

MINISTRY OF EDUCATION & TRAINING
HO CHI MINH CITY UNIVERSITY OF ECONOMICS AND FINANCE



END-TERM REPORT

Course: Mobile-app Development

Class: A02E

Electric Bill Management

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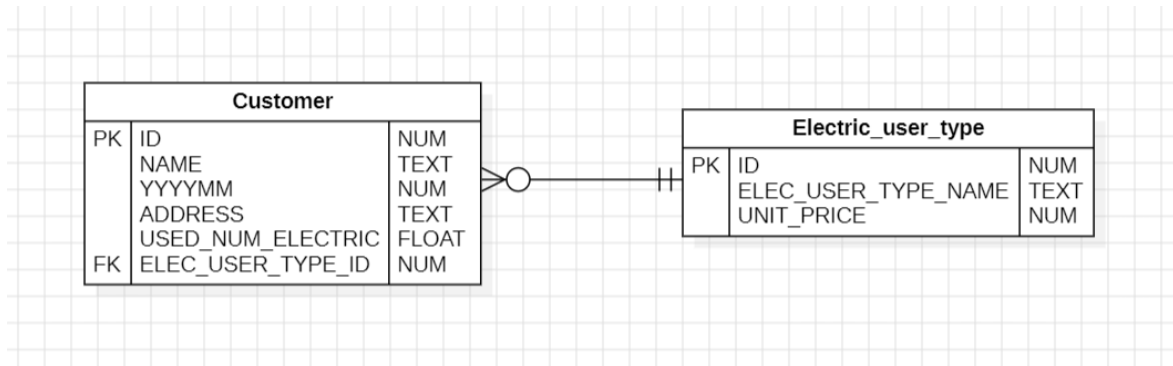
MSSV: 205170889

Ho Chi Minh city - October , 2024

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I. Database design



In our project, we kept the database design which was given by our lecturer, the database's name is Electric Bill Management. It has 2 tables: Customer and Electric_user_type.

1. TABLE Customer

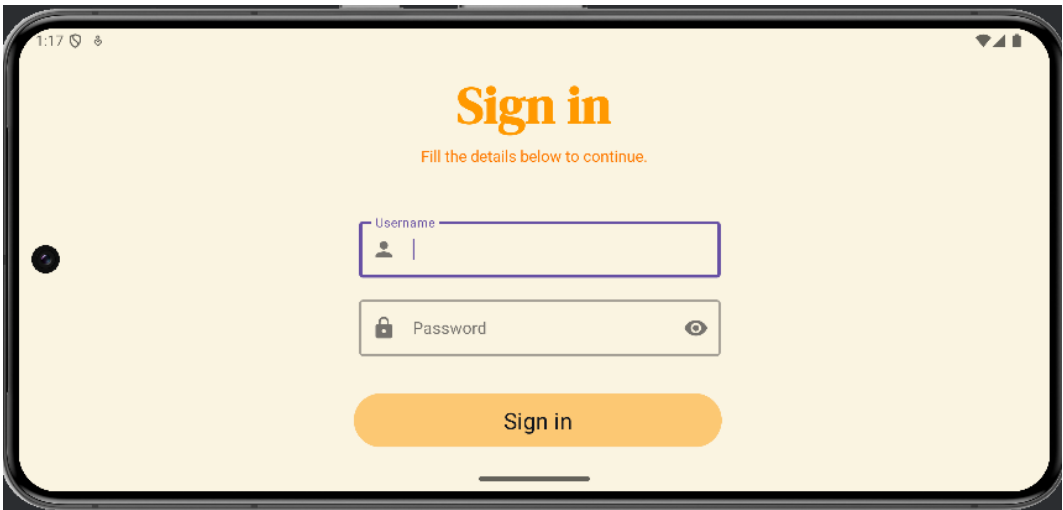
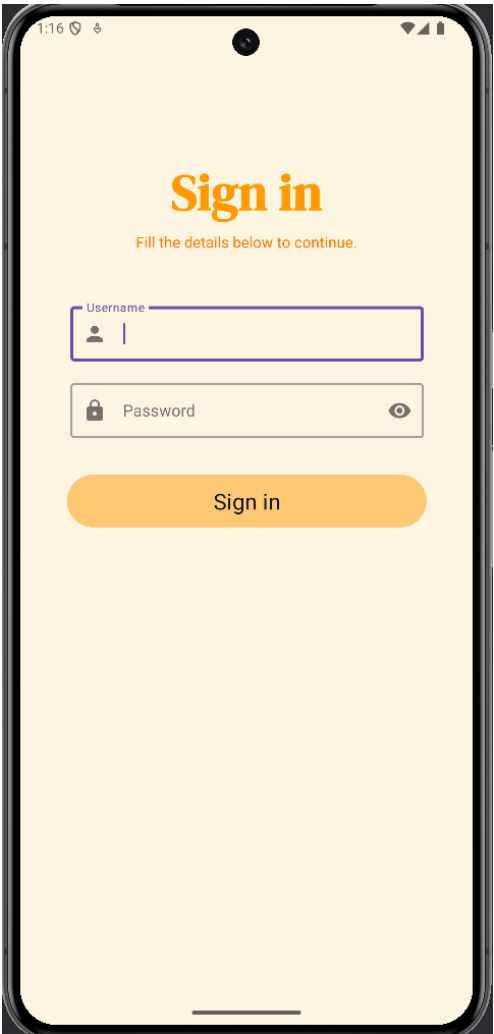
```
CREATE TABLE "CUSTOMER" (  
    "ID" INTEGER NOT NULL,  
    "NAME" VARCHAR(50),  
    "YYYYMM" INTEGER,  
    "ADDRESS" INTEGER,  
    "USED_NUM_ELECTRIC" REAL,  
    "ELEC_USER_TYPE_ID" INTEGER,  
    PRIMARY KEY("ID" AUTO INCREMENT),  
    FOREIGN KEY("ELEC_USER_TYPE_ID")  
    REFERENCES "ELECTRIC_USER_TYPE"("ID"));
```

2. TABLE Customer and Electric_user_type.

```
CREATE TABLE "ELECTRIC_USER_TYPE" (  
    "ID"    INTEGER NOT NULL,  
    "ELEC_USER_TYPE_NAME" TEXT,  
    "UNIT_PRICE"    INTEGER,  
    PRIMARY KEY("ID" AUTOINCREMENT));
```

