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DETENTE APARTMENT MANAGEMENT SYSTEM

BUSINESS CASE AND SYSTEM ARCHITECTURE

by

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**OBJECT ORIENTED PROGRAMMING(DCIT 50)
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INTRODUCTION

One of the greatest little projects that can be created in Java to manage apartments, houses, or other real estate properties is the Apartment Management System. With this technology, the entire apartment may be handled without labor-intensive human record-keeping. The manual way of record keeping is being replaced with a more current computerized system with the use of this software, which helps to maintain track records of sales, purchases, receipts, installments, advances, maintenance, and other connected concerns.

A recently developed system called an apartment management system assists in gathering information on apartment residents. The recently designed technology allows users to do tasks more quickly and easily by removing all paperwork. Any kind of information about the residents of that specific location is gathered and stored in the apartment management system. The use of this technology aids in maintaining all the data required for apartments. The project aims to cover every aspect that will help those who are involved to fulfill their particular requirements.

A Detente Apartment Management System refers to a software or system that offers online solutions for managing daily duties for property managers. These systems enable property or apartment management, rent collection, tenant data collection, and rental monitoring of key performance indicators. The goal of the apartment management system is to provide property managers with a digital version of the entire process, therefore making their professional lives easier. This will be really an impressive project that can be developed with Java, MySql, MariaDB.

OBJECTIVES OF THE PROJECT

The main objective of the project is to provide services to maintain the apartments operating on an everyday basis. They are able to save a great deal of time, money, and energy through the use of this program to save all transactions automatically in a system. This system is divided into three sections: admin, apartment owner, and user. The owner can keep an eye on his apartment's details and rent payments, and the administrator will oversee all activity within the unit. The people who occupy the apartment are its users. If they are the apartment's occupants, they can check activities, add complaints, and see their rent statements.

- **Easy to Use:** The apartment management system's user interface is quite simple to use. Users will find it quite straightforward to work on as a result. Accuracy and a pleasing user interface are features of the program. Improve the current manual system to make it more user-friendly, interactive, and quick.
- **Accuracy:** When it comes to the activities carried out in an apartment, the apartment system responds quickly and with extremely accurate information. Any information or system in a precise manner, when needed.
- **Availability:** The transaction records from the computer system can be retried when it's necessary. This implies that all necessary information is continually available immediately and may be quickly and easily obtained.
- **Automation of Operations:** Reduce manual workload by automating repetitive operations like maintenance scheduling, billing, and rent computations. Enhance property management procedures' accuracy and speed.
- **Effective Management of Property:** Make it easier for property managers to oversee apartment buildings overall. Increase efficiency when managing rent collecting, maintenance inquiries, and tenant-related duties.

CURRENT SITUATION AND PROBLEM/OPPORTUNITY STATEMENT

The act of keeping and maintaining an apartment has many disadvantages, particularly in the case of a manual method. The manager usually has no idea how many people live in the apartment because most apartment buildings have just one owner or manager. The absence of more advanced, computerized ways for owners to maintain tenant and unit information. It is challenging to maintain track of the data when it is paper-based because it is manually recorded and managed.

The current system that they have is a manual recording of their information. They don't have a database that would enable them to properly manage their records. Because data might be easily lost when maintaining records manually, the security of the data is not completely guaranteed. Following a natural or man-made disaster, manual records frequently disappear, making it difficult to retrieve the information that was lost.

SCOPE AND LIMITATIONS

SCOPE

Our project has made it easier for apartments to manage tenants in a systematic and efficient manner. In the future, we would want to include a provision for reserving the auditorium so that more than one event may be held without colliding. We can also upgrade the system according to what will be the made decision. By adding other functions, we may make our apartment management system useful for schools, hostels, libraries, and so on. It may be utilized in the workplace, and modifications can be made quickly in accordance with the needs of the integrated apartment system.

LIMITATION

One shortcoming of this approach is that it does not give information about the renters' or residents' preferences. It solely provides information on the flats and rooms, as well as the numbers and facilities provided. In our nation, many financial transactions, such as payments, invoices, and maintenance fees, are completed on paper since it is a more reliable method of invoicing and payment. As a result, our system may not be capable of performing certain financial duties.

