# 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 |

## Authentification

**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 |

| Role | Use case | Description |
|---|---|---|
| Admin | Update service | Update service data |
| 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**

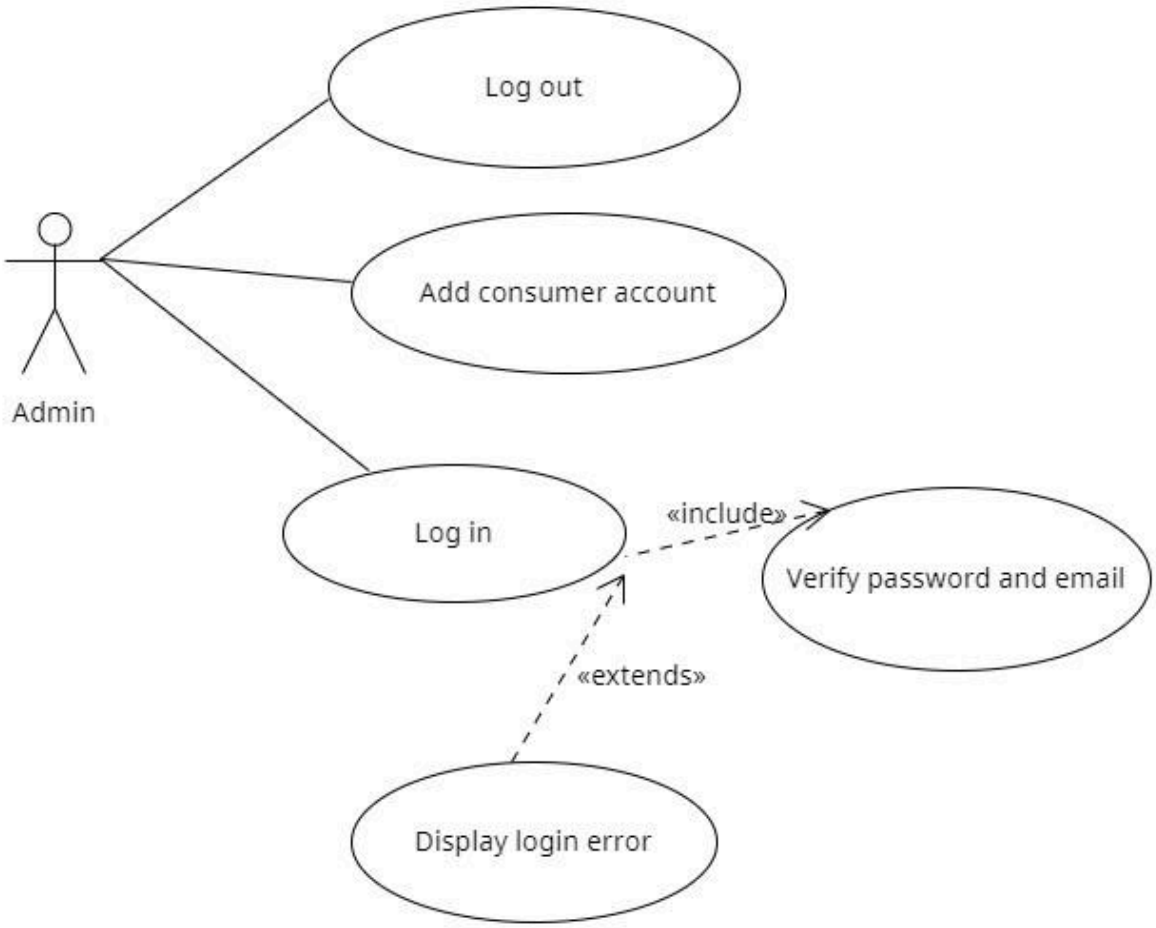
| Role | Use case | Description |
|---|---|---|
| User | Provide indicator value | |
| User | Read his receipts by month | Optional downloading |
| Admin | Register payment from consumer | Set amount, consumer |
| Admin | Read receipts of the consumers | Optional downloading |
| Admin | View results 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 -) |
| Admin | Put the results in the receipt | Put the results in the receipt in PDF file |
| Admin | A system that will check when the calculation system should be started, | Create service or system(would be better) that will check when the calculation system should be started |

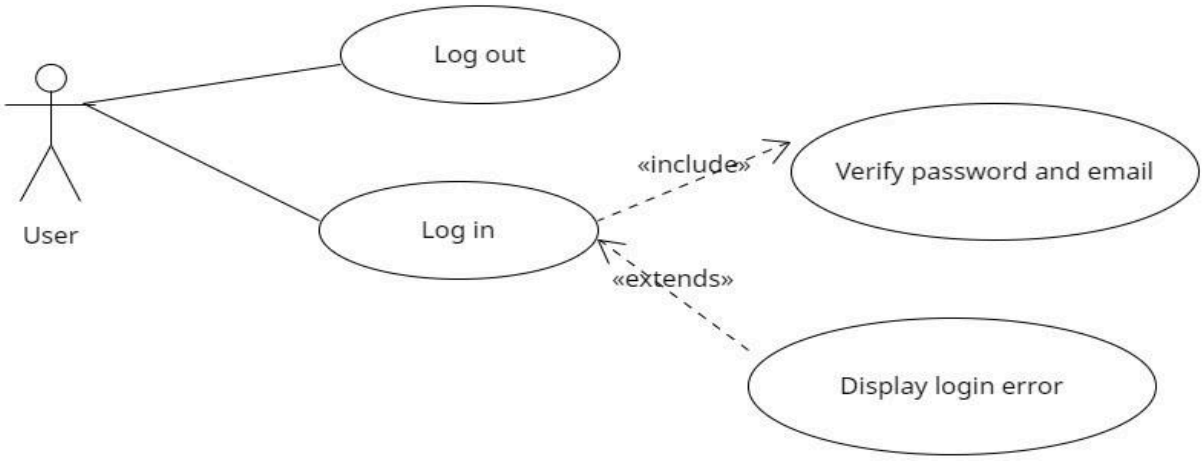
**Auth System**

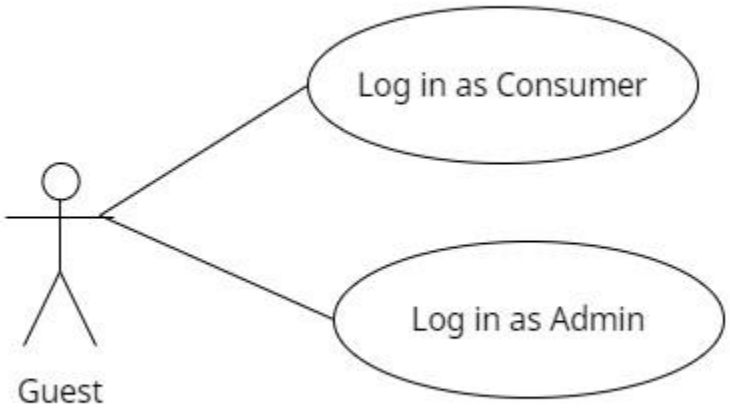
| Role | Use case | Description |
|---|---|---|
| Admin | Log out | Log out of a system |
| Admin | Add consumer account | Register an email for the consumer |
| User | Log out | Log out of a system |
| Guest | Log in as Admin/Customer | To grant access to the platform, the guest needs to choose the 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

