing process validated that user interface data such as feeding routines and child details correctly stored in the backend database and scheduled reminders activated at their designated times. The testing verified that the User Interface successfully communicated with the MySQL database and external APIs including the Weather API. The testing phase verified that data moved smoothly between application components while maintaining uniform behaviour throughout the system.

CHAPTER 6

CONCLUSION AND FUTURE WORK

The “Hey Mom!” application is a comprehensive childcare resource that solves the typical problems of other parenting apps directed at new mothers. The app manages childcare with routine tracking for feeding, sleeping, diaper change and vaccinations, as well as location-based services (currently, only in Guwahati city) to find nearby daycare centres and clinics. The use of Weather API allows mothers to receive environmental reports and tips so that they can take proper precautions to ensure their child’s safety.

The project demonstrates both technical and operational feasibility and has considerable basis for scalability. The application is created on the Kotlin development language for Android with MySQL backend for data management which helps ensure secure data handling and stable performance. The application also provides an intuitive interface for novice and advanced users of various technical experience to use. The system notifications of child’s needs, as well as automated reminders allow mothers to manage their many responsibilities.

The project’s feasibility can be seen by using the COCOMO model analysis which presents operational viability as a function of time to complete the project. The application “Hey Mom!” has created long-term viability to join other applications in the childcare market with a cost-effective use of technology and focused modes.

Future Work

Future iterations of “Hey Mom!” will implement additional features to streamline functionality and increase accessibility. The application will implement two major updates: AI based parenting advice and multilingual options. The application will also implement communication tools for messaging with paediatricians and parent communities, and Google Maps location-based service functionality will also be developed further and available outside Guwahati. When combined, these features will work towards a modern parenting solution.

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