

Safe Baby: An Android App to Provide Caregiver for Child to Parents

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Computer Science and Engineering

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APPROVAL

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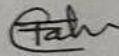
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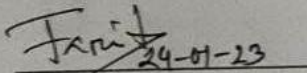
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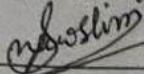


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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Ms. Samia Nawshin, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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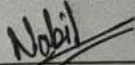
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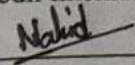
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ABSTRACT

The Android-based "Safe Baby: An Android App to Provide Caregiver for Child to Parents" application. This software assists users (parents) in finding nearby babysitters and enables babysitters to be on a platform which allows them to be quickly identified to obtain a part-time employment. The user-friendly and efficient interface of this project makes it simple to complete tasks. This technology may eventually be utilized for business purposes in addition to meeting personal needs. Many individuals will be able to find part-time employment as sitters thanks to this system, which will relieve parents of a great deal of worry over their child's wellbeing. We also sought to keep the procedure relatively straightforward so that the security could be readily maintained while also thinking about the safety of both parties. We made every effort to make this system as user-friendly and straightforward as we could. We have faith in a life after this one that supports simple, straightforward answers to everyday problems. That is the major reason we created the approach for hiring a babysitter, so anybody can employ the most reliable sitters in their area by following a few simple steps. We are certain that our efforts will simplify a significant aspect of everyday living and provide our clients more flexibility to pursue their personal passions.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Bangladesh was listed as a frontier market and one of the Next Eleven rising middle-income economies. With a real GDP or GDP at constant prices annual growth rate of 8.3 percent, Bangladesh has the seventh-fastest expanding economy in the world during the first quarter of 2019. So, in order to keep this continuing, men and women must struggle. However, because of it parents nowadays don't have much time to care for their children, a babysitter comes in helpful. There is no denying that parents may greatly benefit from hiring a babysitter. In addition to giving parents more work flexibility, babysitting can also help them relax, maintain consistency, and, perhaps most significantly, have peace of mind. [1]

That's really the chief factor we created the method for hiring a babysitter, so anybody can acquire the most reliable sitters in their area by following a few simple steps. The main problem in current society is that we rarely interact with new people, which makes it challenging for parents and babysitters to locate one another. We have faith in a life after this one that supports simple, straightforward answers to everyday problems. This conviction has driven us to set up a new platform that connects parents and sitters in order to provide safe, inexpensive, and simple childcare.

1.2 Motivation

The initiative is driven by a desire to digitally transform both our nation and our way of life. Parents may benefit from our greatest discovery experiences, while babysitters can benefit from our flexibility, openness, and opportunity. Our goal is to link parents and nannies so that the supply and demand for childcare are best suited. Being without a babysitter who will watch our kids for free or on short notice is upsetting. Parents may instruct sitters about what to do and may hire an individual for the specific day and at the preferred hour. Additionally, we were inspired to create this medium for the citizens of our nation due to safety concerns.

1.3 Objective

The role of a babysitter is to take care of the children in the absence of their parents. As parents are the most caring souls for their children so they want the best care for them. From that point of view, our core objective is to deliver high quality babysitting support to the parents where carers/sitters will ensure the safety of your children and provide care as required. We want to notify parents to know that their children are being looked after, feeling at ease and certain that everything will be OK till they return from work. As every employee who wants to be a babysitter, they have to go through an interview process with all their degrees and training papers, these trustworthy and reliable babysitters can give peace of mind which is very important for parents because their babies are their main concern. Children can benefit from babysitters' socialization skills as different characteristics sitters take them outside and spend time with them, which makes children flexible with people. It's hard for working parents to get their children ready for school which can be easily solved by babysitters. This type of dedicated care is very important for kids as it's their initial stages of their age and it can be made sure by babysitters. Security concerns are often heard from parents because they have to worry for their kids who are alone at home. We believe that our work will be very popular as there is not even a single service provider in our country where It will make our daily life easier and parents will get more freedom and happiness. For our security purposes, we will maintain database of sitters with all the information and provide it to the parents that's why parents don't have to be anxious. The entire process could be completed online, anytime, anyplace.

[2]

1.4 Expected Outcome

Practically everyone in our country now owns a smartphone, and almost everyone uses Android applications on a regular basis. So, with that in mind, we're developing an app to make parents' lives simpler and to help unemployed people find work as sitters. It will save you more time than meeting a babysitter in person. The user-friendly interface will make it easier for all sorts of individuals to navigate. Because of the background check procedure, it will assure the protection of children.

1.5 Report Layout

Chapter 1: Introduction

We have addressed the project's motivation, goals, and expected outcomes in this chapter.

Chapter 2: Background

We go over the project's software specifications and context. We also discuss the project's obstacles, the problem's scope, comparative research, and related work.

Chapter 3: Requirement Specification

This chapter covers the logical relational database model, the design requirements, and the project's use case model and their descriptions.

Chapter 4: Design Specification

We covered all of the project's front end as well as database designs in this chapter.

Chapter 5: Implementation and Testing

The development's interface design and user experience (UX) implementation, requirements execution, testing integration, and results of the tests are all covered throughout this chapter.

Chapter 6: Conclusion and Future Scope

We have covered the outcomes and conclusions of our project in this chapter.

CHAPTER 2

BACKGROUND

2.1 Introduction

This chapter has mostly focused on background information on parents, babysitters, and their requirements. Several related methods for achieving our aim have also been covered in this chapter. We must all work digitally if we want to live in a developed society in the modern day. With the help of this software, parents will offer dependable babysitting without feeling the need for alternative careers. Considering how careful they are, expecting a babysitter to care for the child in the same manner as such a parent is absurd.

2.2 Some Other Projects Works

We started investigating online after deciding to develop an android-based application, but we couldn't discover any android-based apps that worked for individuals in Bangladesh. However, there are just a handful such websites listed on Google. We discovered several sorts of websites when searching for comparing websites, such as Amar Astha, Clara Care Services, and B-care. However, all of these services are either not operating at all or are just keeping the website partially operational. Our primary goal is to provide a reliable sitter for working parents. Bangladesh is on its path to become a developed country, and in order to earn and keep a job in a developed country, parents require prenatal care services. This area has the potential to significantly strengthen our economy. Here are a couple websites for babysitting services that we discovered while investigating.

Amar Astha is promoted as a dependable and skilled nanny and babysitter for taking care of children at home. [3]

