



SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

Final Year Project Report

CareFor

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Submitted in the partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science
in the
Faculty of Computing and Engineering Sciences

Declaration of Authorship

We, **Sobia Muhammad Rizwan Dosani (1912169)** and **Ali Asghar Zaidi (1912138)**, declare that this report titled, “**CareFor**” and the work presented in it are our own. We confirm that:

This work was done wholly or mainly while in candidature for a bachelor’s degree at this University.

Where any part of this report has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated. Where we have consulted the published work of others, this is always clearly attributed.

Where we have quoted from the work of others, the source is always given. With the exception of such quotations, this report is entirely our own work.

We have acknowledged all main sources of help.

Where the report is based on work done by ourselves jointly with others, we have made clear exactly what was done by others and what we have contributed ourselves.

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Date: 31st July’ 2023

1. Project Description

‘CareFor’ is an android application which will be developed to cater the elderly and people with health conditions or certain impairments. Where the user or families that requires assistance for their loved one can easily contact an experienced individual offering their services regarding their needs, whether it be home assistance, medical appointments or any social activity.

Our objective is to design and develop a user friendly android application, where trained individuals can provide a helping hand to families that have someone with special needs or an elder, according to their requirements, with the intent of increasing social interaction as well as fulfilling health related issues

As mentioned before, when someone reaches a certain age, has some physical problems or is someone with special needs there comes a time where they have little or no interaction with the outside world or people with whom they feel normal. They are forced to spend their majority of their lives at home wondering what normality might feel like. This is where this application is useful, as it provides them some social activities as an alternative to their current way of spending their life, the application will also provide them options to opt for home care by trusted and experienced individuals who have worked with certain organizations to gain some experience or have a medical background. This application can also be considered as another source of income for caregivers (service providers) which will most certainly help them tackle the current inflation crisis. Hence, this application not only provides a source of happiness balanced with medical health for people with certain medical conditions but also is another source of income for people with medical experience that are currently hired in low earning jobs. All they have to do is signup and we have a plan for them, keeping data integrity & security in mind, their records will be stored in our database. We have made sure to implement validation and authentication checks to reduce inconsistency.

Our application focuses on the social interaction of people with special needs or those who require health care due to old age because when there is something restricting someone they are usually stuck at home with almost zero interaction with the outside world. Our application will not only offer them medical care but will provide them the option to perform social activities, whether it be visits to some organizations or a normal outing session, with the help of trusted and trained individuals, hence the application will work as a social care app.

Keywords: Android Application, Data Integrity, Security, Validation Check, Authentication Check, Database, Social Care App

2. Acknowledgement

In the name of ALLAH the most beneficent and merciful who gave us the knowledge and courage to work on this research area.

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our project.

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We would like to thank to our teachers who guided us in the light of their knowledge and experience. We would also like to express our gratitude to our loving parents and family members who helped and gave us encouragement. Furthermore, we would also like to acknowledge with much appreciation the crucial role of the staff of SZABIST, who gave the permission to use all required equipment and the necessary materials to complete the project.

At the end, We would like to thank Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology for providing us with such an inspiring environment. The quality education, the cooperative faculty members and the challenging environment have always motivated and boosted the confidence level of each and every student who has been a part of Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology.

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Project Proposal

1. Introduction

‘CareFor’ is an android application which will be developed to cater the elderly and people with health conditions or certain impairments. Where the user or families that requires assistance for their loved one can easily contact an experienced individual offering their services regarding their needs, whether it be home assistance, medical appointments or any social activity.

2. Objective

To design a user friendly android application, where trained individuals can provide a helping hand to families that have someone with special needs or an elder, according to their requirements, with the intent of increasing social interaction as well as fulfilling health related issues.

3. Problem Description

As mentioned before, when someone reaches a certain age, has some physical problems or is someone with special needs there comes a time where they have little or no interaction with the outside world or people with whom they feel normal. They are forced to spend their majority of their lives at home wondering what normality might feel like. This is where this application is useful, as it provides them some social activities as an alternative to their current way of spending their life, the application will also provide them options to opt for home care by trusted and experienced individuals who have worked with certain organizations to gain some experience or have a medical background. This application can also be considered as another source of income for caregivers (service providers) which will most certainly help them tackle the current inflation crisis. Hence, this application not only provides a source of happiness balanced with medical health for people with certain medical conditions but also is another source of income for people with medical experience that are currently hired in low earning jobs.

4. Methodology

- Requirement Gathering & Planning
- Android Studio will be used for application development, and the programming language that will be used is 'Java'.
- Android XML layouts will be used to design user interface of the applications
- Firebase/NoSQL will be used for database integration
- Google Maps Redirection: User will be redirected to Google Map when required

5. Project Scope

The project is divided into two different applications, one for normal users (Clients & Caregivers), and one for the Admin (Super user).

The normal user application will consist of two portals, one for caregivers (service providers) and one for users that require assistance. Firstly, caregivers and users will have to register themselves on the Signup screen. Caregivers will then have to provide relevant experience or qualifications to be registered successfully, whereas, the users requiring assistance will have to mention which type of caregivers do they require, either for the elderly or someone with special needs.

Upon successful registration, the Login screen will be shown.

USERS

For Users, after login, their portal will open displaying them a list of services:

Home Care: In this feature, a service provider can be hired for a particular time period, where they will be helping out the family in taking care of their loved one.

Medical Appointments: In this feature families can hire a caregiver to accompany their loved ones to their medical appointments.

Social Activities: This feature allows the caregivers to take the person they are looking after to various organization, support groups, or just a normal outing session which will be a form of social interaction.

The User will have an option where he/she can choose the duration for which care is required for themselves or a family member. Time duration can differ from hourly, daily or weekly basis. The time duration will be shown to the service provider and then they can decide whether they accept or not

CAREGIVERS (Service Providers):

For people applying as the caregivers, firstly all of their details and qualifications will be thoroughly checked to ensure maximum safety, after that they will be called for an interview which will determine whether they are fit for the job.

If they are qualified enough their profile will be verified and they can start helping others. If they are not qualified they will be asked to gain relevant experience. The list of features include:

For Unqualified people:

Google Maps Redirection: The application will redirect users to Google Maps showing all the organizations that provide volunteering services.

After their volunteer program their hiring process will start from scratch again

For Qualified people:

The Caregiver portal will open for them, where they can always edit their profile according to their needs. To receive service requests they must set their status as active

6. Feasibility Study

Yes, we will be able to meet the project schedule in respective time, we are using Incremental Methodology and we will submit the deliverables within given time:

Risks Involved: Security Risk because an outsider will be hired to provide necessary or required assistance. This risk will be taken care of by hiring based on relevant experience or certifications from authentic organizations. A database will be created containing all of their information (including CNIC) and each individual will go through a rigorous interview process, which will determine if they are qualified enough.

Resource Requirement: Android Smartphones and Internet access

7. Solution Application Areas

Our application focuses on the social interaction of people with special needs or those who require health care due to old age because when there is something restricting someone they are usually stuck at home with almost zero interaction with the outside world. Our application will not only offer them medical care but will provide them the option to perform social activities, whether it be visits to some organizations or a normal outing session, with the help of trusted and trained individuals, hence the application will work as a social care app.

8. Tools/Technology

- Android Studio → Android SDK (JAVA)
- Android XML
- Firebase Database
- SMTP Protocol
- Authentication System

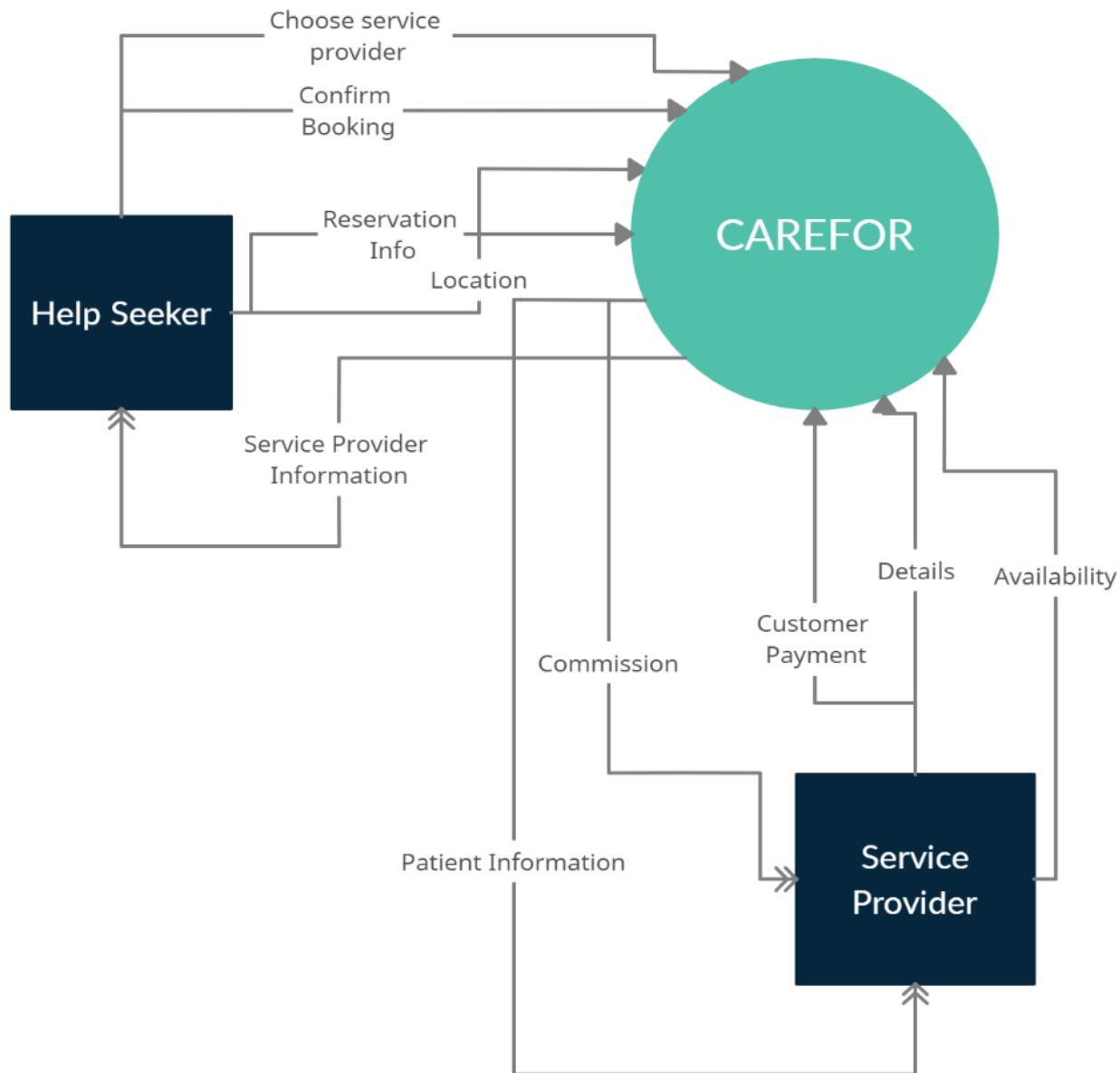
9. Expertise of the Team Members

Both team members have the required knowledge to complete this project.

Both members have studied the relevant courses and this project is of equal interest for both members.

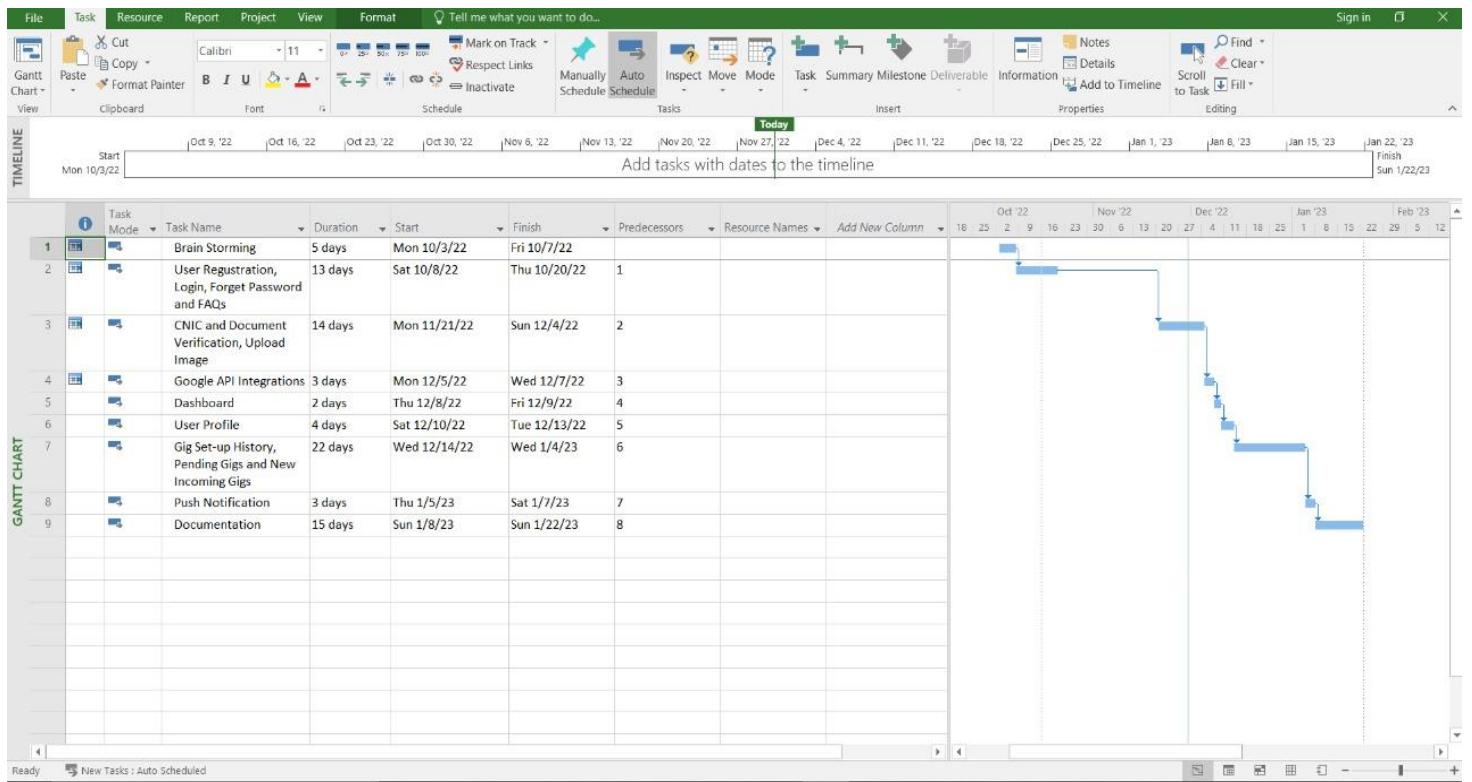
10. Milestones

The following context diagram explains the milestones of development.

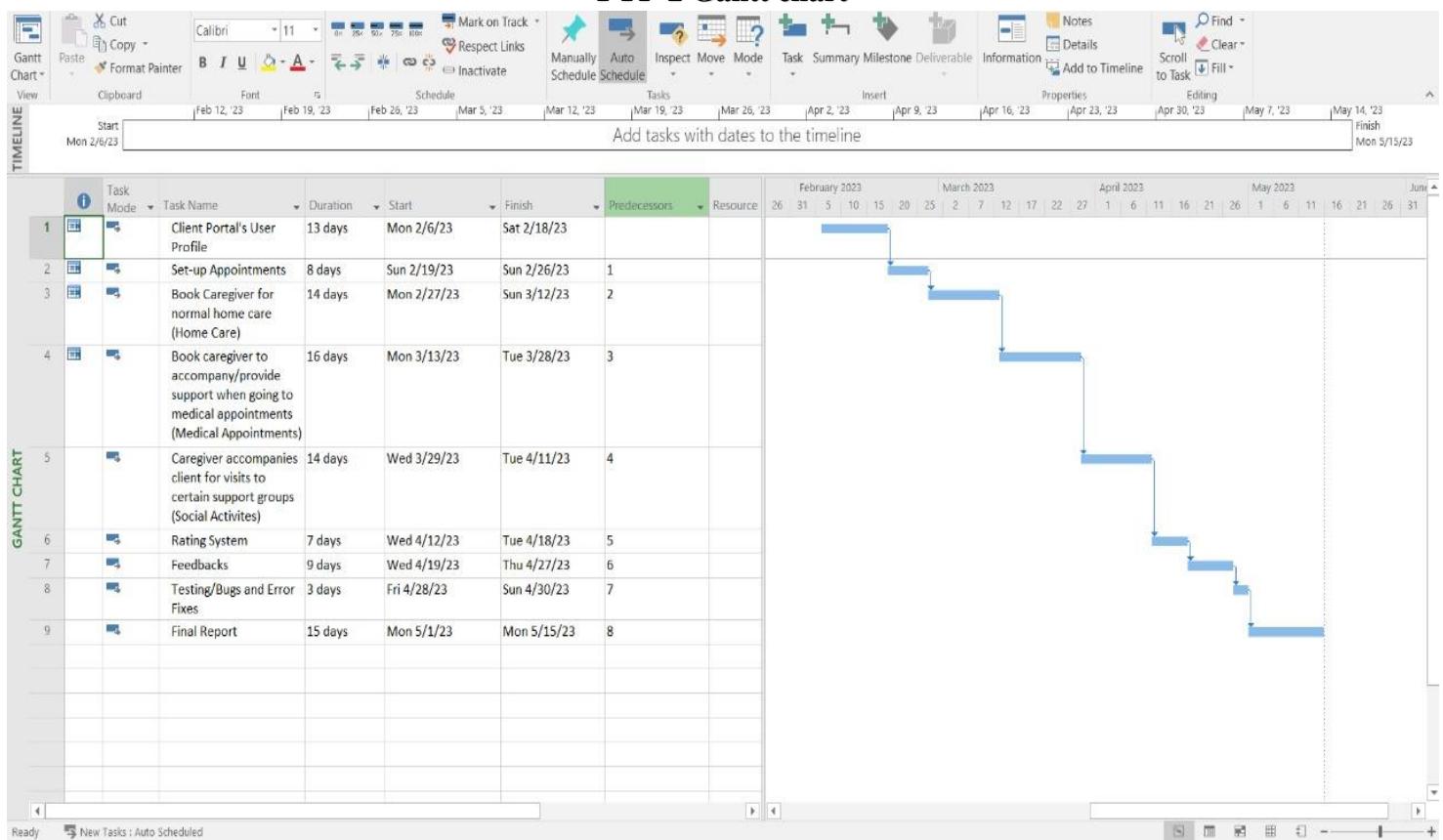


11. Project Schedule

FYP-1 Gantt chart



FYP-2 Gantt chart



Software Requirement Specifications

The Software Requirements Specification Outline

1. Introduction

1.1 Purpose

When someone reaches a certain age, has some physical problems or is someone with special needs there comes a time where they have little or no interaction with the outside world or people with whom they feel normal. They are forced to spend their majority of their lives at home wondering what normality might feel like. Our application takes care of the social inactivity along with providing health care to users.

1.2 Document Conventions

- Format: IEEE Standard
- Font Family: Times New Roman
- Text Size: 11sp, 12sp, 14sp, 16sp, 18sp
- Text Style: Bold
- Text Color: Black#000000
- Text Alignment: Left Align

1.3 Intended Audience and Reading Suggestions

Our Intended Audience is our supervisor, Faculty, Team Members and Users

1.4 Product Scope

CareFor' is an android application which will be developed to cater the elderly and people with health conditions or certain impairments. Where the user or families that requires assistance for their loved one can easily contact an experienced individual offering their services regarding their needs, whether it be home assistance, medical appointments or any social activity. The system consists of registration for both clients and care-givers. For care-givers they will need to provide all the required details that will us deduce whether they are capable enough to provide assistance to the clients, if not then they will be referred to certain organizations where they can volunteer and gain experience, those organizations will be shown in the application through Google API Integration.

