

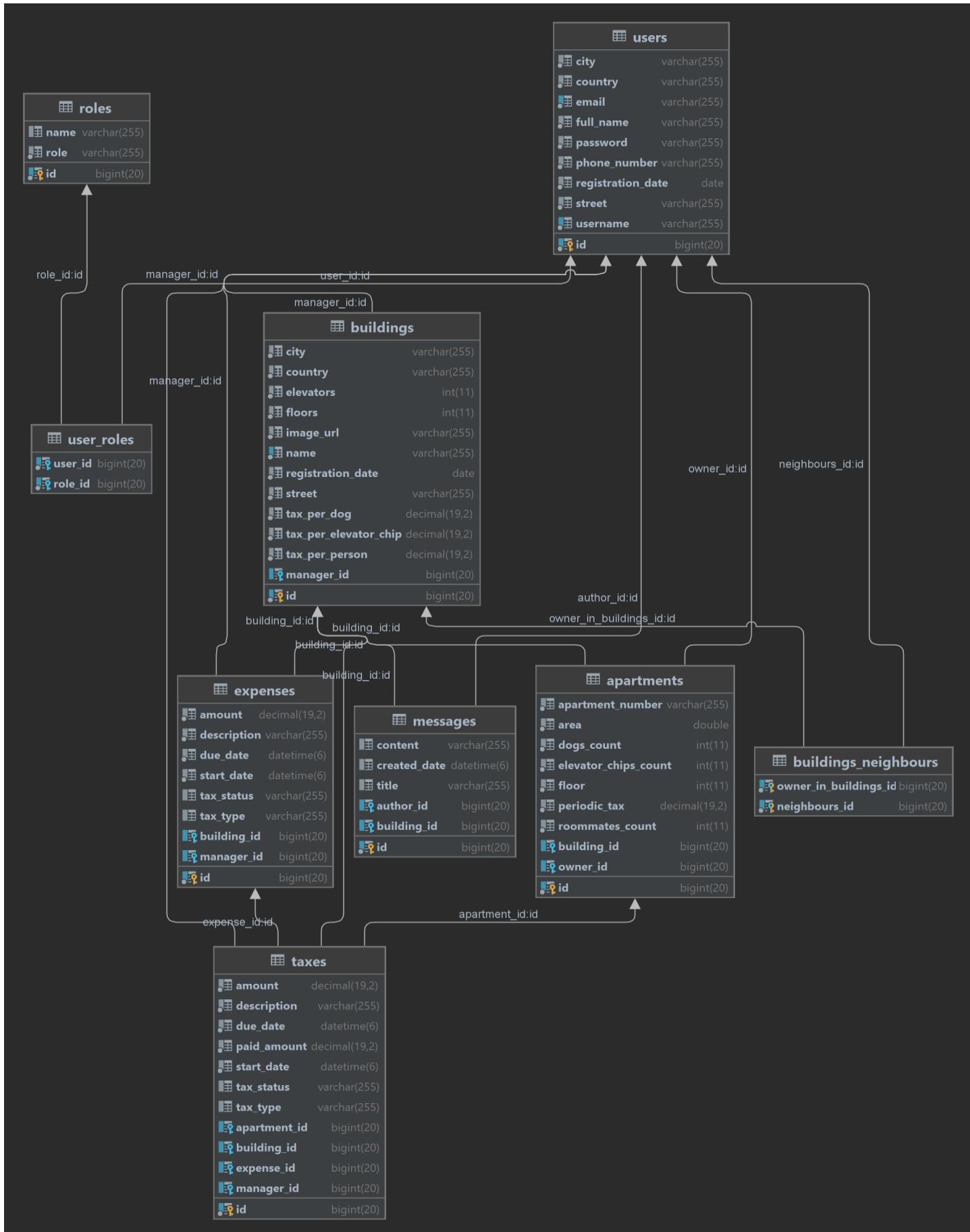
# Property Manager

by Dimo Dimov

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# 1. Entities and their relationships:



## 2. Validations for entities:

### → USER:

- Username must be at least \* symbols and unique
- Password must be at least 6 symbols
- Full name must be at least 4 symbols
- The email must be valid - @Regex
- Country, City and Street Address can't be empty
- Phone number must be valid - @Regex

### → BUILDING:

- Name must be unique and not empty
- Floors must be a minimum 0 and not null ( it is the total count of floors – a building with 7 floors and 1 underground in total 8)
- The elevators count must be a minimum of 0 and not null
- Tax per Person must be a minimum of 0 and not null
- Tax per Dog must be a minimum of 0 and not null
- Tax per Elevator chip must be a minimum of 0 and not null
- Country, City and Street Address can't be empty

