

# FlowMeter WebApp

## Overview

The goal of the project is to migrate functionality of the “FlowMeter Desktop” functionality to web application and take advantage of internet availability of the system, by integrating end-consumer actions into the system.

All the functionality that was available in the desktop version for the organization admin (accounting system, automatic calculations) should remain. Additionally, the end-consumer will be able to see information related to his services and consumes, and provide his data to the system, bypassing admin-consumer interaction that was necessary in the desktop action.

## Roles:

| Role  | Description   |
|-------|---|
| Admin | Guest -> log in /log out. View, add, delete and change all meters, services, payments data and receipts. Might add new account for consumer |
| User  | Guest -> log in /log out, submit counters, view information on his meters, services and receipts  |
| Guest | Log in like a admin or log in like a consumer   |

## Authentication

### Admin

Since admin can operate with the entire database freely, to a certain extent, admin functionality should be well protected. It's important to understand that the organization admin has no personal data, multiple employees of the organization can use a single account. Given that, creating a password for the admin manually in the database is considered.

### User

User can provide his confidential information related to the services provided by the organization. This information directly affects calculation of the service charges, so it is vital to give control over the consumer's authorization to the admin of the organization. It can be done with the consumer's email. Organization admin should register consumer email, specify authorization to the resources. After that, the owner of the email can proceed with the registration of a personal cabinet.

## Guest

A guest can view the main page of the website, where there is an option to log in or register as an administrator or consumer. However, the guest does not have access to other functions or confidential information without logging into the system. To grant access to the platform, the guest needs to choose the appropriate account type (administrator, consumer) during login or registration.

## Accounting System

| Role  | Use case   | Description   |
|-------|--|---|
| Admin | Create house   | Add address to house, set count of flats, set heating area, set count of resident   |
| Admin | Create meter for each service provided to the consumer | Set initial record, set meter to chosen house, set consumer, set service, set date  |
| Admin | Create service   | Set price of service, set house, set title.   |
| Admin | Create consumer record                                 | Set house, set owner's full name, set flat number, set heating area of flat, set personal account, set count of residents |
| Admin | Read house info  | View address of house, count of flats, heating area and count of resident   |
| Admin | Read meter info of each service                        | View initial record, meter to chosen house, consumer, service and date  |
| Admin | Read service info                                      | View price of service, house, title and type  |
| Admin | Read consumer record info                              | View house of consumer, consumer's full name, flat number, heating area of flat, personal account and count of residents  |
| Admin | Update house   | Update house data   |
| Admin | Update meter data for each service                     | Update meter data for each service of the   |
| Admin | Update service   | Update service data   |

| Role           | Use case  | Description                                  |
|----------------|---|--|
| Admin          | Update resident record                                | Update resident record data                  |
| Admin          | Delete house  | Delete house from the system                 |
| Admin          | Delete meter of each service                          | Delete meter of each service from the system |
| Admin          | Delete service  | Delete service from the system               |
| Admin<br>Admin | Delete consumer record<br>Add service to the consumer | Delete consumer record                       |
| User           | Read Meters   |  |
| User           | Read Services   |  |
| User           | Read Personal record info                             |  |

#### Calculation System

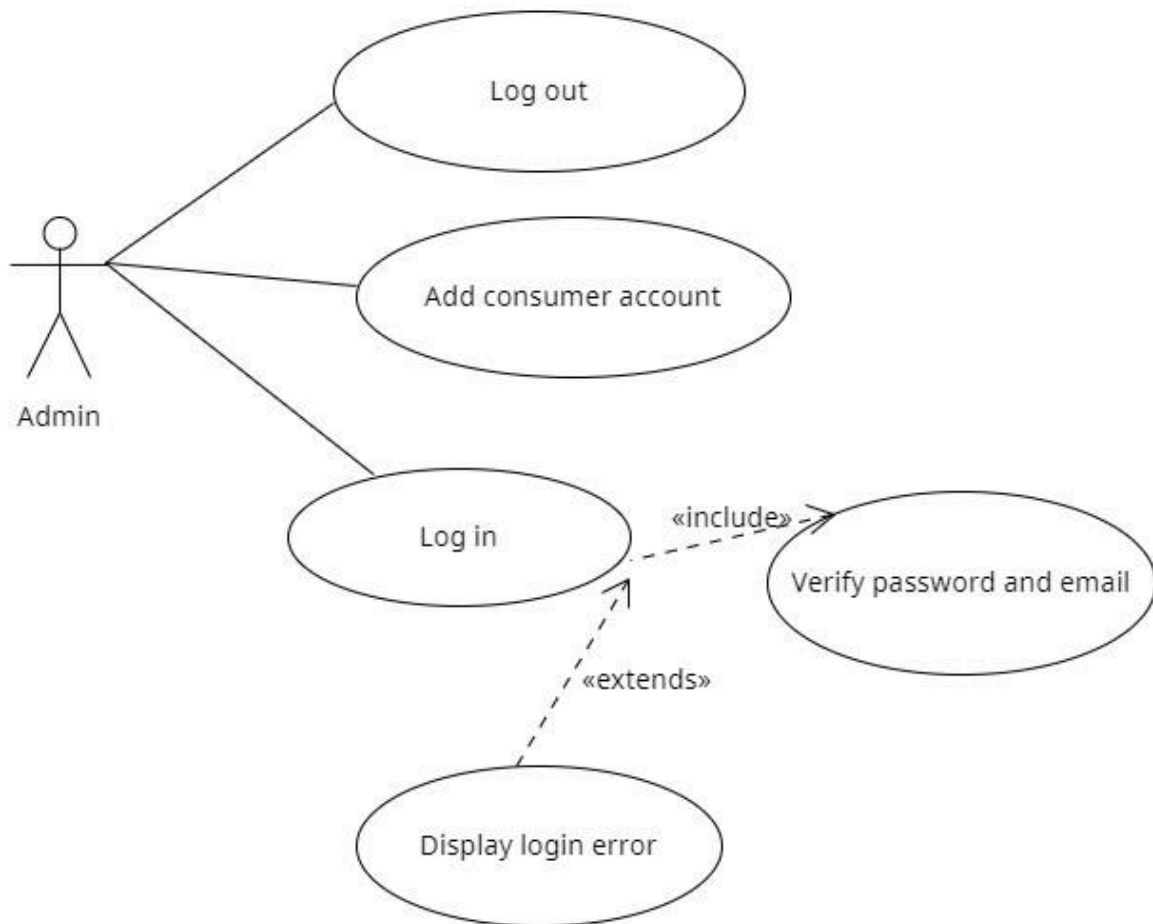
| Role  | Use case  | Description   |
|-------|---|---|
| User  | Provide indicator value                                 |   |
| User  | Read his receipts by month                              | Optional downloading  |
| Admin | Register payment from consumer                          | Set amount, consumer  |
| Admin | Read receipts of the consumers                          | Optional downloading  |
| Admin | View results of calculations for all consumers by month | View info about consumer debts, postponing the meter indicator values submission. |
| Admin | Fix results of calculations                             | Add amount of charge (+ or -)   |