II. Function

1. Login

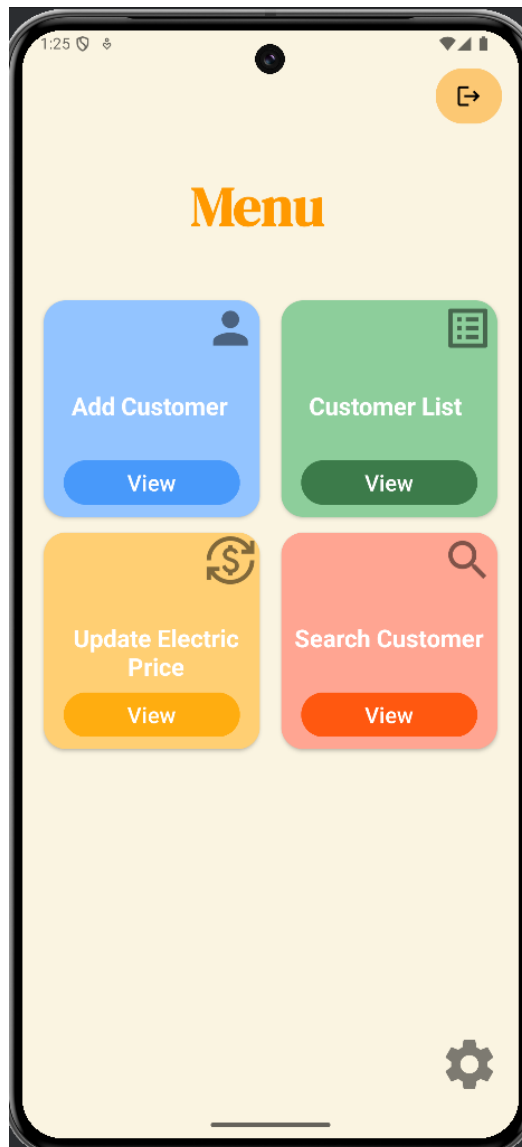


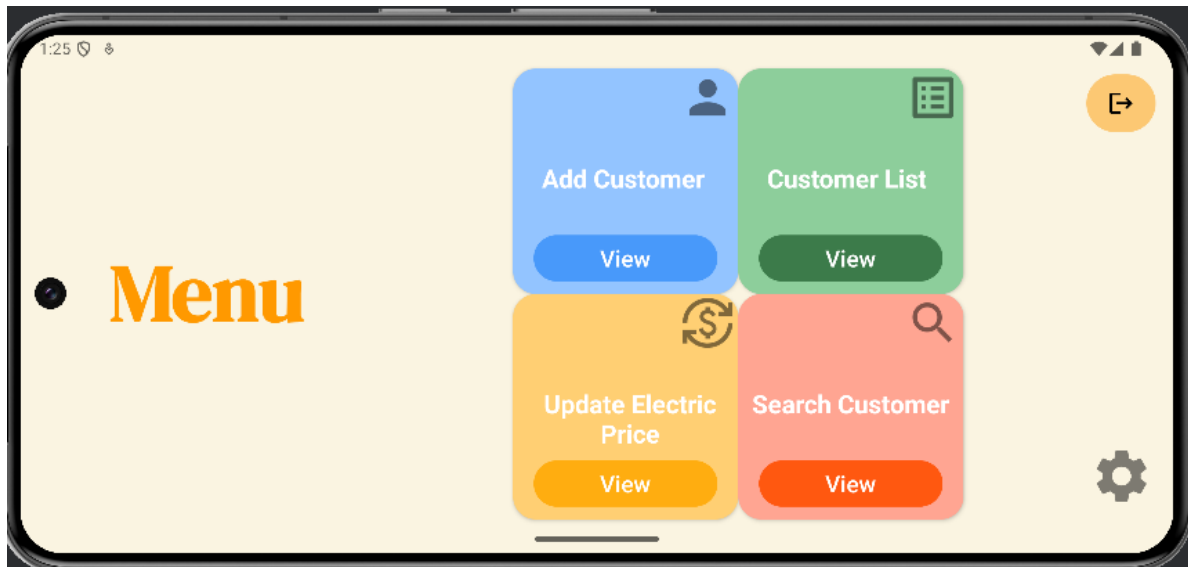
This is the first function of the application, before accessing the application, user have to sign in, there are just one script for this:

- Username: user
- Password: user

If the username or password is incorrect, the fields will be cleared, and the user will need to fill them in again.

2. Main menu






This is the main menu GUI, it allows the user to access all functions, including managing customers, hiding/showing information, or playing music.

3. Add customer

1:29



Add Customer

Name

YYYYMM

Sep	2023
Oct	2024
Nov	2025

Address

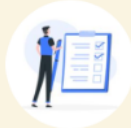
Electricity consumption

User type None ▾

Add

←

1:29



Add Customer

Name

YYYYMM

Sep	2023
Oct	2024
Nov	2025

Address

Electricity consumption

User type None ▾

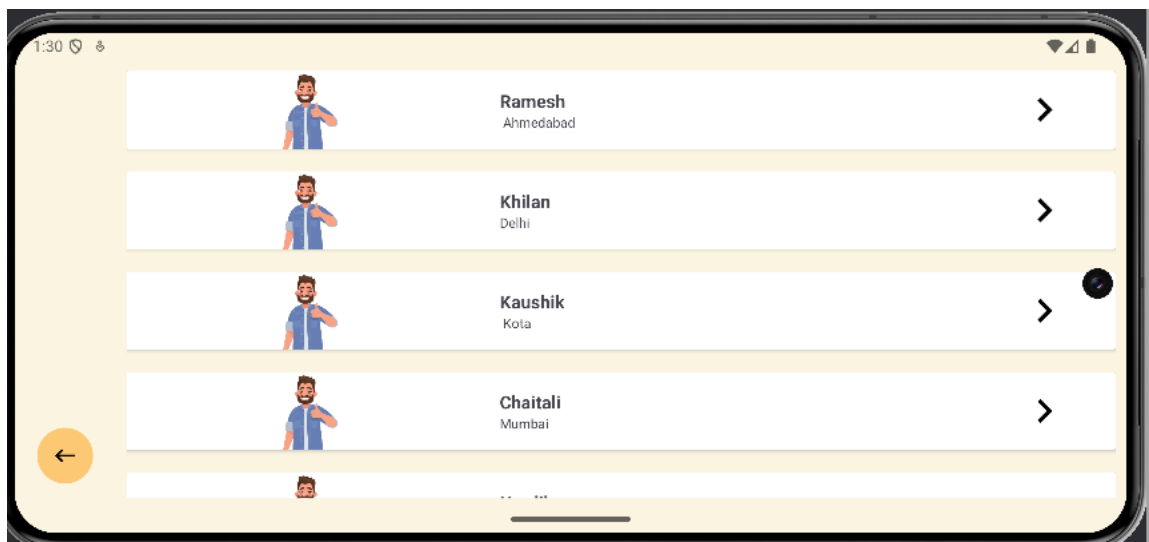
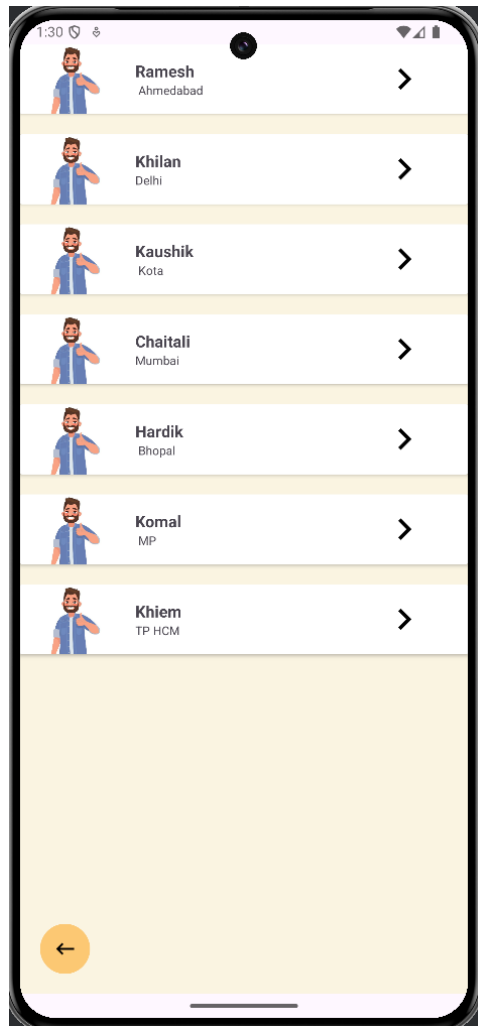
Add

