

INTRODUCTION

Electricity Billing System is a software-based application.

- i. This project aims at serving the department of electricity by computerizing the billing system.
- ii. It mainly focuses on the calculation of units consumed during the specified time and the money to be charged by the electricity offices.
- iii. This computerized system will make the overall billing system easy, accessible, comfortable, and effective for consumers.

The electricity billing software calculates the units consumed by the customer and makes bills, it requires small storage for installation and functioning. There is provision for debugging if any problem is encountered in the system.

The system excludes the need of maintaining paper electricity bill, administrator does not have to keep a manual track of the users, users can pay the amount without visiting the office. Thus, it saves human efforts and resources.

ANALYSIS AND SYSTEM REQUIREMENT

Existing and Proposed System

The conventional system of electricity billing is not so effective; one staff must visit each customer's house to note the meter readings and collect the data. Then, another staff must compute the consumed units and calculate the money to be paid. Again, the bills prepared are to be delivered to customers. Finally, individual customer must go to electricity office to pay their dues. Hence, the conventional electricity billing system is uneconomical, requires many staffs to do simple jobs and is a lengthy process overall. In order to solve this lengthy process of billing, a web based computerized system is essential. This proposed electricity billing system project overcomes all these drawbacks with the features. It is beneficial to both consumers and the company which provides electricity. With the new system, there is reduction in the number of staffs to be employed by the company. The working speed and performance of the software is faster with high performance which saves time. Furthermore, there is very little chance of miscalculation and being corrupted by the staffs.

Software & Hardware Requirements

Hardware Requirements:

- Hardware Specification: -Processor Intel Pentium V or higher
- Clock Speed: -1.7 GHz or more
- System Bus: -64 bits
- RAM: -4GB
- HDD: -2TB
- Monitor: -LCD Monitor
- Keyboard: -Standard keyboard
- Mouse: -Compatible mouse

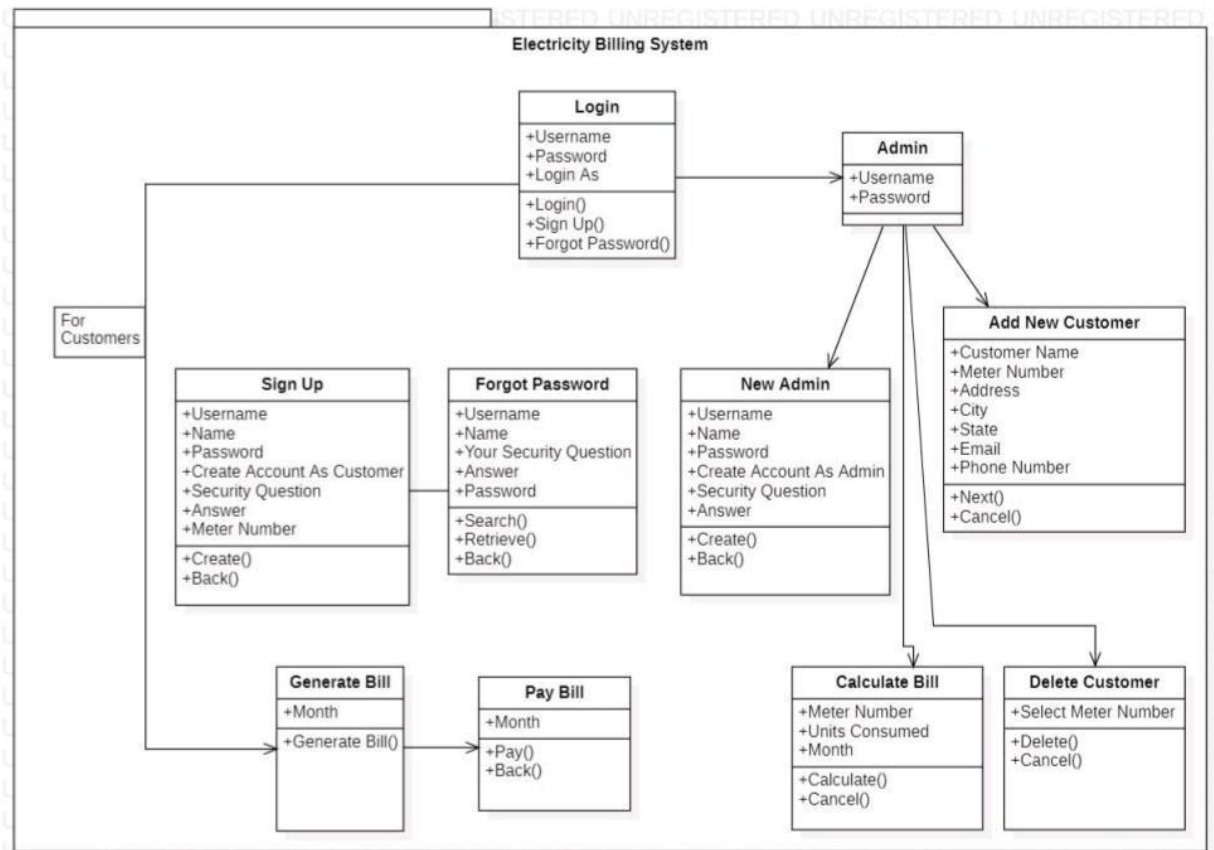
Software Requirements:

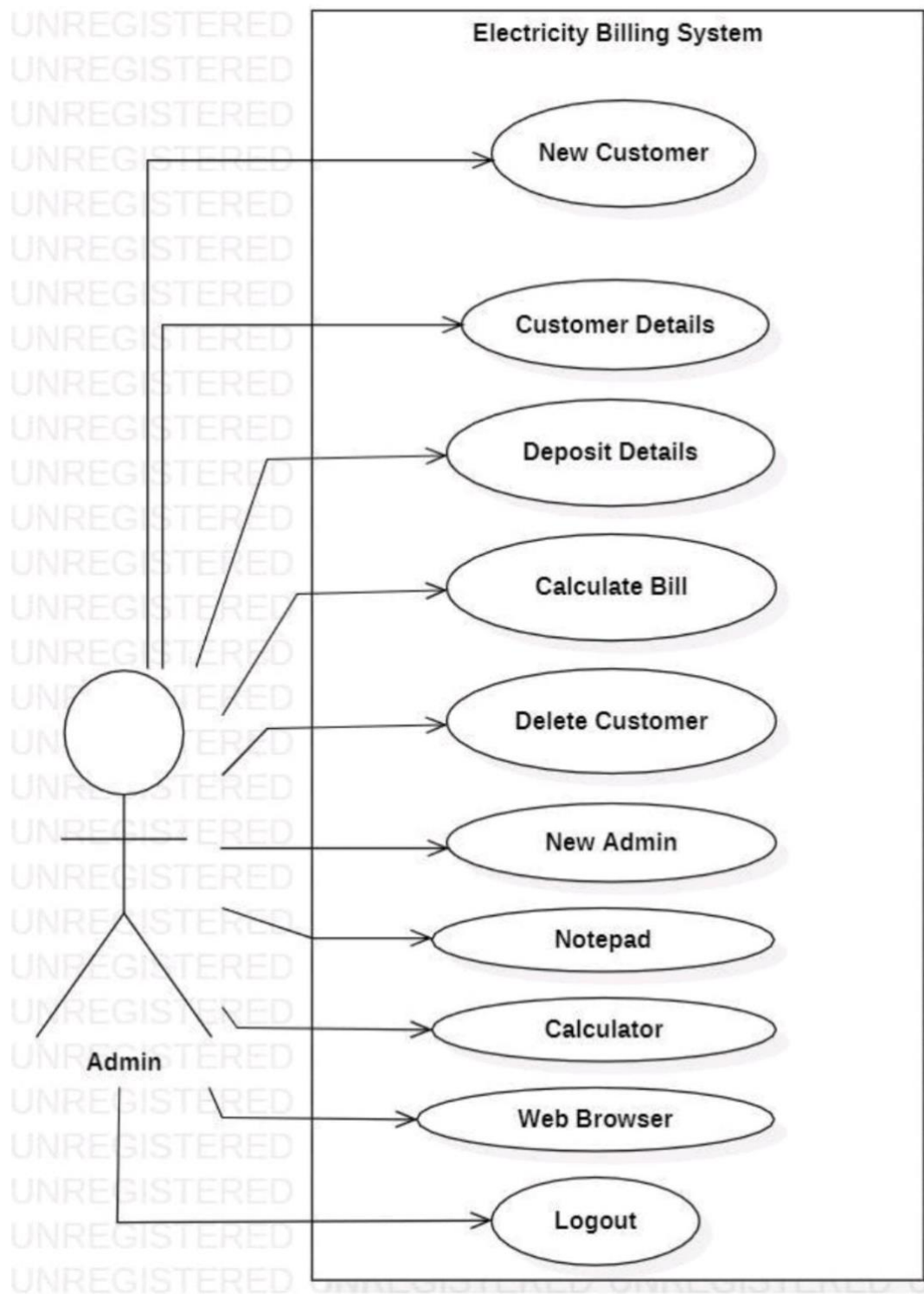
- Operating System: -Windows 10
- Software: -Microsoft SQL Server
- Front End: -Java core/swings (NetBeans)
- Back End: -My SQL