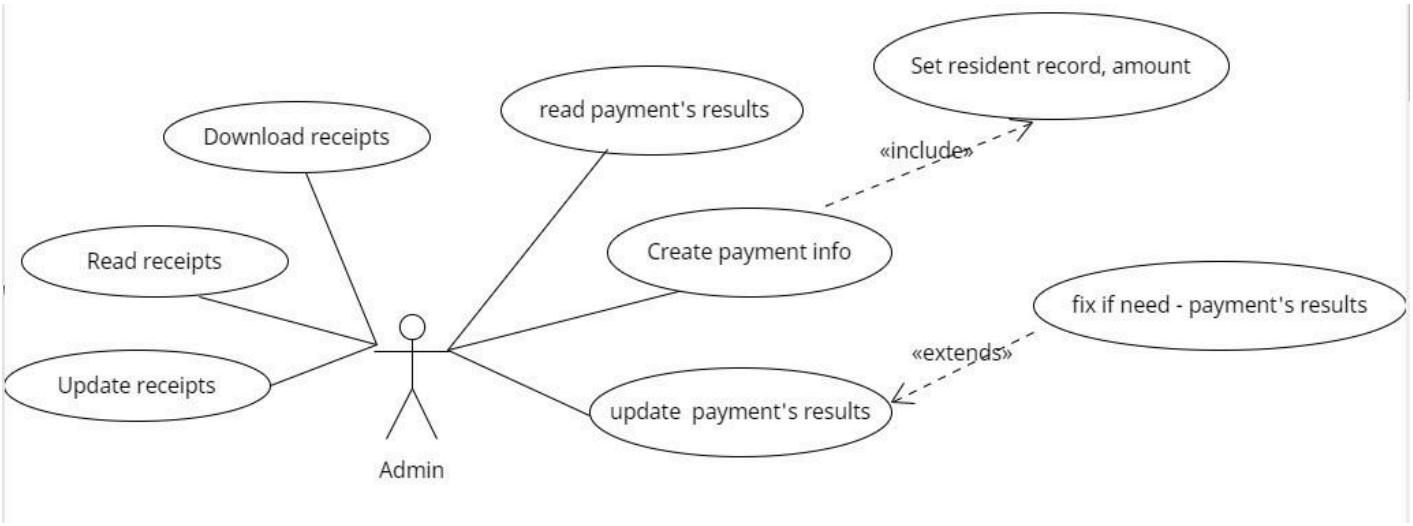
## Auth system:

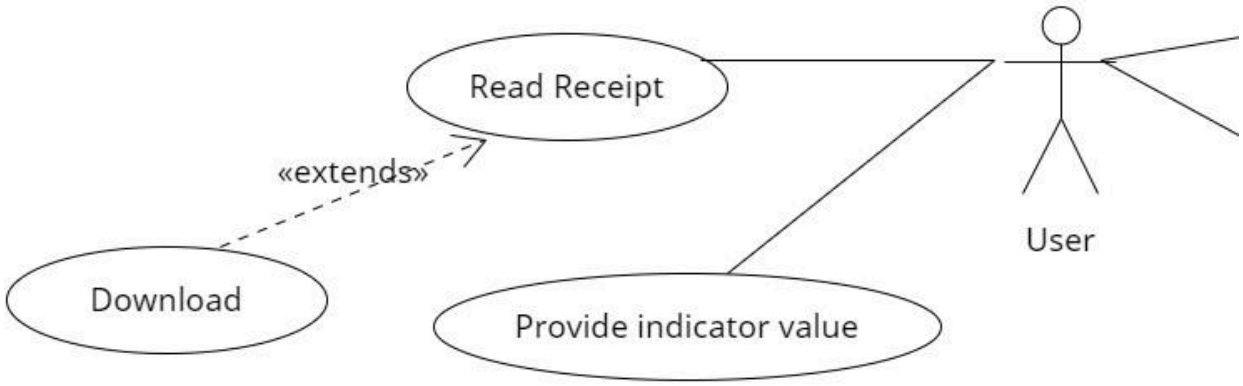



Log out
User
Log in
«include»
Verify password and email
«extends»
Display login error

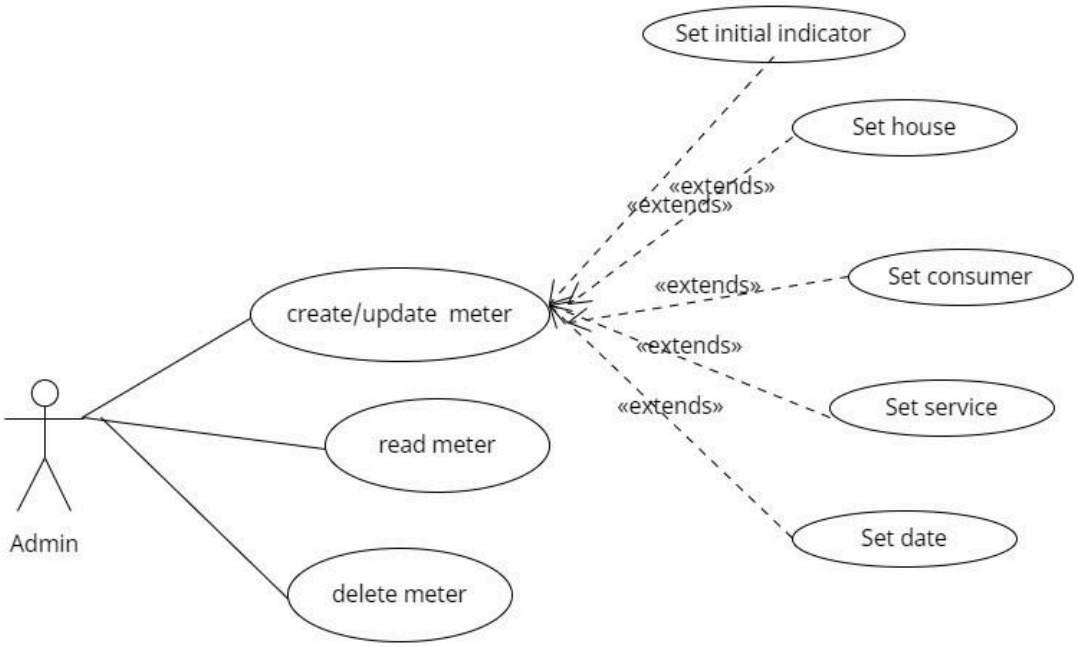

Log in as Consumer
Log in as Admin
Guest

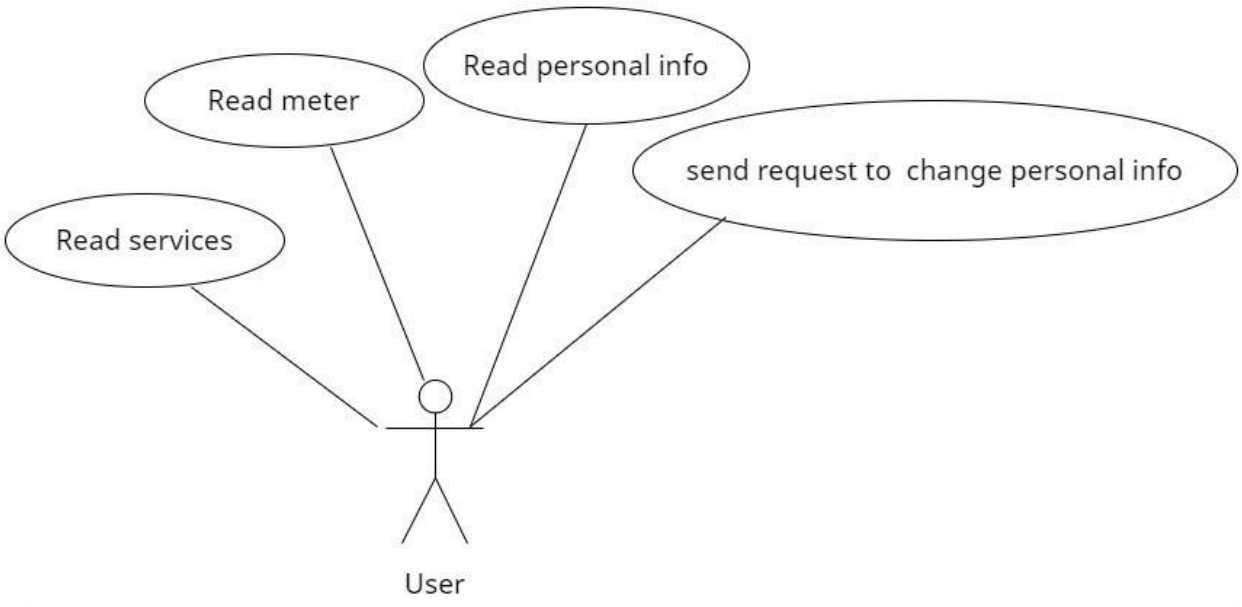
## Calculation system:



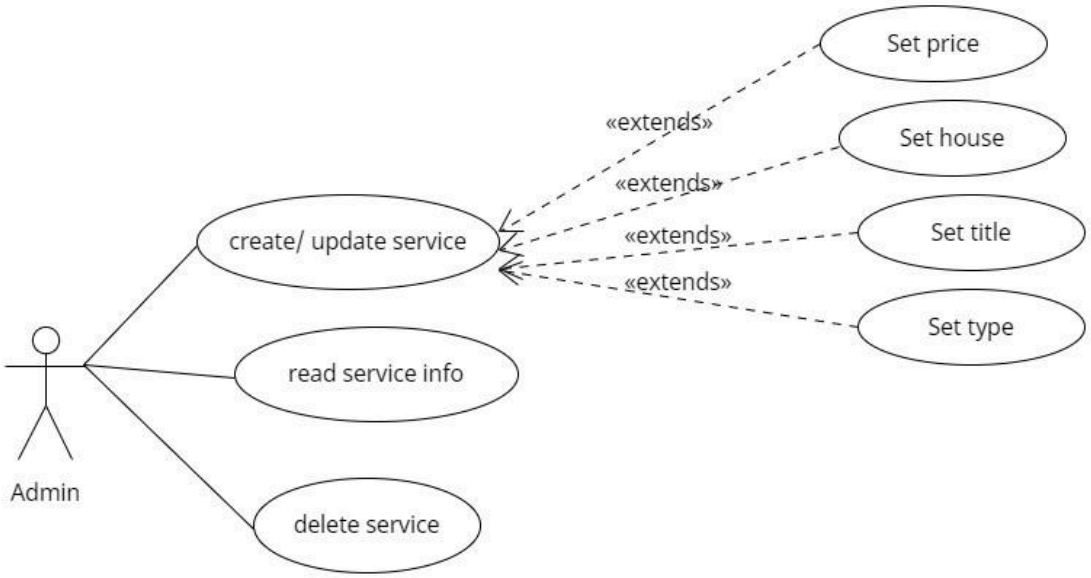



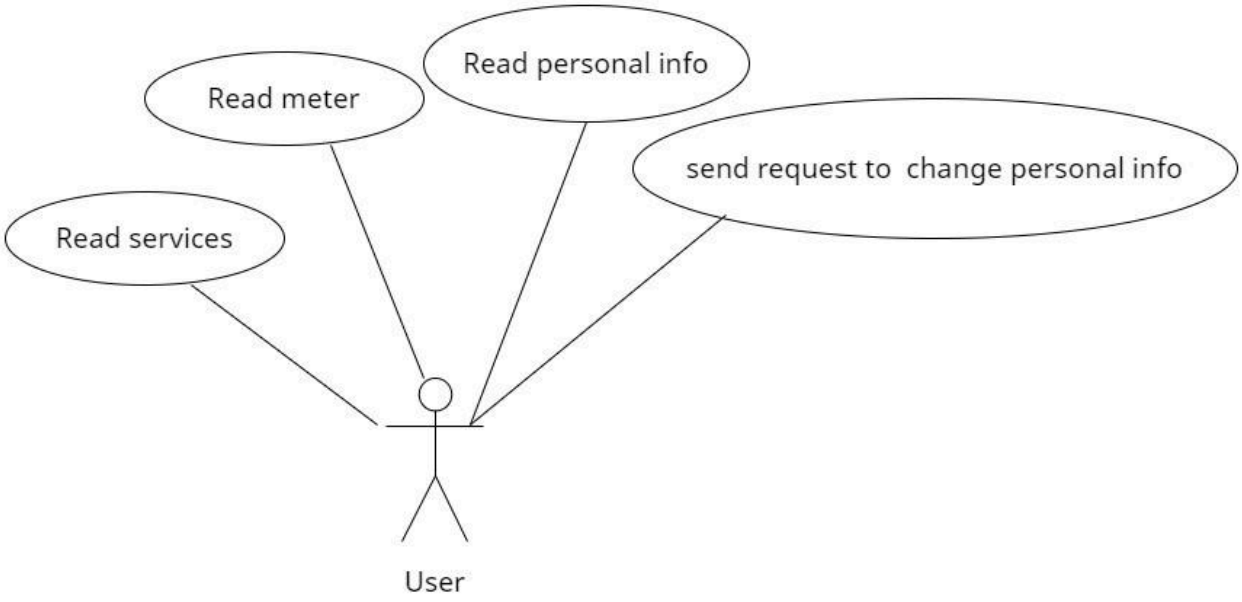
## Accounting system



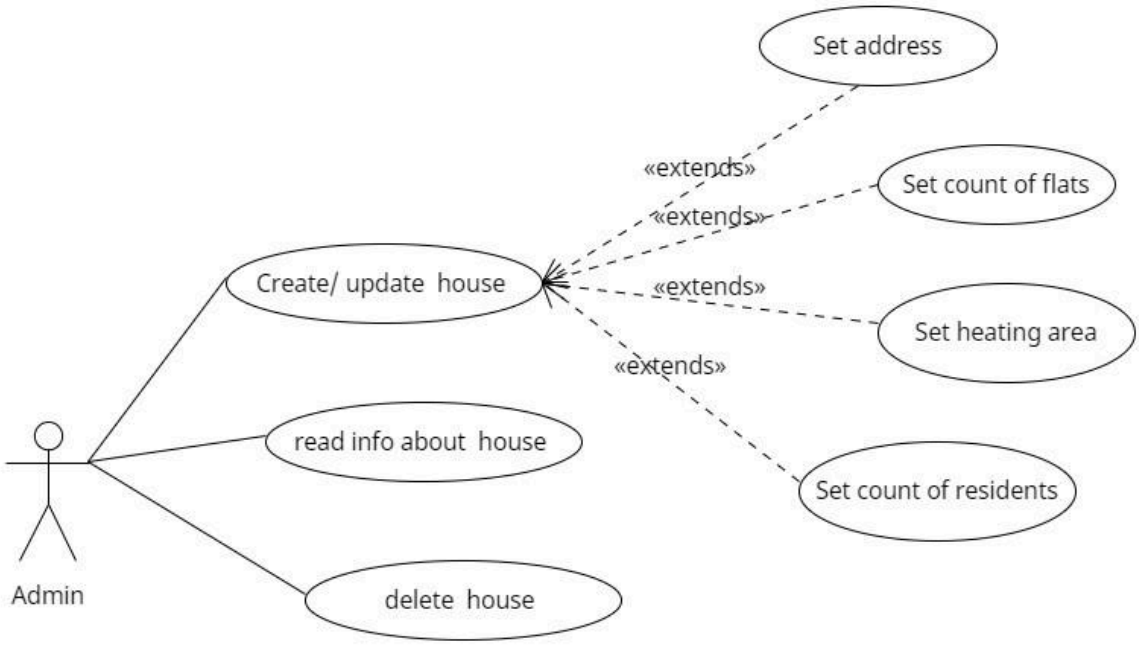



## Service system

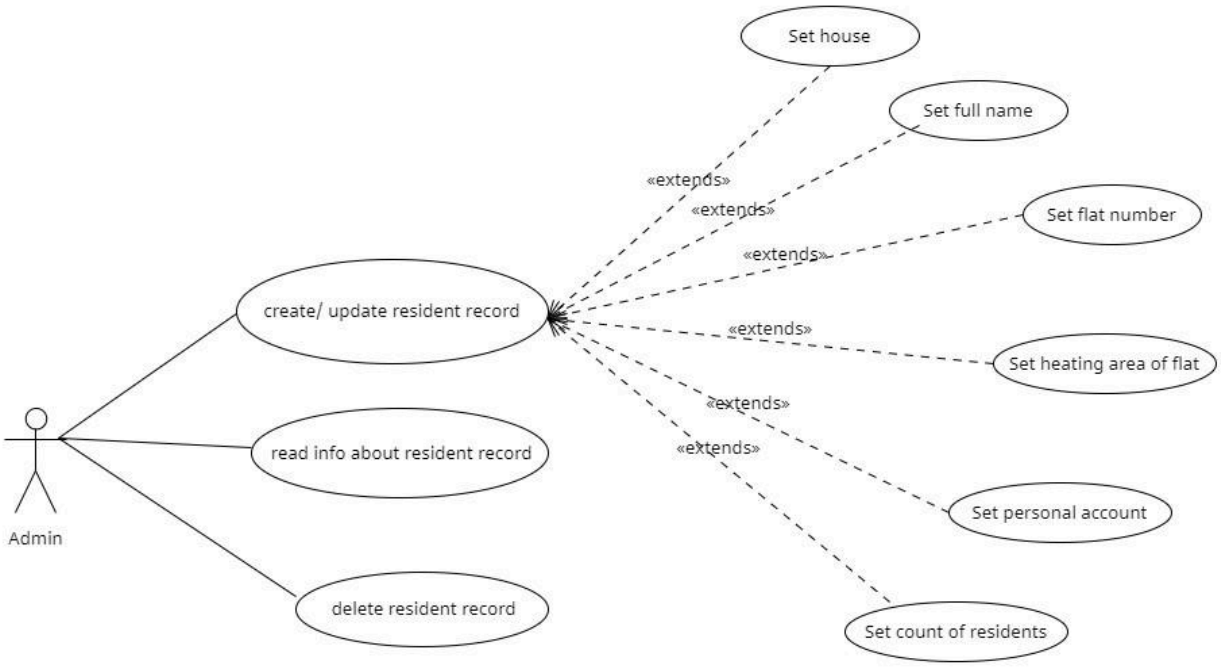


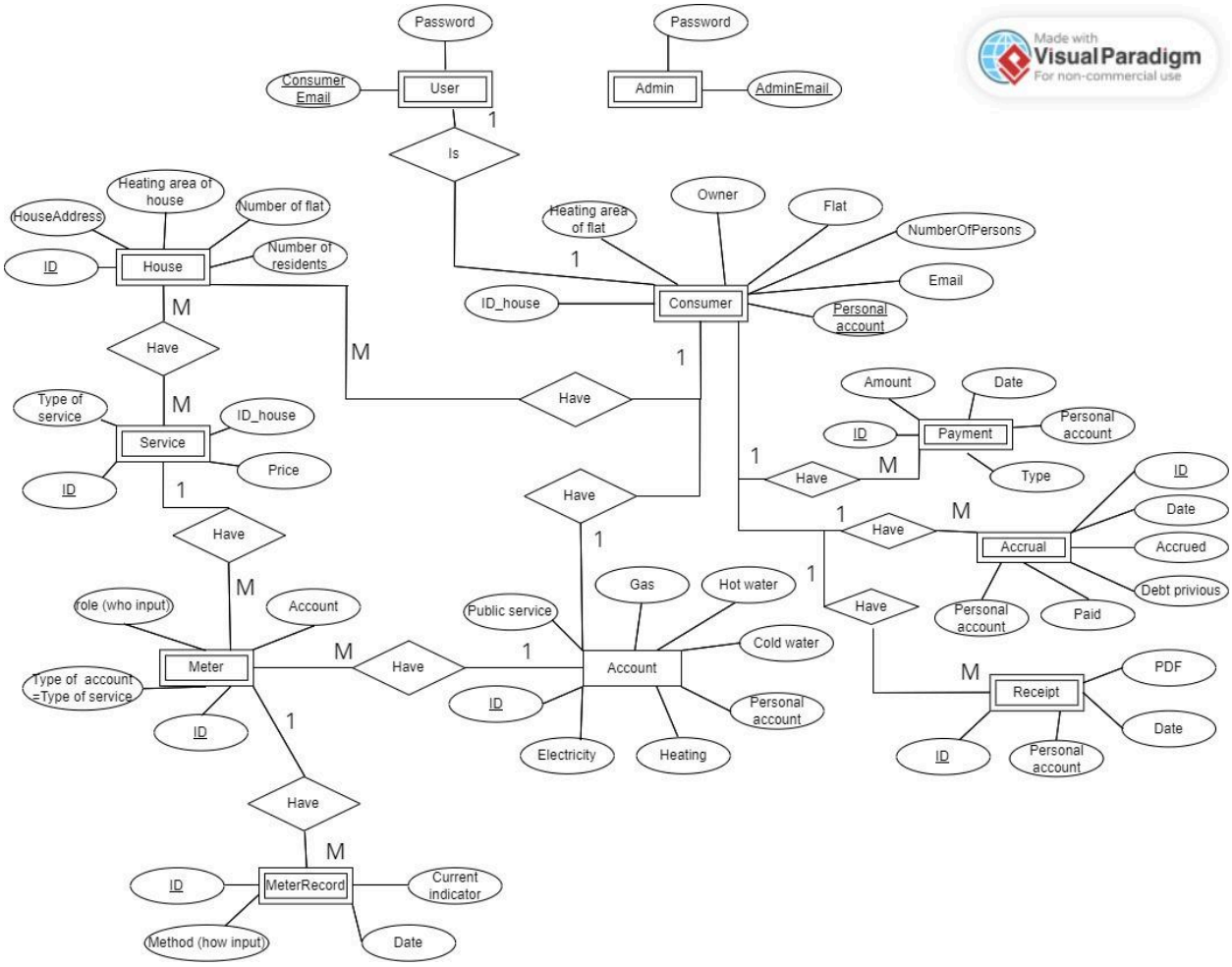
## Accounting houses system



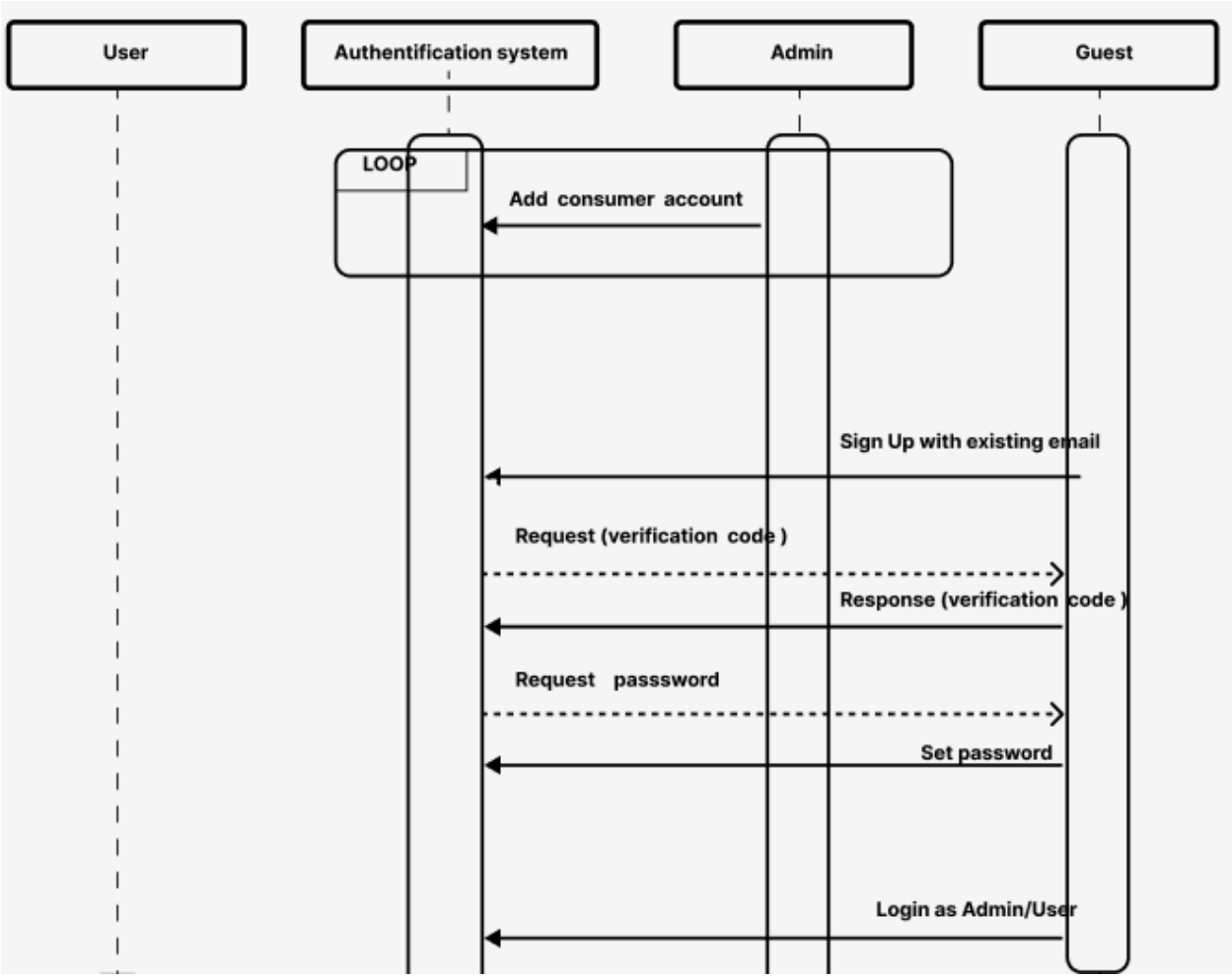
# Accounting residents system



# ER-Diagram


Password
Consumer Email
User
Password
Admin
AdminEmail