ENTITY RELATIONSHIP DIAGRAM MODEL

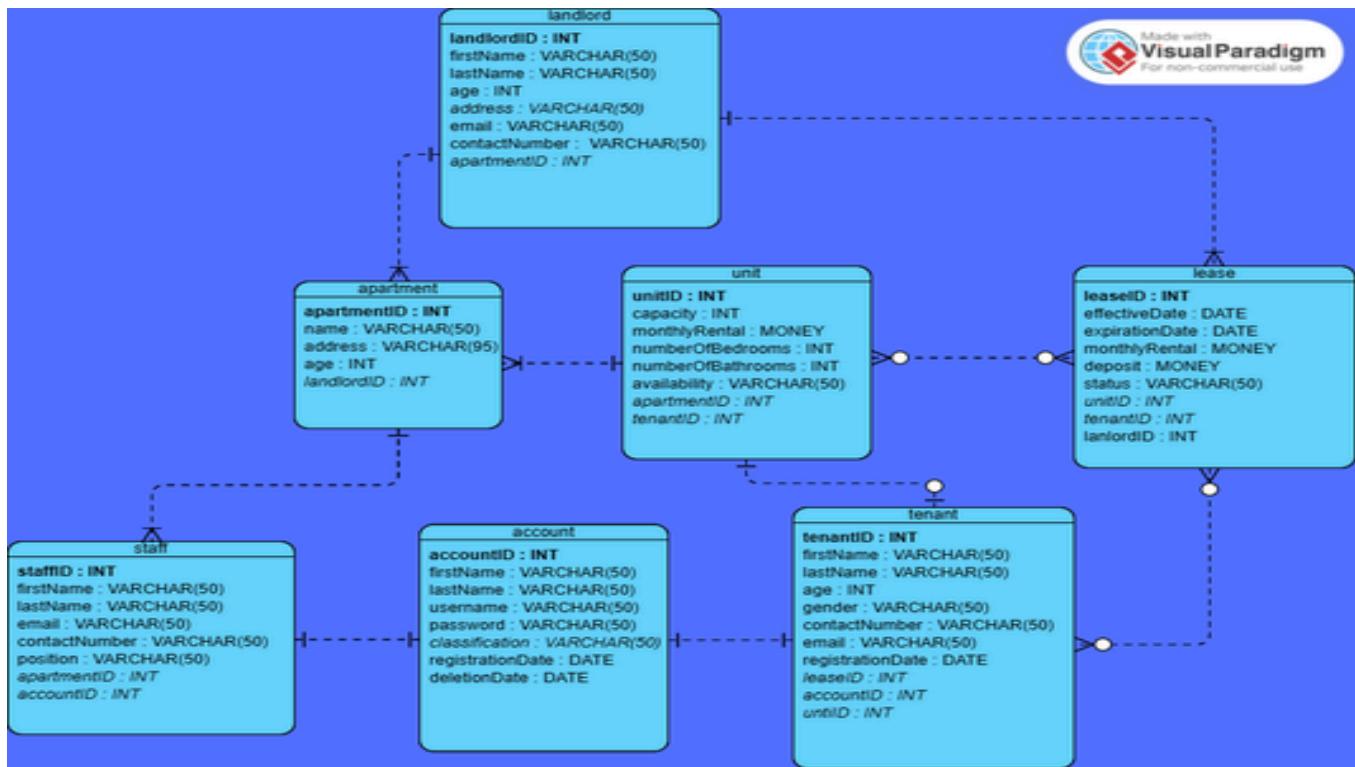


Figure 1. Entity Relationship Diagram Model

This is a simplified illustration; depending on the particular requirements of the apartment management system, the actual ERD might include additional entities, attributes, and relationships. When creating the ERD, be sure to accurately specify main keys, foreign keys, and cardinality. In addition, methods of normalization can be applied to enhance data integrity and eliminate redundancy.

SYSTEM ARCHITECTURE

As you can see in our framework in the image below. There's an admin, apartment, unit, lease, tenant, and billing. The first one which is an admin who can be the controller of it all that includes an apartment where this has a unit. The unit can have those two which are the tenant and billing. The two of them are connected to a unit which is also connected to lease. This framework will tell you briefly how our apartment management system works.