SYSTEM DESIGN

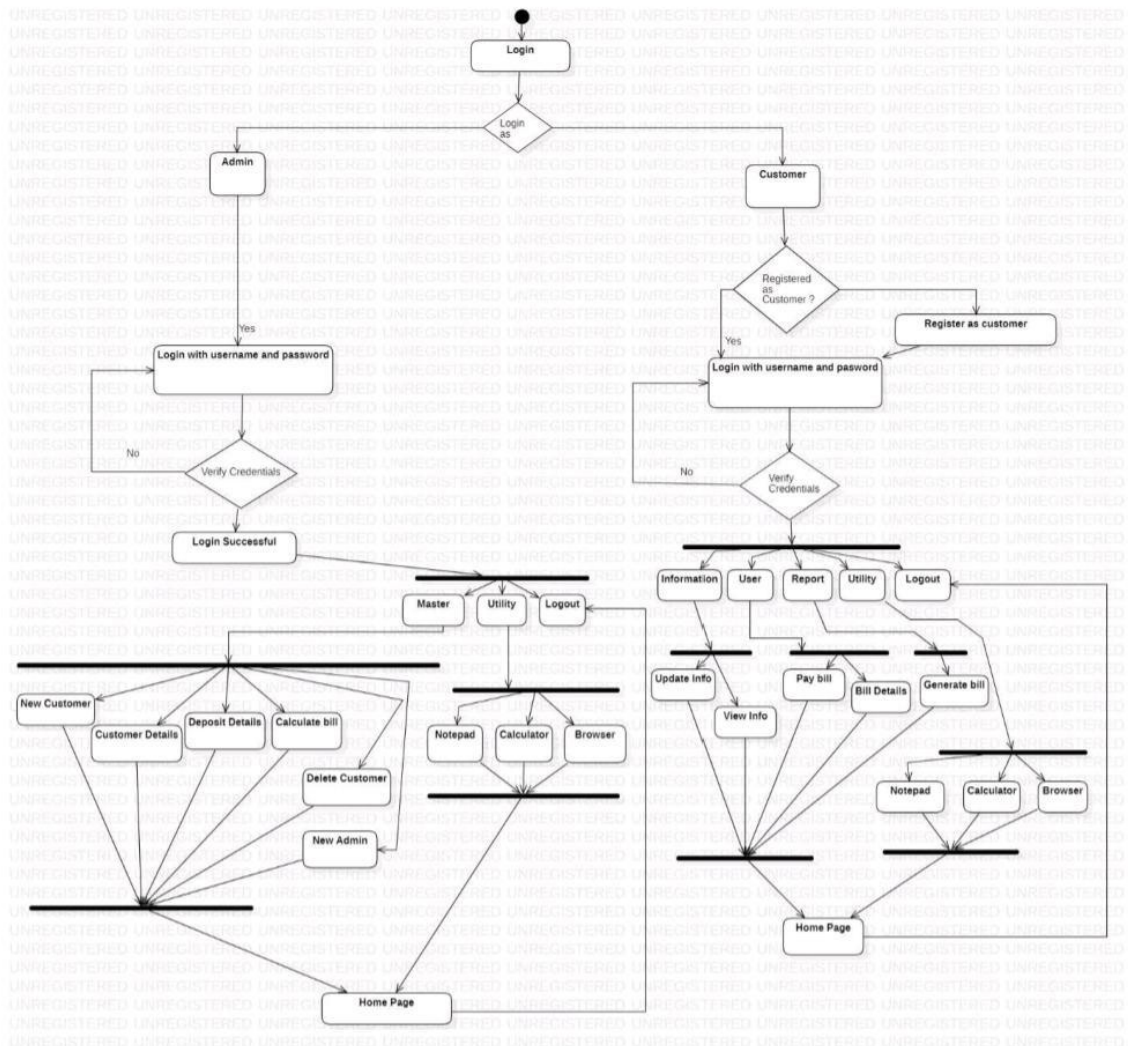
UML DIAGRAM

Class Diagram:



Use Case Diagram:

Activity Diagram :



Schema Diagram :**Login**

Meter No	Username	Password	User	Question	Answer
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Customer

Name	Meter No	Address	City	State	Email	Phone
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Rent

Cost Per Unit	Meter Rent	Service Rent
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Tax

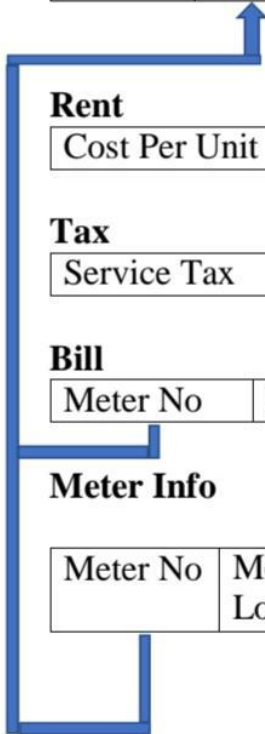
Service Tax	Swacch bharat cess	GST
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Bill

Meter No	Month	Units	Total Bill	Status
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Meter Info

Meter No	Meter Location	Meter Type	Phase Code	Bill Type	Days
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IMPLEMENTATION

Implementation of Operations

- **Adding Customers :** Here admin can add new customer to the customer list who started using electricity bill system.
- **Searching Deposit Details:** Here admin can search according to meter number and month to view deposit details.
- **Viewing Details:** Here admin and user can view customer details and about details.
- **Adding Tax:** Here admin can add tax details.
- **Updating Customer:** Here customer can update his/her details by using meter no of the customer.
- **Delete Customer:** Here admin can delete details based on meter number.

Implementation of SQL statements

Insert Statement :

- The INSERT INTO statement is used to insert new records in a table.
- The INSERT INTO syntax would be as follows: INSERT INTO table_name VALUES (value1, value2, value3, ...).

Update Statement :

