

# CSE 2216 - Application Development Lab



## Project Report

LivingConnect

*DU\_CodeX\_Legends*

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# 1. Introduction

## 1.1 About the App

LivingConnect is a mobile application designed to simplify the process of finding and renting homes which integrates personalized filters, real-time map views, and an intuitive interface for seamless interaction between renters and property owners.

## 1.2 Motivation

Many of our friends came from different regions of Bangladesh and urgently needed rented accommodations in Dhaka. However, they faced significant challenges in finding suitable homes, especially as students. The process was often tedious and time-consuming, requiring them to visit multiple locations physically and rely on word-of-mouth recommendations to secure a place to stay.

To address this issue, we developed this app with the goal of simplifying the house-hunting process. Our solution integrates features such as area-based search, budget-based filtering, direct communication with house owners, and detailed property listings to make the experience more efficient and user-friendly.

Although the initial idea stemmed from our peers' struggles, we expanded the scope of our app to serve a wider audience. In addition to rental listings, we incorporated property buying and selling options, community center rentals, and essential home services such as painting, shifting, and repairs. Our aim was to create a comprehensive and elegant platform that not only resolves housing challenges for students but also caters to the broader needs of the community.

## 1.3 Features ( Bullet Points)

- **Interactive Map:** One can view available properties directly on the map.
- **Location-Based Property Search:** One can easily Filter Properties by area.
- **Property Details:** View Detailed information about homes
- **Direct Messaging:** Secure Communication between renters and owners
- **Custom Filters:** Search properties based on user-defined preferences.
- **Secure Payment Gateway:** Simplified rental payment solutions.

## 1.4 Tools, Technologies and Frameworks Used

1. **Frontend:** React Native (Expo Framework)
2. **Backend:** Node.js with MongoDB
3. **Maps:** React-Native Maps for location-based features

4. **API Integration:** Axios for data fetching
5. **UI Styling:** Tailwind CSS

## 1.5 Individual Responsibilities

### 1.5.1 Member 1: Md. Tauseef - Ur - Rahman

1. Database Design
2. Frontend Design of App
3. Data searching, Insertion and Deletion
4. Login and Signup page
5. Admin Panel
6. Maps Integration

### 1.5.2 Member 2: Tamzid Bin Tariq

1. Database Design for the Messaging part
2. Frontend and Backend of Calling
3. Frontend and Backend of Messaging part
4. Data Insertion
5. App Debugging