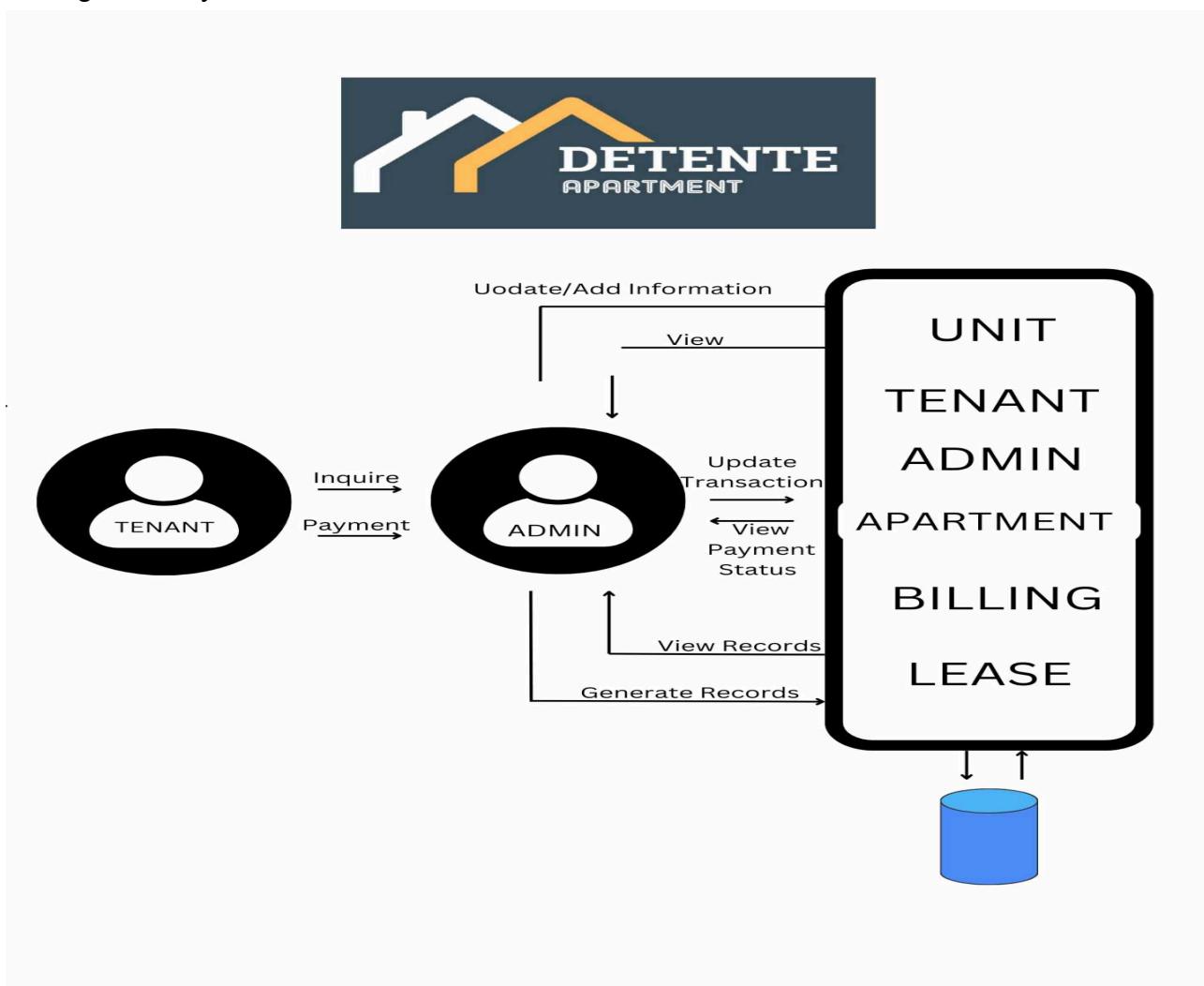


Figure 2. System Architecture of Apartment Management System

Unit Module. Allows tenants to exhibit the interior and outside of the apartment. It might be that the administrator has protocols for what the unit has. From the administrator's perspective, update the transactions. Also, add the admin's details to the unit. This is how the unit is inhabited.