1.5 References

<https://oladoc.com/pakistan/karachi>

<https://darulsukun.com/>

<http://karachipatientcare.com/>

2. Overall Description

2.1 Product Perspective

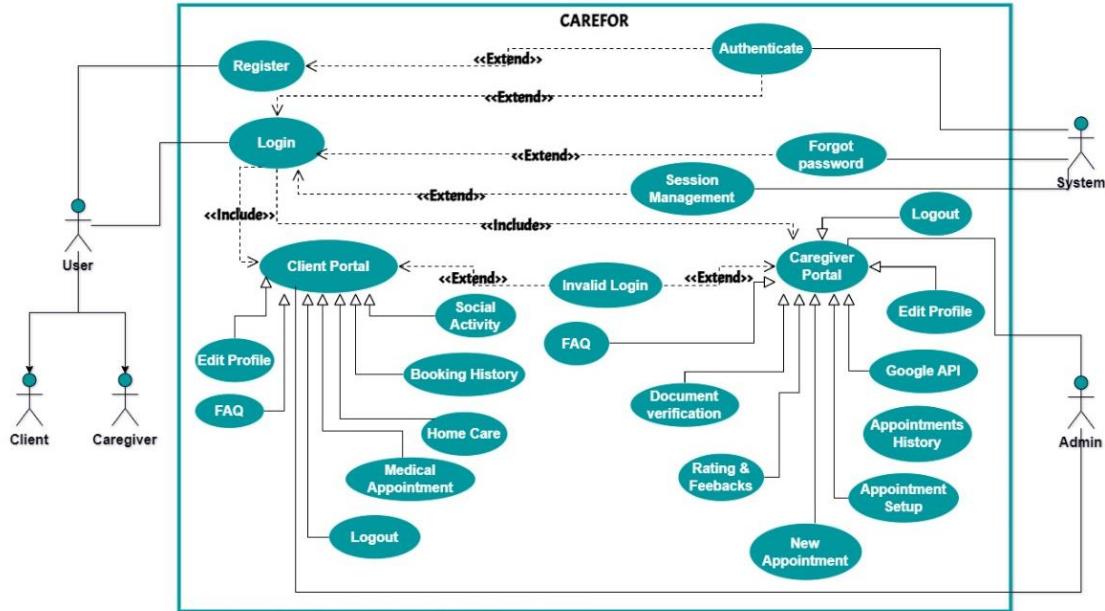


FIG 2.1 Use Case Diagram

2.2 Product Functions

1. User Registration, Login, Forget Password and FAQs
2. Caregiver Portal
 - CNIC and Document Verification.
 - Google API Integration
 - Dashboard
 - User Profile
 - Appointment Set-up, Appointment History, New Appointments
 - Push Notifications
 - Ratings & Feedbacks
3. Client Portal
 - User Profile
 - Set-up Bookings
 - Home Care → Book caregiver for normal home care.
 - Medical Appointments → Book caregiver to accompany/provide support when going to medical appointments.
 - Social Activities → Caregiver accompanies client for visits to certain support groups
 - Booking History
 - Rating Systems
 - Feedbacks

4. Admin Application

- View Users (Client & Caregivers)
- View Client Booking History
- View Caregiver Appointment History
- Manage Client & Caregiver Preferences
- Update & Delete Users (When necessary)

2.3 User Classes and Characteristics

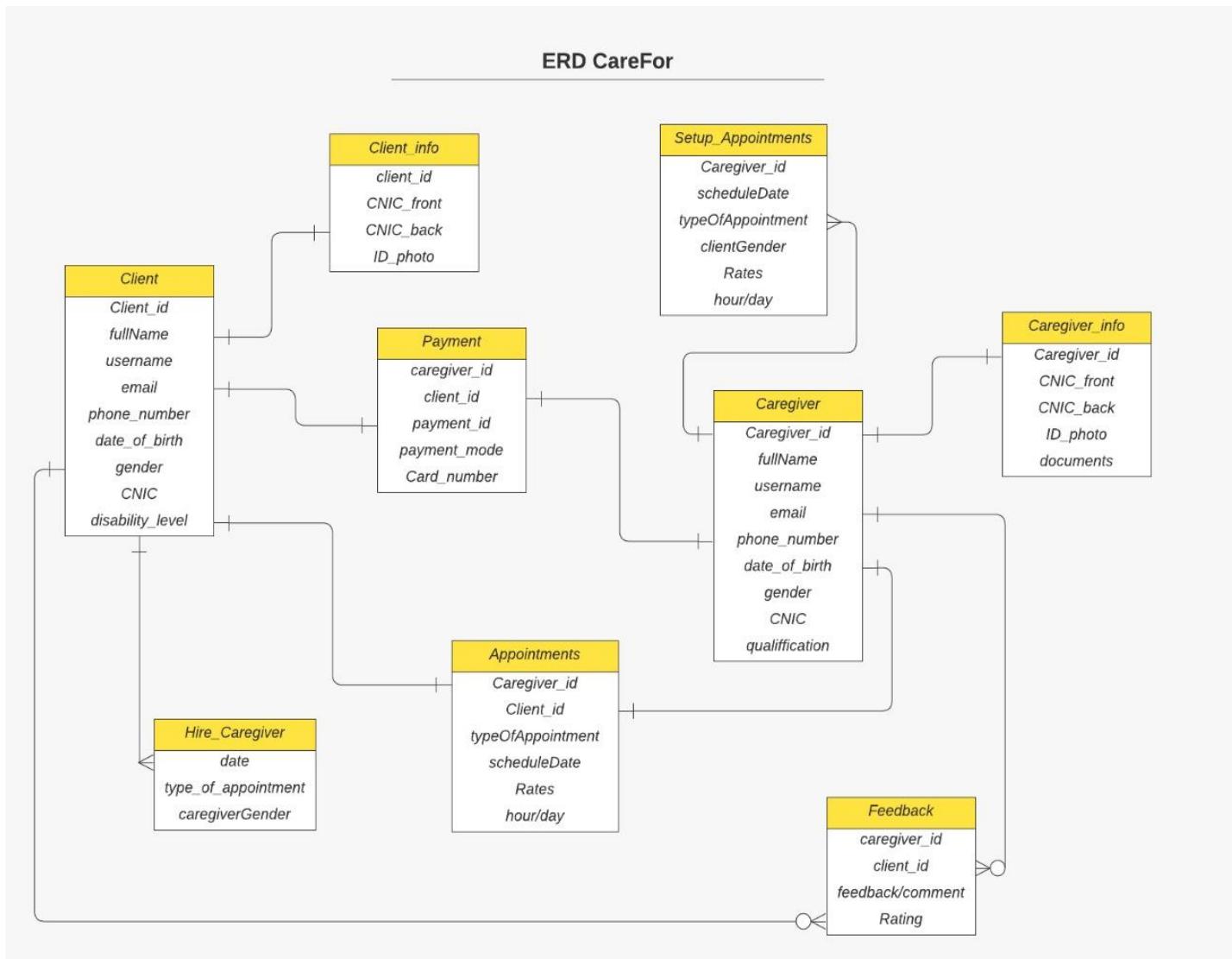


FIG 2.3 ERD Diagram

2.4 Operating Environment

The application will require the following working environment:

- An Android Smart Phone
- Android Version 6.0 and above
- Internet Connectivity.

2.5 Design and Implementation Constraints

Required Constraints:

1. Time Needed: June 2023
2. Tools & Technologies:
 - Android Studio: Java & Kotlin
 - Database Connectivity: Firebase
3. Security: Login Authentication, Validation checks, Hashing Algorithms, Verification Links

2.6 User Documentation

A user manual will be formed at the end of the project.

2.7 Assumptions and Dependencies

The application will be dependent on an active internet connection, in case of failure, users will not be able to access the application.

Users must have an android smartphone phone to access and use the application, and we assume that the user has enough knowledge about operating a smart phone and running applications.

Users must have a valid CNIC, as without that they will not be able to register.

Technical Dependencies: Active Internet Connection

3. External Interface Requirements

3.1 User Interfaces

Layout: Size controls and panes within a window to match their typical content. Avoid truncated text. Users should never have to interact with a window to view its typical content—reserve resizing and scrolling for unusually large content.

Controls: Label every control or group of controls. Exceptions Text boxes and drop-down lists can be labeled using prompts.

Commands: Labels used should be specific over generic ones. Ideally, users should not have to face any issues in understanding the labels, and make sure the used labels should not possess any ambiguity. Users are far more likely to read command button labels than static text.

Text: Be polite, supportive, and encouraging. The user should never feel condescended to, blamed, or intimidated.

Generally, leave full text in main instructions and interactive controls, and remove any redundancy from the other places. Use title-style capitalization for titles, and sentence-style capitalization for all other UI elements.

Don't capitalize the names of generic user interface elements, such as toolbar, menu, scroll bar, button, and icon. Exceptions: Address bar, Links bar, ribbon.

Messages: Messages are any kind of message users need or want to see as they use your app. Learn how to present errors, warning, confirmations, and notifications in your app without damaging user experience.

Experiences: Experiences are the common experiences and use cases for all apps, like setting up and running for the first time. Learn about the best practices from creating these experiences and communicating your app brand.

Determine the features your users need. Understand your users' needs through goal, scenario, and task analysis. Determine a set of features that realizes these objectives.

Remove unnecessary elements. Remove elements that aren't likely to be used or have preferable alternatives.

Remove unnecessary redundancy. There might be several effective ways to perform a task. To achieve simplicity, make the hard decision and choose the best one for your target users instead of providing all of them and making the choice an option.

Application Interfaces Include:

- Splash Screen with Animation
- Interface for Login & Signup
- About us Page
- Interfaces for Profile Modification

- Interfaces for ‘Forget Password’ scenario
- Interface for Data Gathering for both Client and Caregiver
- Interface for Google Map Redirection
- Interfaces for Client Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Caregiver Booking
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Rate Caregiver
 - Cancel Booking
 - FAQs
- Interfaces for Care-giver Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Set up Appointments
 - New Appointments
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Ratings Received.
 - Incoming Requests
- Interfaces for Admin Application
 - View Users
 - Caregiver Status Approval
 - Client Status Approval
 - Set Caregiver Dashboard Quote (Any famous quote/ promotional message)
 - Set Client Dashboard Quote (Any famous quote/ promotional message)
 - View NGO Partners
 - Manage Preferences
 - View Client Booking History
 - View Caregiver Appointment History
 - Send Notification to All Users
 - View User Issues

3.2 Hardware Interfaces

- Mobile Phone: Android Smart Phone
- Version: 6.0 and above
- Space Required: At least 100MB
- Application requires an active internet connection.

3.3 Software Interfaces

The software will be developed using Android Studio.
For Database Management, Firebase will be used.

3.4 Communications Interfaces

Push Notifications will be used to send relevant information to both Clients and Caregivers. Email verifications will be sent to Clients and Caregivers.

4. System Features

4.1 Signup

USE CASE NAME	SIGN UP (SU-01)	
ACTORS	USER	
DESCRIPTION	The case represents user signing in for the first time	
TYPICAL COURSE OF EVENTS	1a) User starts program 3a) User enters information after navigating to sign up window 5a) verifies account	2a) prompts login window 4a) checks data, sends verification email. 6a) authenticates user. 8a) prompt shown and connects with database.
ALTERNATE COURSE	1a) User starts wrong program 3a) User fails to enter information. 5a) fails to verify account	2a) Doesn't show any prompts 4a) Fails to check any data does not send any verification email. 6a) Doesn't authenticate user. 8a) No prompt shown and fails to connect with database.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has made his account.	
ASSUMPTION	None	

4.2 Login

USE CASE NAME	LOGIN (L-01)	
ACTORS	USER (CLIENT or CAREGIVER) ,ADMIN	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1)User starts program 3)User/Admin puts in his login credentials	2)Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window.
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials	2a) Doesn't prompt user for login window 4) No window shown.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has logged in successfully	
ASSUMPTION	The account was made beforehand	

4.3 FAQS

USE CASE NAME	View FAQs (VF-01)	
ACTORS	USER (Client or Caregiver)	
DESCRIPTION	The case represents USER going to FAQ menu	
TYPICAL COURSE OF EVENTS	1)User starts program 3) User logs in with username and password. 5) User goes on FAQ relevant page. 7)User then exits	2) Prompts user to log in. 4).Validates User with database 6)Displays relevant page 8)Closes the FAQ page
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong username & password. 5a) Clicks on wrong page	2a) Doesn't show any prompts. 4a) Doesn't validate as fail to connect to database. 6a) Doesn't display page 8a) Doesn't close page
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed FAQ page	
ASSUMPTION	Account created beforehand	

4.4 Forgot Password

USE CASE NAME	FORGET PASSWORD (FP-01)	
ACTORS	USER (CLIENT or CAREGIVER)	
DESCRIPTION	The case represents user changing his password	
TYPICAL COURSE OF EVENTS	1) User starts program. 3) Users opts for forget password option. And Enters Username and Email 5) User opens the email and enters new password 7) User changes password	2) Prompts user to sign up or log in. 4) Checks user validity and sends password reset email to user. 6) Accepts passwords after validation checks and prompts change password 8) Accepts new password and prompts password updated.
ALTERNATE COURSE	1a) User starts wrong program 3a) User fails to enter correct information. 5a) fails to write password	2a) Doesn't show any prompts 4a) Fails to check any data and send reset email. 6a) Doesn't accept any answer 8a) No prompt shown and fails to connect with database.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has changed his password.	
ASSUMPTION	Has made his account beforehand	

4.5 Edit Profile

USE CASE NAME	EDIT PROFILE (EP-01)	
ACTORS	USER (CLIENT or CAREGIVER)	
DESCRIPTION	The case represents user updating his details	
TYPICAL COURSE OF EVENTS	1) User starts program. 3) Users opens update detail tab after logging in. 5) Updates details and enters it 7) User updates his information	2) Prompts user to sign up or log in. 4) Checks user's information and opens the relevant tab. 6) Accepts user's relevant updates after validation checks. 8) Accepts user's data, adds it to database, and prompts "updates successful".
ALTERNATE COURSE	1a) User starts wrong program 3a) User fails to open correct tab. 5a) fails to update correctly	2a) Doesn't show any prompts 4a) Fails to check any data. 6a) Doesn't accept any updates even if its correct 8a) No prompt shown and fails to connect with database.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has updated his details.	
ASSUMPTION	Account was made beforehand	

CLIENT:-**4.6 BOOKING**

USE CASE NAME	BOOKING (B-01)	
ACTORS	USER (CLIENT)	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1) User starts program 3) User puts in his login credentials 5) Goes to book caregiver window 7) Enters details of service required, Home Care, Medical Appointment or Social Activity 9) User selects and books ideal caregiver according to need.	2) Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window. Opens Client Dashboard 6) Opens relevant window. 8) Saves detail of service and links to caregiver. Displays relevant caregivers available. 10) Sends push notification of caregiver's response, and booking id (if caregiver accepts)
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials 5a) No dashboard opened cannot navigate to window 7a) Doesn't enter details. 9a) Doesn't select caregiver	2a) Doesn't prompt user for login window 4a) No window shown. 6a) No window opened. 8a) No details saved, cannot link with available caregivers. 10a) No notification sent.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data	
ASSUMPTION	The account was made beforehand	

4.7 Cancel Booking

USE CASE NAME	CANCEL BOOKING (CB-01)	
ACTORS	USER (CLIENT)	
DESCRIPTION	The case represents user cancelling reservation	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) User opens booking details and cancels tickets by providing booking id	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Validates booking id and allows cancelation, shows with prompt.
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong reservation tab	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot validate Booking ID.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	The program has caregivers beforehand	

4.8 Booking History

USE CASE NAME	BOOKING HISTORY (BH-01)	
ACTORS	USER (CLIENT)	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1) User starts program 3) User puts in his login credentials 5) Goes to Booking History window . . .	2) Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window. Opens Client Dashboard 6) Opens relevant window, and shows all the previous booking client has done including Active and Cancelled.
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials 5a) No dashboard opened cannot navigate to window	2a) Doesn't prompt user for login window 4a) No window shown. 6a) No window opened.
PRECONDITION	Active online network connection	
POSTCONDITION	Actor has logged in successfully.	
ASSUMPTION	The account was made beforehand	

4.9 Report Issue

USE CASE NAME	Report Issue (CRI-01)	
ACTORS	USER (Client)	
DESCRIPTION	The case represents user reporting an issue	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Go to Report Issue page situated on navigation bar.	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Opens relevant page that asks for title and description of issue and sends it to admin
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong page	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot send issue
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	-	

4.10 Change Password

USE CASE NAME	Change Password (CGCP-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user reporting an issue	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Go to change password page on navigation bar.	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Opens relevant page that asks current password and sends link to users email
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong page	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot send link due to incorrect password
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	User enters correct password	

CAREGIVER

4.11 Document Verification

USE CASE NAME	DOCUMENT VERIFICATIONS (DV-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user cancelling reservation	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Answers all the questions and submits 8) submits required documents	2) Asks user to login with prompt, after user has registered. 4) Validates user and successfully logs in with a prompt displayed. Opens survey asking questions. 6) All answers saved in database. 7) Prompts user to submit CNIC and certificates of experience. 9) Upon submission of documents, they will be verified and if approved a notification will be sent and dashboard will be opened.
ALTERNATE COURSE	1a)User starts wrong program 3a) Enters wrong password. 5a) Does not answer 8a) Does not submit documents	2a) Doesn't show any details 4a) Doesn't connect to database and does not display survey 6a) nothing saved in database 7a) No prompts shown to user 9a) No approval sent through notification
PRECONDITION	Active online network connection	
POSTCONDITION	Caregiver dashboard opens	
ASSUMPTION	Account created beforehand	

4.12 Google Map Redirection

USE CASE NAME	GOOGLE MAP (GM-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user cancelling reservation	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Answers all the questions and submits 8) Submits CNIC with no certificates of experience.	2) Asks user to login with prompt, after user has registered. 4) Validates user and successfully logs in with a prompt displayed. Opens survey asking questions. 6) All answers saved in database. 7) Prompts user to submit CNIC and certificates of experience. 8) Upon submission if no certificates of experience are shown, a push notification will be sent to user. 9) Google Map page will open showing all the possible NGOs that provide volunteer ships.
PRECONDITION	Active online network connection	
POSTCONDITION	-	
ASSUMPTION	Account created beforehand	

4.13 Appointment Setup

USE CASE NAME	APPOINTMENTS SETUP (AS-01)	
ACTORS	USER (CAREGIVER)	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1) User starts program 3) User puts in his login credentials 5) Goes to New Appointments Setup window 7) Users can set their preferences according to their requirements	2) Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window. Opens Caregiver Dashboard 6) Opens relevant window. 8) User preferences stored in database
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials 5a) No dashboard opened cannot navigate to window 7a) As no window opened, user cannot set preferences.	2a) Doesn't prompt user for login window 4a) No window shown. 6a) No window opened. 8a) Preferences cannot be stored
PRECONDITION	Active online network connection	
POSTCONDITION	Actor has logged in successfully.	
ASSUMPTION	The account was made beforehand	

4.14 New Appointments

USE CASE NAME	NEW APPOINTMENTS (NA-01)	
ACTORS	USER (CAREGIVER)	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1) User starts program 3) User puts in his login credentials 5) Goes to New Appointments window 7) User can either accept appointment or reject.	2) Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window. Opens Caregiver Dashboard 6) Opens relevant window, and shows all the new incoming appointments. If the application is not open, push notifications will be sent.
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials 5a) No dashboard opened cannot navigate to window	2a) Doesn't prompt user for login window 4a) No window shown. 6a) No window opened.
PRECONDITION	Active online network connection	
POSTCONDITION	Actor has logged in successfully.	
ASSUMPTION	The account was made beforehand	

4.15 Appointment History

USE CASE NAME	APPOINTMENT HISTORY (AH-01)	
ACTORS	USER (CAREGIVER)	
DESCRIPTION	The case represents a user logging in	
TYPICAL COURSE OF EVENTS	1) User starts program 3) User puts in his login credentials 5) Goes to Appointment History window .	2) Prompts login window 4) Checks credentials from database then prompts 'Login Successful' window. Opens Caregiver Dashboard 6) Opens relevant window, and shows all the previous appointments the caregiver has completed, including Active and Cancelled.
ALTERNATE COURSE	1a) User starts wrong program 3a) User puts in wrong login credentials 5a) No dashboard opened cannot navigate to window	2a) Doesn't prompt user for login window 4a) No window shown. 6a) No window opened.
PRECONDITION	Active online network connection	
POSTCONDITION	Actor has logged in successfully.	
ASSUMPTION	The account was made beforehand	

4.16 Ratings & Feedbacks

USE CASE NAME	RATINGS AND FEEDBACK (RF-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user cancelling reservation	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Goes to Ratings Received page.	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Opens relevant page that showed all the ratings and feedbacks received sent by clients to the caregiver.
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong page	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot show ratings.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	The program has clients beforehand	

4.17 Report Issue

USE CASE NAME	Report Issue (CGRI-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user reporting an issue	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Go to Report Issue page situated on navigation bar.	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Opens relevant page that asks for title and description of issue and sends it to admin
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong page	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot send issue
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	-	

4.18 Change Password

USE CASE NAME	Change Password (CGCP-01)	
ACTORS	USER (Caregiver)	
DESCRIPTION	The case represents user reporting an issue	
TYPICAL COURSE OF EVENTS	1) User starts program and opens program. 3) Enters required details like username and password. 5) Go to change password page on navigation bar.	2) Asks user to login with prompt. 4) Validates user and successfully logs in with a prompt displayed. Opens Dashboard. 6) Opens relevant page that asks current password and sends link to users email
ALTERNATE COURSE	1a) User starts wrong program 3a) Enters wrong password. 5a) Opens wrong page	2a) Doesn't show any details 4a) Doesn't connect to database 6a) Cannot send link due to incorrect password
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed payment data.	
ASSUMPTION	User enters correct password	

ADMIN**4.19 View Users**

USE CASE NAME	VIEW USERS (Client & Caregiver)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin viewing users	
TYPICAL COURSE OF EVENTS	1) Admin starts program 3) Admin logs in when authenticated.	2) Prompts login screen 4) Opens screen to show all active users.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin not authenticated.	2a) Doesn't prompt login screen 4) No window shown or edits made.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed all active users.	
ASSUMPTION	The program has accepted users beforehand	

4.20 View Bookings

USE CASE NAME	VIEW CLIENT BOOKINGS (CB-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin checking booking history	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens client booking history 3) Admin sees the reservations and cancellations.	2) Window opens showing booking history. 4) Allows admin to check required data.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data	
ASSUMPTION	The program has clients from beforehand	

4.21 View CG Appointments

USE CASE NAME	VIEW CAREGIVER APPOINTMENT (CA-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin viewing caregiver appointments	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens caregiver appointment history 3) Admin sees the reservations and cancellations.	2) Window opens showing appointment history 4) Allows admin to check required data.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	The program has caregivers from beforehand	

4.22 Add/Update Client Dashboard Quote

USE CASE NAME	Update Client Quote (CQ-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin viewing quotes on client dashboard	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens page to check quote seen on client dashboard 3) Admin sees the quote and updates it to something new	2) Window opens showing quote 4) Allows admin to check and update quote. It is automatically stored in database.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	-	

4.23 Add/Update Caregiver Dashboard Quote

USE CASE NAME	Update Caregiver Quote (CGQ-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin viewing quotes on client dashboard	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens page to check quote seen on Caregiver dashboard 3) Admin sees the quote and updates it to something new	2) Window opens showing quote 4) Allows admin to check and update quote. It is automatically stored in database.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	-	

4.24 Update Caregiver Status

USE CASE NAME	Update CG Status (UCGS-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin updating caregivers status after checking their details	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens page to view status of caregiver 3) Admin checks them, if they pass through guidelines set, he approves their status, otherwise rejects it.	2) Window opens showing all the details uploaded by CG 4) Allows admin to check and update status. The status is updated in the database and relevant user is informed.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	CG has uploaded all details during survey	

4.25 Update Client Status

USE CASE NAME	Update Client Status (UCS-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin updating caregivers status after checking their details	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens page to view status of Client 3) Admin checks them, if they pass through guidelines set, he approves their status, otherwise rejects it.	2) Window opens showing all the details uploaded by Client. 4) Allows admin to check and update status. The status is updated in the database and relevant user is informed.
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	Client has completed survey	

4.26 View User (Client & Caregiver) Issues

USE CASE NAME	View User Issues (VUI-01)	
ACTORS	ADMIN	
DESCRIPTION	The case represents admin updating caregivers status after checking their details	
TYPICAL COURSE OF EVENTS	1) Admin starts program and opens page to view reported issues page 3) Admin checks them and takes necessary step	2) Window opens showing all the issues faced by user. 4) Allows admin to check and update relevant user
ALTERNATE COURSE	1a) Admin starts wrong program 3a) Admin ends up going on the wrong menu.	2a) Doesn't show any details 4a) Doesn't allow admin to check anything.
PRECONDITION	Active online network connection	
POSTCONDITION	The actor has viewed data.	
ASSUMPTION	Issues have been reported beforehand	

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The application will be reliable and responsive. Backend coding will be done in a way that efficiency is maintained.

5.2 Safety Requirements

Hashing algorithms will be used to encrypt user information to avoid any data loss, hence, maintaining data integrity.

To maintain real life safety of clients, only those caregivers will be hired that have proper experience and have passed a small interview/questionnaire.

All required information of clients & caregivers will be stored in the database.

5.3 Security Requirements

User Authentication with proper validations will be added to the application.
The system will be using hashing algorithms to encrypt confidential user information.
The database system will only be accessible to the admin.