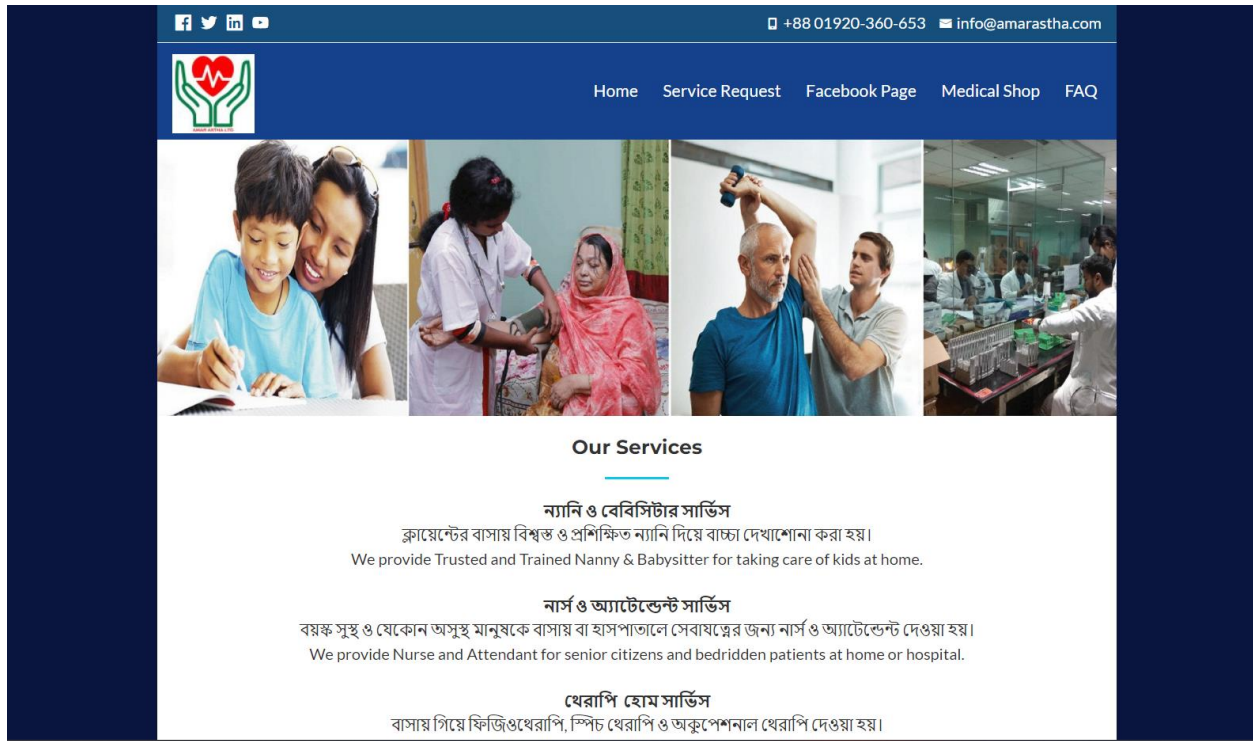


Figure 2.1: Amarastha

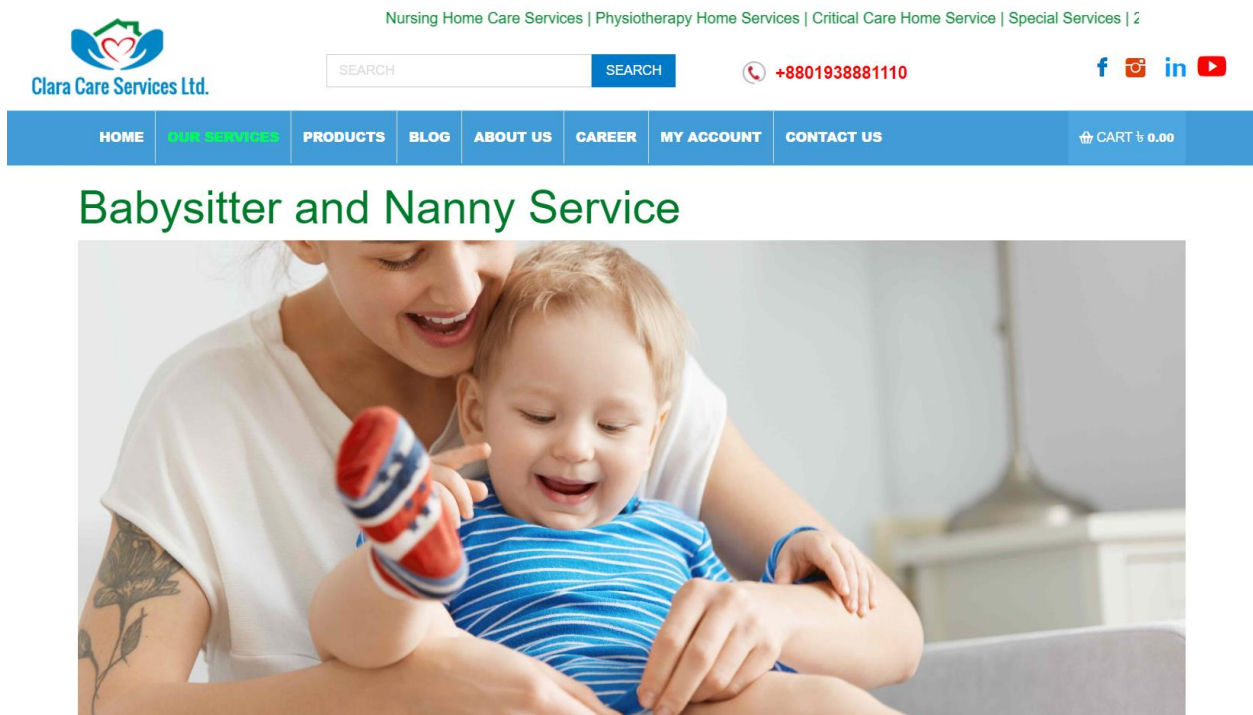


Figure 2.1: Clara Care Service Ltd.

In Dhaka, Bangladesh, Clara Care Services Ltd. is a Medicare-Certified organization offering a range of high-quality home health care & services. In Dhaka, Clara Care Services Ltd offers babysitting and nanny services. [4]

2.3 Comparative Studies

Due to the fact that it is still nonexistent in our country, the application we have created is completely different. Therefore, we must construct it in accordance with our society, entirely differentiating it from other applications that are already in use online. We have added "Local Guardian Information" as a background check since we are very concerned for the welfare of both the parents and the babysitter. This will ensure their safety. Additionally, we have added a few features and functionalities that may be more beneficial for users of all ages.

2.4 Problem Dimensions

The focus of our initiative is primarily for parents and babysitters. Parents select a sitter who is not available on that particular day. As a result, scheduling might be a challenge at times. Both individuals' preferences may differ, which can be a source of anxiety. Sometimes babysitters won't be able to handle all of the difficulties if parents want them to, which can lead to misunderstandings between the two of them. When it comes to a chosen sitter, the parent's perspective may differ.

2.5 Challenges

To overcome the efficient infrastructure, the suggested app should have the following challenges:

- To keep things simple
- Maintaining openness
- Maintaining a user-friendly environment
- To ensure well security
- To keep provide be fond of sitters
- Identifying true parents

CHAPTER 3

REQUIREMENTS AND SPECIFICATION

3.1 Introduction

Baby Safe is a very well-designed and user-friendly program that provides us with many forms of data on parents and sitters; for working parents, it is a simple method to choose a trustworthy sitter for their child. As a result, in this section of our report, we will go through the precise requirements for our project.

3.2 General System Requirement of “Safe Baby: An Android App to Provide Caregiver for Child to Parents”

There are few prerequisites for building our android-based project. These are the requirements we must meet in order to complete our project. The following is a broad list of software components that we utilized to develop our project.

Hardware:

- Computer
- Internet
- Smart-Phone

Software:

- Windows 11
- Android Platform
- Android Studio
- Android API 33

Programming language & Framework:

- Firebase, Fire Store Database, Real-Time Database
- Xml.File (Front End)
- Java (Back End)

Software:

Android Platform: The mobile operating system known as Android was created specifically for touchscreen devices like smartphones and tablets. It is built on top of other open-source software and a modified Linux kernel. Google provides commercial support for Android, which was developed by the Open Handset Alliance, a developer partnership. The HTC Dream, the first commercial Android smartphone, was released in September 2008 after being first revealed in November 2007. [5]

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development. [6]

Android Studio was announced on May 16, 2013, at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0. [6]

Programming language & Framework:

Firestore: A multi-node, key-value database specialized for syncing data, frequently between user computers or mobile devices and centralized cloud storage, makes up the foundation of the development platform Firebase, which was first recognized for its real-time database. The majority of the data pushing and pulling is handled by it, which is intended to make life simpler for developers. This frees up app developers from having to manage versions or locales through code. The data will be consistent throughout the system when they write the new bits to Firestore. [7]

XML: Extensible Markup Language (XML) enables the definition and sharing of data. Information interchange between computer systems, including webpages, databases, and outside applications, is supported by XML. Because the recipient may use the predefined rules to interpret the data properly and effectively, it is simple to send data as XML files across any network. [8]

A markup language with rules to specify any data is called Extensible Markup Language (XML). Unlike other programming languages, XML is incapable of carrying out computations on its own.