Tenant Module. Allows access to the unit in the apartment. They are also responsible for paying a portion of the lease or billing contract for the unit they chose. They will also be able to determine what is finest for them in order to select the ideal unit.

Admin Module. Allows to control the whole apartment especially includes part of their apartment that are unit, billing, and lease. Admin is the one who is responsible for the tenants to choose what they want for their rights and also for them to properly accommodate their apartment business.

Billing Module. Allows tenants to submit billing requests to the administrator. To prevent the administrator from altering the billing information for the tenant to check the payment status. But first, they must register an account.

Lease Module. Allows both administrators and tenants to examine or see the contract known as the "lease". The administrator must establish tenant records so that renters may examine their contract records. It benefits both of them in having a profitable apartment system.

Apartment Module. Allows the tenants to provide an affordable house for other persons who want to live there. However, it is dependent on the price and terms of the lease of their preferred unit. It is also possible that they will be placed in the apartment for a short or extended period of time.

SYSTEM DESIGN

The act of specifying the parts, functions, data, and interfaces of a system in order to meet predetermined specifications is known as system design. Processes, methods, models, and approaches applied to the creation of new or modified systems are collectively referred to as the development of systems. Distributing a large system's requirements among hardware and software components is the aim of system design.

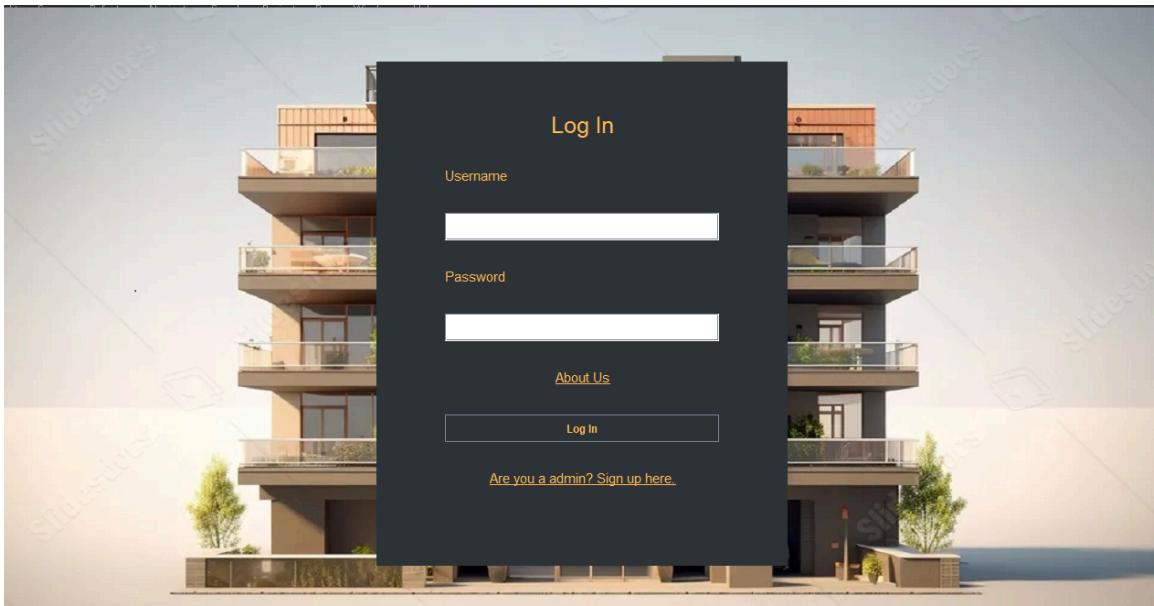


Figure 2.1. LOGIN Page

The login page which includes a login interface for users and administrators. After the registration into the system user should login through username and password.

