PROJECT REPORT

Course Code- 24CAP-652

ADVANCED INTERNET PROGRAMMING LAB

TOPIC:- Electricity Billing Management System

MASTER OF COMPUTER APPLICATION

Submitted By

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Submitted To

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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.

This computerized system will make the overall billing system easy, accessible, comfortable, and effective for consumers.

iii. To design the billing system more service oriented and simple, the following features have been implemented in the project. The application has high speed of performance with accuracy and efficiency.

The software provides facility of data sharing, it does not require any staff as in the conventional system. Once it is installed on the system only the meter readings are to be given by the admin where customer can view all details, it has the provision of security restriction.

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.

Purpose :-

We, the owners of our project, respect all customers and make them happy with our service.

The main aim of our project is to satisfy customer by saving their time by payment process, maintaining records, and allowing the customer to view his/her records and permitting them to update their details.

The firm handles all the work manually, which is very tedious and mismatched.

Scope: The scope of our project are as follows:

- To keep the information of consuming unit energy of current month.
- To keep the information of customer.
- To keep the information of consuming unit energy of previous month.
- To calculate the units consumed every month regularly.
- To generate the bills adding penalty and rent.
- To save the time by implementing payment process online.

Applicability:

The manual system is suffering from a series of drawbacks. Since whole of the bills is to be maintained with hands the process of keeping and maintaining the information is very tedious and lengthy to customer. It is very time consuming and laborious process because, staff need to be visited the customers place every month to give the bills and to receive the payments. For this reason, we have provided features Present system is partially automated (computerized), existing system is quite laborious as one must enter same information at different places.

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: -16GB
- ➢ 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

IMPLEMENTATION

Implementation of operations:-

- **Adding Customer:** 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, ...).
- The following SQL statement insert's a new record in the "customer" table: Insert into customer VALUES ("sai","12345"," btm"," Bangalore", "Karnataka", "sai@gmail.com", "9876543333").

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].

The following SQL statement update's a new record in the "customer" table: UPDATE TABLE customer SET email= su@gmail.com WHERE meter_no ="12345".

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. • The following SQL statement delete's a record in the "customer" table: delete from customer where meter_no=12345.

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: CREATETABLE table_name (column1datatype, column2datatype, column3 datatype, column datatype, PRIMARY KEY (one or more columns)).

➢ The following SQL statement creates a table "customer" table: create table customer (name varchar (30), meter_no varchar (20) primary key, address varchar (50), city varchar (20), state varchar (30), email varchar (30), phone varchar (30));

➢

The following SQL statement creates a table "login" table: create table login (meter_no varchar (30), username varchar (30), password varchar (30), user varchar (30), question varchar (40), answer varchar (30));

➢

The following SQL statement creates a table "tax" table: create table tax (cost_per_unit int (20) primary key, meter_rent int(20), service_charge int(20), service_tax int(20), swacch_bharat_cess int(20), gst int(20));

The following SQL statement creates a table "bill" table: create table bill (meter_no varchar (20), foreign key(meter_no) references customer(meter_no) on delete cascade, month varchar (20), units int (20), total_bill int (20), status varchar (40)); ➢ The following SQL statement creates a table "meter_info" table: create table

meter_info (meter_no varchar (30), foreign key(meter_no) references customer(meter_no) on delete cascade, meter_location varchar(10), meter type(15), phase code int(5), bill type varchar(10), days int(5));

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 home page

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.
- If admin forgets password, it can be retrieved by giving username and answer for security question
- 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.

If customer name, address, city, state, email and phone number is entered, insert the values into customer else print error while next=true

enter the meter_info details else print meter_info error

Submit the details of customer that has been entered by clicking onto next button.

If we need to cancel the particulars that has been entered click onto cancel option.

If we need to submit the particulars that has been entered click onto submit option.

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.

Tax Details:-

This program will allow the admin to add tax details. insert the values into tax

else print error

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.

Calculate Bill:-

This program will allow the admin to calculate total_bill when units consumed are inserted where meter_no and month is selected.

Insert the values into bill else print error

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 values into customer else print error

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.

the bill where status will be updated.

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.