5.4 Software Quality Attributes

Classes and Functions will be reused while code implementation to provide reusability.
Exceptional Handling will be done to secure application from potential crashing.
Application will be robust, user friendly and efficient.

5.5 Business Rules

Any new additions to the system will have to be done through admin rights.

6. Other Requirements

Appendix A: Glossary

- Application Programmable Interface → An application programming interface (API) is a way for two or more computer programs to communicate with each other.
- Hashing Algorithm → A hashing algorithm is a mathematical function that garbles data and makes it unreadable. Hashing algorithms are one-way programs, so the text can't be unscrambled and decoded by anyone else
- Validation Checks → Process of ensuring the accuracy and quality of data
- UI → User Interface
- Exceptional Handling → Process of responding to unwanted or unexpected events when a computer program runs. Exception handling deals with these events to avoid the program or system crashing
- User Authentication → Checking if user is valid or not

Appendix B: Analysis Models

Domain Model:

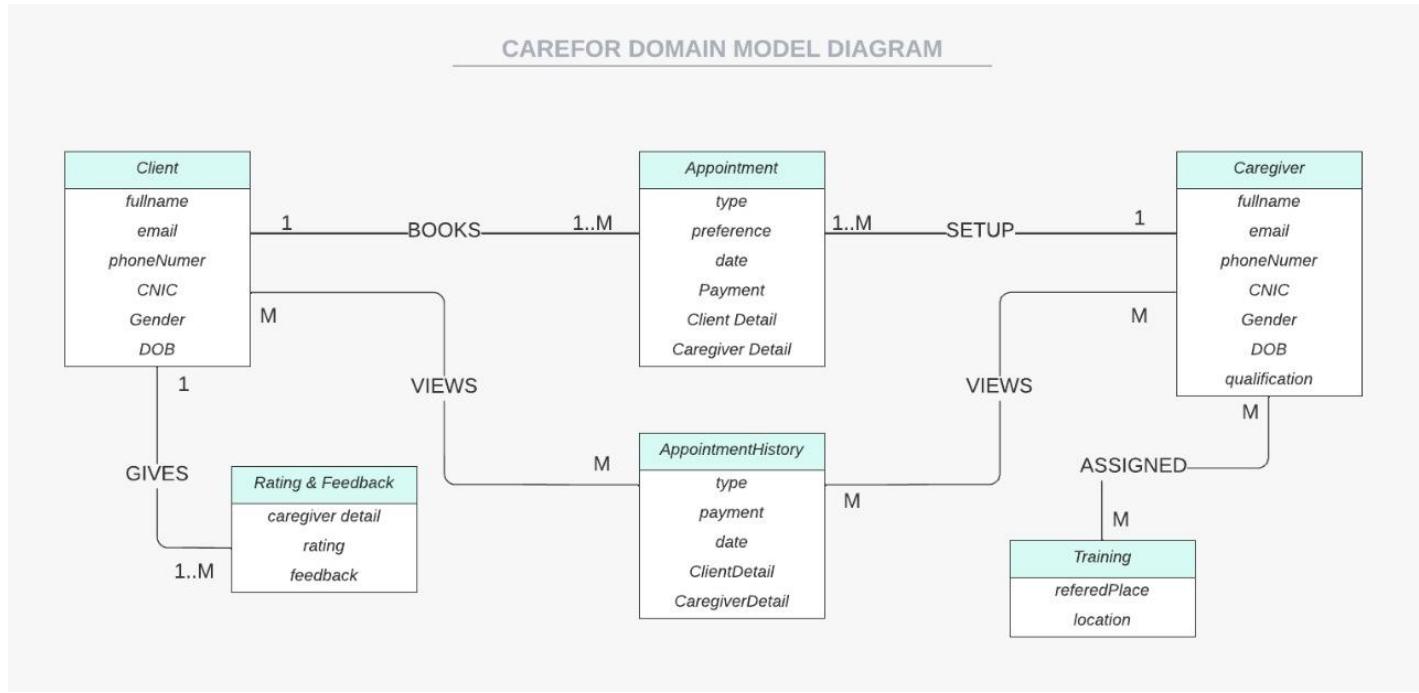


FIG 6.B Domain Model Diagram

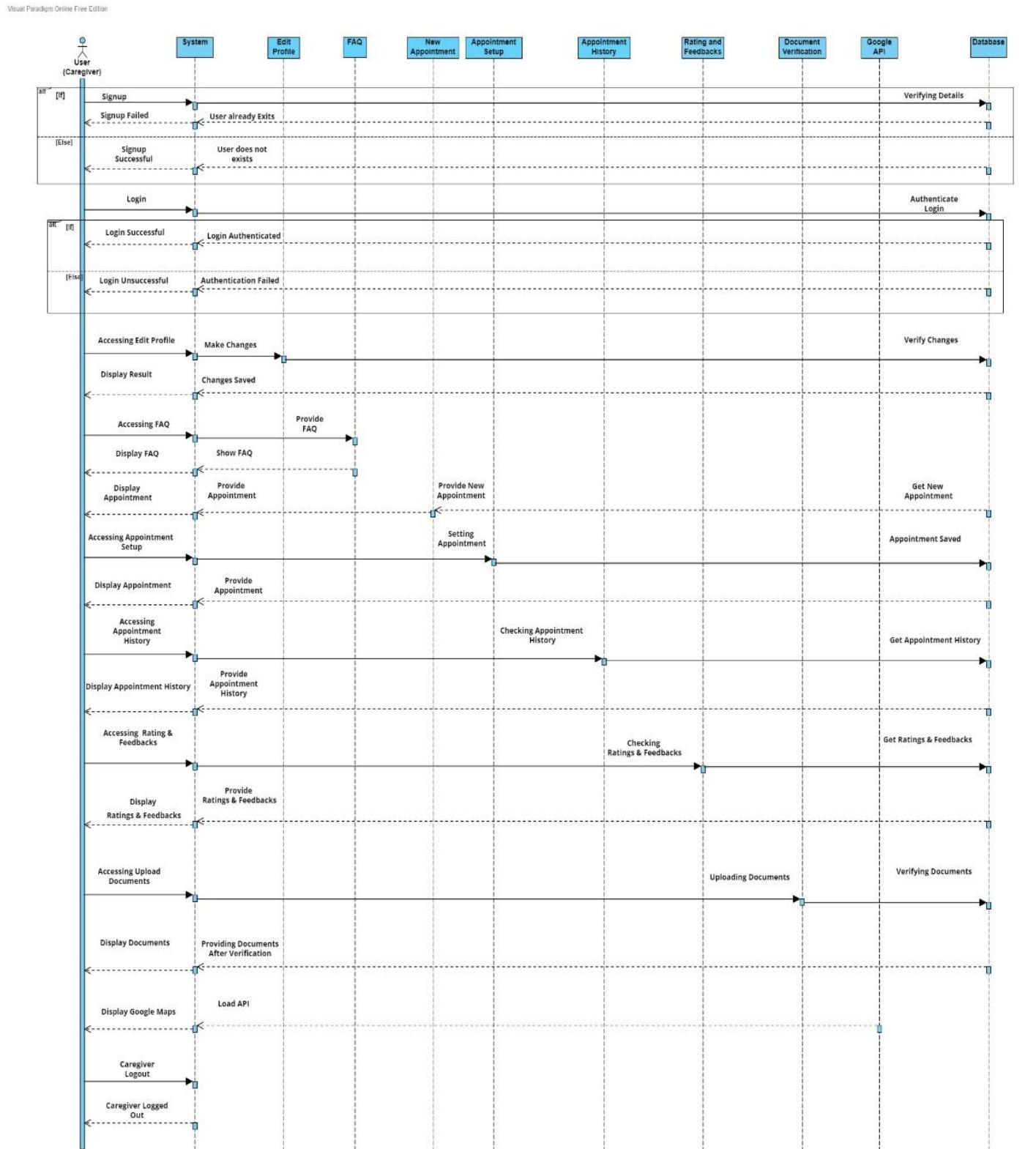
Sequence Diagram (Caregiver):

FIG 6.B (1) Sequence Diagram

Sequence Diagram (Client):

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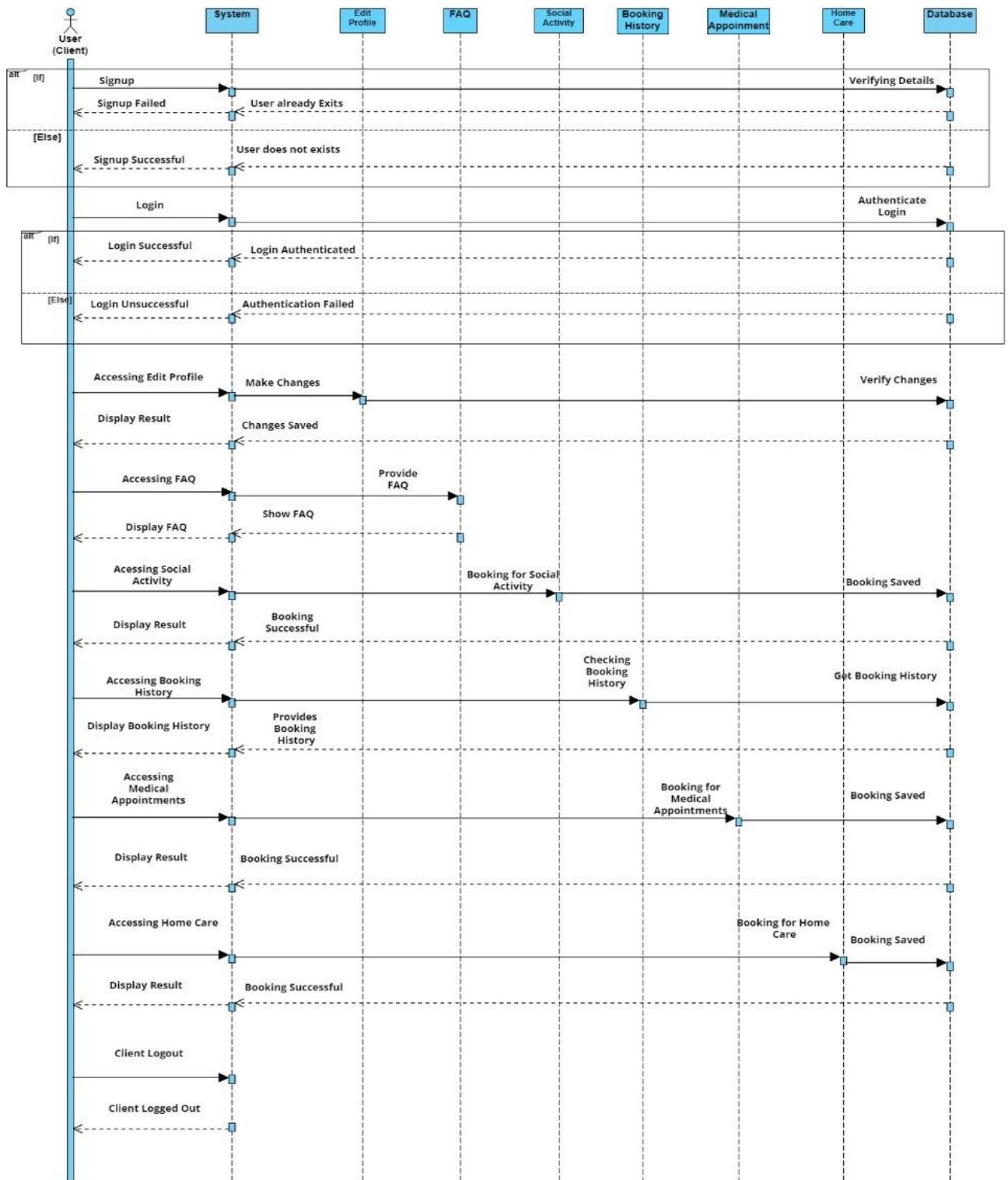


FIG 6.B (2) Sequence Diagram

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Software Design Specifications

The Software Design Specification Outline

1. Introduction

1.1. Purpose of this document

The SDS focuses on specifying a high-level view of the architecture of our system, and on the interaction between the user and the system. It also focuses on detailing a low-level view of each component of the software and how the components interact with each other.

The main objective of this project is the development of an Android Application called ‘CareFor’. The application lets clients/users book caregivers according to their needs whether it be normal health care, or for social activities. The users consist of the elderly and people with physical or mental restrictions, in addition to that caregivers must have proper experience in providing the required healthcare, if that is not the case, the people applying as caregivers will be shown all the NGOs that train people for free through their volunteer program.

1.2. Scope of the development project

Upon completion the project will have two applications, one for the clients and the other of the super-user (admin). The client side application consists of two different portals, one for the users and one for the caregivers, whereas the admin application will have all the necessary functionalities of a super-user. The admin application and the client application will be connected together, keeping the admin in charge of everything as the super-user overlooking all the things happening.

Application Interfaces upon completion Include:

- Splash Screen with Animation
- Interface for Login & Signup
- About us Page
- Interfaces for Profile Modification
- Interfaces for ‘Forget Password’ scenario
- Interface for Data Gathering for both Client and Caregiver
- Interface for Google Map Redirection
- Interfaces for Client Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Caregiver Booking
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Rate Caregiver
 - Cancel Booking
 - FAQs

- Interfaces for Care-giver Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Set up Appointments
 - New Appointments
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Ratings Received.
 - Incoming Requests
- Interfaces for Admin Application
 - View Users
 - Caregiver Status Approval
 - Client Status Approval
 - Set Caregiver Dashboard Quote (Any famous quote/ promotional message)
 - Set Client Dashboard Quote (Any famous quote/ promotional message)
 - View NGO Partners
 - Manage Preferences
 - View Client Booking History
 - View Caregiver Appointment History
 - Send Notification to All Users
 - View User Issues

1.3. Definitions, acronyms, and abbreviations

Be sure to alphabetize!

1.4. References

<https://oladoc.com/pakistan/karachi>
<https://darulsukun.com/>
<http://karachipatientcare.com/>

1.5. Overview of document

The next sections will describe the architectural design of the project, the high level components and their interactions. Some issues will be discussed which might be faced in user interface. The system architecture description section describes the overview of the components, structure and relationships among the components along the way it also identifies the user interface issues. On the other hand, section 3 gives in depth description of components, section 4 gives overall description of the interface of the system, section 5 identifies the relations with other products, section 6 describes the design trade off, section 7 describes the pseudocodes for components

2. System architecture description

This section provides an overview and rationale for the program's data and architectural design decisions.

2.1. Section Overview

This section of the document provides overview and rationale of the program's data and architectural design of the product. General constraints that are applicable to the system and have impact on the system are discussed in the section hereunder. The data design and structure design of the system are also part of this section of the document.

2.2. General Constraints

Required Constraints:

1. Time Needed: June 2023
2. Tools & Technologies:
 - Android Studio: Java & Kotlin
 - Database Connectivity: Firebase

Security: Login Authentication, Validation checks, Hashing Algorithms, Verification Links

Hardware Constraints:

1. Mobile Phone: Android Smart Phone
2. Operating System Version: 6.0 and above
3. Space Required: At least 100MB
4. Application requires an active internet connection.

2.3. Data Design

Database offers efficient and uniform method of storing and accessing the user information along with information regarding all the bookings that have been done, and their types. Firebase Database has been used to achieve all this. It is a cloud based NoSQL database and is used to store all user information and PDF documents as well as images if necessary.

Firebase Real-time Database is used to store all the data. It stores it as JSON objects and allows it to be changed frequently by synchronizing it across connected devices.

The data is stored as "Key" and its particular "Value"

The following tables show how the data being used for CareFor

Data #1		
Name	Client	
Where-used/how-used	Client signup and then used throughout the application	
Content description	Client details	
Key	Value	Value-Type
Username	“username” (ABC)	String
Full Name	(ABC)	String
Phone Number	(ABC)	String
DOB	(ABC)	String
Email Address	(ABC)	String
Address	(ABC)	String
Gender	(ABC)	String
Password	(ABC)	String
Confirm_Password	(ABC)	String
Client Survey Details		
CNIC	(ABC)	String
Postal Code	(12345)	INT
Proffered Caregiver Gender	(ABC)	String

Data #2		
Name	Caregiver	
Where-used/how-used	Caregiver signup and then used throughout the application	
Content description	Caregiver details	
Key	Value	Value-Type
Username	“username” (ABC)	String
Full Name	(ABC)	String
Phone Number	(ABC)	String
DOB	(ABC)	String
Email Address	(ABC)	String
Gender	(ABC)	String
Password	(ABC)	String
Confirm_Password	(ABC)	String
Caregiver Survey Details		
CNIC	(ABC)	String
Address	(ABC)	String
Postal Code	(12345)	INT
Experience	(ABC)	String

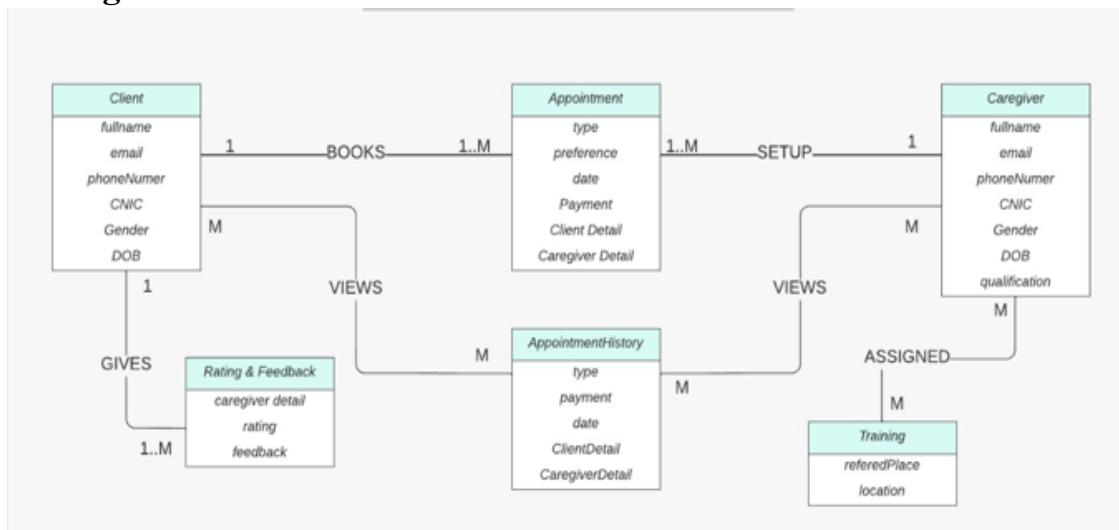
Data #3		
Name	Quotes (Client)	
Where-used/how-used	Quote shown on client dashboard	
Content description	Quote can be promotional or a thoughtful message	
Key	Value	Value-Type
Quote ID	“1” (123)	Int
Author	(ABC)	String
Quote_Message	(ABC)	String

Data #4		
Name	Quotes (Caregiver)	
Where-used/how-used	Quote shown on Caregiver dashboard	
Content description	Quote can be promotional or a thoughtful message	
Key	Value	Value-Type
Quote ID	“1” (123)	Int
Author	(ABC)	String
Quote_Message	(ABC)	String

Data #5		
Name	Booking Details	
Where-used/how-used	When Client successfully books a caregiver	
Content description	Client and Caregiver Booking details	
Key	Value	Value-Type
Booking_ID	(ABC)	String
Booking_Status	(ABC)	String
Caregiver_Username	“username” (ABC)	String
Caregiver_Name	(ABC)	String
Caregiver_Number	(ABC)	String
Client_Username	“username” (ABC)	String
Client_Name	(ABC)	String
Client_Gender	(ABC)	String
Client_Address	(ABC)	String
Date	(ABC)	String
Gig	(ABC)	String
Rate	(123)	INT
Shift (Timings)	(ABC)	String

Data #6		
Name	FAQs	
Where-used/how-used	FAQ page on user dashboards	
Content description	FAQ to help users	
Key	Value	Value-Type
FAQ_id	“1” (123)	Int
Question	(ABC)	String
Answer	(ABC)	String

2.4. Program Structure



3. Detailed description of components

3.1. Section Overview

In this section we describe the details of components in the system, it will give also give the overall view of all the functional components. It will describe each component's identification, type, purpose, function subordinates, Dependencies, interfaces, resources, processing and data.

3.2. Component in Detail

3.2.1. Login

Identification	Login
Type	Class/Page/Method
Purpose	User (Client or Caregiver) authentication into the system
Function	This screen allows user (Client or Caregiver) to enter user credentials and verifies, if verified the user is taken to its homepage.
Subordinates	The user must be successfully registered with an active account. The user must also have an active internet connection.
Dependencies	The login screen depends on entered username and password which tie to another component that is the dashboard that enables use of project services
Interfaces	The screen is designed to give credentials to the users of the system which provides the services to the users for further priorities and procedure.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection. Database Requirements: It validate to the users that exists in the database.
Processing	This screen requires username and password for verifying account and allowing access to CareFor
Data	Data require for the Login Screen is the username and password. The database entries of users have access to this application

3.2.2. Sign up

Identification	Login
Type	Class/Page/Method
Purpose	User (Client or Caregiver) registration into the system
Function	This screen allows user (Client or Caregiver) to enter all the required details to sign up.
Subordinates	The user must have an active internet connection with a valid email address.
Dependencies	The signup screen depends on entered details which ties to another component that is the creation of account and redirection to dashboard that enables use of project services
Interfaces	The screen is designed to give credentials to the users of the system which provides the services to the users for further priorities and procedure.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection. Database Requirements: It validate to the users that exists in the database.
Processing	This screen requires the details for the creation and verification of the account and allowing access to CareFor
Data	Data required for this screen is the 'Full Name', 'Username', 'Email Address', 'Phone Number', 'DOB' & 'Password'. The database entries of users have access to this application

3.2.3. Forgot Password

Identification	Forgot Password
Type	Class/Page/Method
Purpose	Recovery of Users (Client or Caregiver) passwords if they have forgotten/lost it.
Function	This screen allows user (Client or Caregiver) to enter required details and recover their password.
Subordinates	The user must be successfully registered with an active account and a valid email address.
Dependencies	The ‘Forget Password’ screen depends on entered username and password which ties to another component that is the creation of account, prompting the user to verify a link sent to their email address. Upon completion, that redirects users to Login Screen.
Interfaces	The screen is designed to give credentials to the users of the system which provides the services to the users for further priorities and procedure.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection. Database Requirements: It validates the users that exists in the database.
Processing	This screen requires the user to enter valid username and password, upon which an email will be sent to the user. The user must enter their new password on said screen, and login with new password to regain access to the application.
Data	Data require for the Forget Password Screen is the username and password. The database entries of users have access to this IDE

3.2.4. FAQs

Identification	FAQs
Type	Class/Page/Method
Purpose	Help users by giving them answers to 'Frequently Asked Questions'.
Function	Answers basic questions asked by users.
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to help users answer their questions.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

CLIENT

3.2.5. Booking (Client)

Identification	Booking Caregiver
Type	Class/Page/Method
Purpose	Allows clients to book caregivers according to their needs.
Function	This screen allows users to enter the required details, that will then be used to search for a caregiver
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to help users answer their questions.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	The caregivers that match the criteria are shown to the user, which they can then select, upon approval from the caregiver the entry will be added in the database.
Data	Type of Appointment: String Caregiver Gender: String

3.2.6. Booking History (Client)

Identification	Booking History
Type	Class/Page/Method
Purpose	Allows clients to view their booking history.
Function	This screen allows users to see all the caregivers they have booked and the type of appointment that was set.
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to show users their appointments that have been stored in the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	Caregiver ID: INT Client ID: INT Type of Appointment: String Rate: INT Date: Date Format.

