Project Report On

ONLINE ELECTRICITY BILL MANAGEMENT SYSTEM



Submitted in partial fulfillment for the award of E-Diploma in Advance Computing E-DAC Guided By, Ms. Sarita

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From

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1. Introduction

This system is named as Online Electricity Bill Management System. This system is made to keep the records about the bills of the consumer. The admin can manage all the accounts and the registered users like admin, sub-admin and consumer and they can only manage their own accounts. This system helps in maintaining the bills and the payments.

A different module is there for admin to check the customers details if their job requires. Admin, Sub-admin, and consumer all have a different interface and different privileges according to their need.

Like a consumer can only manage his account and cannot see any details of other consumer, admin can see the details of all the consumer's accounts and admin can manage all the accounts including the consumer's and sub-admin account.

This system also has the option for consumers to pay their electricity bills by online mode through card payment.

This system also has the feature to add and delete consumer's and sub-admin accounts in case a consumer wants to cut the connection or a sub-admin wants to leave the job.

2. Project Overview

2.1 Purpose:

The project is a web-based application where users can get instant electricity bill and pay them online via credit card. The system automates the conventional process of paying electricity bill by visiting the place.

2.2 Scope:

The scope of our project is this software reduces the amount of manual data entry and gives greater efficiency. The User Interface of it is very friendly and can be easily used by anyone.

- 1.It also decreases the amount of time taken to write details.
- 2.Admin does not have to keep a manual track of the consumer. The system automatically calculates fine and

the system excludes manual bill calculation.

- 3. Consumer do not have to visit the office for bill payment.
- 4. There is no need of delivery boy for delivering bills to consumer place. Thus, it saves human efforts and resources.
- 5. We used Sub-Admin as data entry operator like he/she will insert reading unit and update the generate bill. So here we save time for admin either entering units manually.

2.3 Feasibility Study:

Feasibility is determination of whether a projects worth doing or not. Before actually recommending the new system, it is important to investigate if it is feasible to develop the new system.

Before developing and implementing a system we have sure that our system is feasible in the following ways:

Technical Feasibility:

In the type of feasibility study, the system analyst has to check whether it is possible or not to develop the requested system with availability of manpower, software, hardware, etc...The system which we run in Linux as well as windows platform and hence are suitable for the end-user. The system is technically feasible because it does not require too much manpower and runs with the basic available equipment.

Operational Feasibility:

In this type of feasibility study the operation implementation of the system is considered. Checking is done regarding whether it is feasible for the user department to use the software or will there be any inertial resistance from the users. Thus, the proposed system is said to be

operationally feasible only of the end users are able to understand the system clearly and correctly and can use the system with ease and with the minimum training.

We need to train our staff so that system will be handled efficiently. As the system developed is very user-friendly and easy to operate for any person with minimum computer knowledge of computer is also able to handle our system. It is also easy to operate due to the user-friendly interface developed using Java.

Economical Feasibility:

In this type of feasibility study, the benefits of the system to the organization are considered by taking into consideration the cost-benefit analysis. The basic software, which is required for the implementation of the system, is Java which easily available. Also with the basic training user can use this software thus reducing the training cost to the organization. Thus, using this system is feasible for the organization and loading Java and the proposed system is economically feasible for the organization. As our system goes online we will have a lot of customers adding to our publicity. This in turn will increase our profit.

3. Overall Description: -

3.1 Product Features

The main feature of this system is the consumers can pay electric bill online via card payment. The system shows the details of that consumer and consumer can also update his profile. The consumer must be a registered before he uses this online electricity bill management system. The consumer can see his bill report and payment history. Consumer can pay bill online so it will save time for admin as well as consumer.

3.2 Technology Used

> BACK END

Framework Spring Boot
ORM Tool Hibernate
Database MySQL
Build Tool Maven
Language Java

> FRONT END

HTML CSS JavaScript Bootstrap

3.3 User Classes

> Admin

The super user, admin class represents complete authority over the system an admin can

- 1. Admin can add Amin, sub-Admin and Consumer.
- 2. View the number of sub-admin and consumers.
- 3. Admin can update his own profile.
- 4. Admin can update and delete the sub-admin and consumer.
- 5. The bill generated by admin to particular consumer by searching consumer Id
- 6. Admin can see bill report by particular consumer by searching consumer Id
- 7. Admin can see bill payment report by particular consumer by searching consumer Id

Sub-Admin

- 1. Sub-Admin can see the total no of consumer.
- 2. Sub-Admin can update his profile.
- 3. Sub-Admin can view consumer.
- 4. The bill can be generated by sub-admin by particular consumer by searching consumer Id

- 5. Sub-Admin can see bill report by particular consumer by searching consumer Id
- 6. Sub-Admin can see bill payment report by particular consumer by searching consumer Id

Consumer

- 1. This system consumer can easily register using Signup.
- 2. The consumer can easily see his profile and update profile.
- 3. Consumer can see current bill and pay via card payment and also print the bill.
- 4. Consumer can see bill history.
- 5. Consumer can see payment history.