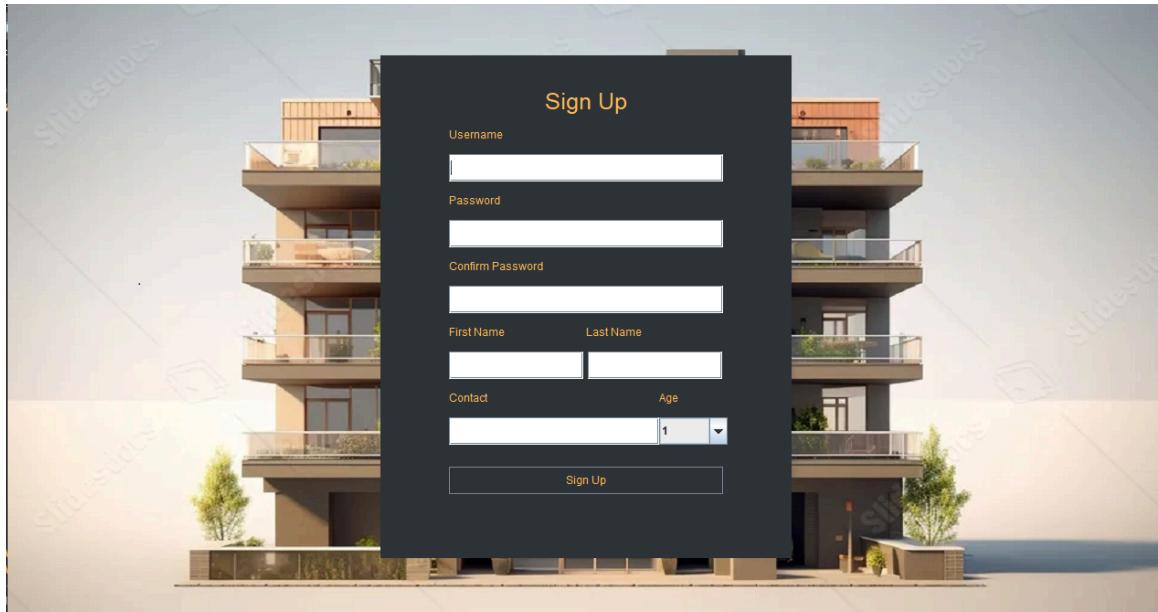


Figure 2.2. REGISTRATION Page

The registration page which includes registering the user and administrator. Adding a new user to the system which stores for each member identification number, name, address, contact number, and email address.

A screenshot of a dashboard titled "Unit Page". On the left, a sidebar lists "Unit", "Tenant", "Admin", "Billing", and "Log out". The main area shows a table of unit information with columns: Unit No., Unit Fl., Capacity, Rental, No. of Bed, No. of CR, and Access. The table data is as follows:

Unit No.	Unit Fl.	Capacity	Rental	No. of Bed	No. of CR	Access
4	1	3	9000	2	4	Available
1	2	1	10000	1	1	Available
4	5	1	6000	1	1	Available
4	4	1	3000	1	2	Available
3	1	1	1000	1	1	Available
5	2	1	6000	1	1	Available

On the right, there are buttons for "Add", "Remove", "Update", and "View". The background shows a modern apartment building with multiple balconies.

Figure 2.3. DASHBOARD

The dashboard aims to provide a centralized platform for managing and monitoring various aspects of apartment complexes, including resident information, maintenance

requests, financial transactions, and more. There's an admin, apartment, unit, lease, tenant, and billing. The first one which is an admin who can be the controller of it all that includes an apartment where this has a unit.

