

ECMS PROJECT

FINAL YEAR PROJECT

DATE

UNIVERSITY COLLEGE OF TECHNOLOGY

CANDIDATE NUMBER

ABSTRACT

First of all, we thank God SWC for making it possible for us to start and finish our university safely. I would like to thank our teachers who have spent a lot of time and effort to reach this stage today. We are also very grateful to all our parents for their great honour and value who made it possible for us to finish our first level education today and who gave us all the funds that were spent on our education.

We also thank the students who have been our classmates for the past four years and we have been in the long struggle of education, while we have spent beautiful times and good times together.

Also, thanks to everyone who contributed to the production of our book in defense of our project named ECMS and will graduate.

We also thank everyone who took the time to read our book and thank you very much for the beautiful time you gave us on your day.

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Problem Definition & Human Information Requirements

INTRODUCTION

Before we go into the details and summary of our book, we would like to report and briefly talk about the things that our project is doing? And why did we choose to do this project?

First of all, our group consists of 7 people, all of us who want to graduate from Himilo University this year, we are among the students of the college of computer science, especially we are going to graduate from programming.

Our group has agreed that we have chosen a system to solve and manage the issue of the environmental cleaning system so that the system is supposed to work properly.

The system is called Environmental Cleaning System (ECS) and will solve all the needs of environmental cleaning by solving it in a technological way.

The system can register all the houses in the Banadir region and each district will be registered in each house and at the same time the houses that belong to the citizens will be registered.

It will also be registered for each tenant and each tenant will be filled in with their information and at the same time the tenant and the house they are renting will be found.

In addition to this, the system will find out how many areas have been cleaned and how many areas have not yet been cleaned.

Also, the system has good security authentication and no one can log in except those who are in the system.

Also, we will explain here how we did it and the language we used to make the system.

There are many programming languages such as HTML, JAVA, JAVASCRIPT, C++ and so on. But this system or this project is named Environmental Cleaning Management System it is built in Python language.

The reason we use it is that it is the latest and easiest language not only does, we have used other programming languages such as HTML and Python. When you look at the system in its style and beauty, we built it in html as frontend. Html is a programming language that you can use to design or build your own frontend. While python is the easiest programming language in the world when we talk about programming language and we will use as backend.

There are more than 15 million people living in Somalia and they live in all the regions of our country.

The Somali community that lives in all the regions of our country, every community that lives in its region has services for social issues that are part of Health, Education, Sports and so on.

Cleanliness is a part of the faith, as reported by our Prophet CSW, it is essential that every area is clean so that people can have health.

In the last few years, our Somali country has been growing. In the last years, the country was emerging from the state of collapse. We have started to rebuild and repair some parts of our country, and most of the regions have been built.

Every region has modern houses and the population has been increasing day by day, and at the same time, the social services that every region has are increasing.

The environment needs to be clean for the community to be healthy, so in order to solve this need, a company that works in cleaning is needed and at the same time, it is considered as a sanitary service that will do the cleaning service in every area in every region.

Also, there are houses in every area, there are people living in every house, and every government agency is responsible for working in social services and at the same time, every area has its right.

Therefore, there is a need to create a modern system to manage the service, which is called the area cleaning project, that system will solve all the work needs in the area cleaning.

Analyzing System Needs

The system has a database designed to store all the data, as well as something that will help the company to use the data whenever it is needed.

We named the database as System and named it "ecms_db" and it has the following tables:-

1. Users
2. Houses
3. Renters
4. Environments
5. Services
6. Transactions

We also set up and installed how they would work and we managed to improve the relationship between the tables of our database.

In the following sections, we will explain how the table of the database is built and the connections between our database.

User
Id
Name
Gender
Tell
Username
Password
Active
Status

House
Id
Name
district
Type
House_No
Status

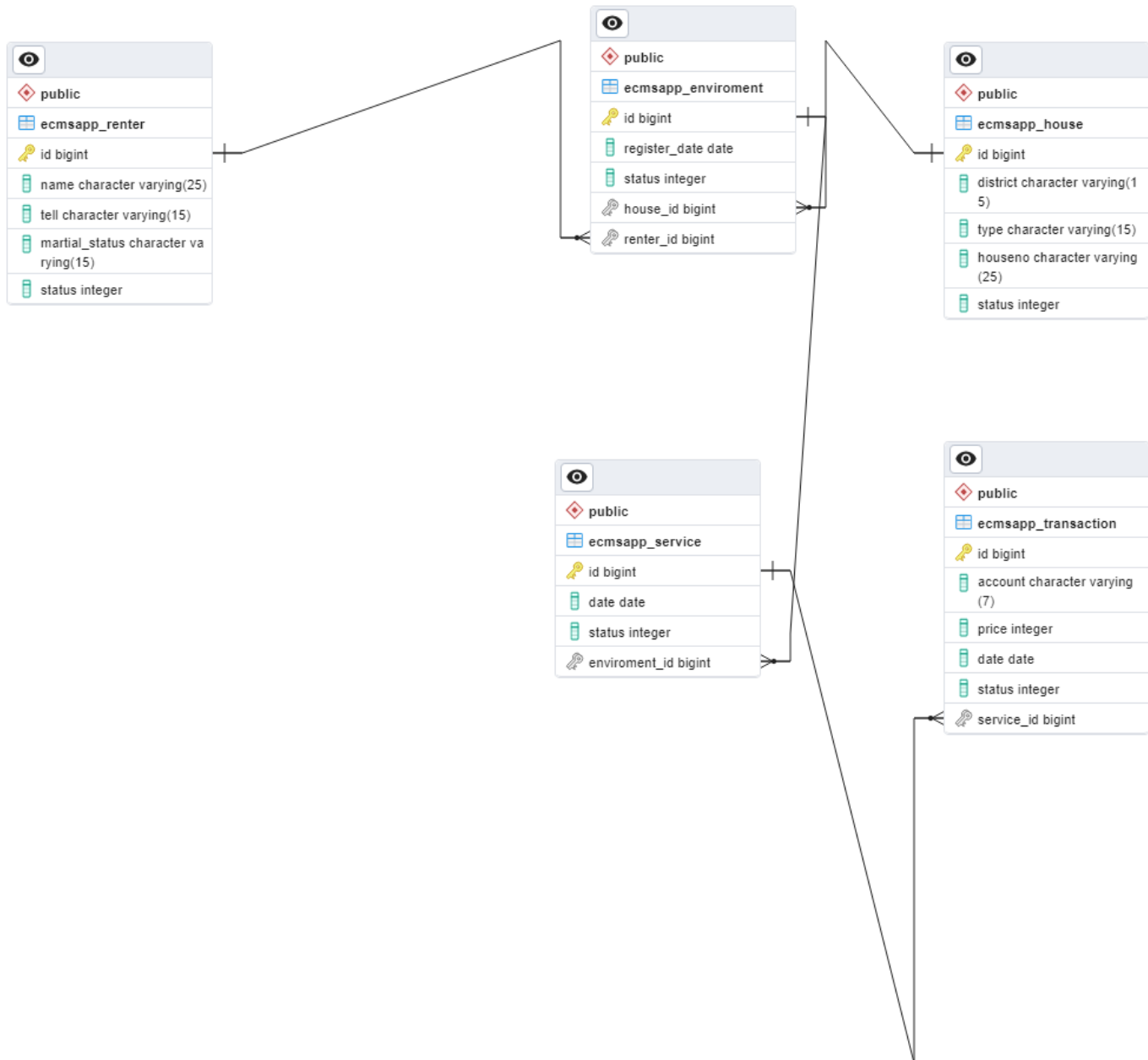
Renter
Id
Name
Tell
Martia_status
Status

Enviroment
Id
House_id
Renter_id
Register_date
Status

Services
Id
date
Env_id
Status

Transactions
Id
Account
Price
Date
Service_id
Status

ER-Diagram



Users

It is intended to store all user data of the system user and will store all user data such as: name, telephone, email, nationality,gender, username and password.

No	Datatype	Value
1.	ID	1
2.	NAME	Hassan Sheikh Mohamud
3.	GENDER	Male
4.	TELL	061-0-000123
5.	USERNAME	Admin
6.	PASSWORD	Pass123
7.	ACTIVE	On
8.	STATUS	True

House

It will be stored all the information of the owner of the house such as:- District, House No, House Type. Also, the data will be officially filed in the database

No	Datatype	Value
1.	ID	1
2.	DISTRICT	Hodan
3.	TYPE	Apartment
4.	HOUSE NO	HDN-001
5.	STATUS	True

Renter

The renter is the tenant of the house and it is intended that all the information of the tenant will be filed here, such as name, telephone and marital status.

No	Datatype	Value
1.	ID	1
2.	NAME	Hassan Sheikh Mohamud
3.	TELL	061-0-000123
4.	MARTIAL-STATUS	MALE
5.	STATUS	True

Environment

The environment has houses and people live in the house, so here will be registered our house and the tenant and the day he moved in such as: Renter_id, House_id and Register_Date

No	Datatype	Value
1.	ID	1
2.	HOUSE_ID	1
3.	RENTER_ID	1
4.	DATE	05/11/2023
5.	STATUS	True

Services

It will be record here with all the information that the services will have such as the location where the service was performed, the date the service was performed.

No	Datatype	Value
1.	ID	1
2.	ENVIROMENT_ID	1
3.	DATE	05/11/2023
4.	STATUS	True

Transaction

This is where all the money collected from the customer will be filed. Every month, different information about the money will be filed.

No	Datatype	Value
1.	ID	1
2.	ACCOUNT	EVC PLUS
3.	PRICE	\$5.00
4.	DATE	12/10/2023
5.	SERVICE_ID	1
6.	STATUS	True

Developing & Documenting System

In this section, we intend to explain how the system is made and how to use our system. For each part of the system, we have made documentation related to how each part works and how to use it.

In the sections below, I will explain in detail how to use each section and what it does.

Login Section

We have created a check point for the system to ensure that the user is authorized to use the system, and we have named this process as the login process.

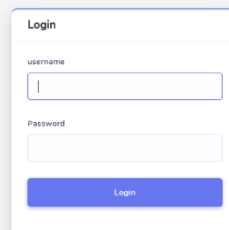
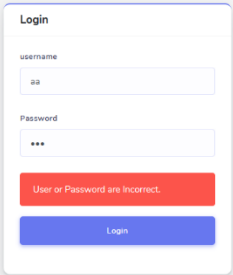
A login form with a white background and a light gray border. At the top, the word "Login" is written in a small, dark font. Below it, there are two input fields. The first is labeled "username" and contains a single vertical line. The second is labeled "Password". Below these fields is a blue button with the word "Login" in white text.

Figure 1 this figure shows you how login page is look like

The user will enter the username and password to access the system account to use the ECMS system, if the user enters the wrong username or password, the system will not allow that person to enter unless the person is banned by the check point. we have already set



The image shows a login form with the following elements:

- Title:** Login
- username:** A text input field containing the text "aa".
- Password:** A text input field containing three dots "..." to represent a masked password.
- Error Message:** A red rectangular box containing the text "User or Password are Incorrect." in white.
- Login Button:** A blue rectangular button with the text "Login" in white.

Figure 2 Incorrect Username or Password

Also, if the user enters a correct username and password, he will be allowed to use the system, and he will be taken to the part shown in the image, which is the Dashboard.

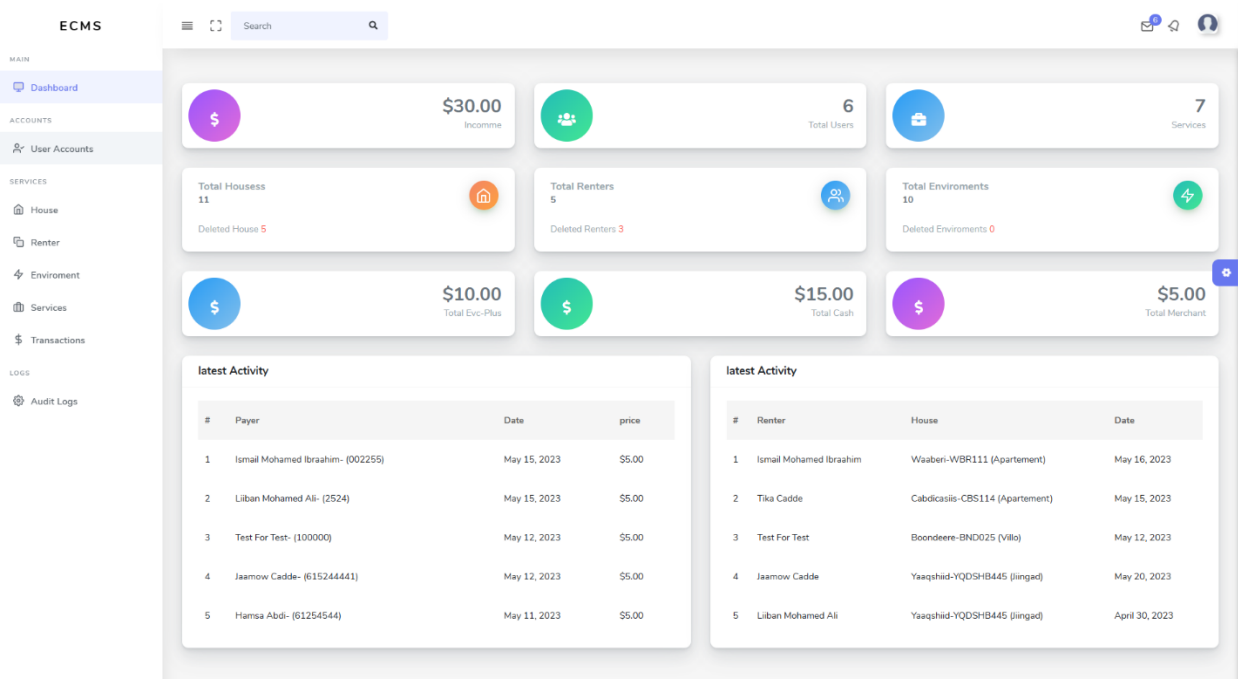


Figure 3 Dashboard View

Dashboard Section

The dashboard section contains a lot of information, so this information comes from within the system, and this information includes all the total payments made by the company and the details of the accounts in which the payments were made and their total amount. It also shows the number of users. Lee's company, the dashboard also shows how many houses the company has registered, and the total number of tenants registered by the company.

The dashboard also shows how many sites have registered with our company and the total number of sites that have been serviced and collected.

