

A  
PROJECT REPORT  
ON

**“ELECTRICITY BILLING SYSTEM”**

Submitted to

**“SHIVAJI UNIVERSITY, KOLHAPUR”**

For the partial fulfillment

of

The requirement of the award

***BACHELOR OF SCIENCE (COMPUTER SCIENCE (Entire)) (BCS)***

By

**Mr. Sarthak Sambhaji Salve**

**Mr. Aditya Ramesh Patil**

Under the guidance of

**Mrs. S.S.Gavade**



Through

The Principal

**JAYSINGPUR COLLEGE, JAYSINGPUR**

**2022-2023**



## JAYSINGPUR COLLEGE, JAYSINGPUR

### CERTIFICATE

This is to certify that, the project report entitled “**ELECTRICITY BILLING SYSTEM**” is record of project work, carried out in this college by Sarthak S. Salve, Aditya R. Patil in partial fulfillment of award of **B.Sc. Computer Science(Entire)** as laid down by Shivaji University, Kolhapur during the year 2022-202. This project presents their sincere work carried out under our guidance.

To the best of my knowledge & belief the matter presented in this project report has not been submitted earlier to any university for similar purpose.

Place: Jaysingpur

Date:

Mrs.S.S.Gavde  
Guide)

Mr. B.A.Patil  
( H.O.D.)

(Examiner) (Project  
Shivaji University, Kolhapur

# ACKNOWLEDGEMENT

The first and foremost person, we would like to thank is our guide **Mrs. S.S Gavade** for her keen interest, valuable guidance and continuous encouragement throughout the development of this project work. We express our sincere thanks to other faculty members of computer science department for their valuable suggestions and support.

We would like to express our deepest gratitude for constant support , understanding and care that we received from our parents who taught us to go ahead in the right way and never to be depressed even in the complicated situations .

Finally, we would like to express our sincere gratitude to those who have helped us directly or indirectly in our project .

**Date :**

# DECLARATION

We hereby declare that the project entitled “**Electricity Billing System**” which is being submitted here with has been developed and completed by us is our original work and has not previously been submitted to any university or examining body for the award of any degree .

We have referred the websites given in the bibliography during the development of the project and have not copied any of written material or its part there of . This project is purely our own and on our merits.

**Place:** Jaysingpur

**Date :**

**Mr.Sarthak Sambhaji Salve**

**Mr.Adiya Ramesh Patil**

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# **1.INTRODUCTION**

1. Electricity Billing System is a software-based application.
- 2 .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.
- 3.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.
- 4.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.
- 5.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.

## **1.1 EXISTING 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.

## **1.2NEED AND SCOPE OF COMPUTER SYSTEM**

Main aim of developing Electricity Billing System is not just to provide an easy way to all functionalities involved in Electricity Management, but also to provide full functional reports to manage the Company with details like customer details, meter info, billing and payment status, and customer visit details on one click.

- A. 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.
- B. To 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.
- C. 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.



## **2PROPOSED 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.

### **2.1OBJECTIVES**

- A. To keep the information of Customer.
- B. To keep the information of consuming unit energy of current month.
- C. To keep the information of consuming unit energy of previous month.
- D. To calculate the units consumed every month regularly.
- E. To generate the bills adding penalty and rent.
- F. To save the time by implementing payment process online.

## **2.2REQUIRMENT GATHERING-**

### **Information Gathering:**

**\*Admin details:** The information of person who will use this system is required like their name, username, password, security question and answer.

**\*Customer details:** To Pay a bill for a customer, we need customer information like name, phone number, address, email etc.

## **2.3SPECIFIC REQUIRMENT GATHERING-**

### **Introduction-**

The SRS is produced at the columniation of the analysis task the function and performances allocate to software as part of the system engineering and refine by establishing a complete information descript a detailed functional description reprehensive of system behavior , indignation of performance requirement and design constraints appropriate validation criteria and the other information related to requirements .

### **1External interface Requirment -**

- The system takes
- Input from keyboard and files in the memory.
- The system generates printable output on the screen and peripherals.The system uses MySQL database to communicate with database

## **2.User interface-**

- The software provides good graphical interface for the admin. Specific administrator can operate the system by performing the required tasks such as create ,update ,view the details of the customer, packages, hotels.
- Allows admin to view reports like customer, package, hotel information and bookings made in between particular month or day.
- Able to generate reports based on the different criteria.

## **3.Hardware Interface –**

- a. Hard disk : 1TB
- b. RAM : 4.00 GB
- c. Processor : Intel(Core i5 7<sup>th</sup> gen)
- d. System type : 64 bit
- e. Operating System : Windows 10

## **4.Software Interface**

- Front End : Apache NetBeans IDE 12.5
- Back End : MySQL Workbench 8.0 CE

## **5.Communication Interface**

Microsoft Windows

## **6.Functional Requirement**

- Use Cases The use cases describe the procedures and exemptions for each function. The appropriate permissions of each user are listed in Page 13 User Characteristics of this document .

## **7.Item Entry**

In this module we can store the details of Bills, Payments, customers

## **8.Performance Requirement**

The system is required to support multiple terminals simultaneously. The system should handle reasonable number of requests without break or inconsistency.

## **9.Attributes-**

### **Security**

The system is can only be accessed by admin though a verified Page 14 username and password. Admin can change the password only by answering the security question selected while registration.

### **Maintainability**

The document should be easy for the users who execute the system day to day, for the developers who wish to edit or develop further , and for the personnel who is in charge of the maintenance.

### **Portability**

The system should support new versions of the related browsers.The administrative and servers technologies should be standard and supported by most platforms.

### **Usability**

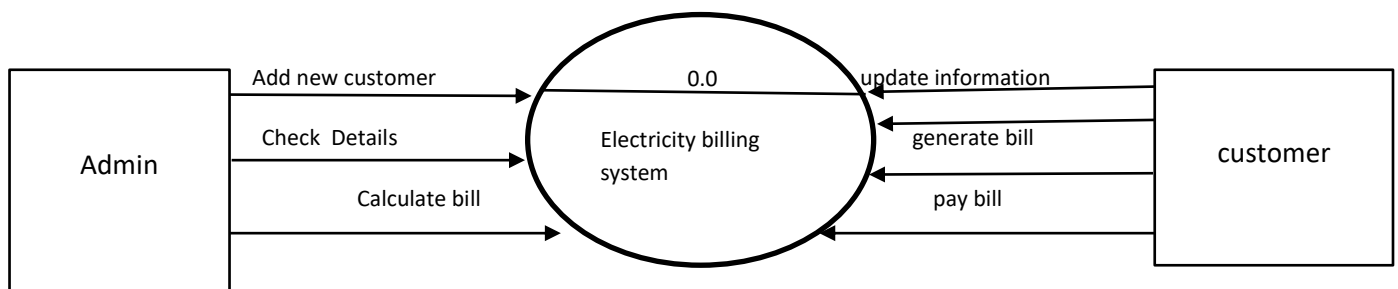
An easy to understand documentation should be provided with the system.