Made with Visual Paradigm For non-commercial use
1
Is
Heating area of house
HouseAddress
Number of flat
ID
House
Number of residents
M
Have
M
Type of service
ID_house
Service
ID
Price
1
Have
M
role (who input)
Account
Type of account =Type of service
Meter
ID
M
Have
1
Have
M
ID
MeterRecord
Current indicator
Method (how input)
Date
Heating area of flat
Owner
Flat
NumberOfPersons
1
Email
ID_house
Consumer
Personal account
1
Have
1
Have
Public service
Gas
Hot water
Cold water
1
Account
ID
Personal account
Electricity
Heating
Amount
Date
ID
Payment
Personal account
Type
1
Have
M
1
Have
M
Accrual
ID
Date
Accrued
Debt privious
Personal account
Paid
1
Have
M
Receipt
PDF
Date
ID
Personal account

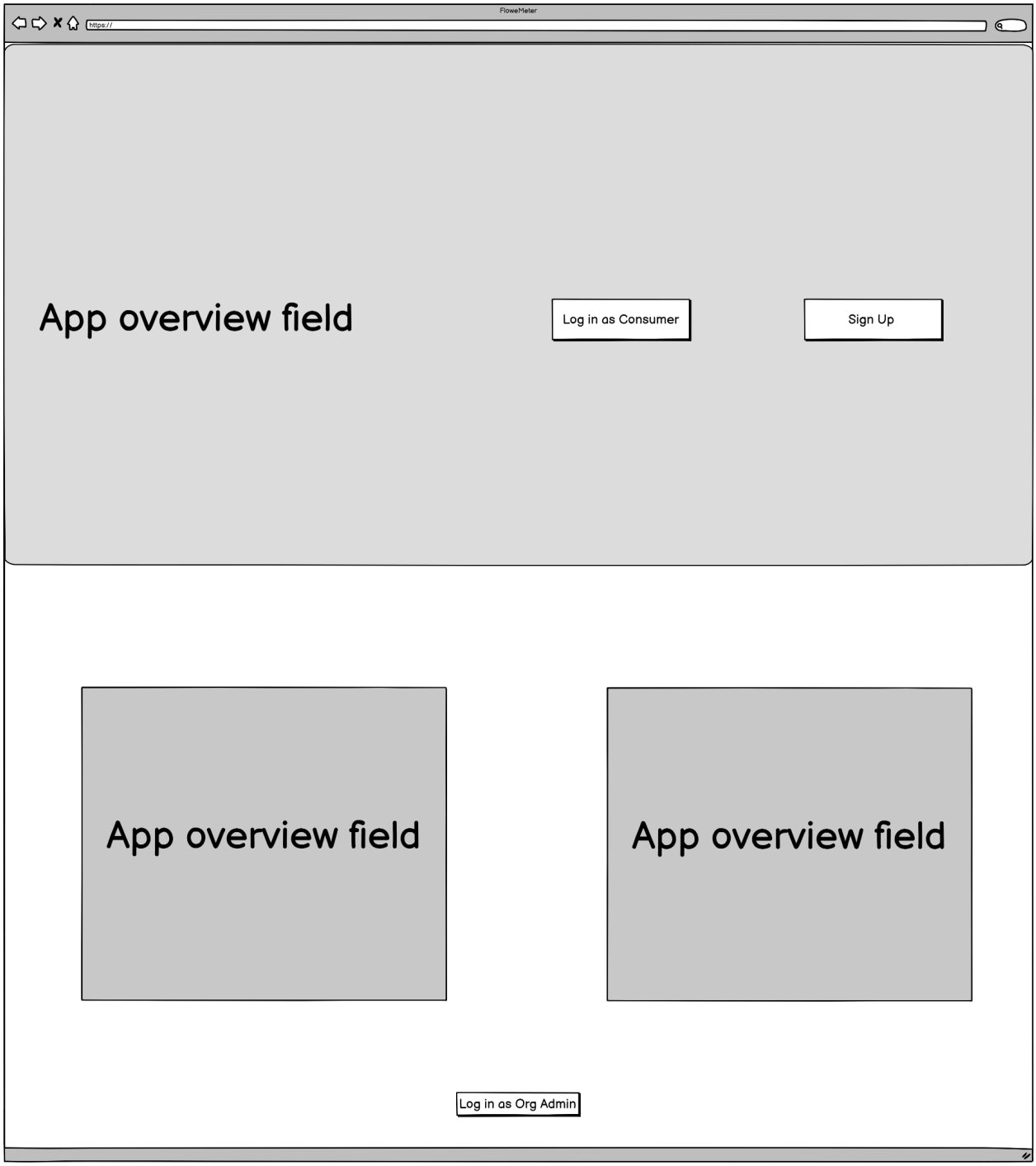
## Sequence diagram



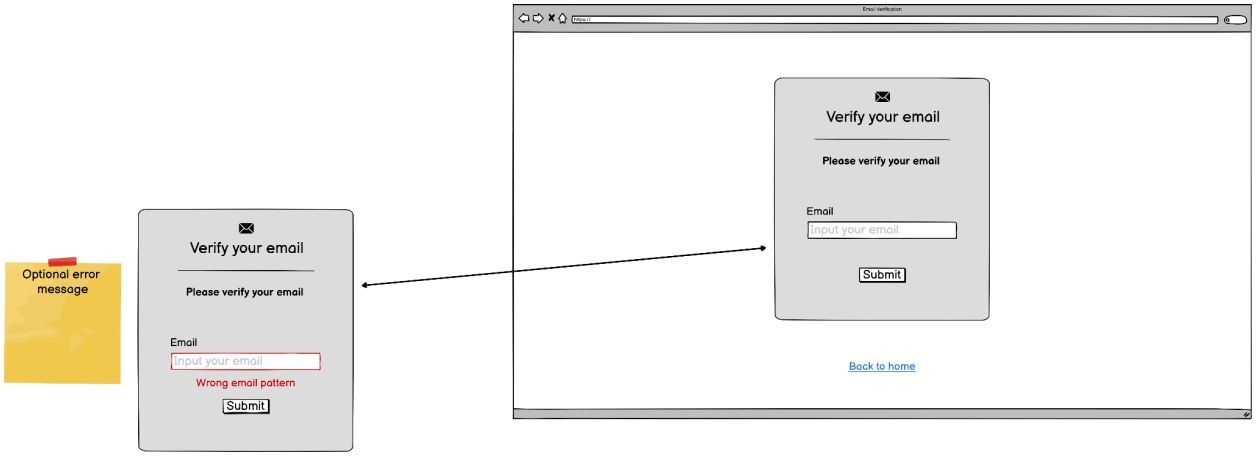

See more in “Application 1 - Sequence diagram”.