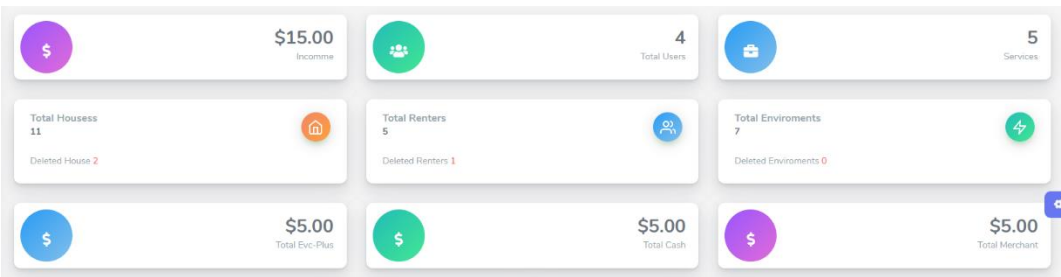


Figure 4 Information Collected Within the system as a report

Also, there are two tables on the dashboard that contain information collected from the system. These two tables indicate the last 5 activities that the system has done. These two activities are found in the table of Transactions and Environments.

Latest Activity			
#	Payer	Date	price
1	Jaamow Caddie- (615244441)	May 12, 2023	\$5.00
2	Ismail Mohamed Ibraahim- (0613057993)	May 11, 2023	\$5.00
3	Abdikadir Faqi Muridi- (0770519304)	May 11, 2023	\$5.00

Latest Activity			
#	Renter	House	Date
1	Jaamow Caddie	Shbis-SHB445 (Jingad)	May 20, 2023
2	Liban Mohamed Ali	Shbis-SHB445 (Jingad)	April 30, 2023
3	Jaamow Caddie	Cabdicasis-CBS254 (Apartement)	April 22, 2023
4	Hamsa Abdi	Xamarweyne-XWN120 (Villo)	April 15, 2023
5	Ismail Mohamed Ibraahim	Cabdicasis-CBS254 (Apartement)	April 29, 2023

Figure 5 Latest Top 5 Activity

Also, the Dashboard system has a profile that is intended to display the user's information in the system and all the related information that the user in the system has.

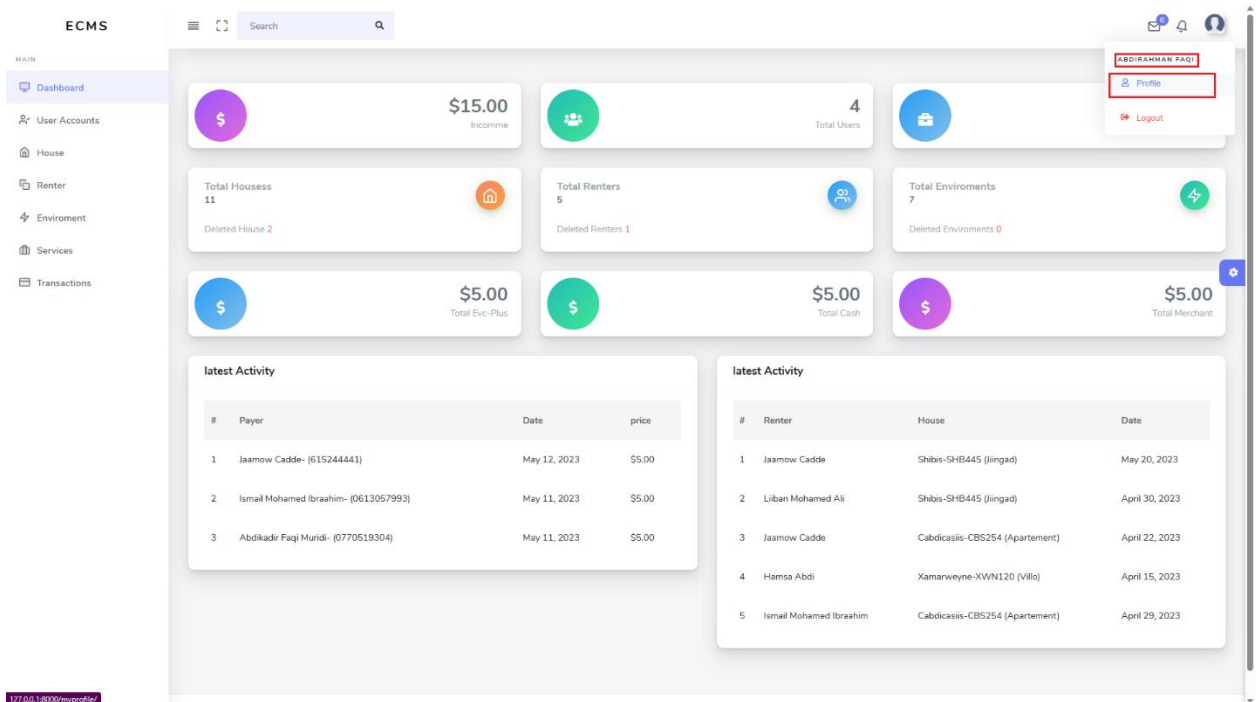


Figure 6 displays the name of the user logged in system

It now shows the name of the user in the system, profile and logout, if the user clicks on the profile, he will be taken to the profile page and all the information related to the user will be displayed.

As seen in the image below, it now shows how the profile page is looks like

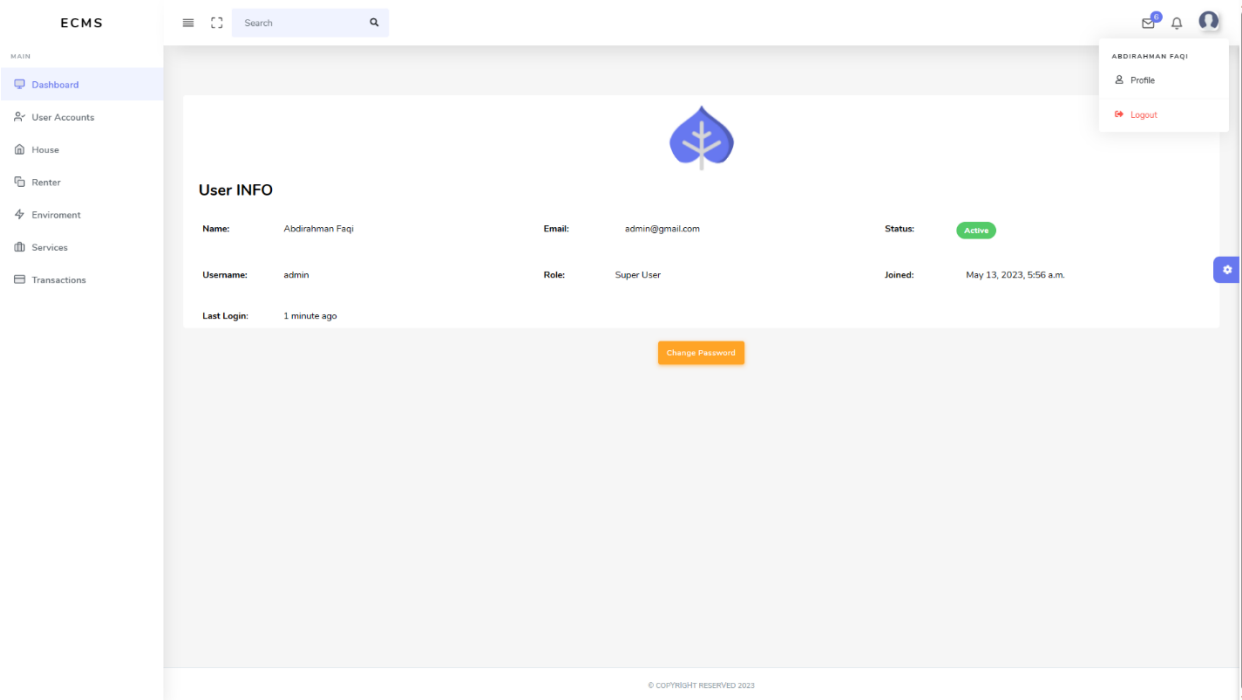


Figure 7 Displaying Profile Page

If the user wants to change his password, he will click on the section that says Change Password, then Modal will pop up and he will enter the new password that he wants to use in the system.

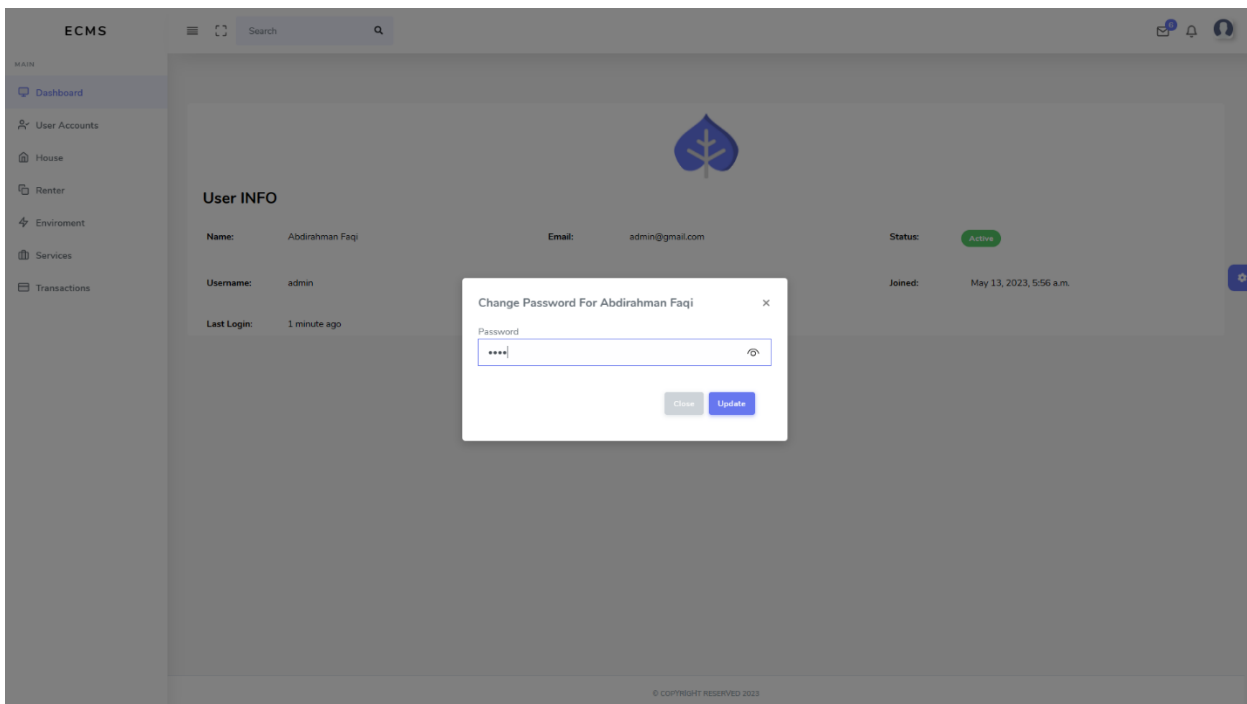


Figure 8 Changing Password

After the user enters his new password and clicks on the Update button, a dialog box will appear detailing whether he has used it incorrectly or not.

If the user has used it correctly, a dialog box will be displayed that says you are successful in changing your password.

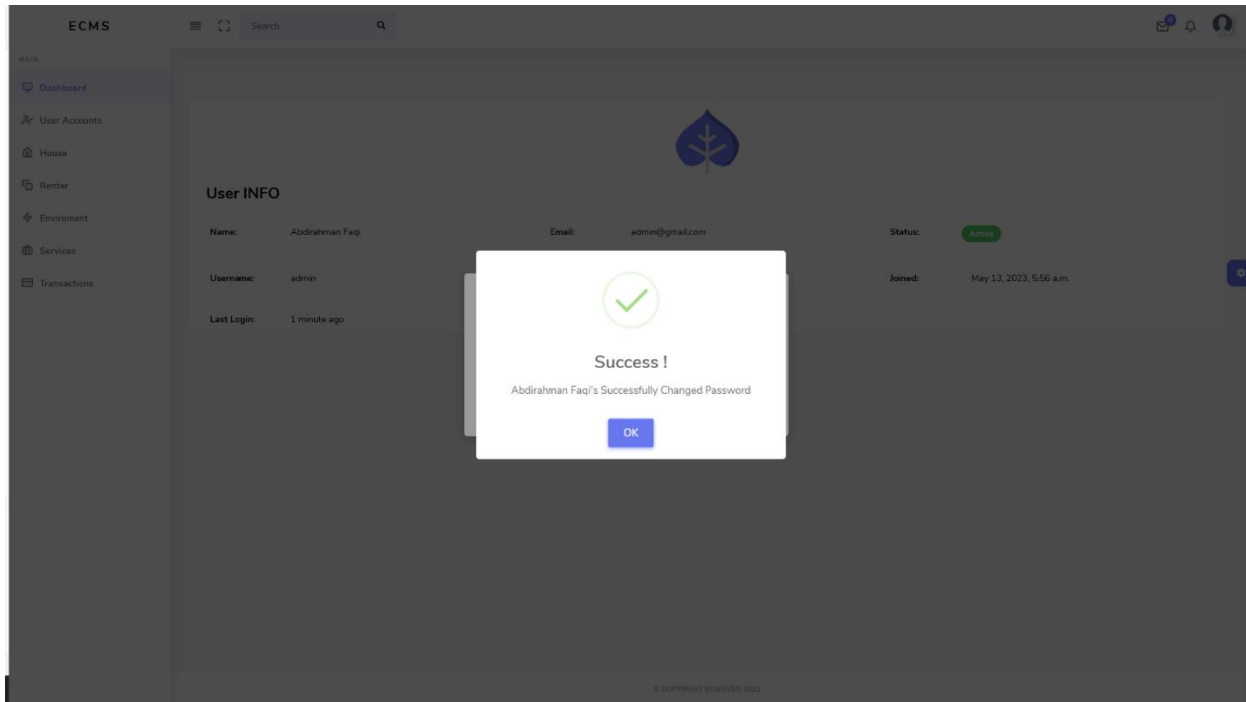
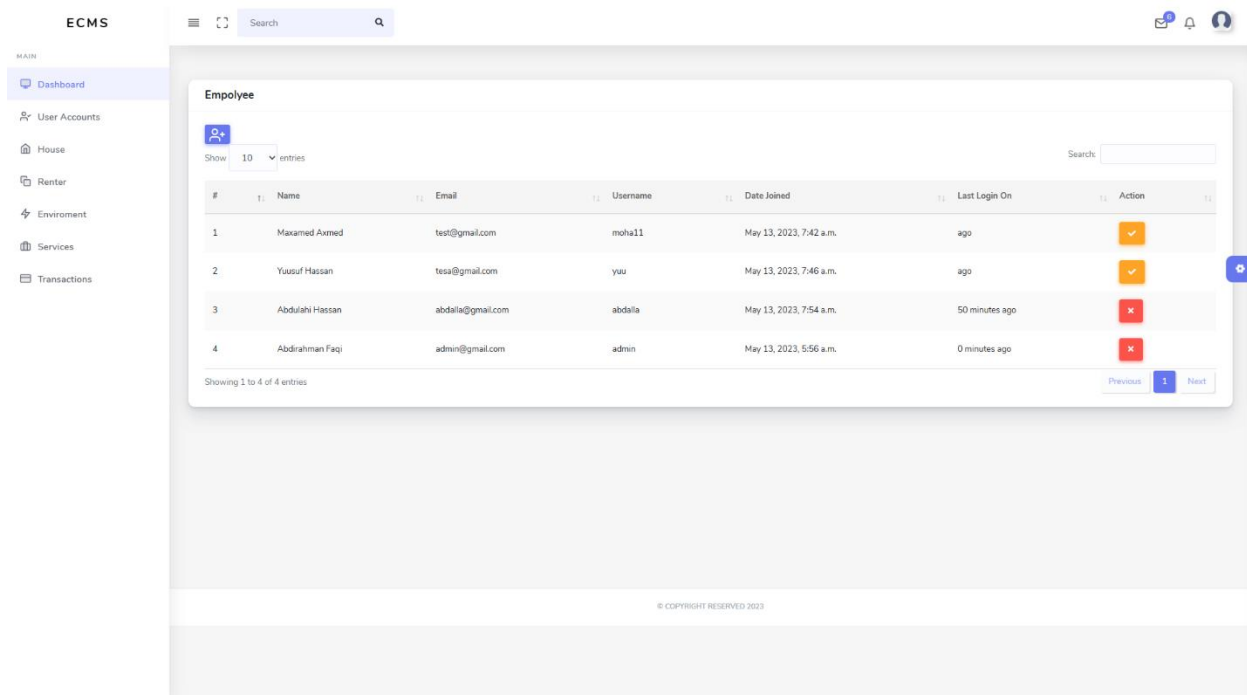