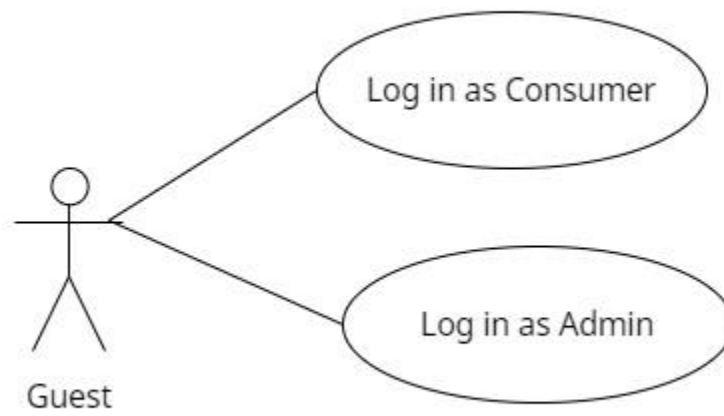
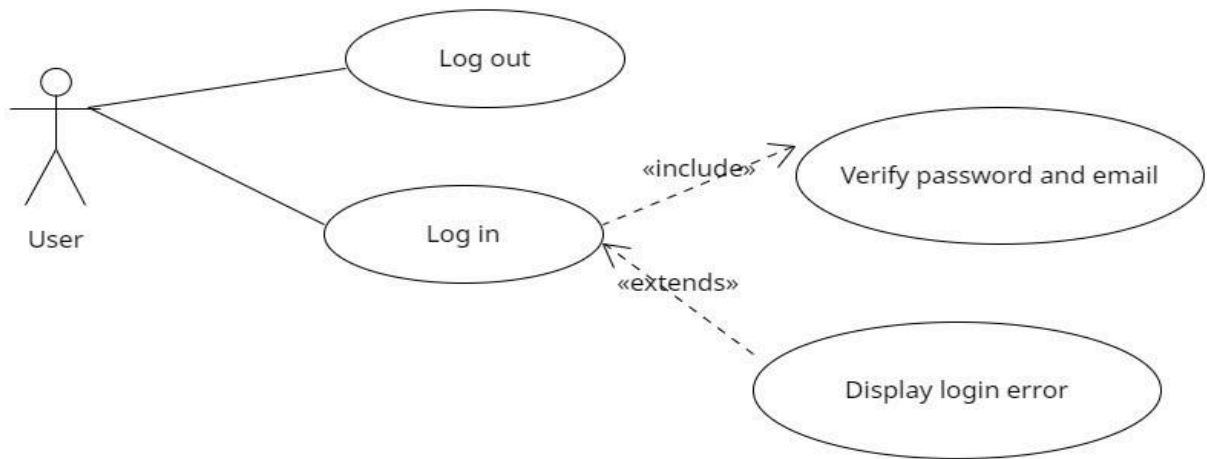
**Auth System**

| Role  | Use case                 | Description  |
|-------|--------------------------|--|
| Admin | Log out                  | Log out of a system  |
| Admin | Add consumer account     | Register an email for the consumer   |
| User  | Log out                  | Log out of a system  |
| Guest | Log in as Admin/Customer | To grant access to the platform, the guest needs to choose the appropriate account type. Verify password and email |
| Guest | Register as a Customer   | Create an account, using registered email. Verify email, then enter the password.                                  |

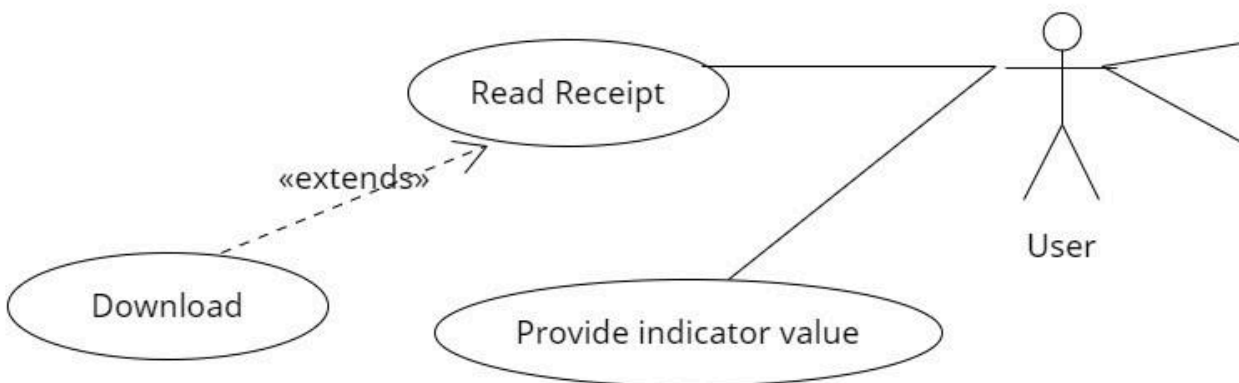
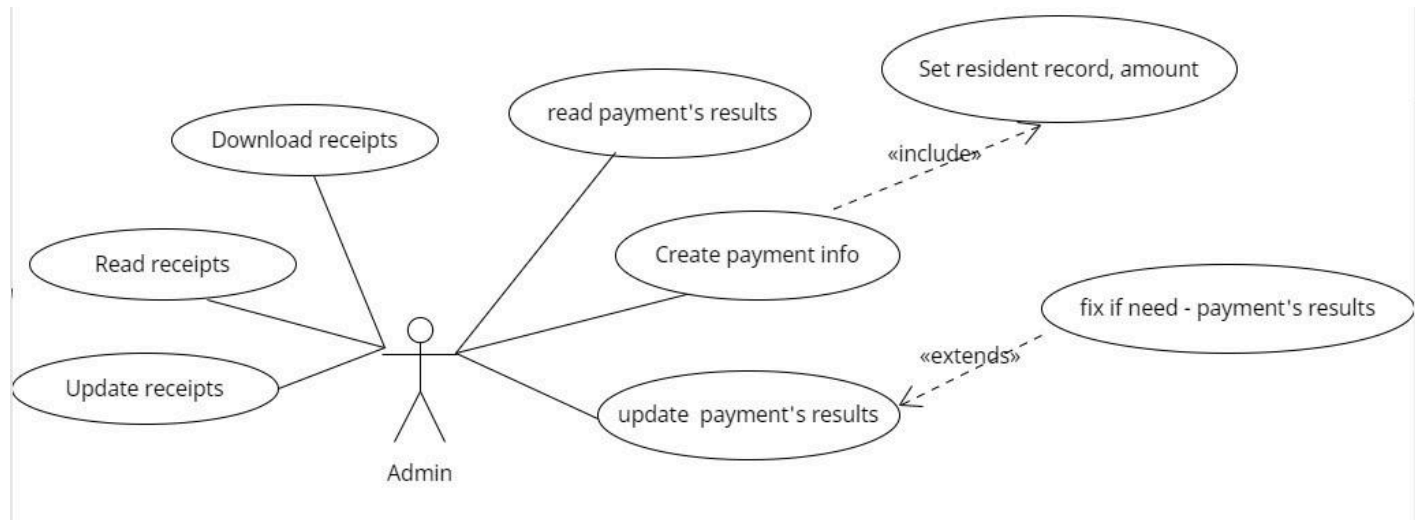
## System modularization