# MOCKUPS

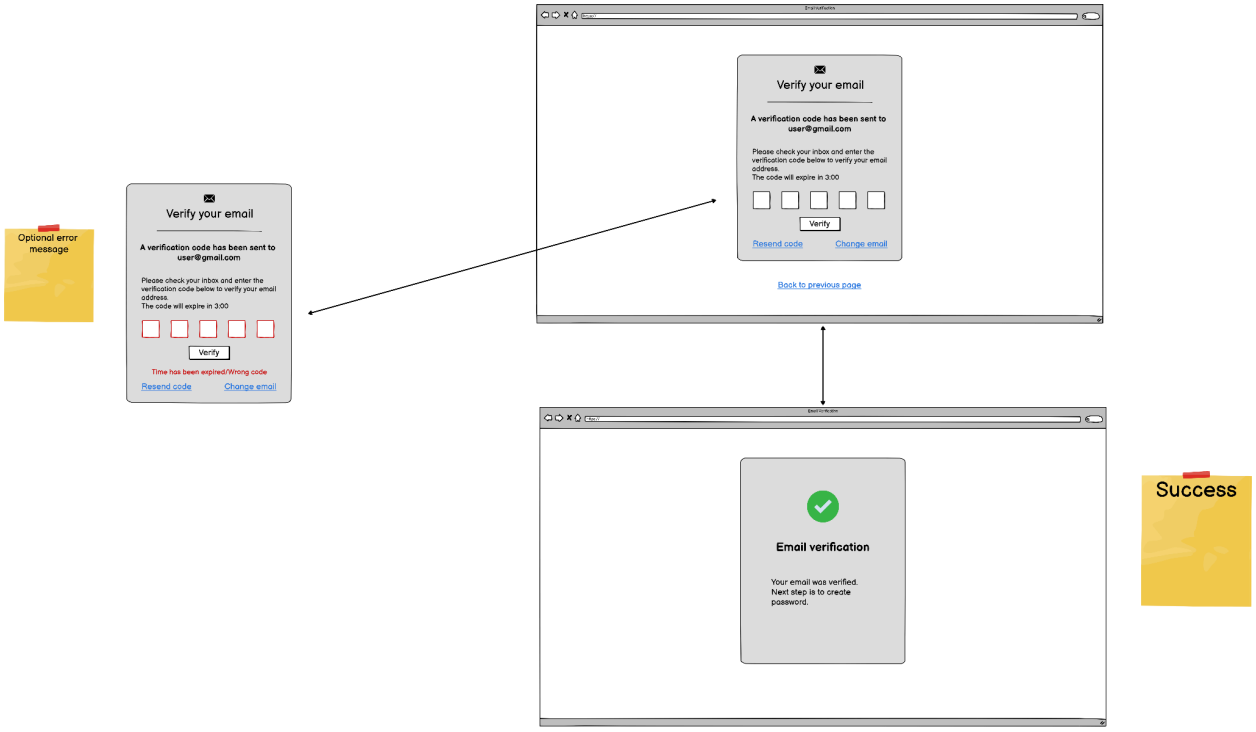
## Home page


FlowMeter
https://
App overview field
Log in as Consumer
Sign Up
App overview field
App overview field
Log in as Org Admin