Figure 9 Success Message Displays

User Accounts

The system user has the ability to create a user account and has the ability to see all the accounts in the system and those that are active and those that are not active.



The screenshot displays the 'ECMS' system interface. On the left is a sidebar menu with options: Dashboard, User Accounts, House, Renter, Environment, Services, and Transactions. The 'User Accounts' section is active. The main content area is titled 'Employee' and features a table with 4 entries. The table columns are: #, Name, Email, Username, Date Joined, Last Login On, and Action. The 'Action' column contains icons for activating (orange checkmark) and deactivating (red X) users. A search bar is located at the top right of the table. The footer of the interface includes a copyright notice: '© COPYRIGHT RESERVED 2023'.

#	Name	Email	Username	Date Joined	Last Login On	Action
1	Maxamed Axmed	test@gmail.com	moha11	May 13, 2023, 7:42 a.m.	ago	
2	Yussuf Hassan	tesa@gmail.com	yuu	May 13, 2023, 7:46 a.m.	ago	
3	Abdulah Hassan	abdalla@gmail.com	abdalla	May 13, 2023, 7:54 a.m.	50 minutes ago	
4	Abdirahman Faqi	admin@gmail.com	admin	May 13, 2023, 5:56 a.m.	0 minutes ago	

Figure 10 Users List

You can add a new account to the system by filling out the form and using the new account and you will fill all the information that appears on the form and then you will click or pressing the button that says save.

as shown in the picture below.

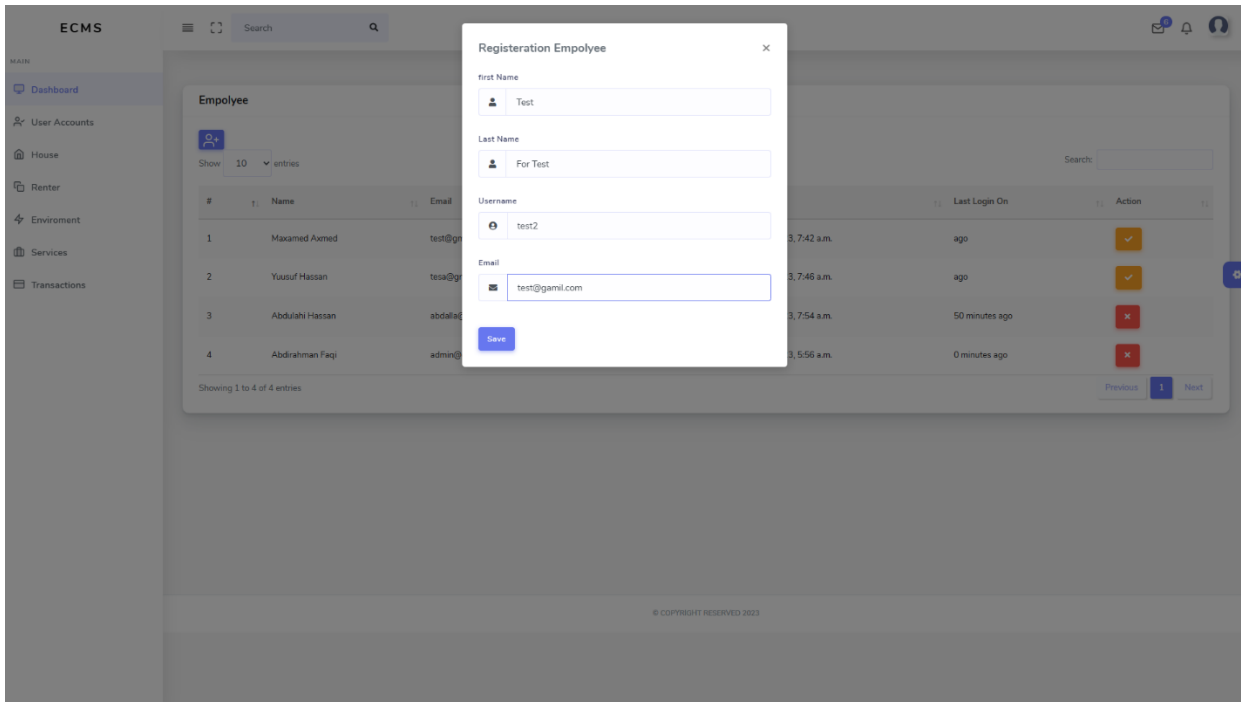


Figure 11 Add New User Account Form

After you say save, a popup message will appear that says "You have successfully Saved this user".

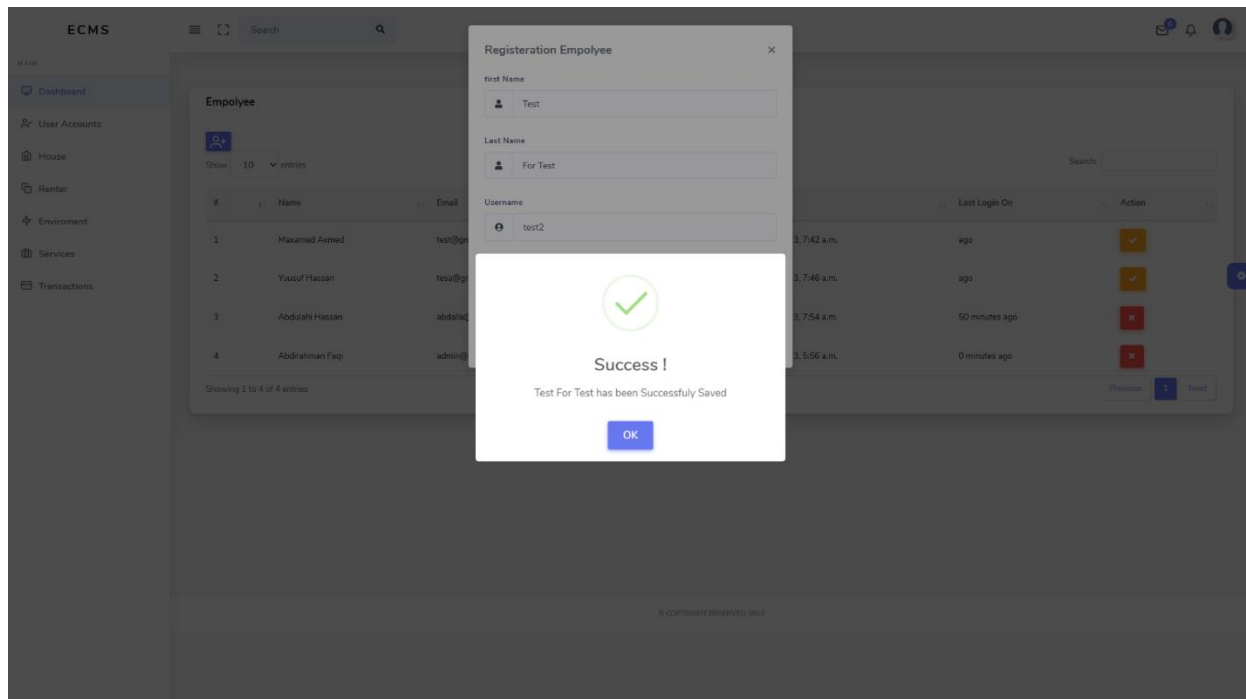


Figure 12 Success Message fir User Account Saving

When you save a user, you will see a list of user accounts that you have saved in the entire system and you will find the list of the user you just saved.

If you want the user to log in to the system, you must make the user active. To make the user active, you must click on the active icon.

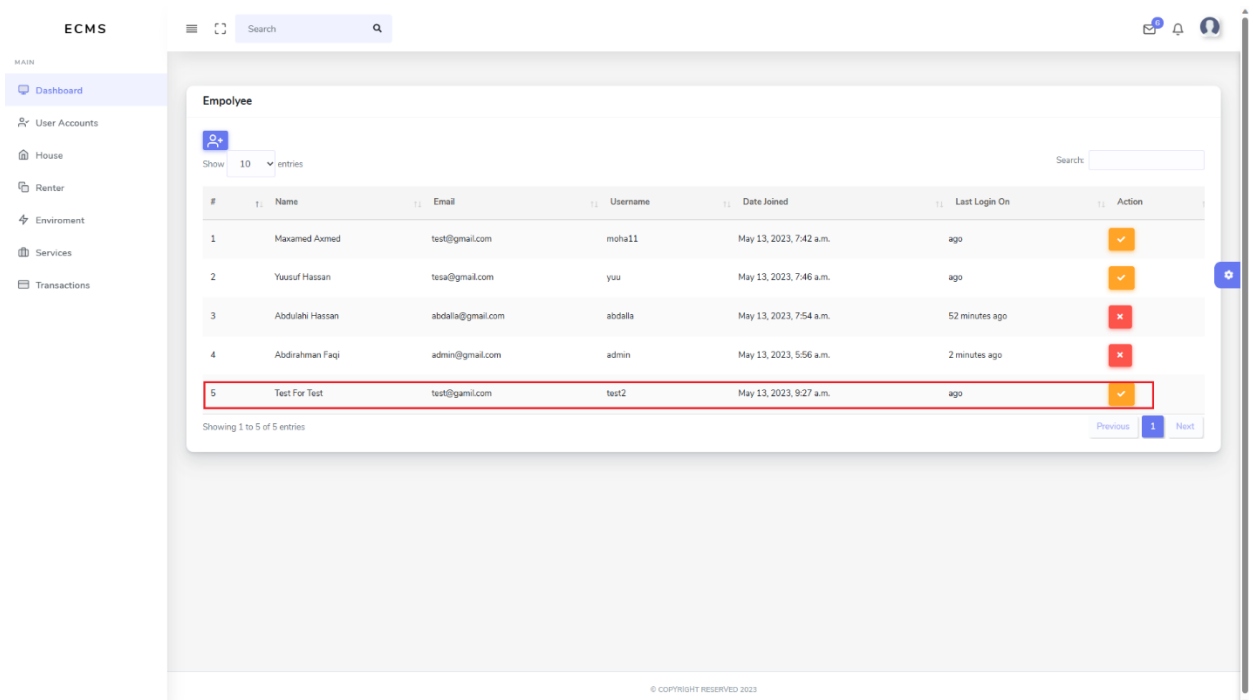


Figure 13 Display List in a user created

After clicking on the active icon, a modal will pop up asking you to enter a password to activate the user, after entering it, click the save button.

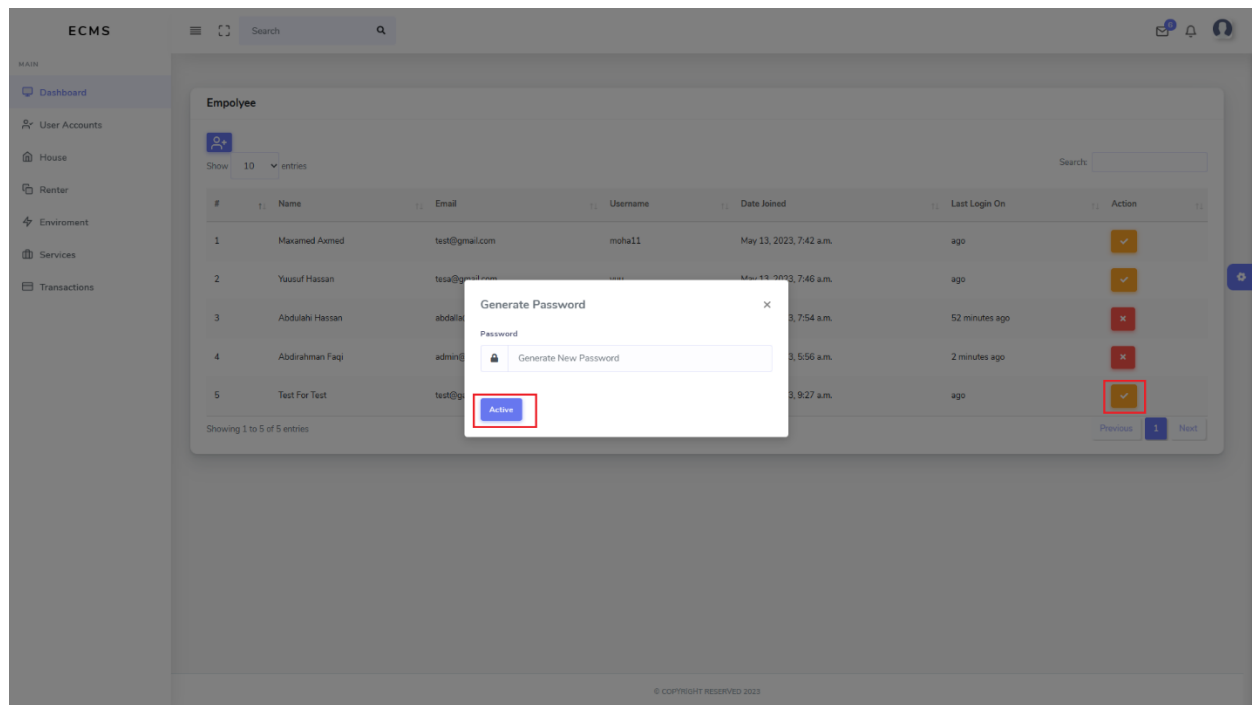


Figure 14 Making activating User by entering password

After you say save, a popup message will appear that says "You have successfully Activated".