3.3 General Constraints

The "Online Electricity Bill Management System" should run on all Internet Browser and all processors which supports the Internet Browser.

> Architecture Diagram: -

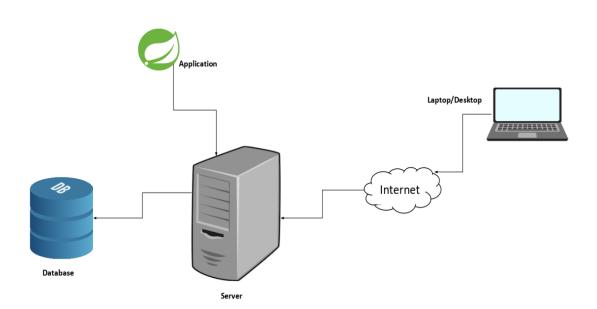


Figure 1. Architecture Diagram

> Software Requirements Specification

1. Functional Requirements

Complete System

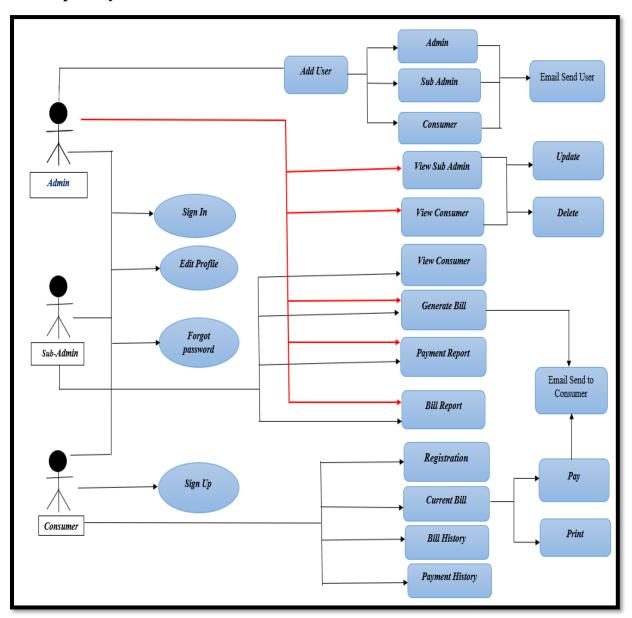


Figure 2: Use case diagram

There is entry interface that is intended to admin, sub-admin and consumer to login to the system by there own account. If the consumer is not registered, he/she can register using sign-up. The sub-admin is added only by admin. User has to enter the login credentials i.e., Email-Id and Password information for Login.

> Scenario 1: Mainline Sequence

1. Admin: Enter Admin Email-Id and Password.

2. System:

- 1. Display the Admin dashboard where admin can see admin profile and update profile.
- 2. Admin can add Admin, Sub-Admin and Consumer.
- 3. View number of consumers.
- 4. Generate bills by searching particular consumer Id.
- 5. Can view bill reports by searching particular consumer Id.
- 6. Can see payment report by searching particular consumer Id.

Scenario 2: Mainline Sequence

1. Sub-Admin: Enter Sub-Admin Email-Id and Password.

2. System:

- 1. Display the Sub-Admin dashboard where sub-admin can see sub-admin profile and update profile.
- 2. View number of consumers.
- 3. Generate bills by searching particular consumer Id.
- 4. Can view bill report by searching particular consumer Id.
- 5. Can see payment report by searching particular consumer Id.

Scenario 3: Mainline Sequence

1. Consumer: Enter consumer Email-Id and Password

2. System:

- 1. Display the consumer dashboard where consumer can see consumer profile and update profile.
- 2. View current bill and also pay bill and print bill.
- 3. Consumer can view bill history.
- 4. Consumer can view payment history.

> Sequence Details

1. Admin

Profile

Main Mainline Sequence:

- 1. Admin: Admin logs in.
- 2. **System:** Opens admin home page.
- 3. Admin: Clicks on profile.
- 4. System: Opens profile page.
- 5. Admin: Click Update Button.
- 6. System: Update form get open
- 7. Admin: Enter Update details and click on update button

❖ Add User

Main Mainline Sequence:

- 1. Admin: Admin logs in.
- 2. System: Opens admin home page.
- 3. Admin: Clicks on Add user.
- 4. **System:** Opens the register page.
- 5. Admin: Enter the user details and select role

[Admin, Sub-Admin and Consumer] Click on submit Button.

6. System: It display User register successfully.

***** View Consumer

Main Mainline Sequence:

- 1. **Admin:** Admin logs in.
- 2. **System:** Opens admin home page.
- 3. **Admin:** Clicks on view consumer.
- 4. System: Available consumer list page get open.
- 5. **Admin**: Can update and delete consumer profile on click Update and delete button.
- 6. **System**: Update page open on click update button.
- 7. **Admin:** Enter update details and click on update.
- 8. System: Update Successfully massage display.