### → APARTMENT:

- Apartment number must be unique for Building and not empty
- Floors must be minimum -1 and not null
- The area of an apartment must be a minimum 5sqm^2
- The roommates count must be a minimum of 0 and not null
- The dogs count must be a minimum of 0 and not null
- The elevator chips count must be a minimum of 0 and not null
- The apartment's owner must be set as the Id of the owner, if it is empty should use the manager's Id

### → Expense:

- Tax type must not be null (should be selected from dropdown)
- Amount not null and minimum > 0
- The expense description must not be empty
- Start date – pattern + not null (could be added for dates in the past)
- Due date – pattern + not null (could be added for dates in the past)
- Selected apartments – checkboxes for every apartment in the building, there is an option to not select an apartment – in this case creating expense doesn't create new taxes for apartments

### → Tax:

- Tax type must not be null (should be selected from dropdown)
- Amount not null and minimum > 0
- The expense description must not be empty
- Start date – pattern + not null (could be added for dates in the past)
- Due date – pattern + not null (could be added for dates in the past)

- Selected apartments – checkboxes for every apartment in the building, there is an option to not select an apartment – in this case creating expense doesn't create new taxes for apartments

➔ Message:

- Title must not be empty
- The content of the message must not be empty

### **3. Permissions and functionalities by ROLE of the user:**

➔ USER:

- Edit Profile
- Change password
- View the Dashboard of buildings in which he has an apartment/property
- Write messages, which can be seen by all the neighbours of the building
- View expenses of the building – paid or unpaid, description, start/due date, etc.
- View his taxes with an option to pay the full amount or a part of it
- View his neighbours – users, who have an apartment/property in the building

➔ USER (MANAGER IN BUILDING) bonus rights in the building's menus in which he is a manager:

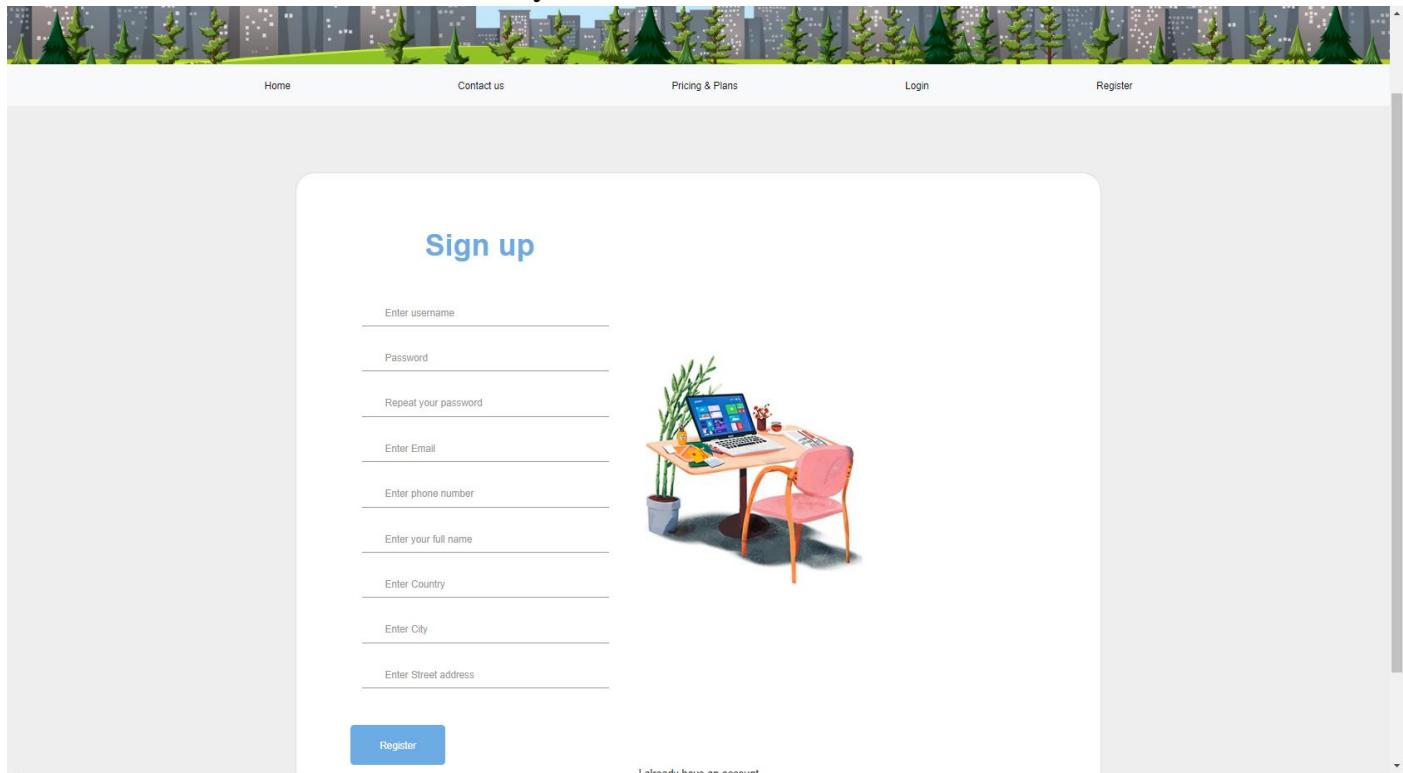
- View the 'Edit Building' page in which he can add or edit apartments and change taxes per person, dog, or elevator chip
- View Dashboard – same as a neighbour
- View expenses – view all expenses of the building
- Add new expense - split the full amount of expense into the selected apartments from the apartments in the building
- Change the status of the expense to PAID
- Delete expense – only if all taxes created by adding this expense are UNPAID!
- View taxes – view taxes of every neighbour in the building with an option to pay the full amount or a part of it
- View neighbours – view information about the neighbours with a link to their taxes
- Write messages as manager of the building, which can be seen by all the neighbours of the building