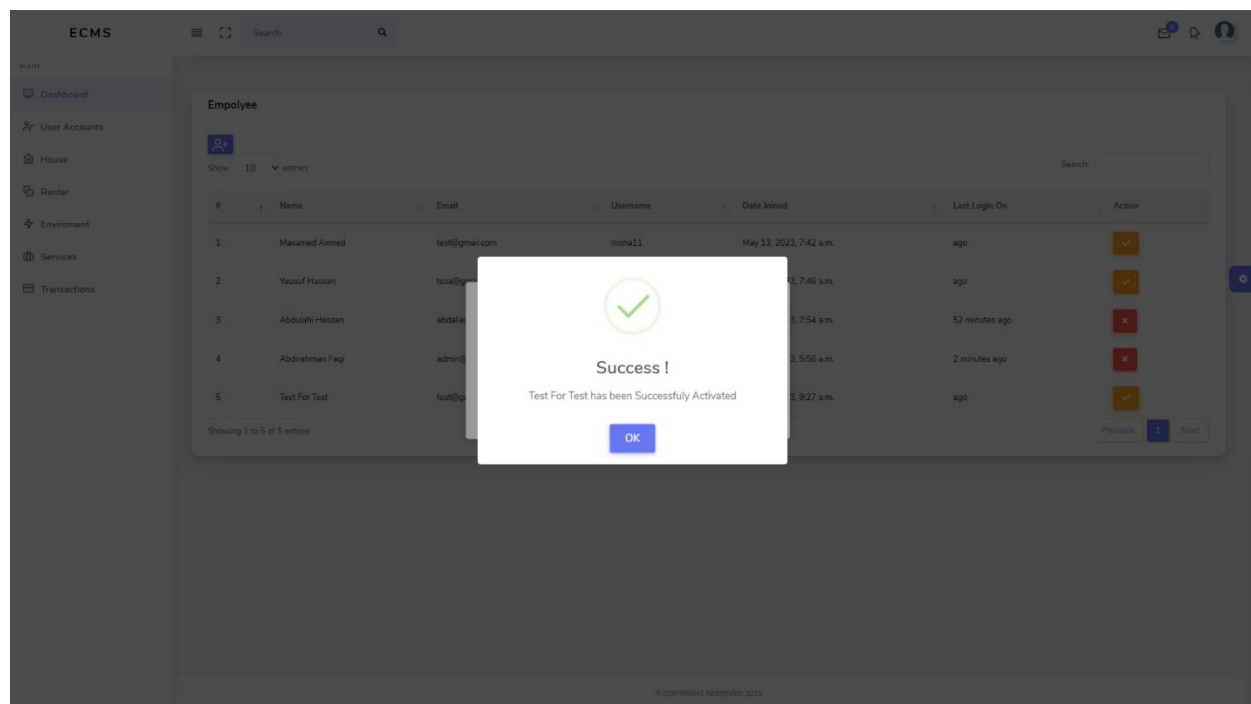


Figure 15 Success Message for activating user

When you make the user active, that user will be able to log in to the system you can also block the user and prevent him from entering the system then click on the red icon on the table to block the user.

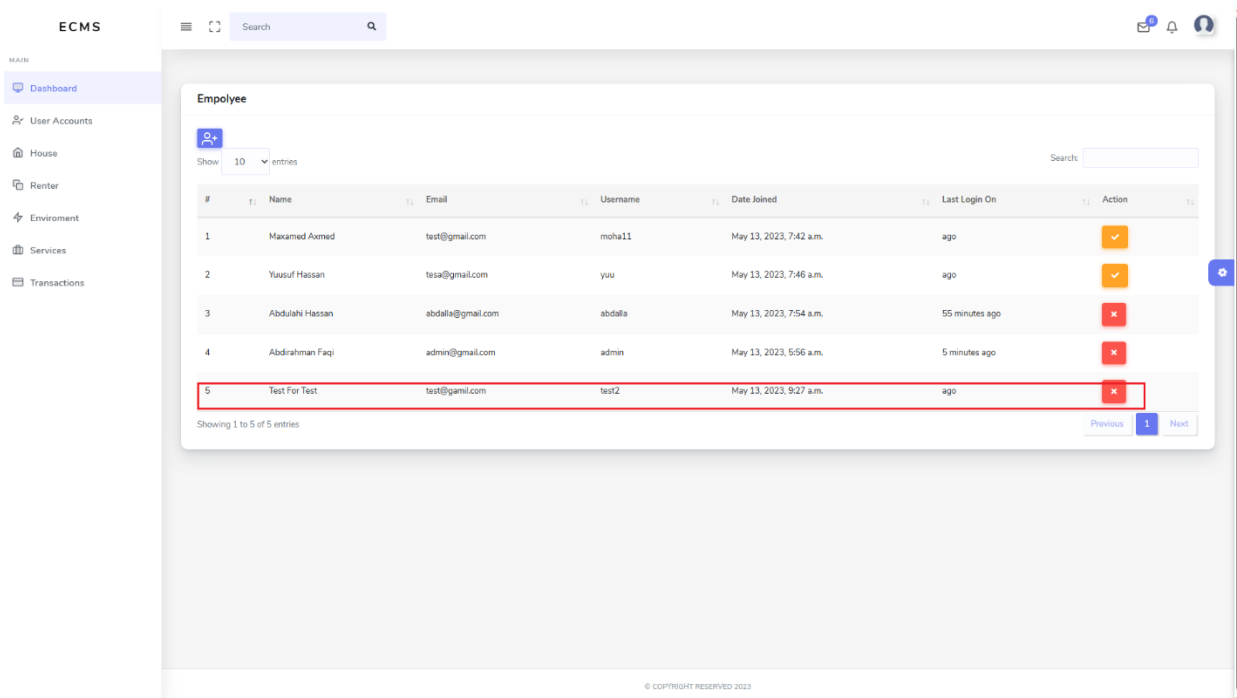


Figure 16 Blocking User Account by Pressing Red Icon

After that you will click on yes to block the user

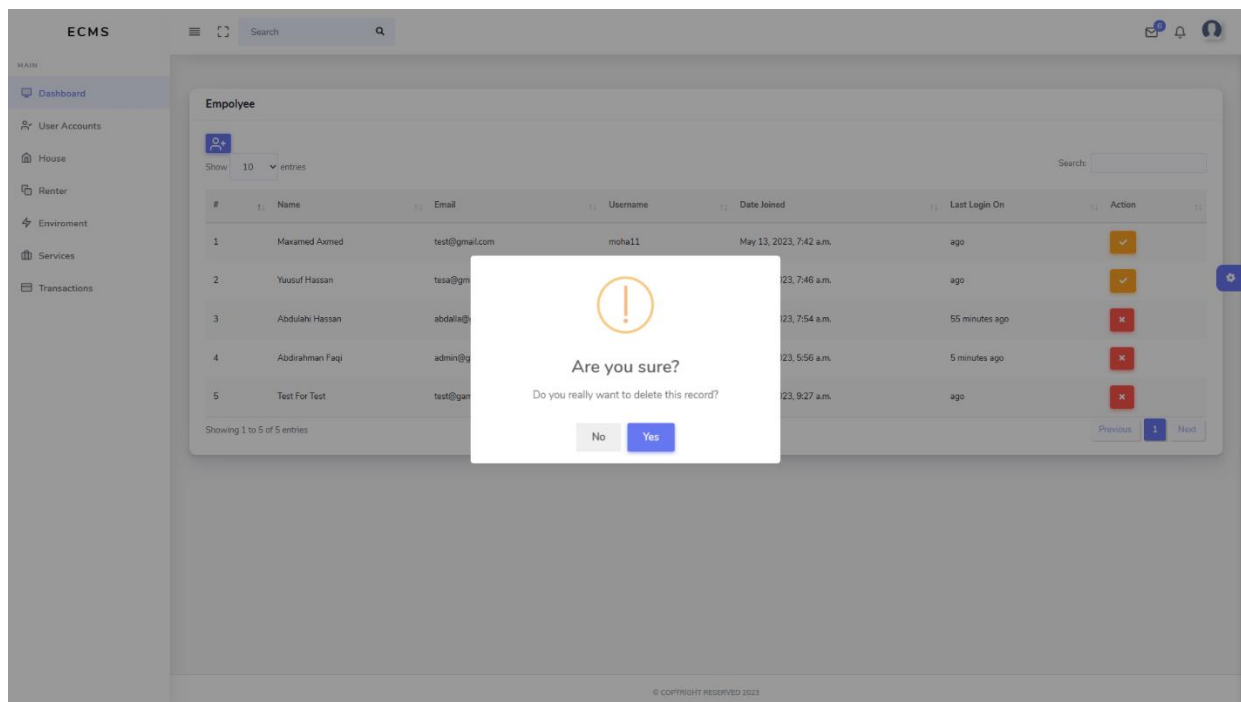


Figure 17 Confirmation Condition Press Yes

After you say save, a popup message will appear that says You have successfully blocked this user.

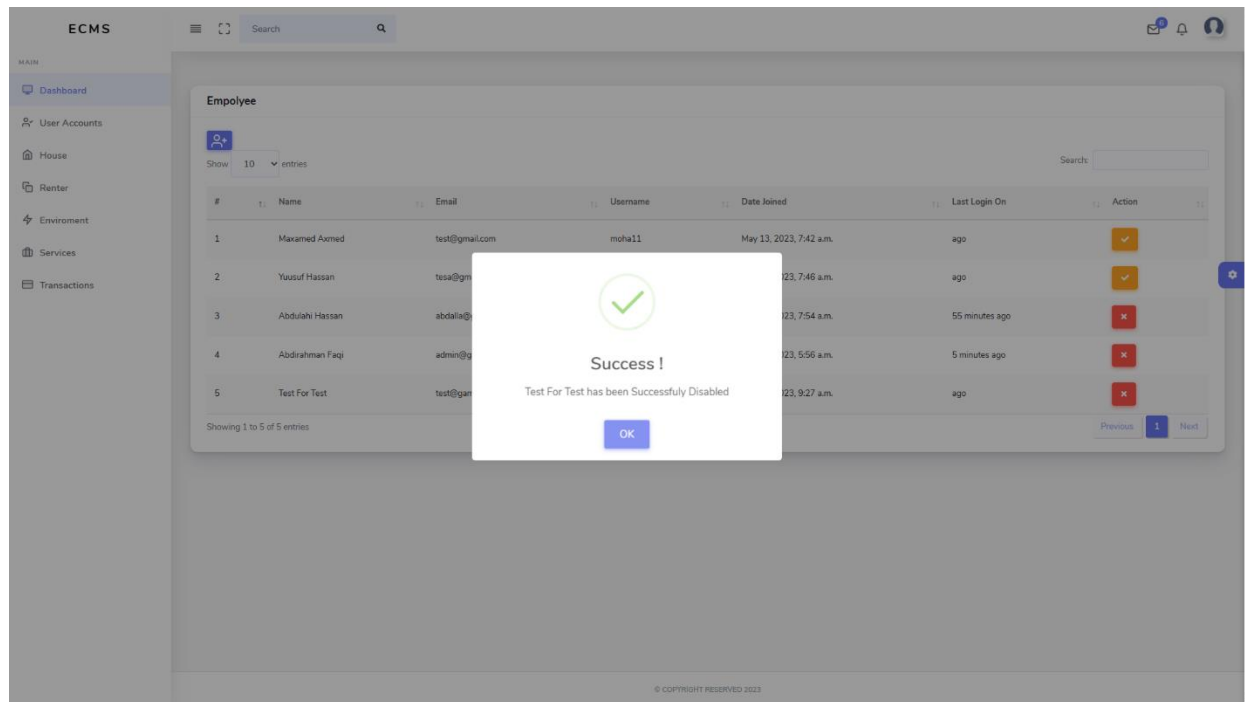


Figure 18 Success Message for Blocking User Account

House Section

When you click on House, you will first be presented with a list of all the houses in the system, and the user will be able to register a new house.

When you click on add new house, a modal form will appear. In that form, you will fill in all the requirements of the form that are mentioned on the top of the form and you will see the save icon.