❖ View Sub-Admin

Main Mainline Sequence:

- 1. **Admin:** Admin logs in.
- 2. **System:** Opens admin home page.
- 3. **Admin:** Clicks on view sub-admin.
- 4. System: Available Sub-admin list page get open.
- 5. **Admin**: Can update and delete sub-admin profile on click Update and delete button.
- 6. **System**: Update page open on click update button.
- 7. **Admin:** Enter update details and click on update.
- 8. **System**: Update Successfully massage display.
- 9. Admin: Click on delete button.

10.**System:** Sub-admin deleted successfully massage display.

❖ Generate Bills

Main Mainline Sequence:

- 1. Admin: Admin logs in.
- 2. **System:** Opens admin home page.
- 3. **Admin:** Clicks on view generate bill.
- 4. **System:** Opens search by id page.
- 5. **Admin:** Enters Consumer Id click on search button.
- 6. **System:** Opens generate bill page.
- 5. **Admin:** Enter consumer units and select the months and click on generate bill button.
- 7. **System:** Bill generated successfully for the consumer massage get displayed.

❖ Bill Report

Main Mainline Sequence:

- 1. Admin: Admin logs in.
- 2. **System:** Opens admin home page.
- 3. **Admin:** Clicks on bill report.
- 4. **System:** Opens search by id page.
- 5. Admin: Enters Consumer Id click on search button.
- 6. **System:** Show consumer bill details page display.

❖ Payment Report

Main Mainline Sequence:

- 1. Admin: Admin logs in.
- 2. **System:** Opens admin home page.
- 3. **Admin:** Clicks on payment report.
- 4. **System:** Opens search by id page.
- 5. **Admin:** Enters Consumer Id click on search button.
- 6. **System:** Show consumer payment details page display.

2. Sub-Admin

* Profile

Main Mainline Sequence:

- 1. Sub-Admin: Sub-Admin logs in.
- 2. **System:** Opens sub-admin home page.
- 3. **Sub-Admin:** Clicks on profile.
- 4. **System:** Opens profile page.
- 5. Sub-Admin: Click Update Button.
- 6. **System**: Update form get open
- 7. **Sub-Admin:** Enter Update details and click on update button

***** View Consumer

Main Mainline Sequence:

1. Sub-Admin: Sub-Admin logs in.

- 2. **System:** Opens sub-admin home page.
- 3. **Sub-Admin:** Clicks on view consumer.
- 4. **System:** Available consumer list details page get open.

❖ Generate Bills

Main Mainline Sequence:

- 1. Sub-Admin: Sub-Admin logs in.
- 2. **System:** Opens sub-admin home page.
- 3. **Sub-Admin:** Clicks on view generate bill.
- 4. **System:** Opens search by id page.
- 5. **Sub-Admin:** Enters Consumer Id click on search button.
- 6. **System:** Opens generate bill page.
- 5. **Sub-Admin:** Enter consumer units and select the months and click on generate bill button.
- 7. **System:** Bill generated successfully for the consumer massage get displayed.

❖ Bill Report

Main Mainline Sequence:

- 1. Sub-Admin: Sub-Admin logs in.
- 2. System: Opens Sub-admin home page.
- 3. **Sub-Admin:** Clicks on bill report.
- 4. **System:** Opens search by id page.
- 5. **Sub-Admin:** Enters Consumer Id click on search button.
- 6. **System:** Show consumer bill details page display.

Payment Report

Main Mainline Sequence:

- 1. **Sub-Admin:** Sub-Admin logs in.
- 2. **System:** Opens Sub-admin home page.
- 3. **Admin:** Clicks on payment report.
- 4. **System:** Opens search by id page.
- 5. Admin: Enters Consumer Id click on search button.
- 6. **System:** Show consumer payment details page display.

3. Consumers

* Profile

Main Mainline Sequence:

- 1. **Consumer:** Consumer logs in.
- 2. **System:** Opens Consumer home page.
- 3. **Consumer:** Clicks on profile.
- 4. **System:** Opens profile page.
- 5. Consumer: Click Update Button.
- 6. **System**: Update form get open
- 7. **Consumer:** Enter Update details and click on update button

Current Bill

Main Mainline Sequence:

- 1. Consumer: Consumer logs in.
- 2. **System:** Opens consumer home page.
- **3. Consumer:** Click on Bill History.
- 4. **System**: Opens the bill history page and it shows the bill details.

Payment History

Main Mainline Sequence:

- 1. Consumer: Consumer logs in.
- 2. **System:** Opens consumer home page.
- 3. **Consumer:** Clicks on payment history.
- 4. **System:** Opens the payment history page and it shows payment details.