←

In this function, user can add new customer into database.

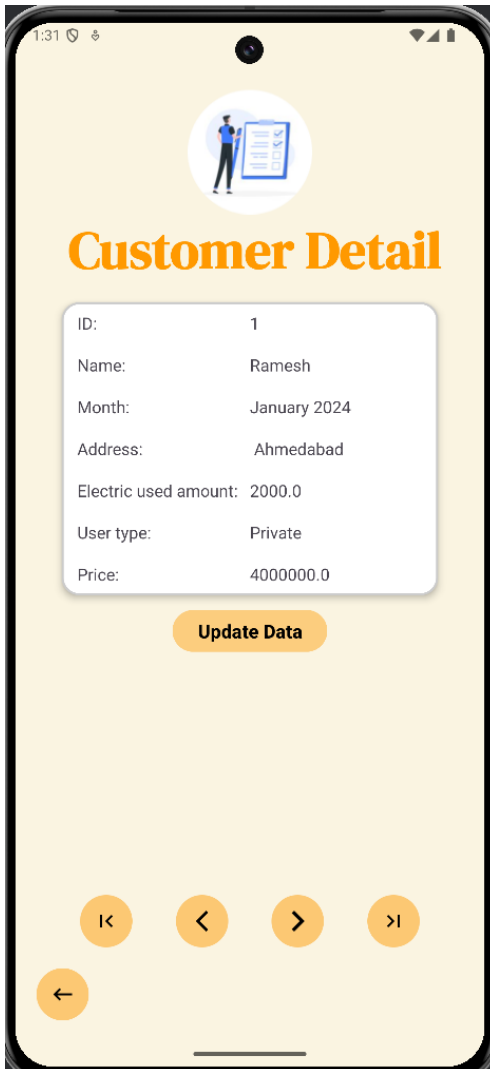
If all data is not filled in, a Toast will appear

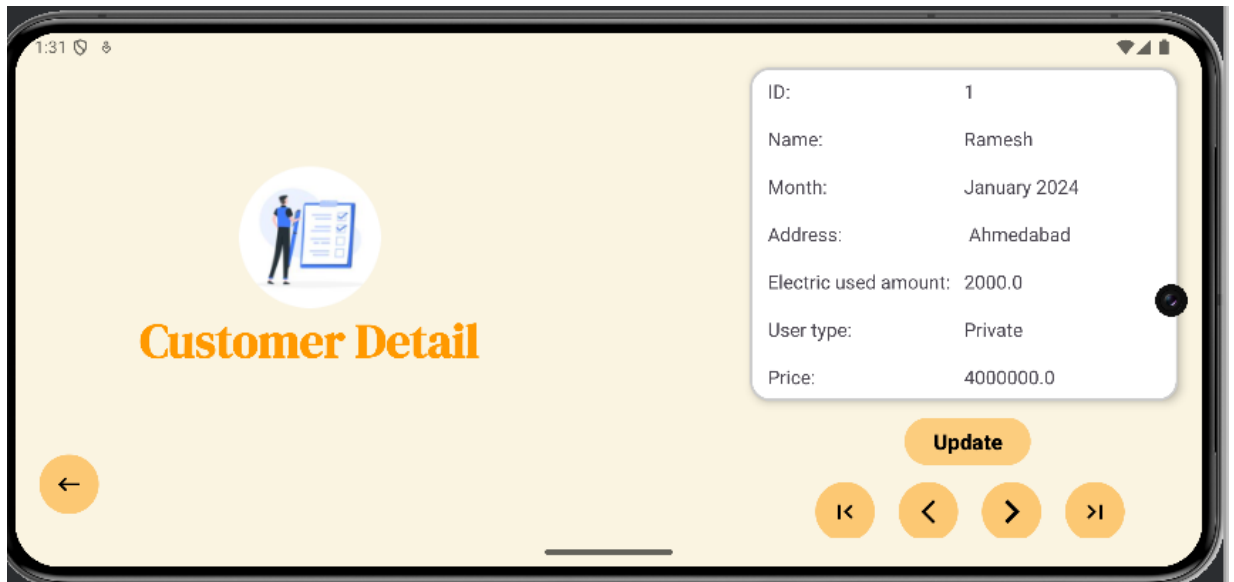
4. View customer list



In this function, the user can see a list of all customers. User can scroll down until reach the end of the list. They can also view details of each customer

5. View customer detail






In this function, user can view all details or just a part of details (in setting) by clicking on a customer in the customer list.

The user can view the next, previous, first, or last customer by clicking on the buttons below the 'Update' button.

User can also update customer's data by clicking on "Update" button.