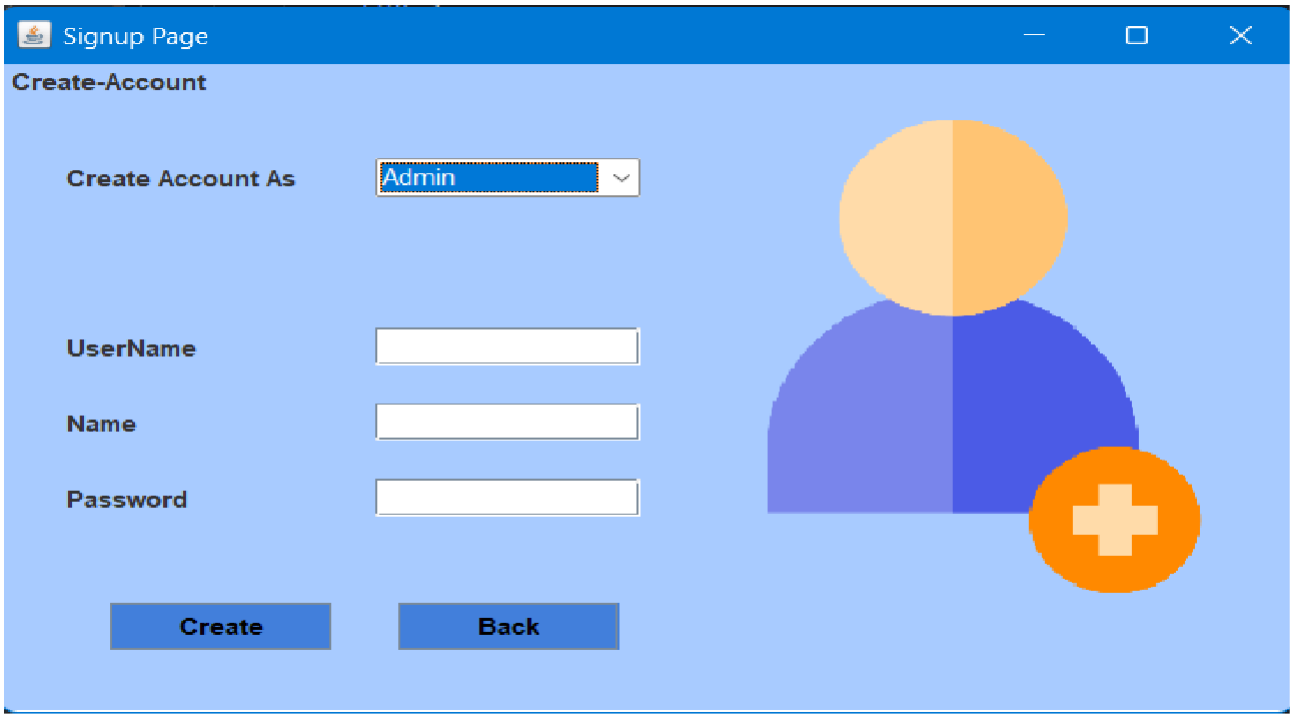
Generate Bill:-

This program will allow the customer to generate bill when meter_no and month is selected.

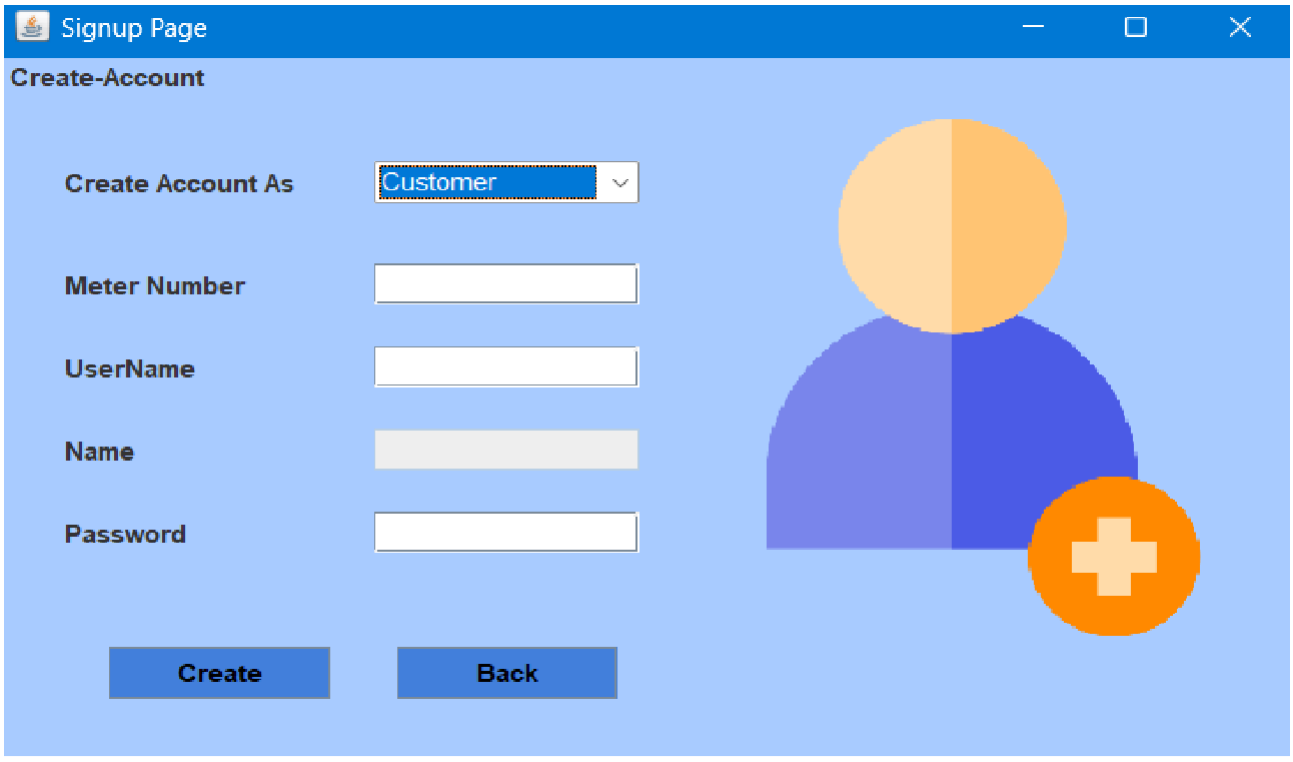
Generate the details by clicking on generatebill button.

NOTE: Utility (notepad, browser, calculator), query and logout is given to both customer and admin portals.