- An SQL UPDATE statement changes the data of one or more records in a table. Either all the rows can be updated, or a subset may be chosen using a condition.
- The UPDATE syntax would be as follows: UPDATE table_name SET column_name =value, column_name=value... [WHERE condition].

Delete Statement :

- The DELETE statement is used to delete existing records in a table.
- The DELETE syntax would be as follows: DELETE FROM table_name WHERE condition.

Create Statement:

- The CREATE TABLE Statement is used to create tables to store data. Integrity Constraints like primary key, unique key, foreign key can be defined for the columns while creating the table.

- The syntax would be as follows: `CREATE TABLE table_name (column1 datatype, column2 datatype, column3 datatype, column datatype, PRIMARY KEY (one or more columns))`.

Algorithm or pseudocode of implementation:

Explanation of Algorithm or pseudocode of system:

- Start system
- Enter login name and password
- On clicking the login button
- Connect to database
- Query database to know whether user credentials are correct
- If not, deny access and return login page with an error message
- If correct, check if credentials for administrator
- If yes, allow login
- Set admin session, re-direct administrator to admin login page
- If no, allow login set user session
- Re-direct user to user homepage

Algorithm or pseudocode of admin:

Login:

- This program will allow the admin to enter the username and password.
- If the entered credentials are correct, then the login will be successful otherwise need to be signup.
- After successful login the admin will be redirected to admin portal page where he/she can do following activities.