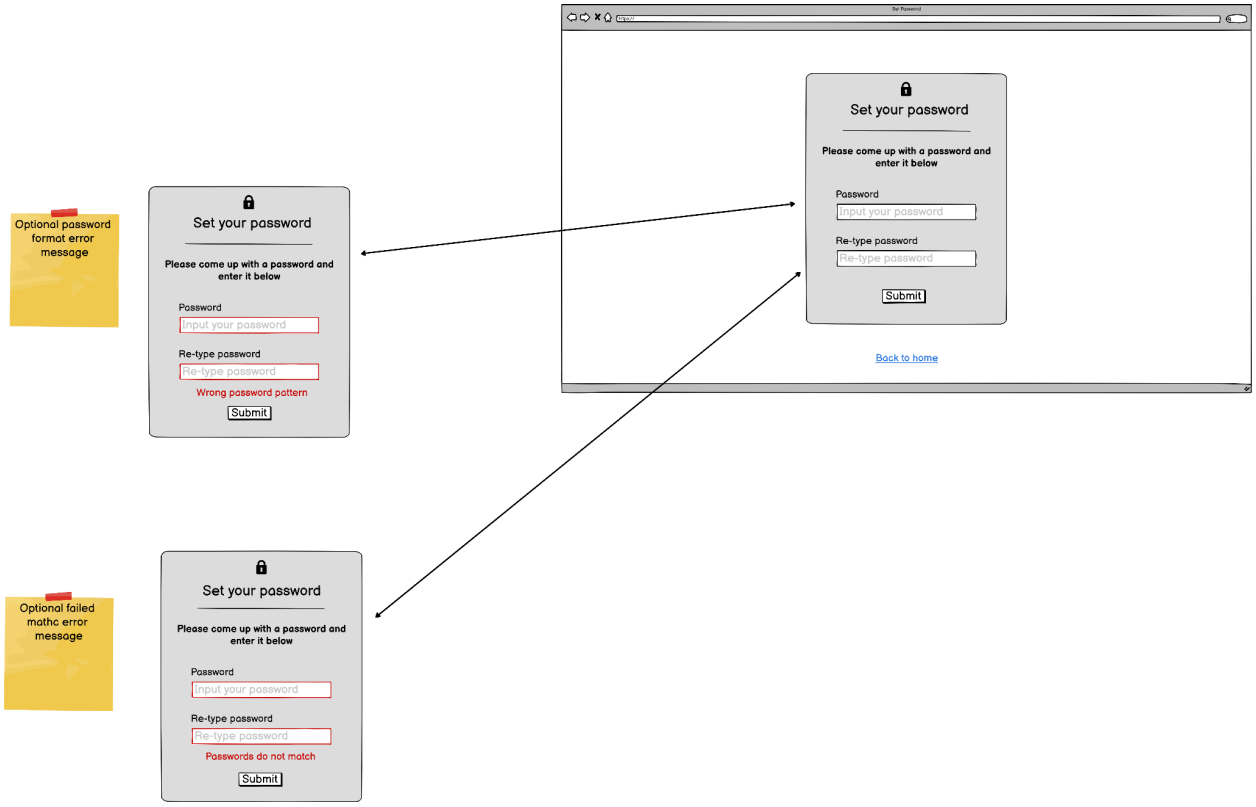
**Email input**



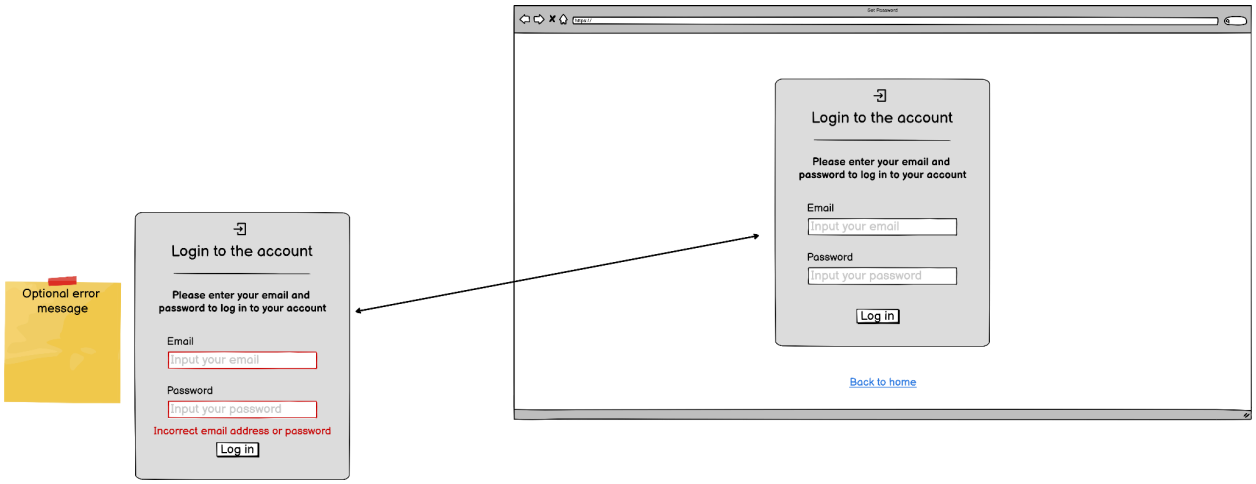

# Email verification



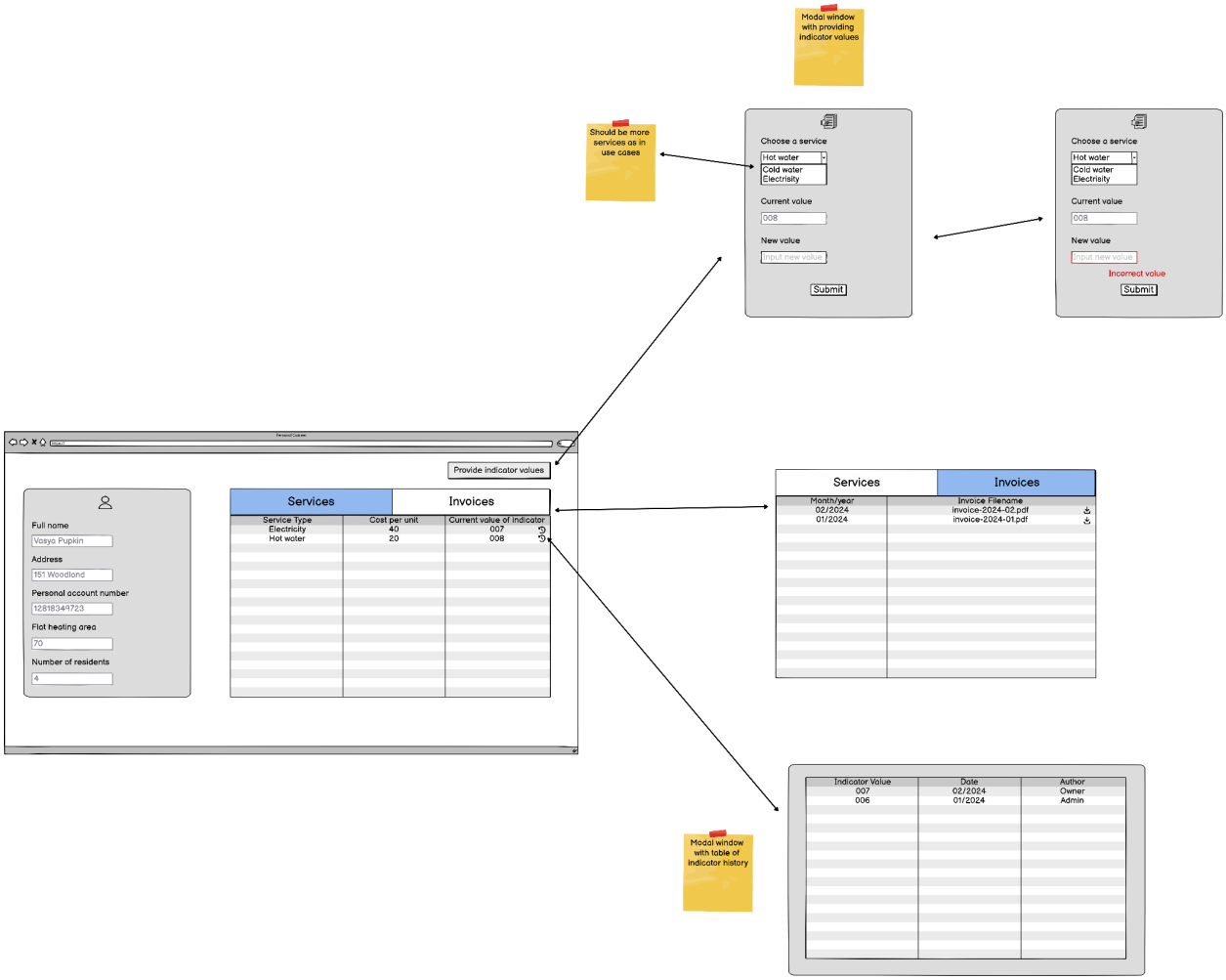

# Set password



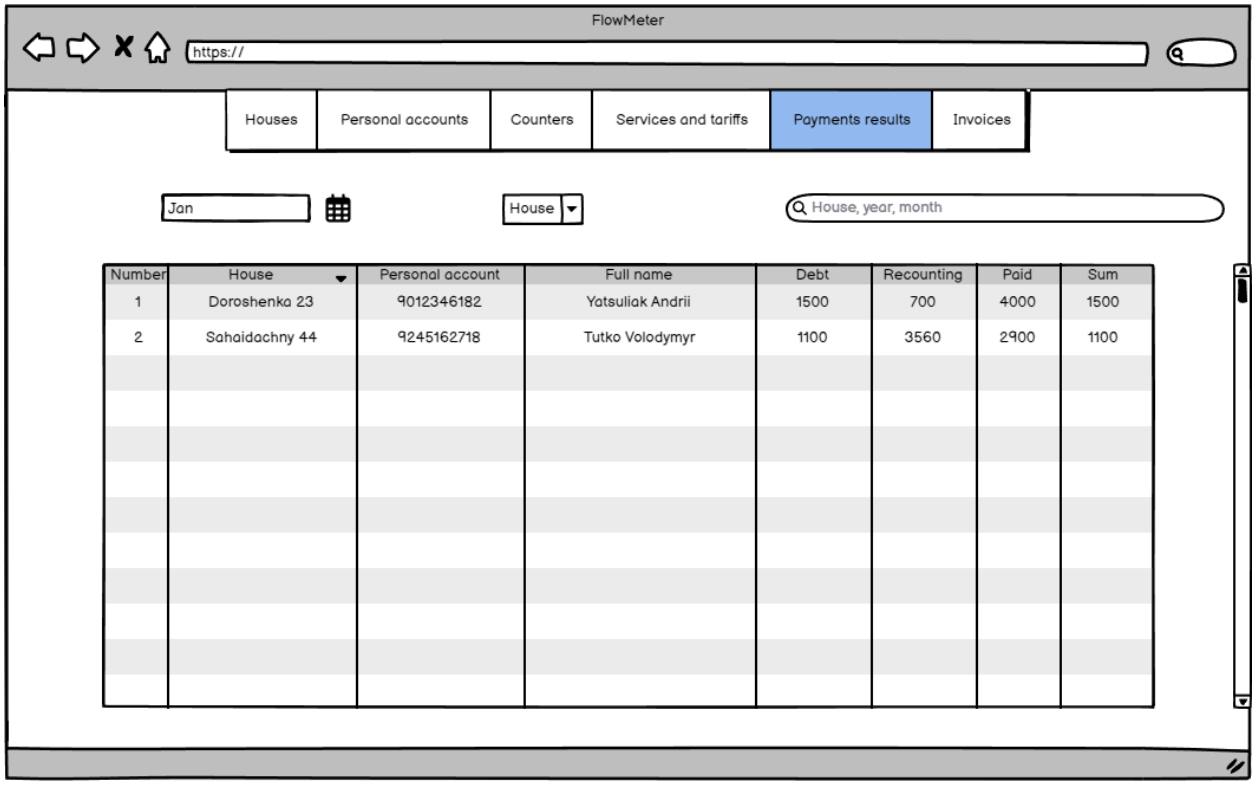

## Log in



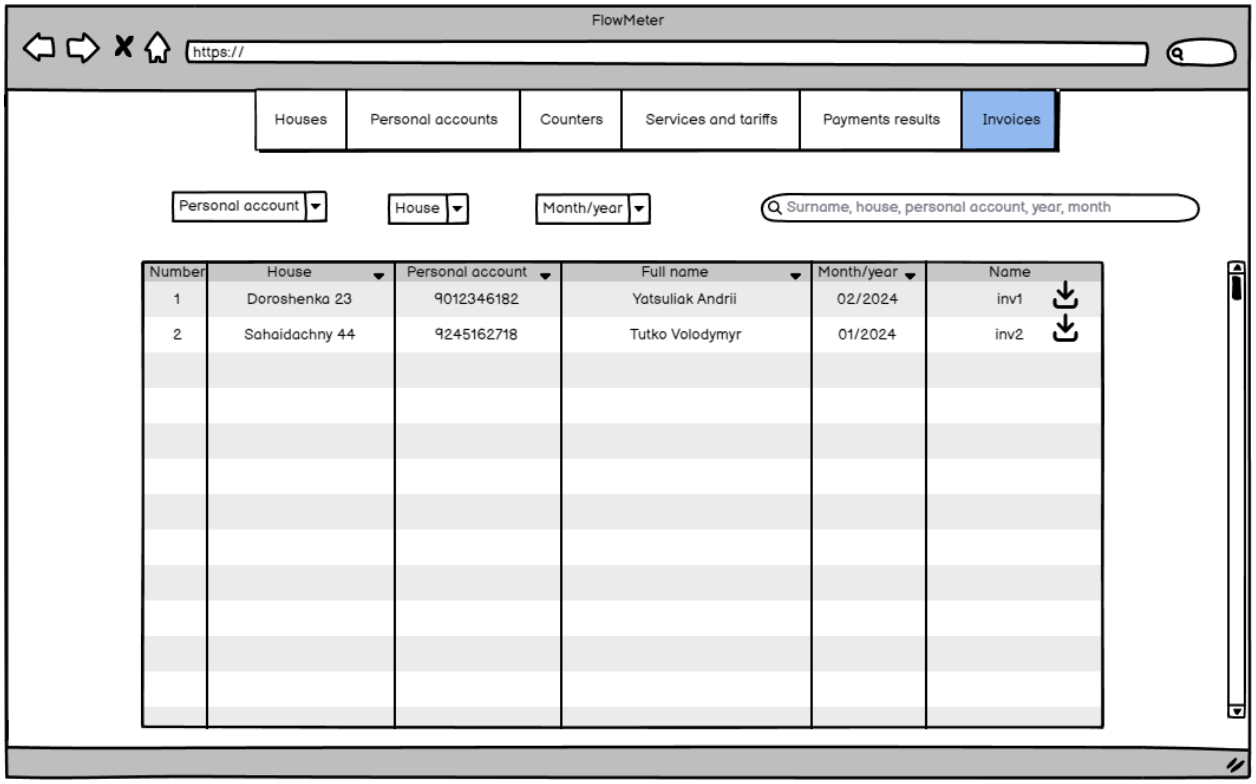

## Consumer’s personal cabinet


Modal window with providing indicator values
Should be more services as in use cases
Choose a service
Hot water
Cold water
Electrisity
Current value
008
New value
Input new value
Submit
Choose a service
Hot water
Cold water
Electrisity
Current value
008
New value
Input new value
Incorrect value
Submit
Provide indicator values
Full name
Vasya Pupkin