3.2.7. Cancel Booking (Client)

Identification	Cancel Booking
Type	Class/Page/Method
Purpose	Allows clients to cancel the appointments they have booked. This will then remove the appointment details from the database.
Function	This screen allows users cancel booked appointments.
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account, and appointments that are booked.
Interfaces	The screen is designed to allow users to cancel pre booked appointments, which will then be removed from the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	.
Data	-

3.2.8. Report Issue (Client)

Identification	Report Issue
Type	Class/Page/Method
Purpose	Allows clients to report any issue that may have occurred either during their booking or just in general to the admin
Function	This screen allows users to report certain issues
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to allow users to report issues to the admin which will then be stored in the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	.
Data	-

3.2.9. Change Password (Client)

Identification	Change Password
Type	Class/Page/Method
Purpose	Allows clients to change their existing password
Function	This screen allows users to change their current password through a link generated on their email account
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to allow users to change their current password through a link generated on their email account, which will then be updated into the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	.
Data	-

CAREGIVER

3.2.10. Caregiver CNIC & Document Verification

Identification	Caregiver Survey
Type	Class/Page/Method
Purpose	Allows Caregivers to enter the required details asked in the form of a survey, and asks them to upload a pdf/image of their original CNIC document.
Function	This screen allows users to enter relevant details asked.
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen is designed to allow users to enter their experience, upload relevant certificates, their CNIC documents and some details about themselves.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	Data entered by the user will be assessed, if they match the hiring criteria, their dashboard will be unlocked and they will be allowed to use the application as a 'Caregiver'
Data	Caregiver CNIC: String Address: String Postal Code: String Experience: String Certificates: PDF/Image (Stored in Firebase Storage) CNIC: PDF/Image (Stored in Firebase Storage)

3.2.11. Google Map Redirection

Identification	Google Map
Type	Class/Page/Method
Purpose	Before a Caregiver completes their survey they will be shown a list of NGOs in Karachi, highlighting the main ones which CareFor is partnered with or those that allow free volunteering services.
Function	This screen lists down famous NGOs in Karachi where the user can gain experience from.
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen redirects the user to Google Map.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.12. Caregiver Appointment Setup

Identification	Appointment Setup
Type	Class/Page/Method
Purpose	Allows Caregivers to set their preferences beforehand. They will then receive their appointments according to these preferences.
Function	This screen lets Caregivers to set preferences for future bookings.
Subordinates	The user must be successfully logged in with their survey approved by the Admin.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen is present on the dashboard and has different fields to set user preferences.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Data	-

3.2.13. Caregiver Appointment History

Identification	Appointment History
Type	Class/Page/Method
Purpose	Allows Caregivers to look at all the appointments they have either completed or those that are pending.
Function	This screen lets Caregivers view their history.
Subordinates	The user must be successfully logged in with their survey approved by the Admin.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of appointments
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.14. New Incoming Appointments

Identification	Incoming Appointment
Type	Class/Page/Method
Purpose	Allows Caregivers to look at all the incoming appointments.
Function	This screen lets Caregivers view their new incoming clients.
Subordinates	The user must be successfully logged in with their survey approved by the Admin.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of incoming appointments
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.15. Ratings & Feedbacks

Identification	Ratings & Feedbacks
Type	Class/Page/Method
Purpose	Allows Caregivers to look at all the ratings they have received from their clients.
Function	This screen lets Caregivers view their ratings.
Subordinates	The user must be successfully logged in with their survey approved by the Admin.
Dependencies	This function depends on the users having a valid/verified and existing account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of completed appointments and the ratings received.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.16. Report Issue (Caregiver)

Identification	Report Issue
Type	Class/Page/Method
Purpose	Allows Caregiver to report any issue that may have occurred either during their booking or just in general to the admin
Function	This screen allows users to report certain issues
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to allow users to report issues to the admin which will then be stored in the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.17. Change Password (Caregiver)

Identification	Change Password
Type	Class/Page/Method
Purpose	Allows Caregiver to change their existing password
Function	This screen allows users to change their current password through a link generated on their email account
Subordinates	The user must be successfully logged in.
Dependencies	This function depends on the users having a valid and existing account.
Interfaces	The screen is designed to allow users to change their current password through a link generated on their email account, which will then be updated into the database.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

ADMIN

3.2.18. Verifying Caregivers

Identification	Verify Caregiver
Type	Class/Page/Method
Purpose	Allows Admin to view all the surveys filled by the caregivers, to which they will decide whether to accept or reject.
Function	This screen lets Admin view surveys.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of surveys received.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.19. Viewing Users

Identification	View Users
Type	Class/Page/Method
Purpose	Allows Admin to view all users of CareFor.
Function	This screen lets Admin view users.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of users.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.20. View Client Bookings

Identification	View Client Bookings
Type	Class/Page/Method
Purpose	Allows Admin to view all the bookings made by the client.
Function	This screen lets Admin view booking history of a particular client.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list of bookings done by a client.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.21. View Caregiver Appointments

Identification	View Appointments
Type	Class/Page/Method
Purpose	Allows Admin to view all the appointments a particular caregiver has completed along with the rating received.
Function	This screen lets Admin completed appointments.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard and has a table view/recycler view showing the list appointments completed.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.22. Add/update Client Dashboard Quote

Identification	Add/update Client Dashboard Quote
Type	Class/Page/Method
Purpose	Allows Admin to update the quote found on Client dashboard.
Function	This screen lets Admin view and add new quotes.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.23. Add/update Caregiver Dashboard Quote

Identification	Add/update Client Dashboard Quote
Type	Class/Page/Method
Purpose	Allows Admin to update the quote found on Caregiver dashboard.
Function	This screen lets Admin view and add new quotes.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account.
Interfaces	The screen is present on the dashboard.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

3.2.24. Viewing User Issues

Identification	View User Issues
Type	Class/Page/Method
Purpose	Allows Admin to view all issues reported by users.
Function	This screen lets Admin view issues reported by users.
Subordinates	The Admin must be successfully logged in.
Dependencies	This function depends on the Admin having a valid account. The application must have existing users
Interfaces	The screen is present on the dashboard and can be viewed by clicking it.
Resources	Mobile Phone: Android Smart Phone Operating System Version: 6.0 and above Space Required: At least 100MB Application requirements: An active internet connection.
Processing	-
Data	-

4. User Interface Design

4.1. Section Overview

This section provides the insight to the user interface of the application, ‘CareFor’. The detailed description to the user interface components and why they were chosen for this product. The idea behind this user interface and its components is briefly discussed in this section.

4.2. Interface Design Rules

The design rules used in our interface are as follows:

- Contains buttons that are easy to use.
- Labels are of reasonable size.
- The interface is user friendly, it allows convenient usability even for non-traditional mobile phone users.
- Displays descriptive texts and messages where necessary to help user identify any requirements and or errors.
- It allows user to directly manipulate interface objects.
- It provides visual cues.
- Use of real world metaphor.

4.3. GUI Components

For CareFor GUI Layouts we have mostly used, Constraint layouts, Scroll Views, Recycler Views, Linear Layouts

For On Screen use, Buttons, images, text fields, progress bars, toast messages, and etc.

4.4. Detailed Description

Interface design is important for several reasons. First of all the more intuitive the user interface the easier it is to use, and the easier it is to use and the less expensive to use it. The better the user interface the easier it is to train people to use it, reducing your training costs. The better your user interface the less help people will need to use it, reducing your support costs. The better your user interface the more your users will like to use it, increasing their satisfaction with the work that you have done.

The Application Interfaces include:



Fig 1 Splash Screen

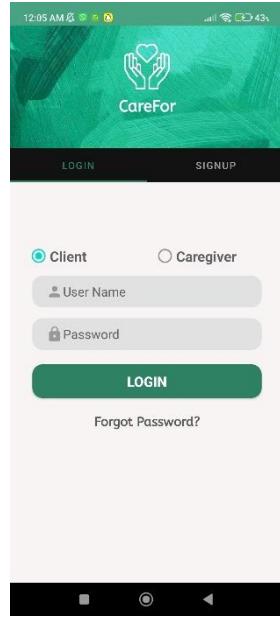


Fig2. Login/Signup

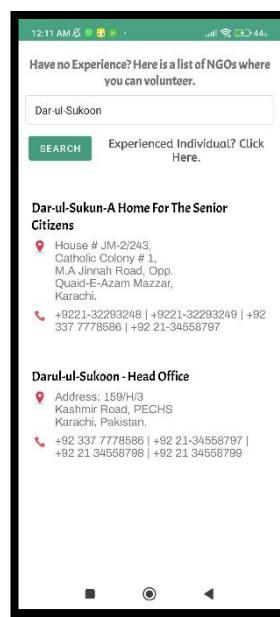


Fig3. NGO Redirection



Fig4.Dashboard

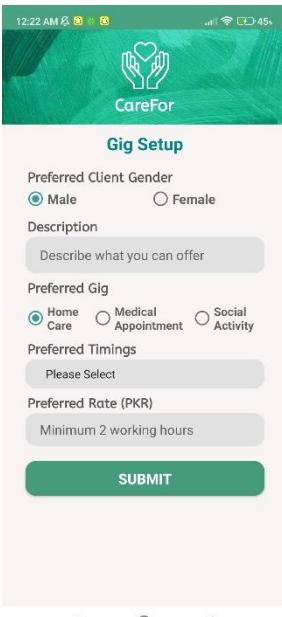


Fig5. Gig Set up

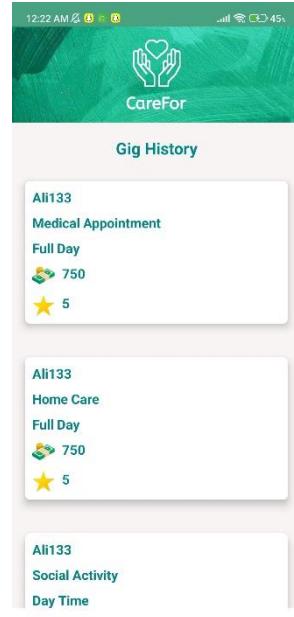


Fig6. Gig History

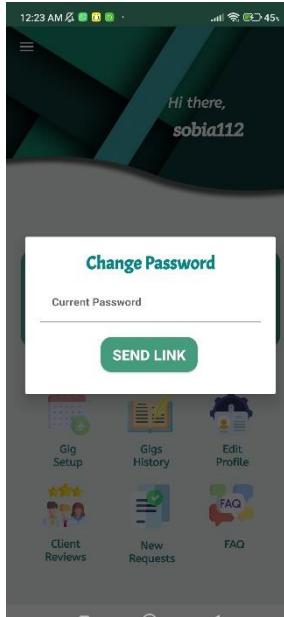


Fig7. Change Password

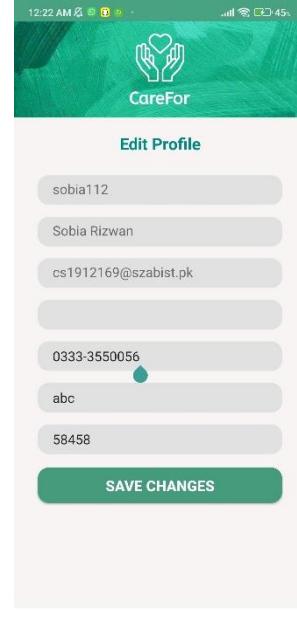


Fig8. Edit Profile

5. Reuse and relationships to other products

Design reuse is an invaluable time-saving strategy that allows us to focus our efforts on the creative aspects of designing and dedicate more time to developing innovative product features, rather than getting bogged down by repetitive tasks. When it comes to implementation, reuse plays a pivotal role in our development projects.

It significantly improves efficiency by enabling us to reuse components, effectively managing the growing complexity of the software. As a result, the time and effort required to develop software are considerably reduced, freeing up resources to invest in the creation of the next groundbreaking solutions.

The application is being developed using Android Studio which allows easy changes, implementation and deployment. Our app remained integrated with all the other components that allows reuse of functions, database connection, database and classes etc. reducing overall redundancy. And introducing new features/libraries is quite easy as once the Android Studio Gradle is updated it automatically loads everything

Design and code reuse is an important principle that we have followed throughout the design and development of this project, and following it has allowed us to focus and work upon the upcoming features and in bringing newer methodologies for the enhancement of the project

6. Design decisions and tradeoffs

When solving real problems in responsive android app design, striking a balance between perfection and practicality becomes crucial. Attempting to create an app that looks flawless on every screen size is impractical and time-consuming. Instead, it is essential to generalize the problem and find design patterns that fit various screen sizes without compromising usability. Menus are common elements that demand thoughtful trade-offs. Prioritizing user experience, maintaining consistency, and incorporating user feedback are vital in crafting menus that are visually appealing and user-friendly across devices. By embracing a careful and user-centric approach, designers can create responsive android apps that deliver an exceptional experience without losing sight of practicality and context.

7. Pseudocode for components

7.1. Login

```
Start
if user == Client
Enter username
Enter Password
if login == true
    open dashboard
else
    print "Account doesn't exist"
else
Enter username
Enter Password
if login == true
    open dashboard
else
    print "Account doesn't exist"
```

7.2. Sign Up/ Registration

```
Start
Select Client or Caregiver
Enter Full Name
Enter Username
Enter Email Address
Enter Phone Number
Enter DOB
Enter Password
Confirm Password
IF all details are correct print "Sign up successful, please open the link sent to you to
verify your account"
    IF Verification = true print "Account Verified, you can now log in"
    Else print "Cannot Login until account is verified"
Else print "Enter Details Again"
Account Created
```

7.3. Forget Password

```
Start
Select Client or Caregiver
Enter Username
Enter Email Address
IF Email exists.
    Send Change Password link to user on Email
    Print "A link has been set to your email, use that to reset password"
Else
    Print "User Does not exist"
Redirect to Login Page
```

7.4. Change Password

```
Start
Enter Current Password
Click Send link button
If (any field is null)
    Print "Kindly Fill All Fields"
Else
    Submit
Link sent on Email
```

7.5. Caregiver Survey

```
Start
Enter Valid CNIC
Enter Address
Enter Valid Postal Code
Enter Experience
Select PDF of certificates
if (pdf is null)
    Print "Please select a pdf to continue"

Select PDF of CNIC
if (pdf is null)
    Print "Please select a pdf to continue"
Submit
Print "Your application has been received, please wait for admin approval"
```

7.6.Gig Setup

Start
Enter preferred client gender
Enter description of what you can offer
Set preferred Gig
Set preferred timings
Select PDF of certificates
Select preferred rate
submit

7.7.Edit Profile

Start
Enter Changed Phone No.
Enter Changed Address
Enter Changed Postal Code
submit
If (any field is null)
 Print “Kindly Enter”
Else
 Submit

7.8.Report Issue (Client)

Start
Enter Title
Enter Description & CG ID
submit
If (any field is null)
 Print “Kindly Fill All Fields”
Else
 Submit

7.9. Report Issue (Caregiver)

```
Start
Enter Title
Enter Description & Client ID
submit
If (any field is null)
    Print "Kindly Fill All Fields"
Else
    Submit
```

7.10. Send Promotional Notification (Admin)

```
Start
Enter Title
Enter Message
submit
If (any field is null)
    Print "Kindly Fill All Fields"
Else
    Submit
Notification sent to all devices
```

7.11. Change Caregiver Status (Admin)

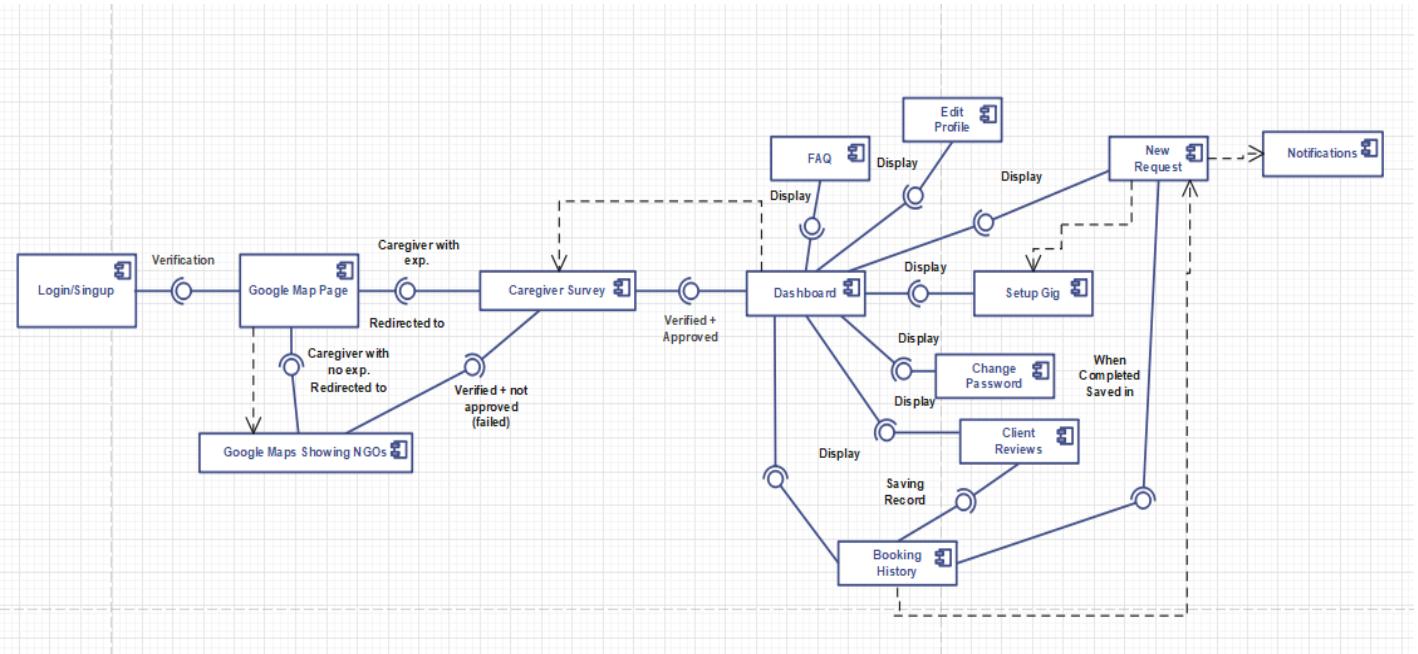
```
Start
View details
If (details are ok)
    approve
Else (Reject)
```

7.12. Change Client Status (Admin)

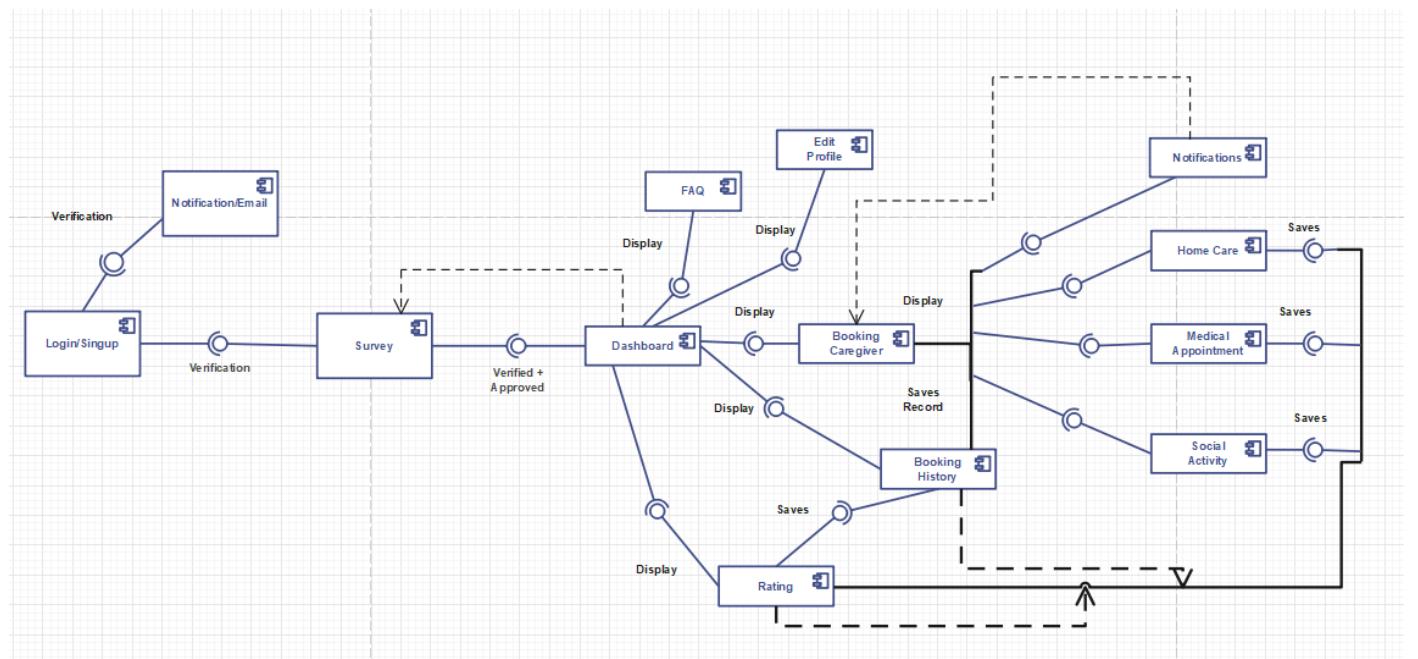
```
Start
View details
If (details are ok)
    approve
Else (Reject)
```