SNAPSHOTS:-



SignUp Screen For Admin



SignUp Screen For Customer

Sign Up Screen:-

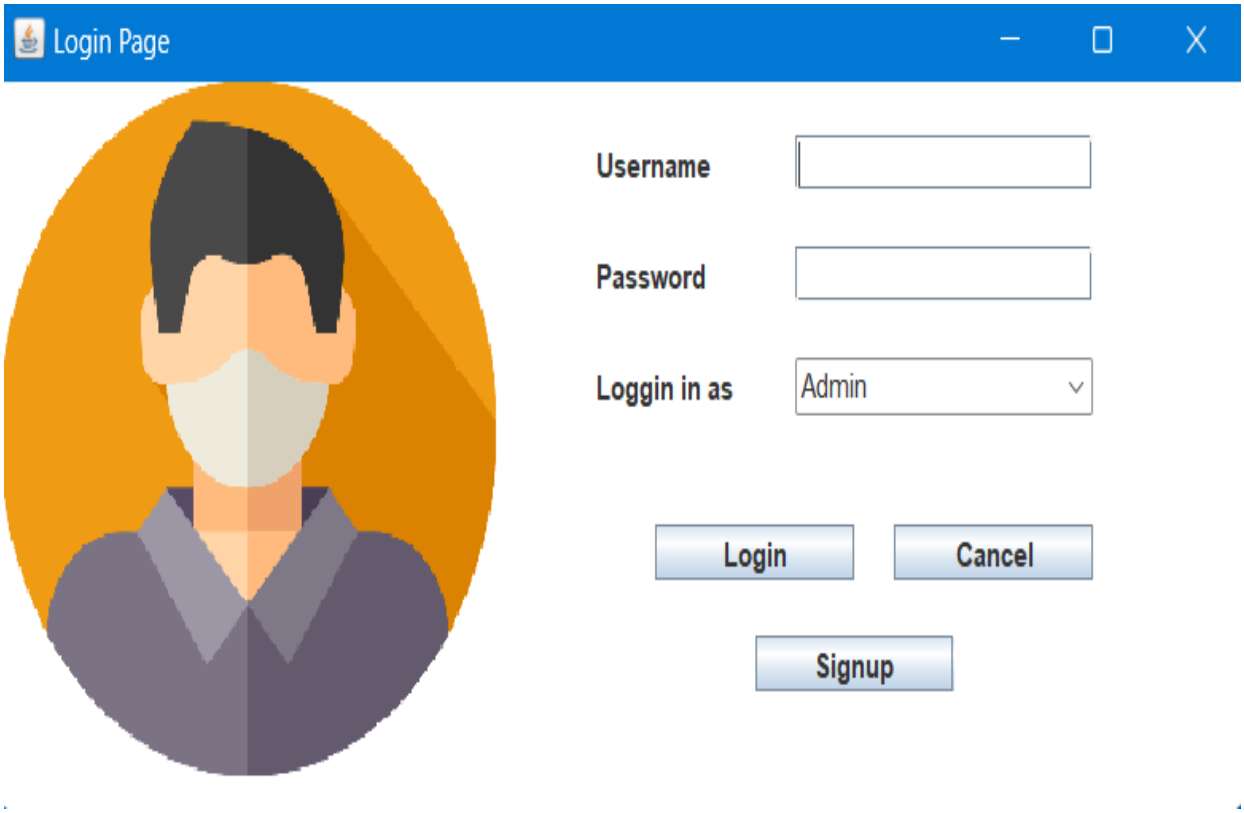
Here New customers will signup to access their accounts.

User have to enter username, name, password, choose security question and answer to that question.

Every user must enter their unique Meter Number to complete their signup process.

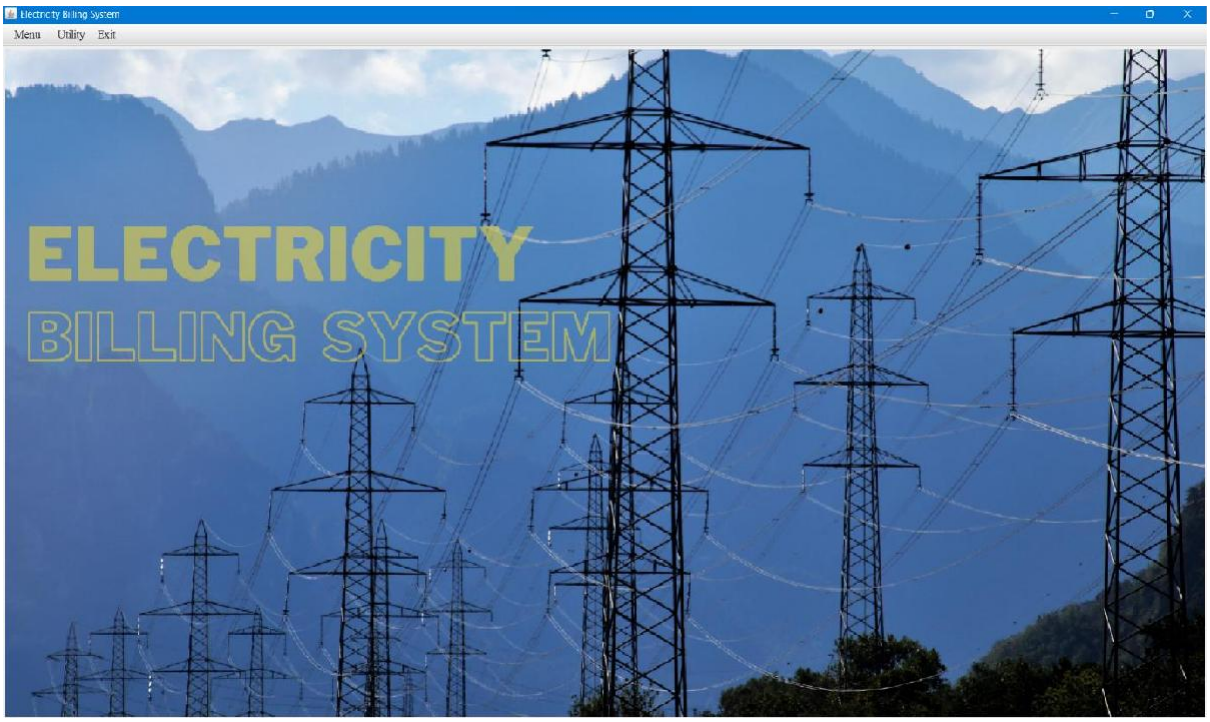
Login Screen:-

Here Customer and Admin can login to their respective accounts. The dropdown menu allows to choose whether to login as an admin or as a customer.