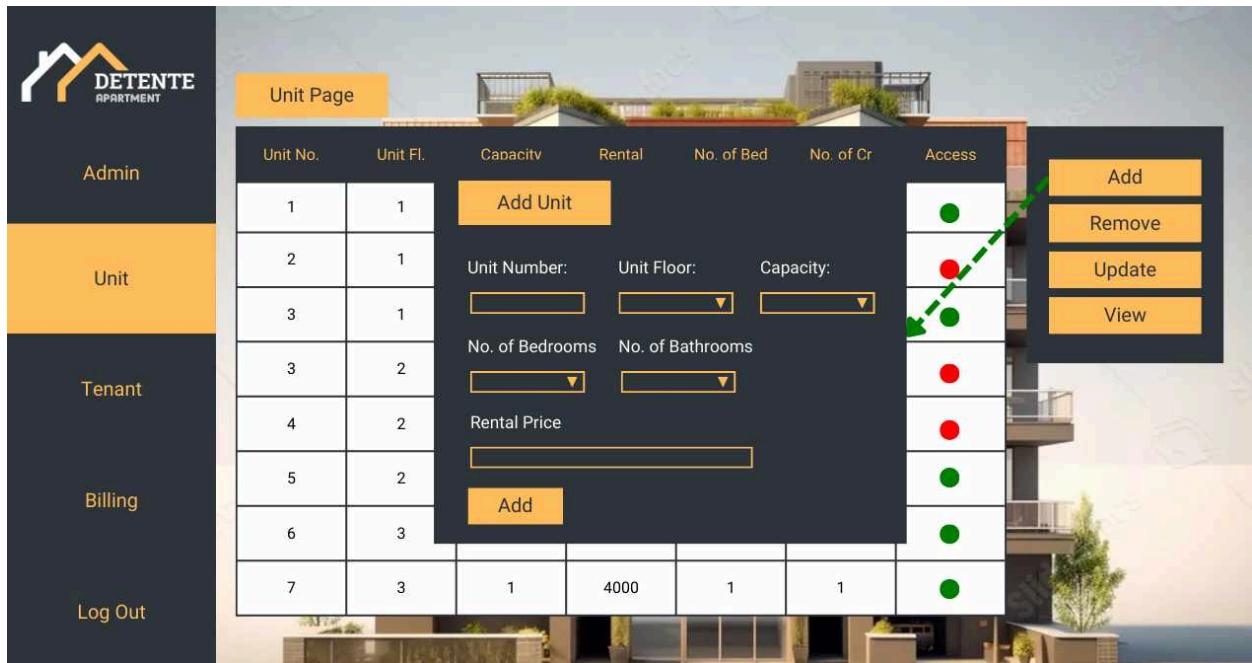


Figure 2.4. ADD BUTTON

This figure will show to Use this button to add a new apartment unit to the system.