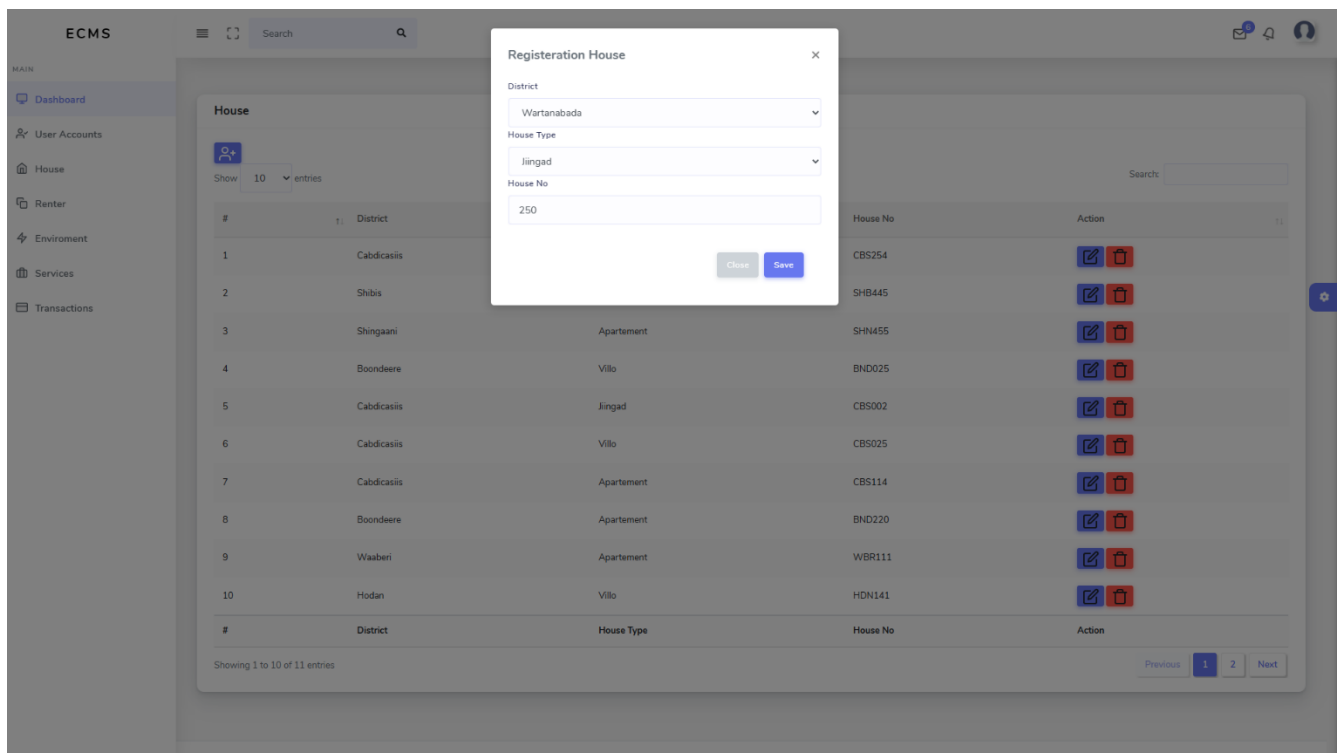


Figure 19 House Registering

After you say save, a popup message will appear saying that you have successfully saved your account.

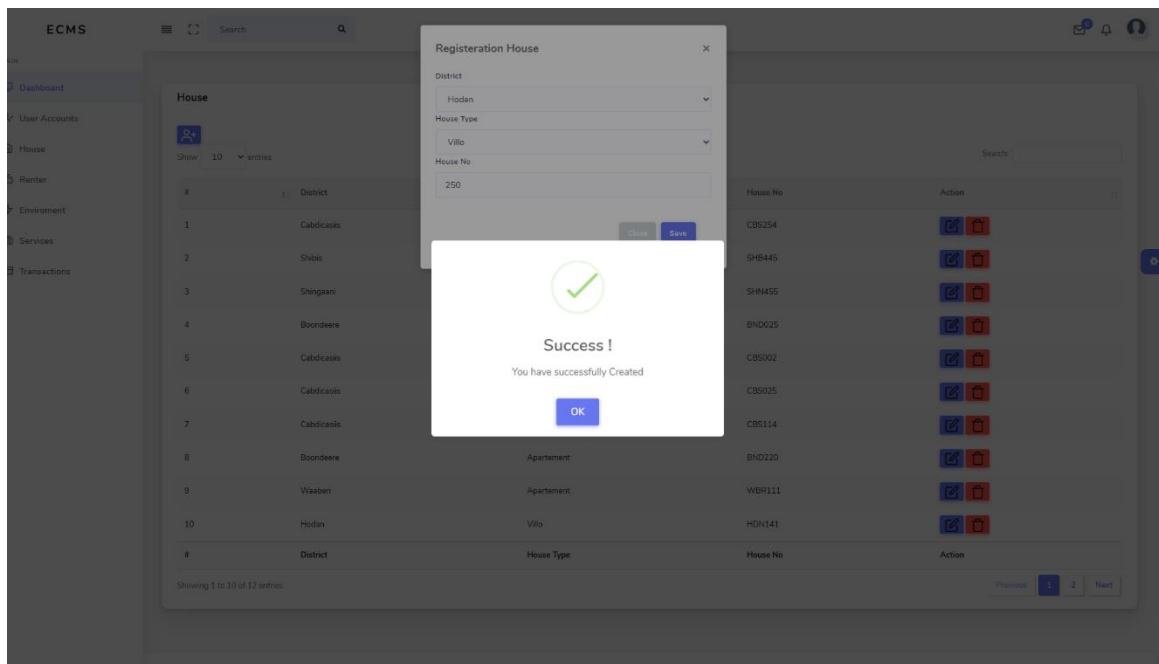


Figure 20 Success Message for Saving House

Also, if you make a mistake in the Housing Registry, you have the ability to update it. Also, if you want, you can count it and remove it from the system.

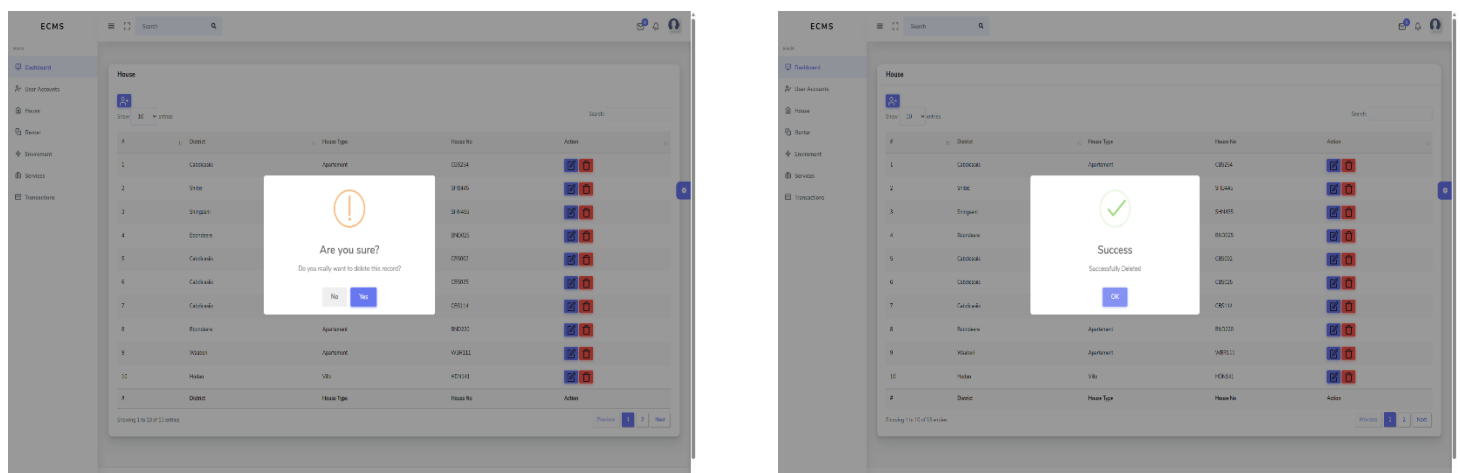


Figure 21 Confirmation of deleting Message and Success Message

Renter Section

When you click on the renter section, you will first see a list of all the renters in the system. When you click on add new renter, a modal form will appear. In that form, you will fill in all the requirements of the form that are mentioned on the top of the form and you will see the save icon.

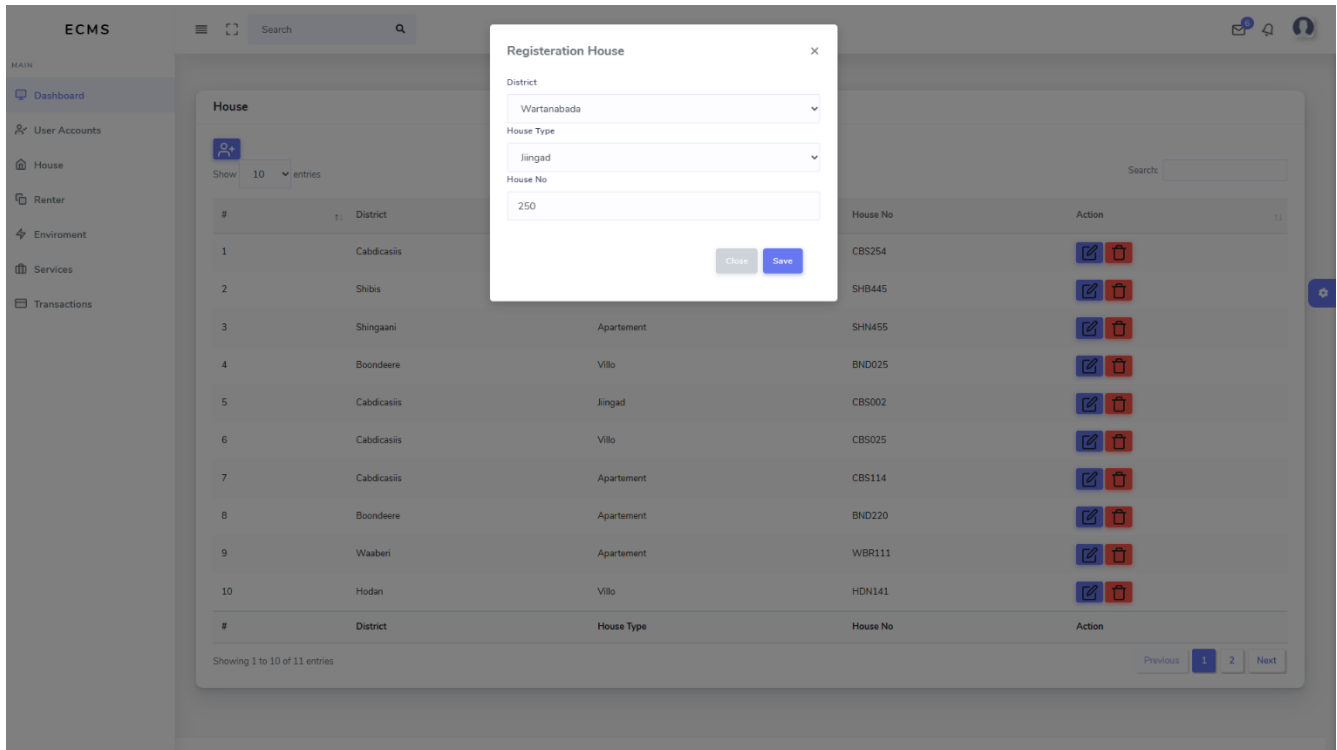


Figure 22 Adding New Renter

After you say save, a popup message will appear saying that you have successfully saved your account.

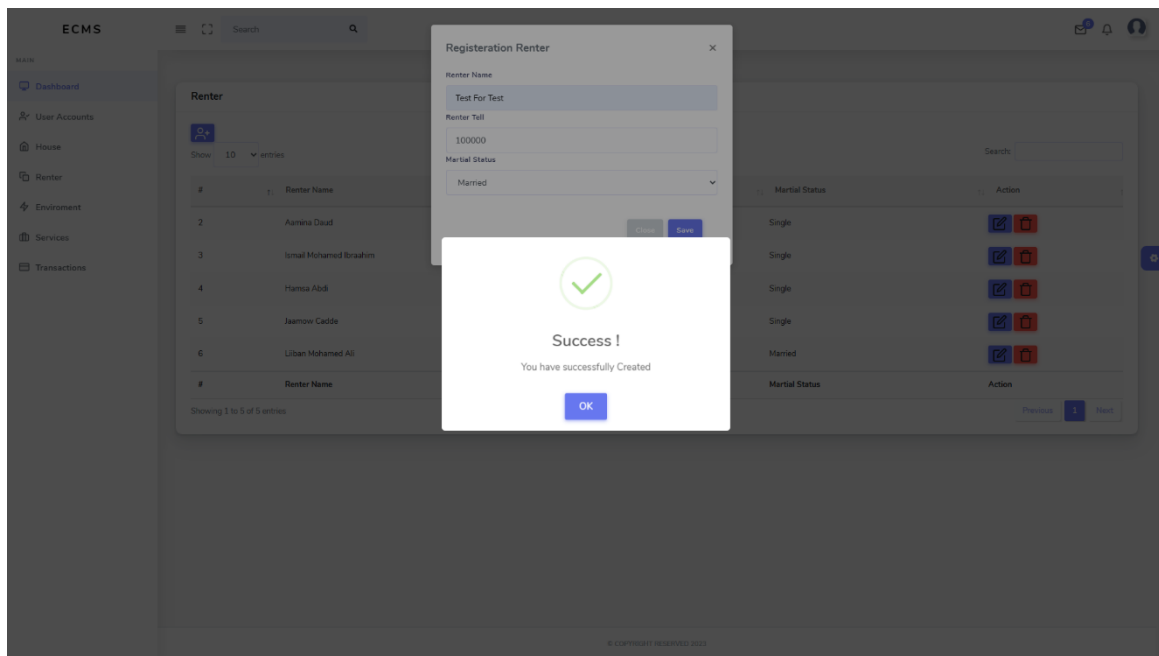


Figure 23 Success Message For adding Renter

Also, if you make a mistake in the Renter Registry, you have the ability to update it. Also, if you want, you can count it and remove it from the system.

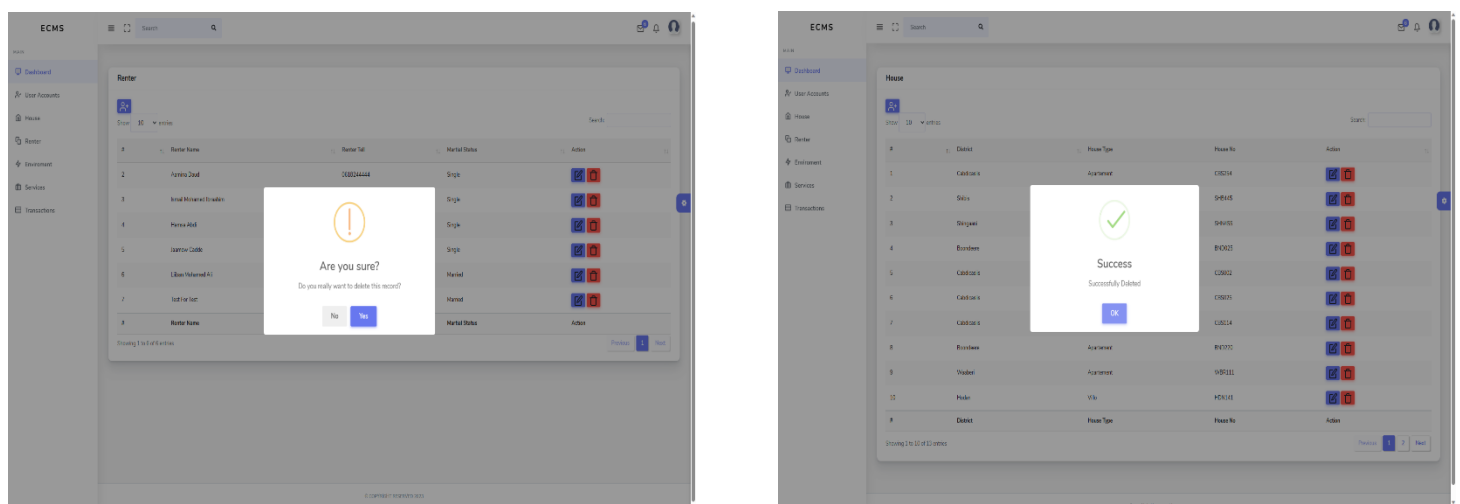


Figure 24 Conformation and Success Message for Renter

Environment Section

When you click on the environment section, you will first see a list of all the environments in the system. When you click on add new environment, a modal form will appear. In that form, you will fill in all the requirements of the form that are mentioned on the top of the form and you will see the save icon.