### 1.5.3 Member 3: Md. Ashraful Alam

1. Database Design
2. Maps Integration
3. Payment Method Integration
4. Frontend Design
5. App Debugging

### 1.5.4 Member 4: Sumaiya Tabassum

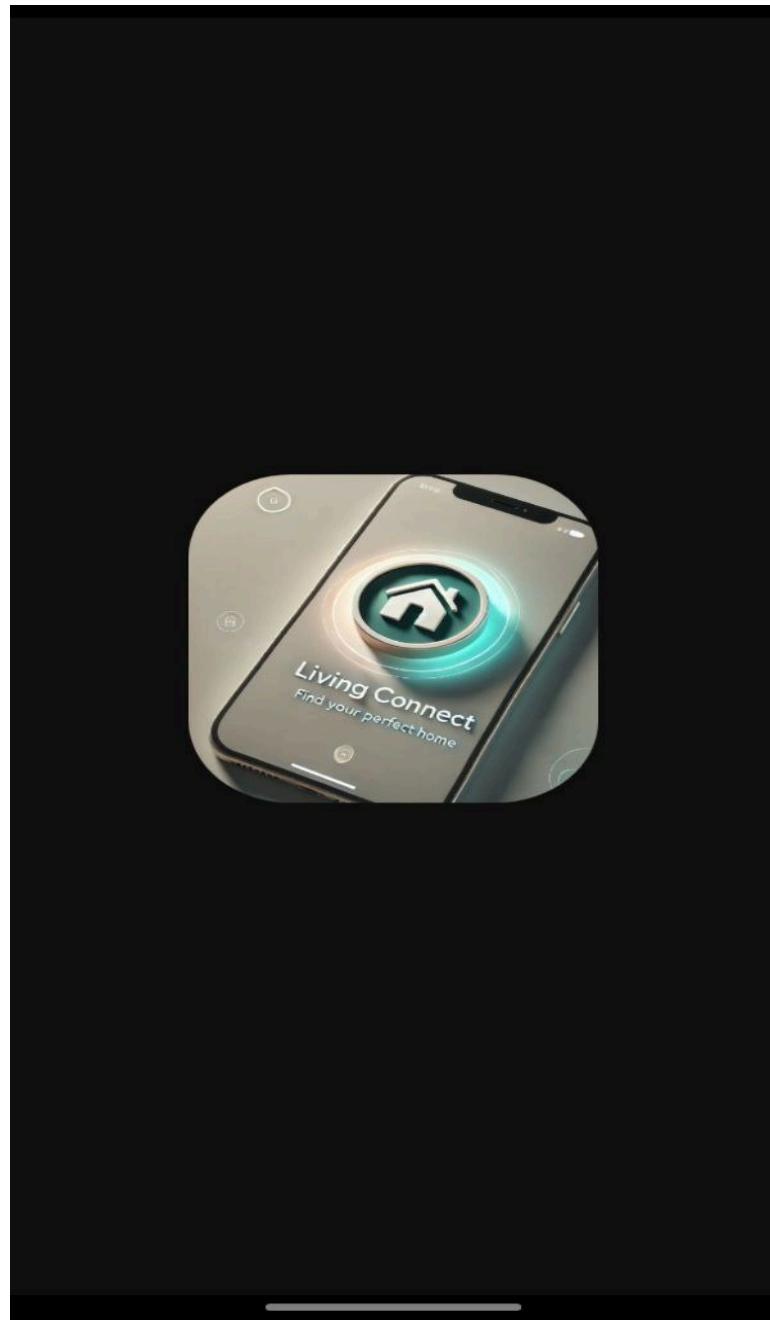
1. Database Design
2. Maps Integration

3. Admin Panel
4. Frontend Design of App
5. App Debugging.

## 2. Design and Implementation

### 2.1 UI Developed (Screenshots)

**Starting Page:**



## Login Page:



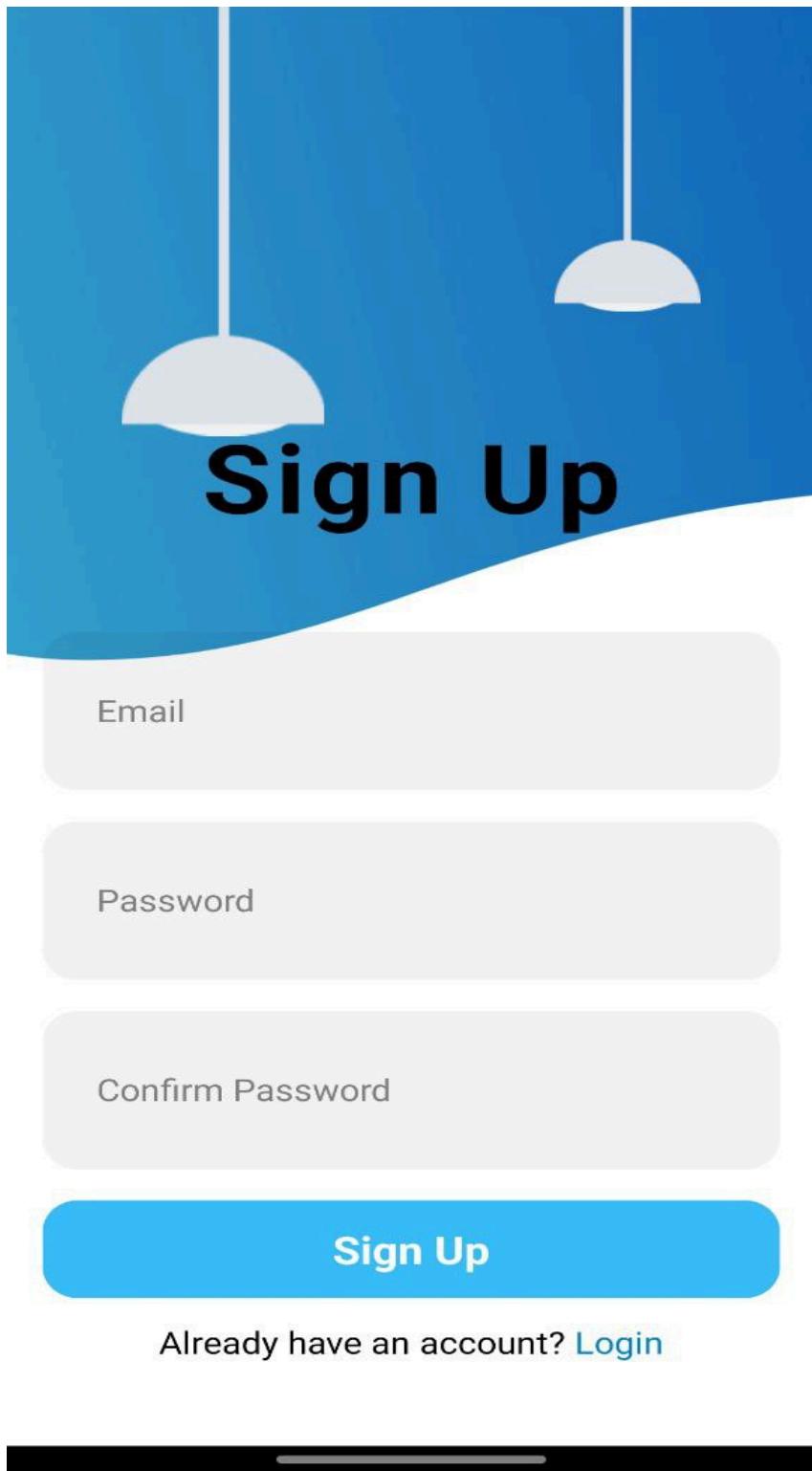
Email

Password

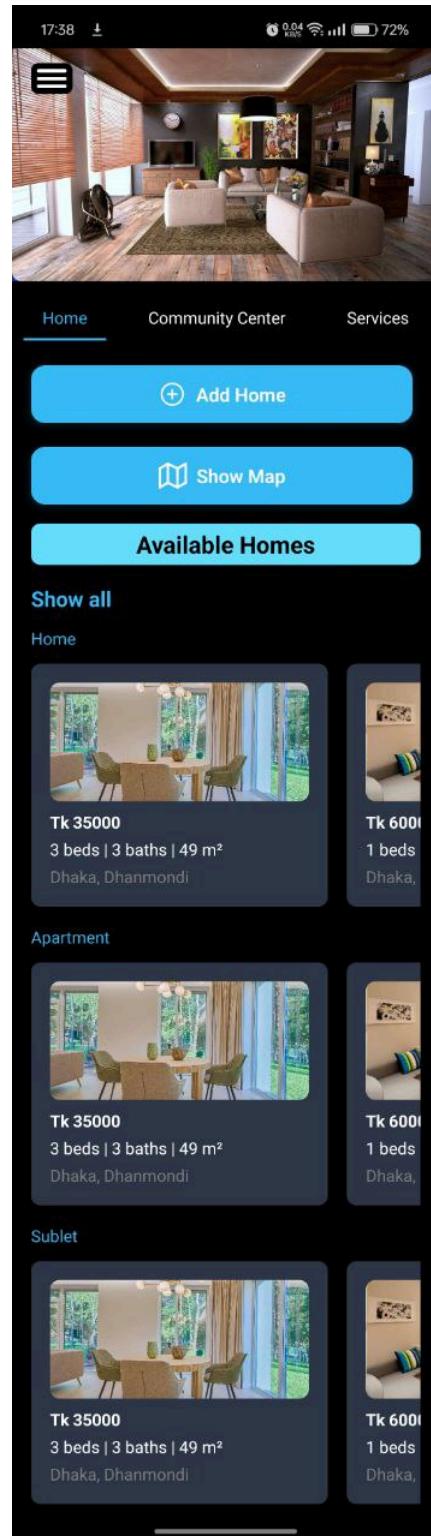
**Login**

Don't have an account? [Sign Up](#)

**Sign Up page:**



## Home Page:



## Community Center Page:

The screenshot shows a mobile application interface for a community center. At the top, there is a header bar with a navigation icon, signal strength, battery level (72%), and time (17:42). Below the header is a large image of a modern living room or lounge area.

The main content area has a dark background with white text. At the top, there are three tabs: "Home", "Community Center" (which is underlined), and "Services". Below the tabs is a blue button with a plus sign and the text "Add Community Center".

The next section is titled "Available Community Centers" and includes a "Show all" link. It lists three categories of community centers:

- Wedding Community Center**:
  - Image: A white sofa set against a backdrop of white and gold floral decorations.
  - Base Price:** 25000 Tk
  - Capacity:** 500 people | **Parking:** 50 Cars | **Halls:** 3 | **100 m<sup>2</sup>**
  - Dhaka, Dhanmondi**
- Birthday Community Center**:
  - Image: A white sofa set against a backdrop of white and gold floral decorations.
  - Base Price:** 25000 Tk
  - Capacity:** 500 people | **Parking:** 50 Cars | **Halls:** 3 | **100 m<sup>2</sup>**
  - Dhaka, Dhanmondi**
- Multi Event Community Center**:
  - Image: A white sofa set against a backdrop of white and gold floral decorations.
  - Base Price:** 25000 Tk
  - Capacity:** 500 people | **Parking:** 50 Cars | **Halls:** 3 | **100 m<sup>2</sup>**
  - Dhaka, Dhanmondi**

## Services Page:

Home      Community Center      Services

⊕ Add Services

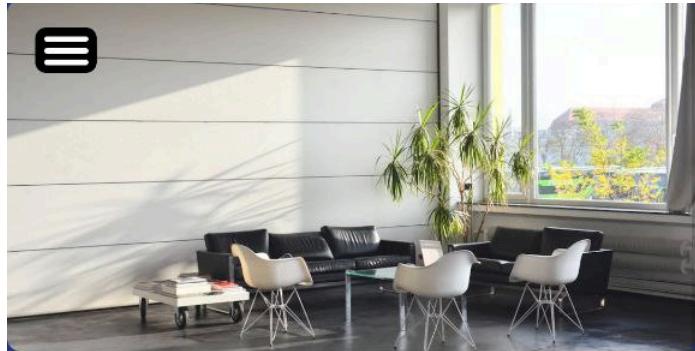
Available Services

Home Coloring Services ↗

Home Repair Services ↗

Home Shift Services ↗

## Show All Page:



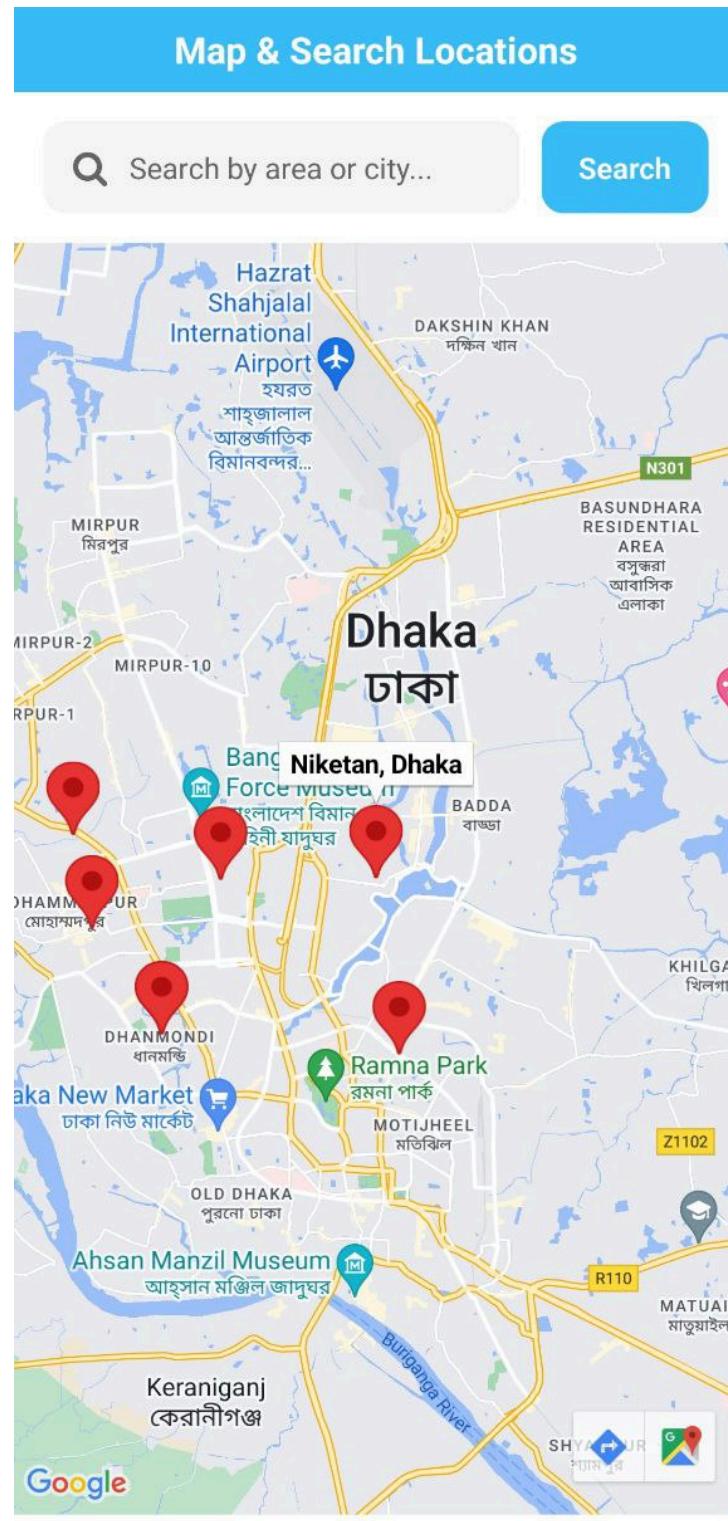
Show map      Show filters



**Tk 3520**  
2 beds | 2 baths | 150 m<sup>2</sup>  
*Dhaka, Dhanmondi*



## Show Map Page:



## Filter Page:

### Filter Page

All Properties ▾

City

Area

Min Rent

Max Rent

Beds

Baths

Min Size (sq.m)

Max Size (sq.m)

SearchReset



**Tk 3520**  
2 beds | 2 baths | 150 m<sup>2</sup>  
Dhaka, Dhanmondi



**Tk 3520**  
2 beds | 2 baths | 150 m<sup>2</sup>  
Dhaka, Dhanmondi



**Tk 30000**  
3 beds | 3 baths | 1650 m<sup>2</sup>  
Dhaka, Kallyanpur



**Tk 3500**  
1 beds | 1 baths | 500 m<sup>2</sup>  
Mirpur, Sector A1

## Home Details Form Page:

**Home Details Form**

**Property Type**

Select Property Types ▾

Rent  
Sale  
Sublet  
Over a Time period

**Details**

Beds Bathrooms  
Balcony Floor

**Size (sq meters)**

Size (sq meters)

**Rent**

Rent

**Rent Period**

Daily  Weekly  
 Monthly  Yearly

**Member Restriction**

No Restriction  Only Family  
 Only Male  Only Female

**Location**

Select Location on Map

Latitude: 23.7479124  
Longitude: 90.3745866  
City: Dhaka  
Area: Dhanmondi

**Facilities**

Garage   
Lift   
GasSupply   
Generator   
Internet   
Cctv   
Wifi

**Availability**

Post Date (Select Date)

Available From (Select Date)

**Images**

Add Image

No images uploaded yet.