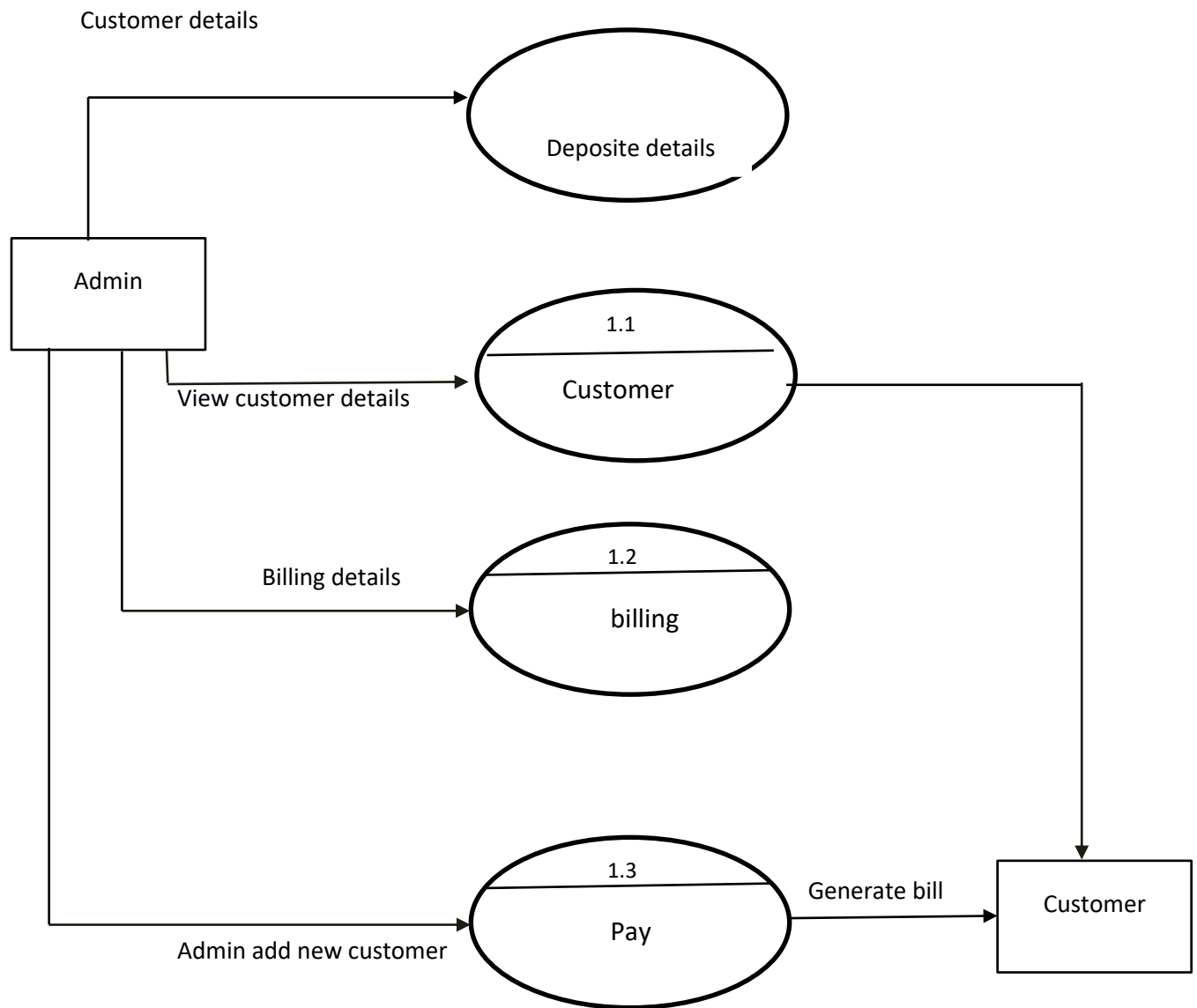
## **3 SYSTEM ANALYSIS**

### 3.1 System design

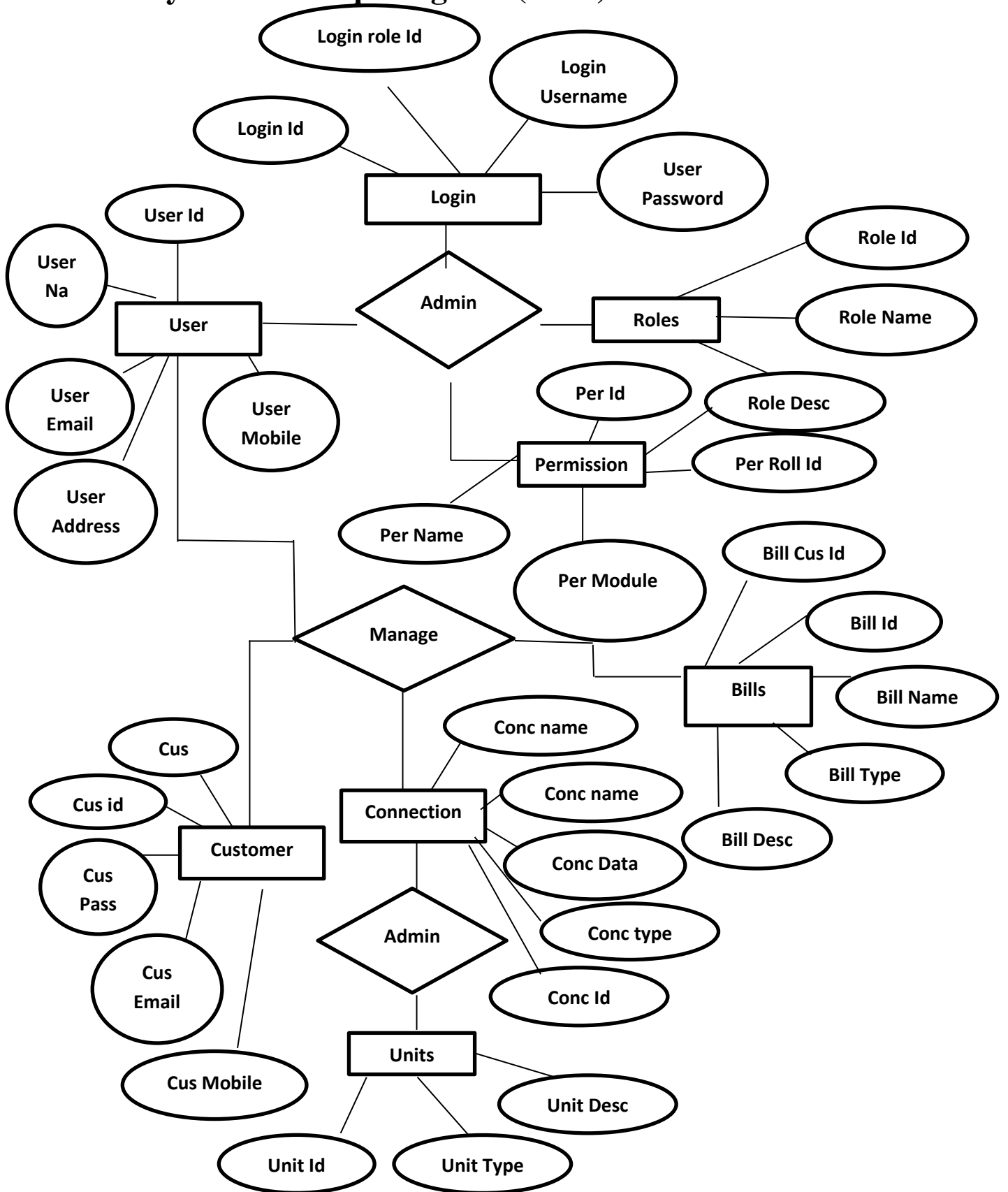
#### 1 Data flow Diagram



## 2.First level DFD



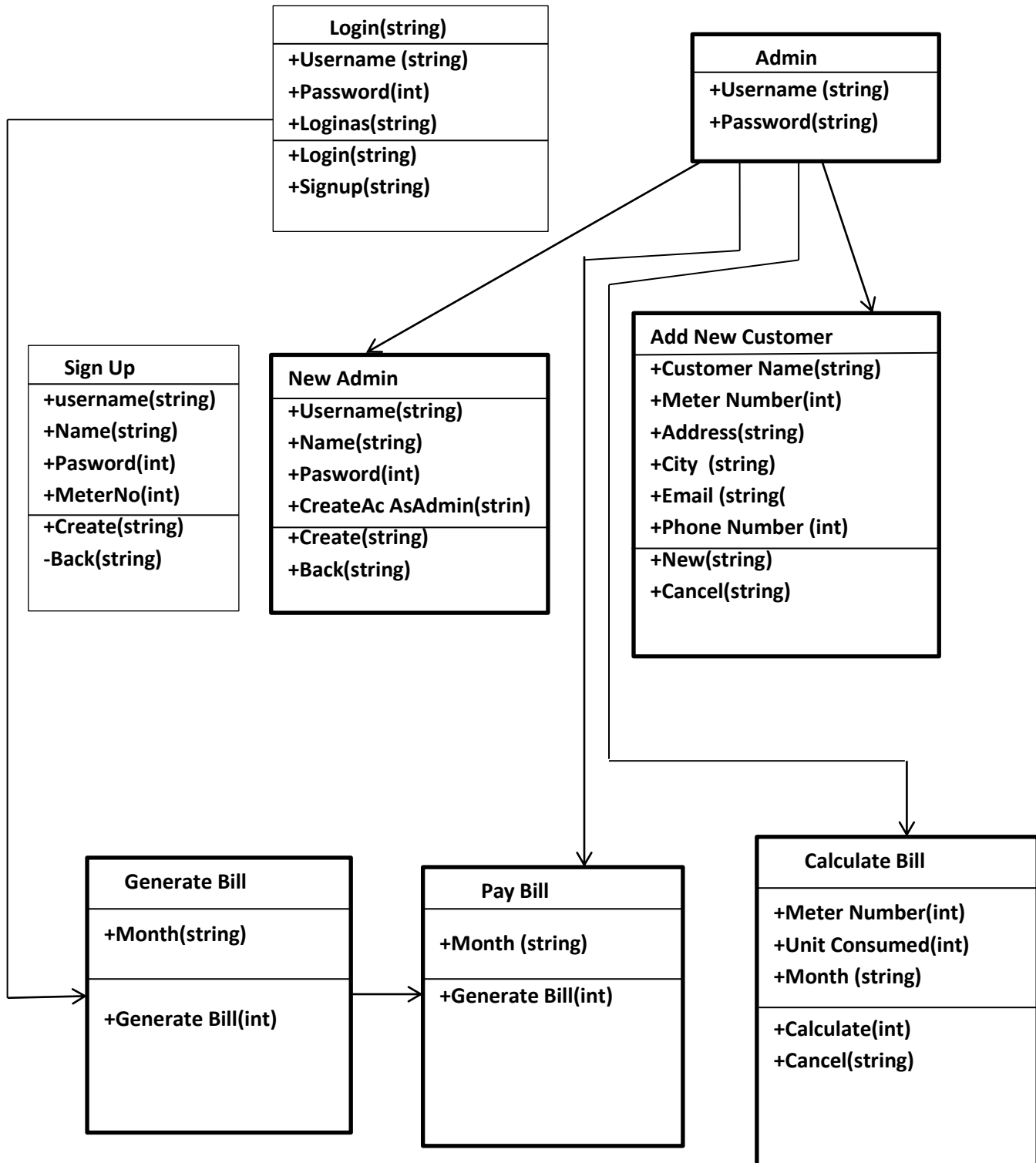
## 2.Entity Relationship Diagram (ERD) :