➔ ADMIN :

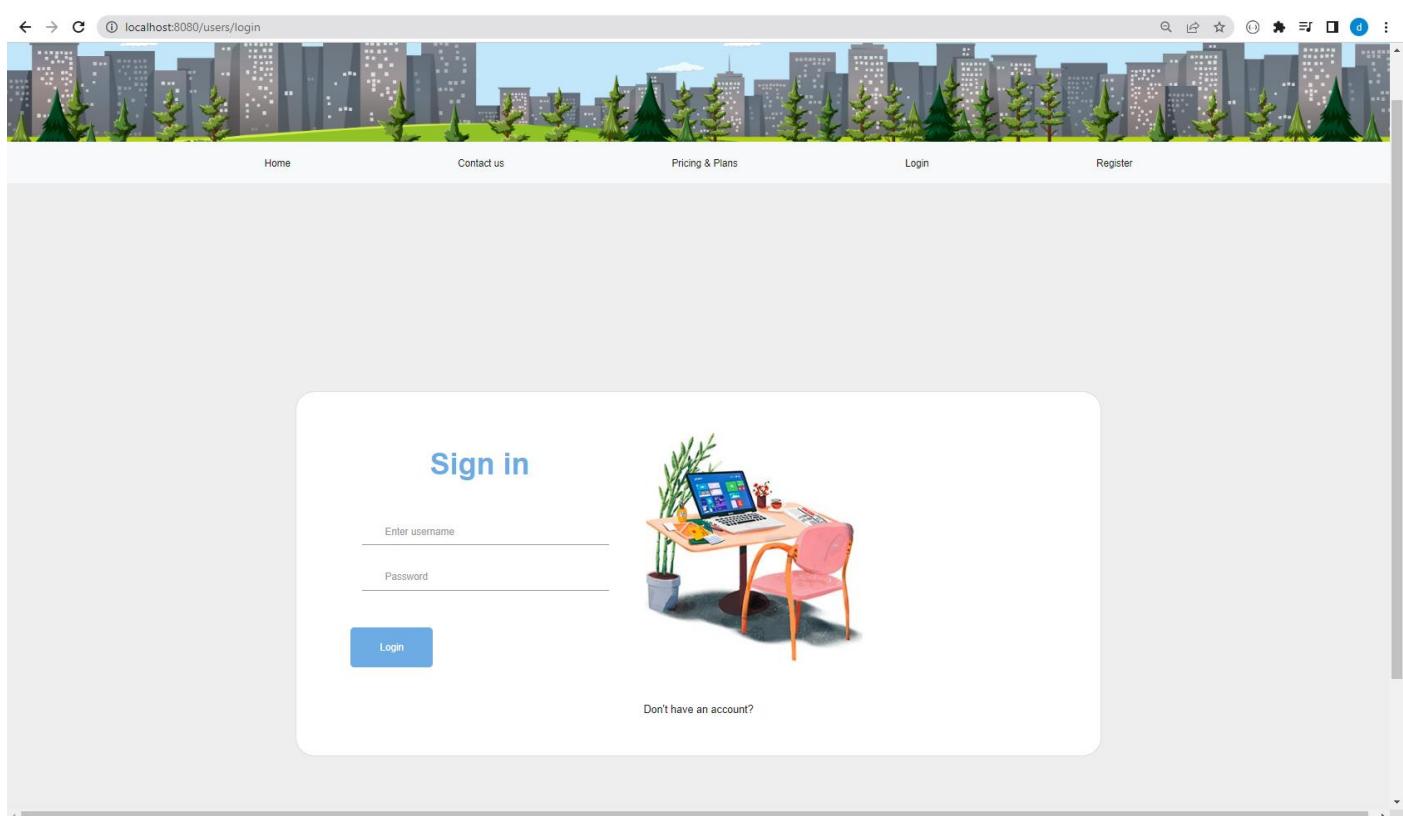
- Admin have the same rights as neighbours and managers in EVERY BUILDING
- Can create a building and set the house manager for this building
- Can edit buildings information and change house manager
- View all registered users, change their personal information and change their ROLE