6. Update customer data

1:32




Update Customer

Name	Ramesh	
YYYYMM	Dec	2023
	Jan	2024
	Feb	2025
Address	Ahmedabad	
Electricity consumption	2000.0	
User type	Private	

Update

←

1:32



Update Customer

Name	Ramesh	
YYYYMM	Dec	2023
	Jan	2024
	Feb	2025
Address	Ahmedabad	
Electricity consumption	2000.0	
User type	Private	

Update

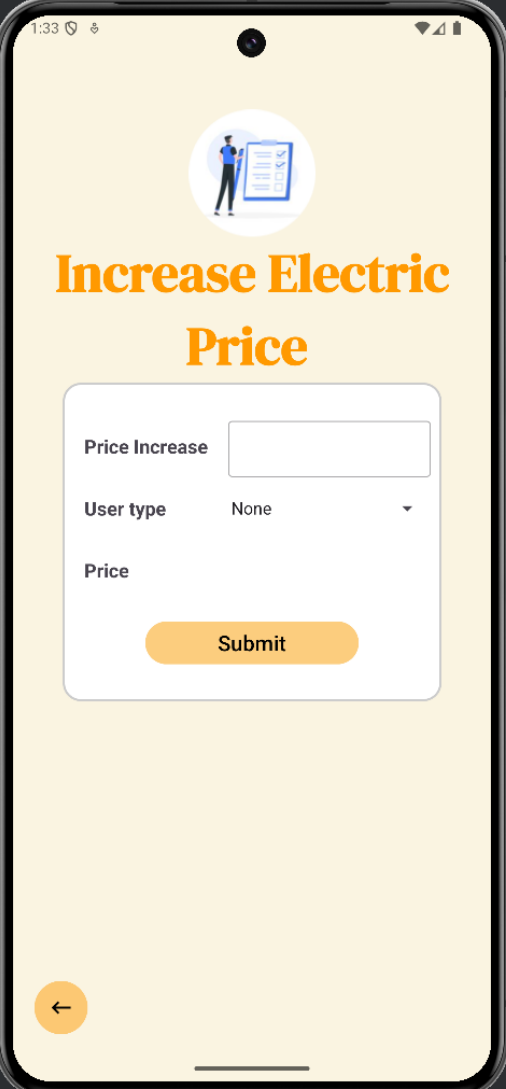
←

User can update customer's data in this function. By clicking on "Update" button in

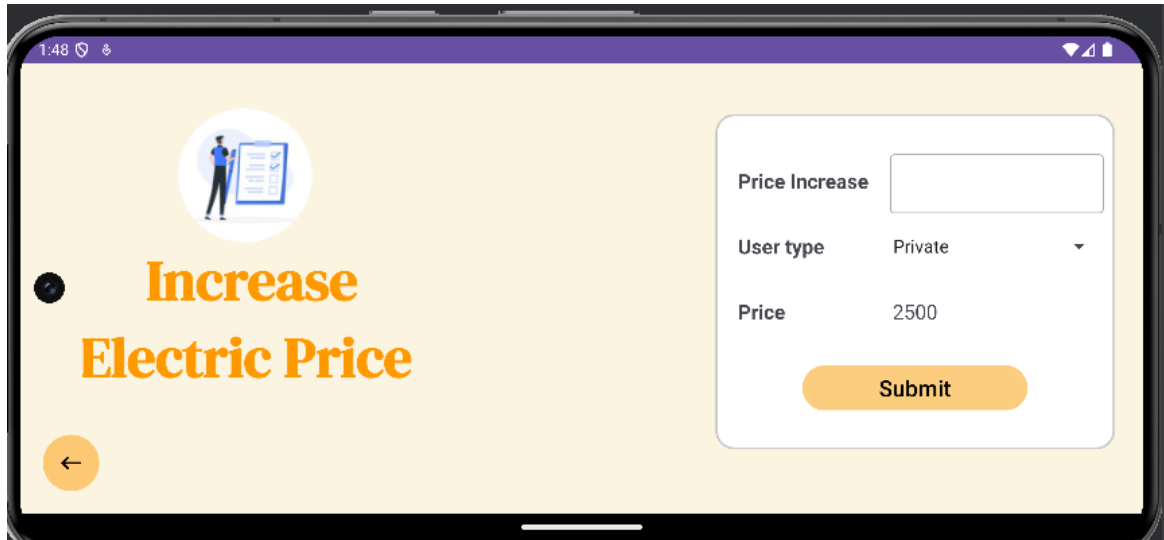
“Customer Detail” GUI, system will copy all data of the chosen customer, send them and display in this GUI. Then user can change data if necessary.

When the user clicks on the 'Update' button, the data will be changed, and a Toast will appear.

7. Increase electric price



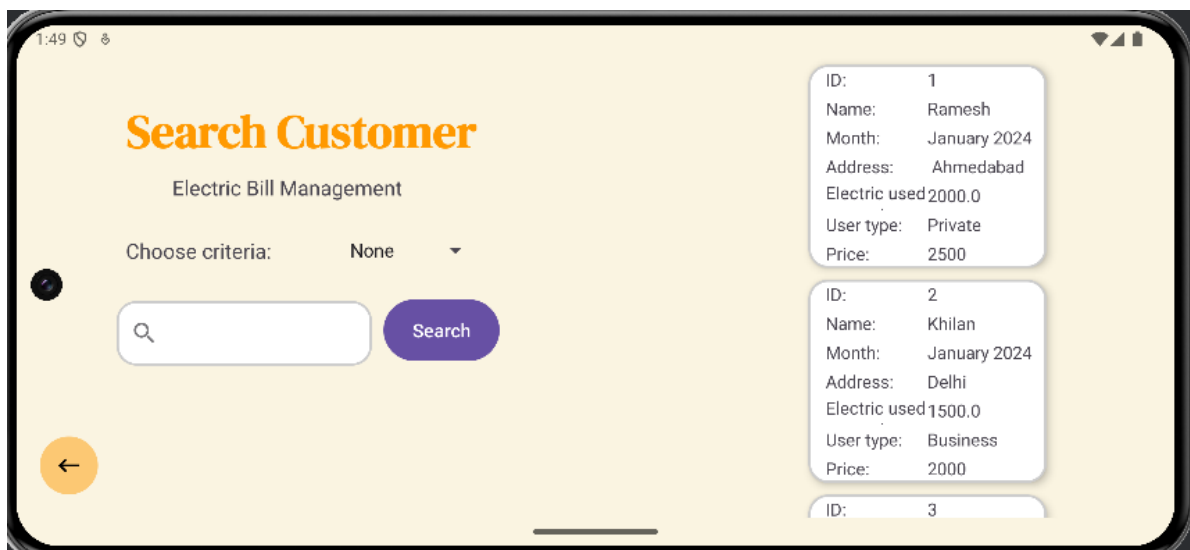
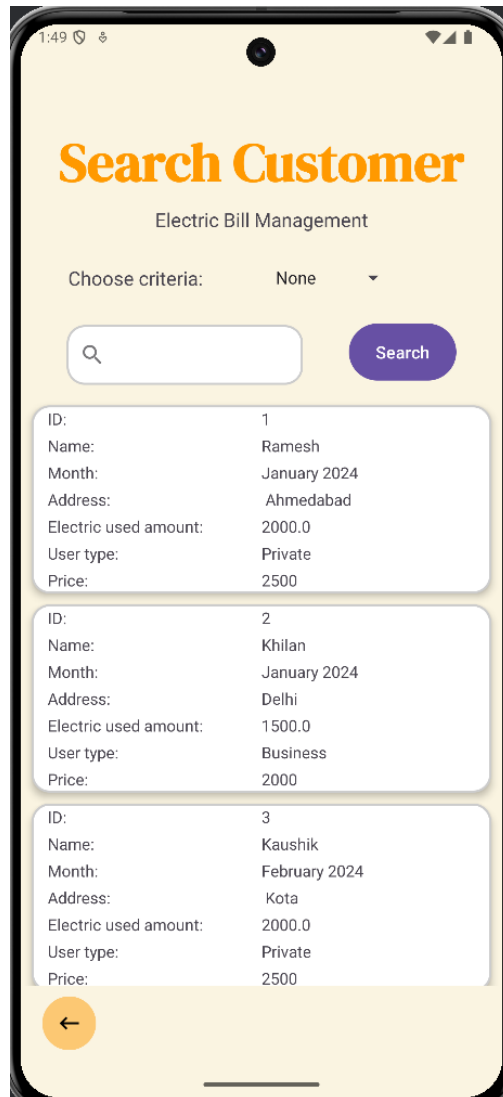
The screenshot shows a mobile application interface for increasing electric prices. At the top, there is a status bar with the time 1:33 and various icons. Below the status bar is a circular icon depicting a person holding a document. The main title "Increase Electric Price" is displayed in a large, bold, orange font. Below the title is a white rectangular form with rounded corners. Inside the form, there are three input fields: "Price Increase" with a text input box, "User type" with a dropdown menu showing "None", and "Price" with a text input box. Below these fields is an orange "Submit" button. At the bottom left of the screen, there is a circular orange button with a white left-pointing arrow. The background of the app is a solid light yellow color.