Address
151 Woodland
Personal account number
12818344723
Flat heating area
70
Number of residents
4
Services
Invoices
Service Type
Cost per unit
Current value of indicator
Electricity
40
007
Hot water
20
008
Services
Invoices
Month/year
Invoice Filename
02/2024
invoice-2024-02.pdf
01/2024
invoice-2024-01.pdf
Modal window with table of indicator history
Indicator Value
Date
Author
007
02/2024
Owner
006
01/2024
Admin

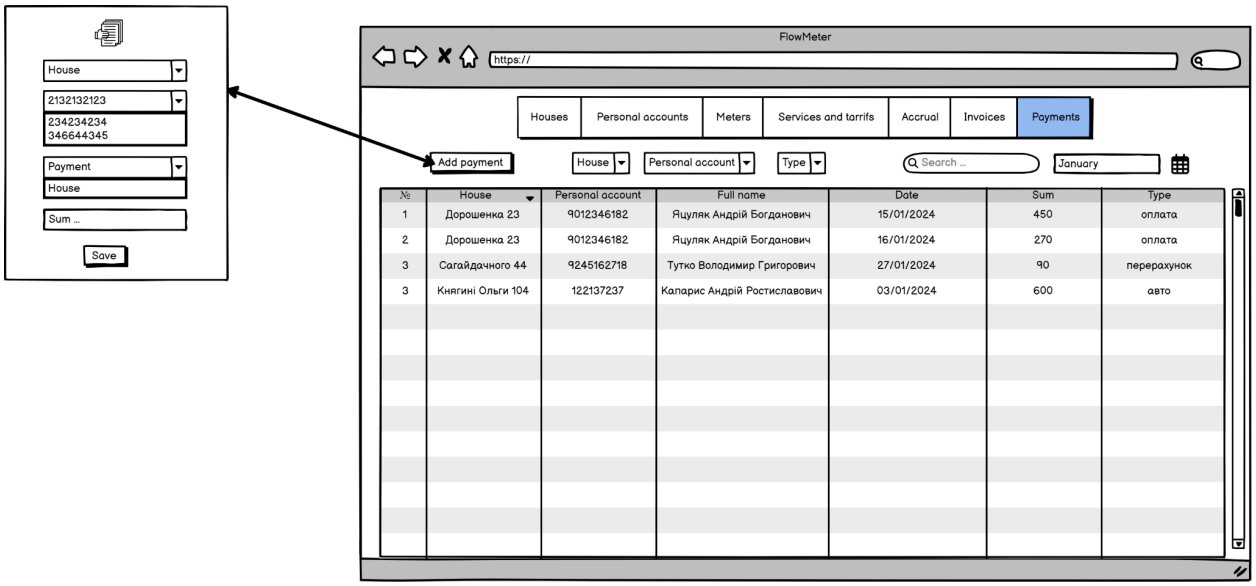
## Payments results(admin)



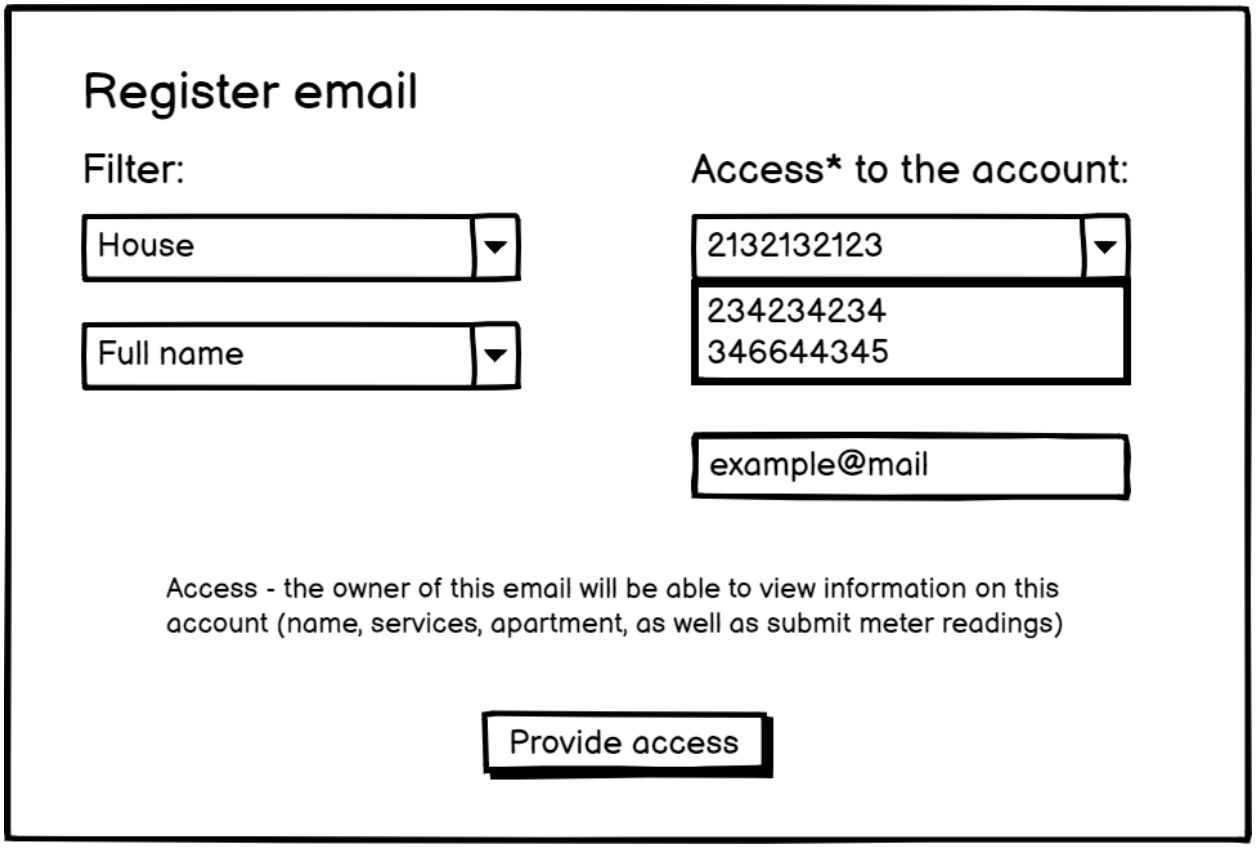

## Invoices(admin)




## Payments (admin view)




## Register email


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