Instead, structured data management may be accomplished using any computer language or piece of software. [8]

Java: The object-oriented, class-based, general-purpose programming language Java was created to have fewer implementation requirements. It is an application development platform for computers. Java is consequently quick, safe, and trustworthy. It is commonly used to create Java applications for smartphones, gaming consoles, laptops, data centers, and other devices. [9]

3.3 Flow chart

Parent's Flowchart:

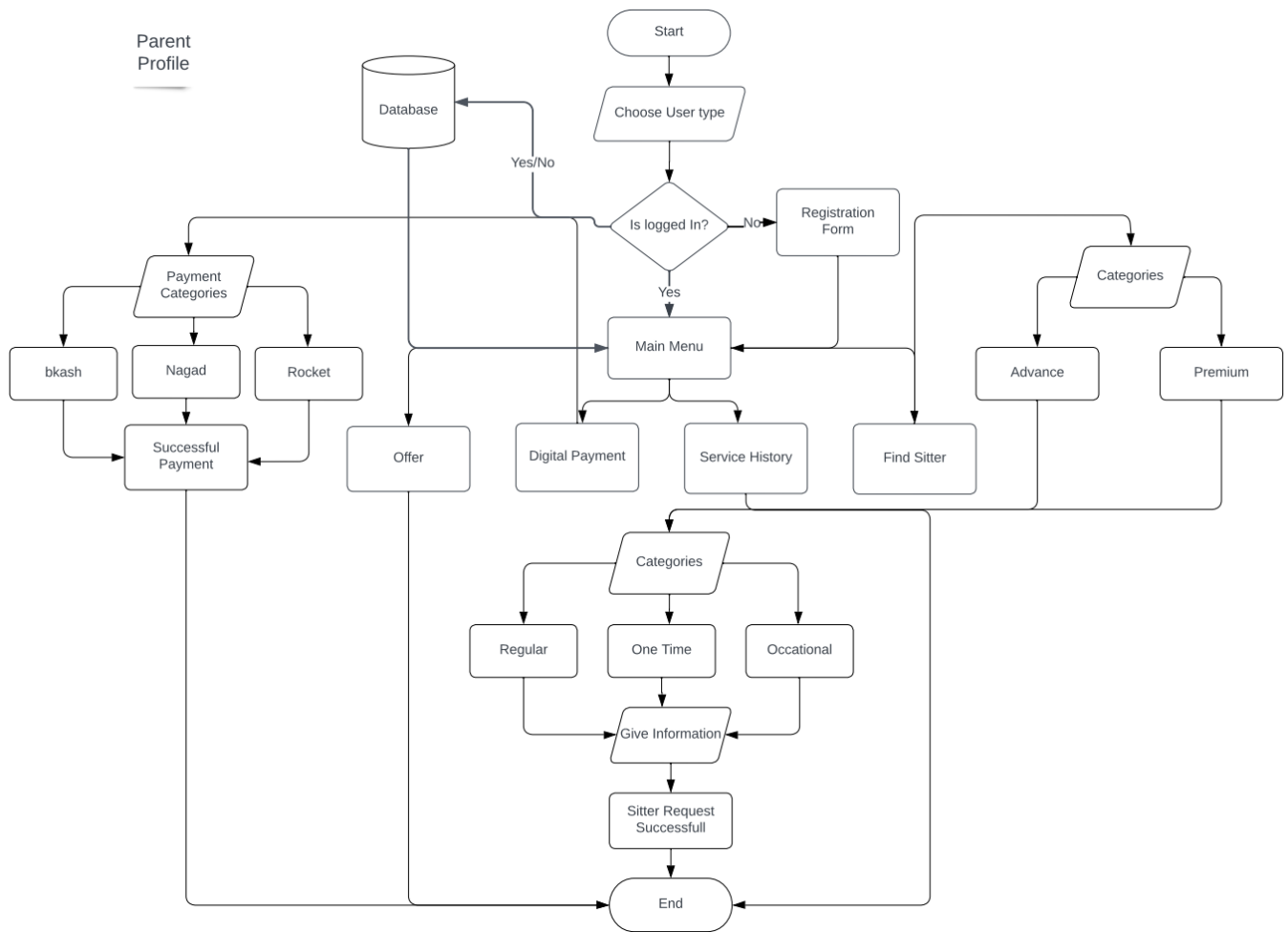


Figure 3.1: Parent Flow Chart

Flowchart description ("Safe Baby: An Android App to Provide Caregiver for Child to Parents"):

If parents employ sitters, we can simply comprehend the fundamental procedure using a flowchart. First, parents sign up on the app, then they go HOME and click on Get Service, filling out several selections for sitters. Parents will be informed. If their request has been granted, their sitter profile will be sent as well. However, people cannot use the app until they register. If they registered, they will be able to create an account to seek for a sitter. Parents may use this app to find sitters in their preferred area. They may view all sitter details after selecting a sitter. For example, sitter compensation, how many hours/days he/she will work, feasible days, hobbies, educational background, job experience, and so on. [10]

Sitter’s Flowchart:

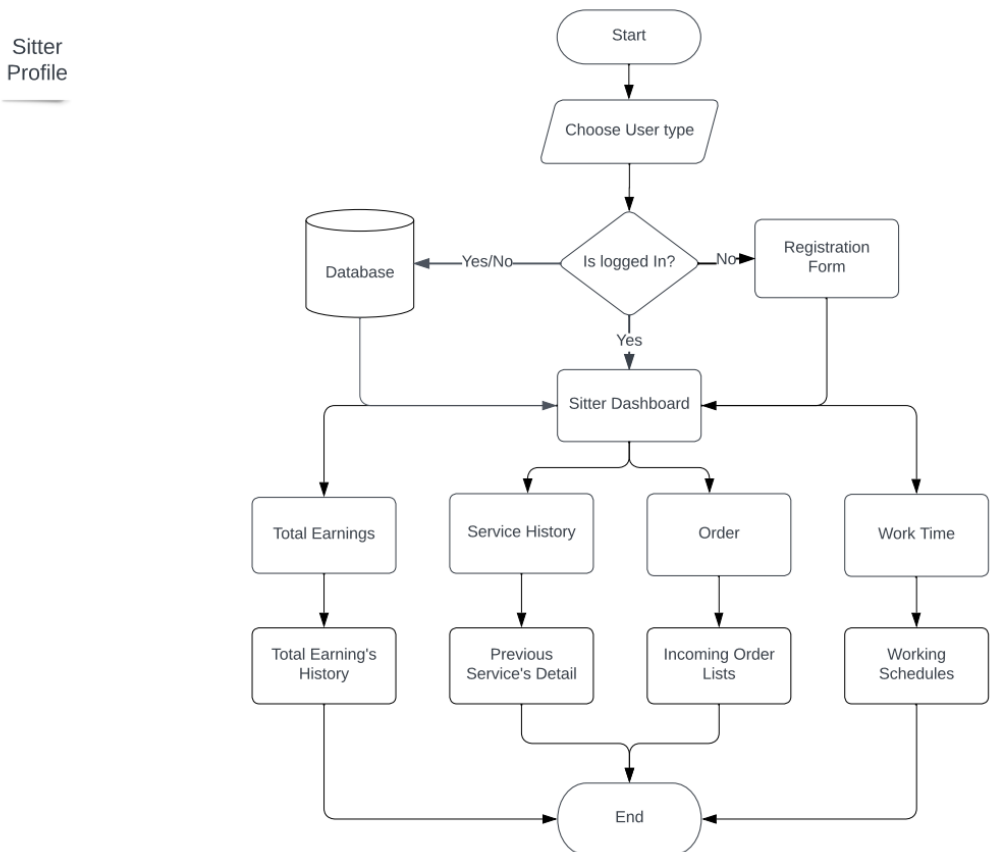


Figure 3.2: Sitter's Flow Chart

Flowchart Description about Sitter:

We can simply grasp the fundamental procedure when somebody wishes to be a sitter by using a flowchart. If they wish to be a sitter, they must apply using an app and get one month of training from us. After completing the registration procedure, user can change their profile information. Such is their employment experience, as well as how much money they will be paid each hour, hobbies, educational background, and other's if needed.