In this function, user can insert the amount of increasing of electric unit price. (Example : 500) and press button “Electric unit price increase” then unit price is updated in database and * create 1 notification with content is: “Already increase electric unit price for user type <name of user type> with amount <amount> at <time in DD/MM/YYYY HH:MM:SS format>”)

User can also know the before and after increasing price by typing listener.

8. Search customer

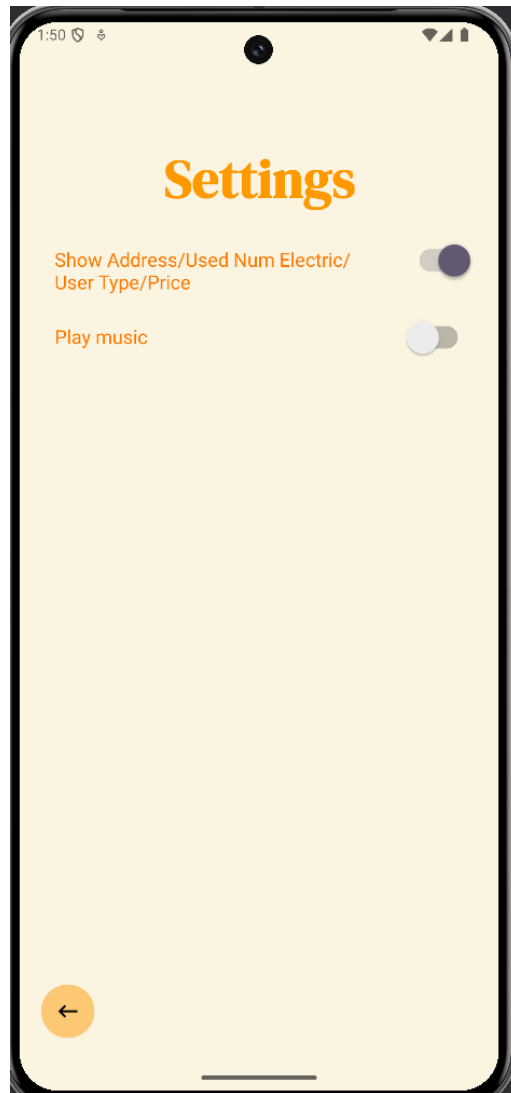


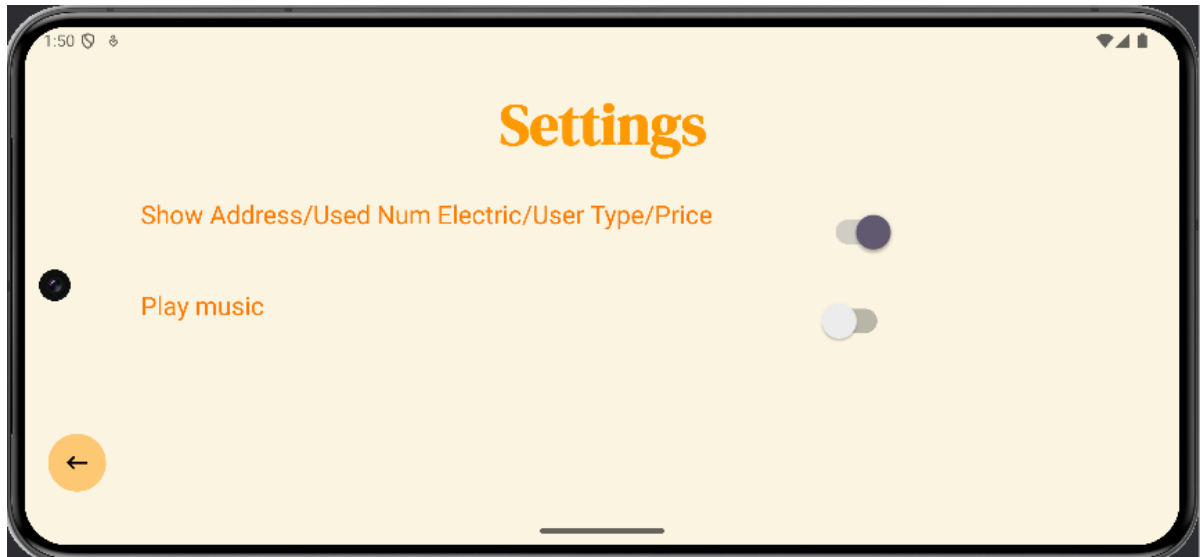
In this function, user can find customer by inserting data into the search bar and

press “Search” button, but if user forget to choose criteria to find, the search engine won’t run and a Toast will appear to remind customer.

If all data is inserted, the GUI will display the customers whose names or addresses contain the searched string

9. Setting





In this GUI, user can show or hide data in “Customer Detail” GUI and play music as long as user is still in the application.