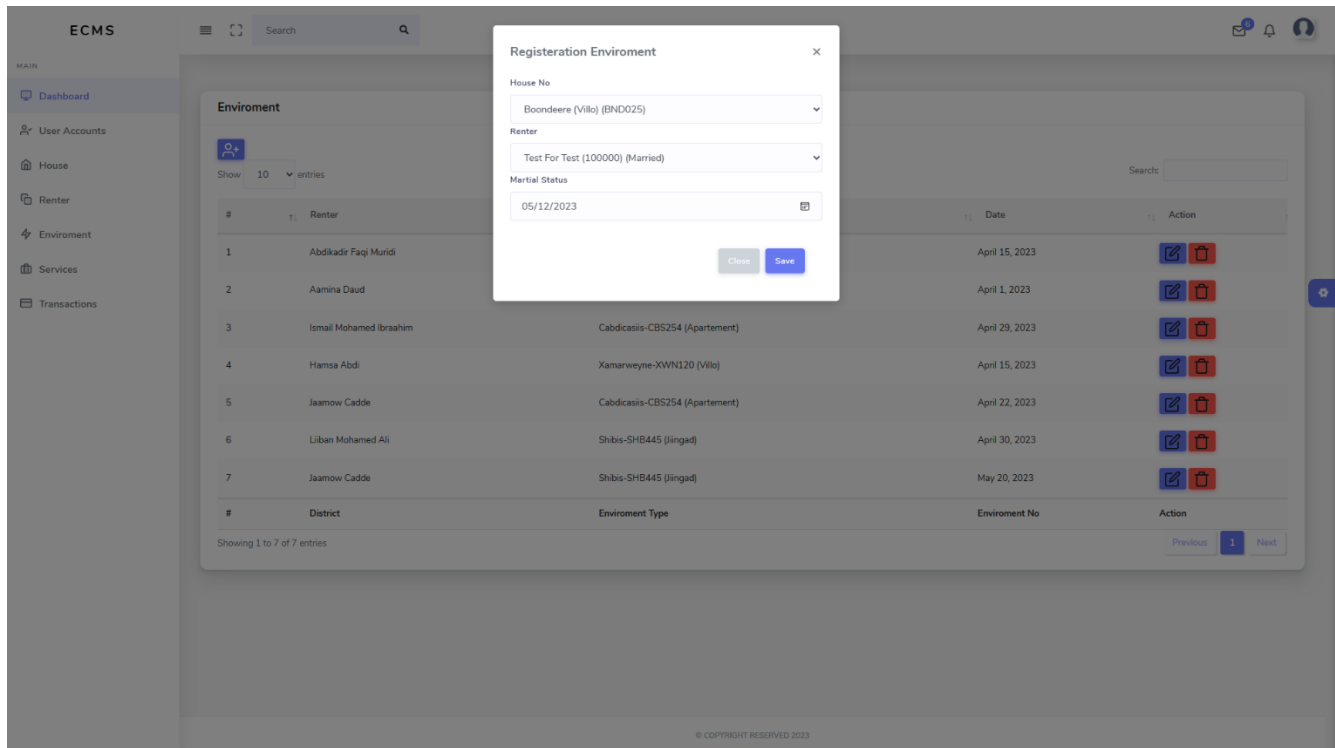


Figure 25 Adding Environment

After you say save, a popup message will appear saying that you have successfully saved your account.

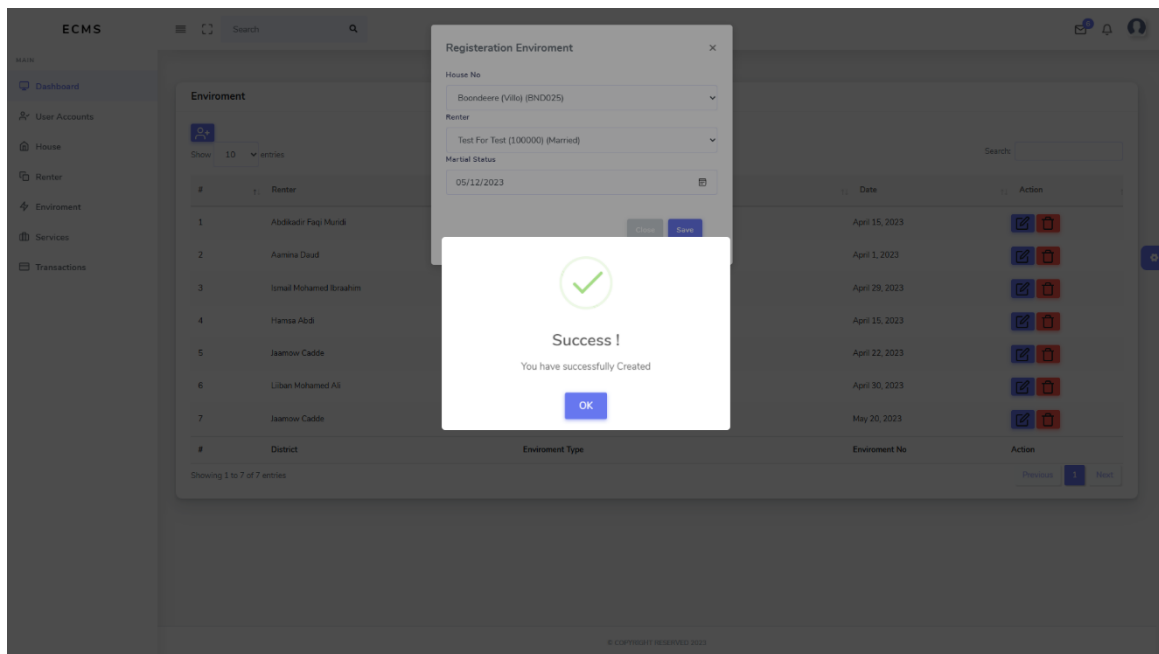


Figure 26 Saving Environment

If the renter moves out, the system allows the new renter to transfer the property to another renter.

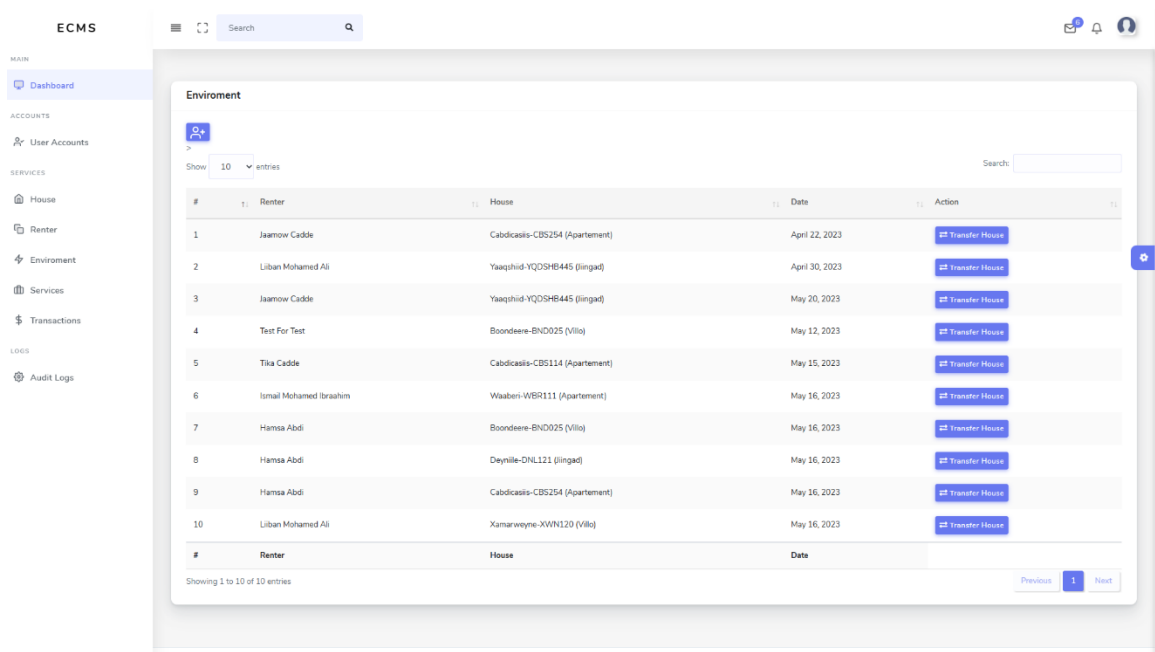


Figure 27make transfer renter

You just click on the transfer house button and then select the new renter and then tap on transfer

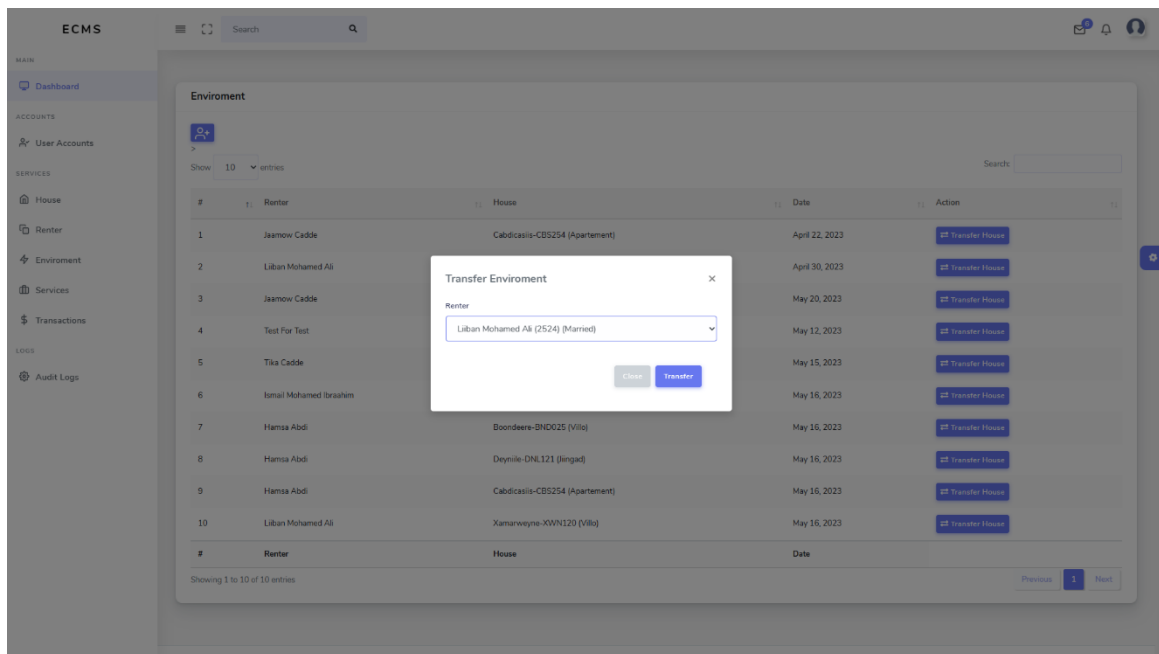


Figure 28 Complete the Form and Clicking Transfer Button

then a message will appear telling you that you have successfully completed your task.

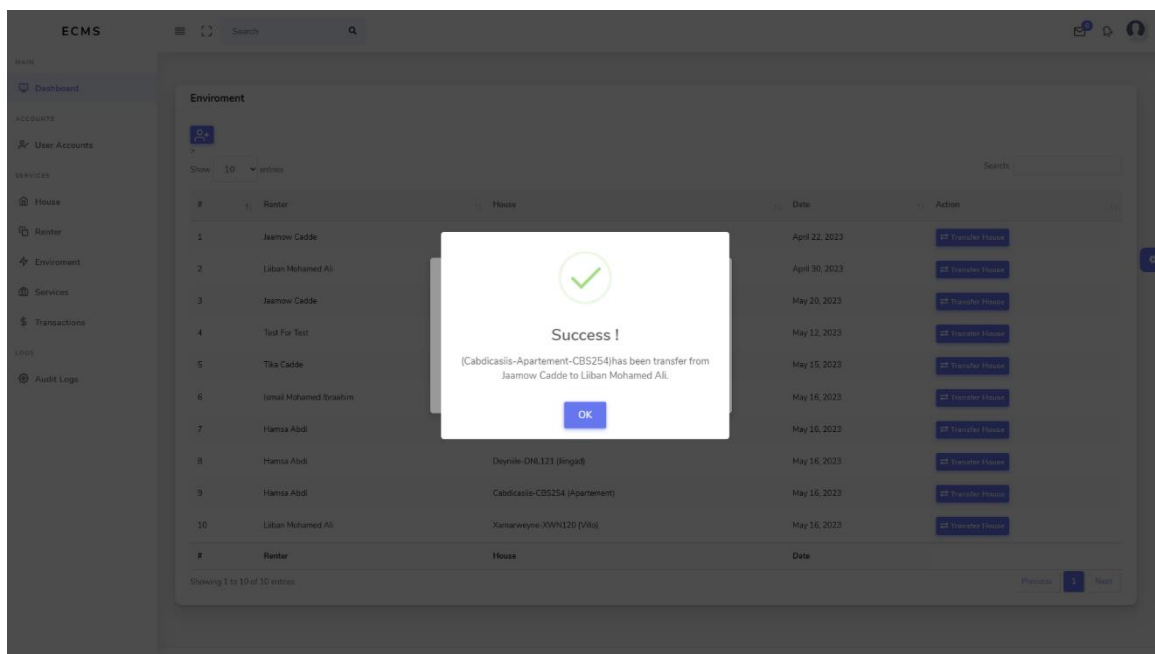


Figure 29 Success Message for Transferring House

Services Section

This section has been filed in each area for the amount of service that has been done every month, the area will be charged a fee of 5 dollars, we will file your information here.