> Non-Functional Requirements

❖ Performance Requirement

- 1. The time between request and response should be less
- 2. Minimum time should be taken by the application to display the result.
- 3. In case of power failure, the data should be stored in the state that was last saved by the user

Security Requirement

- Only one active session per user
- Passwords shall never be viewable at the point of entry or at any other time.
- ❖ Duplicate bill will not be generated of same month and year

> Database Tables

Database Created

Query = Create database electricity;

```
mysql> create database electricity;
Query OK, 1 row affected (0.12 sec)
```

Tables in Database

Query = show tables;

```
trables_in_electricity |
trables_in_electricity |
trape bills |
left payment_details |
left users |
trape contact |
3 rows in set (0.14 sec)
```

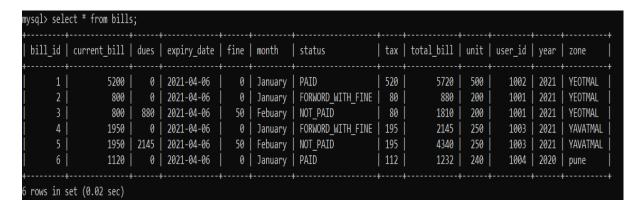
User Table

Query = select * from user;



Bills Tables

Query =select * from bills

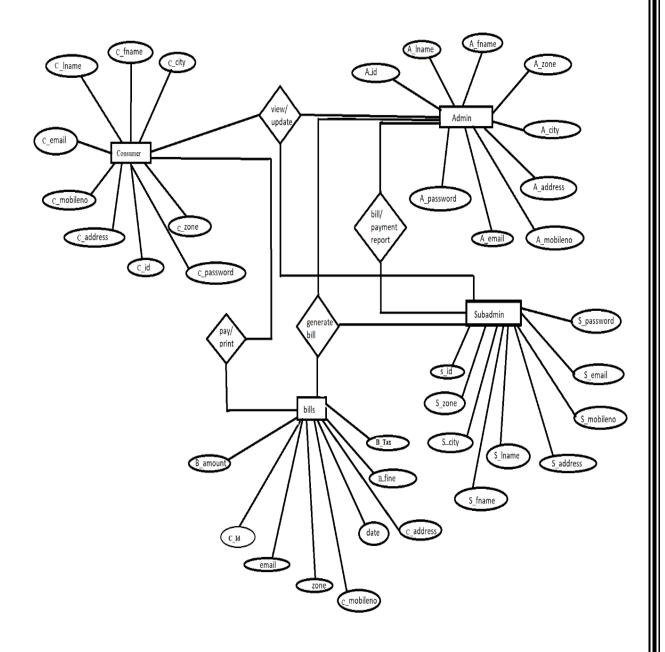


Payment Details Table

Query =select * from payment_details;

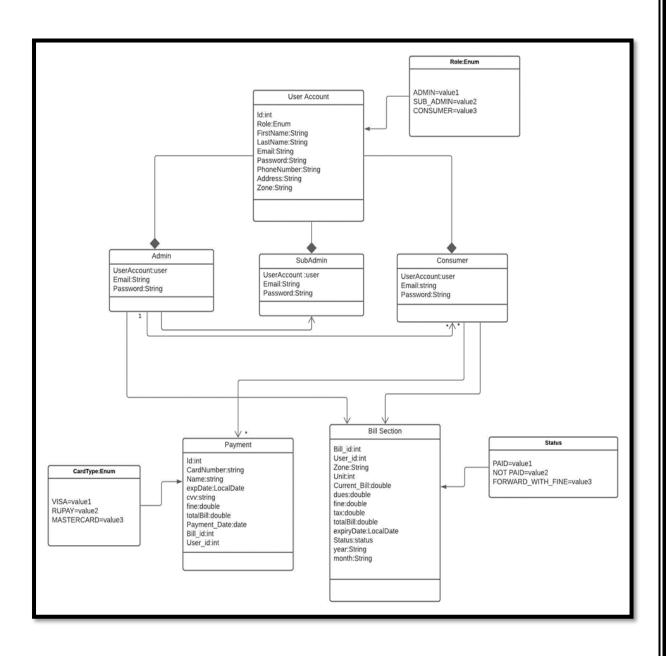
ayment_no	bill_id	card_number	card_type	CVV	exp_date	fine	name	payment_date	total_bill	user_id
1	1	1245789663524178	NULL	120	+ 2021-06-25	0	 Ameya	 2021-03-22 17:00:02.712000	+ 5720	1002
2	6	1245789663124596	VISA	102	2021-07-15	0	Ameya	2021-03-22 17:18:27.946000	1232	1004