III. Testing

- 1. Test case 1:** Add customer with customer list and customer details

1:54

Add Customer

Name Hao

YYYYMM Sep 2023
Oct 2024
Nov 2025

Address package com.example.electric_bill_...

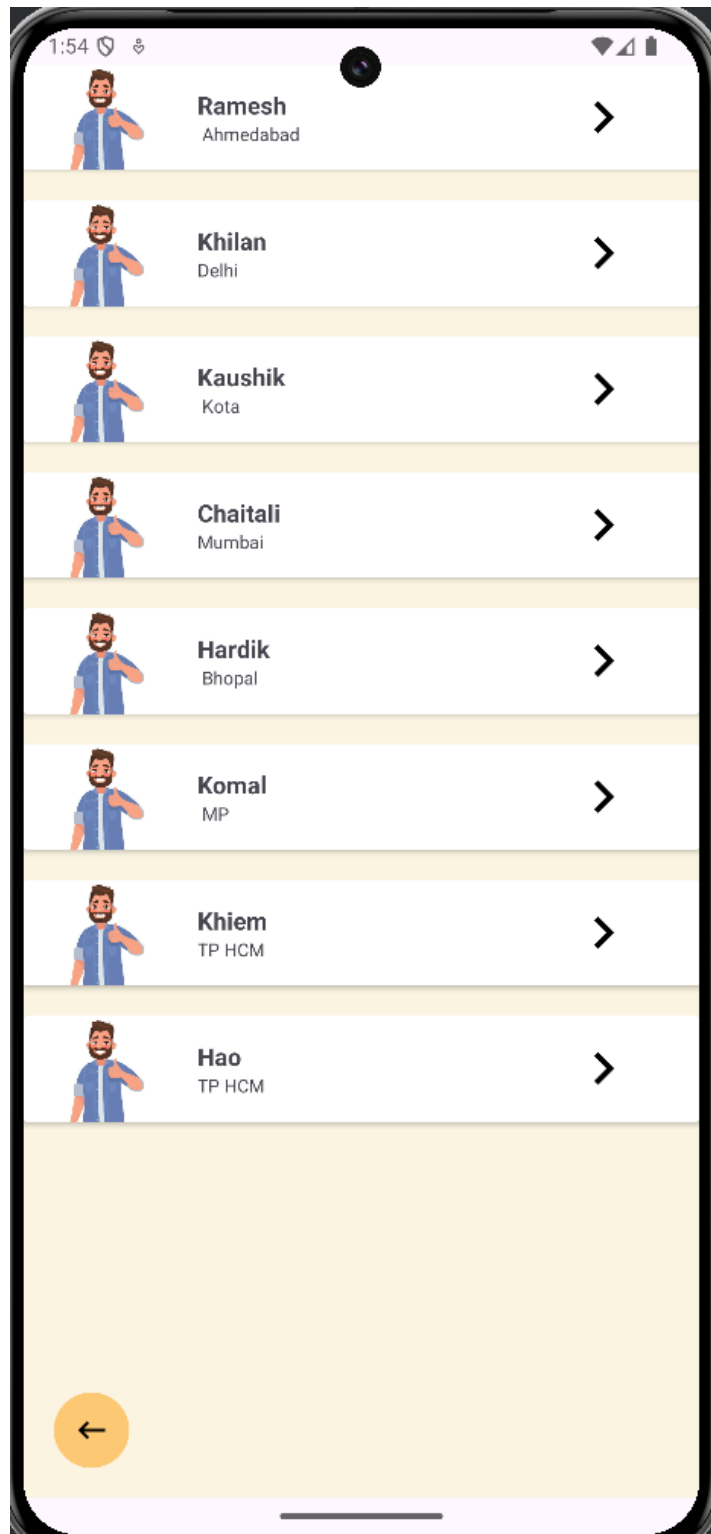
Electricity consumption 2000

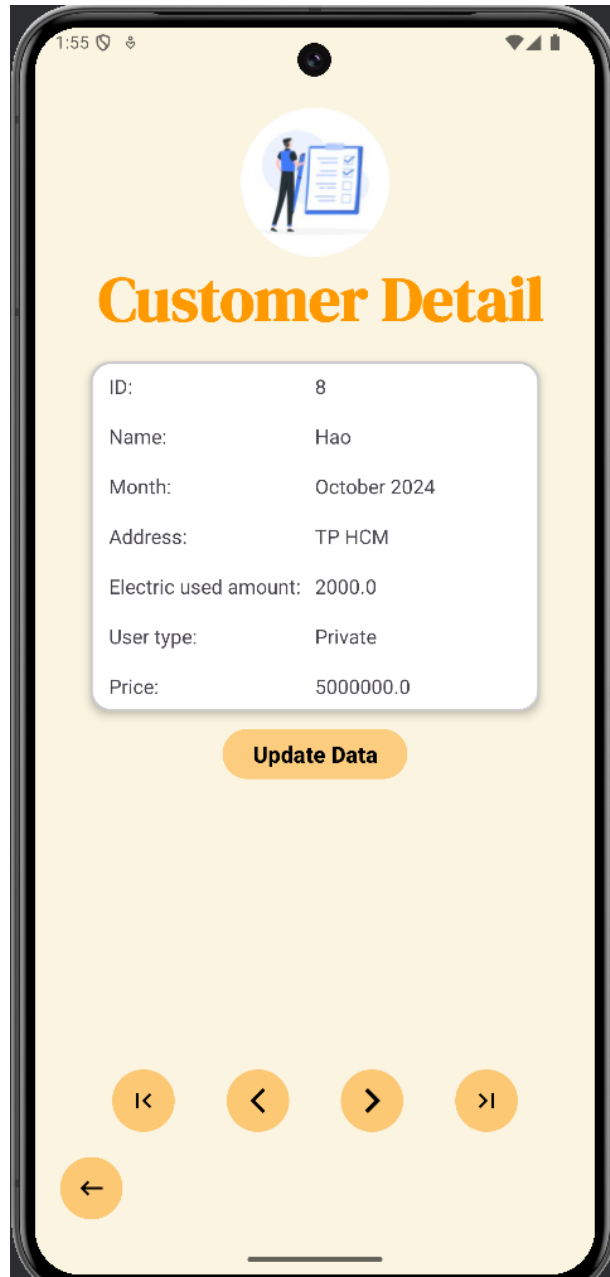
User type Private

Add

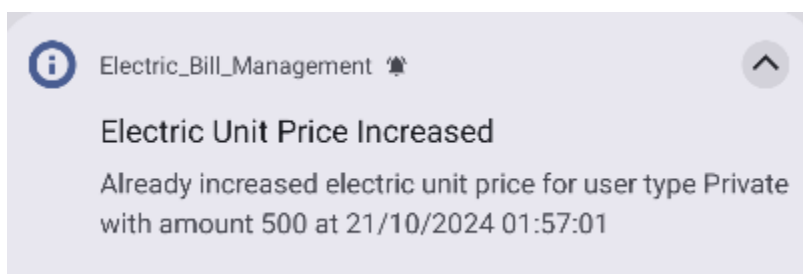
← ☰ 😊 ← ×

- After adding, new customer generated in customer list and details

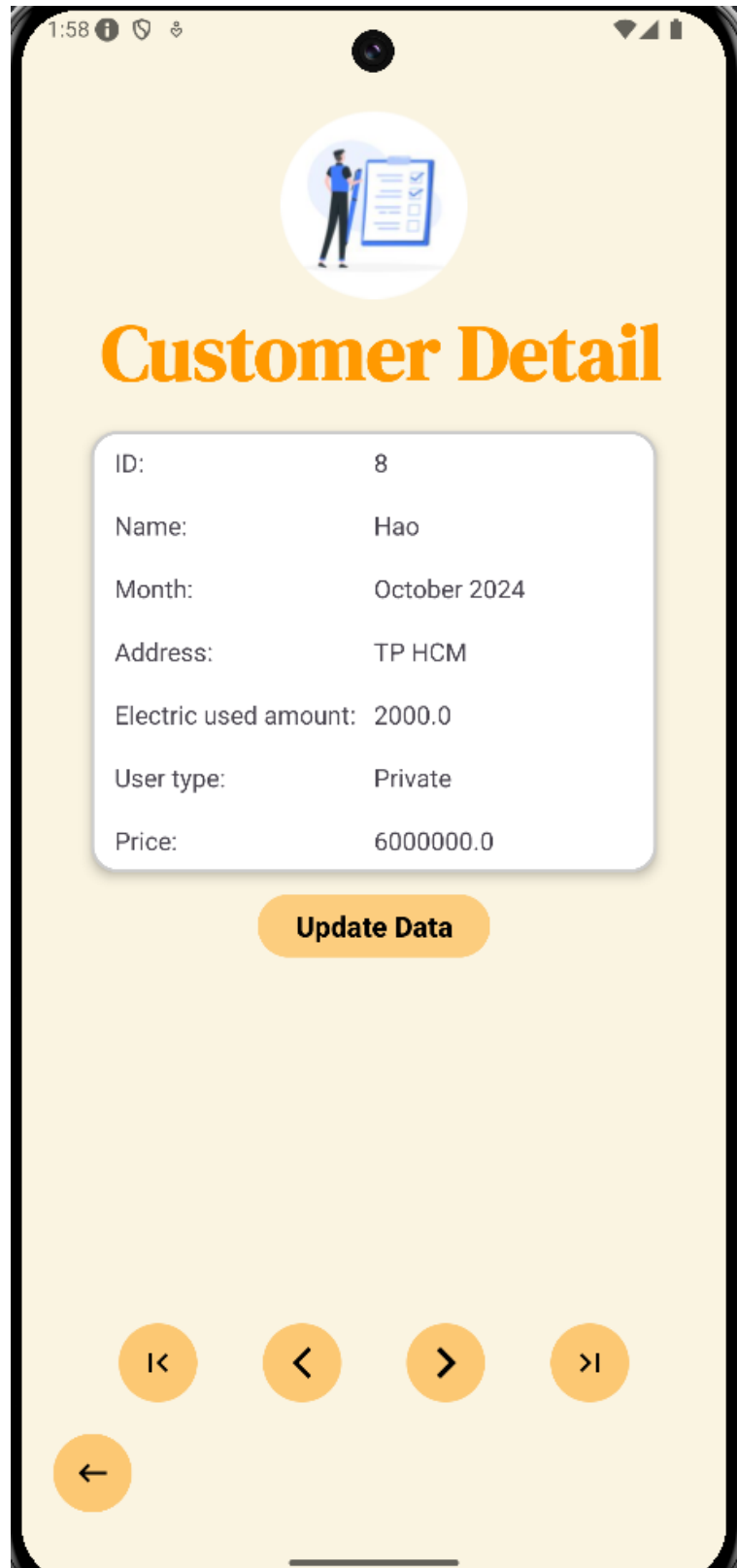




2. Test case 2: Increase Electric Price

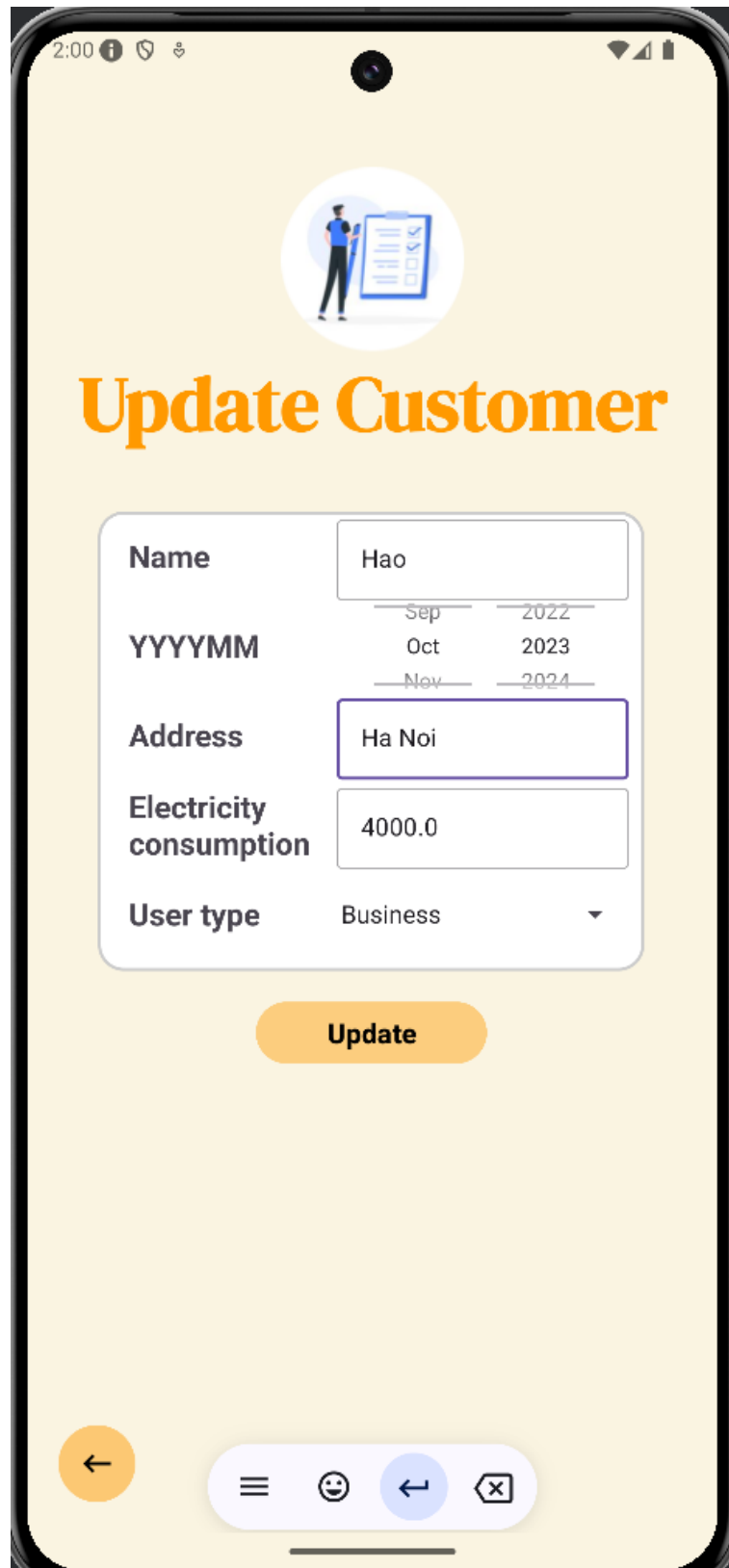


- A notice is generated after increasing price



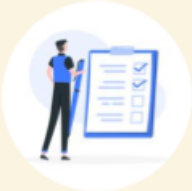
- The price change is reflected in the customer details.