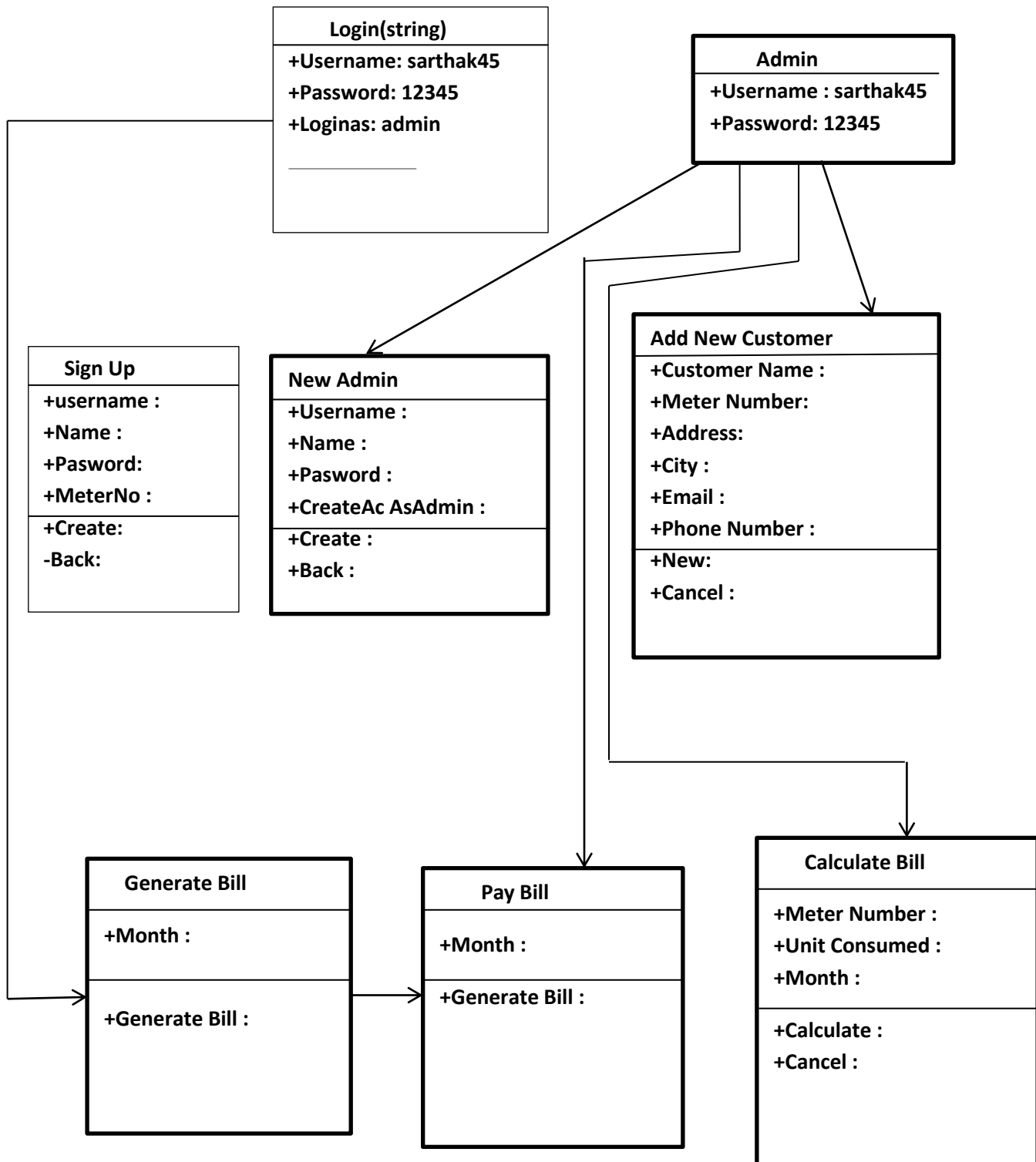


### 3.3UML

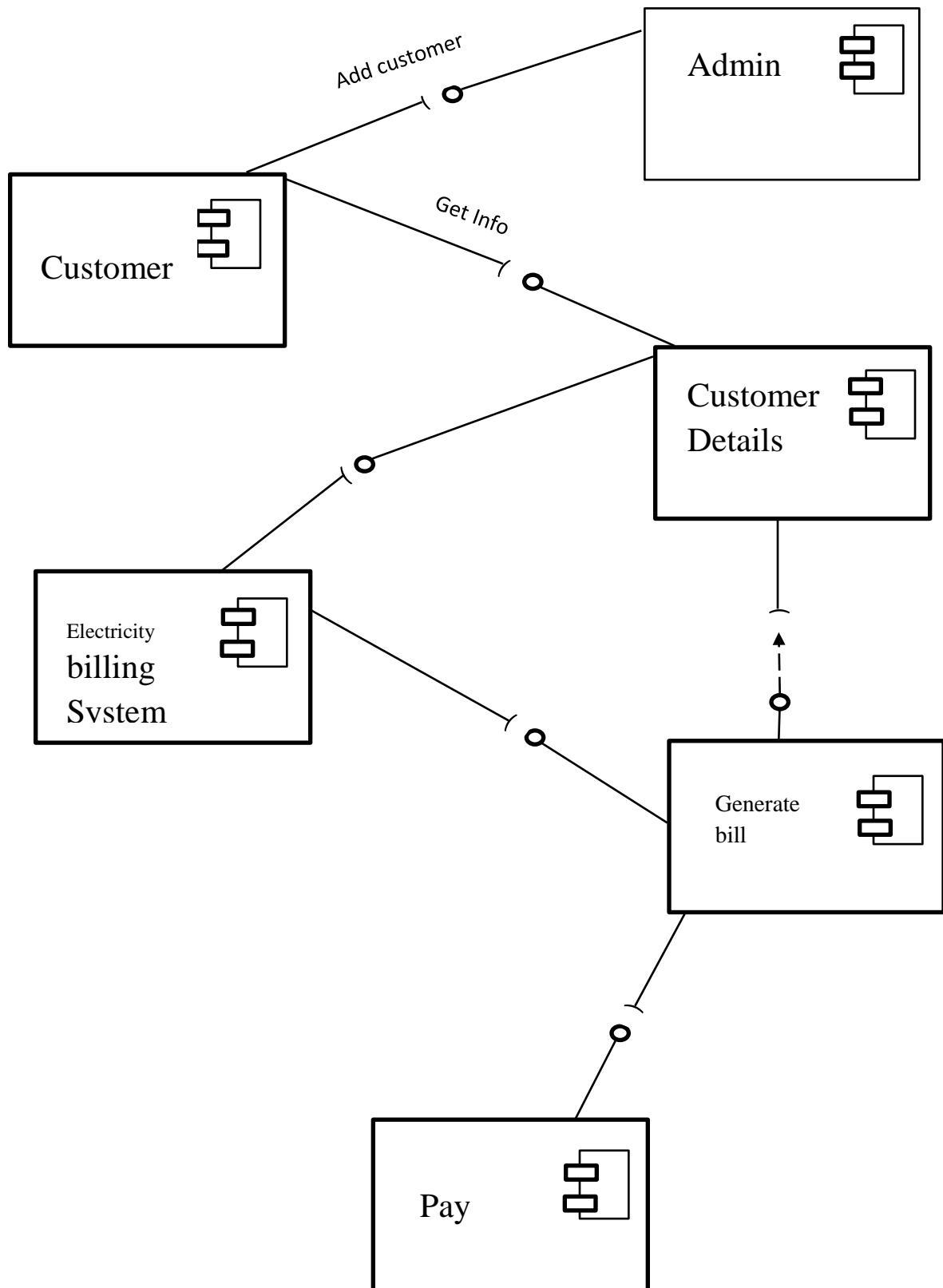
#### A.Class Diagram:



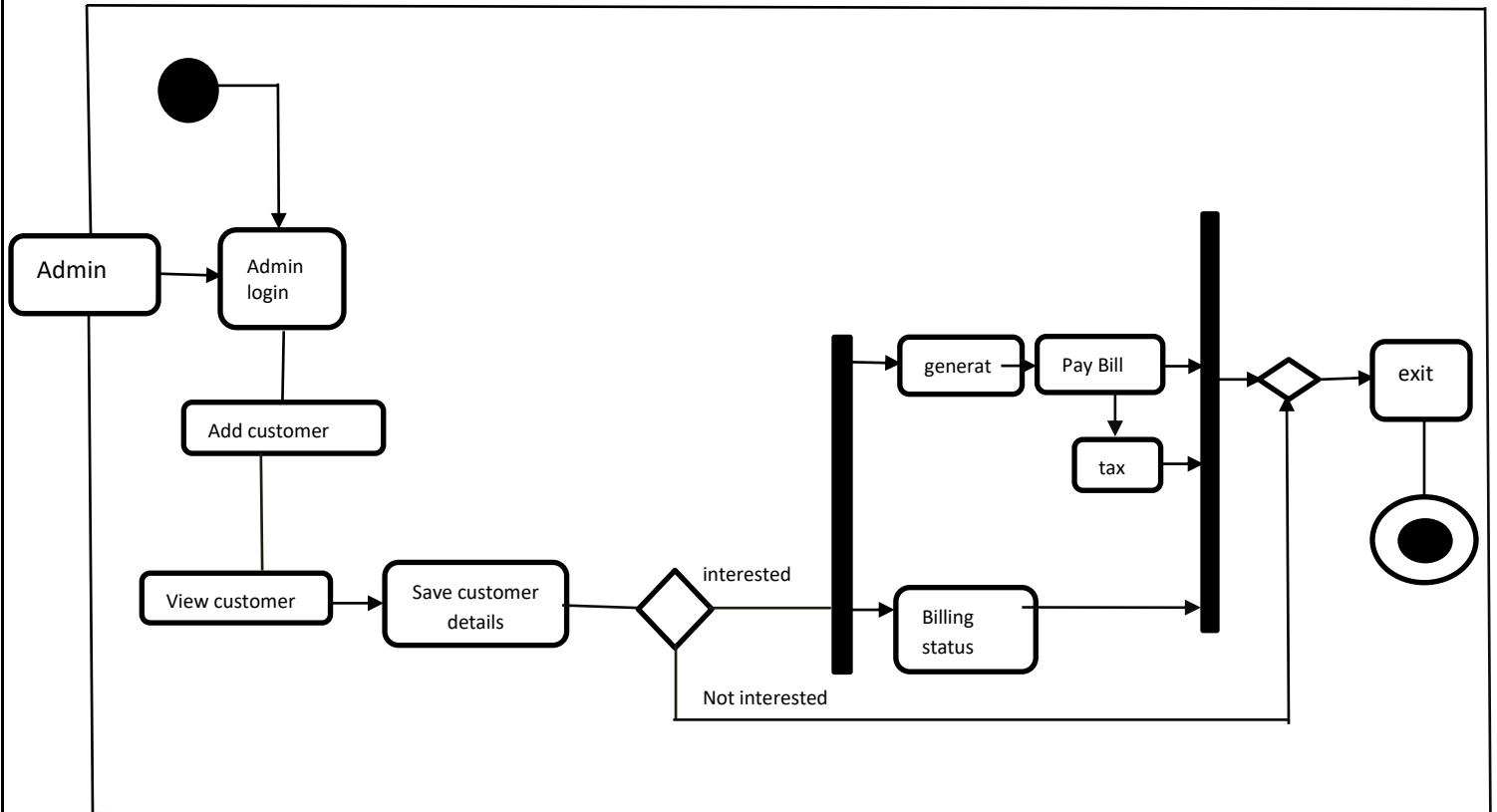
## B. Class Diagram:



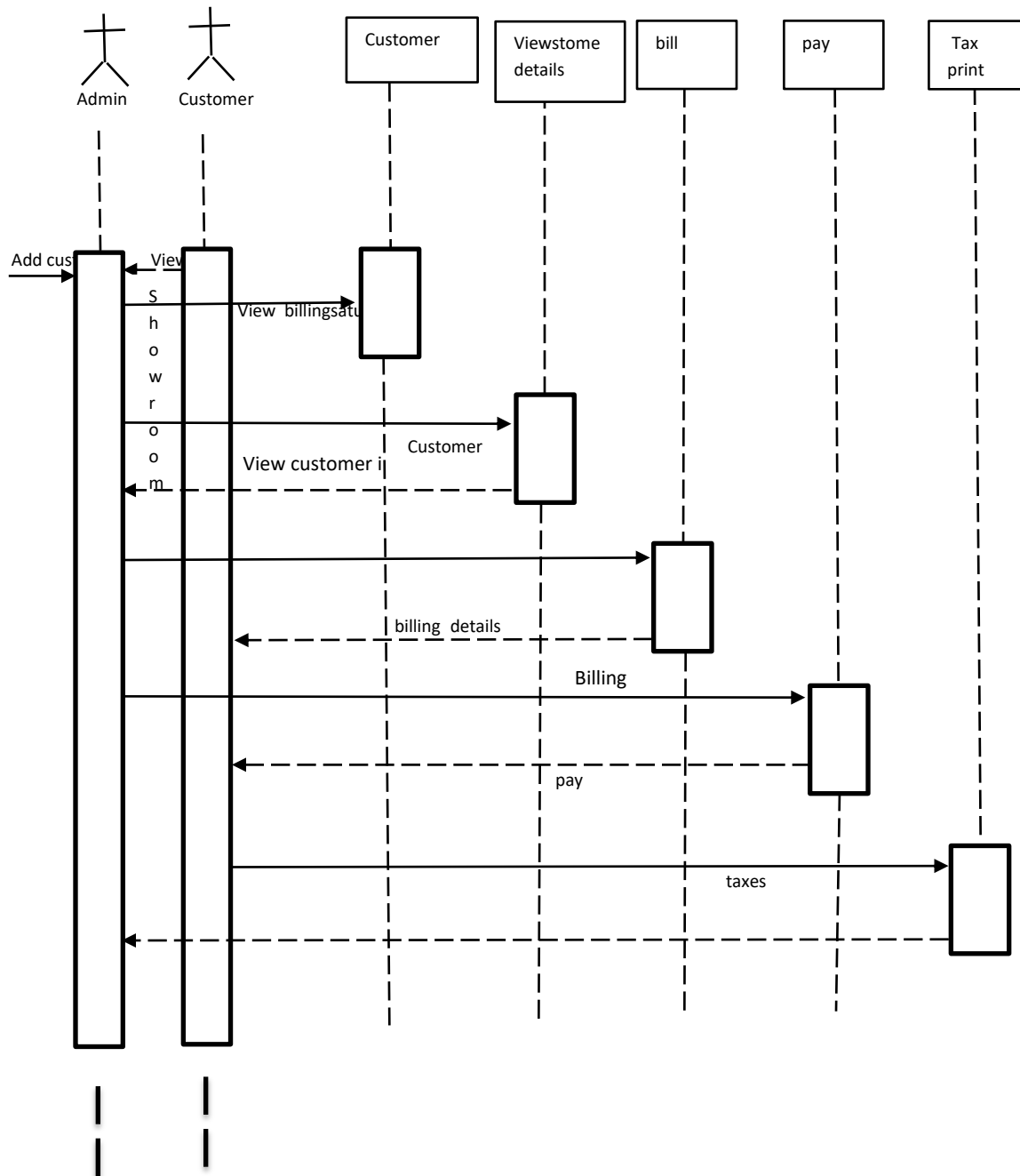
### C. Component Diagram:-



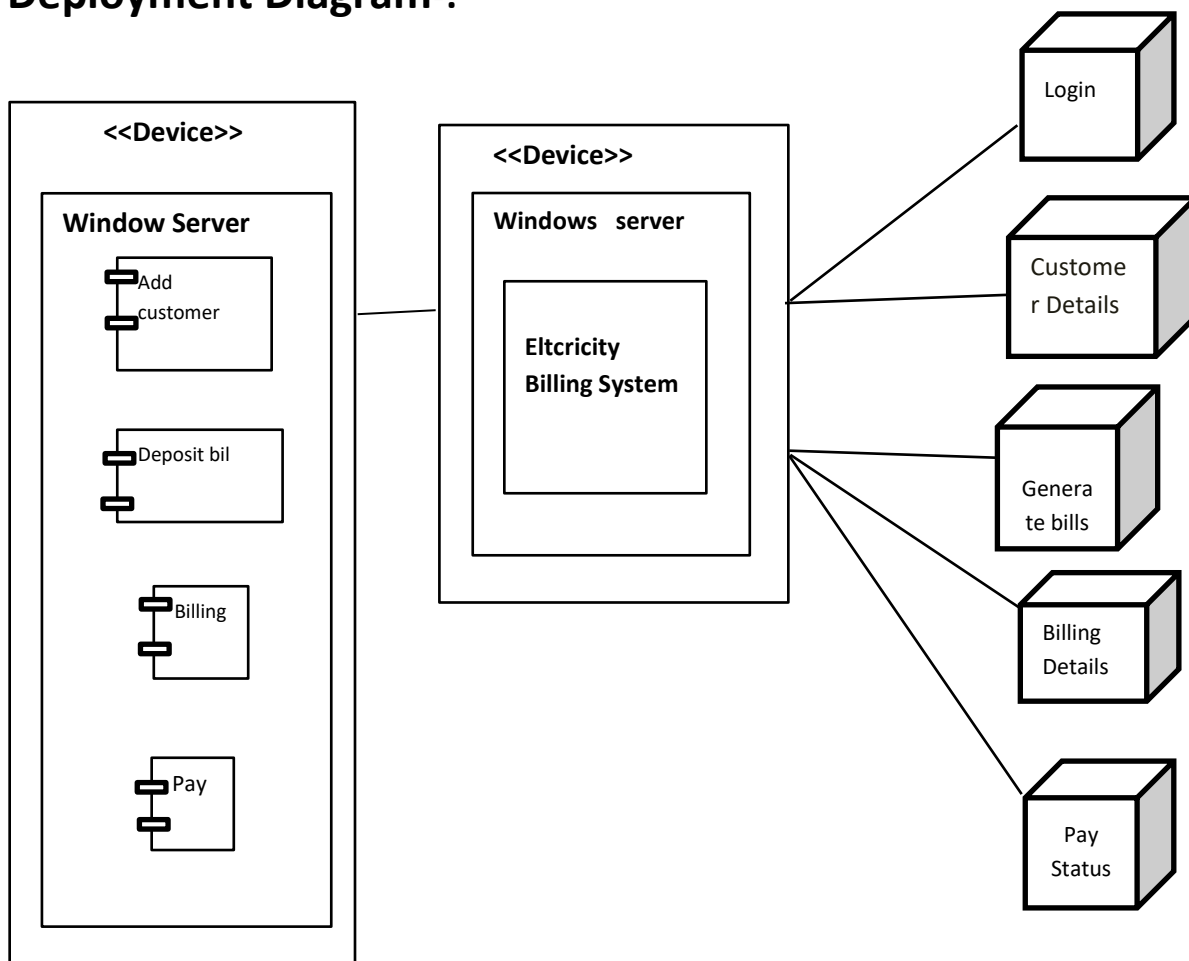
## D. State Diagram:-



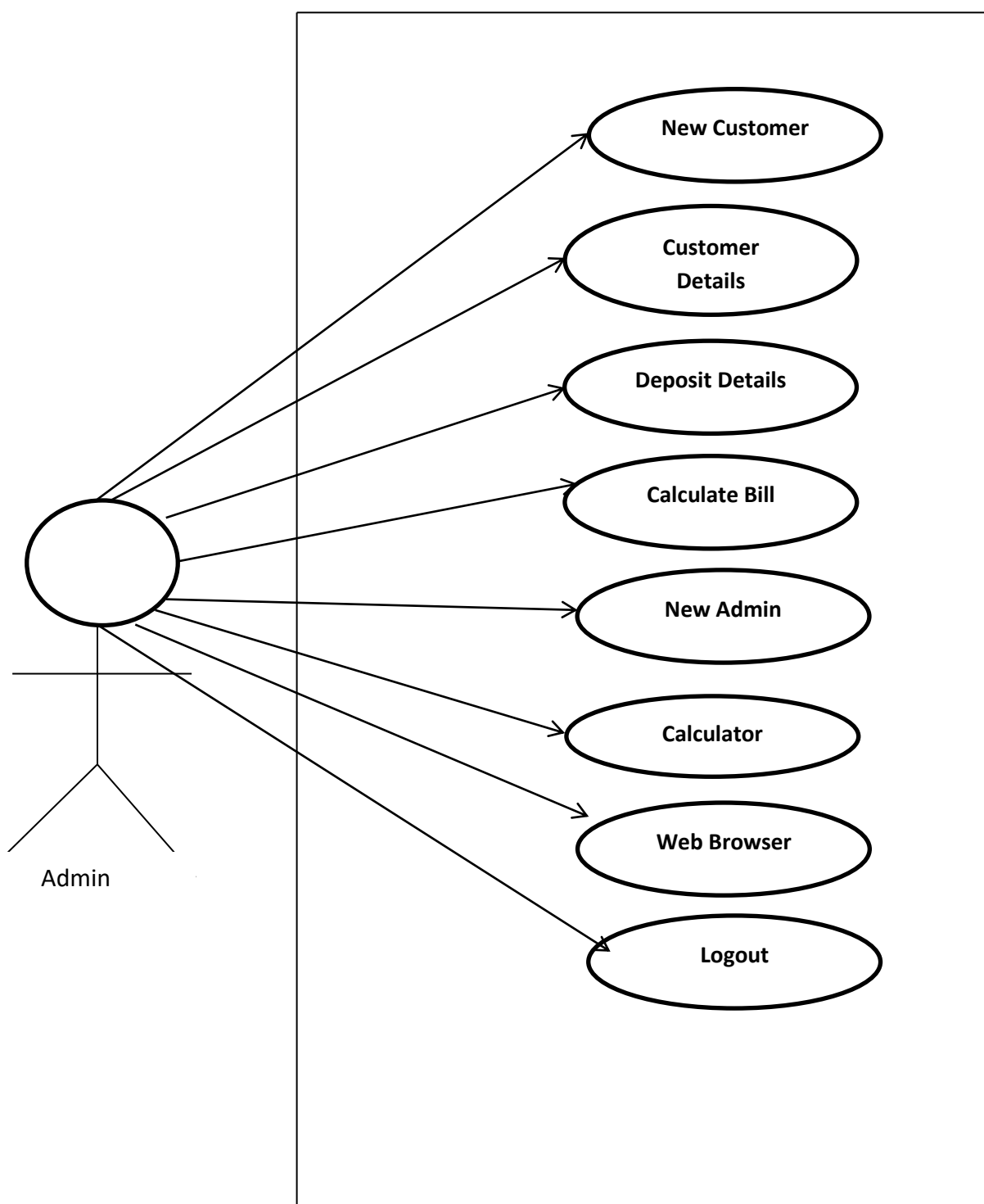
## E .Sequence Diagram:-



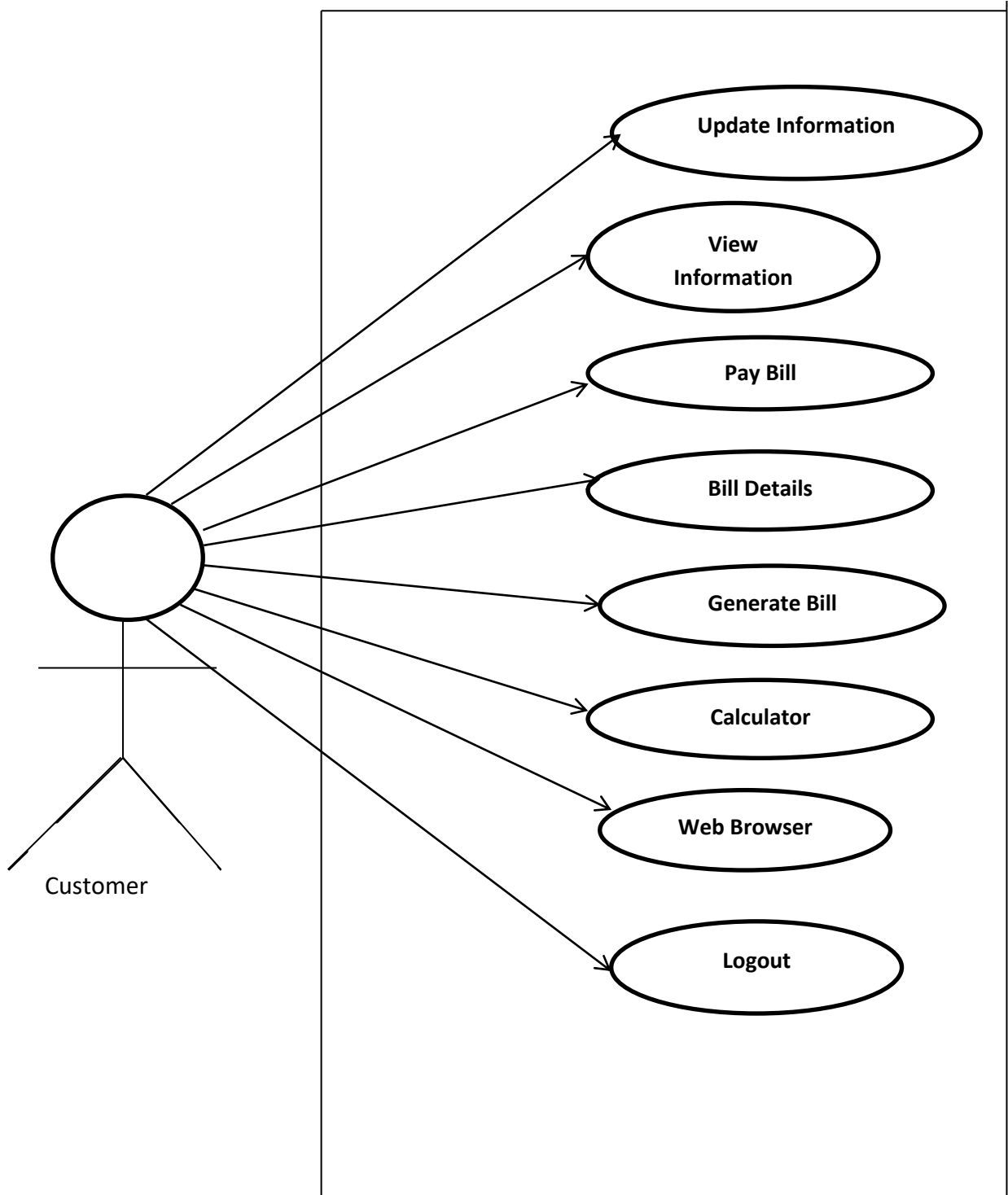
## Deployment Diagram-:



## F . Use Case Diagrams:



## F.a .Use Case Diagrams:







## **4. SYSTEM DESIGN**

## 4.1 DATABASE DESIGN :-

### 1) Table : Login

**Description:** It is maintain login details.

Filled Name	Data Type	Constraint	Decription
meter_No	Varchar(20)	Not null	Describes meter no
username	Varchar(30)	Not null	Describes username
name	Varchar(30)	Not null	Describes name
password	Varchar(20)	Not null	Describe password
user	Varchar(20)	Not null	Describe which type of user login

### 2) Table : Customer

**Description:** It is maintain Customer details.

Filled Name	Data Type	Constraint	Decription
name	Varchar(20)	Not null	Describes name
meter_No	Varchar(20)	Not null	Describes meter no
address	Varchar(50)	Not null	Describes address
city	Varchar(30)	Not null	Describes city
state	Varchar(30)	Not null	Describes state
email	Varchar(40)	Not null	Describes email
phone	Varchar(20)	Not null	Describes phone