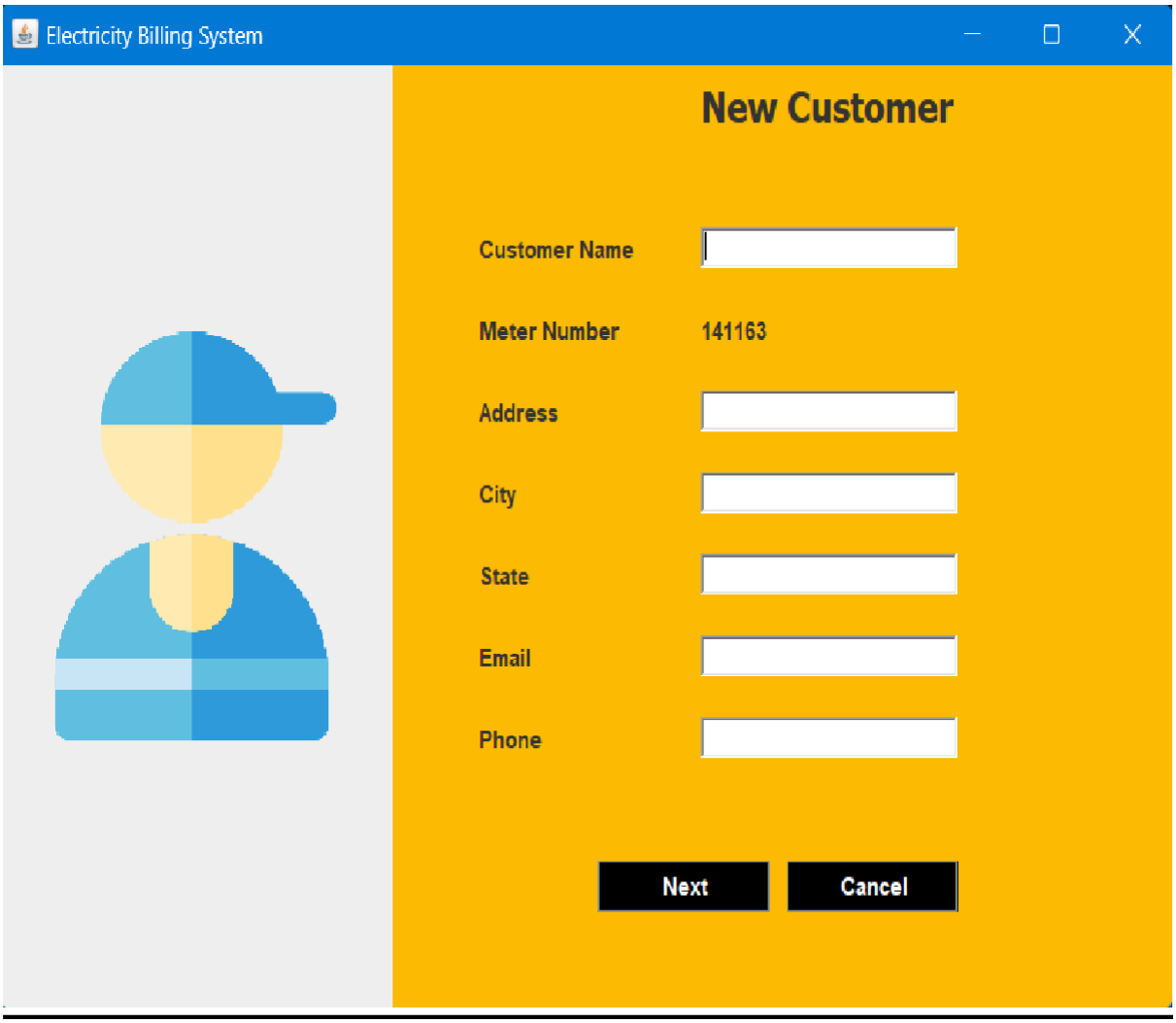


Admin lands on this page after successful login:-

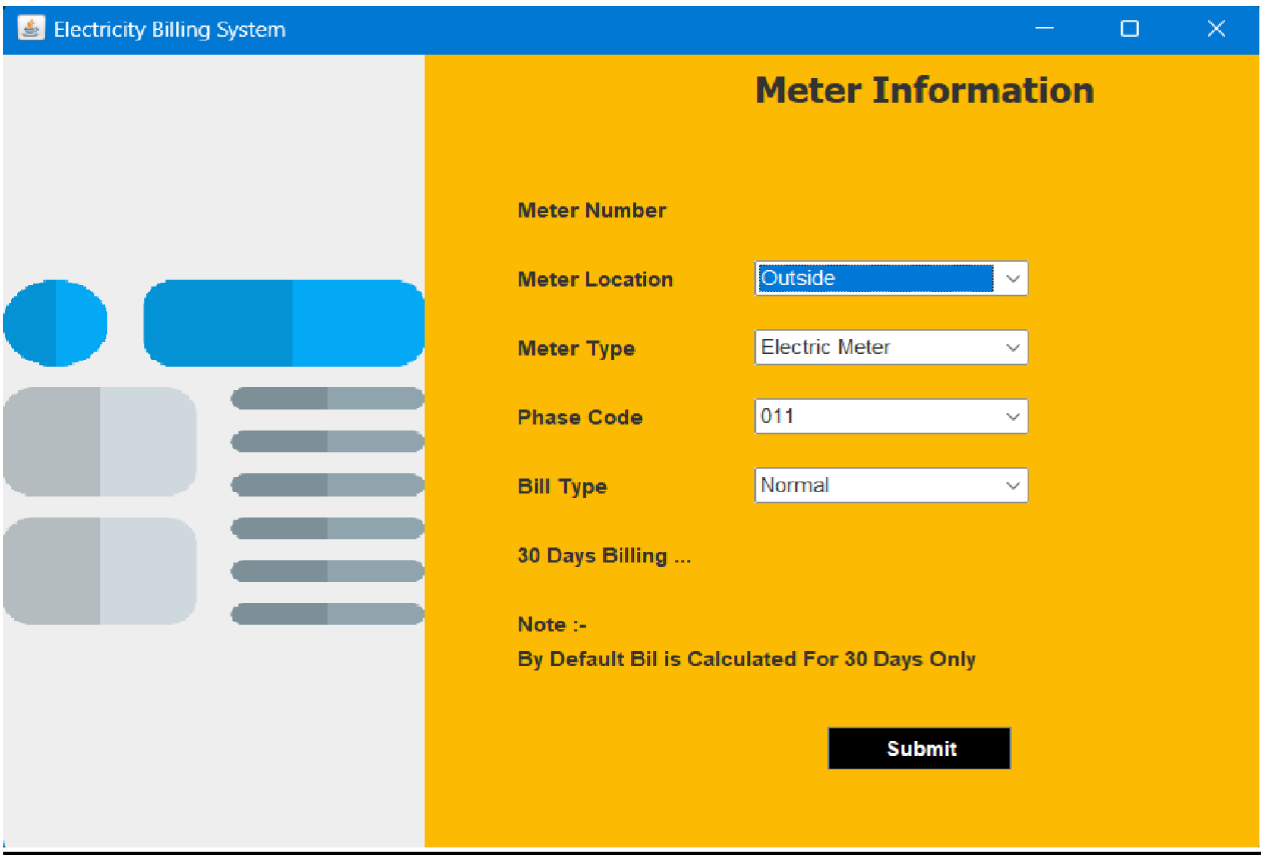
Admin's Home Screen: Menu, Utility, Exit.