3. Test case 3: Update customer



The image shows a mobile application interface for updating a customer. At the top, there is a status bar with the time 2:00 and various icons. Below the status bar is a circular icon depicting a person with a clipboard. The main title "Update Customer" is displayed in a large, bold, orange font. The form contains several fields: "Name" with the value "Hao", "YYYYMM" with a date picker showing "Sep 2022", "Oct 2023", and "Nov 2024", "Address" with the value "Ha Noi", "Electricity consumption" with the value "4000.0", and "User type" with a dropdown menu showing "Business". A large orange "Update" button is positioned below the form. At the bottom of the screen, there is a navigation bar with four icons: a back arrow, a menu icon, a smiley face, and a close icon.






2:00



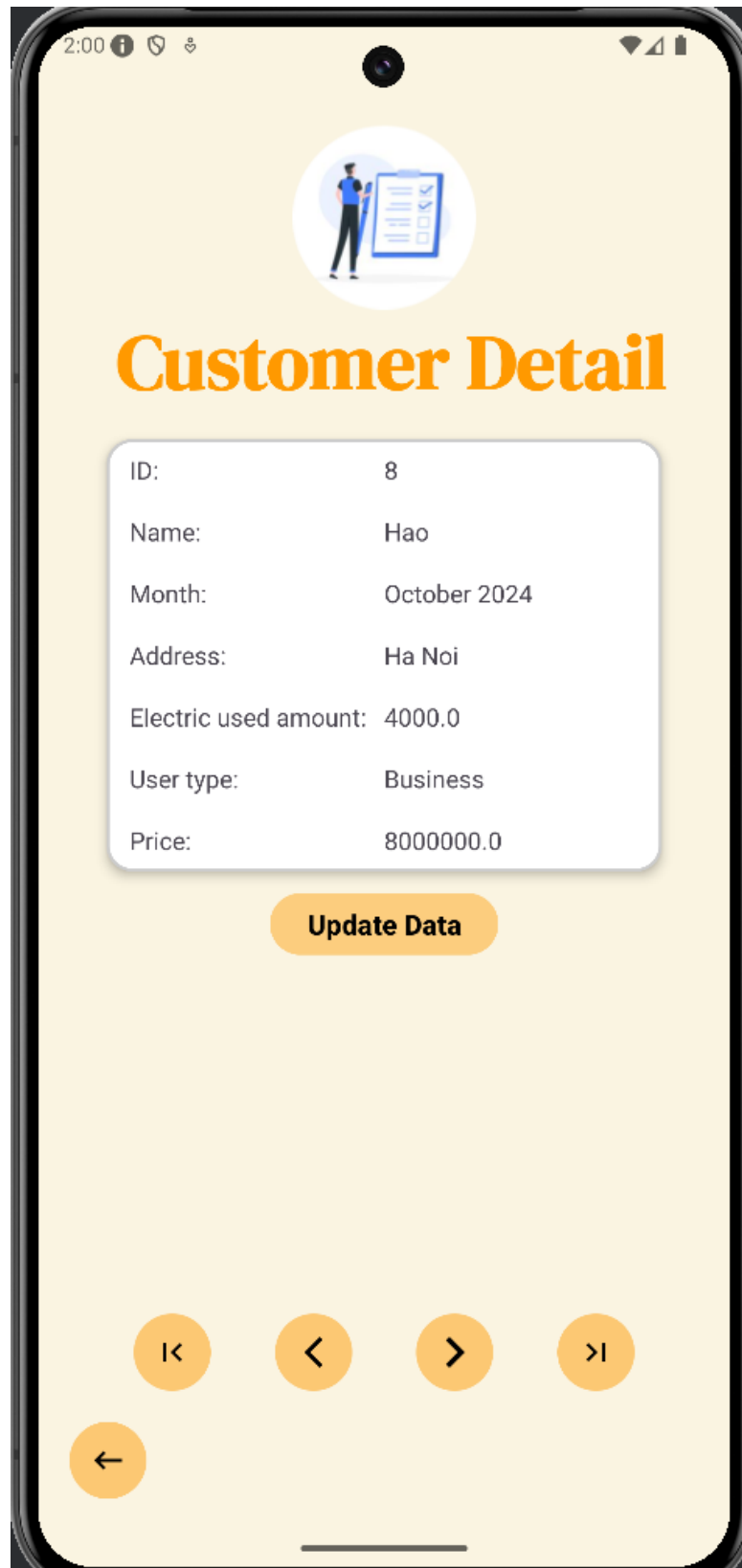
Update Customer

Name	Hao
YYYYMM	Sep 2022 Oct 2023 Nov 2024
Address	Ha Noi
Electricity consumption	4000.0
User type	Business

Update

4. Test case 4: Customer's data is changed after updating



5. Test case 5: Search customer by name

2:02

Search Customer

Electric Bill Management

Choose criteria: Name

Search

Kh

ID:	2
Name:	Khilan
Month:	January 2024
Address:	Delhi
Electric used amount:	1500.0
User type:	Business
Price:	2000

ID:	7
Name:	Khiem
Month:	September 2024
Address:	TP HCM
Electric used amount:	345.0
User type:	Private
Price:	3000

6. Search customer by address