Admin Flowchart:

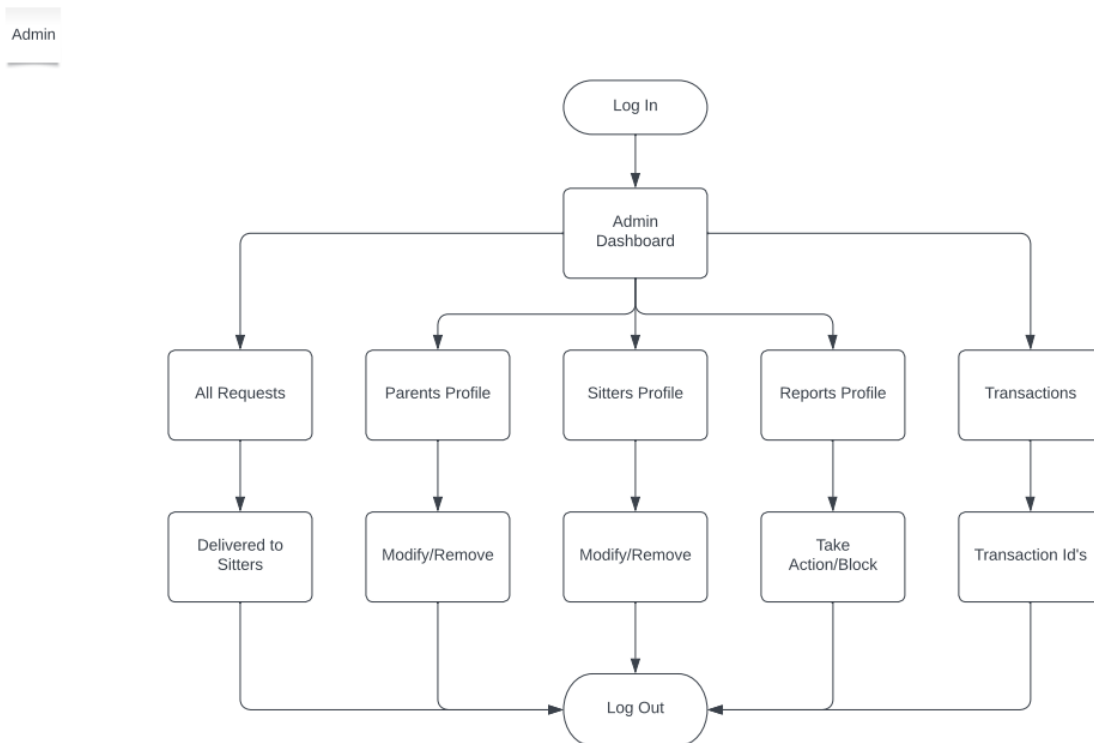


Figure 3.3: Admin Flow Chart

Flowchart Description about Admin:

Our system's brain is the admin panel. It mostly governs everything. Via sitter's use case, you can see how the administrator may add or block parents or babysitters. Accepting parent requests for sitters as well. Afterward, share that information to the sitter as well so that she may see her schedule and pay. Our system's whole data set will be processed and retained by the admin.

3.4 Use Case Model

Use Case Model:

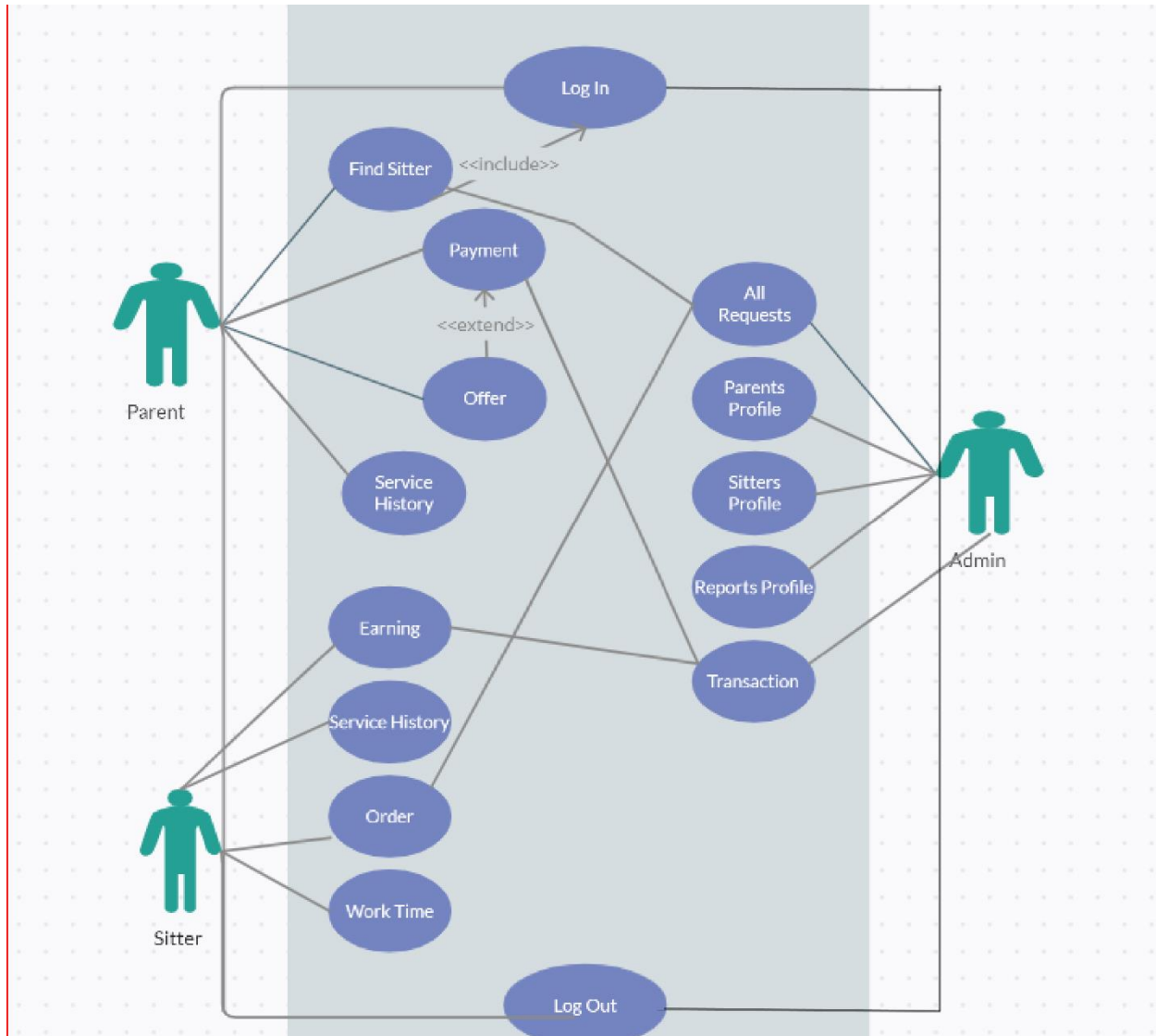


Figure 3.4: Use Case Model

Use Case Description:

A model that depicts how users interact with the system to address a challenge is known as a "use-case model." As a result, the use case model outlines the user's goal, the user and system interactions, and the system behavior necessary to achieve these goals. [11]

In detail, our use case explains how our system would function amongst three entities. Parent, babysitter, and administrator will ostensibly collaborate via the Firebase server system.