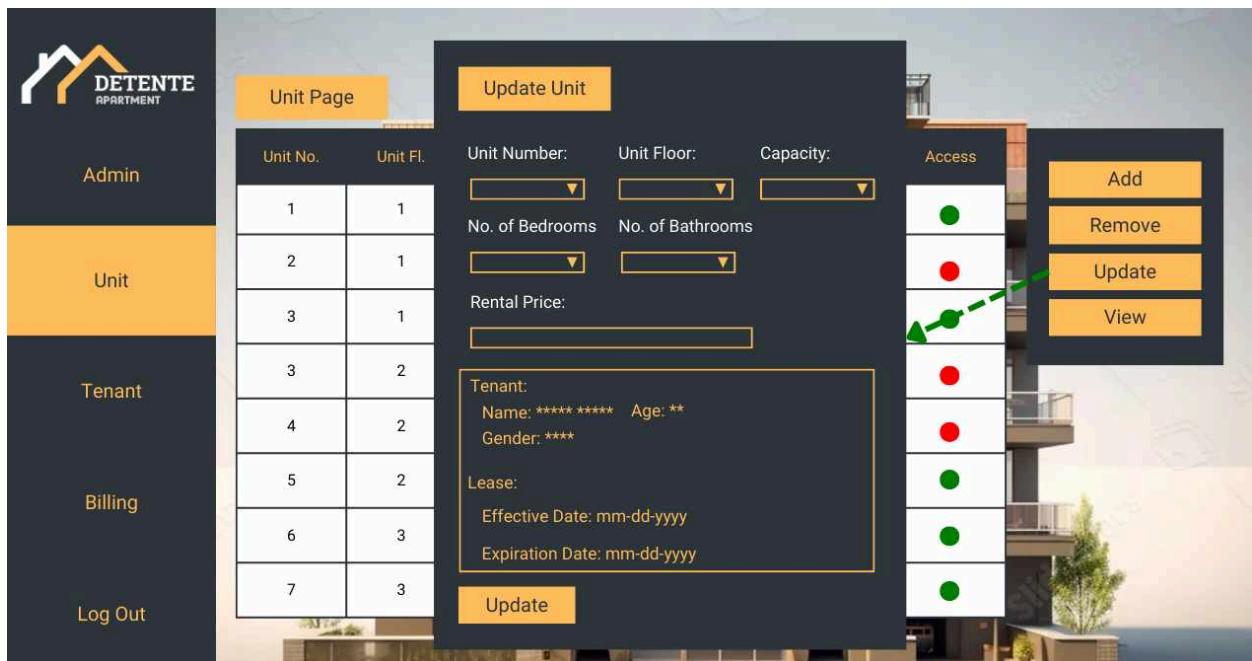


Figure 2.5. UPDATE BUTTON

In this figure, Use this button to update if a unit is still available or not to the system.

Name	Age	Gender	Contact No.	Reg. Date	Unit Address (no.fl)
Joe Lem	22	M	09*****	1-12-24	1-3
Pick Aboe	30	M	09*****	1-12-24	2-1
Juan Apolo	19	M	09*****	1-12-24	2-2
Kris Line	23	F	09*****	1-12-24	2-3
Natan Xi	23	M	09*****	1-12-24	1-2
Laun Ohn	25	M	09*****	1-12-24	1-1
Nerisa Chin	41	F	09*****	1-12-24	3-2
George Paul	18	M	09*****	1-12-24	3-1

Figure 2.6. TENANT PAGE

In fig. 2.6 shows the information or the data about the tenants.

Add Tenant

Name	Age			Unit Address (no.fl)	
Joe Lem	22			1-3	Add
Pick Aboe	30			2-1	Remove
Juan Apolo	19			2-2	Update
Kris Line	23			2-3	View
Natan Xi	23			1-2	
Laun Ohn	25			1-1	
Nerisa Chin	41			3-2	
George Paul	18			3-1	

Figure 2.7. ADD BUTTON FOR TENANT PAGE

In this figure, click to add a new tenant to the apartment management system.