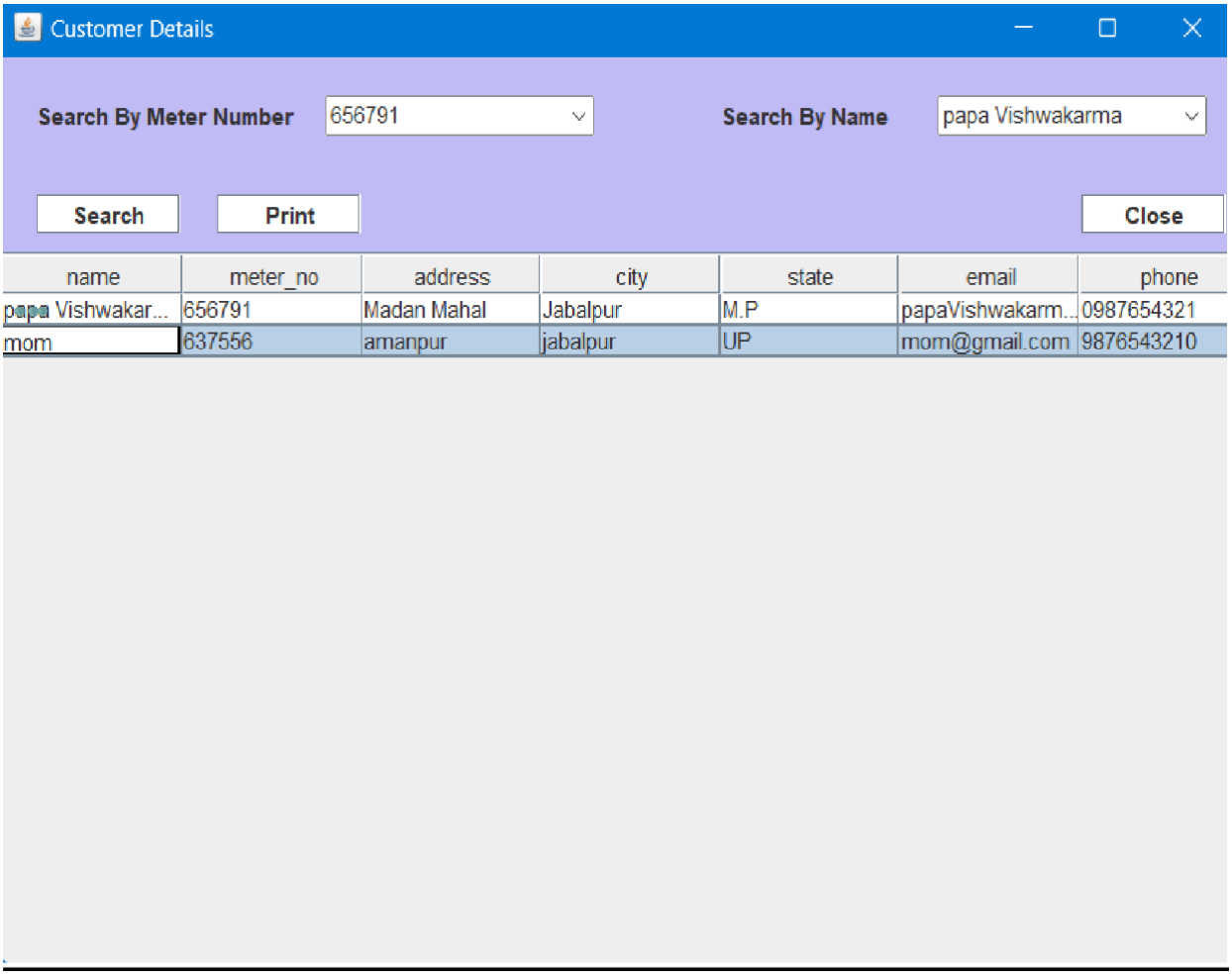
New Customer Screen:-



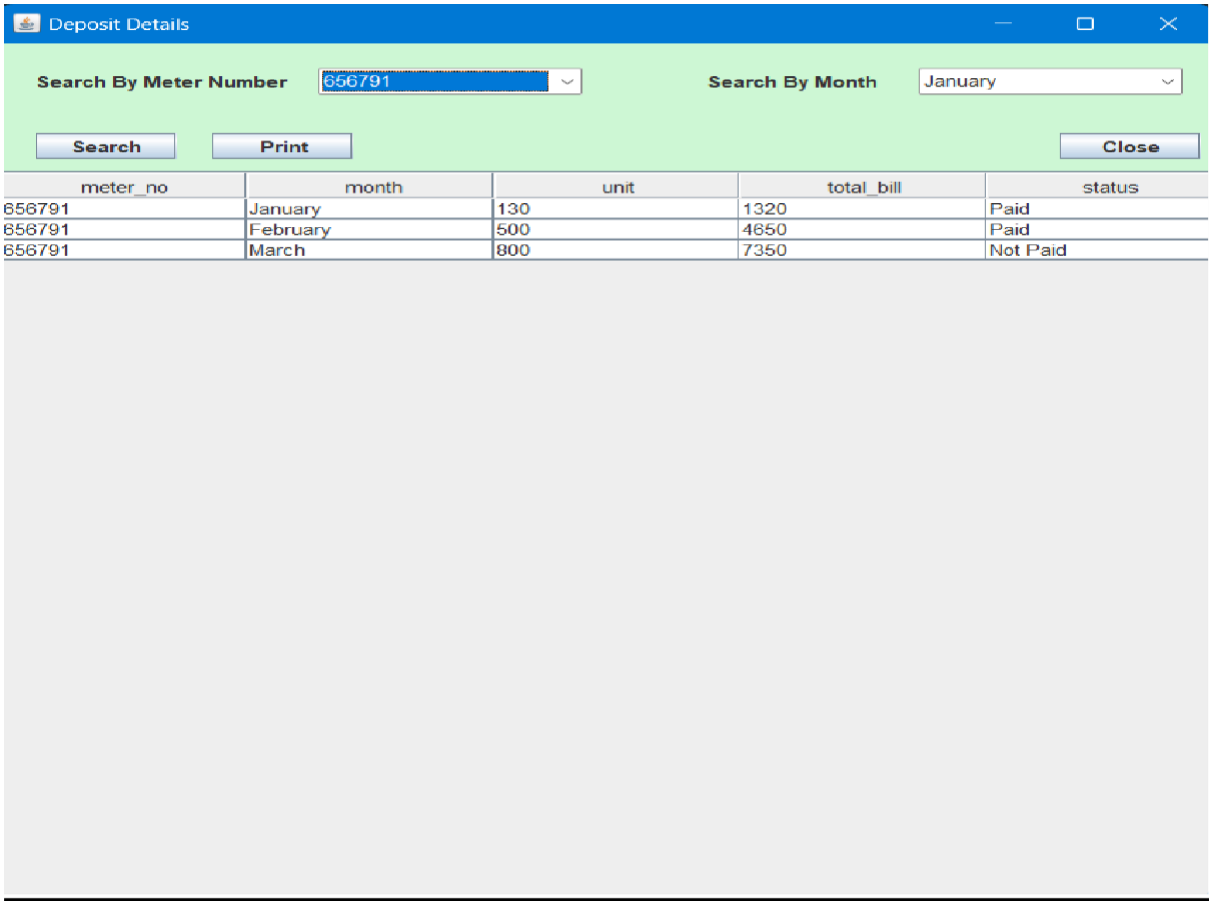
Meter Info Screen:-



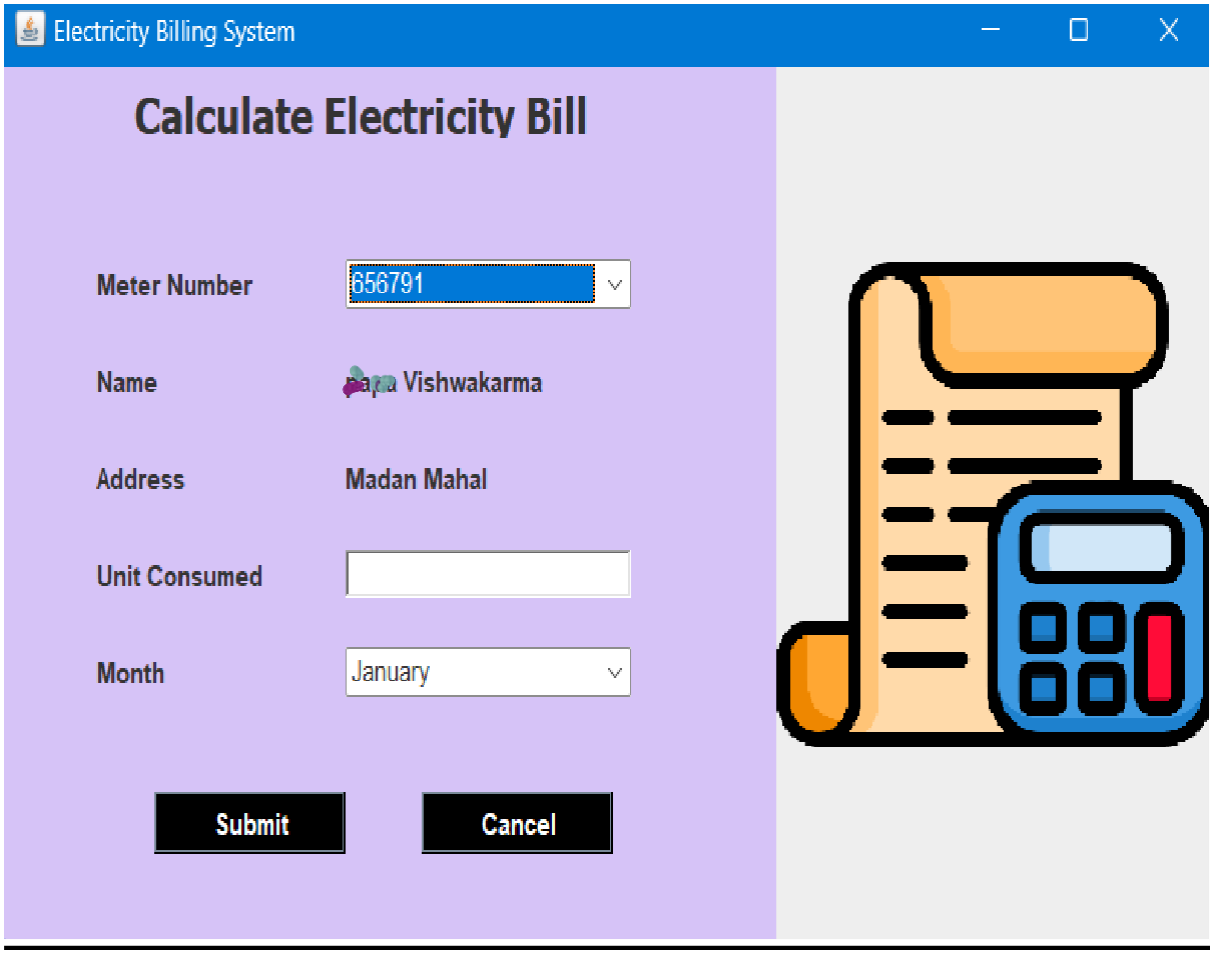
Customer Details Screen:-



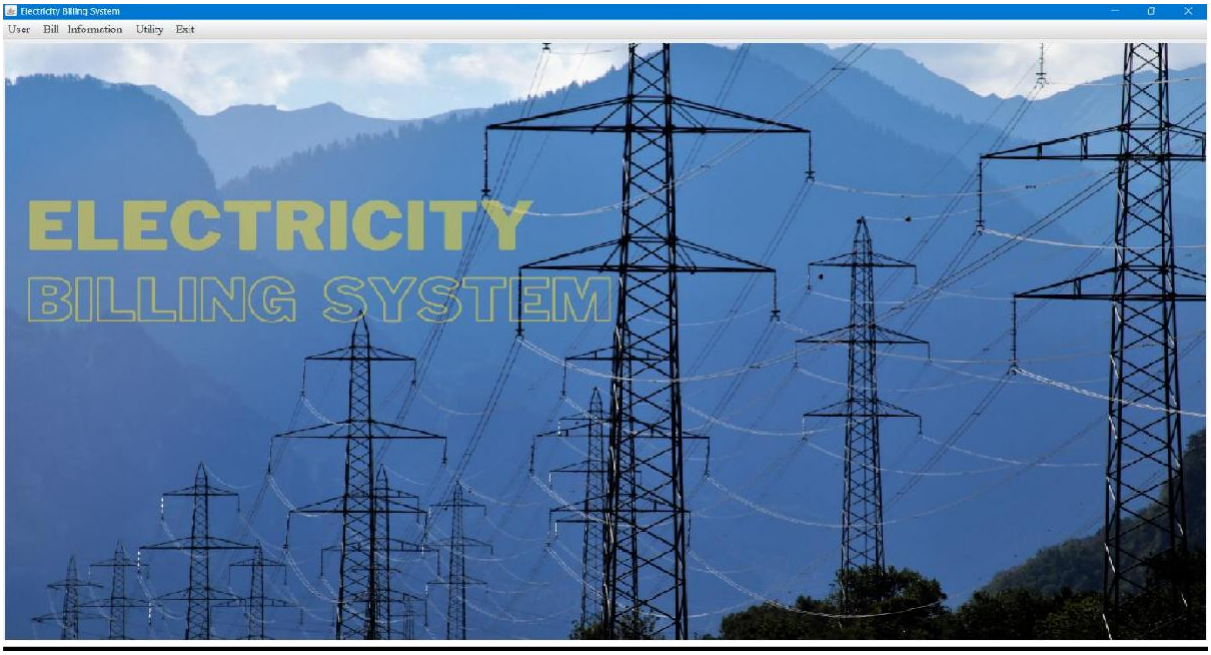
Deposit Details Screen:-

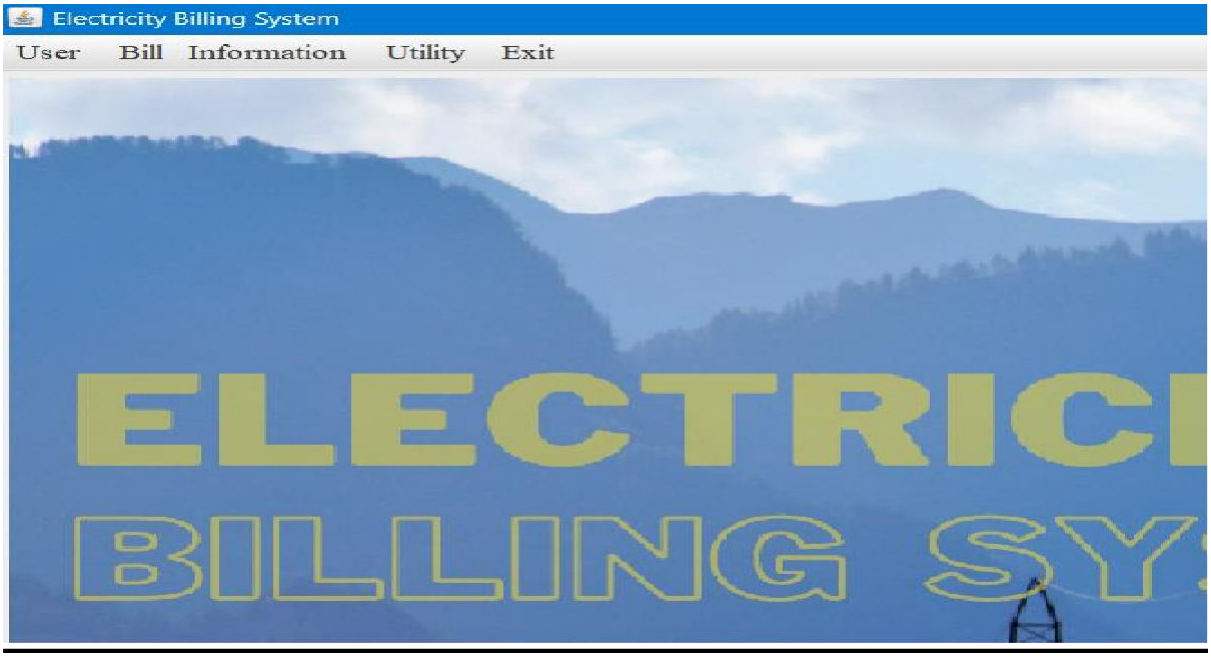


Calculate Bill Screen:-



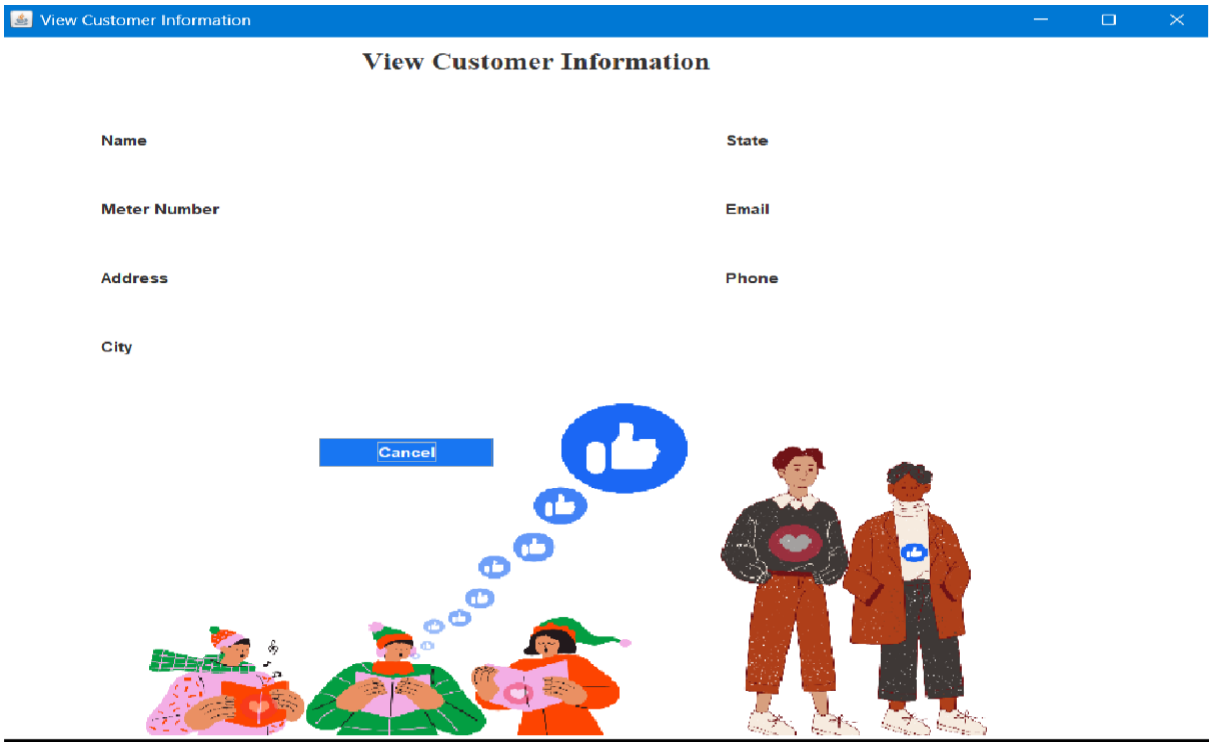
Customer's Home Screen:-



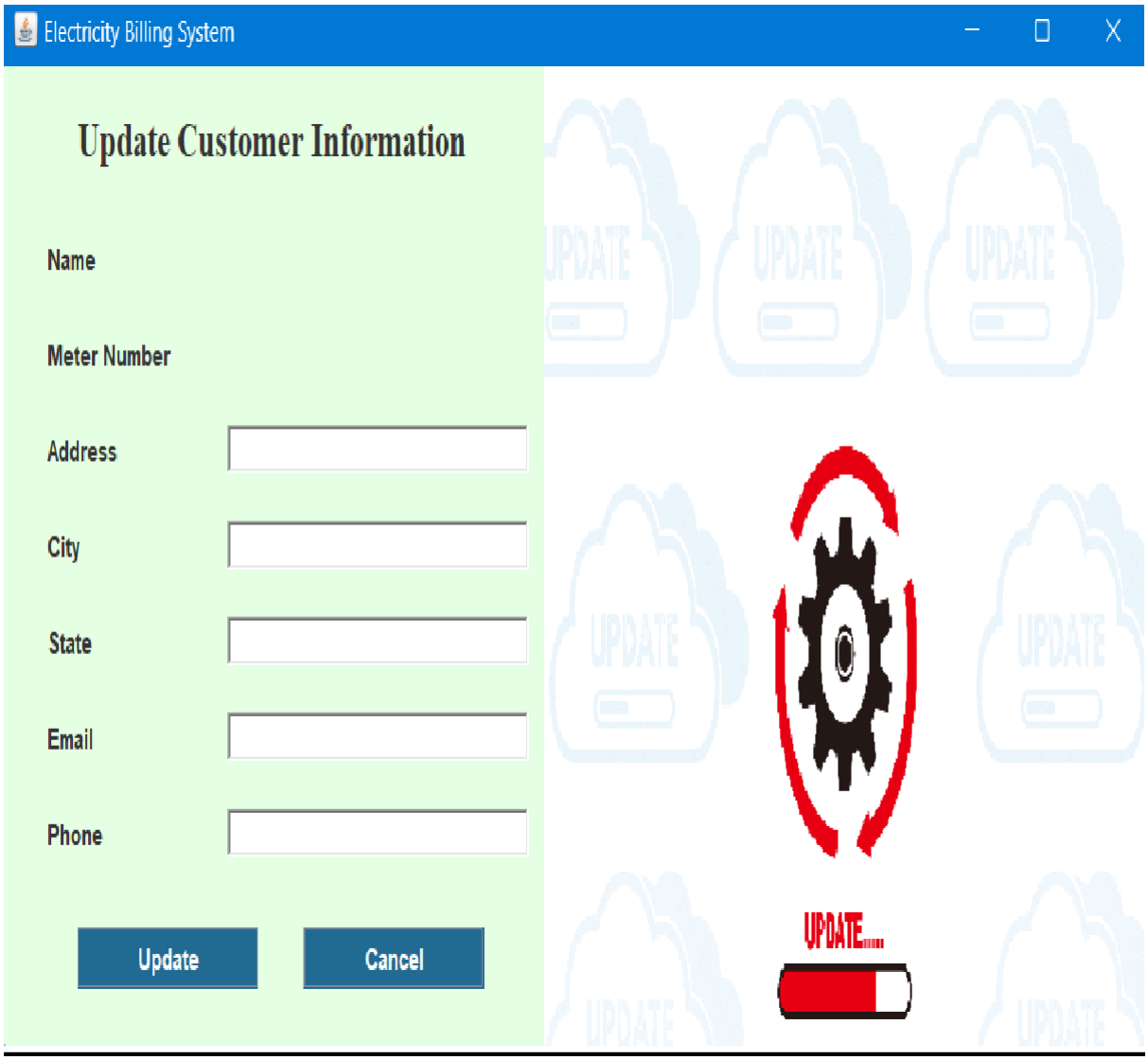


Customer lands on this page after successful login.

View Customer Info Screen:-



Update Customer Info Screen:-



FUTURE SCOPE AND LIMITATIONS

SOFTWARE SCOPE:-

• Extensibility: This software is extendable in ways that its original developers may not expect. The following principles enhances extensibility like hide data structure, avoid traversing multiple.
Links or methods avoid case statements on object type and distinguish public and private operations.

• Reusability: Reusability is possible as and when require in this application. We can update it next version. Reusable software reduces design, coding and testing cost by amortizing effort
Over several designs. Reducing the amount of code also simplifies understanding, which increases the likelihood that the code is correct. We follow up both types of reusability:
Sharing of newly written code within a project and reuse of previously written code on new projects.

• Understand ability: A method is understandable if someone other than the creator of the method can understand the code (as well as the creator after a time lapse). We use the method, which small and coherent helps to accomplish this.

• Cost-effectiveness: Its cost is under the budget and make within given time period. It is desirable to aim for a system with a minimum cost subject to the condition that it must satisfy the entire requirement. Scope of this document is to put down the requirements, clearly identifying the information needed by the user, the source of the information and outputs expected from the system.

LIMITATIONS:-

This application cannot be accessed remotely.

This application requires knowledgeable person to use this application. This application does not have journals.

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.