8. Appendices

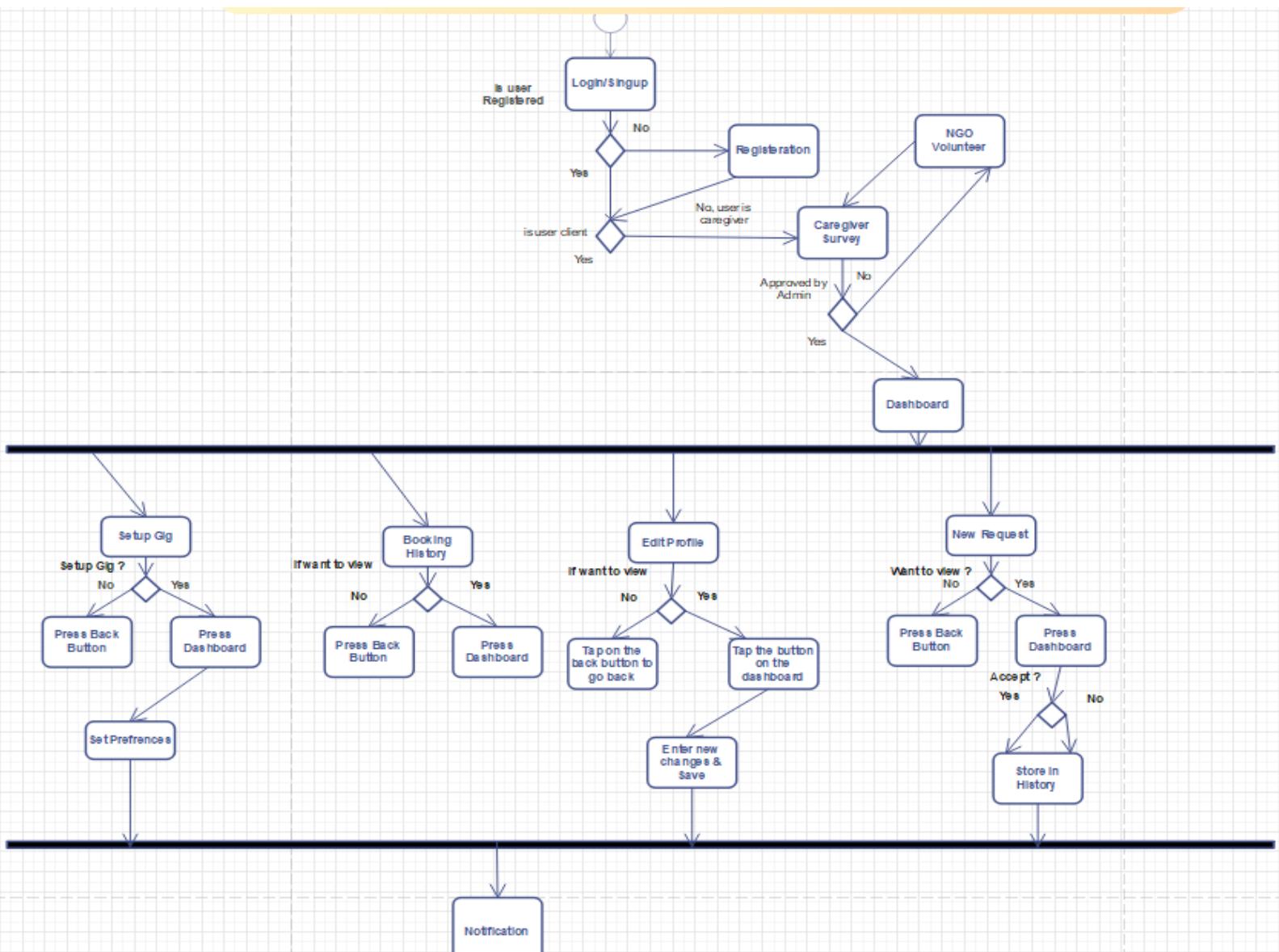
8.1. Component Diagram (Caregiver)



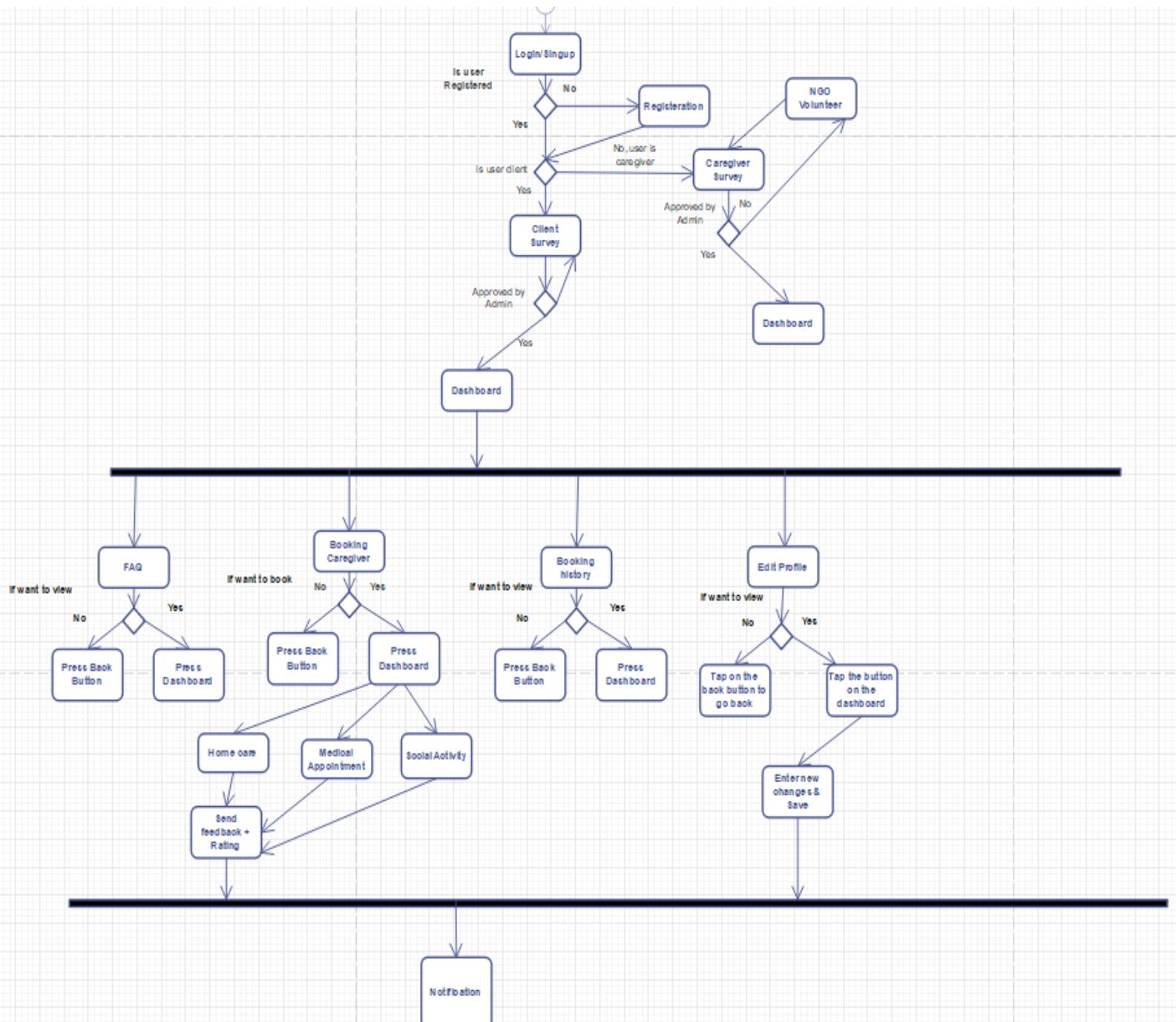
8.2. Component Diagram (Client)



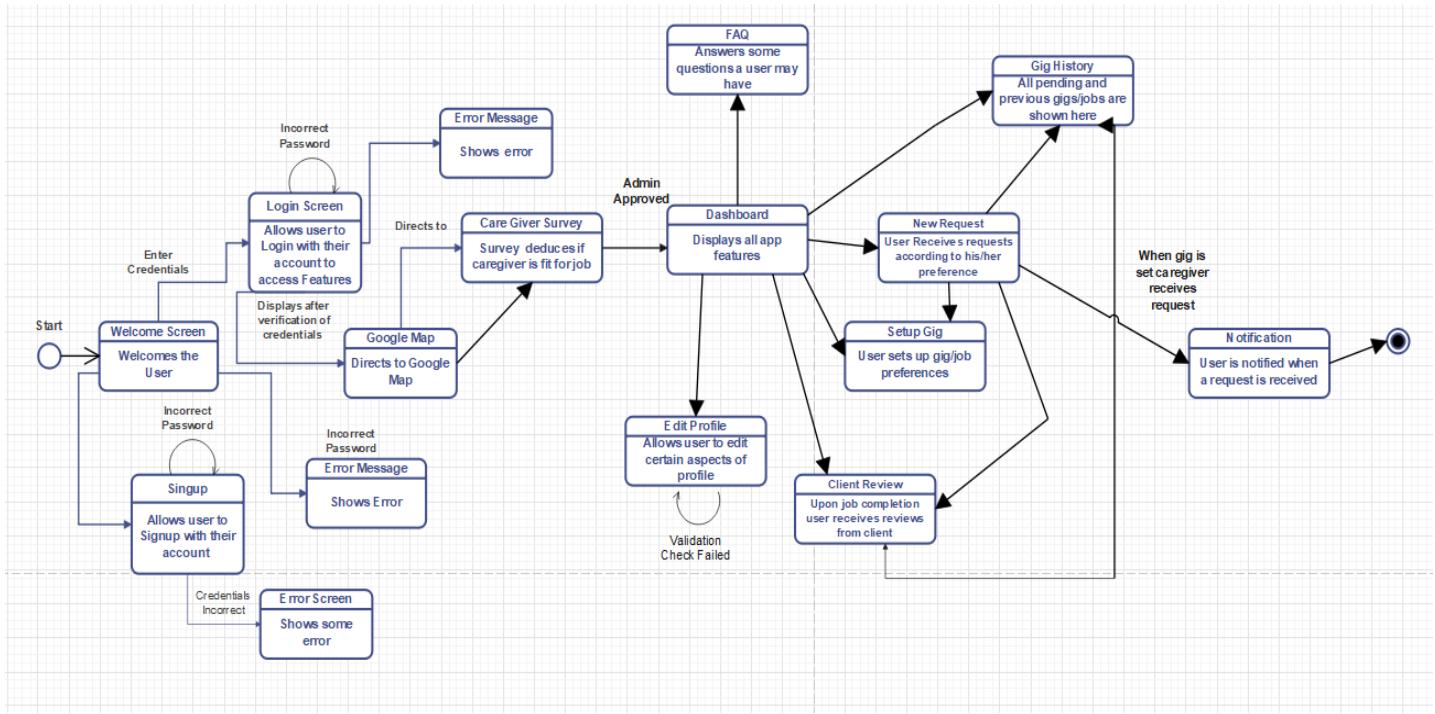
8.3. Activity Diagram (Caregiver)



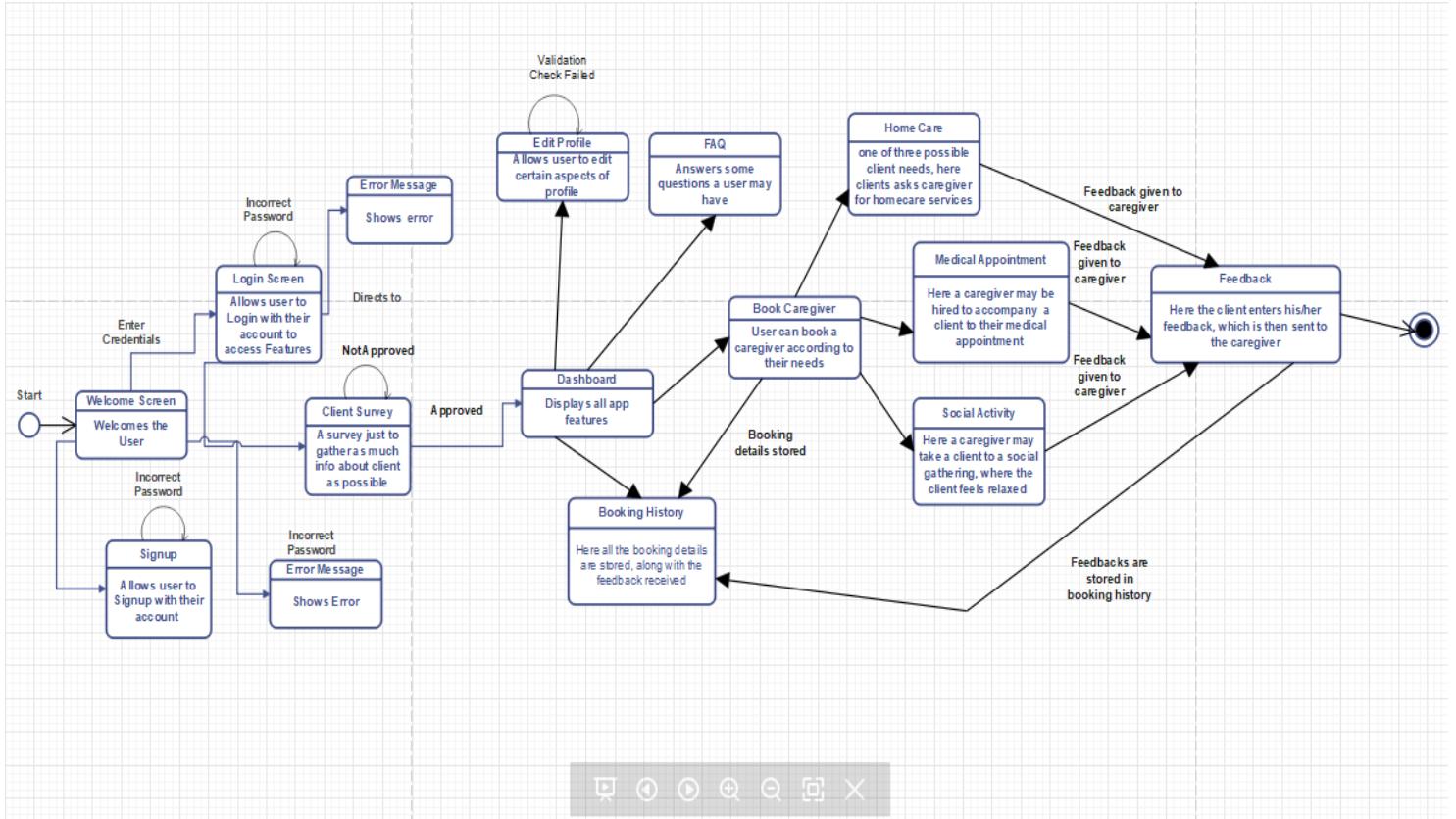
8.4. Activity Diagram (Client)



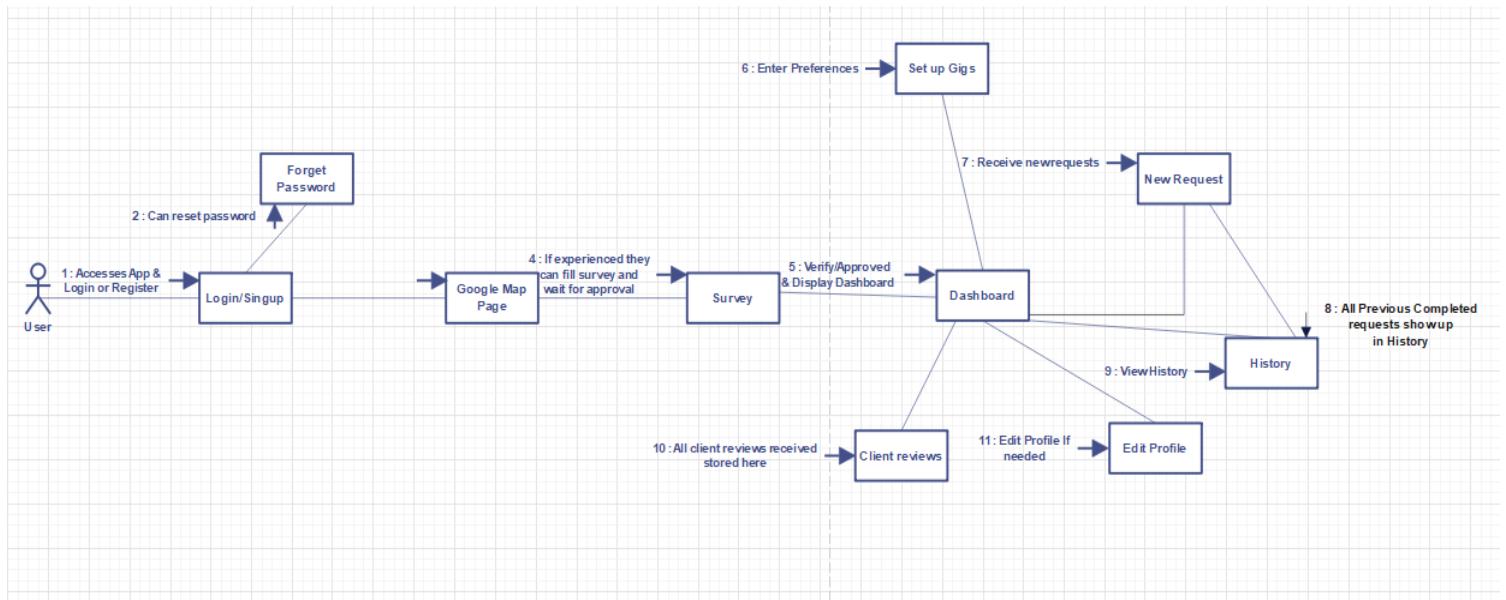
8.5. Statechart Diagram (Caregiver)



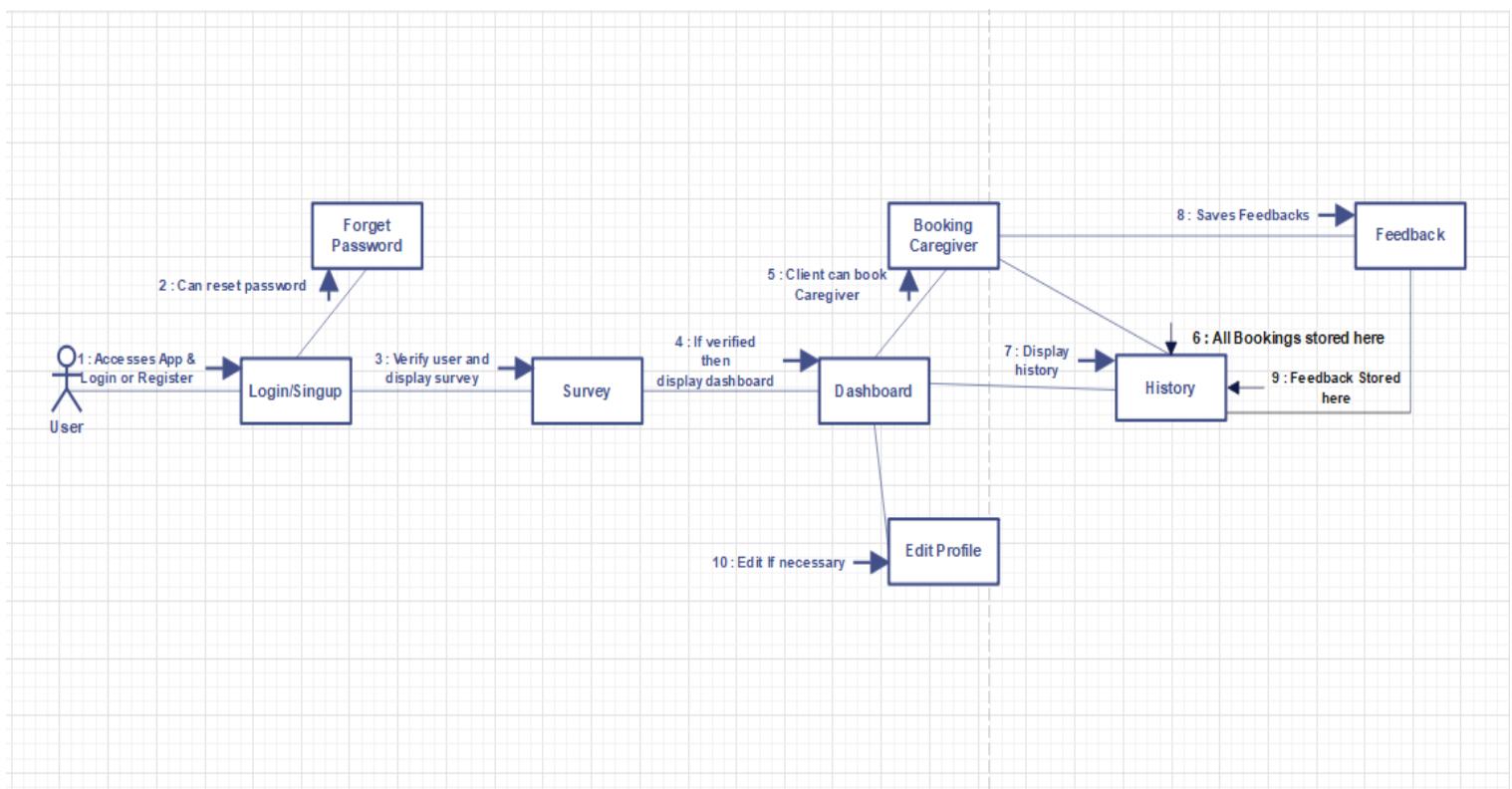
8.6. Statechart Diagram (Client)