The use-case model functions as a continuous thread throughout the system's development. The use-case model serves as the primary specification of the system functional requirements and serves as the foundation for design and analysis, user documentation, test case definition, and iteration planning. [11]

3.5 Logic Data Model

The architecture of data items and the connections between them are established by a logical data model. The information describing how well the data will be processed is separate from the physical database. The logical data model acts as a design guide for the data that is used. By including more details, the logical data model expands upon the fundamental concepts of theoretical data modeling. [12]

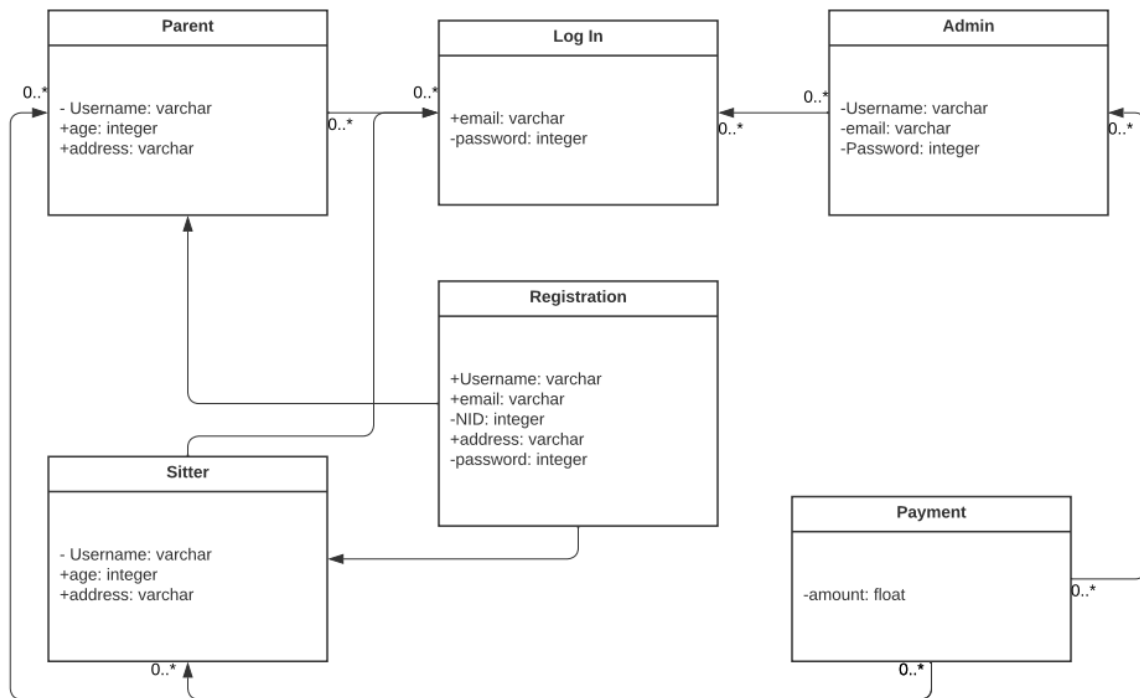


Figure 3.5: Logic Diagram

3.6 Design Requirement

- There will be two types of users in this application, such as parents and babysitters.
- Sitters may manage their accounts and set up their own profiles.
- The babysitter will be chosen by the parents.
- Requests for babysitters can be sent by parents.
- Parents can manage the babysitter.
- Admin will send required sitter.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The main appeal of this application is the front-end layout. The main method of interaction between users and administrators is through this. Front end design is often referred to as client-side development. The front-end design we developed makes it exceedingly easy for users to start the program.

Intro page:



Figure 4.1: Splash Screen

The splash screen is shown by the system using the themes and any set animations. It shows a little gesture to the users.

Log in page:



Figure 4.2: Login Page (parent/sitter)

Log in as a parent/sitter page. User choose an option parent/babysitter and can get to login option.

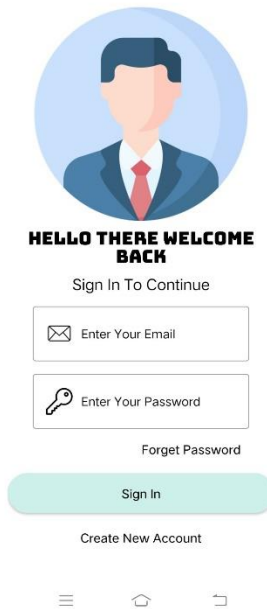


Figure 4.3: Login Page 2

Log in via email and password or create a new account. This is where you sign in or can create a new account. Also, you can use forget password in case anyone forgets their password.

Parent Pages:



Figure 4.4: Parent Sing Up Page

This is where a parent can open their account with the necessary information, with their email and chosen password. They can also upload their picture later on.

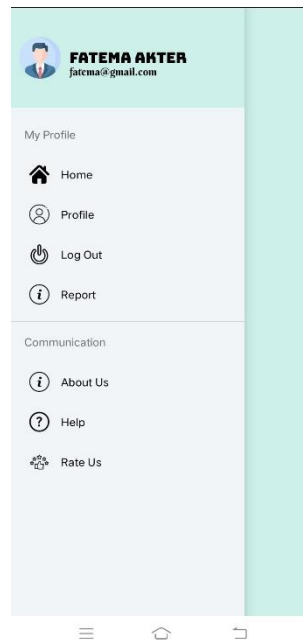


Figure 4.5: Parent Menu Option

The relevant functionalities are available on the parent side's menu choice. Every necessary option other than ordering/requesting a sitter is available here. Options like log-out offers etc. That will help the parent to use the app in an informative and good manner.

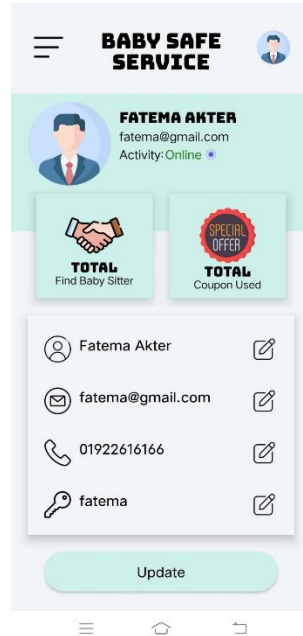


Figure 4.6: Parent Profile Section

The profile section of parents with an editable option, with such that parent can change their name, phone number, password.

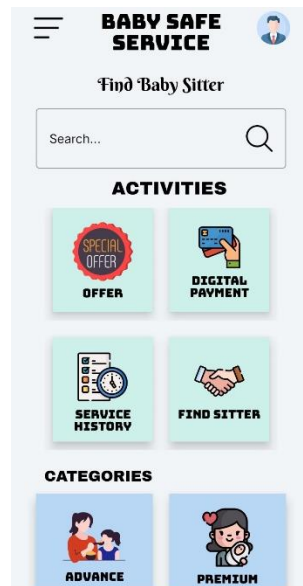


Figure 4.7: Parent Home

Parent's home page, where they can look up a babysitter, see past orders, and use an online payment system. An additional category that offers premium or advanced service.

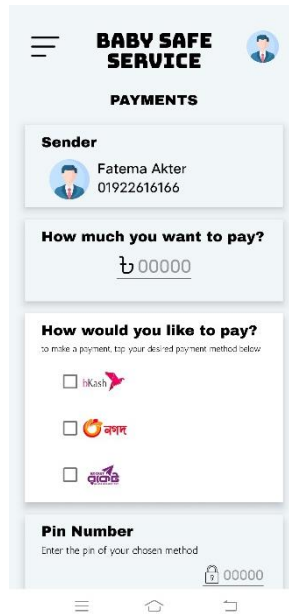


Figure 4.8: Payment Option

Via online payment system like Bkash, Nagad, Rocket parents can pay for their services.

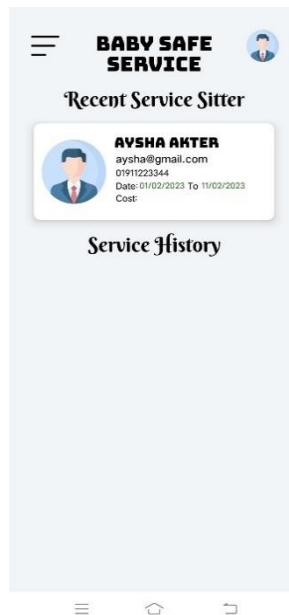


Figure 4.9: Service History

This is where a parent can check their service history, meaning whom served them before and their details as well.