> Entity Relationship Diagram



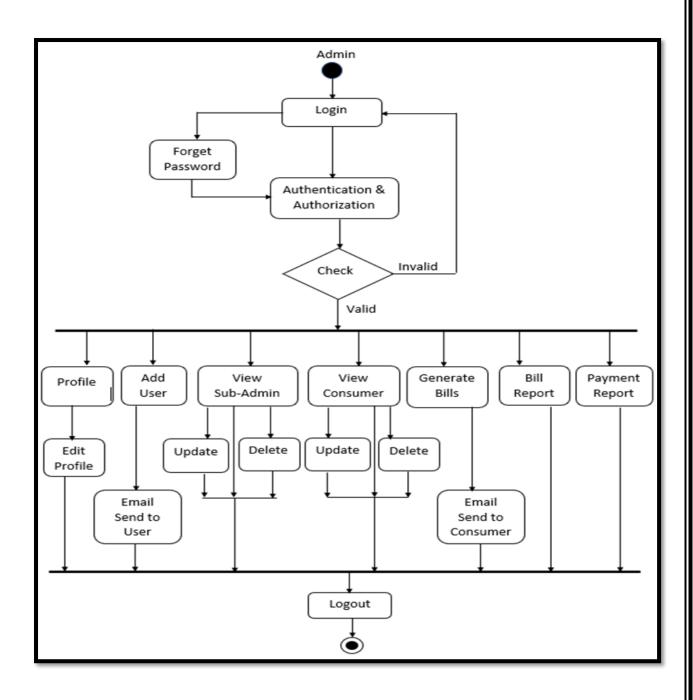
> UML Diagram

Class Diagram

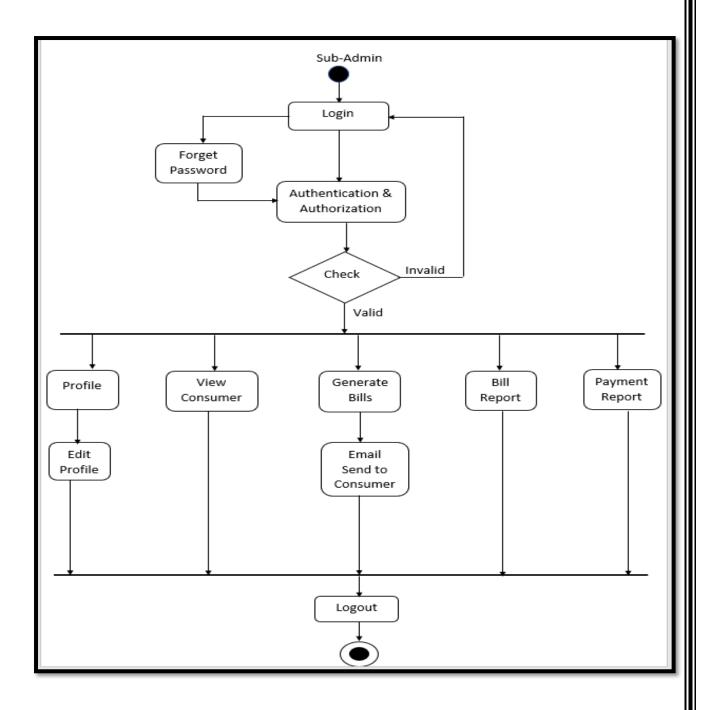


> Activity Diagram

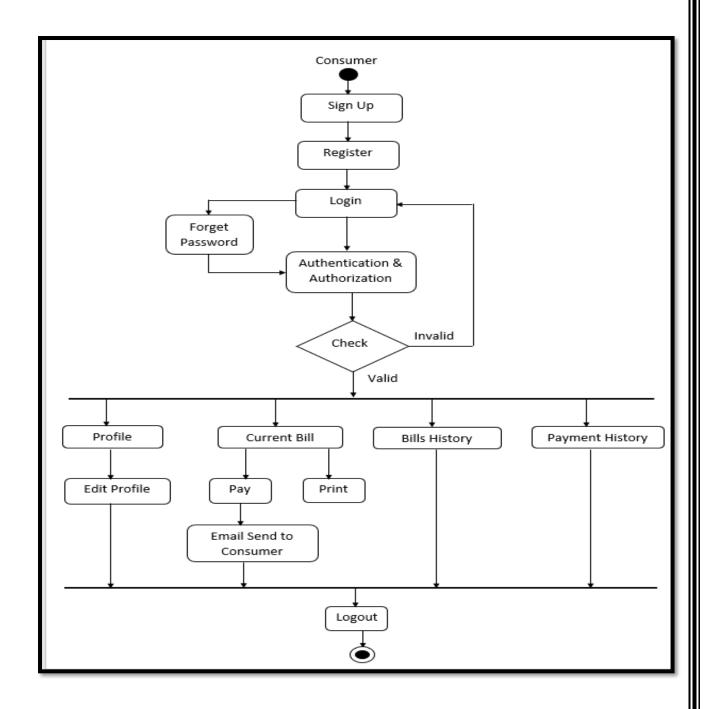
1. Admin Activity Diagram



2. Sub-Admin Activity Diagram



3. Consumer Activity Diagram

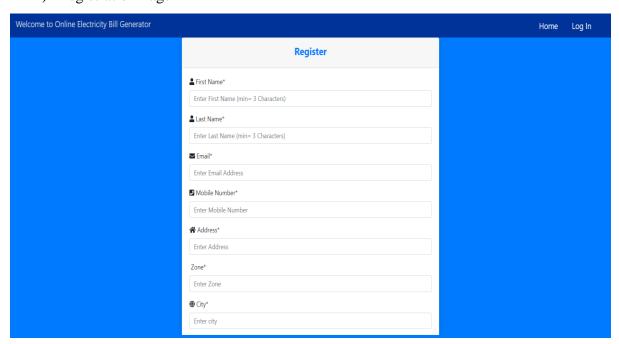


> Interface

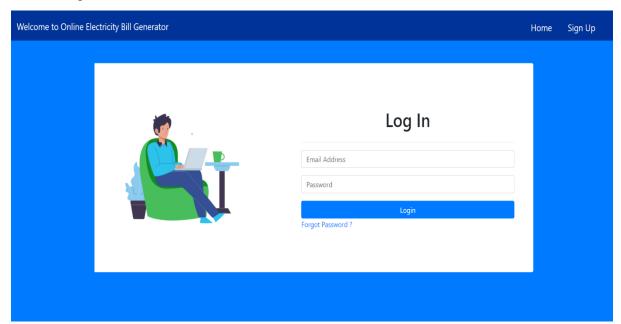
1) Welcome Page



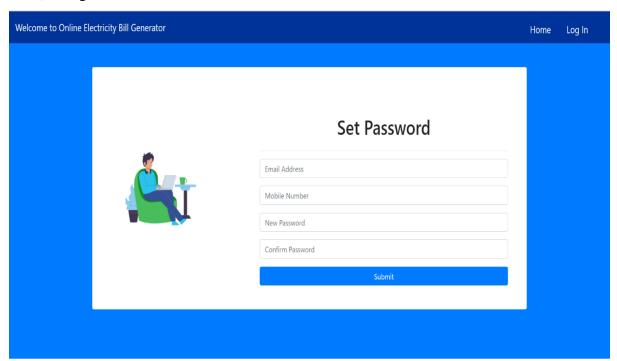
2) Registration Page



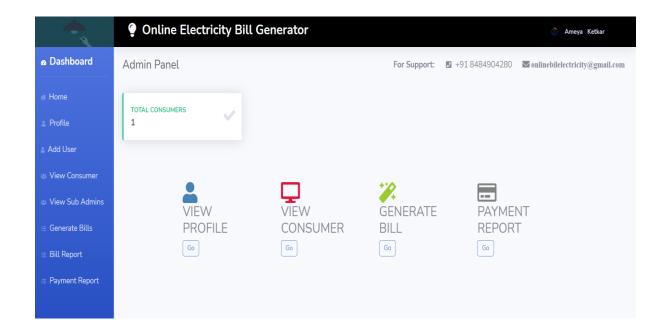
3) Login



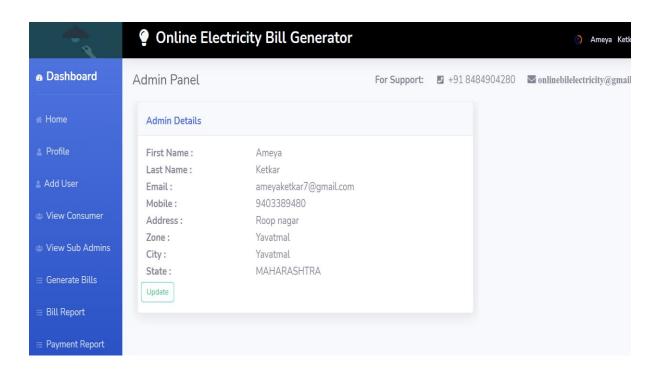
4) Forget Password



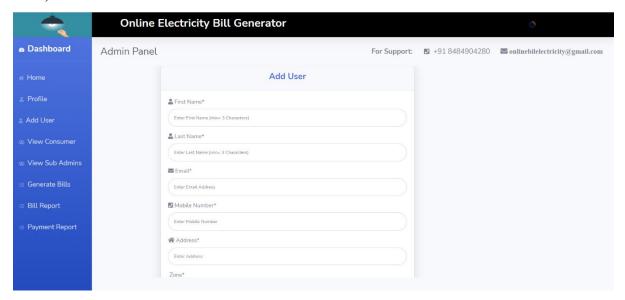