**Payment**

Submit

## Add Services Form Page

The screenshot shows a mobile application interface for adding service information. The top status bar indicates the time is 4:43 AM, the battery level is at 56%, and there is cellular signal. The main title "Add Services Form" is centered at the top. Below it is a section titled "Service Type" with a dropdown menu labeled "Select Service Types". Inside the dropdown are three options: "Home Coloring", "Home Repair", and "Home Shift". The next section is titled "Company Name" with an input field labeled "Enter Company Name". Following that is a "Description" section with an input field labeled "Short Description". The "Cost" section contains an input field labeled "Cost". The "Location" section includes an "Add City" button and a placeholder for city names. The "Images" section has an "Add Image" button and a message stating "No images uploaded yet.". Finally, a large blue "Submit" button is at the bottom.

4:43 AM | 391KB/s ☺ 56%

Add Services Form

Service Type

Select Service Types ▾

Home Coloring

Home Repair

Home Shift

Company Name

Enter Company Name

Description

Short Description

Cost

Cost

Location

Add City Add City

Images

Add Image

No images uploaded yet.

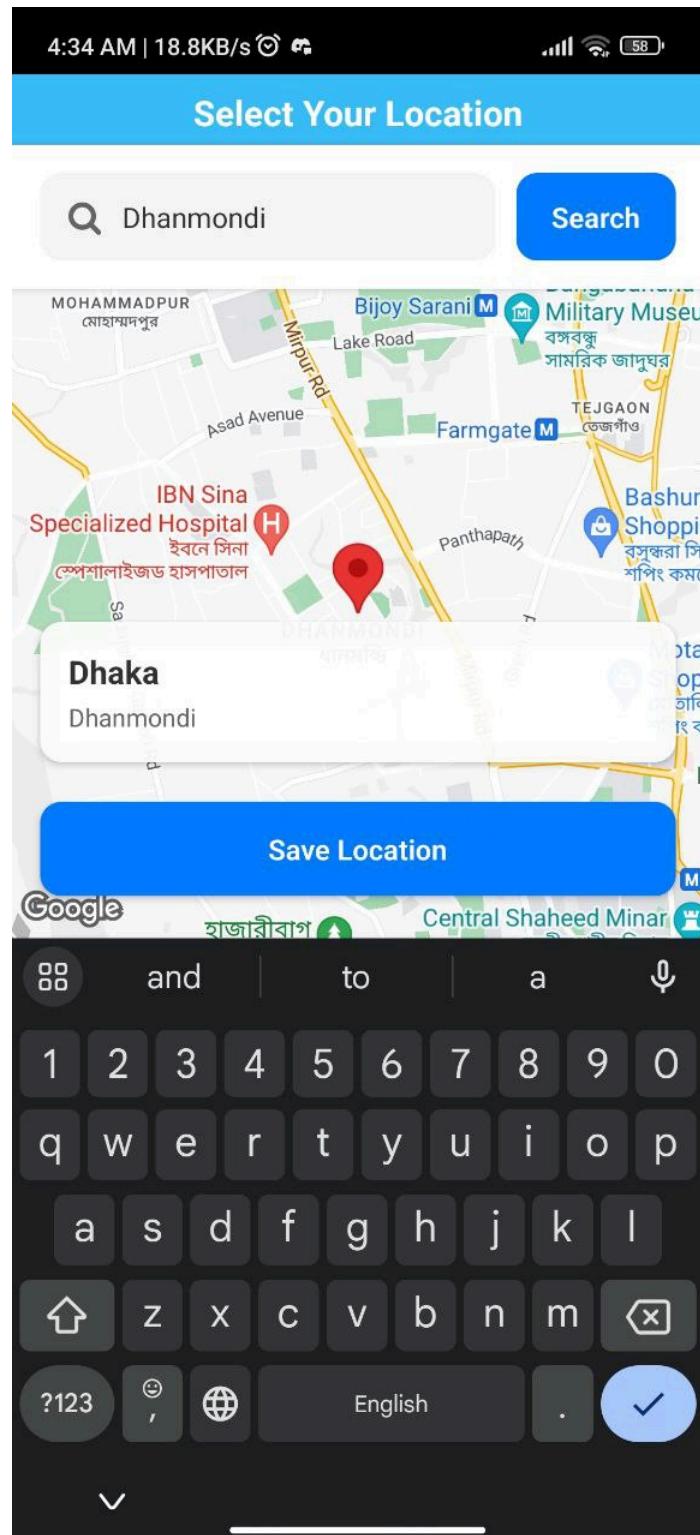
Submit

## Add Community Center Page:

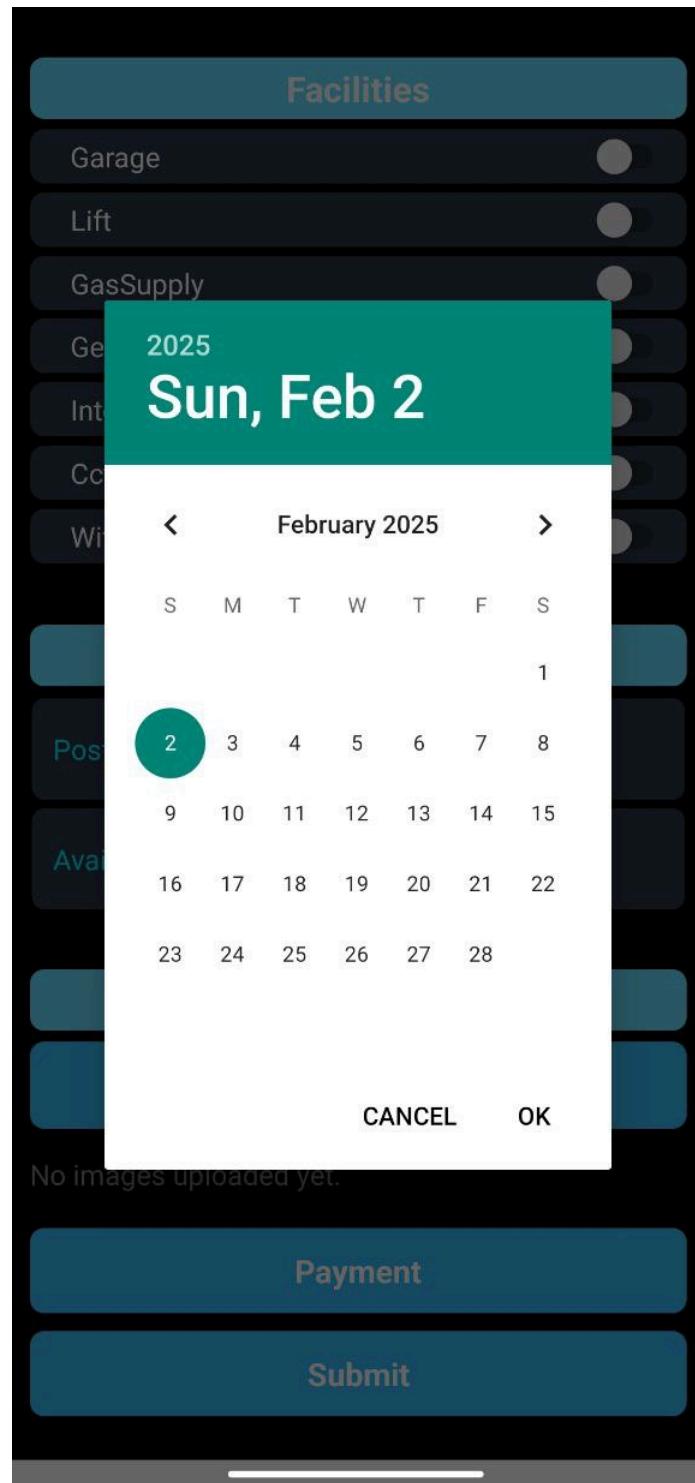
The screenshot shows a mobile application for adding a community center. The interface is organized into several sections with blue header bars:

- Center Type**: Options include Wedding Hall, Birthday Center, Conference Hall, and Multi-purpose.
- Community Center Name**: A text input field labeled "Enter Community Center Name".
- Details**:
  - Capacity (people)
  - Number of Halls
  - Size (sq meters)
  - Parking
  - Kitchen Area (switched on)
  - Dining Area (switched on)
  - Stage Area (switched on)
- Pricing**:
  - Base Price
  - Full Day Price
  - Half Day Price
  - Per Hour Price
- Facilities**:
  - AirConditioned
  - Generator
  - Wifi
  - Sound
  - Lighting
  - Decoration
  - Catering
  - Staging
  - Security
- Location**:
  - Select Location on Map
  - Latitude: 23.78020306433911
  - Longitude: 90.39102248847485
  - City: Dhaka
  - Area: Kafrul
- Availability**:
  - Post Date (Select Date)
  - Available From (Select Date)
- Images**:
  - Add Image
  - No images uploaded yet.
- Payment**
- Submit**