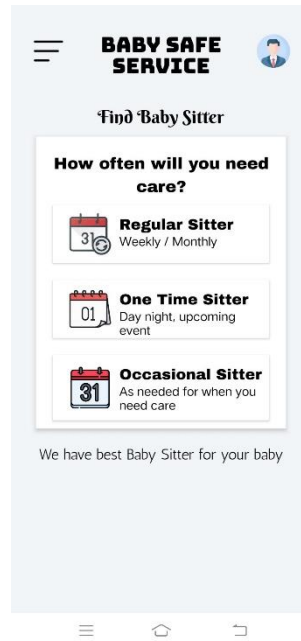


Figure 4.10: Find/Order Babysitter 1

The approach to find or order a babysitter begins here. Three choices are available: one-time, weekly and occasional. And you chose an option to go forward with the order.

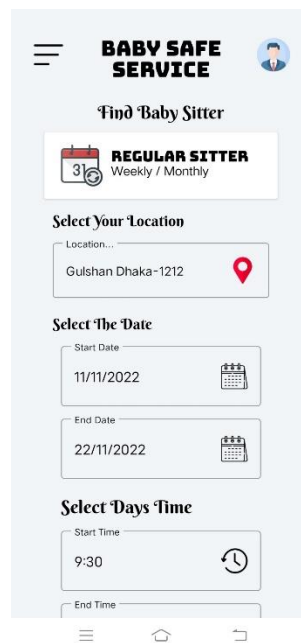


Figure 4.11: Find/Order Babysitter 2

You complete the necessary details on this page to complete the order. Things like the location, the date, the hour, and the number of kids. And go forward with the order.

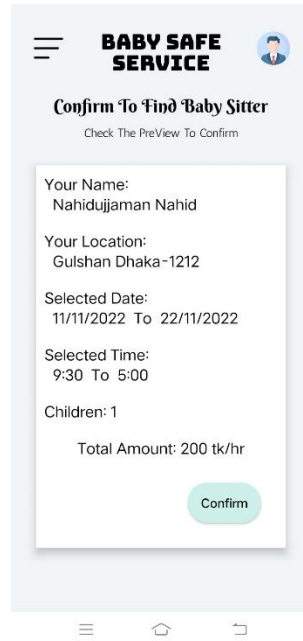


Figure 4.12: Order Summary View

The order summary page includes the information you have entered. The order will be placed as soon as you confirm.

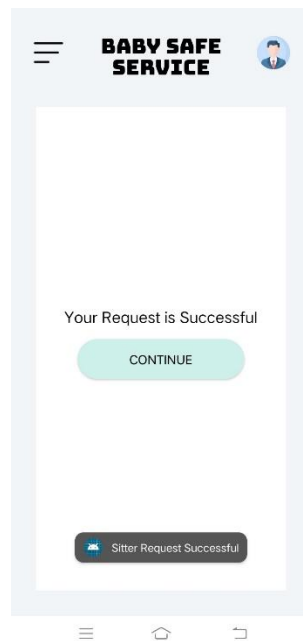
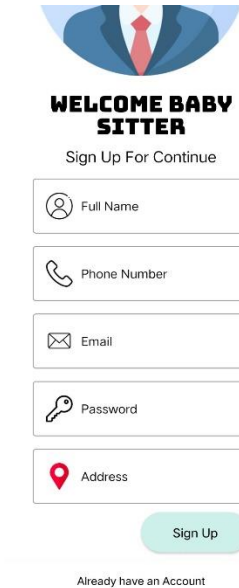


Figure 4.13: Order/Request Done Page

Once the order has been fulfilled, clicking "Continue" will return you to your home. Then basically your request goes to our admin panel, if the admin accepts it sitter will be sent afterward.

Sitter Pages:



WELCOME BABY SITTER

Sign Up For Continue

Full Name

Phone Number

Email

Password

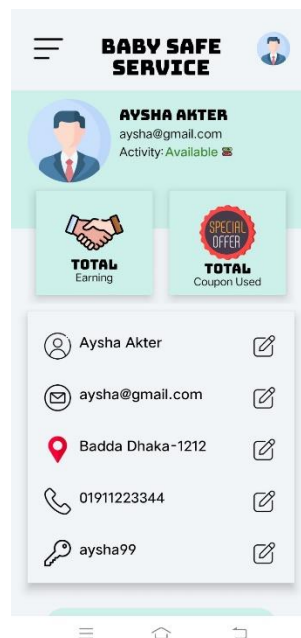
Address

Sign Up

Already have an Account

Figure 4.14: Sitter Sing Up Page

Via this, sitters may establish an account by providing the required information. They will get 1 month of training before they can work via our app.



BABY SAFE SERVICE

AYSHA AKTER
aysha@gmail.com
Activity: Available

TOTAL Earning

TOTAL Coupon Used

Aysha Akter	✎
aysha@gmail.com	✎
Badda Dhaka-1212	✎
01911223344	✎
aysha99	✎

Figure 4.15: Sitter Profile

The profile section of sitter with an editable option, with such that they can change their name, phone number, password etc. if they want to.

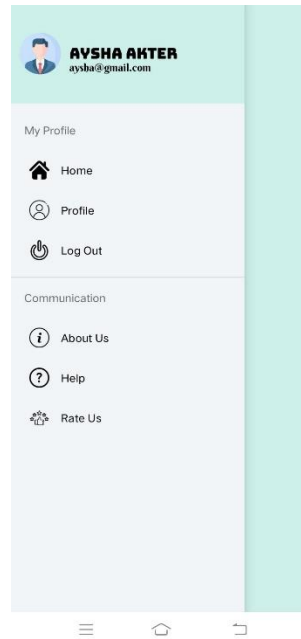


Figure 4.16: Sitter Menu

The relevant functionalities are available on the sitter side's menu choice. Options like log-out profile, home etc. That will help the sitter to use the app in an informative and good manner.

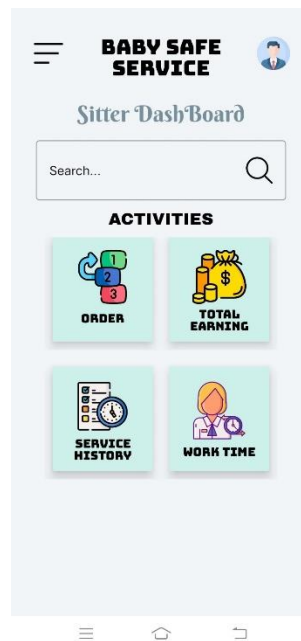


Figure 4.17: Sitter Home

This is a sitter home with relevant features for a sitter. The order page has all the orders user gets, service history keeps their previous service records, work times tells exactly how much time the user need to work, and total earning keeps tabs on users monthly income.

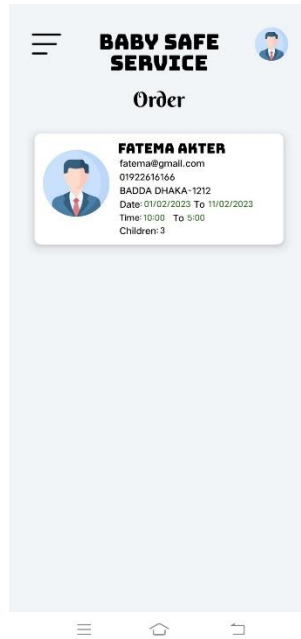


Figure 4.18: Order List of Sitter

This is “Order” a place where a sitter can see their orders. It can be multiple order as well as a sing orders.

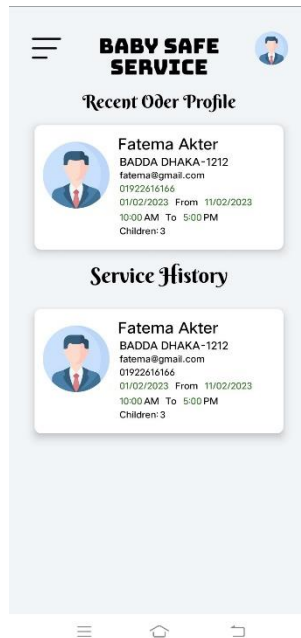


Figure 4.19: Service History of Sitter

This is the sitter’s “Service History” page where they can see their service history and served profiles.