Auth system:

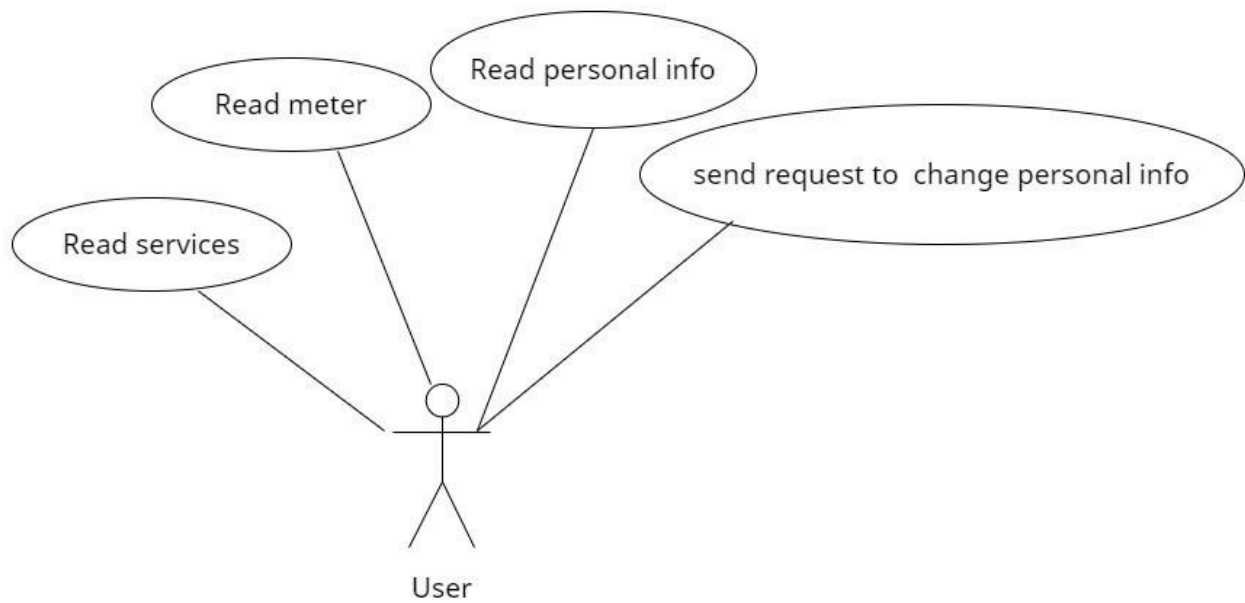
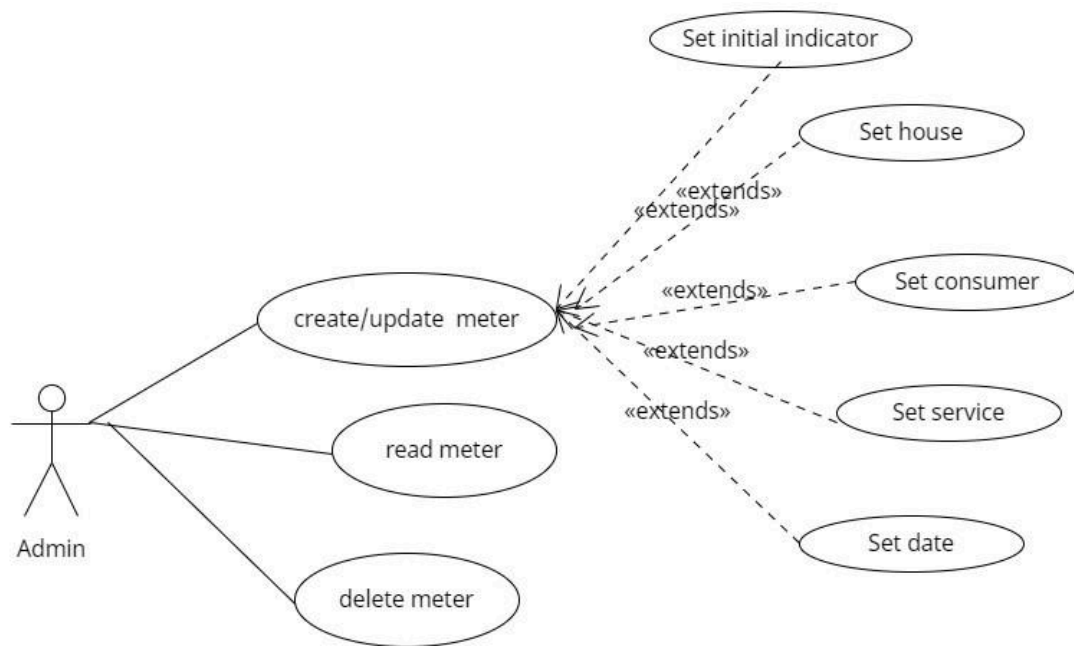