8.7. Collaboration Diagram (Caregiver)

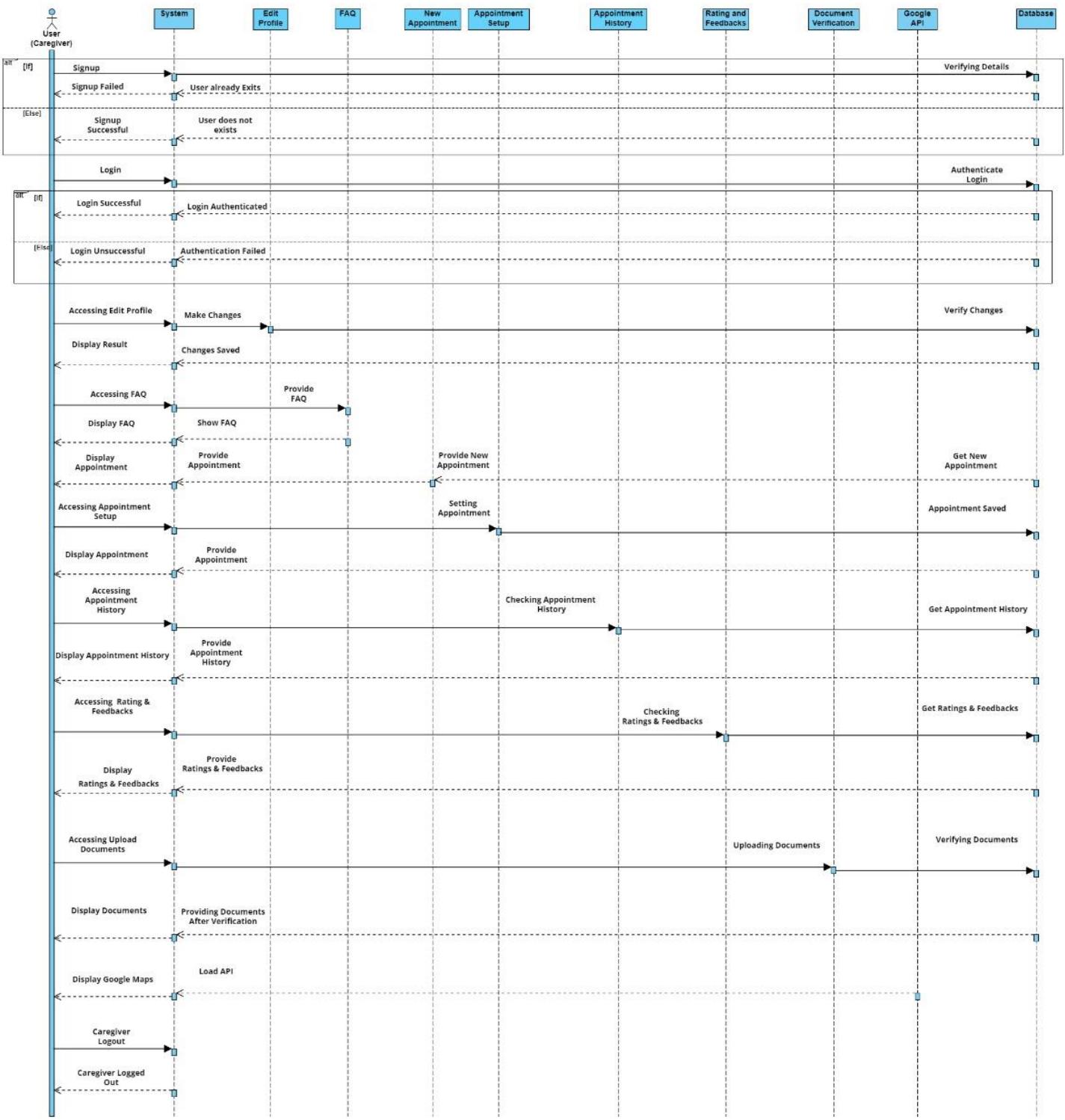


8.8. Collaboration Diagram (Client)



8.9. Sequence Diagram (Caregiver)

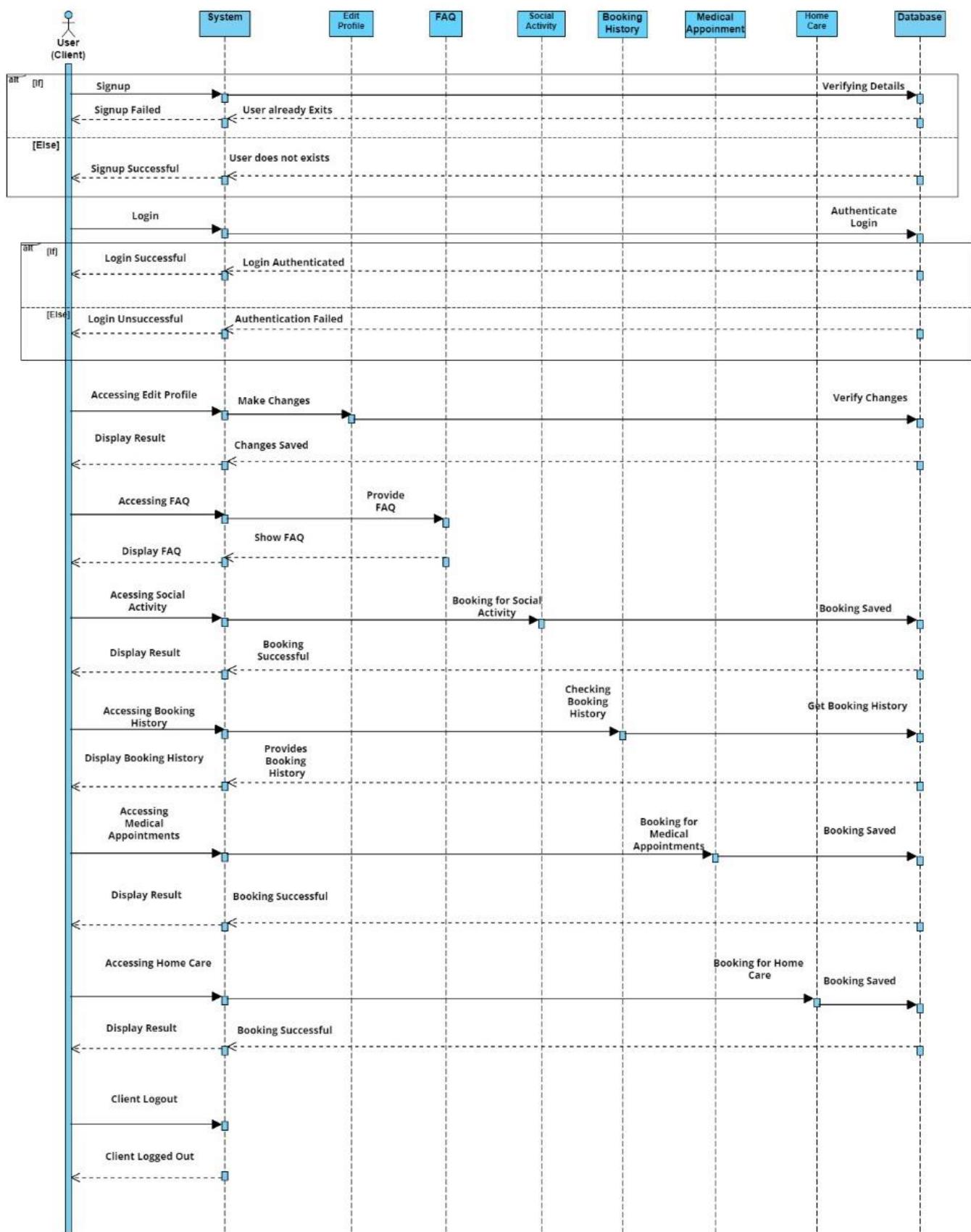
Visual Paradigm Online Free Edition



Visual Paradigm Online Free Edition

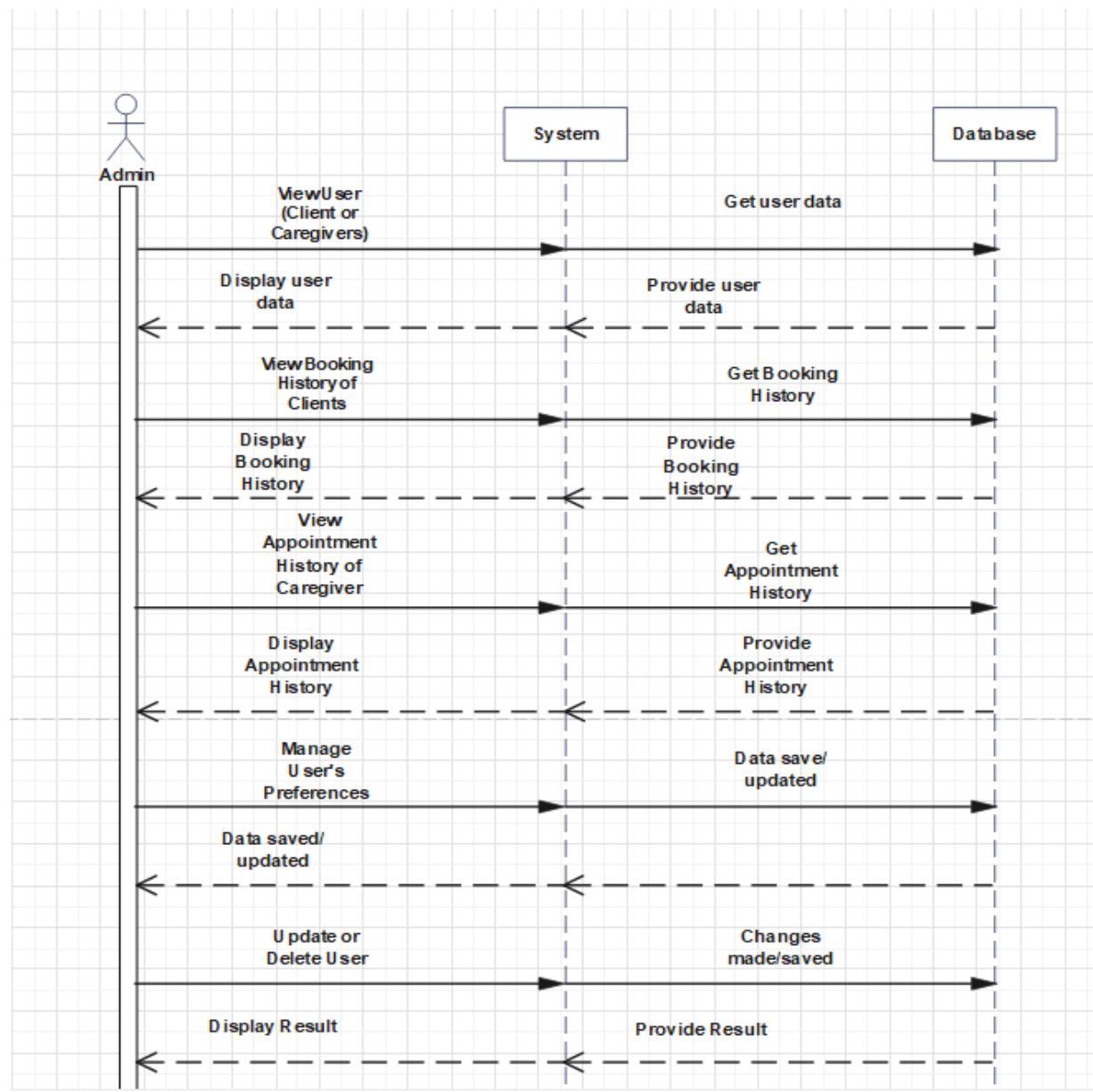
8.10. Sequence Diagram (Client)

Visual Paradigm Online Free Edition

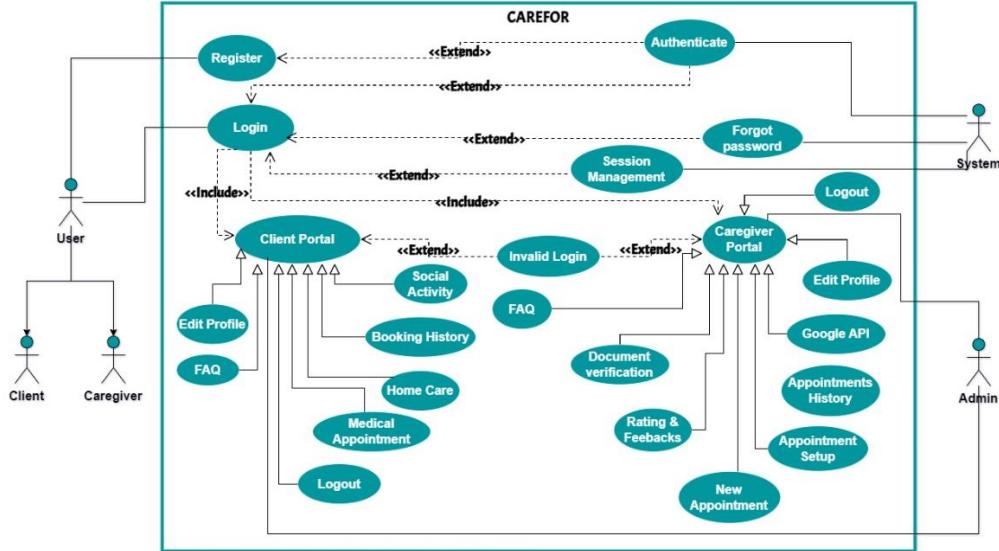


Visual Paradigm Online Free Edition

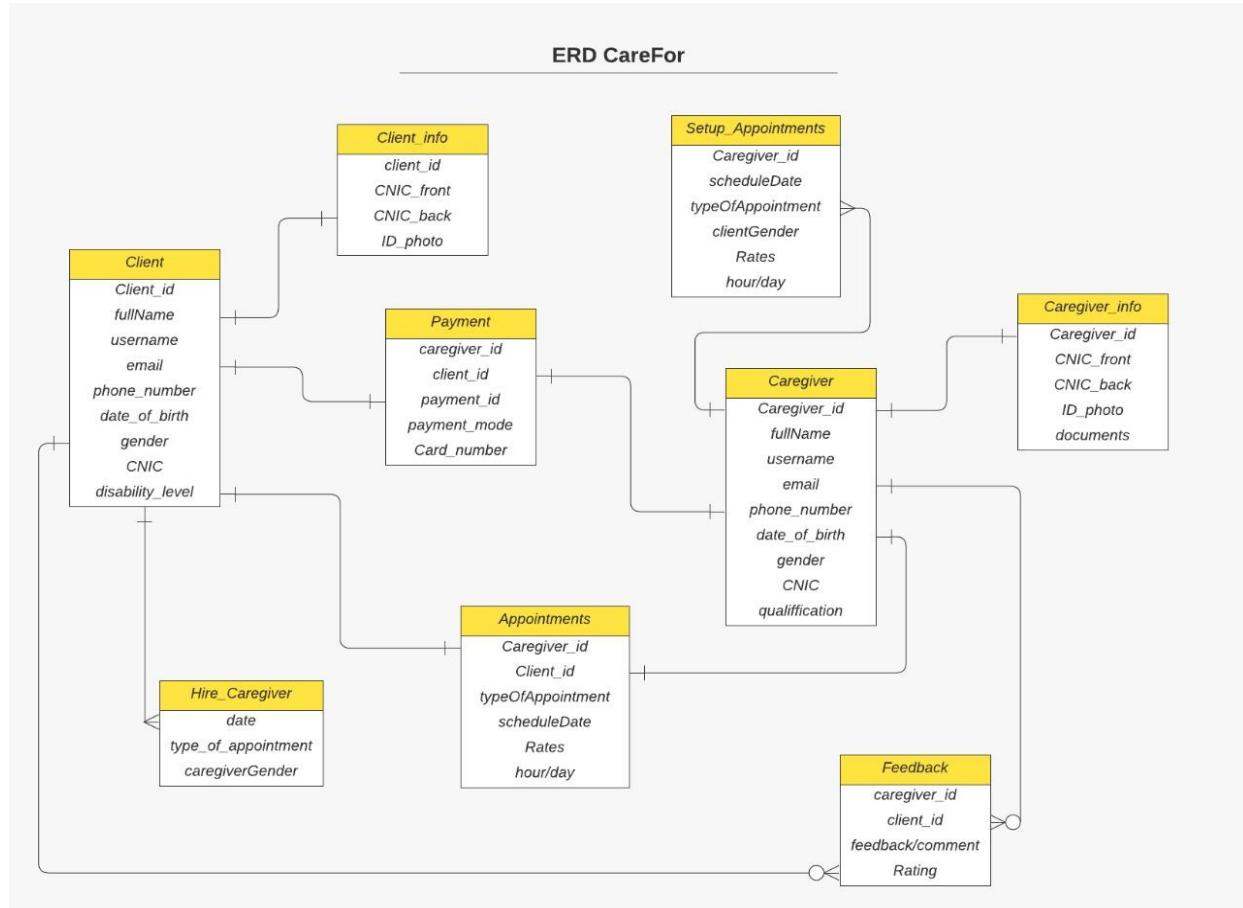
8.11. Sequence Diagram (Admin)



8.12. Use Case Diagram



8.13. ERD Diagram



Testing Plan

Test Cases

1. General (Same For All)

LOGIN

Test Scenario ID	Login-1		Test Case ID	Login-1A		
Test Case Description	Login – Positive test case			Test Priority	High	
Pre-Requisite	A valid user account, Active Internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Enter correct Username & Password, then press login button	Username : test Password: *****	Login success	Login success	Pass	Login successful

Test Scenario ID	Login-1		Test Case ID	Login-1B		
Test Case Description	Login – Negative test case			Test Priority	High	
Pre-Requisite	A valid user account, Active internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Press login button, keeping Username and Password field empty	Username : (empty) Password: (empty)	Kindly enter Username	Kindly enter Username	pass	Invalid login attempt stopped.
3	Enter only Username, then press login button	Username : test Password: (empty)	Kindly enter password as well.	Kindly enter password as well.	pass	Invalid login attempt stopped.
4	Enter only password, then press login button	Username : (empty) Password: *****	Kindly enter Username	Kindly enter Username	pass	Invalid login attempt stopped.
5	Enter invalid Username & Password, then press login button	Username : invalid Password: *****	User Account does not exist	User Account does not exist	Pass	Invalid login attempt stopped.
6	Enter valid Username & incorrect Password and press login button	Username : valid Password: *****	Password is incorrect	Password is incorrect	Pass	Invalid login attempt stopped.

FORGET PASSWORD

Test Scenario ID		Forget Password -1		Test Case ID	Forget Password-1A	
Test Case Description		Forget Password – Positive test case		Test Priority	High	
Pre-Requisite		A valid user account, Active Internet Connection		Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor) with valid internet connection.	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Navigate to Forget Password page	Click ‘Forgot Password?’ text on Login Page	Recover Password Page opens	Recover Password Page opens	Pass	Page opens successfully
3	Enter correct Username and Email Address	Username: test Email: test@xyz.com	New Password has been sent to your Email	New Password has been sent to your Email	Pass	Password Recovered

Test Scenario ID		Forget Password -1		Test Case ID	Forget Password-1B	
Test Case Description		Forget Password – Negative test case		Test Priority	High	
Pre-Requisite		A valid user account, Active Internet Connection		Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Navigate to Forget Password page	Click ‘Forgot Password?’ text on Login Page	Recover Password Page opens	Recover Password Page opens	Pass	Page opens successfully
3	Press recover button, keeping Username and Email Address field empty	Username: (empty) Email: (empty)	Kindly enter Username	Kindly enter Username	Pass	Invalid recovery attempt stopped
4	Press recover button, keeping only Email Address field empty	Username: test Email: (empty)	Kindly enter Email Address	Kindly enter Email Address	Pass	Invalid recovery attempt stopped
5	Press recover button, keeping only Username field empty	Username: (empty) Email: test@xyz.com	Kindly enter Username	Kindly enter Username	Pass	Invalid recovery attempt stopped
6	Enter invalid Username and Email Address	Username: Invalid Email: Invalid@xyz.com	Account does not exist	Account does not exist	pass	Invalid recovery attempt stopped
7	Enter valid username and invalid Email Address	Username: test Email: invalid@xyz.com	Email Address does not match with User	Email Address does not match with User	pass	Invalid recovery attempt stopped
8	Enter valid Username and Email Address without active internet connection	Username: test Email: test@xyz.com	Active Internet Connection required to use application	Active Internet Connection required to use application	pass	Invalid recovery attempt stopped

SIGNUP

Test Scenario ID	Signup-1		Test Case ID	Signup-1A		
Test Case Description	Signup – Positive test case			Test Priority	High	
Pre-Requisite	Active Internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Select either Caregiver or Client then, enter correct Username, Fullname, Password, Email, Phone Number, DOB, & Password then press signup button	Full Name: test Username : test121 Email: test@xyz.com Phone: 03xx-xxxxxxx DOB: x/y/z Password: ***** Confirm Password: *****	Sign up successful, please verify email	Sign up successful, please verify email	Pass	Signup successful

Test Scenario ID	Signup-1			Test Case ID	Signup-1B	
Test Case Description	Signup – Negative test case			Test Priority	High	
Pre-Requisite	Active Internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Select either Caregiver or Client then, enter Username, Full name, Invalid Email, Phone Number, DOB, Password & Confirm Password then press signup button	Full Name: test Username : test121 Email: test@invalid Phone: 03xx-xxxxxxx DOB: x/y/z Password: ***** Confirm Password: *****	Email not valid	Email not valid	Pass	Invalid Signup stopped.
3	Select either Caregiver or Client then, enter Username, Full name, Email, invalid Phone Number, DOB, & Password then press signup button	Full Name: test Username : test121 Email: test@xyz.com Phone: Invalid format DOB: x/y/z Password: ***** Confirm Password: *****	Phone number not valid	Phone number not valid	pass	Invalid Signup stopped.
	Select either Caregiver or Client then, enter Username, Full name, Email, Phone Number, DOB, with Password and Confirm = not equal press signup button	Full Name: test Username : test121 Email: test@xyz.com Phone: 03xx-xxxxxxx DOB: x/y/z Password: ***** Confirm Password: *****	Passwords do not match	Passwords do not match	pass	Invalid Signup stopped.

2. Caregiver

Caregiver Survey

Test Scenario ID	Caregiver Survey-1			Test Case ID	Caregiver Survey -1A	
Test Case Description	Caregiver Survey – Positive test case			Test Priority	High	
Pre-Requisite	Active Internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor) And login	Open Phone and navigate to application whereabouts	CareFor Application starts, login successful	CareFor Application starts, login successful	Pass	Launch and login successful
2	Enter Valid CNIC, Enter Address, Enter Valid Postal Code, Enter Experience, Select CNIC and Experience Certificate PDFs	CNIC: xxxx-xxxxxx-x Address: xyz Postal Code: xxxx Experience: xyz CNIC pdf: Doc.pdf Exp pdf: Doc.pdf	Application received. Waiting for admin approval	Application received. Waiting for admin approval	Pass	Survey successfully submitted.

Test Scenario ID	Caregiver Survey-1		Test Case ID	Caregiver Survey -1A		
Test Case Description	Caregiver Survey – Negative test case			Test Priority	High	
Pre-Requisite	Active Internet Connection			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor)	Open Phone and navigate to application whereabouts	CareFor Application starts	CareFor Application starts	Pass	Launch successful
2	Enter all required details but with invalid CNIC	CNIC: "Invalid" Address: xyz Postal Code:xxxxx Experience: xyz CNIC pdf: Doc.pdf Exp pdf: Doc.pdf	Please Enter Valid CNIC	Please Enter Valid CNIC	Pass	Invalid submission stopped.
3	Enter all required details but with invalid Postal code	CNIC: xxxxx-xxxxxxxx-x Address: xyz Postal Code:xxxxxxxxx Experience: xyz CNIC pdf: Doc.pdf Exp pdf: Doc.pdf	Please enter valid postal code	Phone number not valid	pass	Invalid submission stopped.
4	Enter all required details without selecting PDF	CNIC: xxxxx-xxxxxxxx-x Address: xyz Postal Code:xxxxx Experience: xyz CNIC pdf: empty Exp pdf: empty	Please select a pdf file	Please select a pdf file	pass	Invalid submission stopped.