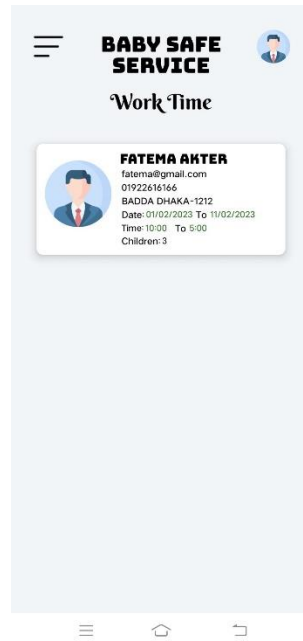


Figure 4.20: Work Time of Sitter

“Work Time” display’s the sitter’s time of work. It helps them to maintain their schedules on time.

Admin Pages:



Figure 4.21: Admin Home

The admin page appears here. it includes each of the controls required to manage the sitter and parents. Orders, transactions, and such.

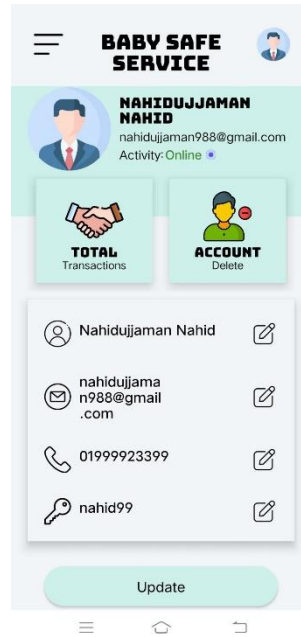


Figure 4.22: Admin Profile

Here admin can change their password also other necessary information. Although admin accounts have special email access given through firebase.

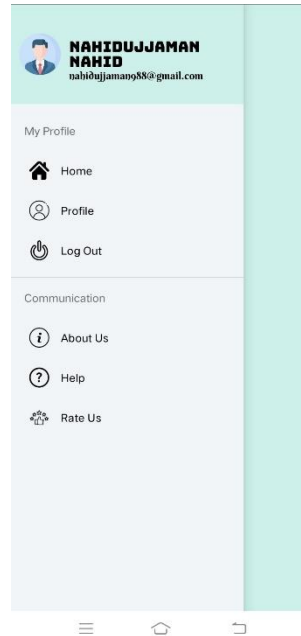


Figure 4.23: Admin Menu

There is a menu option with the necessary features. Options like log-out, home, and so on. That will enable the user to make informed and wise use of the software.

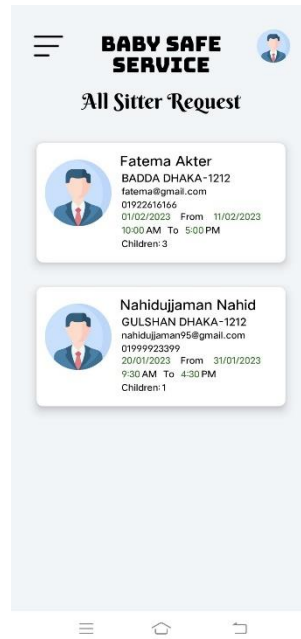


Figure 4.24: Sitter Request

All sitter requests are kept here so that the admin can approve them. Admin may reject the request based on sitter availability also other reasons. Once admin approves the parent and sitter both will get notified. The sitter will be told where needs to work, and the parent will be notified who is coming for work.

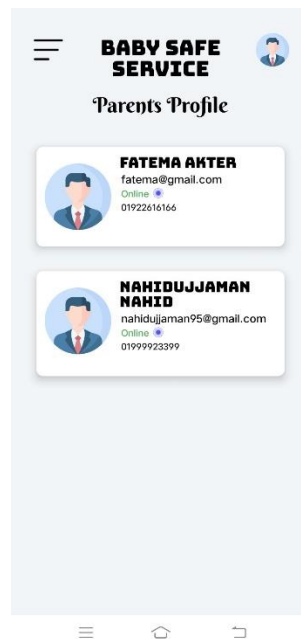


Figure 4.25: Parent Profile List

All of the parent profiles are kept in this location. And might take necessary action if needed.

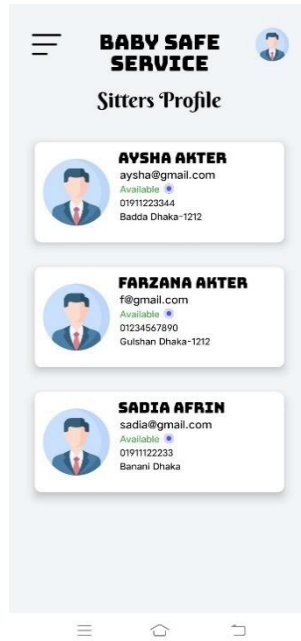


Figure 4.26: Sitter Profile List

All of the sitter profiles are kept in this location. And might take necessary action if needed.

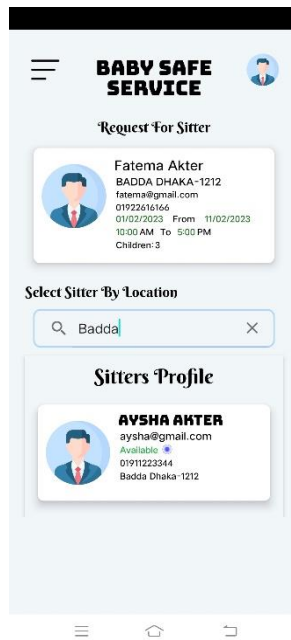


Figure 4.27: Close by Sitter Finding

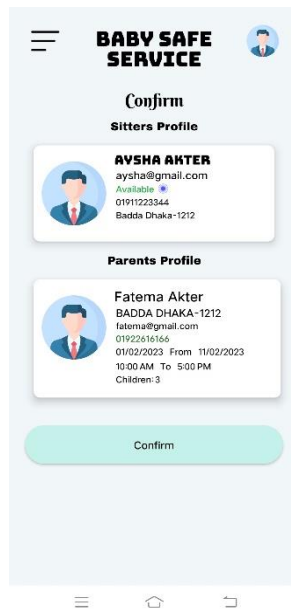


Figure 4.28: Confirming Sitter

Choosing the babysitter at the location the parent asked and confirming. Close sitter will provide the service in this method. Both users will save a significant amount of time in this method.



Figure 4.29: Transactions

This is the administrative transaction section. Users' transactions will all be stored here.

4.2 Back-End Design

Given that our app must both store user data and display real-time data, we chose Firebase as our primary data storage and server platform.

Because it performs a lot of the effort involved in replicating data and transmitting event alerts, Firebase is a great tool for assisting developers in getting started quickly. It eliminates the difficulties of keeping data on a user's phone and a central database at the same time. [7]