## Calculation system:

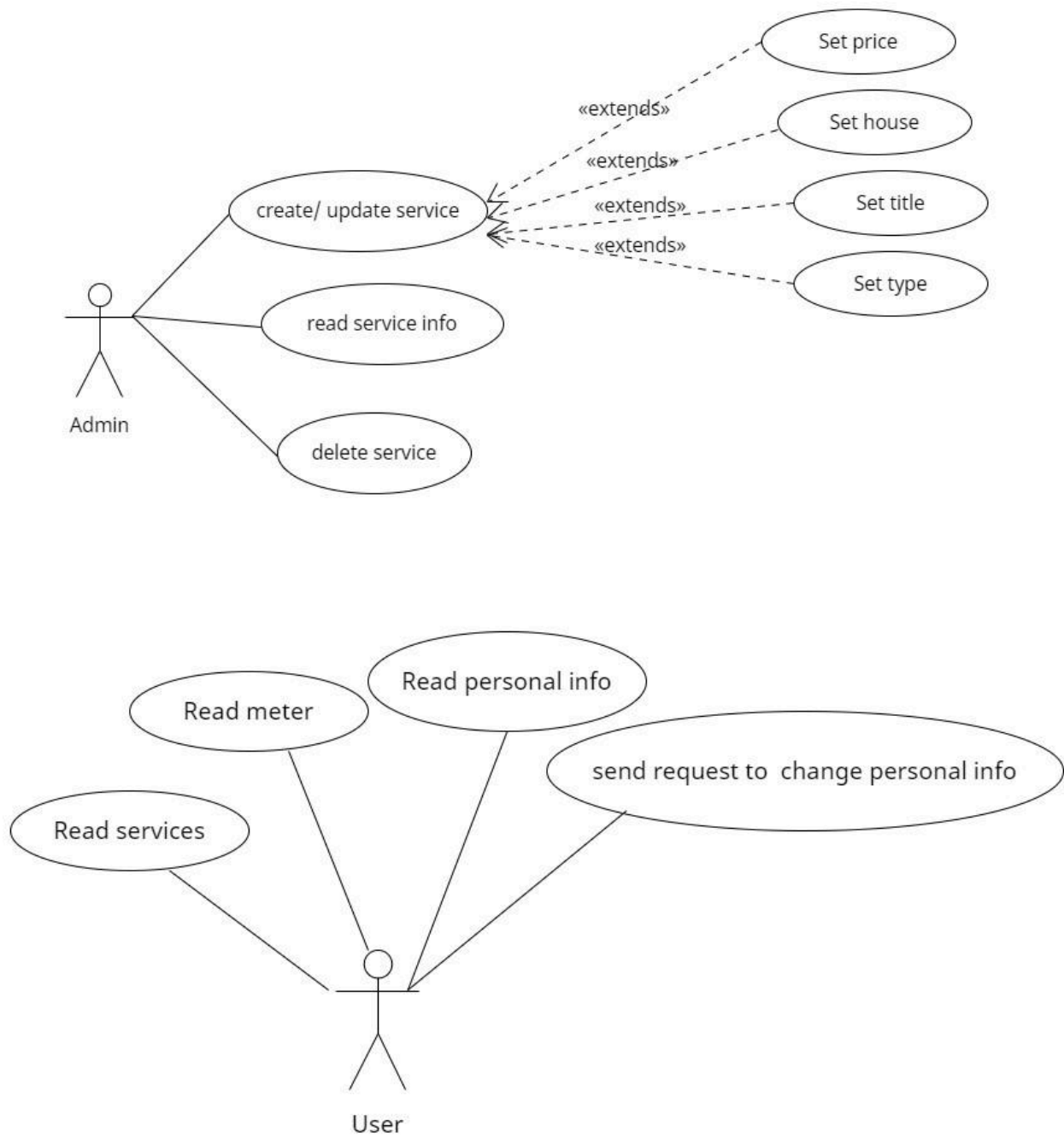


## Accounting system

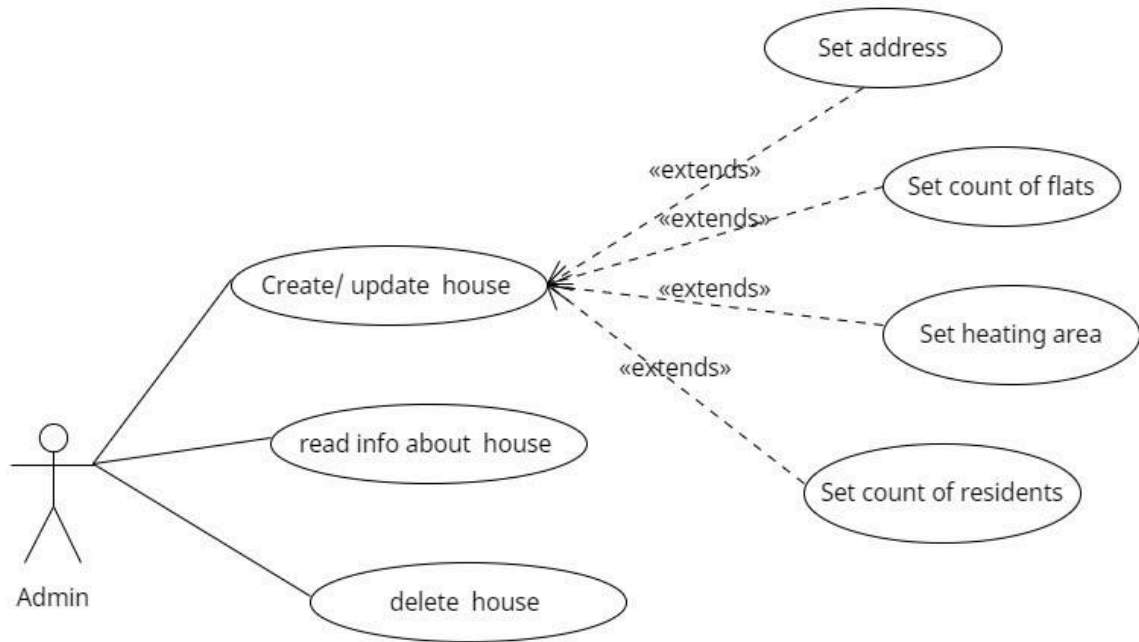




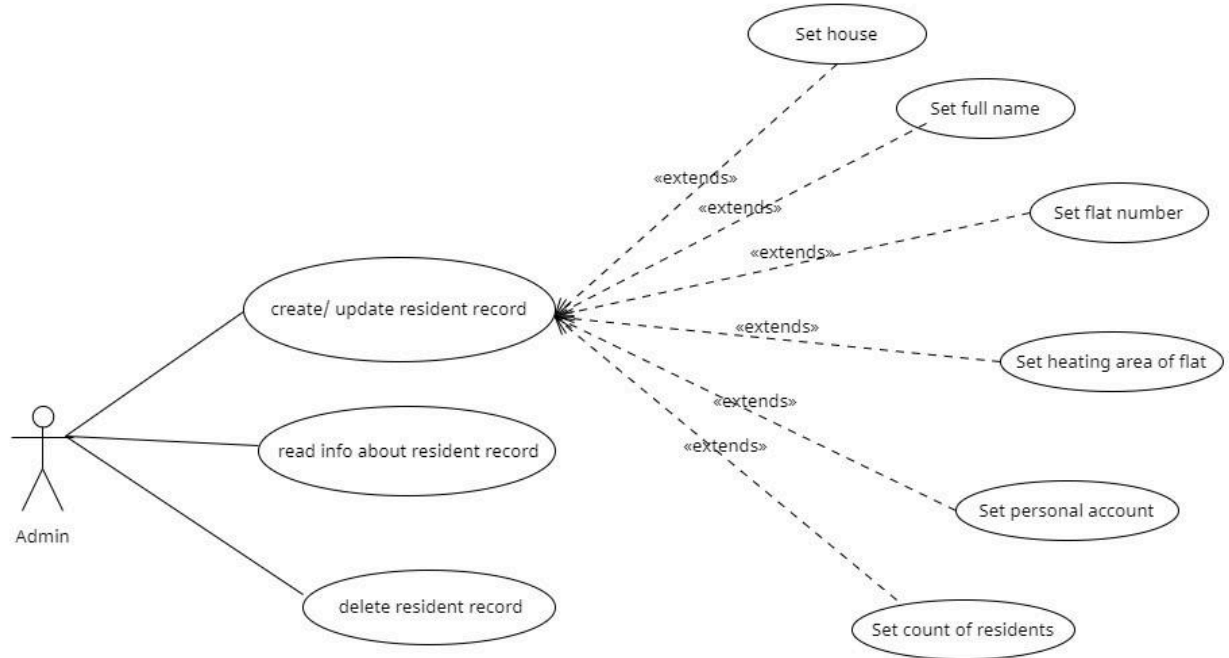