New Customer:

- This program will allow the admin to enter the customer details and automatically generates unique meter number.

Customer Details:

- This program will allow the admin to view customer details.
- If we need to print the particulars that has been viewed click onto print option.

Deposit Details:

- This program will allow the admin to view bill details. If we need to sort the particulars based on meter_no and month.
- If we need to search the particulars that has been viewed click onto search option.
- If we need to print the particulars that has been viewed click onto print option.

Calculate Bill:

- This program will allow the admin to calculate total_bill when units consumed are inserted where meter_no and month is selected.
- Submit the details of tax that has been entered by clicking onto submit button.
- If we need to cancel the particulars that has been entered click onto cancel option.

Delete Customer:

- This Program will allow the admin to delete the customer info when meter_no is selected.
- If we need to delete the particulars that has been saved click onto delete option.
- If we need to cancel the particulars that has been entered click onto back option.

Algorithm or pseudocode of Customer:**Login:**

- This program will allow the customer to enter the username and password. If the entered credentials are correct, then the login will be successful otherwise need to be signup with the meter_no which is given by admin.
- If customer forgets password, it can be retrieved by giving username and answer for security question. After successful login the customer will be redirected to customer portal page where he/she can do following activities.

UpdateInfo:

- This program will allow the customer to update the customer details. If customer address, city, state, email and phone number is updated.
- update the details of customer that has been updated by clicking onto update button.
- If we need to cancel the particulars that has been updated, click onto back option.

View Info:

- This program will allow the customer to view his/her own details.
- If we need to go back from the particulars that has been viewed click onto back option

Pay Bill:

- This program will allow the customer to view bill details and redirects to pay.
- If we need to cancel the particulars that has been viewed click onto back option.
- If we need to pay the bill amount that has been viewed click onto pay option.

Bill Details:

- This program will allow the customer to view bill details.
- If we need to print the particulars that has been viewed click onto print option.

Generate Bill:

- This program will allow the customer to generate bill when meter_no and month is selected.
- Generate the details by clicking on generatebill button.

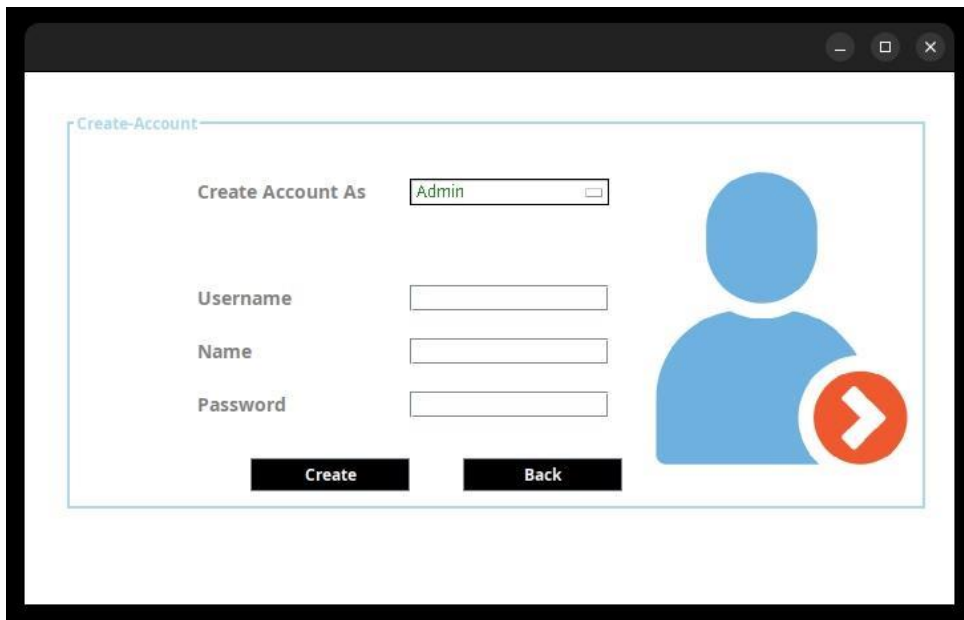
SNAPSHOTS

Login Page:



A screenshot of a web application window titled "Login Page". The window has a dark header bar with standard window controls (minimize, maximize, close). The main content area is white. On the left, there is a black silhouette of a person in a suit. To the right of the silhouette, there are three input fields: "Username", "Password", and "Login in as". The "Login in as" dropdown menu is currently set to "Admin". Below the input fields, there are three buttons: "Login" (with a yellow arrow icon), "Cancel" (with a red X icon), and "Signup" (with a blue document icon).