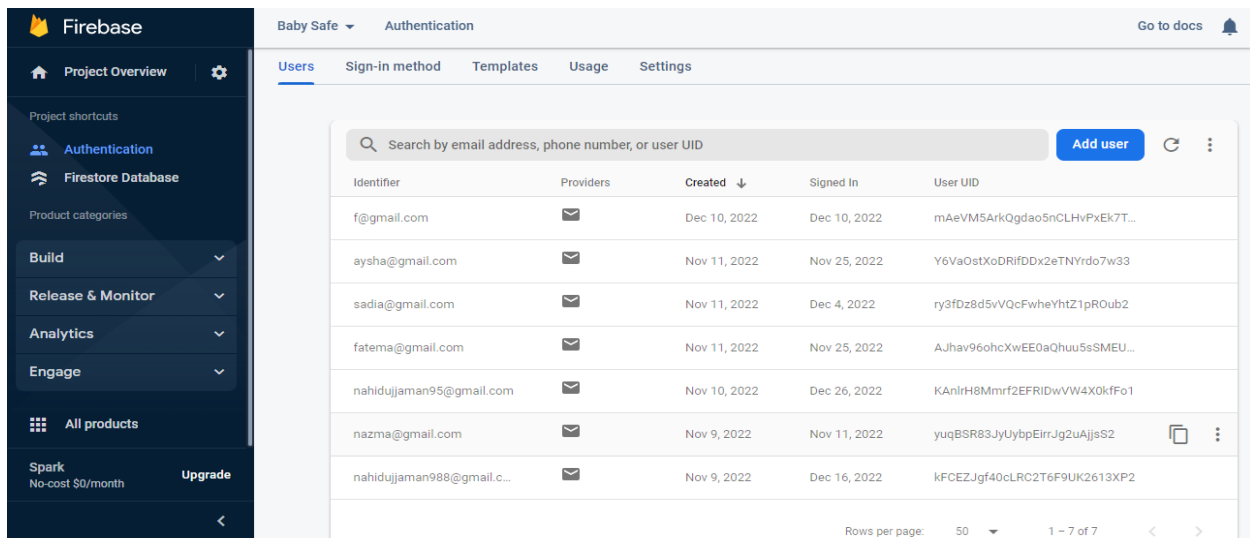


Figure 4.30: Firebase Server 1

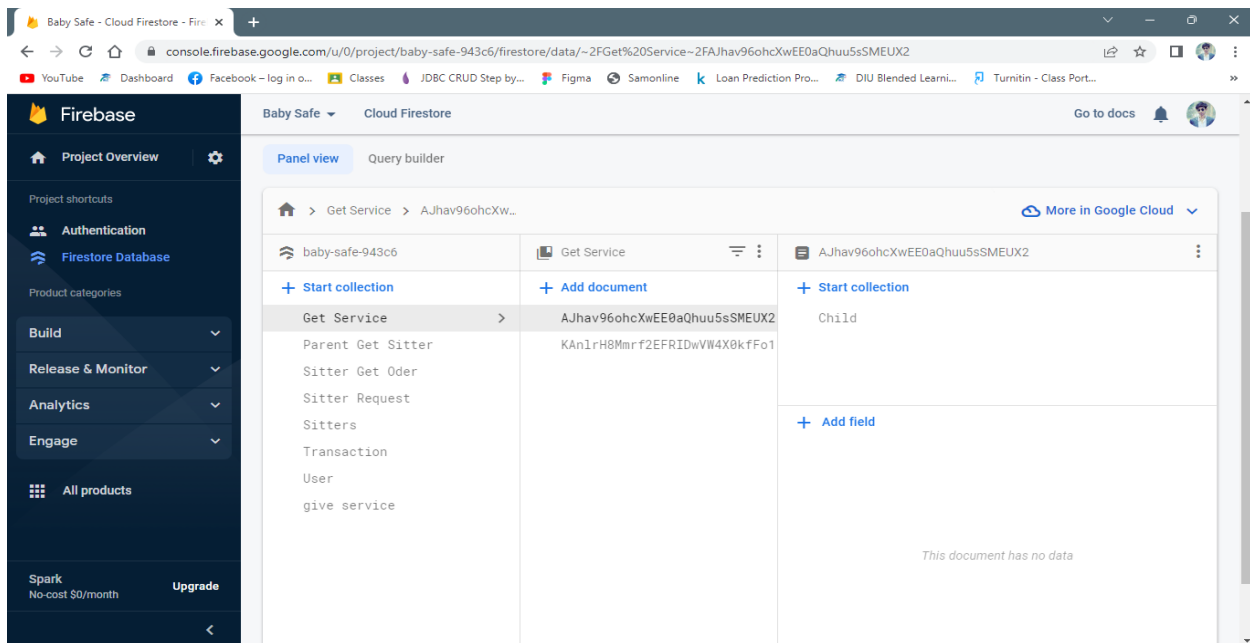


Figure 4.31: Firebase Server 2

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Interaction Design and UX

We used Java to build our Android app, with XML serving as the body. With its simple features, this program helps us be more responsive and engaged. The availability of parents and babysitters is improving the path to fostering user contentment.

5.2 Implementation of Requirement

- Our software framework is built on an XML architecture.
- Firebase is the database.
- Every piece of data is kept on the server as a backup.

5.3 Implantation of Interaction

Our app was initially built using crude sketches, which were afterward implemented using "Android Studio" along with the backend. We used authentication login with Firebase and Fire Store. Users can upload and update data with the use of history checks that provide information about those who have received or provided services.

5.4 Testing Implantation

Tests of implementation serve one or more purposes, such as demonstrating that the identification is practicable and that implementations adhere to the assertion. We implanted our app after testing some of its features. [13]

Table 5.1: Parent Testing Implantation

Test Case	Test Input	Expected Outcome	Obtained Outcome	Pass/Fail
Sing Up	Sign up via app	Sign up successfully	Sign up successfully	Pass
Sing In	Sing in via app	Log in successfully	Log in successfully	Pass
Search	Search via app	Search successfully	Search successfully	Pass
Order Request	Request via app	Ordered successfully	Ordered successfully	Pass
Password	Invalid password or a blank field	Warning incorrect password or blank field	Warning visible	Pass

Here, we're checking to see if the system overall functions as planned from the parent's perspective. If they can sign up and sign in successfully, they may search for sitters and order them, verifying that all of the software's features work together.

Table 5.2: Sitter Testing Implantation

Test Case	Test Input	Expected Outcome	Obtained Outcome	Pass/Fail
Sing Up	Sign up via app	Sign up successfully	Sign up successfully	Pass
Sing In	Sing in via app	Log in successfully	Log in successfully	Pass
Search	Search via app	Search successfully	Search successfully	Pass
Order History	Check via app	Checked successfully	Checked successfully	Pass
Password	Invalid password or a blank field	Warning incorrect password or blank field	Warning visible	Pass

In this instance as well, we are determining if the entire system functions as planned from the viewpoint of the sitter. Things like order history, password updates, modifying profiles, etc., guarantee that software components or functionalities work together if they can sign up and sign in successfully.

Table 5.3: Admin Testing Implantation

Test Case	Test Input	Expected Outcome	Obtained Outcome	Pass/Fail
Sing In	Sing in via app	Sing in successfully	Sing in successfully	Pass
Add User (Parent/Sitter)	Add user via app	Add user successfully	Successfully added	Pass
Block User	Block/Deactivate via app	Block/Deactivate successfully	Blocked successfully	Pass
Password	Invalid password or a blank field	Warning incorrect password or blank field	Warning visible	Pass

We examined how much stress the system can withstand before failing the admin test. it is regarded as a form of non-functional testing. based on functional requirements, simulating business scenarios to check functionality. Function verification is frequently done via black-box testing. checking to see if the entire system operates as expected. [13]

5.5 Testing Result and Report

This test result is a technique to formally record the results of testing while also verifying that the feature of the system under test has been implemented. In this work, a lot of data was collected from operating conditions and real-world trials. Easy to comprehend framework that is ready to utilize for this testing report. In addition, hand, the report's structure was also tested. Thus, prepared reports have additional benefits. [14]

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

The word parenting entails carrying out all parental duties around-the-clock. Every parent has stress. When both parents are employed parents, the strain is increased. [15] This prevents the parents from becoming who they intended to be. Getting a babysitter is necessary when we are flying and are encouraged to use the oxygen mask, which would be optional but makes us feel more at ease. If we leave our children with such a babysitting and they manage without us, it means they will perform well in the future since they have mastered the ability to feel at ease among people other than their parents.

With the establishment of this project, we encountered several difficulties, and those experiences taught us a lot. We initially created the user interface (UI), after which we dived into programming, server maintenance, and admin panel control. We are appreciative of this chance.

We would especially want to thank Ms. Samia Nawshin, our supervisor, for guiding us via her constructive criticism and counsel.

6.2 Scope for Farther Development

- Random Tips for Parenting
- Building Messaging, Audio/Video Calling System in App.
- More Secure
- Dark Theme
- New features will be implemented in response to customer demand.

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