## Service system



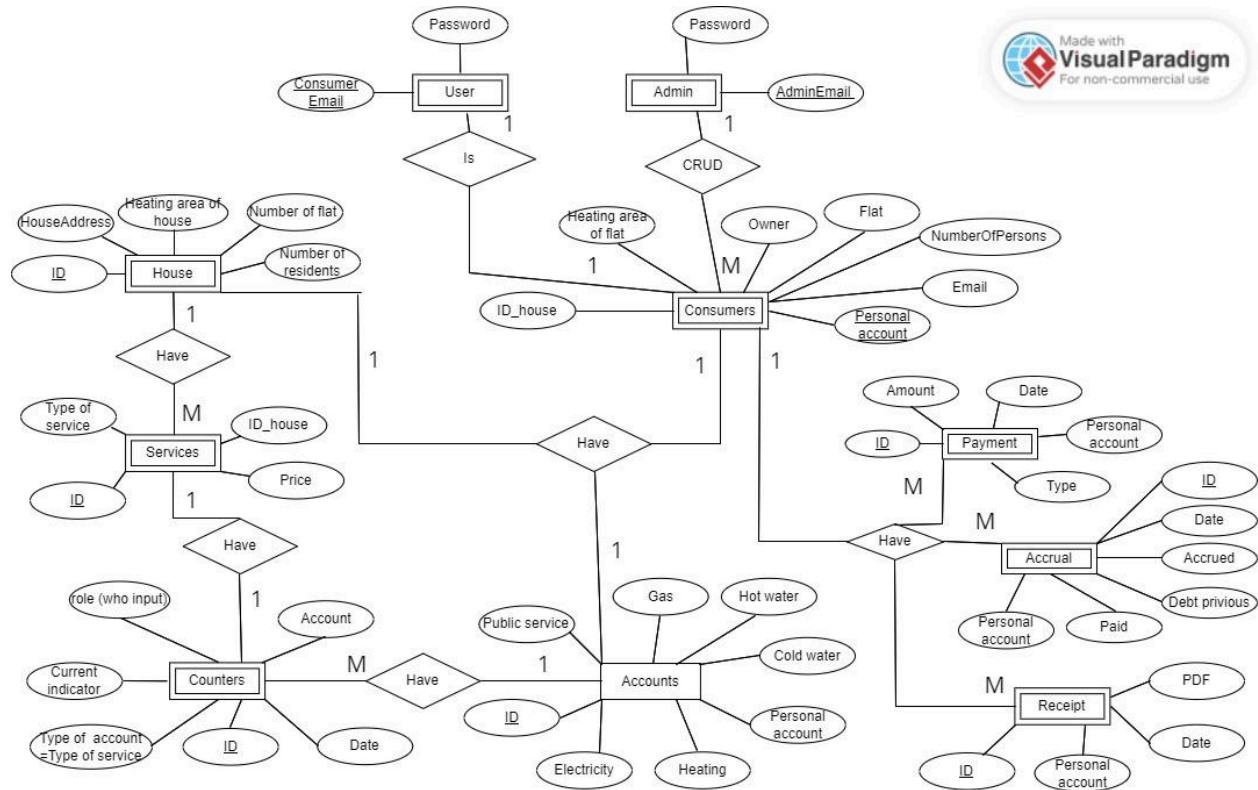
## Accounting houses system



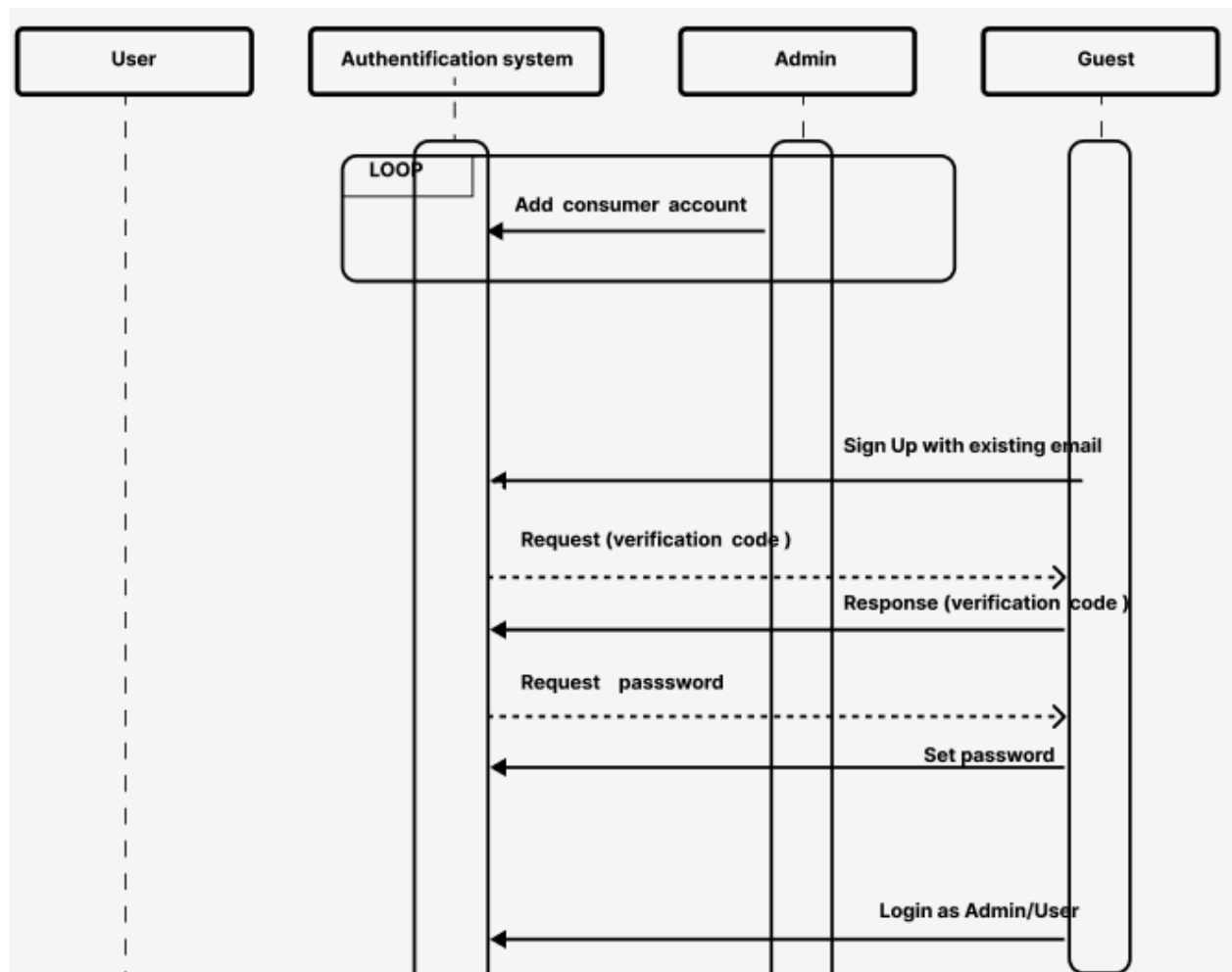
## Accounting residents system