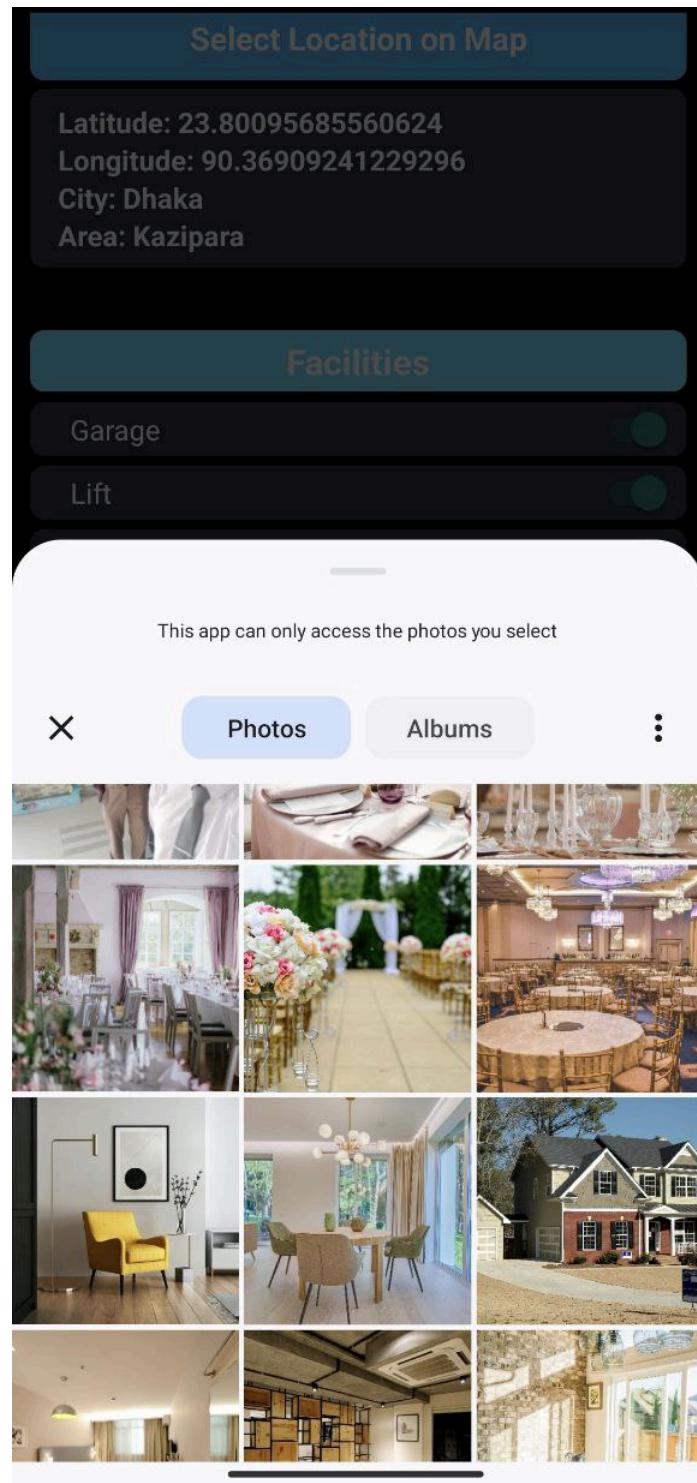
## Select Location On Map Page:

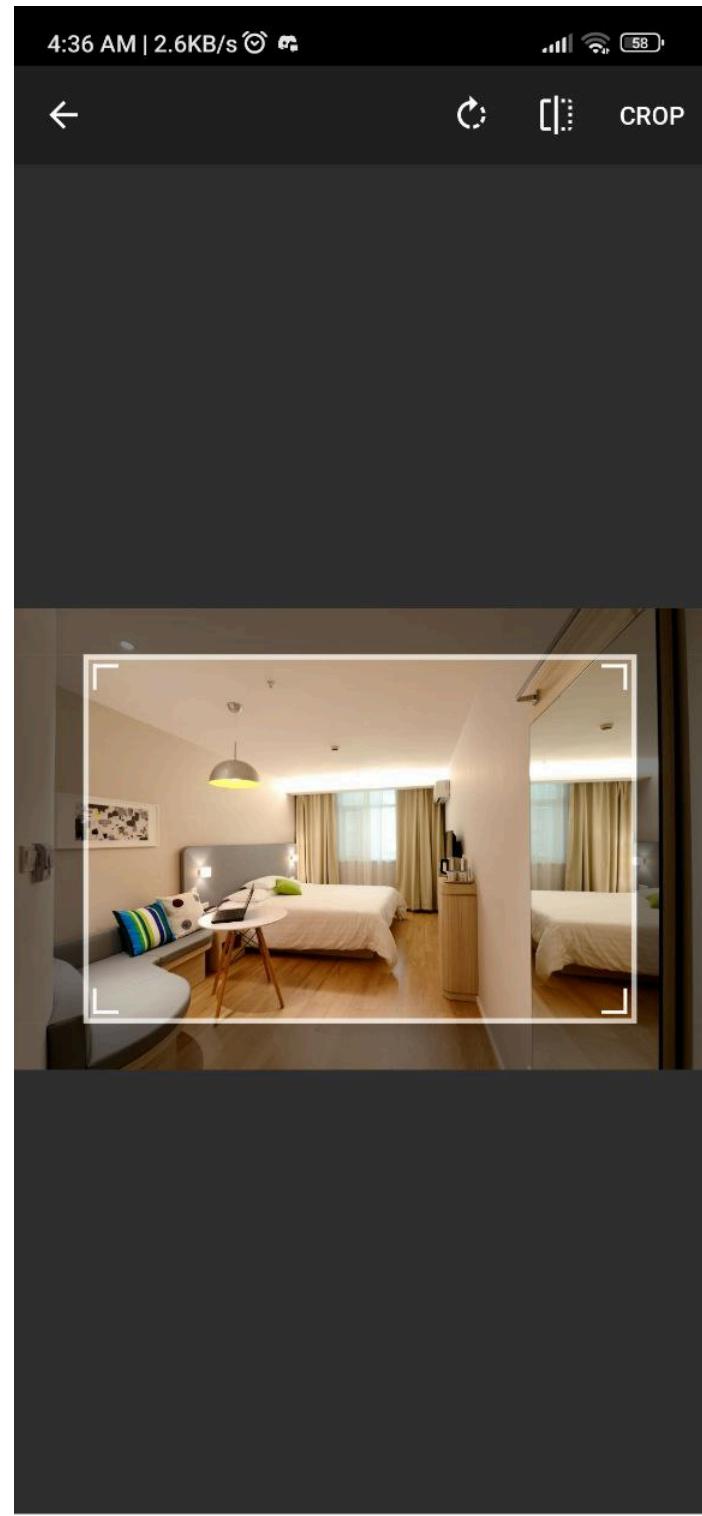


## Availability Selection Page:

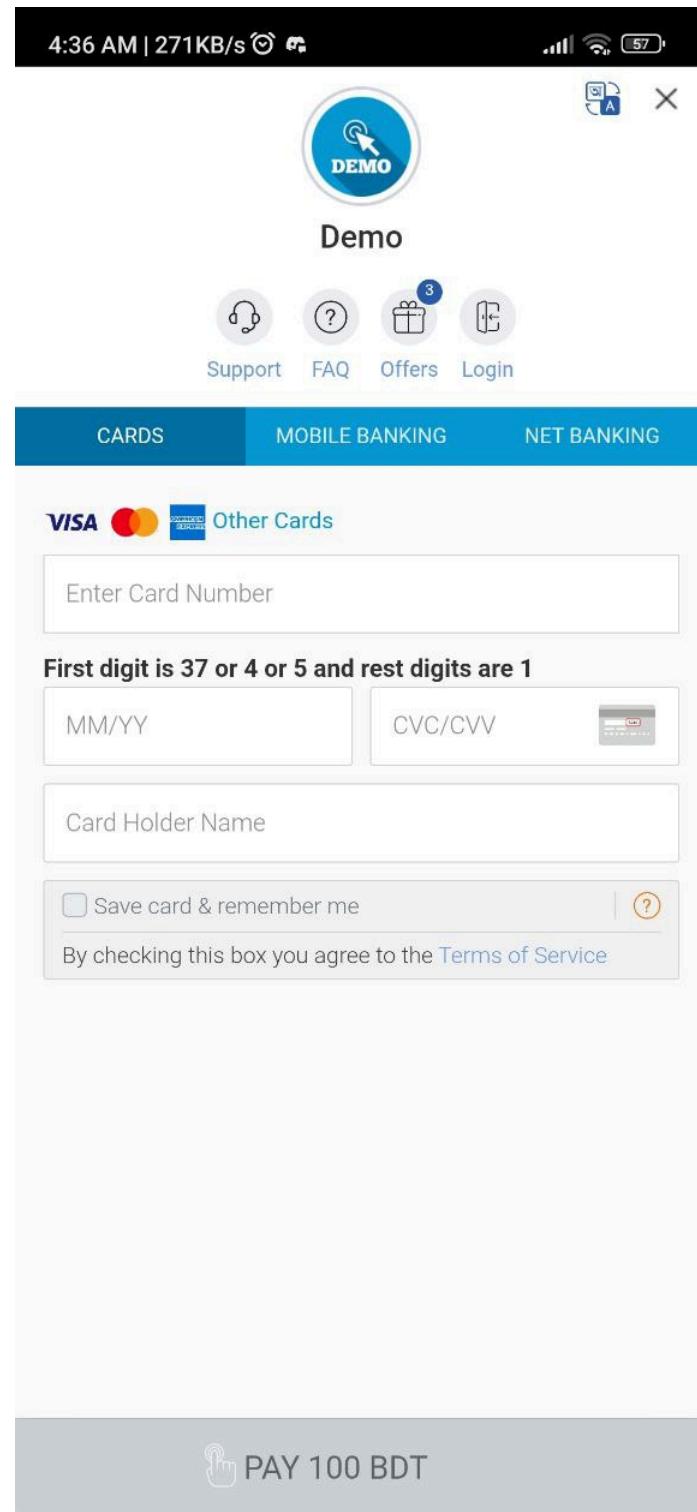


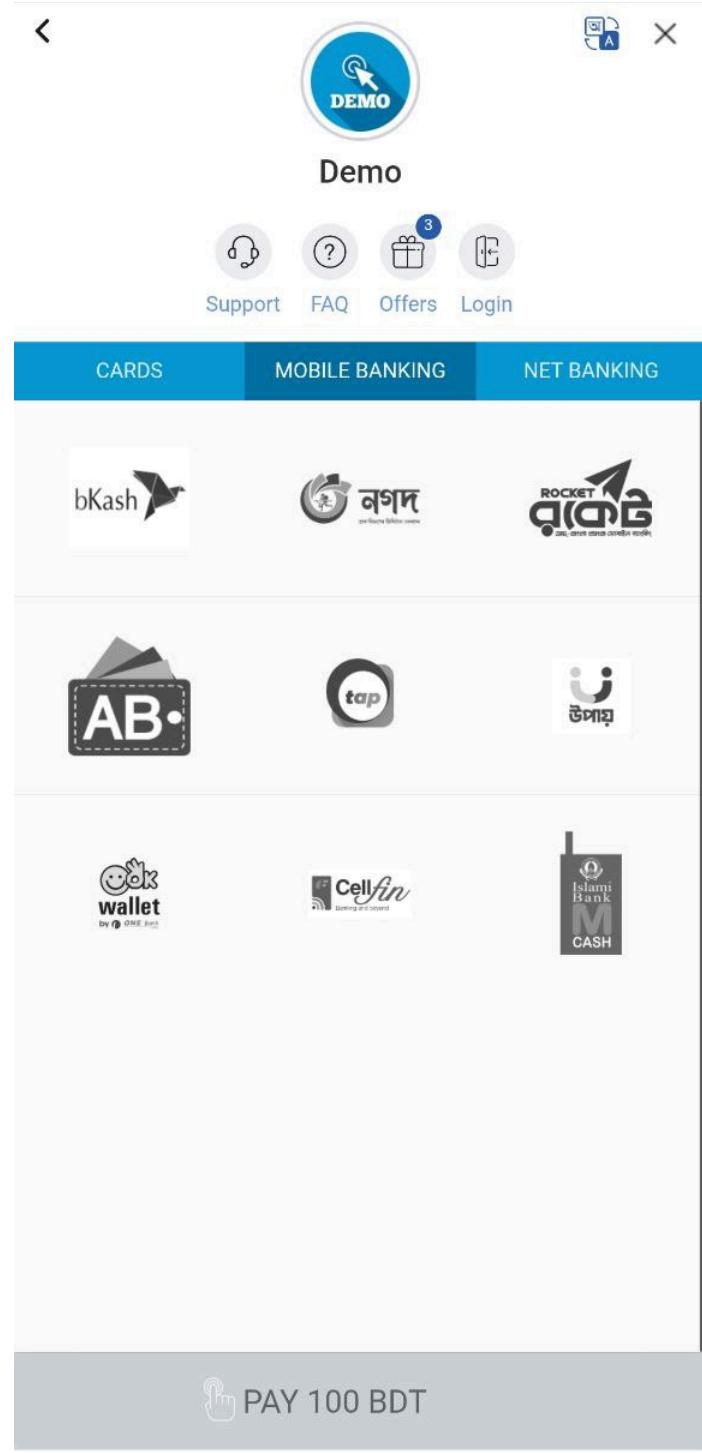
## Image Selection Page:





## Payment Page





# OTP Page

Do not press browser back or forward button while you are in payment page

## Payment Summary

Please review the following detail for this transaction:	
Amount:	100.00
Invoice number:	250202436310jZ07l8DsZtx0dZ
Description:	Products

## Enter Card Information

Your entered card information could not be corrupted or become known to the third party, as all transmitted data is encrypted by the SSL protocol.

OTP:

Success

Failed

Success with risk

## Note

1. For VISA and MC, look at the back side of your Card to find 3-digit CVV2/ CVC2. For AMEX, look at the upper right corner of the front side of your Card to find 4-digit CSC.
2. The cardholder's name should be entered just as it's written on the card.



SSLCOMMERZ TESTBOX GATEWAY (NO CARD INFORMATION WILL BE SAVED  
AND DUMMY CARD WILL BE DISPLAYED IN REPORT)

Please wait. Your order is processing....  
(To complete the process, please click "Continue" button if prompted. If you press the "Cancel" button, the process will not be completed.)  
Thanks for using SSLCOMMERZ.

## Home Details Form

### Property Type

Select Property Types

### Details

3

3

2

6

### Success

Payment successful!

OK

### Rent Period

Daily

Weekly

Monthly

Yearly

### Member Restriction

No Restriction

Only Family

Only Male

Only Female

## Show Detailed Page:

**RENT**

Rent: 30000 Tk (Monthly)



Images (1)

**Location**

Dhaka, Kallyanpur  
Road: N/A, House: N/A

[Show location on map](#)

**Property Details**

Beds: 3  
Baths: 3  
Size: 1650 sq.m.  
Balcony: 2  
Floor: 12

**Member Restrictions**

No Restriction

**Facilities**

garage: Yes  
lift: Yes  
gas Supply: Yes  
generator: Yes  
internet: Yes  
cctv: Yes  
wifi: No

**Availability**

Post Date: 1/28/2025  
Available From: 2/1/2025

**Owner**

Email: abc03@gmail.com  
Contact Number: **018-328-55742**

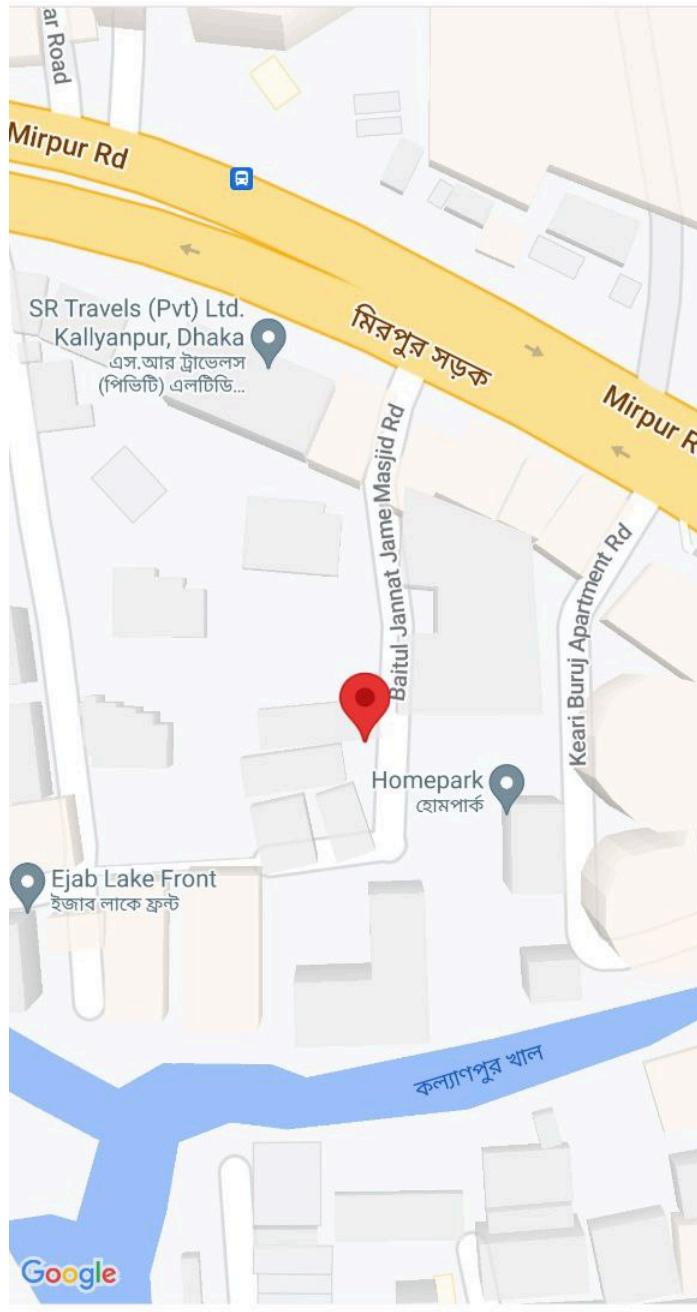
[Call](#)

[Message](#)