## 4. Process of integrating the software for any Building

- 4.1. The manager of the building and every neighbour should register accounts in the web application. If any of the neighbours don't have access to a personal computer or Internet, the manager must create an account for them with the available information he has already.



Register page



Login page

4.2.

4.3. The administrator of the website should create the new building through the ‘Manage Buildings’ page and next ‘Add New Building’. After this, he should fill in the correct information about the building – Building name, Count of floors, Count of elevators, Tax per Person, Dog and Elevator chip per MONTH, Country, City and Street address. After this, he should click on ‘Save building’ and if the information is fulfilling the requirements the building will be created.

The screenshot shows a web application interface titled 'Buildings'. At the top, there is a navigation bar with links: Home, Contact us, Pricing & Plans, Buildings (which is the active tab), Manage users, Profile, and Logout. Below the navigation bar, it says 'Registered buildings - 2'. There is a green button labeled 'Add New Building' with a red border. A search bar below it has the placeholder 'Search by Id, Name or Address'. A table follows, listing two buildings:

ID	Name of Building	Floor count	Apartment count	Tax per Person	Tax per Dog	Tax per Elevator chip	Address	Action
1	Slavyanska 95 vhod A	16	7	5.00	5.00	5.00	Str. Slavyanska 95, Plovdiv, Bulgaria	<a href="#">Edit</a>
2	Slaveikov 23 Vhod B	8	0	3.00	2.00	4.00	Str. Slaveikov 23, Ruse, Bulgaria	<a href="#">Edit</a>

### Manage Buildings

The screenshot shows a form titled 'Buildings' with a sub-section 'Add Building'. The form fields are as follows:

Building's name	Test Building
Count of floors	6
Count of elevators	2
Tax per Person	4
Tax per Dog	3
Tax per Elevator chip	3
Country	Bulgaria
City	Plovdiv
Street	Str. Slavyanska 95

At the bottom of the form is a blue button labeled 'Save building'.

### Add Building

4.4. By default, the manager of the newly created building will be the administrator of the Site. So we have to go to ‘Edit’ of building on the ‘Manage Buildings’ page, after this on ‘Edit Building’ and in the field ‘Manager Id’ we should put the Account Id of the house manager, who will manage the building.

The screenshot shows a web application for managing buildings. At the top, there is a navigation bar with links: Home, Contact us, Pricing & Plans, Buildings, Manage users, Profile, and Logout. Below the navigation bar, it says "Registered buildings - 3". There is a green button labeled "Add New Building". A search bar is present with the placeholder "Search by Id, Name or Address". A table lists three buildings:

ID	Name of Building	Floor count	Apartment count	Tax per Person	Tax per Dog	Tax per Elevator chip	Address	Action
1	Slavyanska 95 vhod A	16	7	5.00	5.00	5.00	Str. Slavyanska 95, Plovdiv, Bulgaria	<a href="#">Edit</a>
2	Slaveikov 23 Vhod B	8	0	3.00	2.00	4.00	Str. Slaveikov 23, Ruse, Bulgaria	<a href="#">Edit</a>
3	Test Building	6	0	4.00	3.00	3.00	Str. Slavyanska 95, Plovdiv, Bulgaria	<a href="#">Edit</a>

At the bottom of the table, there is a page number "1".

Step 1 -> edit button

The screenshot shows the "Edit building" page for the "Test Building". The top navigation bar includes links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages, Buildings, Manage users, Profile, and Logout.