### 3) Table : Meter info

**Description:** It is maintain meter information.

Filled Name	Data Type	Constraint	Decription
meter_no	Varchar(20)	Not null	Describes meter no
meter_location	Varchar(20)	Not null	Describes meter location
Meter_type	Varchar(20)	Not null	Describes meter type
Phase_code	Varchar(20)	Not null	Describes phase code
Bill_type	Varchar(20)	Not null	Describes bill type
days	Varchar(20)	Not null	Describes days

### 4) Table: Bill

**Description:** It is maintain all billing data.

Filled Name	Data Type	Constraint	Decription
meter_no	Varchar(20)	Not null	Describes meter no
month	Varchar(30)	Not null	Describes month
units	Varchar(20)	Not null	Describes units
totalbill	Varchar(20)	Not null	Describes tptalbill
status	Varchar(20)	Not null	Describes status bill paid or not

## 5) Table: Tax

**Description:** It is maintain Tax information.

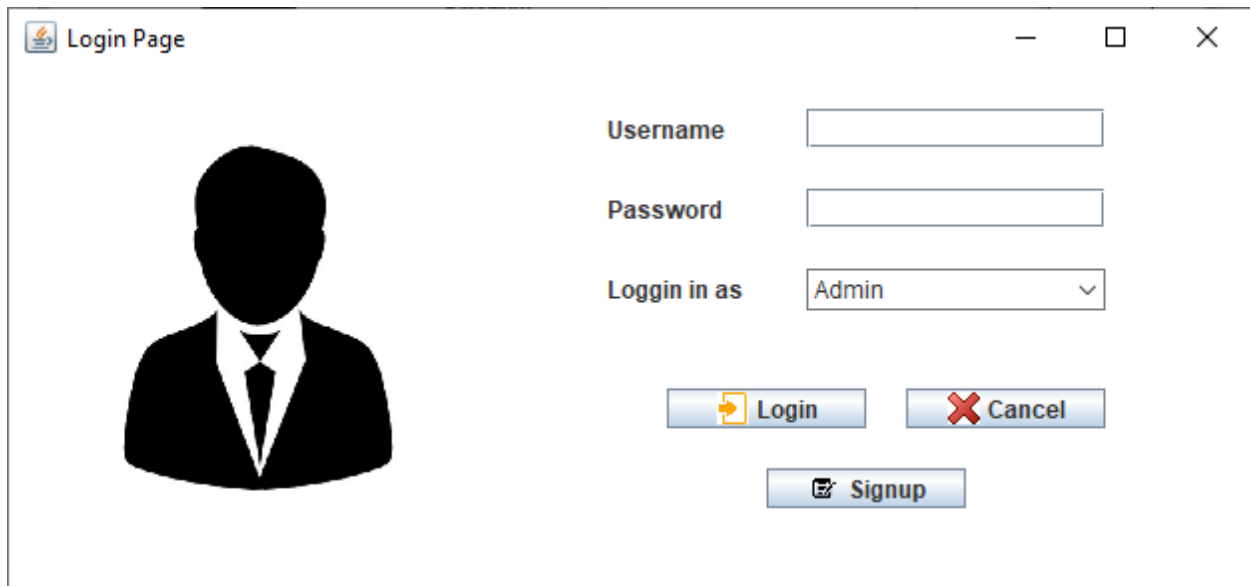
Filled Name	Data Type	Constraint	Decription
cost_per_unit	Varchar(20)	Not null	Describes cost_per_unit
meter_rent	Varchar(20)	Not null	Describes meter_rent
service_charge	Varchar(20)	Not null	Describes service_charge
service_tax	Varchar(20)	Not null	Describes service_tax
swtcch_bharat_cess	Varchar(20)	Not null	Describes swtcch_nharat_cess
fixed_tax	Varchar(20)	Not null	Describes fixed_tax