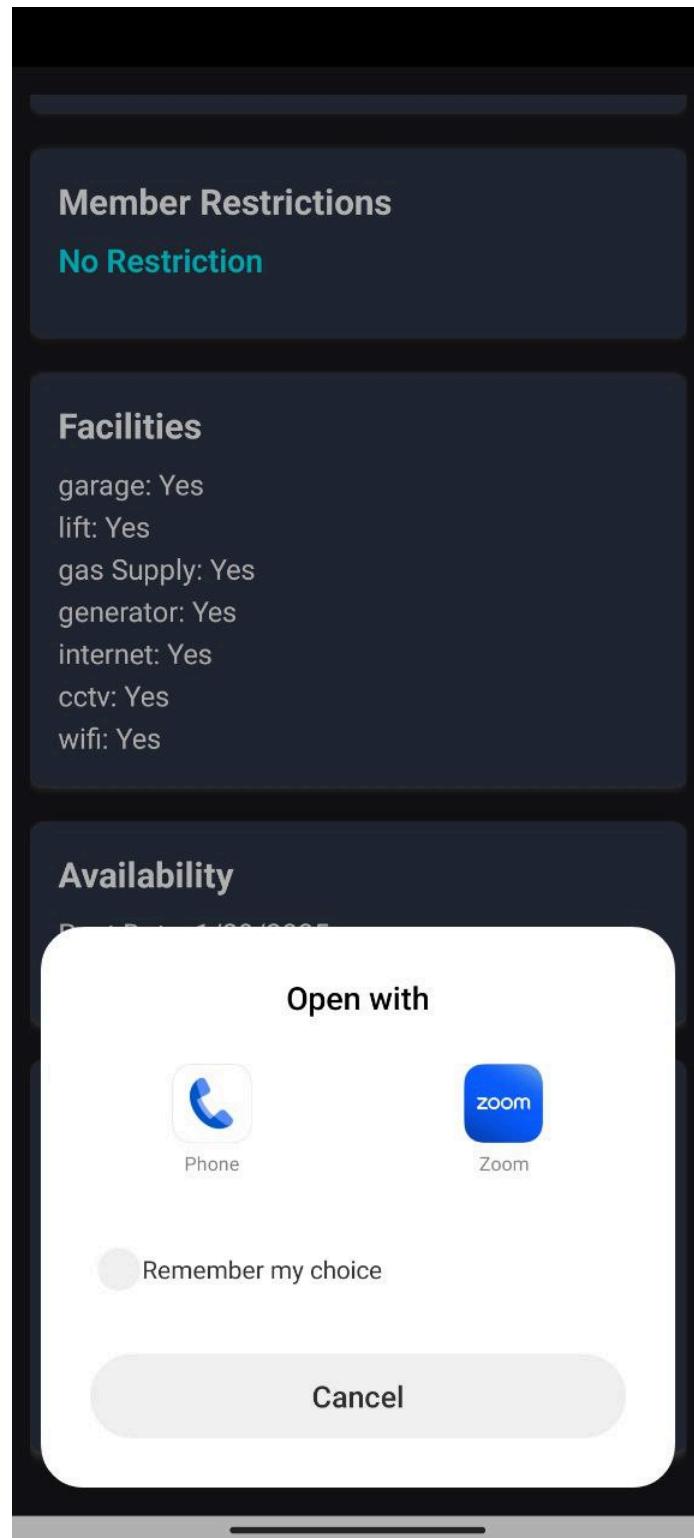
[Show Location on Map Page](#)

**KALLYANPUR, DHAKA**

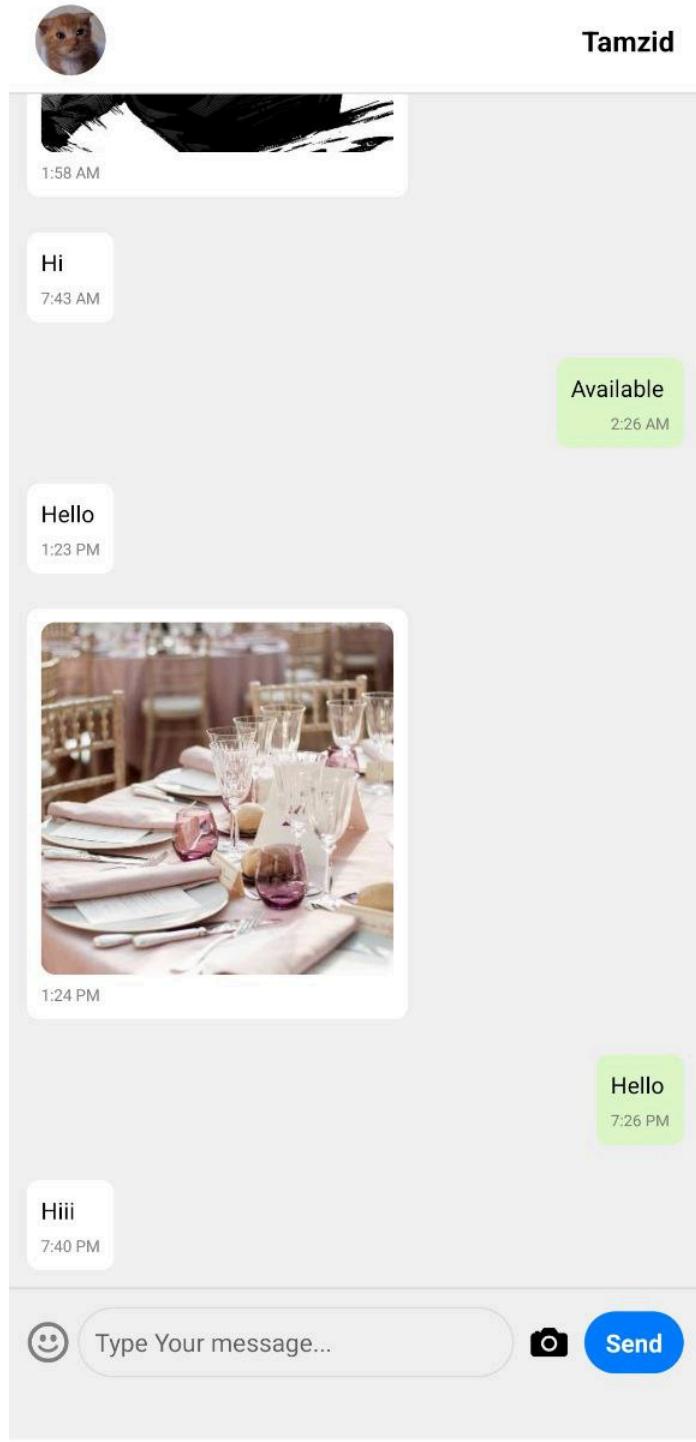
23.777600, 90.360193



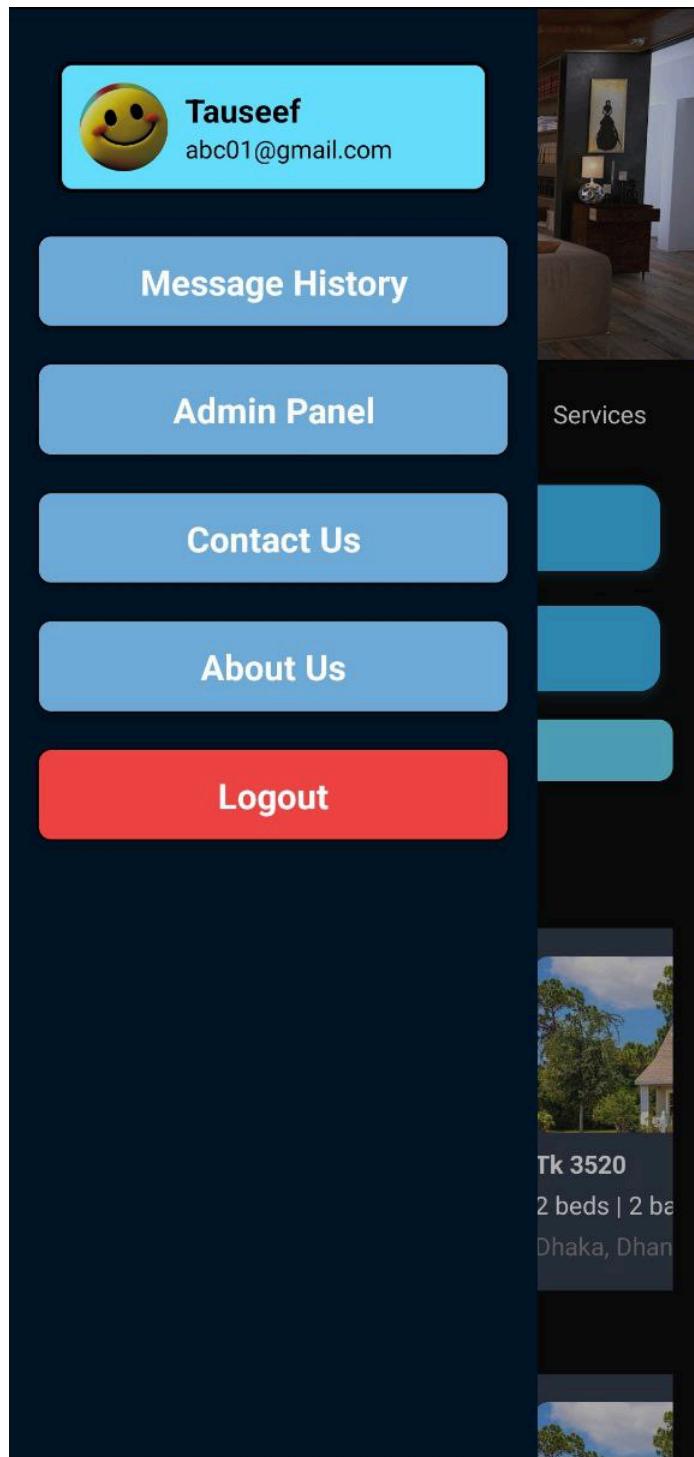
## Call Page:



## Message Page:



## Side bar:



## Profile Page:

# Profile

Your Information



Name  
**Tauseef**

Email  
**abc01@gmail.com**

Contact  
**01852039838**

**Update Profile**

**Edit My Properties**

## Update Profile Page:

### Update Profile

Edit Your Information

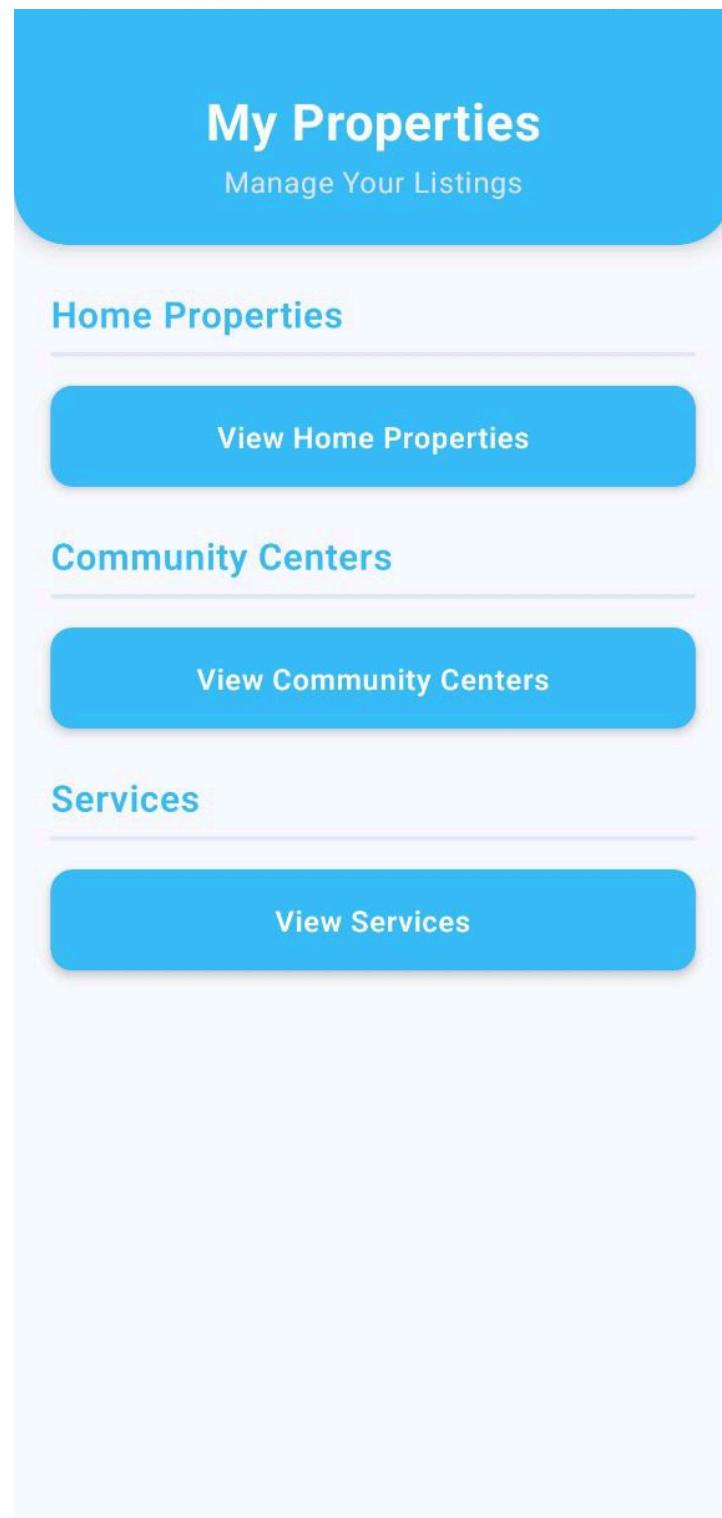


Name

Contact Number

**Save Profile**

## Edit My Properties Page



## View Home Properties Page

### My Homes

Manage Your Listed Homes

**Home 1** [Edit Details →](#)



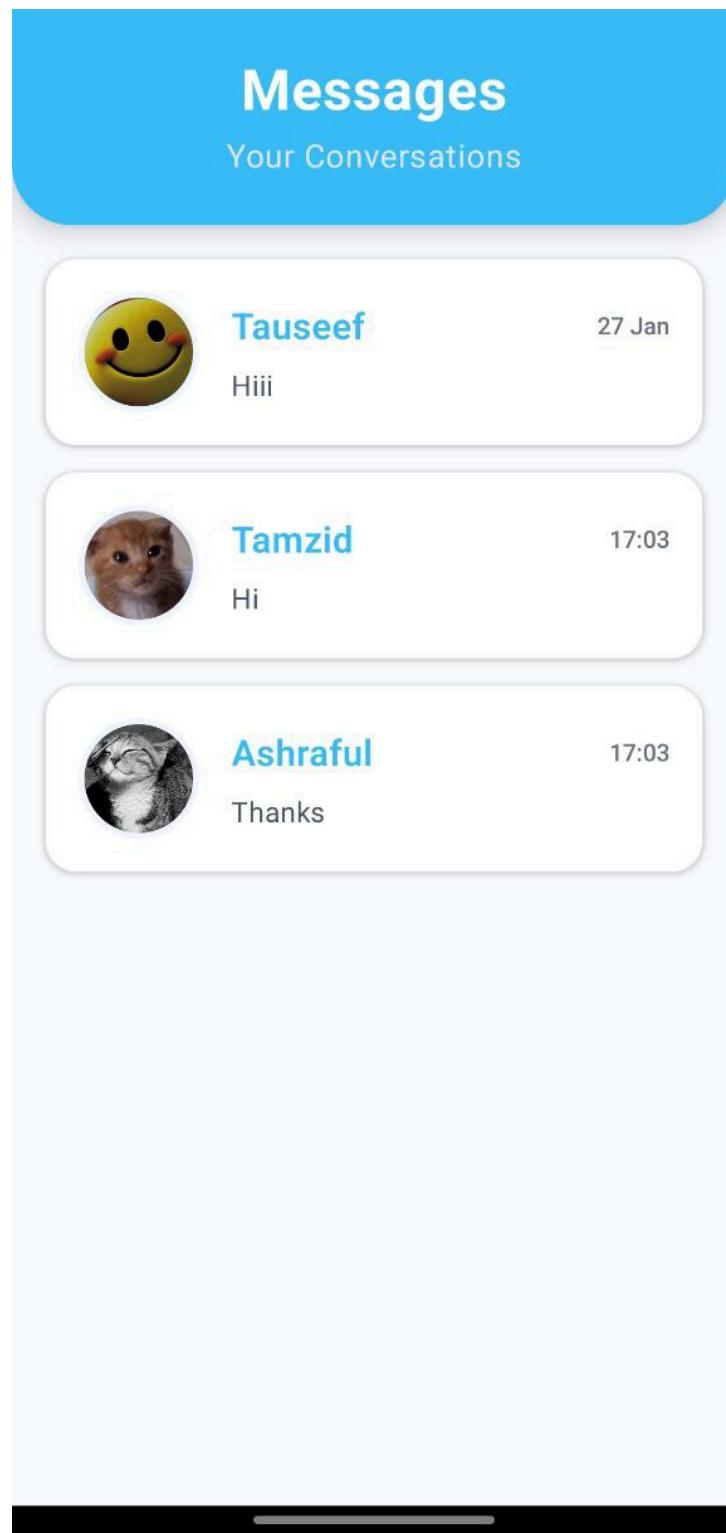
**Tk 20000**  
3 beds | 2 baths | 1200 m<sup>2</sup>  
*Dhaka, Banani*

**Home 2** [Edit Details →](#)



**Tk 25000**  
3 beds | 3 baths | 60 m<sup>2</sup>  
*Dhaka, Badda*

## Message History page:



## Admin Panel Page:

The image shows a mobile application interface titled "Admin Panel Page". At the top, there is a blue header bar with the text "Admin Panel" and "Manage Requests". Below this, the screen is divided into three main sections: "Home", "Community Center", and "Services". Each section contains two buttons: "Pending Requests" (blue) and "Approved Requests" (green). The "Home" section is currently active, indicated by a blue background. The "Community Center" and "Services" sections have white backgrounds.