So when the user clicks on this section, the information will be displayed for all the areas that have been serviced, and the user can also create a new service and at the same time the area will be charged the monthly fee.

So, to create a new service, it is necessary to click on the add sign, then a form will appear, try to fill in the form, and then click on Save.

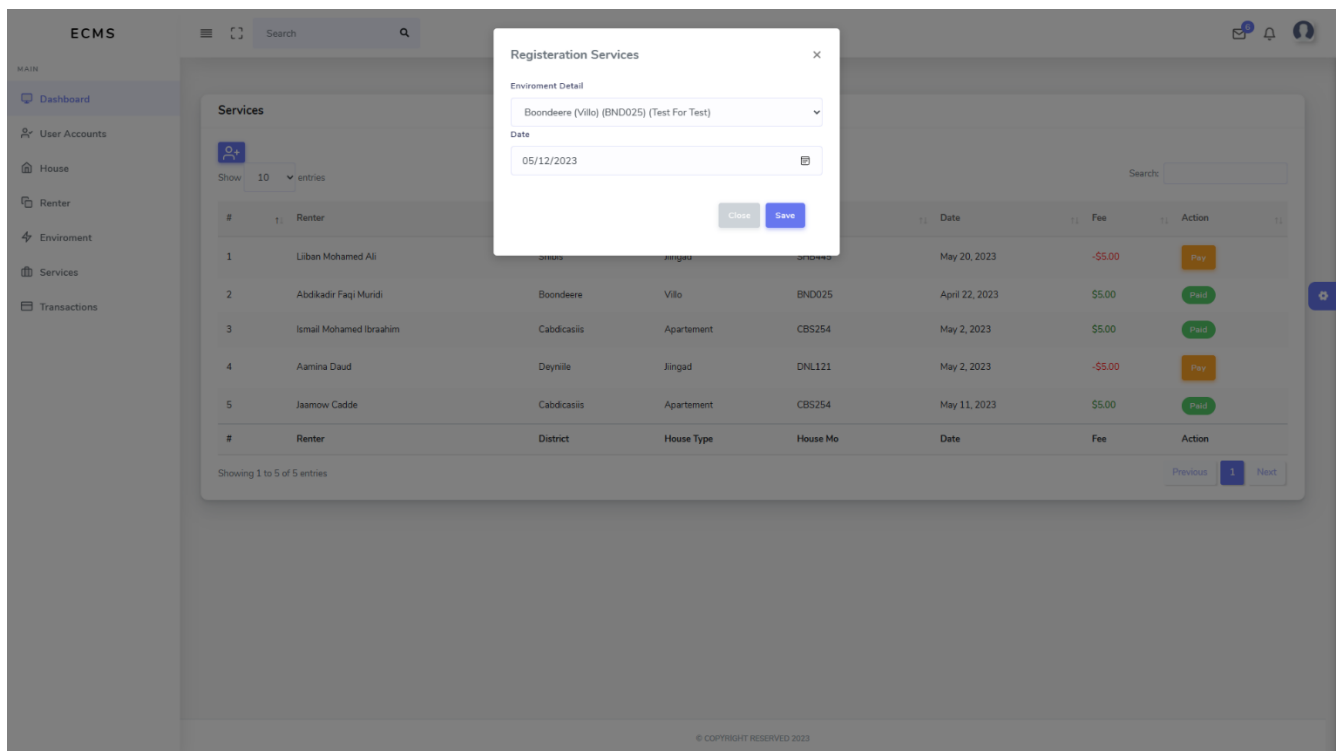
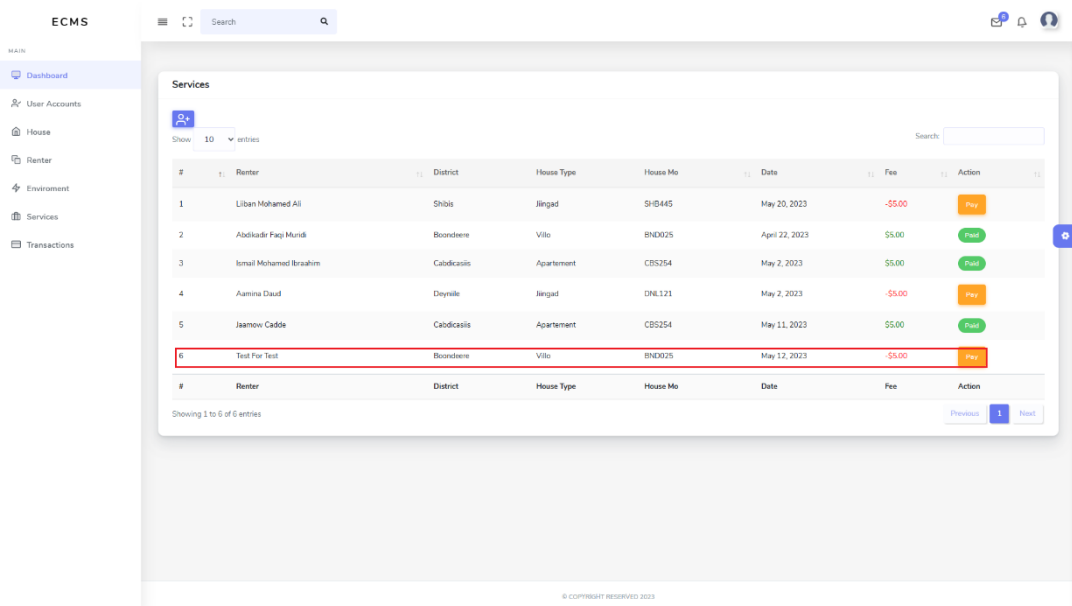


Figure 30 adding new services

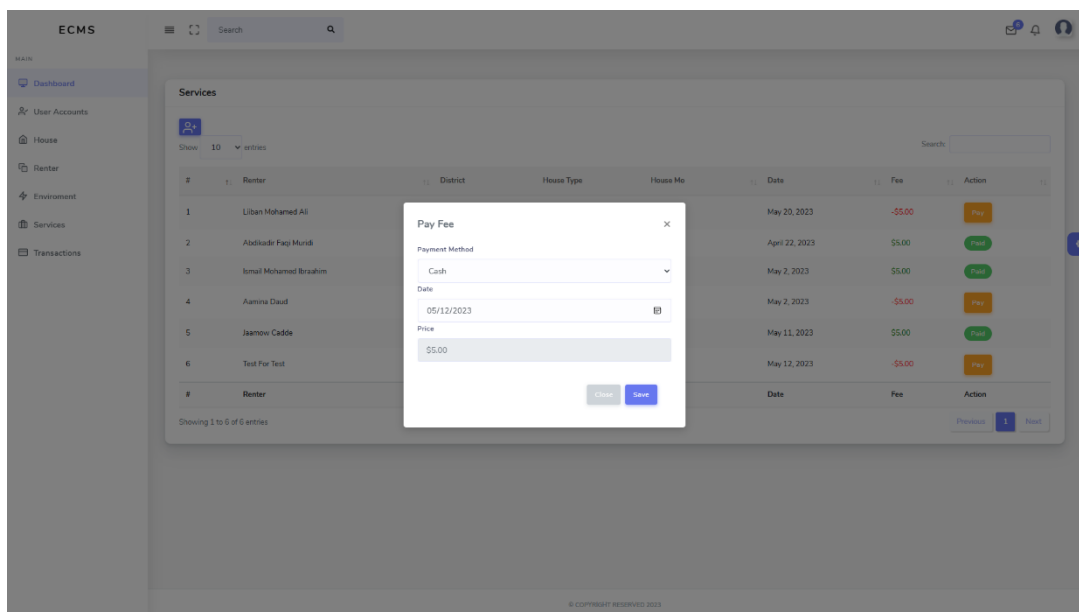
After the new service is saved, it will appear in the list of our services in the areas, and you will also see the areas where the money is outstanding and others.



#	Renter	District	House Type	House No	Date	Fee	Action
1	Liban Mohamed Ali	Shiba	Jingad	SH4445	May 20, 2023	-\$5.00	Pay
2	Abdikadir Faqi Mundi	Boondere	Vilo	BND025	April 22, 2023	\$5.00	Paid
3	Ismail Mohamed Ibrahim	Cadicaalis	Apartment	CBS254	May 2, 2023	\$5.00	Paid
4	Aamina Daud	Deyisile	Jingad	DRL121	May 2, 2023	-\$5.00	Pay
5	Jaamow Caddie	Cadicaalis	Apartment	CBS254	May 11, 2023	\$5.00	Paid
6	Test For Test	Boondere	Vilo	BND025	May 12, 2023	\$5.00	Pay

Figure 31 View in List with Registered Services

To register a payment, you will click on the sign that says pay, then a form will appear with the payment information, and you will fill in the form, then you will click on the place that says save.



#	Renter	District	House Type	House No	Date	Fee	Action
1	Liban Mohamed Ali				May 20, 2023	-\$5.00	Pay
2	Abdikadir Faqi Mundi				April 22, 2023	\$5.00	Paid
3	Ismail Mohamed Ibrahim				May 2, 2023	\$5.00	Paid
4	Aamina Daud				May 2, 2023	-\$5.00	Pay
5	Jaamow Caddie				May 11, 2023	\$5.00	Paid
6	Test For Test				May 12, 2023	-\$5.00	Pay

Pay Fee

Payment Method: Cash

Date: 05/12/2023

Price: \$5.00

Close Save

Figure 32 Making Payment

After you say save, a popup message will appear with an invoice saying that you have successfully paid the money.

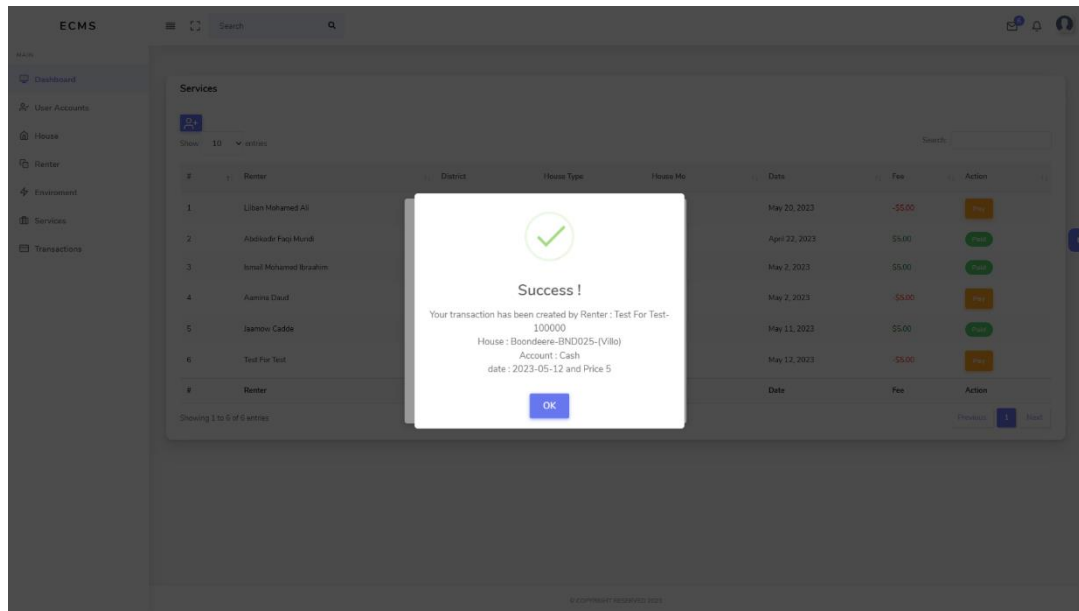


Figure 33 Success Message with Mini Invoice

after you say ok it will bring you the list of services you have done and you will see that it has changed from the service that we have registered and it has changed to a complete one and even paid for it

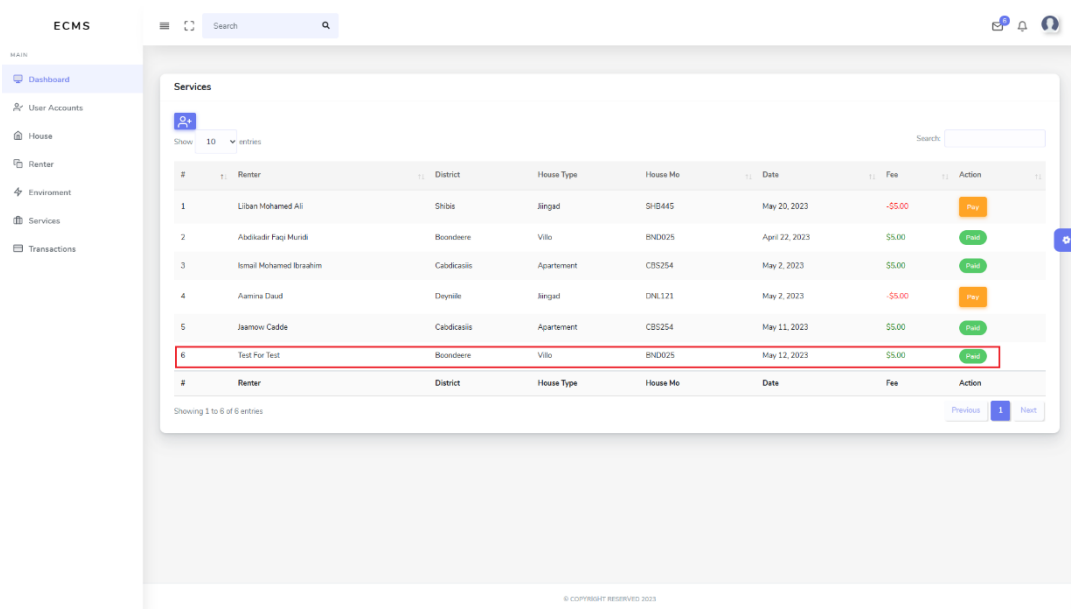
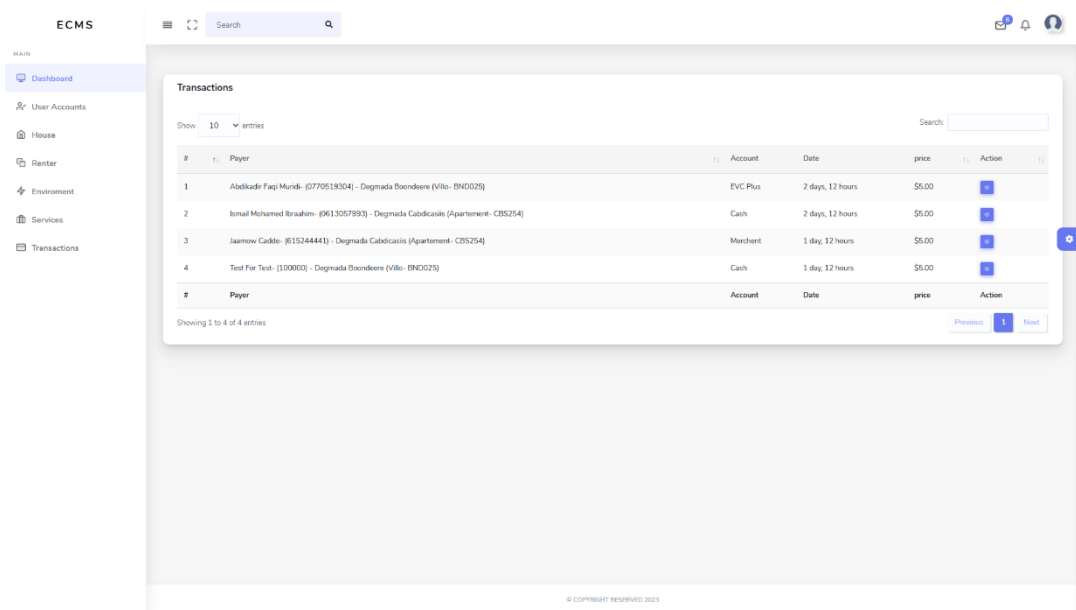


Figure 34 Changing the Status of Services

Transaction Section

In this section, all the information about the payments will be displayed and the information will be read in the system, and the user will be able to print an invoice.