## **4.2 INPUT DESIGN :**

### **1) Splash page of Electricity Billing System:**

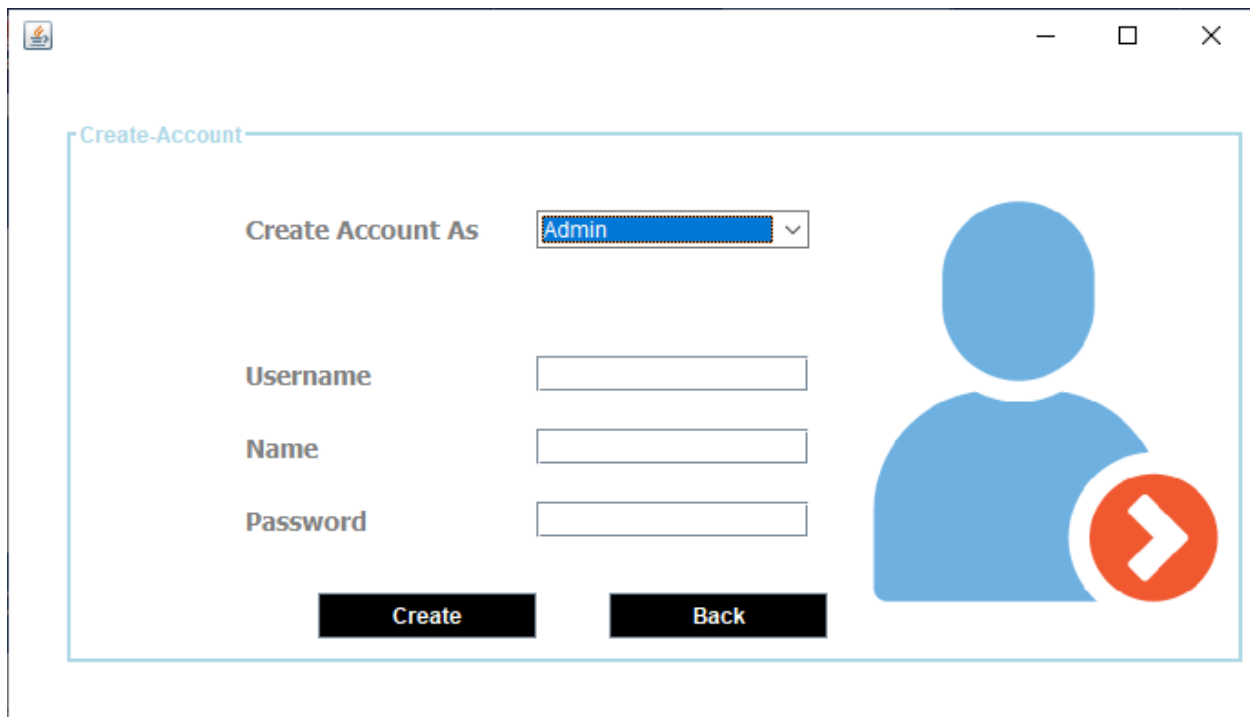


## 2) Login Form:



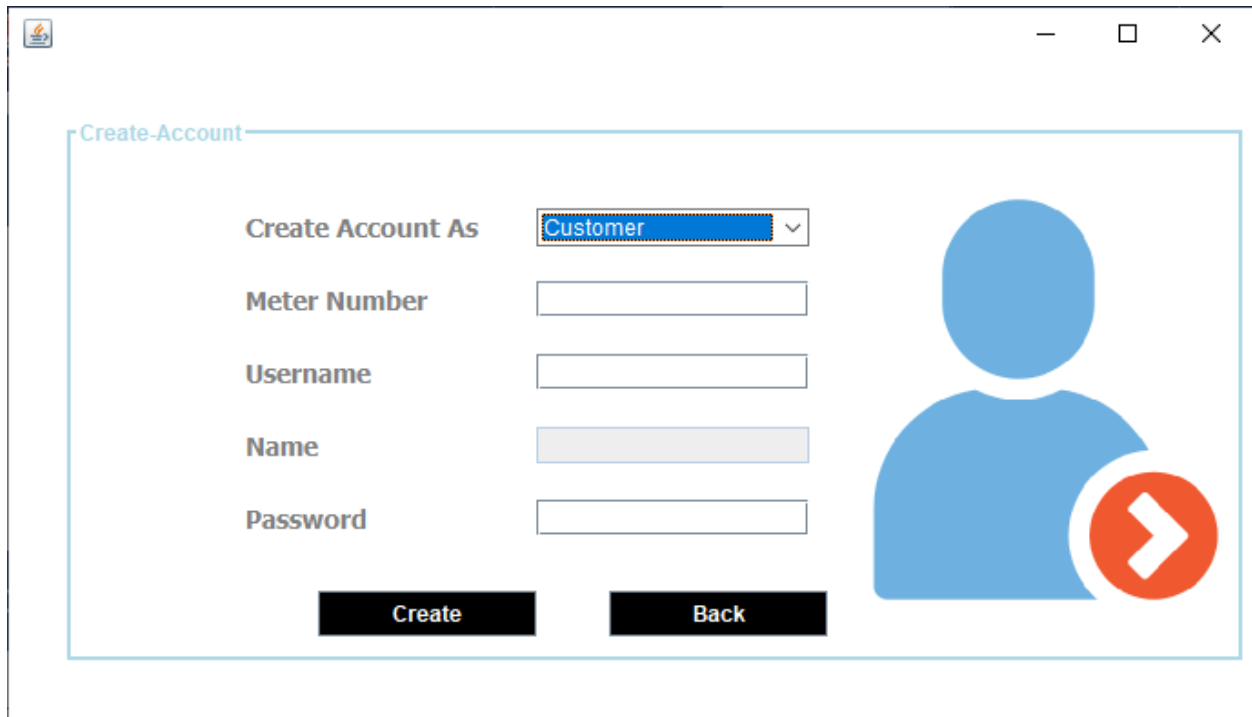
The Login Page window features a title bar with a standard icon, the text "Login Page", and window control buttons (minimize, maximize, close). On the left, there is a silhouette of a person in a suit. To the right, the form includes three input fields: "Username", "Password", and "Login in as" (a dropdown menu currently showing "Admin"). Below these fields are three buttons: "Login" (with a right arrow icon), "Cancel" (with a red X icon), and "Signup" (with a document icon).

## 3) Signup Form: Admin



The Create-Account window has a title bar with a standard icon and window control buttons. The main content area is titled "Create-Account" and contains a form for creating an account. The form includes a dropdown menu labeled "Create Account As" (currently showing "Admin"), and three input fields for "Username", "Name", and "Password". At the bottom of the form are two buttons: "Create" and "Back". To the right of the form is a large blue silhouette of a person with a red circular arrow icon overlaid on it.

#### 4) Sign in Form: Customer



The screenshot shows a web application window titled "Create Account". Inside the window, there is a form with the following fields and controls:

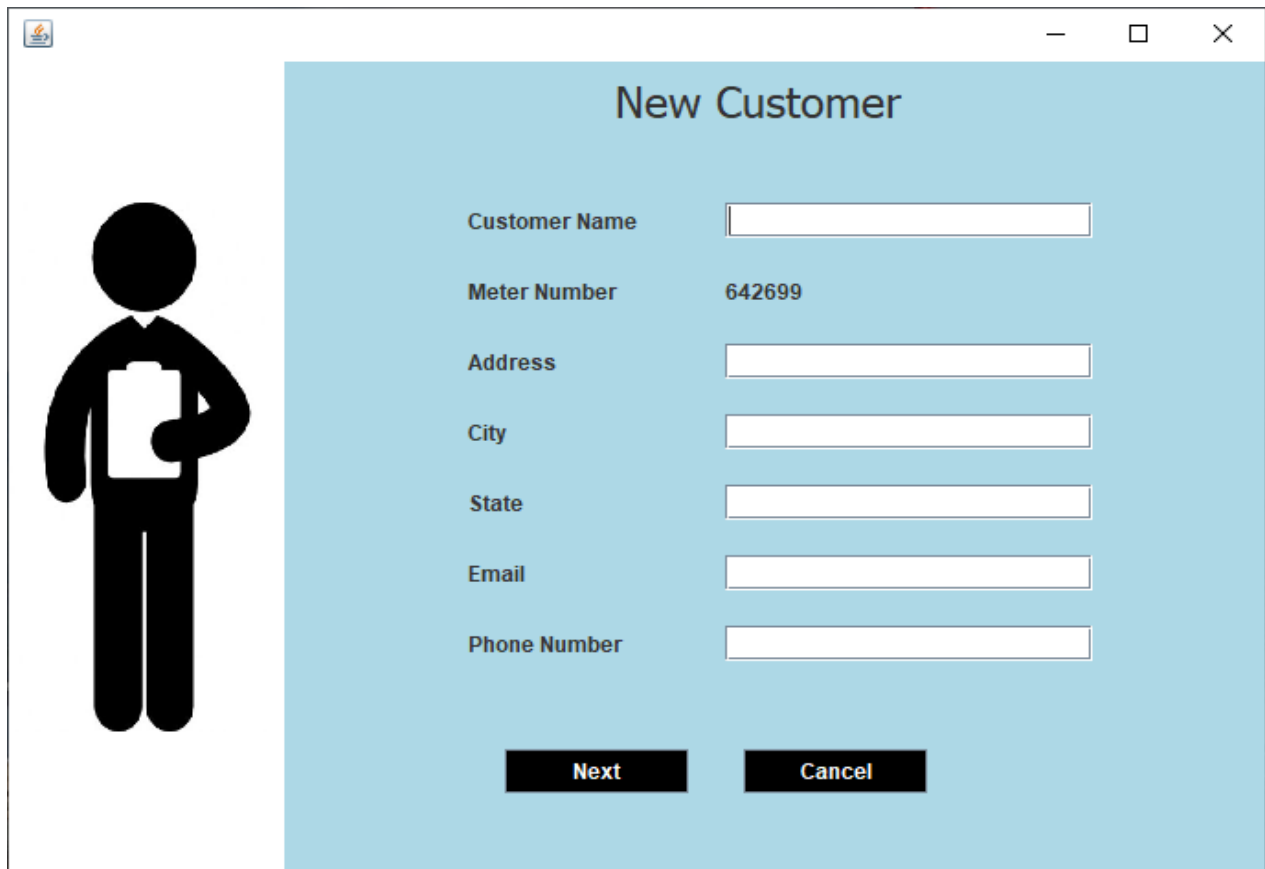
- Create Account As:** A dropdown menu with "Customer" selected.
- Meter Number:** A text input field.
- Username:** A text input field.
- Name:** A text input field.
- Password:** A text input field.
- Create:** A black button with white text.
- Back:** A black button with white text.

To the right of the form is a large blue icon of a person's head and shoulders, with a red circular arrow pointing to the right overlaid on it.

#### 5) Admin Home Form:



## 6)New Customer Form:




The image shows a software window titled "New Customer" with a light blue background. On the left side of the window is a black silhouette of a person holding a clipboard. The main area contains a form with the following fields:

Field Label	Value / Input
Customer Name	<input type="text"/>
Meter Number	642699
Address	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Email	<input type="text"/>
Phone Number	<input type="text"/>

At the bottom of the form are two buttons: "Next" and "Cancel".



## 7) Meter Info Page:



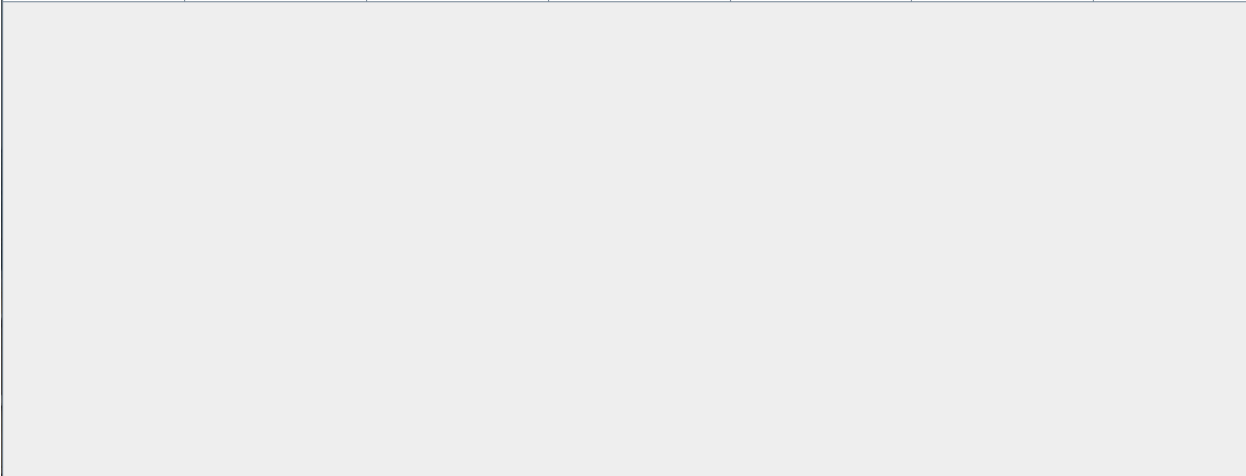
### Meter Information

Meter Number	642699
Meter Location	<input type="text" value="Outside"/>
Meter Type	<input type="text" value="Electric Meter"/>
Phase Code	<input type="text" value="011"/>
Bill Type	<input type="text" value="Normal"/>
Days	30 Days
Note	By Default Bill is calculated for 30 days only

Submit

## 8) Customer Details Form:


name	meter_no	address	city	state	email	phone
ujef	43913	kothali	jsp	mh	uj@gmail.com	1234567890
sanket	246672	aa	ss	pp	sanks45@gmail	9689809977
Rohit	84034	Aalte	Halkalgale	MH	rohit@gmail.com	7765849946
tejas	868937	akirwad	jdp	mh	Tehjas@Gmail.com	384578923
	642699					



h

Windows taskbar: File Explorer, Edge, Mail, Calendar, Photos, Settings, Task View, Start Menu, Search, System Tray (Network, Volume, Power, Date/Time: ENG 8:51 AM IN 5/12/2023, Notifications: 13)

## 9) Calculate Electricity Bill:



### Calculate Electricity Bill

**Meter Number**

**Name**

**Address**

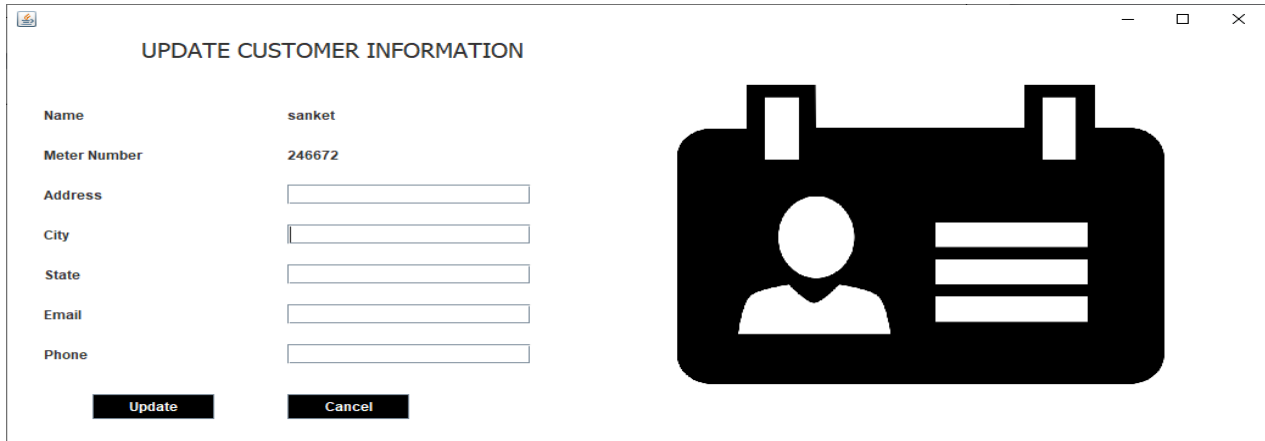
**Units Consumed**

**Month**

## 10) Customer Home Page:




## 11) Update Customer Details form:



UPDATE CUSTOMER INFORMATION

Name	sanket
Meter Number	246672
Address	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Email	<input type="text"/>
Phone	<input type="text"/>

## 12) View Customer Information Form:

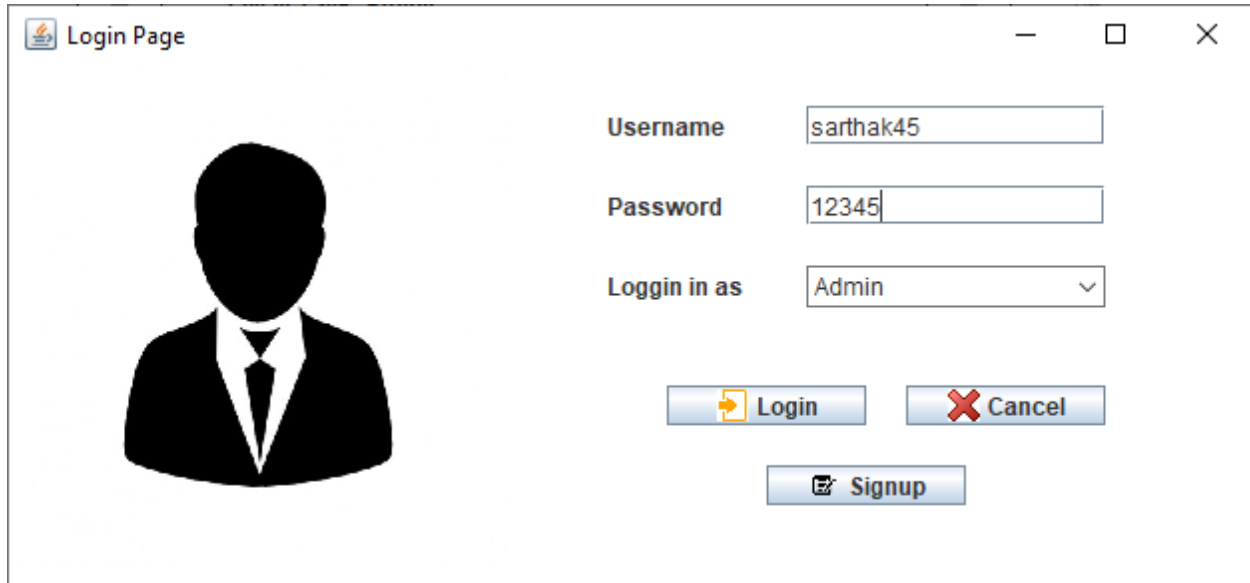


VIEW CUSTOMER INFORMATION

Name	sanket	State	pp
Meter Number	246672	Email	sanks45@gmail
Address	aa	Phone	9689809977
City	ss		