The main content area displays the building's details:

- Image of the building
- Name: Test Building
- Address: Str. Slavyanska 95, Plovdiv, Bulgaria
- Manager: Admin Adminov, +35987779292
- Buttons: Add apartment (disabled), Edit building (highlighted with a yellow box)

Form fields for editing:

Floors count:	6
Elevators count	2
Neighbours count	0
Date of registration	2023-01-21

Section for listing apartments:

Apartment №	Floor	Apartment area	Taxes per month	Money owed	Owner	Action
List of apartments - 0						

Information boxes:

- Building's money balance: 0lv.
- Building's tax per Person: 4.00lv.
- Building's tax per Dog: 3.00lv.
- Building's per elevator chip: 3.00lv.

Step 2 -> Edit building button

localhost:8080/admin/buildings/edit/3

Home Contact us Pricing & Plans Buildings Manage users Profile Logout

**Test Building**

Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager: Admin Adminov, +359877779292

Building's name	Test Building
Count of floors	6
Count of elevators	2
Tax per Person	4.00
Tax per Dog	3.00
Tax per elevator chip	3.00
Manager Id	1
Country	Bulgaria
City	Plovdiv
Street Address	Str. Slavyanska 95

Save Back

### Step 3 -> Change the manager Id to the Id of the house manager account

- 4.5. After this, the manager should log in with his account and on the home page of the website he will see the buildings in which he is a manager or an owner – depending on his authorities in the building he will have one of two options – ‘manage building’ or ‘visit building’ as a neighbour.

localhost:8080

Home Contact us Pricing & Plans Profile Logout

<b>Slaveikov 23 Vhod B</b> Str. Slaveikov 23, Ruse, Bulgaria Manager: Dimo Dimov, +359878123456 LOG AS MANAGER Manage Building	<b>Test Building</b> Str. Slavyanska 95, Plovdiv, Bulgaria Manager: Dimo Dimov, +359878123456 LOG AS MANAGER <b>Manage Building</b>	<b>Slavyanska 95 vhod A</b> Str. Slavyanska 95, Plovdiv, Bulgaria Manager: Petur Petrov, +359878121213 LOG AS NEIGHBOUR Visit Building
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Home page for every user – all buildings in which he is a manager or an owner

- 4.6. After clicking on the ‘Manage Building’ button, the user will see a few more options in the navigation bar – ‘Dashboard’, ‘Expenses’, ‘Taxes’, ‘Neighbours’, ‘Messages’ and if he is the manager of the building ‘Edit Building’. On the ‘Edit Building’ page the manager can change the amount of the taxes per Person, Dog and Elevator chip, add a new apartment, edit the created apartments in the building and view some information about the building.

The screenshot shows a web application interface for managing a building. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages, Profile, and Logout. Below the navigation bar is a decorative header featuring a city skyline and trees. The main content area contains the following sections:

- Building Details:** Shows a small icon of a red brick building, the name "Test Building", address "Str. Slavyanska 95, Plovdiv, Bulgaria", manager "Dimo Dimov, +359878123456", and two buttons: "Add apartment" and "Change per taxes".
- Building Statistics:** A table with the following data:
 

Floors count:	6
Elevators count:	2
Neighbours count:	1
Date of registration:	2023-01-21
- List of Apartments:** A table titled "List of apartments - 1" with the following data:
 

Apartment №	Floor	Apartment area	Taxes per month	Money owed	Owner	Action
1	1	64.0m <sup>2</sup>	25.00lv.	0lv.	Vania Dimova	Edit
- Building Taxes:** A list of tax amounts:
  - Building's money balance: 0lv.
  - Building's tax per Person: 4.00lv.
  - Building's tax per Dog: 3.00lv.
  - Building's per elevator chip: 5.00lv.

### 'Edit Building' page

- 4.7. Next step to complete the integration of the building, the manager must add all the apartments. For this task, he needs the shown information. For the ‘Owner’s Id’ field, the manager must put the Id of the registered account of the neighbour/owner (the Id can be found in the ‘Profile’ menu):

The screenshot shows a form for adding a new apartment to the building. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages, Profile, and Logout. Below the navigation bar is a decorative header featuring a green landscape. The main content area contains the following sections:

- Building Details:** Shows a small icon of a red brick building, the name "Test Building", address "Str. Slavyanska 95, Plovdiv, Bulgaria", manager "Dimo Dimov, +359878123456", and a "Add apartment" button.
- Apartment Information:** A table with the following fields:
 

Apartment's number	1
Apartment's floor	1
Apartment's area	64
Roommates count	3
Elevator chips count	2
Dogs count	1
Owner's ID	4

### Add new apartment to Building

- 4.8. In the ‘Edit apartment’ page you can edit the information about the apartment and even delete It if you need to – the taxes for the apartment will remain, but the apartment set to them will be ‘null’.