Signup Page:



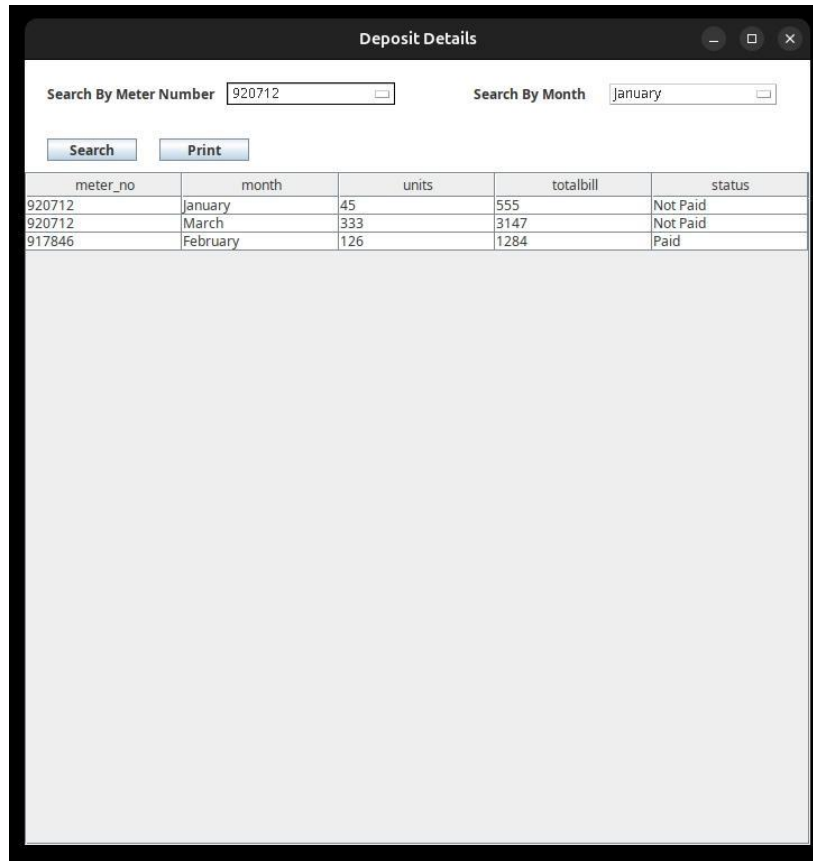
A screenshot of a web application window titled "Create-Account". The window has a dark header bar with standard window controls (minimize, maximize, close). The main content area is white. On the left, there is a blue silhouette of a person. To the right of the silhouette, there are four input fields: "Create Account As" (with a dropdown menu set to "Admin"), "Username", "Name", and "Password". Below the input fields, there are two buttons: "Create" and "Back". On the right side of the window, there is a large blue silhouette of a person with a red circular arrow pointing to the right.

Admin's Home Page:



New Customer Page:

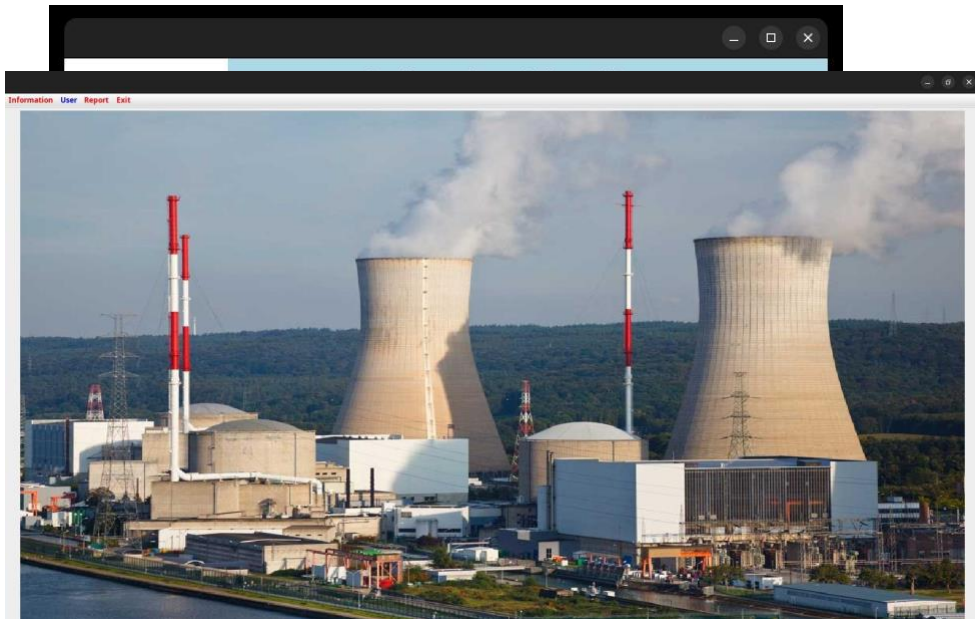
A screenshot of a web browser window displaying a 'New Customer' registration form. The window has a title bar with standard minimize, maximize, and close buttons. The form is titled 'New Customer' and is set against a light blue background. On the left side of the form, there is a black silhouette of a person holding a white clipboard. The form contains several input fields: 'Customer Name' (empty), 'Meter Number' (pre-filled with '302694'), 'Address' (empty), 'City' (empty), 'State' (empty), 'Email' (empty), and 'Phone Number' (empty). At the bottom of the form, there are two buttons: 'Next' and 'Cancel'. The entire form is enclosed in a black border.

Customers details Page:

The screenshot shows a window titled "Deposit Details" with a search interface and a table of deposit records. The search interface includes two text boxes: "Search By Meter Number" with the value "920712" and "Search By Month" with the value "January". Below these are "Search" and "Print" buttons. The table has five columns: "meter_no", "month", "units", "totalbill", and "status". The table contains three rows of data.

meter_no	month	units	totalbill	status
920712	January	45	555	Not Paid
920712	March	333	3147	Not Paid
917846	February	126	1284	Paid

Calculate Bill Screen:



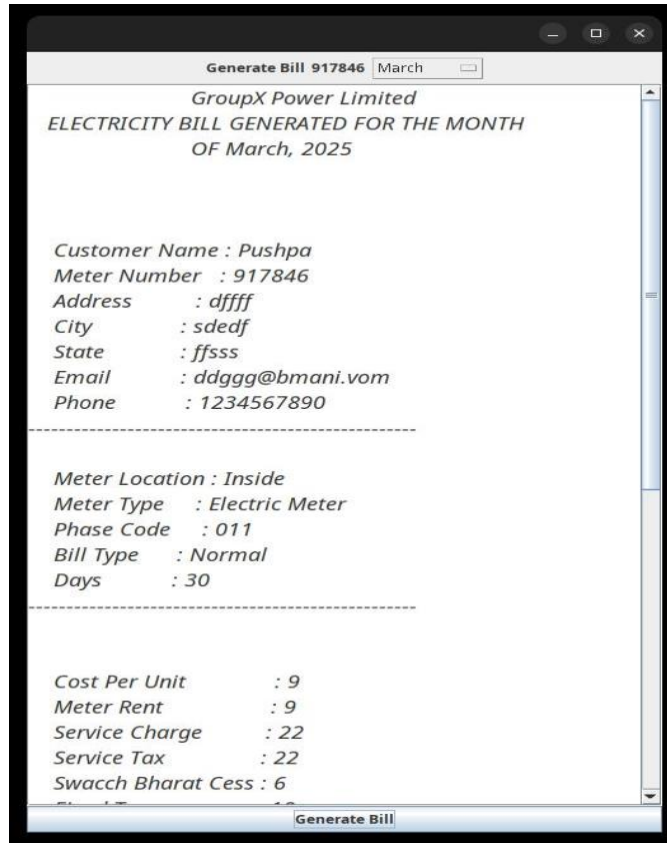
Customer's Home Screen:

Customer Info Screen:

A screenshot of a web application window titled 'VIEW CUSTOMER INFORMATION'. The window contains a form with the following fields and values:

Name	Pushpa	State	ffsss
Meter Number	917846	Email	ddggg@bmani...
Address	dffff	Phone	1234567890
City	sdedf		

Below the form is a 'Cancel' button. At the bottom of the window is a decorative illustration of six diverse people standing and giving thumbs up, with large yellow thumbs-up icons floating above them.

Generate / Show Bill :

The screenshot shows a window titled "Generate Bill 917846" with a dropdown menu set to "March". The window displays the following information:

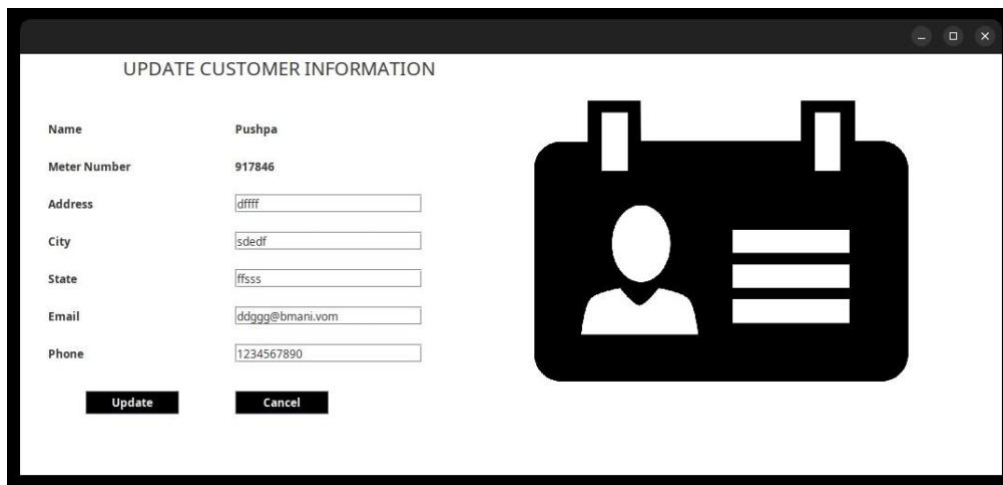
GroupX Power Limited
ELECTRICITY BILL GENERATED FOR THE MONTH
OF March, 2025

Customer Name : Pushpa
Meter Number : 917846
Address : dffff
City : sdedf
State : ffsss
Email : ddggg@bmani.vom
Phone : 1234567890

Meter Location : Inside
Meter Type : Electric Meter
Phase Code : 011
Bill Type : Normal
Days : 30

Cost Per Unit : 9
Meter Rent : 9
Service Charge : 22
Service Tax : 22
Swacch Bharat Cess : 6

At the bottom, there is a "Generate Bill" button.

Update Customer Information Screen :

The screenshot shows a window titled "UPDATE CUSTOMER INFORMATION". It contains a form with the following fields and values:

Name : Pushpa
Meter Number : 917846
Address : dffff
City : sdedf
State : ffsss
Email : ddggg@bmani.vom
Phone : 1234567890

At the bottom, there are two buttons: "Update" and "Cancel".

On the right side of the window, there is a large black icon representing a customer profile with a person silhouette and a list of items.

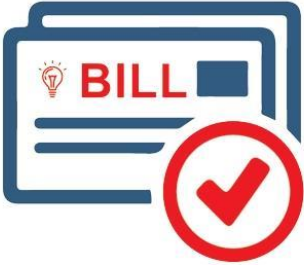
Pay Bill Screen :

Electricity Bill

Meter Number	917846
Name	Pushpa
Month	<input type="text" value="February"/>
Units	126
Total Bill	1284
Status	Paid

Pay

Back



CONCLUSION

After all the hard work is done for electricity bill management system is here. It is a software which helps the user to work with the billing cycles, paying bills, managing different details under which are working etc. 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.