5) Admin Home



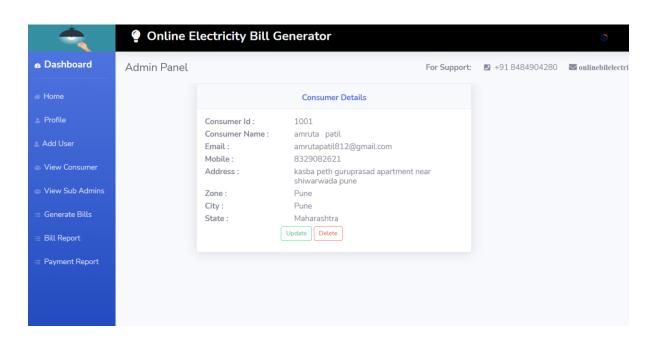
6) Admin Profile



7) Add User



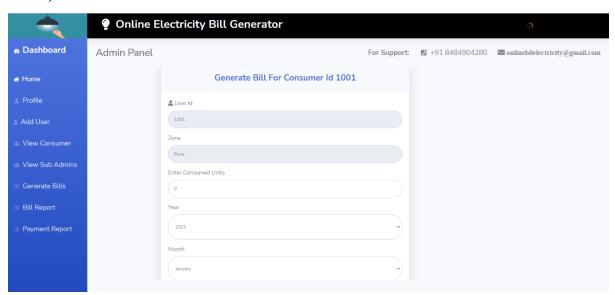
8) View Consumer



9) View Sub-Admin



10) Generate Bill



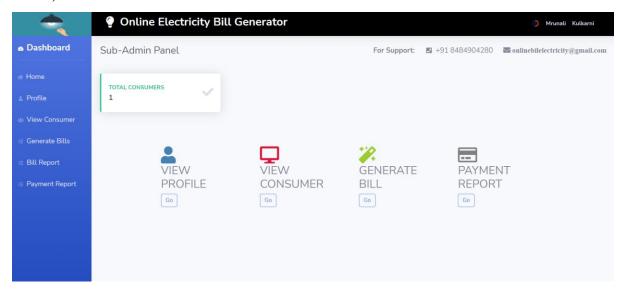
11) Bill Report



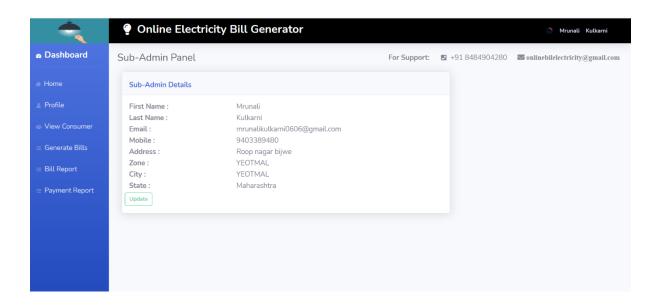
12) Payment Report



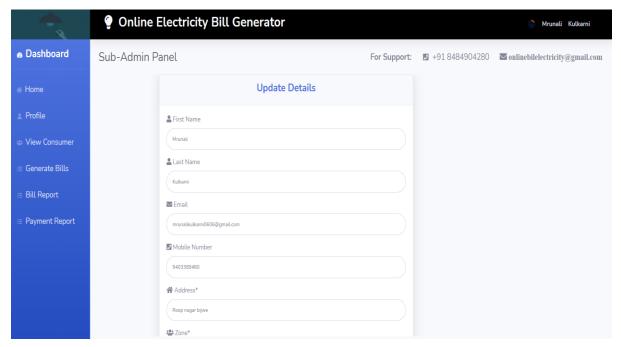
13) Sub Admin Home



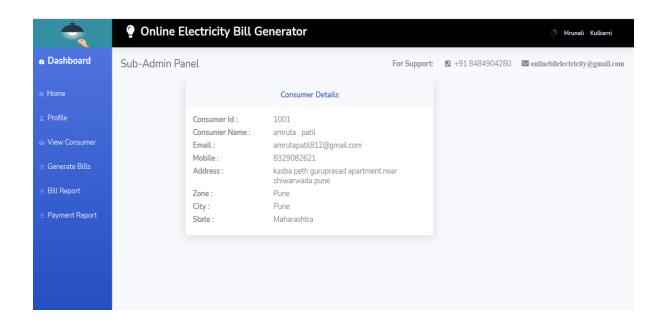
14) Sub Admin Profile



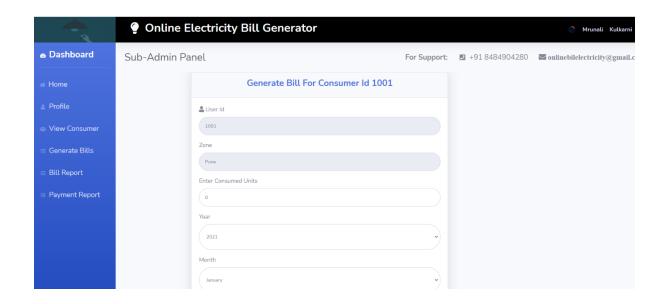
15) Sub Admin Update



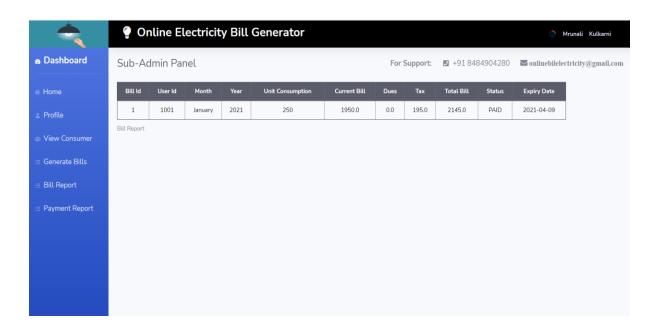
16) View Consumer

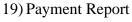


17) Generate Bill