Caregiver Gig Setup

Test Scenario ID	Caregiver Gig Setup-1		Test Case ID	Caregiver Gig Setup -1A		
Test Case Description	Caregiver Gig Setup – Positive test case			Test Priority	High	
Pre-Requisite	Active Internet Connection, Approved Survey			Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor) And login to enter dashboard	Open Phone and navigate to application whereabouts	CareFor Application starts, login successful	CareFor Application starts, login successful	Pass	Launch and login successful. Dashboard opened.
2	Open Set up Gig page	Press Gig setup icon on dashboard	Screen opens	Screen opens	Pass	Gig set up paged opened
3	Enter preferred Client Gender, Enter Description Enter Preferred Gig Enter Preferred Timings Enter preferred Rate	Gender: Male/Female Description: xyz Gig: Home Care Timings: Day-time Rate: 550pk	Gig Setup Successful	Gig Setup Successful	Pass	Preferences successfully submitted.

Test Scenario ID		Caregiver Gig Setup-1		Test Case ID	Caregiver Gig Setup -1A	
Test Case Description		Caregiver Gig Setup – Negative test case		Test Priority	High	
Pre-Requisite		Active Internet Connection, Approved Survey		Post-Requisite	NA	
S.No	Action	Inputs	Expected Output	Actual Output	Test Result	Test Comments
1	Launch application (CareFor) And login to enter dashboard	Open Phone and navigate to application whereabouts	CareFor Application starts, login successful	CareFor Application starts, login successful	Pass	Launch and login successful. Dashboard opened.
2	Enter all required details but keep description empty	Gender: Male/Female Description: “ “ Gig: Home Care Timings: Day-time Rate: 550pk	Please Enter description	Please Enter description	Pass	Invalid submission stopped.
3	Enter all required details but keep timings empty	Gender: Male/Female Description: xyz Gig: Home Care Timings: “ “ Rate: 550pk	Please enter timings	Please enter timings	pass	Invalid submission stopped.
4	Enter all required details but keep description empty	Gender: Male/Female Description: xyz Gig: Home Care Timings: Day-time Rate: “ “	Please enter rate	Please enter rate	pass	Invalid submission stopped.

User Manual

1. Introduction

1.1 Project Scope

Our objective is to design and develop a user friendly android application, where trained individuals can provide a helping hand to families that have someone with special needs or an elder, according to their requirements, with the intent of increasing social interaction as well as fulfilling health related issues.

As mentioned before, when someone reaches a certain age, has some physical problems or is someone with special needs there comes a time where they have little or no interaction with the outside world or people with whom they feel normal. They are forced to spend their majority of their lives at home wondering what normality might feel like. This is where this application is useful, as it provides them some social activities as an alternative to their current way of spending their life, the application will also provide them options to opt for home care by trusted and experienced individuals who have worked with certain organizations to gain some experience or have a medical background. This application can also be considered as another source of income for caregivers (service providers) which will most certainly help them tackle the current inflation crisis. Hence, this application not only provides a source of happiness balanced with medical health for people with certain medical conditions but also is another source of income for people with medical experience that are currently hired in low earning jobs. All they have to do is signup and we have a plan for them, keeping data integrity & security in mind, their records will be stored in our database. We have made sure to implement validation and authentication checks to reduce inconsistency.

Our application focuses on the social interaction of people with special needs or those who require health care due to old age because when there is something restricting someone they are usually stuck at home with almost zero interaction with the outside world. Our application will not only offer them medical care but will provide them the option to perform social activities, whether it be visits to some organizations or a normal outing session, with the help of trusted and trained individuals, hence the application will work as a social care app.

Application Interfaces Include:

- Splash Screen with Animation
- Interface for Login & Signup
- About us Page
- Interfaces for Profile Modification
- Interfaces for ‘Forget Password’ scenario
- Interface for Data Gathering for both Client and Caregiver
- Interface for Google Map Redirection
- Interfaces for Client Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Caregiver Booking
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Rate Caregiver
 - Cancel Booking
 - FAQs
- Interfaces for Care-giver Portal
 - Edit Profile
 - Change Password
 - Report Issue
 - Set up Appointments
 - New Appointments
 - Appointment History
 - Completed Appointments
 - Ongoing Appointments
 - Ratings Received.
 - Incoming Requests
- Interfaces for Admin Application
 - View Users
 - Caregiver Status Approval
 - Client Status Approval
 - Set Caregiver Dashboard Quote (Any famous quote/ promotional message)
 - Set Client Dashboard Quote (Any famous quote/ promotional message)
 - View NGO Partners
 - Manage Preferences
 - View Client Booking History
 - View Caregiver Appointment History
 - Send Notification to All Users
 - View User Issues

1.2 Authorized Use Permission

Our Intended Audience is our supervisor, Faculty, Team Members and Users

People who can use the application:

Only the registered admins, client and caregivers are authorized to access the applications. Any third party access is strictly not allowed.

2. System Summary

This section of the document provides overview and rationale of the program's data and architectural design of the product. General constraints that are applicable to the system and have impact on the system are discussed in the section hereunder. The data design and structure design of the system are also part of this section of the document.

2.1 Section Overview

The system will be built on industry standard, three tier mobile application, and the three tiers are: Data tier, Admin tier and application tier.

1. Data Tier: Firebase serves as a powerful data tier in mobile applications, providing a reliable and scalable solution for storing and managing app data. Acting as a cloud-based backend, Firebase seamlessly synchronizes and stores user data, enabling real-time updates and offline capabilities. Its NoSQL database allows for flexible data structures, making it easy to adapt to evolving app requirements.
2. Admin Tier: The admin has super user access through CareFor Admin Application, where he can view all the users stored in the database and their relevant details required.
3. Application Tier (User): App User will access the system through android application, the android application presents the user with activity forms and view of data stored in database server.

2.2 User Access Level

Users which have made account on application are able to use app and save data and operate other functions

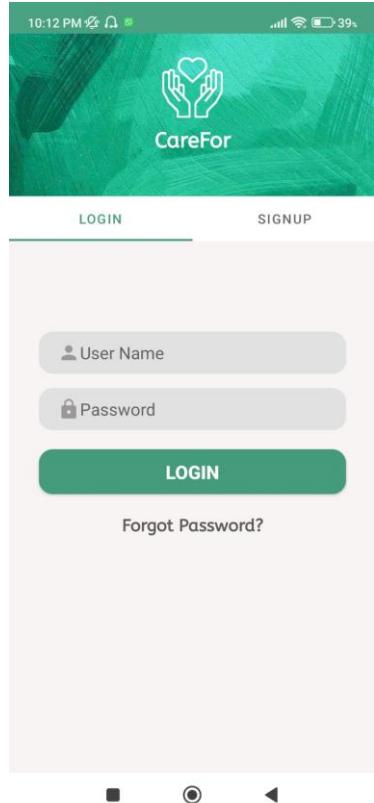
2.3 Contingencies

Regular backup should be performed, due to the fact that in the event of an emergency and/or accidents, stored data could become lost.

3. System Features Mobile Application (Admin)

3.1 Login

The Admin has to login to access the dashboard



Here the admin has to enter the credentials provided to him:

1. Username
2. Password

3.2 Dashboard

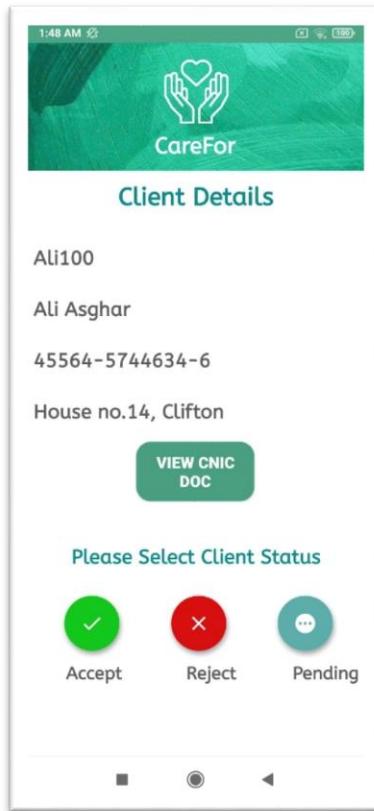
This is the dashboard where the admin can view and control each and everything.
Here the Admin can:



1. Status CG & Client: Check and approve Clients and Caregivers
2. Caregiver & Client: View Users (Client & Caregivers) and delete their account
3. NGOs: View List of partnered NGOs
4. User Issues: Here all the issues reported by the users are shown
5. Quotes: Check and update quotes for Client and Caregiver Dashboard
6. Bookings: View Booking history
7. Notification: Roll out promotional notifications to users.

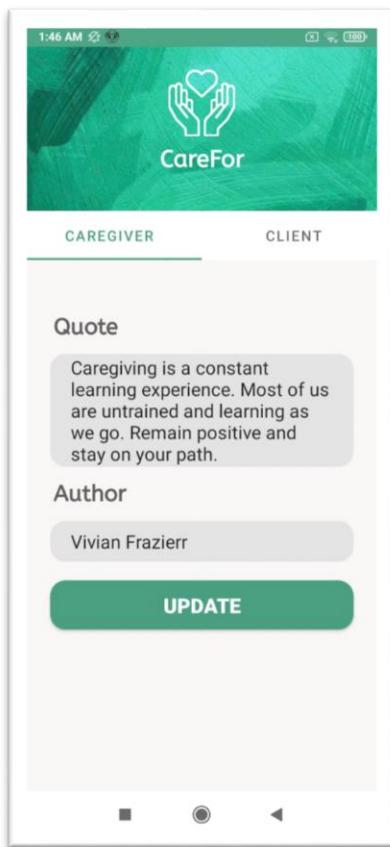
3.3 Client Approval

Here the admin views Client details and checks the document they have uploaded, if all is ok and matches the guidelines set then he approves their account otherwise, puts it in pending or rejects it.



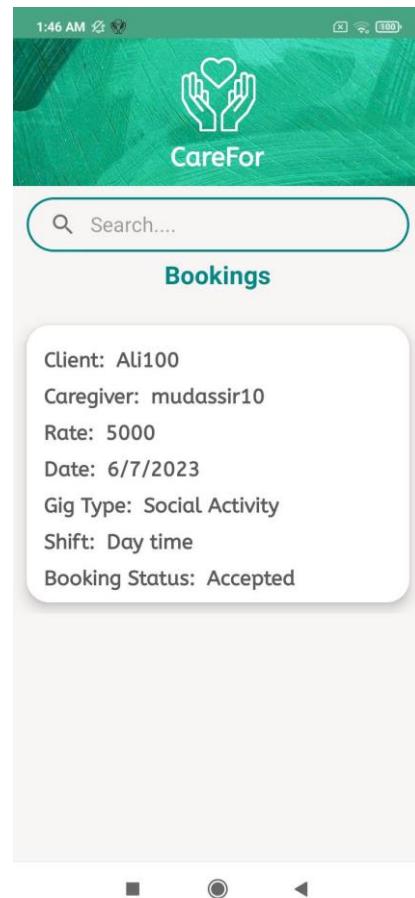
3.4 Quotes

Here the admin loads the screen to update quotes that can be seen on the Clients and Caregiver dashboards. They can be promotional, cultural based, motivational messages or any other that might put up a nice touch. The page runs on fragments, so just swipe to view the client quote.



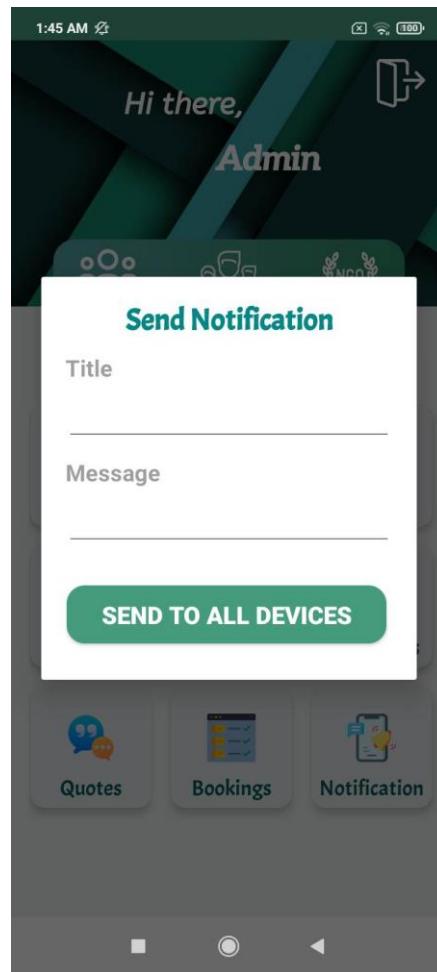
3.5 Booking History

All the bookings made using this application are shown here



3.6 Notification

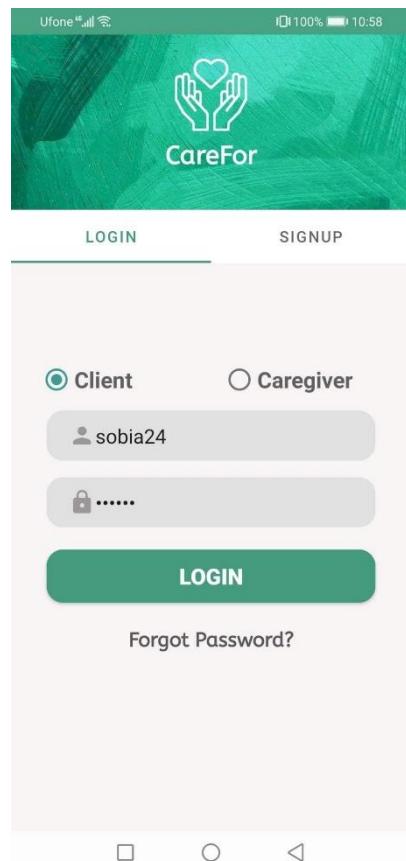
Here the admin can send promotional notifications, cultural messages or reminders to all users.



4. System Features Mobile Application (Client)

4.1 Login

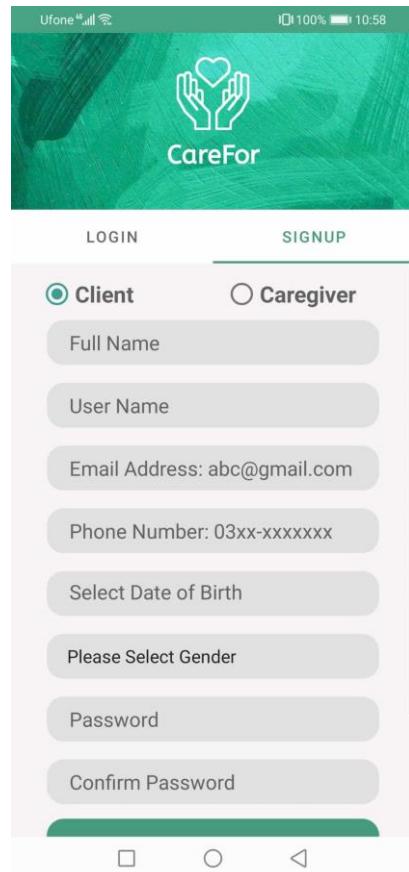
The Client or Caregiver can login to access the dashboard using Username and Password.



4.2 Signup

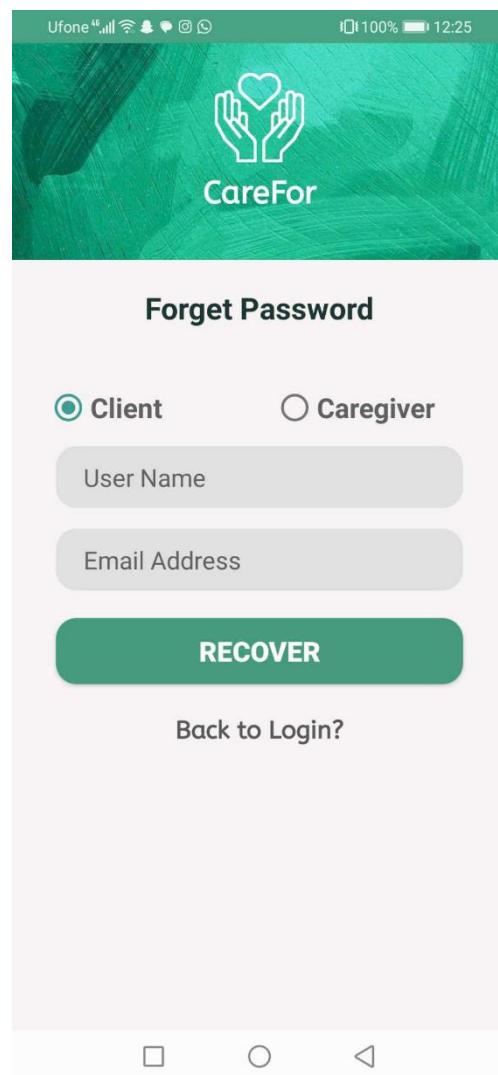
The Client or Caregiver can sign up by entering the following the details.

1. Full Name
2. Username
3. Email Address
4. Phone Number
5. Date of Birthday (Age > 18)
6. Gender
7. Password
8. Confirm Password



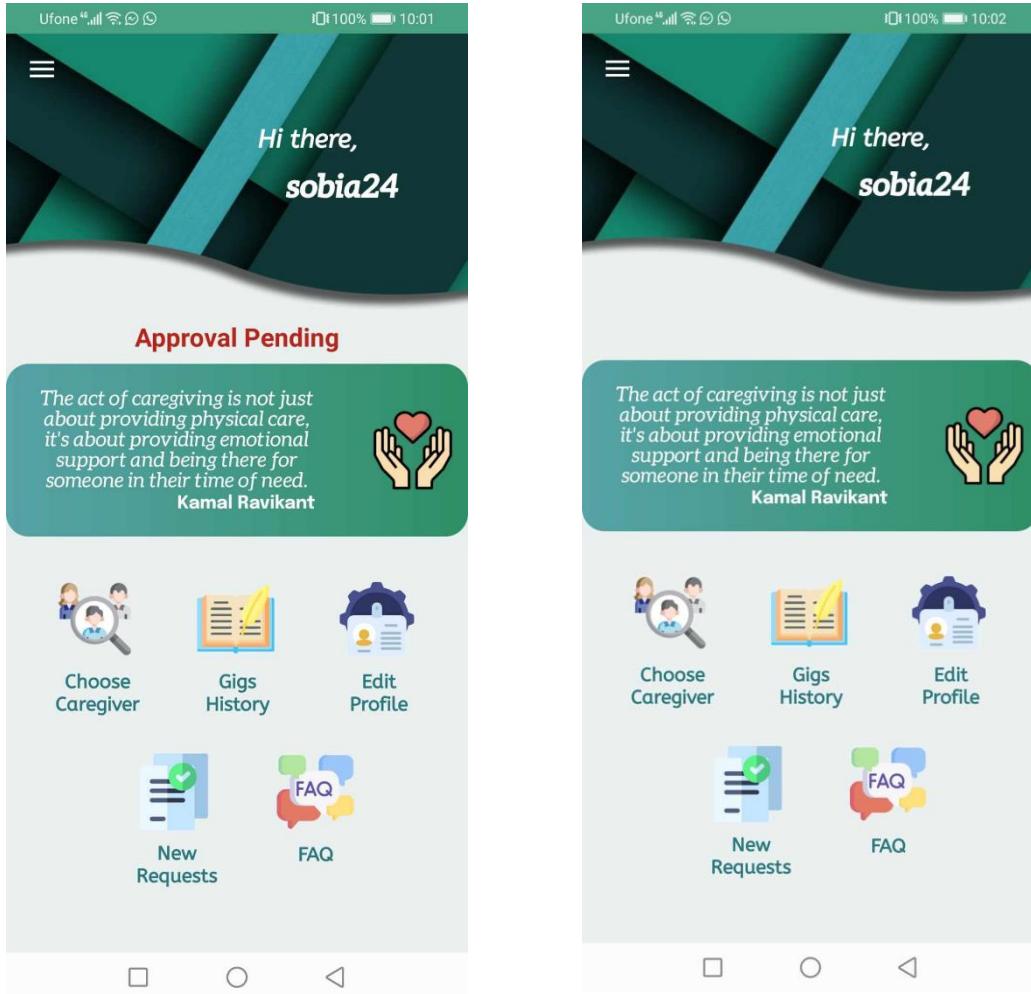
4.3 Forget Password

If Client or Caregiver forgets his/her password then they can reset it by entering Username and Email Address, a reset password link will be sent to Client's account if username and Email matches in the database.



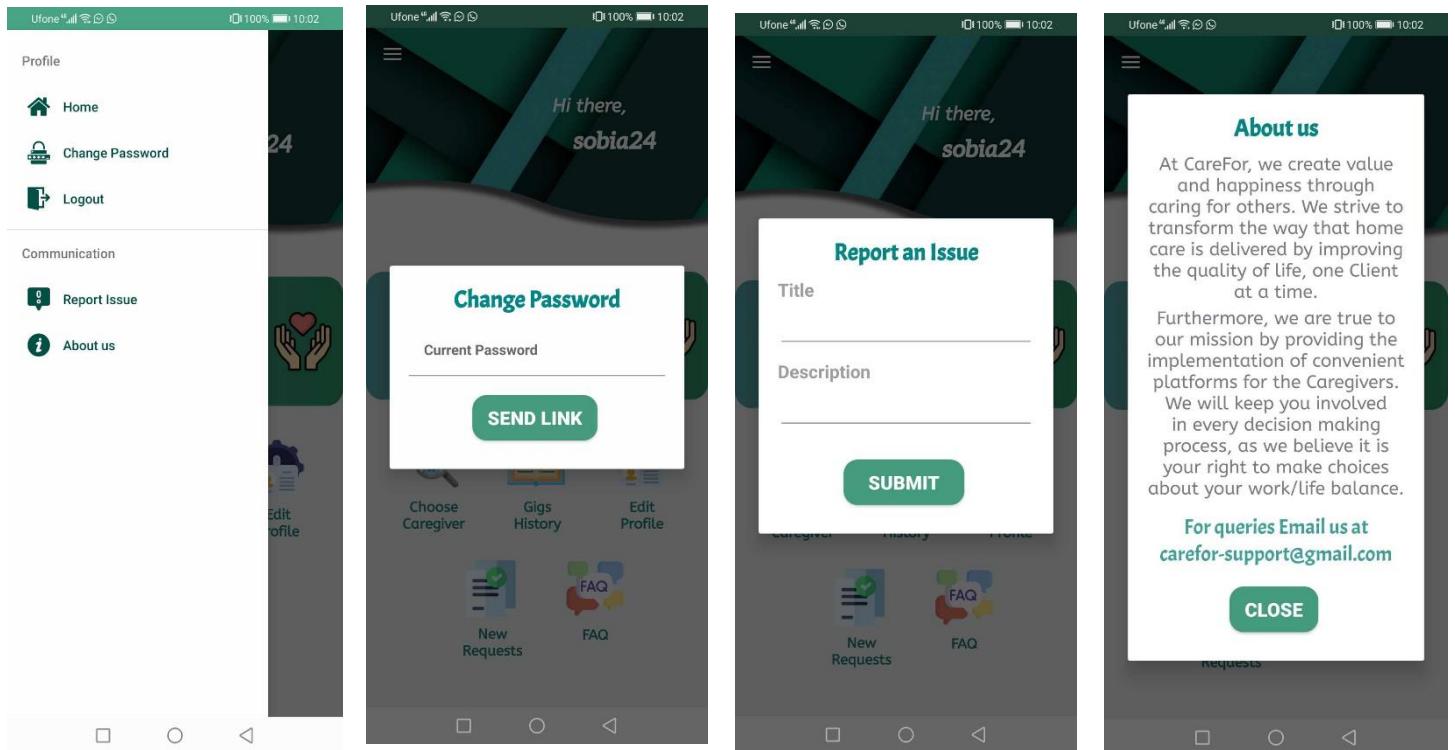
4.4 Dashboard

The Client (user) can access dashboard once Admin approves the account, else Dashboard will be locked and **Approval pending** will be shown to users.