# ER-Diagram



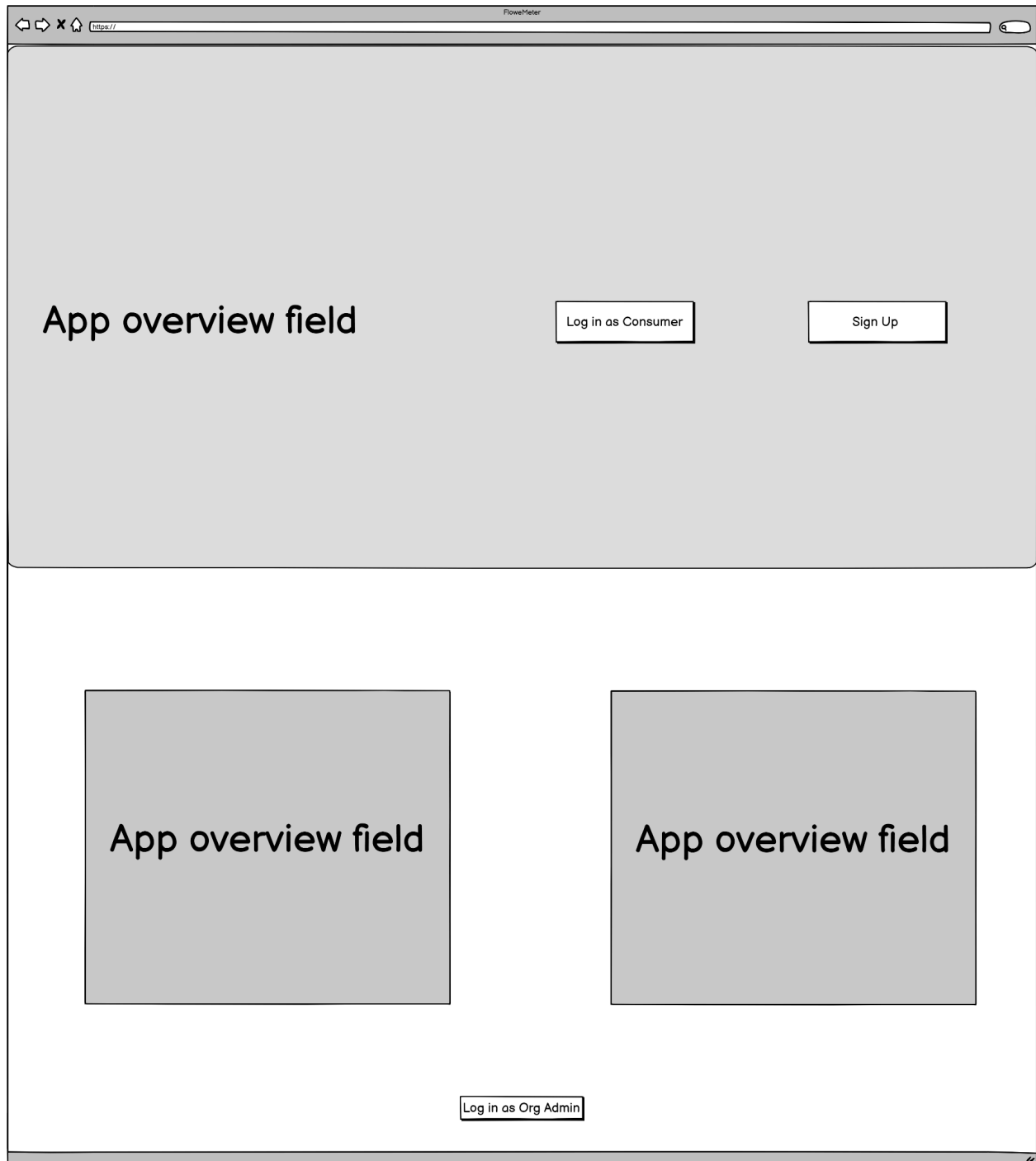
## Sequence diagram



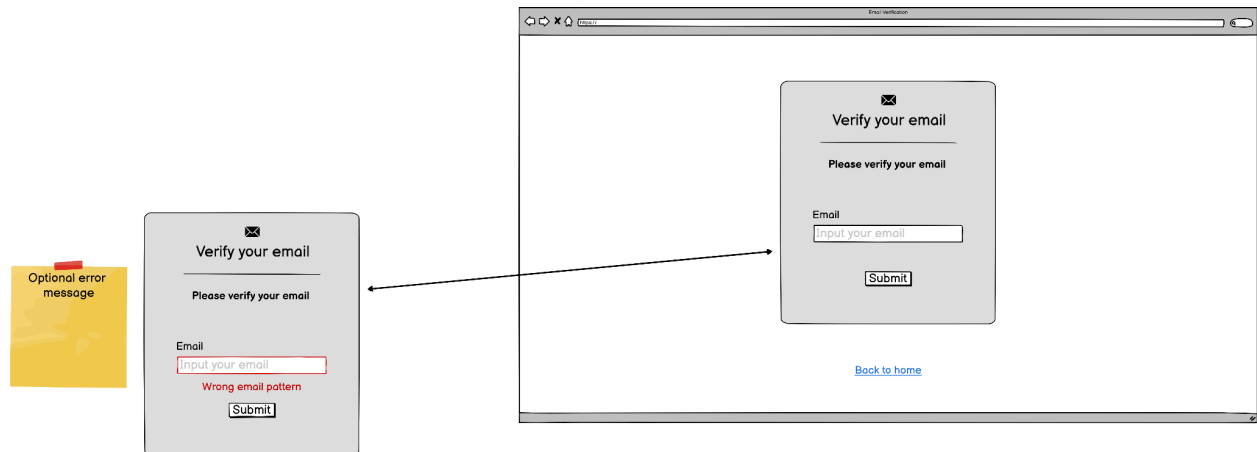
See more in “Application 1 - Sequence diagram”.