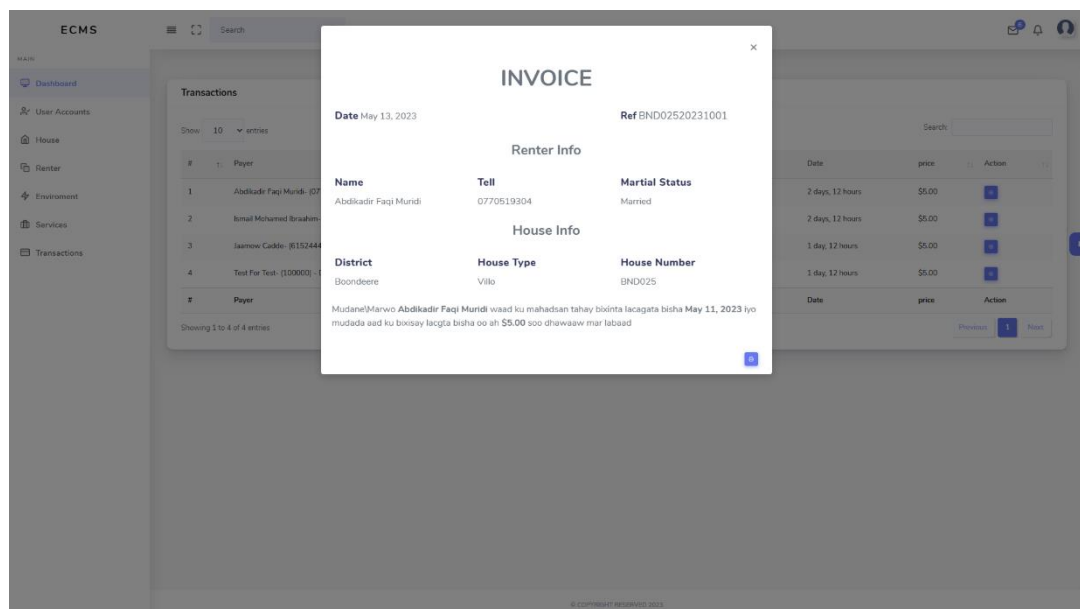
The screenshot shows the ECMS interface with a sidebar menu on the left containing 'Dashboard', 'User Accounts', 'House', 'Renter', 'Environment', 'Services', and 'Transactions'. The 'Transactions' section is active, displaying a table with 4 entries. The table has columns for #, Payer, Account, Date, price, and Action. The data rows are as follows:

#	Payer	Account	Date	price	Action
1	Abdikadir Faqi Mundi- (0770519304) - Degmada Boondere (Villa- BND025)	EVC Plus	2 days, 12 hours	\$5.00	[View Icon]
2	Ismail Mohamed Ibrahim- (0613057893) - Degmada Cabdicasiis (Apartment- CBS254)	Cash	2 days, 12 hours	\$5.00	[View Icon]
3	Jaanow Caddis- (615244441) - Degmada Cabdicasiis (Apartment- CBS254)	Merchant	1 day, 12 hours	\$5.00	[View Icon]
4	Test For Test- (100000) - Degmada Boondere (Villa- BND025)	Cash	1 day, 12 hours	\$5.00	[View Icon]

Below the table, it says 'Showing 1 to 4 of 4 entries' with 'Previous' and 'Next' buttons.

Figure 35 Transaction View List

To print an invoice, click on the view icon on the table, then all the information related to the transaction will appear.



The screenshot shows the same ECMS interface as Figure 35, but with an 'INVOICE' modal window open. The modal contains the following information:

INVOICE		
Date May 13, 2023	Ref BND02520231001	
Renter Info		
Name	Tell	Marital Status
Abdikadir Faqi Mundi	0770519304	Married
House Info		
District	House Type	House Number
Boondere	Villa	BND025
MudaneMarwo Abdikadir Faqi Mundi waad ku mahadsan tahay biixinta lacagata bisha May 11, 2023 iyo mudada aad ku bixisay lacgta bisha oo ah \$5.00 soo dhawaw mar labaad		

Figure 36 Displaying Invoice

then you click on the print icon and then you select your printer's name and then you have print.

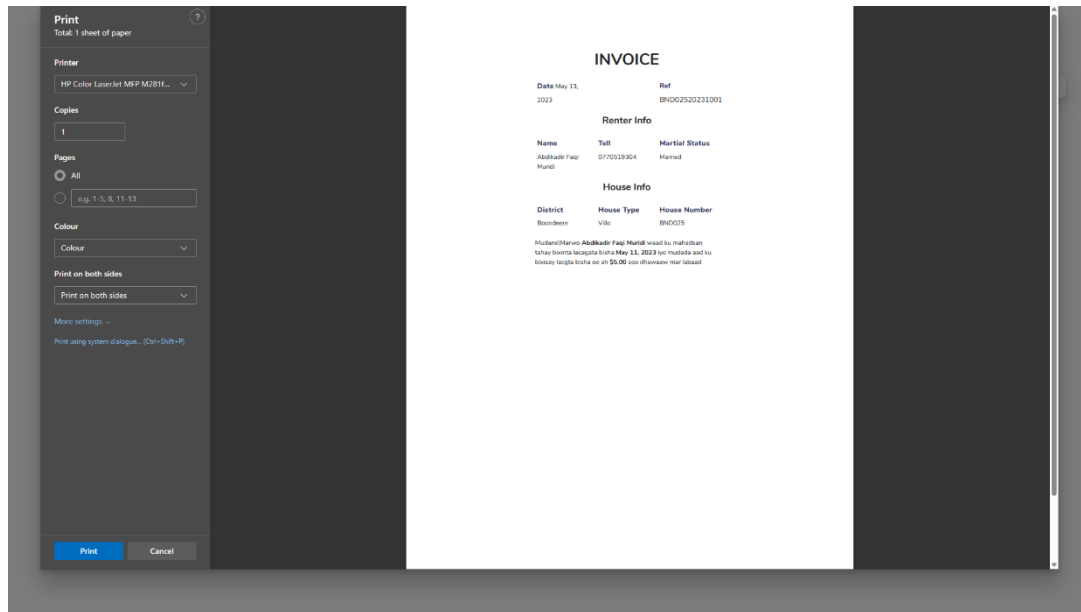
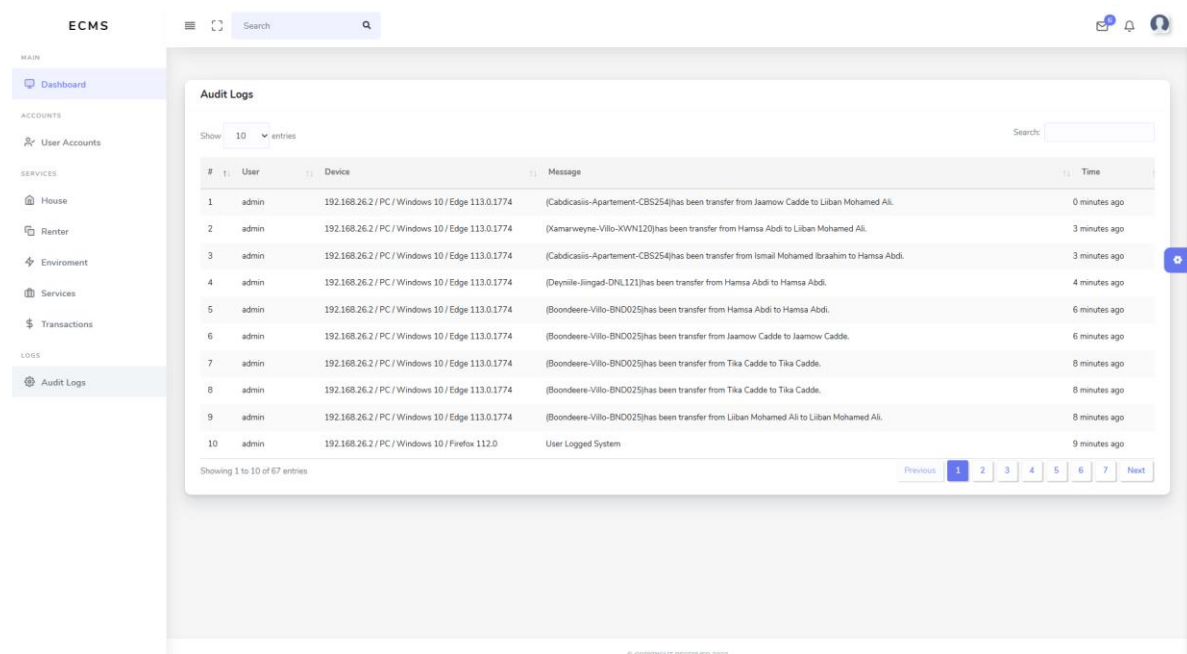


Figure 37 Printing Invoice

Audit Logs Section

Audit Logs are designed to monitor the user's activity in the system and also show how much work the user has done while on the system.



The screenshot displays the ECMS (Enterprise Case Management System) interface. On the left is a sidebar with navigation options: MAIN (Dashboard), ACCOUNTS (User Accounts), SERVICES (House, Renter, Environment, Services, Transactions), and LOGS (Audit Logs). The main content area is titled 'Audit Logs' and features a search bar and a 'Show 10 entries' dropdown. Below this is a table with 10 columns: #, User, Device, Message, and Time. The table lists 10 entries of user activity, including transfers and logins. At the bottom, it indicates 'Showing 1 to 10 of 67 entries' and includes pagination controls (Previous, 1, 2, 3, 4, 5, 6, 7, Next).

#	User	Device	Message	Time
1	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Cabdicasis-Apartment-CBS254)has been transfer from Jaamow Caddle to Liban Mohamed Ali.	0 minutes ago
2	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Kamarweyne-Villo-KWN120)has been transfer from Hamsa Abdi to Liban Mohamed Ali.	3 minutes ago
3	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Cabdicasis-Apartment-CBS254)has been transfer from Ismail Mohamed Ibraahim to Hamsa Abdi.	3 minutes ago
4	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Deymile-Jingad-DNL121)has been transfer from Hamsa Abdi to Hamsa Abdi.	4 minutes ago
5	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Boondeere-Villo-BND025)has been transfer from Hamsa Abdi to Hamsa Abdi.	6 minutes ago
6	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Boondeere-Villo-BND025)has been transfer from Jaamow Caddle to Jaamow Caddle.	6 minutes ago
7	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Boondeere-Villo-BND025)has been transfer from Tika Caddle to Tika Caddle.	8 minutes ago
8	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Boondeere-Villo-BND025)has been transfer from Tika Caddle to Tika Caddle.	8 minutes ago
9	admin	192.168.26.2 / PC / Windows 10 / Edge 113.0.1774	(Boondeere-Villo-BND025)has been transfer from Liban Mohamed Ali to Liban Mohamed Ali.	8 minutes ago
10	admin	192.168.26.2 / PC / Windows 10 / Firefox 112.0	User Logged System	9 minutes ago

Figure 38 Displaying Audit Logs

CONCLUSION

the implementation of an Environmental Cleaning Management System (ECMS) is an effective approach for organizations to maintain a clean and safe environment for their employees, customers, and stakeholders. Through the development and implementation of the ECMS, organizations can actively manage their cleaning activities and ensure that they are in compliance with regulatory requirements.

The research conducted for this thesis project has demonstrated that the ECMS is a comprehensive and effective system for managing environmental cleaning activities. The ECMS provides a structured approach for planning, scheduling, executing, and monitoring cleaning tasks. The integration of advanced technologies such as data analytics, automation, and sensors can further enhance the effectiveness and efficiency of the system.

Furthermore, the research findings have confirmed that the ECMS can be customized to fit the specific needs of different organizations. The ECMS can be integrated with other systems such as inventory management and quality control to streamline operations and improve overall performance. The implementation of the ECMS has also been shown to improve cleaning efficiency, reduce the risk of contamination or infection, and meet regulatory requirements.

In the future, the ECMS is expected to become even more critical as organizations continue to face increasing pressure to maintain high standards of hygiene and cleanliness. The ongoing COVID-19 pandemic has highlighted the importance of effective cleaning and disinfection practices, and the ECMS can play a critical role in

ensuring that organizations are able to maintain a safe and healthy environment for their employees and customers.

Overall, the findings of this thesis project indicate that the implementation of an ECMS is a powerful tool for organizations seeking to improve their environmental cleaning practices, reduce risk, and achieve regulatory compliance. By adopting an ECMS, organizations can ensure that they are providing a safe and healthy environment for all stakeholders, while also improving operational efficiency and reducing costs.

THANK YOU

THE END