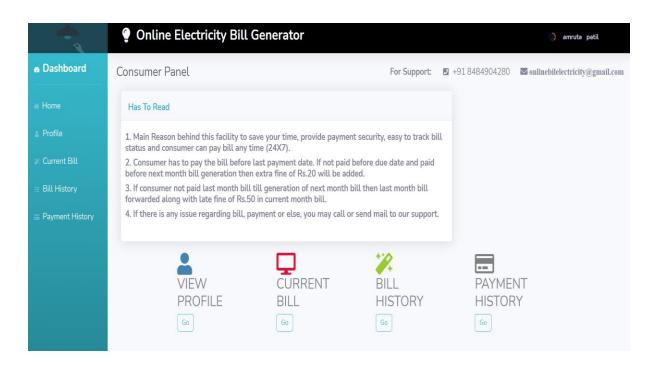
18) Bill Report



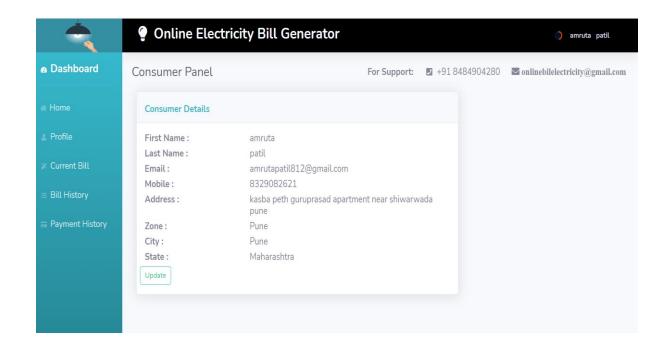




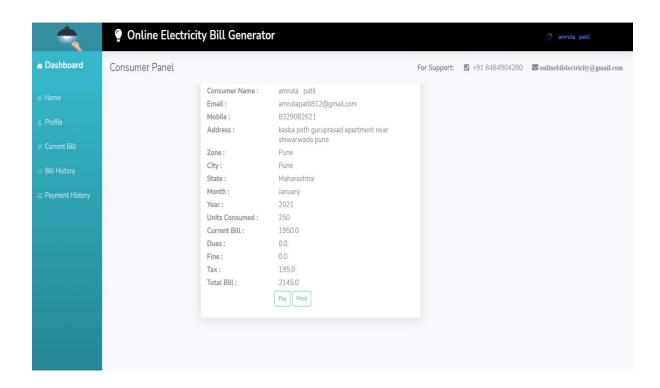
20) Consumer Home



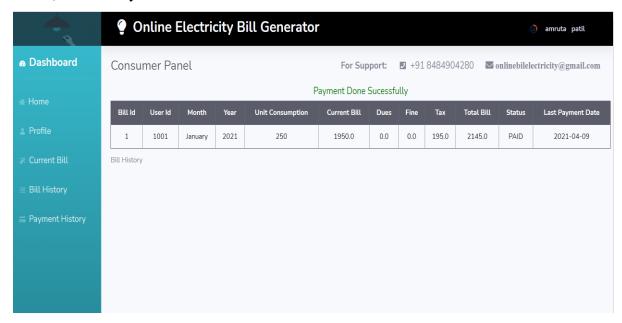
21) Consumer Profile



22) Current Bill



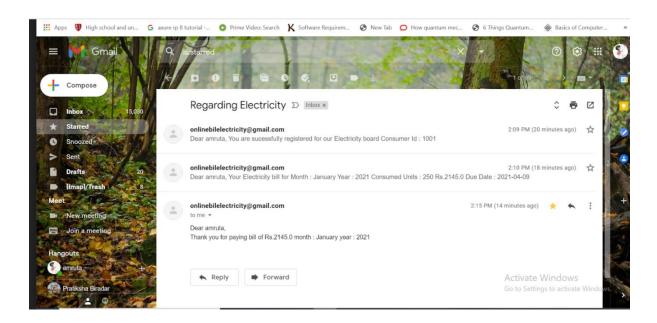
23) Bill History



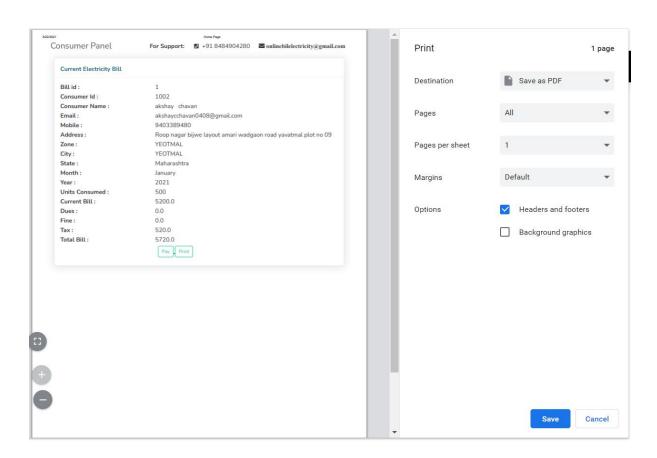
24) Payment History



25) Email Generation



26) Print Bill



> Futures Scope

The system excludes the need of maintaining paper electricity bill as all the electricity bill records are managed electronically. Administrator doesn't have to keep a manual track of the users. The system automatically calculates fine the system excludes manual bill calculation. Users don't have visit the office for bill payment. There is no need of bill delivery boy for delivering bills to user's place. Thus, it saves human efforts and resources

> References

- 1.www.w3school.com
- **2**.https://docs.oracle.com/javase/8/docs/api/index.html?overview-summary.html
- 3. https://www.youtube.coh/?v=XEZij0zwK0U&t=35sm

Conclusion

This software reduces the amount of manual data entry and gives greater efficiency. The User Interface of it is very friendly and can be easily used by anyone. It also decreases the amount of time taken to write details and other modules.