# MOCKUPS

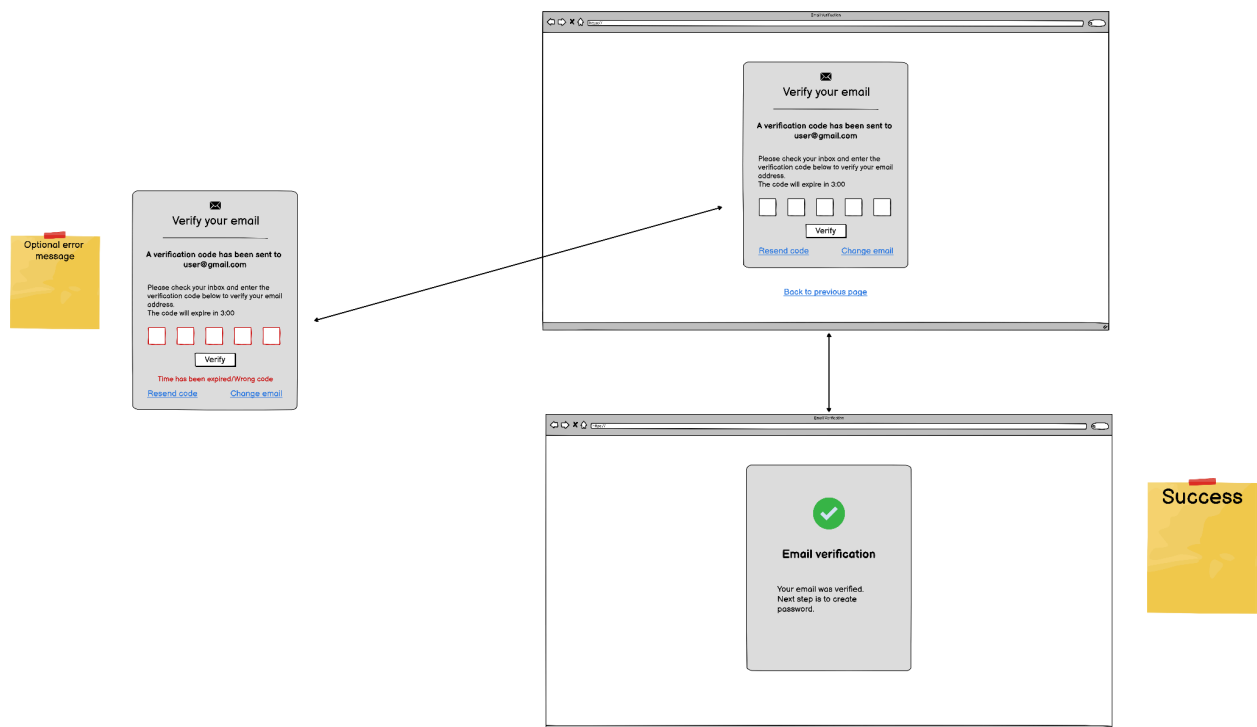
## Home page



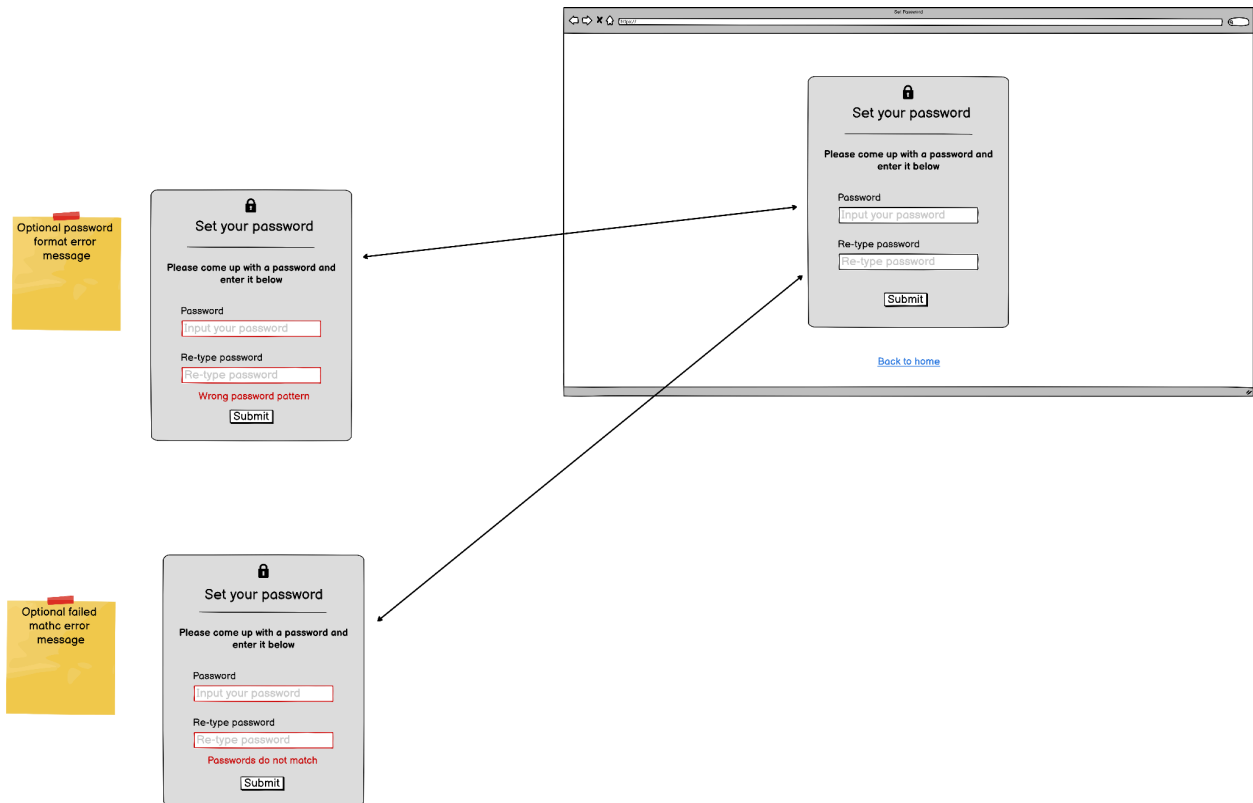
## Email input



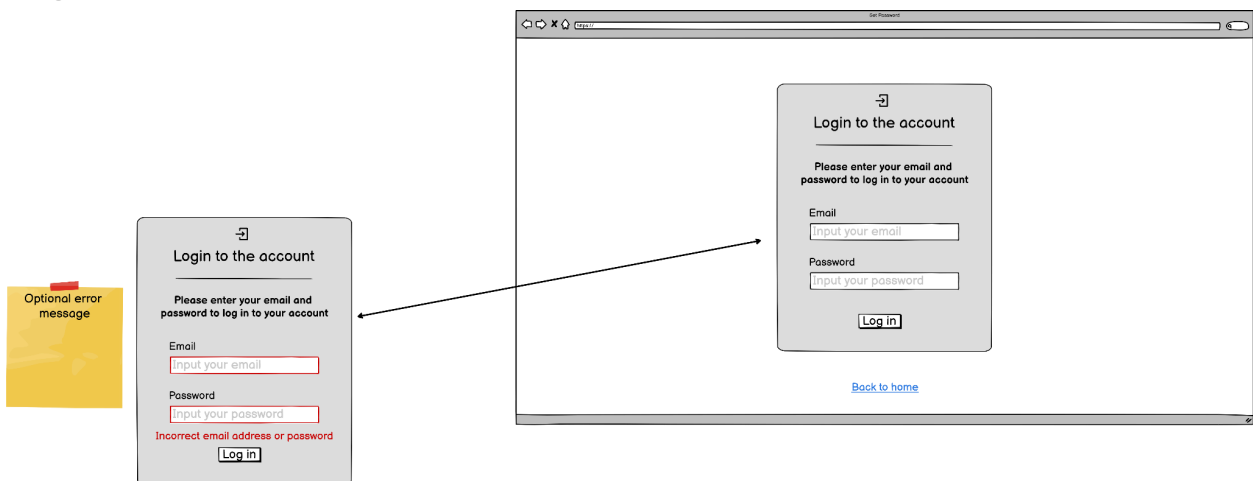
## Email verification



## Set password

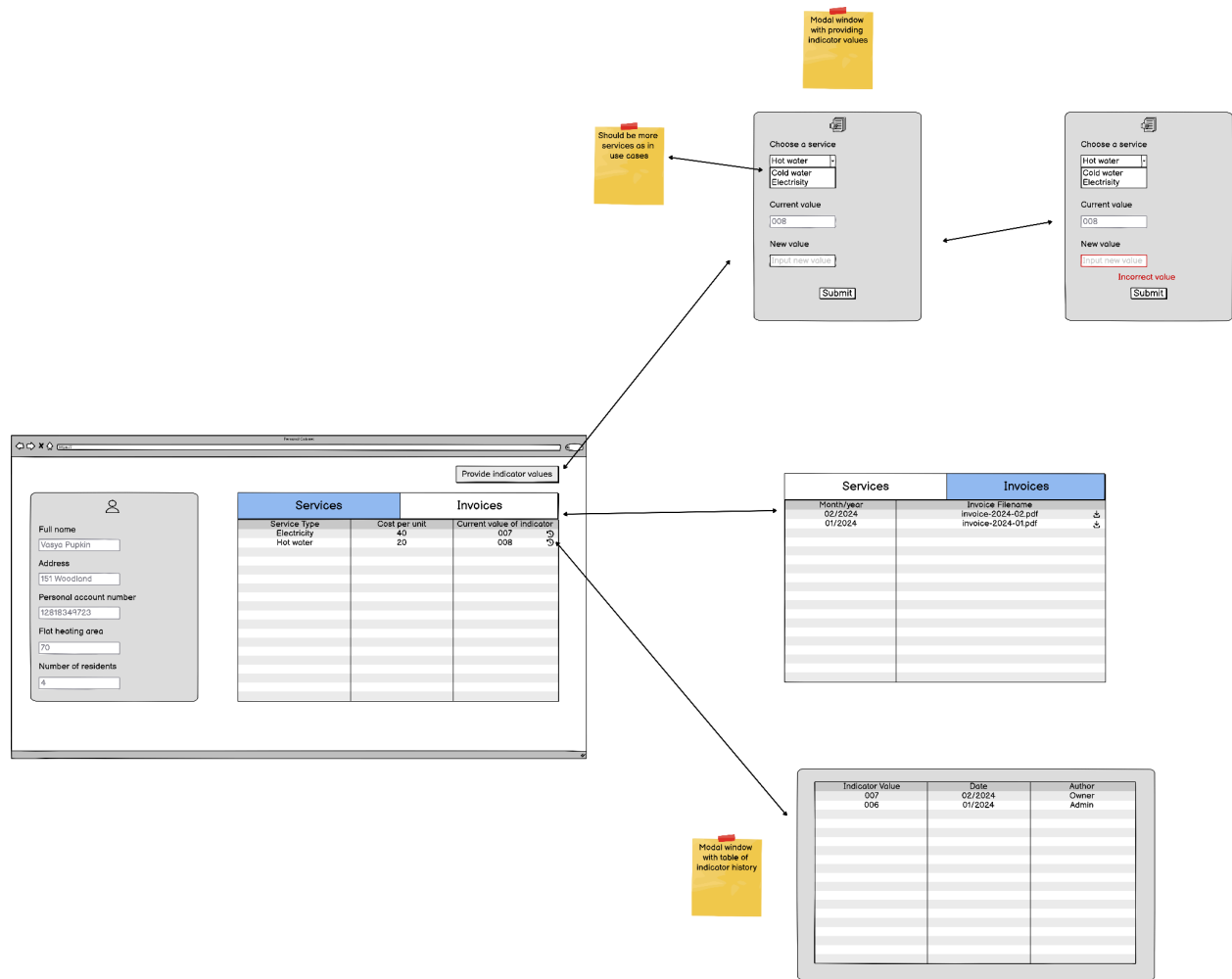


## Log in





## Consumer's personal cabinet



## Payments results(admin)

[illegible]

## Invoices(admin)

[illegible]

The screenshot displays the FlowMeter application interface. On the left is a sidebar with a document icon and a list of items: 'House', '2132132123', '234234234', '346644345', 'Payment', 'House', and 'Sum ...'. A 'Save' button is at the bottom of the sidebar. The main window has a title bar 'FlowMeter' and a navigation bar with tabs: 'Houses', 'Personal accounts', 'Meters', 'Services and tariffs', 'Accrual', 'Invoices', and 'Payments' (which is selected). Below the navigation bar is a form with fields for 'House', 'Personal account', and 'Type', a search bar, and a calendar icon. A table below the form shows payment records with columns: '№', 'House', 'Personal account', 'Full name', 'Date', 'Sum', and 'Type'. The table contains four rows of data.

| № | House             | Personal account | Full name                    | Date       | Sum | Type        |
|---|-------------------|------------------|------------------------------|------------|-----|-------------|
| 1 | Дорошенка 23      | 9012346182       | Яцулак Андрій Богданович     | 15/01/2024 | 450 | оплата      |
| 2 | Дорошенка 23      | 9012346182       | Яцулак Андрій Богданович     | 16/01/2024 | 270 | оплата      |
| 3 | Сагайдачного 44   | 9245162718       | Тутко Володимир Григорович   | 27/01/2024 | 90  | перерахунок |
| 3 | Княгині Ольги 104 | 122137237        | Каларис Андрій Ростиславович | 03/01/2024 | 600 | авто        |

## Register email

Filter:

House

▼

Full name

▼

Access\* to the account:

2132132123

▼

234234234

346644345

example@mail

Access - the owner of this email will be able to view information on this account (name, services, apartment, as well as submit meter readings)

Provide access