localhost:8080/manager/buildings/3/apartment/8

Home Edit building Dashboard Expenses Taxes Neighbours Messages Profile Logout

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager: Dimo Dimov, +359878123456

Apartment's number	1
Apartment's floor	1
Apartment's area	64.0
Roommates count	3
Elevator chips count	2
Dogs count	1
Owner's ID	4

Edit apartment

Delete apartment

### Edit apartment page

- 4.9. In the ‘Change taxes’ menu, the manager could change the amount of taxes per Person, Dog or Elevator chip. The periodic tax for every apartment is calculated by multiplying the count of people, dogs or elevator chips with their tax per one :
- $$\text{count of people living in the apartment} * \text{tax per Person} +$$
- $$\text{count of dogs living in the apartment} * \text{tax per Dog} +$$
- $$\text{count of elevator chips used} * \text{tax per Elevator chip};$$
- It is important to know that the fees are charged on the first day of every month at 2 am automatically by a ‘ScheduledTask’.

localhost:8080/manager/buildings/change-taxes/3

Home Contact us Pricing & Plans Profile Logout

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager: Dimo Dimov, +359878123456

Tax per Person	4.00
Tax per Dog	3.00
Tax per elevator chip	3.00

Save Back

### Change taxes menu

4.10. In the ‘Messages’ menu everyone can view the last 3 messages from the Manager and other neighbours, can add new Messages or view his messages with an option to edit them:

The screenshot shows a web application interface for managing a building. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages (which is the active tab), Profile, and Logout. Below the navigation bar is a decorative header featuring a city skyline and trees.

The main content area is divided into two sections: "Messages from manager" and "Messages from neighbours".

**Messages from manager:**

- A message titled "Meeting to discuss emergency expenses" is displayed. It states: "On 22.01.2023 at 19:00 there will be a meeting on which we have to discuss an emergency expense! 21 JANUARY 2023 Dimo Dimov - +359878123456"

**Messages from neighbours:**

No messages are currently listed in this section.

On the left side of the main content area, there is a sidebar for the building details:

- Building icon: Test Building
- Address: Str. Slavyanska 95, Plovdiv, Bulgaria
- Manager: Dimo Dimov, +359878123456
- Buttons: Add message, My messages

Below the sidebar, there are four small boxes showing financial data:

- Building's money balance: 0lv.
- Building's tax per Person: 4.00lv.
- Building's tax per Dog: 3.00lv.
- Building's per elevator chip: 5.00lv.

View the last 3 messages from the manager and neighbours

The screenshot shows a web application interface for adding a new message. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages (which is the active tab), Profile, and Logout. Below the navigation bar is a decorative header featuring a city skyline and trees.

The main content area has a form for adding a new message:

- Title: New message
- Content: Content of new message
- Buttons: Add message

On the left side of the main content area, there is a sidebar for the building details:

- Building icon: Test Building
- Address: Str. Slavyanska 95, Plovdiv, Bulgaria
- Manager: Dimo Dimov, +359878123456

Add new message

localhost:8080/manager/buildings/3/my-messages/user

Home Edit building Dashboard Expenses Taxes Neighbours Messages Profile Logout

Author	Phone number	Title	Content	Created:	Action
Dimo Dimov	+359878123456	Meeting to discuss emergency expenses	On 22.01.2023 at 19:00 there will be a meeting on which we have to discuss an emergency expense!	21 JANUARY 2023	<a href="#">Edit</a>

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager: Dimo Dimov, +359878123456  
[Add message](#)

Building's money balance: 0lv.  
Building's tax per Person: 4.00lv.  
Building's tax per Dog: 3.00lv.  
Building's per elevator chip: 5.00lv.

### *View my messages with an option to edit them*

- 4.11. In the ‘Neighbours’ menu everyone can see some information about the owners of apartments in the building. Only the house manager will see an option to view ‘Taxes’ of the neighbour – It will redirect him to a page with all taxes assigned to this owner, no matter if he owns 1 or more apartments in the building:

localhost:8080/manager/buildings/3/neighbours

Home Edit building Dashboard Expenses Taxes Neighbours Messages Profile Logout

List of neighbours 1					
ID	Neighbour's name	Phone number	Email	Address	Action
5	Penio Dimov	+359878121213	sused2@abv.bg	Str. Slavyanska 95, Plovdiv, Bulgaria	<a href="#">Taxes</a>

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager: Dimo Dimov, +359878123456  
[Add apartment](#) [Change taxes](#)

Building's money balance: 0lv.  
Building's tax per Person: 4.00lv.  
Building's tax per Dog: 3.00lv.  
Building's per elevator chip: 5.00lv.