**Admin Panel**  
Manage Requests

**Home**

Pending Requests

Approved Requests

**Community Center**

Pending Requests

Approved Requests

**Services**

Pending Requests

Approved Requests

## Pending Requests Page:

# Pending Requests

Review and Process

**Request ID:**  
67987ef96a6a80febb44d61c



**Tk 20000**  
3 beds | 2 baths | 1200 m<sup>2</sup>  
*Dhaka, Banani*

**Request ID:**  
679ea255eb753ff0f40a8d54



**Tk 30000**  
3 beds | 2 baths | 1200 m<sup>2</sup>  
*Dhaka, Banani*

## Approved Request Page:

### Approved Requests

Review and Process

**Request ID:**  
6799d666adb929cb987c2793



**Tk 3520**  
2 beds | 2 baths | 150 m<sup>2</sup>  
*Dhaka, Dhanmondi*

**Request ID:**  
6799d66d256cc74b5952daca



**Tk 3520**

## Contact Us page:

# Contact Us

Get in Touch



**Md. Tauseef - Ur - Rahman**  
Project Lead  
[Send Email](#)  
mdtauseef.rahmang01@gmail.com



**Tamzid Bin Tariq**  
Developer  
[Send Email](#)  
tamzidbintariq@gmail.com

## About Us page:

# About Us

Meet Our Team



**Md. Tauseef - Ur - Rahman**  
Student: University of Dhaka



**Tamzid Bin Tariq**  
Student: University of Dhaka

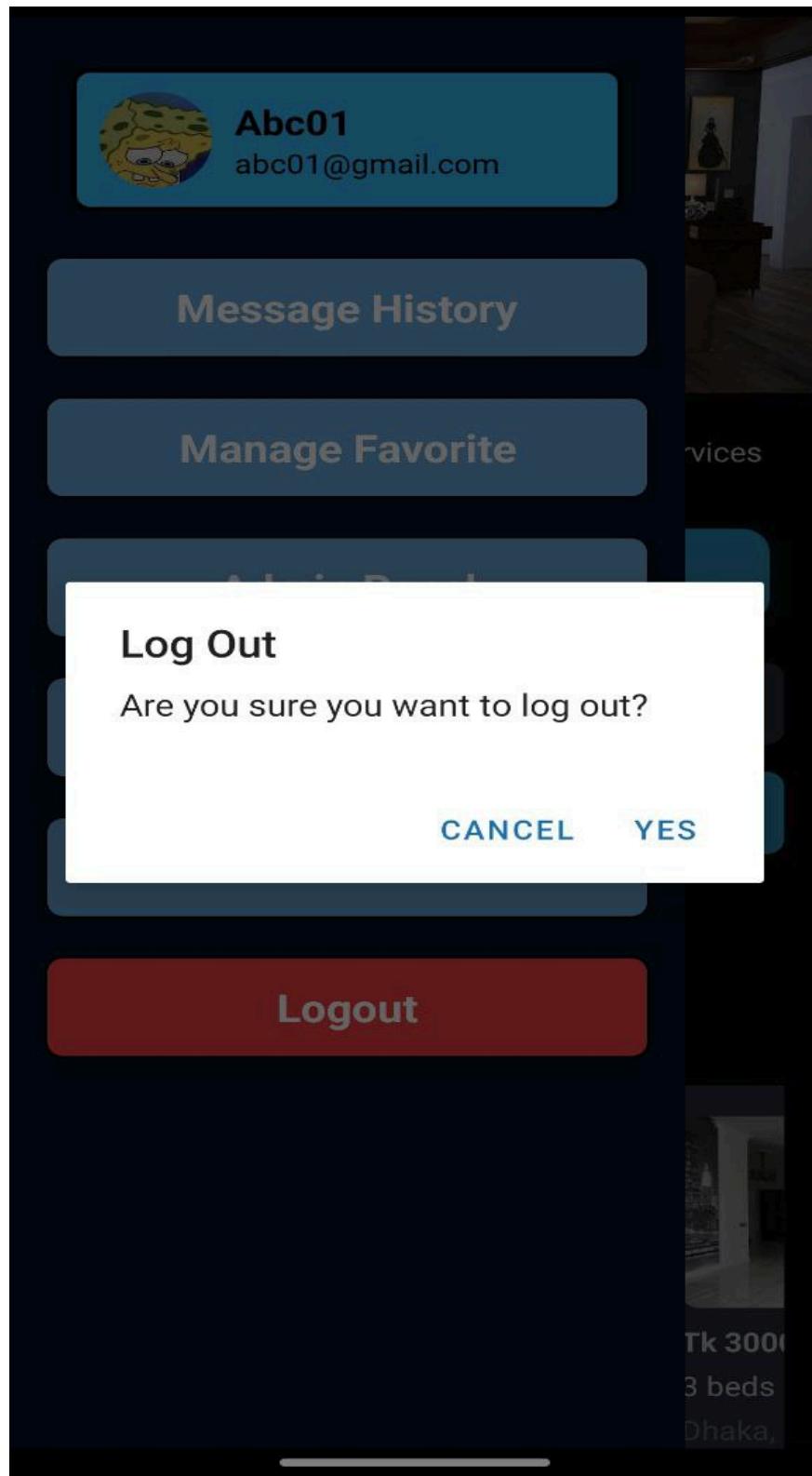


**Ashraful Alam**  
Student: University of Dhaka



**Sumaiya Tabassum**  
Student: University of Dhaka

## Logout Page:



## 2.2 Database Schema

Link: <https://dbdiagram.io/d/679f3a9d263d6cf9a0bfbf25>



dbdiagram.io

## 2.3 Code Repository Link

<https://github.com/TAUSEEF-01/LivingConnect>

## 2.4 Video Demo Link

 [video\\_2025-02-02\\_19-26-29.mp4](#)

## 3. Conclusion

### 3.1 Challenges and Solutions

#### **Challenge 1: Shifting from React Navigation to Expo Router**

##### **Issue:**

We decided to use React Native as our frontend framework, and I was tasked with creating a Chatting Application. After completing the Realtime Chatting Application and during the code merge, we discovered that different React Native versions were used. Most of the app was built using Expo Router, while I had used React Navigation. This necessitated switching from React Navigation to Expo Router. We initially believed this would be a straightforward task and that an LLM could easily convert the code to Expo Router.

##### **Impact:**

The LLM did generate code in Expo Router, but it was largely non-functional, and we encountered numerous errors. Debugging these errors proved challenging for me due to my limited experience with Expo Router.

##### **Solution:**

My friend helped me understand the fundamentals of Expo Router and how other pages within our project were functioning. Subsequently, I rebuilt the Chatting Application step-by-step using Expo Router.

## **Challenge 2: Incorrect Routing Endpoint Caused Message Sending Issues**

### **Issue:**

I asked AI to generate a routing endpoint to fetch an user's complete messaging history by their ID. The AI produced "/messagehistory/:userId" as the endpoint.

### **Impact:**

This endpoint consistently produced errors. I repeatedly asked solutions from the AI, expecting it to provide effective resolutions. As I was asking for solution from AI by giving the routing page routes/message.js, I ignored debugging that page and focused on the frontend page.

### **Solution:**

Eventually, when I examined the routes/message.js file, I discovered the root cause. Another endpoint, "/:senderId/:recipientId", was conflicting with "/messagehistory/:userId". The routing logic mistakenly interpreted messagehistory as a senderId, leading to the error. To resolve this, I updated the endpoint to "/messagehistory/conversation/:userId" in both the frontend and backend, which resolved the issue.

## **Challenge 3: Routing from one page from another**

### **Issue:**

For page-to-page routing, Expo router offers the router.push and router.replace methods. The page the user wishes to go to is replaced with the current page using the router.replace method. However, pages are stacked on top of each other using the router.push technique. As a result, it is helpful when you wish to navigate to the page that was immediately before. However, there were times when we had to clear the stack and didn't want to go back to the previous page. All of the pages in the stack had to be retrieved because the stack could not be cleared.

## **Impact:**

Because of the routing issue, we had to adjust various page functionality. There are several pages where this issue persists. We are working to resolve this issue. Because there are no ways of clearing the stack, we are attempting to update the features within particular pages.

## **Solution:**

Using Expo Navigation is the solution. However, we must modify the behavior of all other pages in order to accomplish this. We attempted to switch to expo navigation, however we encountered some further error difficulties. However, this problem might be fixed by using expo navigation, modifying page routing, and changing page functionality, which is what we are attempting to do.

## **Challenge 4: Api limit over**

### **Issue:**

The app exceeds its API request limit, causing important features or data-dependent functionality to stop working unless the quota is reset or more restrictions acquired. Because we used the free version of the GoMap API, the limit was surpassed after a few searches.

### **Impact:**

If the API limit is exceeded, users will be unable to search for locations and may encounter errors. Some app functionalities may not work.

**Solution:**

Use premium APIs. We need to buy an API so that we may deliver ongoing services.

**Challenge 5: Issue in implementing payment method****Issue:**

Integrating SSLCommerz into an application posed challenges due to the complexity of securely handling transactions and API calls. Ensuring the application remains secure and user-friendly while navigating the payment gateway workflow was a key issue. The SSLCommerz API required precise configuration, such as setting up proper endpoints and handling responses, which sometimes lacked clear documentation or resulted in unexpected errors. I have some minor issues merging the payment process in the project. The real payment system needs official documents which I didn't have.

**Impact:**

This issue disrupted the user experience and created confusion due to slow payment transitions. Users might perceive the delay as a failure. Moreover, improper handling of sensitive transaction data could expose vulnerabilities, risking compliance issues and financial losses. The delay and lack of feedback during the payment process negatively impacted overall satisfaction, and resolving these issues required significant time and resource investment.

## **Solution:**

The solution involves implementing SSLCommerz with a focus on secure and efficient workflows. I use SSLCommerz's sandbox environment for thorough testing to address API and response issues as I didn't have any documents for the merchant account. To enhance the user experience, we will add visual indicators, such as loading animations, to mitigate perceived delays during payment processing. Transition the payment gateway implementation incrementally to reduce risks and allow time to adapt the application architecture as needed.

## **3.2 Lessons Learned**

### **1) Adaptability in Development**

We learned the importance of being adaptable when using Frameworks and tools. We have to transition from React Navigation to Expo Router which taught us how essential it is to plan beforehand, for compatibility across the team to avoid conflicts.

### **2) Thorough Debugging Practices**

The issue with routing endpoints emphasized the value of debugging and thoroughly investigating the backend logic instead of relying solely on external assistance or assumptions.

### **3) Importance of Proper Documentation**

Challenges with APIs like GoMap and SSLCommerz highlighted how vital it is to have clear and complete documentation for integrating third-party services.

### **4) Effective Communication and Collaboration**

Collaborating with teammates, as seen when rebuilding the Chatting Application, showed us how sharing knowledge and skills accelerates problem-solving.

## **5) Resource Management**

The API limit issues underlined the need for evaluating project requirements early on to secure appropriate resources, like premium APIs, for a seamless user experience.

### **3.3 Future Plan**

The app is currently in its basic version having only the bare minimum features. We'd like to improve the user interface to make it appealing to the users. We'd also like to incorporate useful features like

#### **1. Optimize Page Routing and Navigation**

We aim to resolve the stack-clearing issue entirely by transitioning to Expo Navigation and redesigning the app's page routing system to enhance usability.

#### **2. Upgrade API Usage**

To prevent future issues with usage limits, we plan to acquire premium versions of critical APIs and explore alternative APIs for redundancy and scalability.

#### **3. Streamline Payment Integration**

We will obtain the necessary merchant account documentation and ensure a fully functional and secure SSLCommerz payment integration. Additionally, we will explore other payment gateways to offer users more options.

#### **4. Enhance UI/UX Design**

Introducing features like user onboarding tutorials, better error feedback, and performance optimizations to ensure a smooth and intuitive user experience.

#### **5. Expand Functionality**

We plan to add features such as property comparison tools, user reviews, and recommendations based on preferences to provide a more personalized experience.

#### **6. Scale Infrastructure**

To handle potential growth, we will transition to scalable backend solutions, such as cloud hosting and load balancing, to ensure the app can accommodate a larger user base.

## **7. Gather User Feedback**

Post-launch, we will focus on collecting feedback from users to identify pain points and prioritize updates. This will help us iteratively improve the app.

## **8. Develop a Marketing Strategy**

Launching a targeted marketing campaign to promote the app in key areas and ensure its reach extends beyond students to a wider audience.