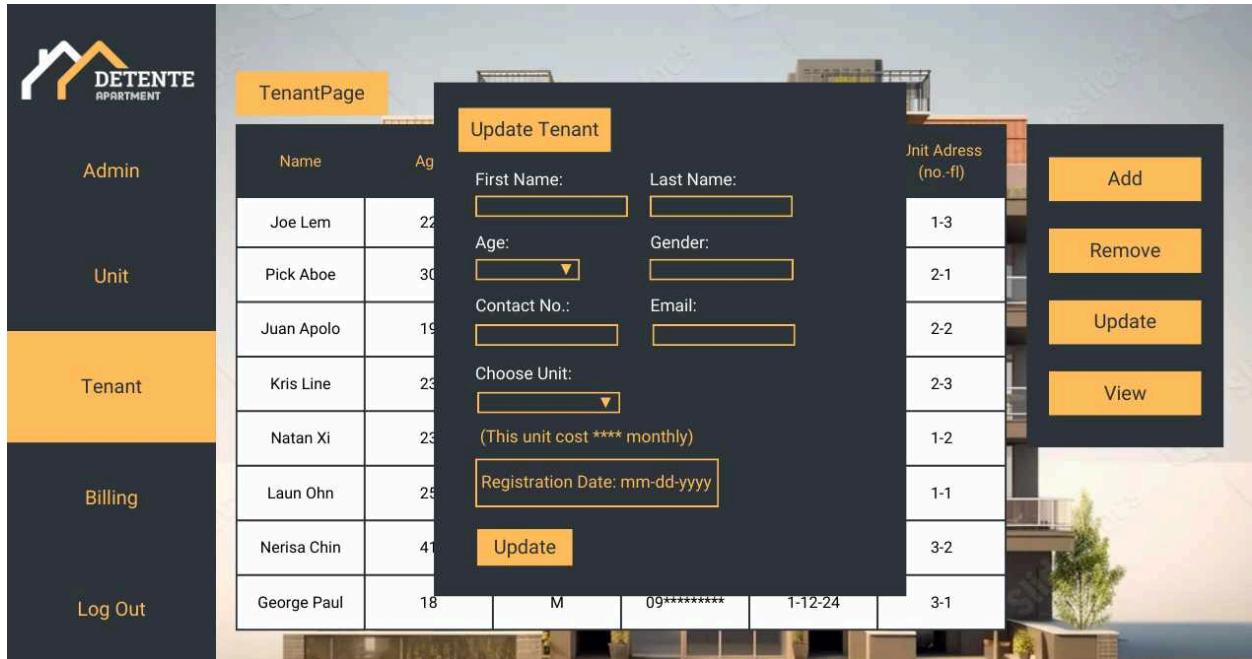


Figure 2.8. UPDATE BUTTON FOR TENANT

Billing Page

Tenant	Water	Electrical	Rental	Payment	Balance	Status
Joe Lem	400	500	1000	1900	0	Paid
Pick Aboe	500	500	4000	500	4500	Unpaid
Juan Apolo	300	500	5000	800	5000	Unpaid
Kris Line	550	500	6000	1550	6000	Paid
Natan Xi	220	500	4000	700	4000	Unpaid
Laun Ohn	200	500	2000	-	2700	Paid
Nerisa Chin	210	500	3000	3710	0	Paid
George Paul	230	500	5000	5230	500	Unpaid

Figure 2.9 BILLING PAGE

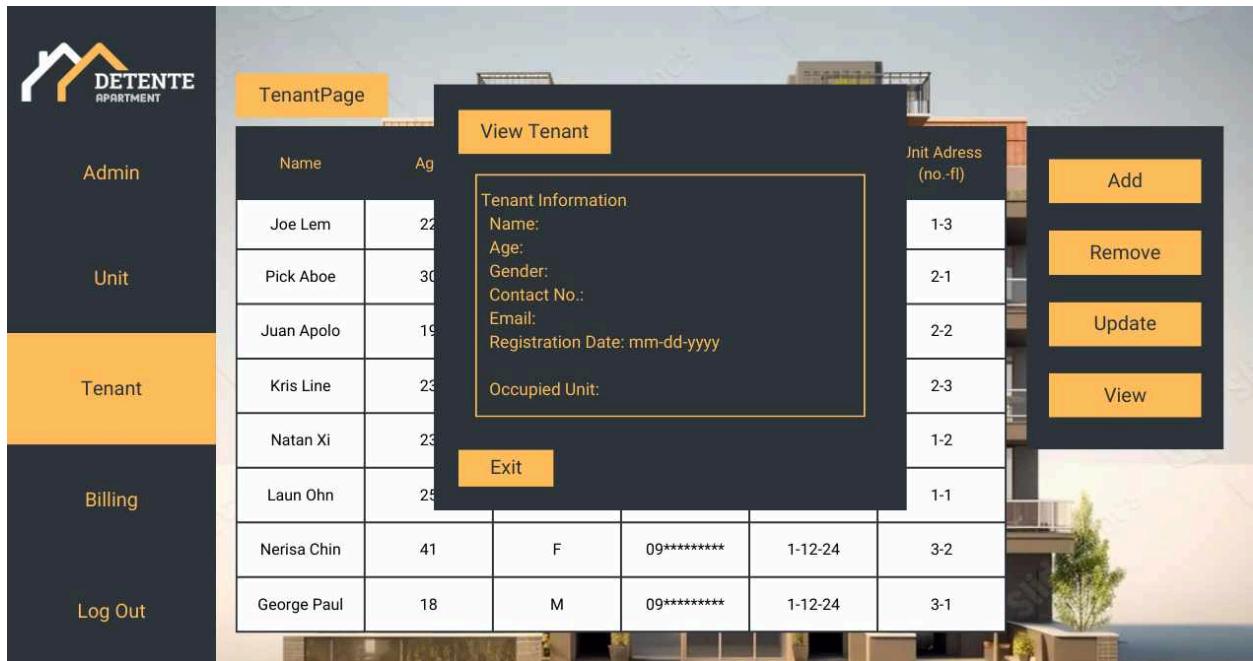


Figure 3. VIEW BUTTON