### *Neighbours page – If the user is the manager he will see the ‘Taxes’ button*

- 4.12.

- 4.13. After all the apartments and their owners are set, now It's time to use the web application for its intended purpose. We can start by adding some expenses. For example, we will create an emergency expense for fixing a problem with one of the elevators in the building.

localhost:8080/manager/buildings/3/add-expense

Home Edit building Dashboard Expenses Taxes Neighbours Messages Profile Logout

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager:  
Dimo Dimov, +359878123456

Tax amount	CONSTRUCTION 500
Description	Fixing the elevator
Start date	02/01/2023 10:01 AM
Due date	02/28/2023 10:01 AM
Split tax for apartments	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input checked="" type="checkbox"/> 7 <input checked="" type="checkbox"/> 8 <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11
<b>Add expense</b>	

### Adding a new expense

- 4.14. After adding the new expense we will see the ‘Expenses’ page in which we can keep track of all expenses – PAID or UNPAID. They are sorted by the due date so that the most urgent expenses that have not been paid go out first. On this page, we can add a new expense or edit an existing one. By clicking on edit expense you will see a new page on which you can change the status from UNPAID to PAID or from PAID to UNPAID.

localhost:8080/manager/buildings/3/expenses

Home Edit building Dashboard Expenses Taxes Neighbours Messages Profile Logout

**Test Building**  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager:  
Dimo Dimov, +359878123456

Tax type	Description	Amount	Start date	Due date	Tax status	Action
CLEANING	Expense for cleaning the building for January	200.00lv.	1 JANUARY 2023	31 JANUARY 2023	UNPAID	Edit
PERIODIC	Electricity bill for December 2022	170.00lv.	1 JANUARY 2023	31 JANUARY 2023	UNPAID	Edit
CONSTRUCTION	Fixing the elevator	500.00lv.	1 FEBRUARY 2023	28 FEBRUARY 2023	UNPAID	Edit

Building's money balance: 0lv.  
Building's tax per Person: 4.00lv.  
Building's tax per Dog: 3.00lv.  
Building's per elevator chip: 5.00lv.

### 'Expenses' page

Expense status: PAID

[Edit expense](#)

[Delete expense](#)

Test Building  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager:  
Dimo Dimov, +359878123456

### Change the status of the expense

- 4.15. After the expense is paid, the money is withdrawn from the building's balance. The next step is to go to the 'Taxes' page. There we can see that for the selected apartments on the 'create expense' page, there are newly created Taxes (the expense amount is split among the selected apartments).

Apart. Nr	Owner	Description	Amount	Remaining amount	Tax type	Due date	Tax status:	Action
1	Penio Dimov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
2	Admin Adminov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
3	Penio Dimov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
4	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
5	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
8	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
11	Penio Dimov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
6	Vania Dimova	Fixing the elevator	46.00lv.	0.00lv.	EMERGENCY	28 FEBRUARY 2023	PAID	<a href="#">Return</a>
7	Dimo Dimov	Fixing the elevator	46.00lv.	0.00lv.	EMERGENCY	28 FEBRUARY 2023	PAID	<a href="#">Return</a>

Building's money balance: 14.00lv.  
Building's tax per Person: 4.00lv.  
Building's tax per Dog: 3.00lv.  
Building's per elevator chip: 5.00lv.

### 'Taxes' page

- 4.16. On this page, we can see all created taxes for the building – sorted by tax status UNPAID first and by the due date. The results are paginated. If we want to check all the taxes for a neighbour we must go to the ‘Neighbours’ page and click on the neighbour’s button ‘Taxes’ (Check 4.10). As a neighbour, the only option you will have is to ‘Pay’ the tax, but if you are logged as a manager you will have a ‘return’ option available. For example, we will pay just a part of the tax for a neighbour:

Test Building  
Str. Slavyanska 95, Plovdiv, Bulgaria  
Manager:  
Dimo Dimov, +359878123456

Pay Tax amount  
35  
Max amount to pay 46.00lv.  
Pay Tax amount

‘Pay’ tax page – It also shows the maximum amount you can pay

- 4.17. After paying a part of a tax (I also have paid another Tax with the full amount for the example) you can see the newly shown option ‘return’:

Apart. №	Owner	Description	Amount	Remaining amount	Tax type	Due date	Tax status:	Action
2	Admin Adminov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
3	Penio Dimov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
4	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
5	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
8	Vania Dimova	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
11	Penio Dimov	Fixing the elevator	46.00lv.	46.00lv.	EMERGENCY	28 FEBRUARY 2023	UNPAID	<a href="#">Pay</a>
1	Penio Dimov	Fixing the elevator	46.00lv.	11.00lv.	EMERGENCY	28 FEBRUARY 2023	PARTLY_PAID	<a href="#">Pay</a> <a href="#">Return</a>
6	Vania Dimova	Fixing the elevator	46.00lv.	0.00lv.	EMERGENCY	28 FEBRUARY 2023	PAID	<a href="#">Return</a>

Building's money balance: 49.00lv.  
Building's tax per Person: 4.00lv.  
Building's tax per Dog: 3.00lv.  
Building's per elevator chip: 5.00lv.

‘Taxes’ page with ‘return’ option

- 4.18. By clicking the ‘return’ button, we will see a new page, where we can choose an amount to return to the neighbour. If we return the full amount the tax status will be changed to UNPAID from PARTLY\_PAID and the money will be subtracted from the building’s balance. For both options ‘pay’ and ‘return’ there are validations so

you can not pay more than you have to and you can not return more than you have paid.

The screenshot shows a web application interface for managing a building. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages, Profile, and Logout. Below the navigation bar, there is a large banner featuring a city skyline illustration. On the left side, there is a sidebar with a building icon and the text "Test Building", "Str. Slavyanska 95, Plovdiv, Bulgaria", "Manager: Dimo Dimov, +359878123456". In the center, there is a form titled "Return Tax amount" with a value of "35" entered. A message below the input field says "Max amount to return 35.00lv.". A blue button labeled "Return Tax amount" is at the bottom of the form.

*'Return' tax page*

The screenshot shows a web application interface for managing taxes. At the top, there is a navigation bar with links: Home, Edit building, Dashboard, Expenses, Taxes, Neighbours, Messages, Profile, and Logout. Below the navigation bar, there is a large banner featuring a city skyline illustration. On the left side, there is a sidebar with a building icon and the text "Test Building", "Str. Slavyanska 95, Plovdiv, Bulgaria", "Manager: Dimo Dimov, +359878123456". In the center, there is a table showing a list of tax entries. The table has columns: Apart. №, Owner, Description, Amount, Remaining amount, Tax type, Due date, Tax status, and Action. The table contains 11 rows of data. At the bottom of the table, there is a summary: "Building's money balance: 14.00lv.", "Building's tax per Person: 4.00lv.", "Building's tax per Dog: 3.00lv.", and "Building's per elevator chip: 5.00lv.". A blue "Pay" button is visible in the "Action" column of the last row.

*'Taxes' page after returning the full amount*

- 4.19. Last is the 'Dashboard' page, where everyone who owns an apartment or is a manager of the building can see some important information about the building:

Apartment №	Total owed money	Owner
5	46.00lv.	Vania Dimova
3	43.00lv.	Penio Dimov
1	34.00lv.	Penio Dimov
11	24.00lv.	Penio Dimov
4	19.00lv.	Vania Dimova

 Below this, a section shows financial details for the building: Building's balance: 160.00lv, Collected taxes: 330.00lv, Uncollected taxes: 176.00lv, Paid expenses: 170.00lv, and Unpaid expenses: 700.00lv."/>

### 'Dashboard' page

## 5. Securitization:

- Thanks to Spring Security and the provided @Annotations I have added these restrictions:
  - Only users who own an apartment can visit the building's page as a neighbour.
  - The neighbour can add/edit a message only if he is the author of the message
  - The neighbour can pay a tax only if it is assigned to him or his apartment
  - Only the manager of the building can access the building's pages for a manager and use their functionalities
  - Users with an ADMIN role can access everything on the web application
- The URL is built on the following principle:
  - The user who can visit a building as a neighbour:
    - www.domain.com/neighbour/building/\*\*\*
  - The user who can visit a building as a manager:
    - www.domain.com/manager/building/\*\*\*
  - Users with ADMIN rights can access all URLs plus the ones available for admins :
    - www.domain.com/admin/\*\*\*
  - Not logged users can only visit the index/home, 'Contact Us' and 'Pricing and Plans' pages:

## 6. Things that should be added or improved:

- Write Tests to achieve a high % of coverage
- Check Controller->Service->Repository layers to improve data encapsulation
- Implement the remaining //TODOs

- Check the code and watch out for mistakes or opportunities to refactor or ‘clean’ it by bearing in mind the ‘SOLID’, ‘DRY’, ‘KISS’ and other principles.
- Convert the MVC controllers to REST controllers and create a better front-end using JS and other technologies.
- Integrate Online Payment