4.5 Navigation Bar

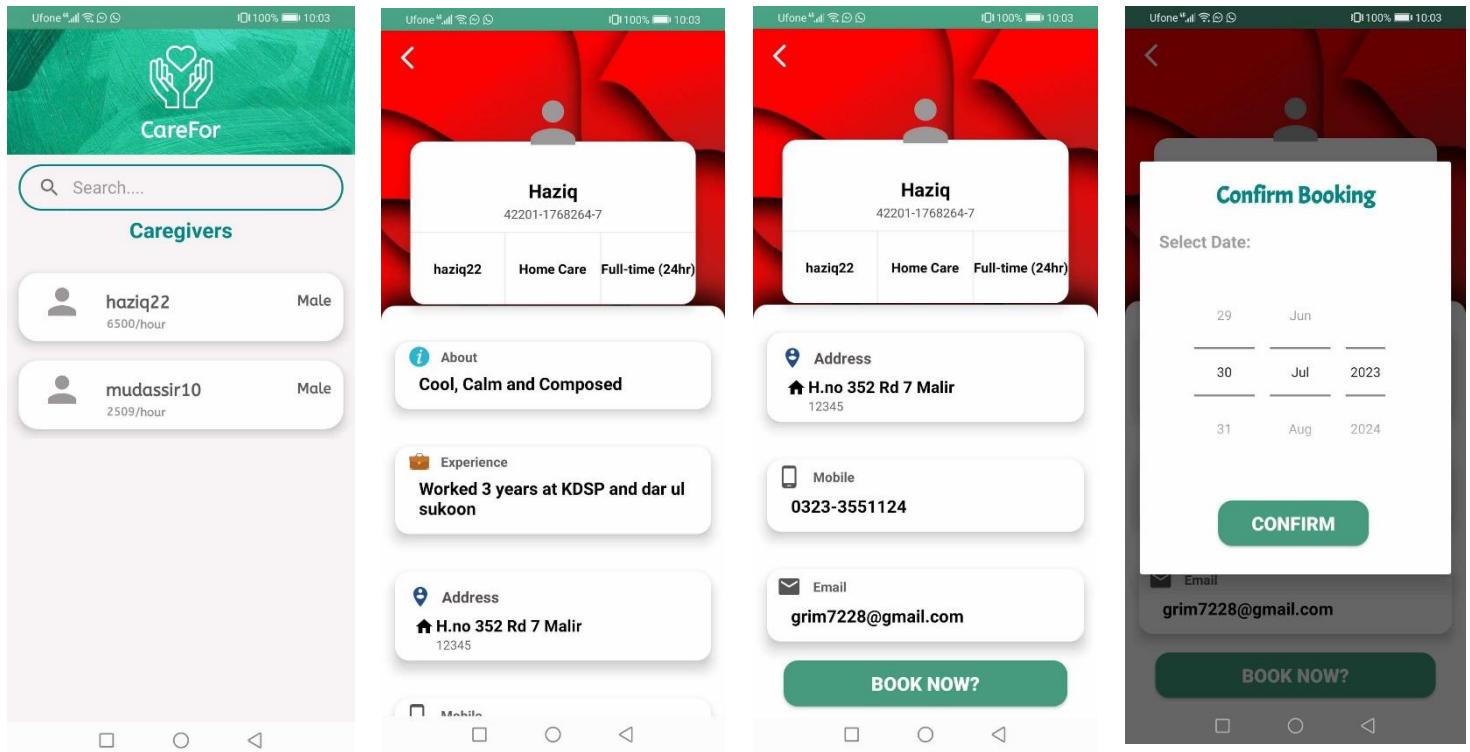
The Client (user) can access Navigation Bar and will be able to Report Issue, Read About us, Change Password, Return to Home Screen (Client Dashboard) and Log out. For reporting an issue, the user needs to write down the Title and describe it



4.6 Caregiver Profile + Booking Date

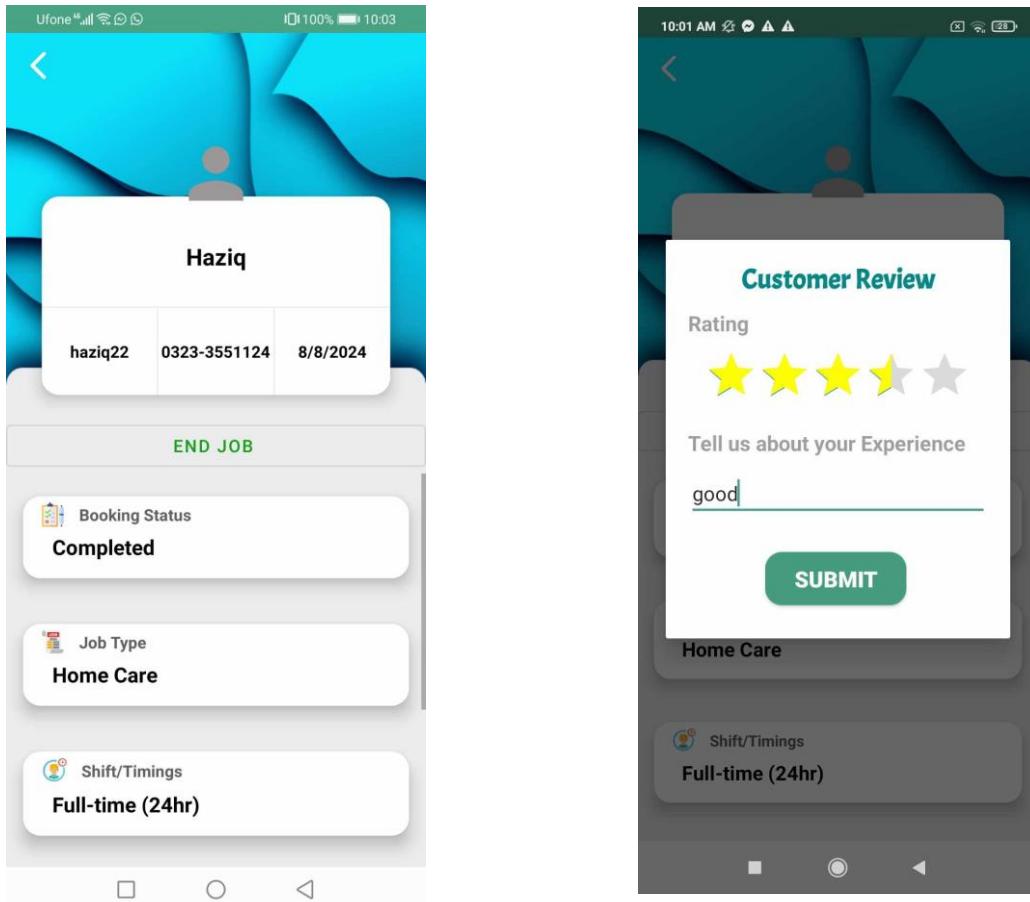
Here we can see the list of caregivers that show up when we want to book one, their profile and confirm booking screen.

So the user has to first go on “Choose Caregiver” where they will be shown a list of caregivers from there the user has to select one view their profile and book them for a particular date.



4.7 End Job

Once the caregiver has successfully completed their job and the client is fully satisfied, with the shift time being over, in CareFor the client has the right to end the job to avoid misuse. After the ‘End Job’ button is pressed, the booking status is changed from ‘ongoing’ to ‘Completed’ and saved in the database in the booking node with the Customer Review, which can be viewed by the Admin on the other application.



5. System Features Mobile Application (Caregiver)

5.1 Dashboard

The Caregiver dashboard:

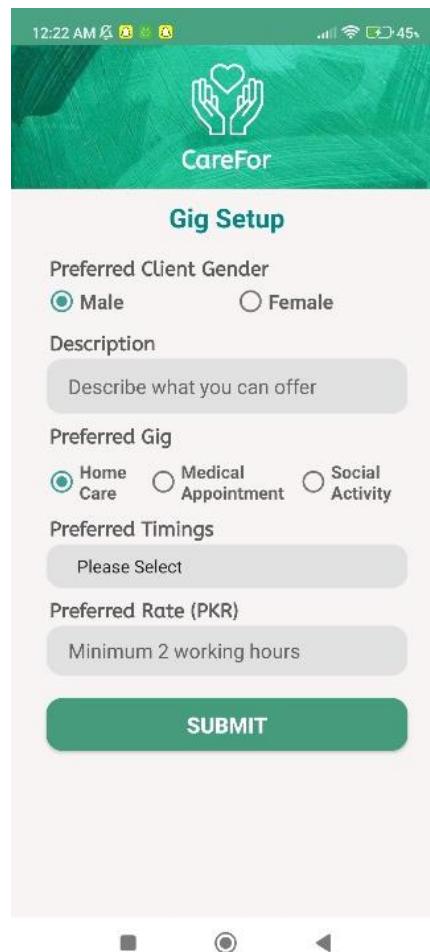


Here the Caregiver can:

1. Gigi Setup: Set up their job preferences
2. Gig History: View all completed jobs
3. Edit Profile: Edit their profile details
4. Client Reviews: View what reviews they have received (all reviews will be anonymous)
5. New Request: Incoming job offers/requests are stored here
6. FAQs: Can view all questions related to their portal

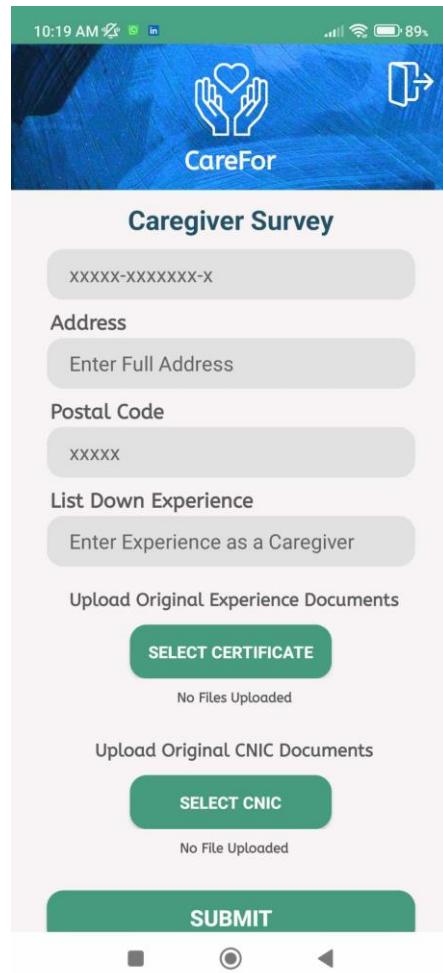
5.2 Gig Setup

Here the Caregiver sets their personalized jobs for future offers.



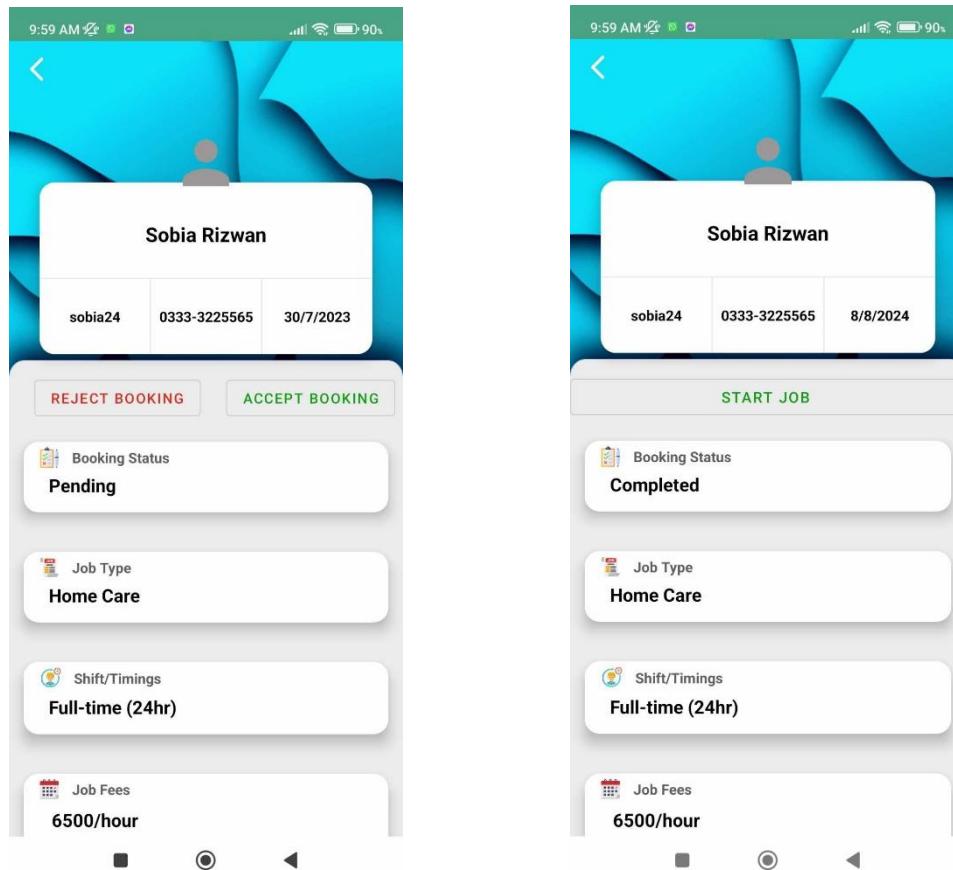
5.3 Survey

Before being able to view the dashboard, the people applying as caregivers have to complete a small survey, and have to upload the required documents.



5.4 View Booking

Upon receiving a new request the Caregiver can view it and choose to either accept it or reject it. Once the job is accepted, the Caregiver has the option to start it.



6. Appendix A: Glossary

Assumption: A statement that is believed to be true in the absence of proof or definitive knowledge.

Actor: A person, software system, or hardware device that interacts with a system to achieve a useful goal. Also called a user role.

Architecture: The structure of a software-containing system, including the software and hardware components that make up the system.

Business rule: A policy, guideline, standard, or regulation that defines or constrains some aspect of the business.

Class: A set of objects described as having common properties and behaviors, which typically correspond to real-world items (persons, places, or things).

Class diagram: An analysis model that shows a set of system or problem domain classes and their relationships.

Constraint: A restriction that is imposed on the choices available to the developer for the design and construction of a product.

Context diagram: An analysis model that depicts a system at a high level of abstraction. The context diagram identifies objects outside the system that interact with it, but it shows nothing about the system's internal structure or behavior.

Data flow diagram: An analysis model that depicts the processes, data collections, and flows among them that characterize the behavior of a business process or of a software system.

Dependency: A reliance that a project has on an external factor, event, or group outside its control.

Elicitation, requirements: The process of identifying software or system requirements from various sources through interviews, workshops, workflow and task analysis, document analysis, and other mechanisms.

Feature: A set of logically related functional requirements that provides a capability to the user and enables the satisfaction of a business objective.

Functional requirement: A statement of a piece of required functionality or a behavior that a system will exhibit under specific conditions.

Nonfunctional requirement: A description of a property or characteristic that a software system must exhibit or a constraint that it must respect, other than an observable system behavior.

Post condition: A condition that describes the state of a system after a use case is successfully completed.

Precondition: A Condition that must be satisfied before a use case may begin.

Process: A sequence of activities performed for a given purpose.

Requirement: A statement of a customer need or objective, or of a condition or capability that a product must possess to satisfy such a need or objective.

Risk: Any real life condition or a requirement that could cause some loss or otherwise threaten the success of a project.

Scenario: A description of a specific interaction between a user and a system to accomplish some goal.

Scope: The portion of the ultimate product vision that the current project will address. The scope draws the boundary between what's in and what's out for the project. A scope is bound to change during the analysis and requirement gathering phase

Sequence diagram: An analysis model that shows the order in which messages pass in a system or the chronological sequence of steps that take place in an activity and the entities or classes involved in the activity.

Software development life cycle: A sequence of activities by which a software product is defined, designed, built, and verified.

Software requirements specification: A collection of the functional and nonfunctional requirements for a software product.

Specification, requirements: The process of documenting a system's requirements in a structured, shareable, and manageable form. Also, the product from this process.

System requirement: A top-level requirement for a product that contains multiple subsystems, which could be all-software or software and hardware. If these requirements are not met, the product will cause issues

Use case: A description of an interaction between an actor and a system that results in an outcome that provides value to the actor.

Use case diagram: An analysis model that identifies the actors who can interact with a system to accomplish valuable goals and the various use cases that each actor will perform.

User: A customer who will interact with a system either directly or indirectly (for example, using outputs from the system but not generating those outputs personally). Also called end user.

User requirement: Goals of a user that have to be taken account of.

Validation: The process of evaluating a work product to determine whether it satisfies customer requirements.

7. Plagiarism Certificate

This is to certify that, I am Ali Asghar Zaidi S/D/O Syed Abbas Mujtaba Zaidi, group leader of FYP under

Date: _____

Name of Group Leader: _____

Signature: _____

Name of Supervisor: _____

Designation: _____

Signature: _____

8. Plagiarism Report

Turnitin Originality Report

CAREFOR-_Final_Report.pdf by Anonymous

From SummerReports (Summer2023)



- Processed on 31-Jul-2023 11:03 PKT
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<https://www.coursehero.com/file/12623012/Requirements-Engineering/>

9. Student Log Form

FYP 1

 <p>SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE & TECHNOLOGY KARACHI CAMPUS</p>				
<u>Form IV: Student Log Form</u>				
Title: <u>CareFor</u>				
Supervisor: <u>Ms. Faria Jameel</u> Batch/Sec: <u>B</u> Group #: <u>88</u>				
Reg. # (Group members): <u>1912138</u> , <u>1912169</u>				
Cr.	Task Assigned	Due	Task Completed (S)	Date (S)/Sign.
1	Select project	13th Oct	Project finalized	<i>[Signature]</i> 13/10/2023
2	Research on project (contact NGOs and understand their life cycle)	16th Oct	Research completed	<i>[Signature]</i>
3	Prepare project proposal	25 Oct	Proposal completed	<i>[Signature]</i>
4	Start and plan SRS	1st Nov	Written work started	<i>[Signature]</i> 1/11/2023
5	Start development and complete Login/signup UI	7th NOV	Development started. Required screens completed	<i>[Signature]</i> 7/11/2023
6	finalize SRS and complete splash, login & signup coding	22nd Nov	SRS completed and revised. Login and signup coding completed	<i>[Signature]</i> 22/11/2023



SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

7	Plan SDS and start further development (Caregiver portal)	10th Dec	SDS started and development of caregiver survey initialized	<i>✓</i> 10/12
8	Start SDS diagrams and finalize caregiver survey	19th Dec	30% diagrams completed and caregiver survey completed	<i>✓</i>
9	Continue SDS work and start NGO redirection using orange maps.	22nd Dec	50% SDS completed along with NGO work.	<i>✓</i>
10	Finalize SDS and start caregiver dashboard	1st Jan/23	SDS completed, caregiver dashboard UI completed	<i>✓</i> 1/23
11	Caregiver gig set up coding to be completed	15th Jan	Caregiver gig setup, gig history and incoming gigs completed	<i>✓</i>
12	Revise SDS and SKS	21st Jan	Revised and changes made in diagrams	<i>✓</i>
13	complete edit profile function	26th Jan	Edit profile UI and coding completed	<i>✓</i>
14	Complete remaining dashboard functions	29th Jan	Completed with UI and coding	<i>✓</i>
15	Check the app for any bugs and make changes in SKS & SDS if necessary	30th Jan	Checked and completed	<i>✓</i> 30/1/23

Supervisor's Authentication (Completed report) *✓*

FYP Coordinator Authentication: *✓* 4-5-23

Dated: 30/1/23

Dated: 4-5-23

FYP 2:

 <p>SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE & TECHNOLOGY KARACHI CAMPUS</p>				
<u>Form IV: Student Log Form</u>				
Title: <u>CareFor</u>				
Supervisor: <u>Ms. Faria Jameel</u>		Batch/Sec: <u>B</u>	Group #: <u>88</u>	
Reg. # (Group members): <u>1912138</u> , <u>1912169</u>				
Sr.	Task Assigned	Due	Task Completed (S)	Date (S)/Sign.
1	Start planning admin portal/app	16th Feb	Planning and requirement gathering done	
2	Start development of admin app (complete dashboard UI)	20 th Feb	Dashboard UI completed and linked	
3	Work on admin approving caregivers	5th March	Admin approves caregivers, but error in DB.	
4	fix DB bugs, finalize caregiver booking and start Client approval	10th March	Bugs fixed, caregiver approval done, client approval UI made	
5	Create client approval UI and finish backend coding	14 th March	Both tasks completed	
6	Create client & caregiver detail and remove from DB	24 th March	task completed	



SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

7	Send notifications to all devices from Admin	28 th March	Notification sent but not to all but bugs.	<i>(Signature)</i>
8	Edit Client & Caregiver quotes	10 th April	task completed.	<i>(Signature)</i>
9	Complete Remaining Admin	22 nd April	task completed except those booking	<i>(Signature)</i>
10	Start Booking of caregivers	1 st May	Searching land request to hire Caregiver	<i>(Signature)</i>
11	Work on Accepting or rejecting client	12 th May	task completed but DB errors.	<i>(Signature)</i>
12	Fix errors, Start job as Caregiver	22 nd May	Connection b/w client/caregiver made by DB errors	<i>(Signature)</i>
13	Fix errors in Gig History	5 th June	New request, Gig History completed errors	<i>(Signature)</i>
14	Fix Gig history and add customer review	25 th June	task completed.	<i>(Signature)</i>
15	All remaining work completed, bugs etc	3 rd July	Task completed.	<i>(Signature)</i>

Supervisor's Authentication (Completed report): *(Signature)*

Dated: 7/7/23

FYP Coordinator Authentication: *(Signature)*

Dated: 31/7/23