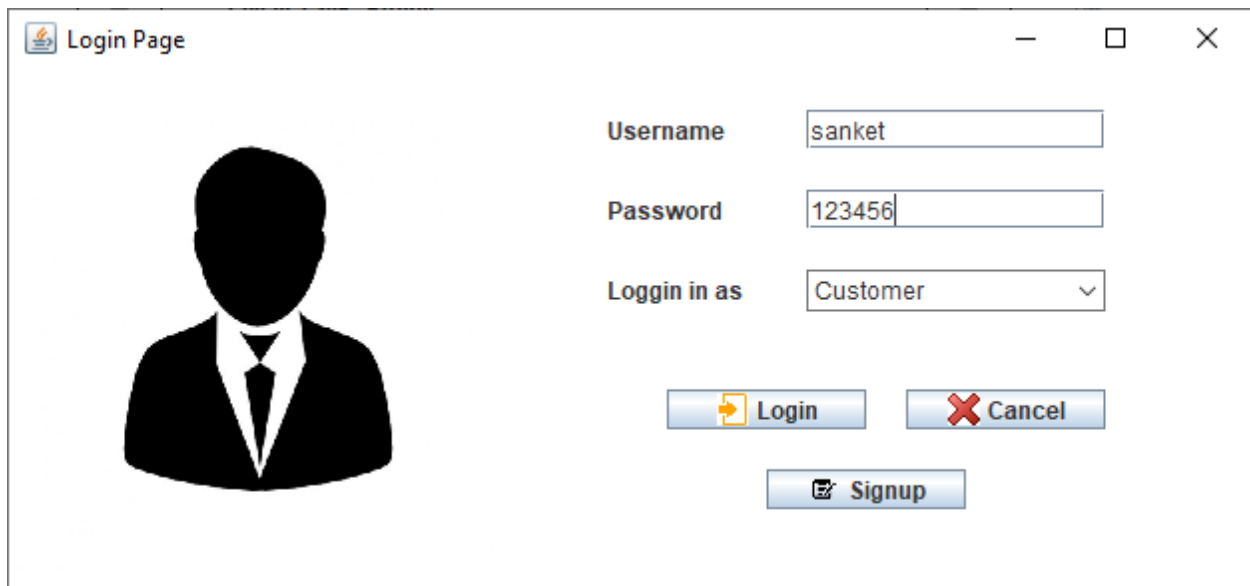
## 4.3 OUTPUT DESIGN :

### 1) Successful Login: Admin



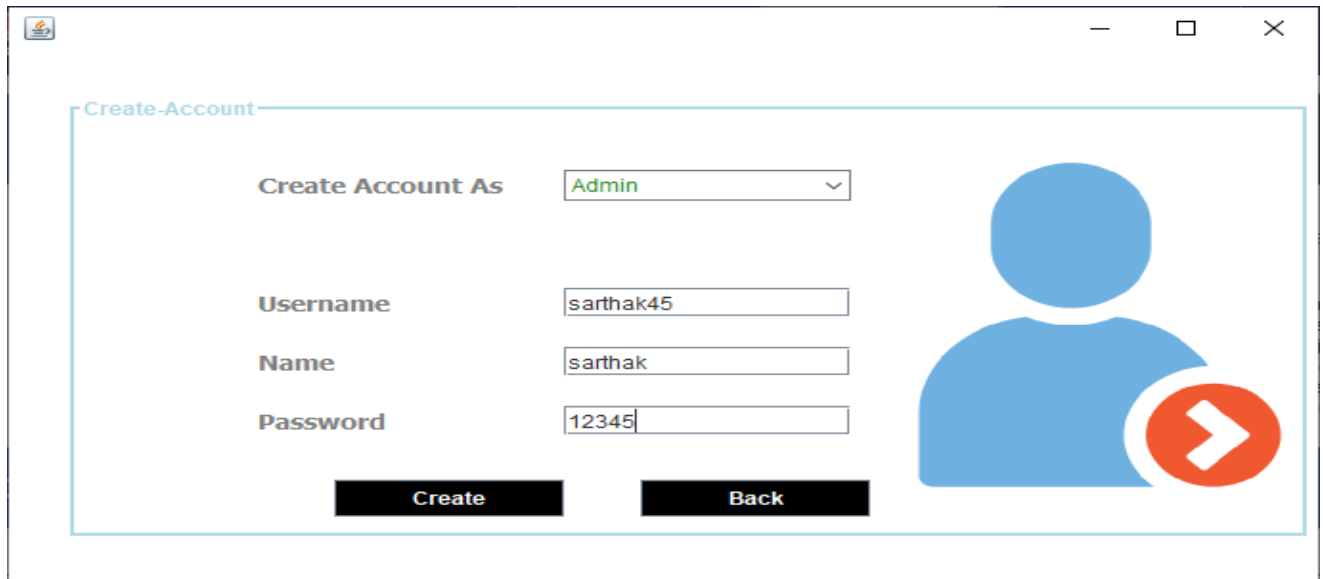
The screenshot shows a window titled "Login Page" with a standard Windows-style title bar (minimize, maximize, close buttons). On the left side of the window is a black silhouette of a person in a suit and tie. To the right of the silhouette are three input fields: "Username" containing "sarthak45", "Password" containing "12345", and "Login in as" with a dropdown menu currently showing "Admin". Below these fields are three buttons: a "Login" button with a yellow arrow icon, a "Cancel" button with a red X icon, and a "Signup" button with a document icon.

### 2) Successful Login: customer



The screenshot shows a window titled "Login Page" with a standard Windows-style title bar (minimize, maximize, close buttons). On the left side of the window is a black silhouette of a person in a suit and tie. To the right of the silhouette are three input fields: "Username" containing "sanket", "Password" containing "123456", and "Login in as" with a dropdown menu currently showing "Customer". Below these fields are three buttons: a "Login" button with a yellow arrow icon, a "Cancel" button with a red X icon, and a "Signup" button with a document icon.

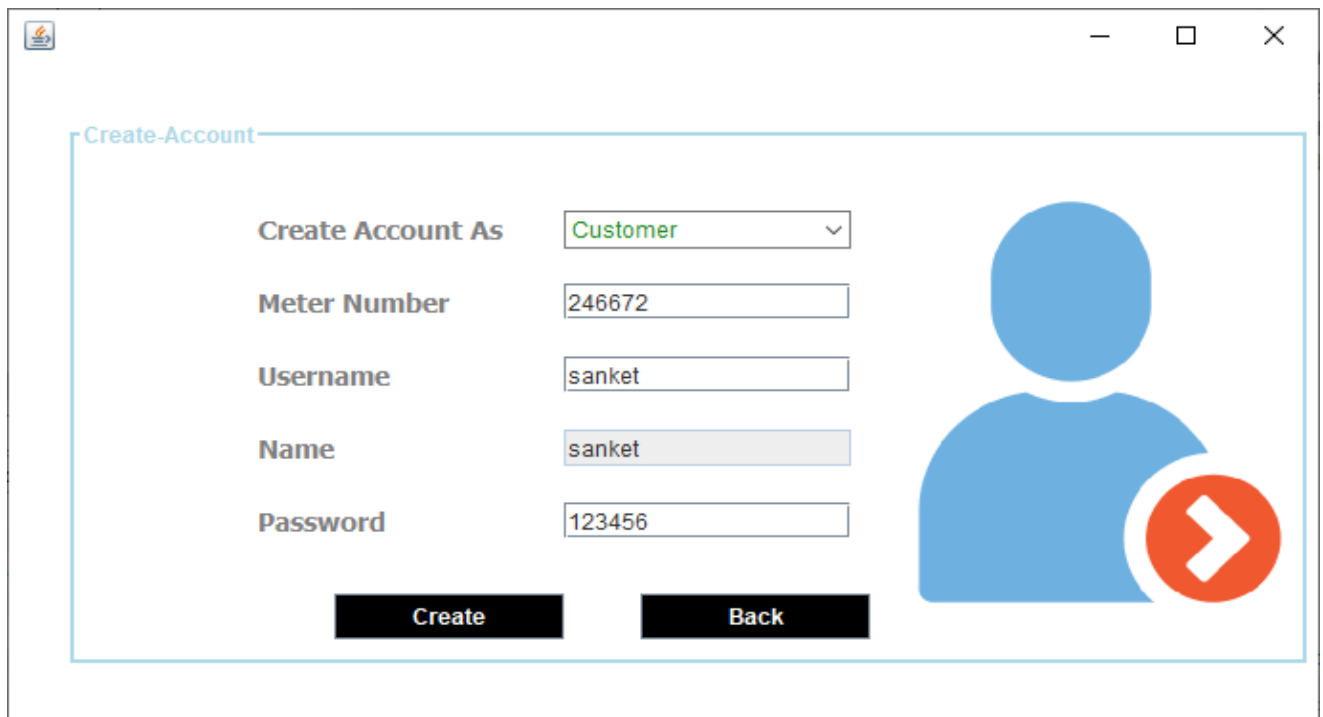
### 3) Sign up form: Admin



A screenshot of a web application window titled "Create-Account". The form is for creating an Admin account. It includes a dropdown menu for "Create Account As" set to "Admin", and text input fields for "Username" (sarthak45), "Name" (sarthak), and "Password" (12345). To the right of the form is a blue user icon with a red circular arrow. At the bottom are "Create" and "Back" buttons.

Field	Value
Create Account As	Admin
Username	sarthak45
Name	sarthak
Password	12345

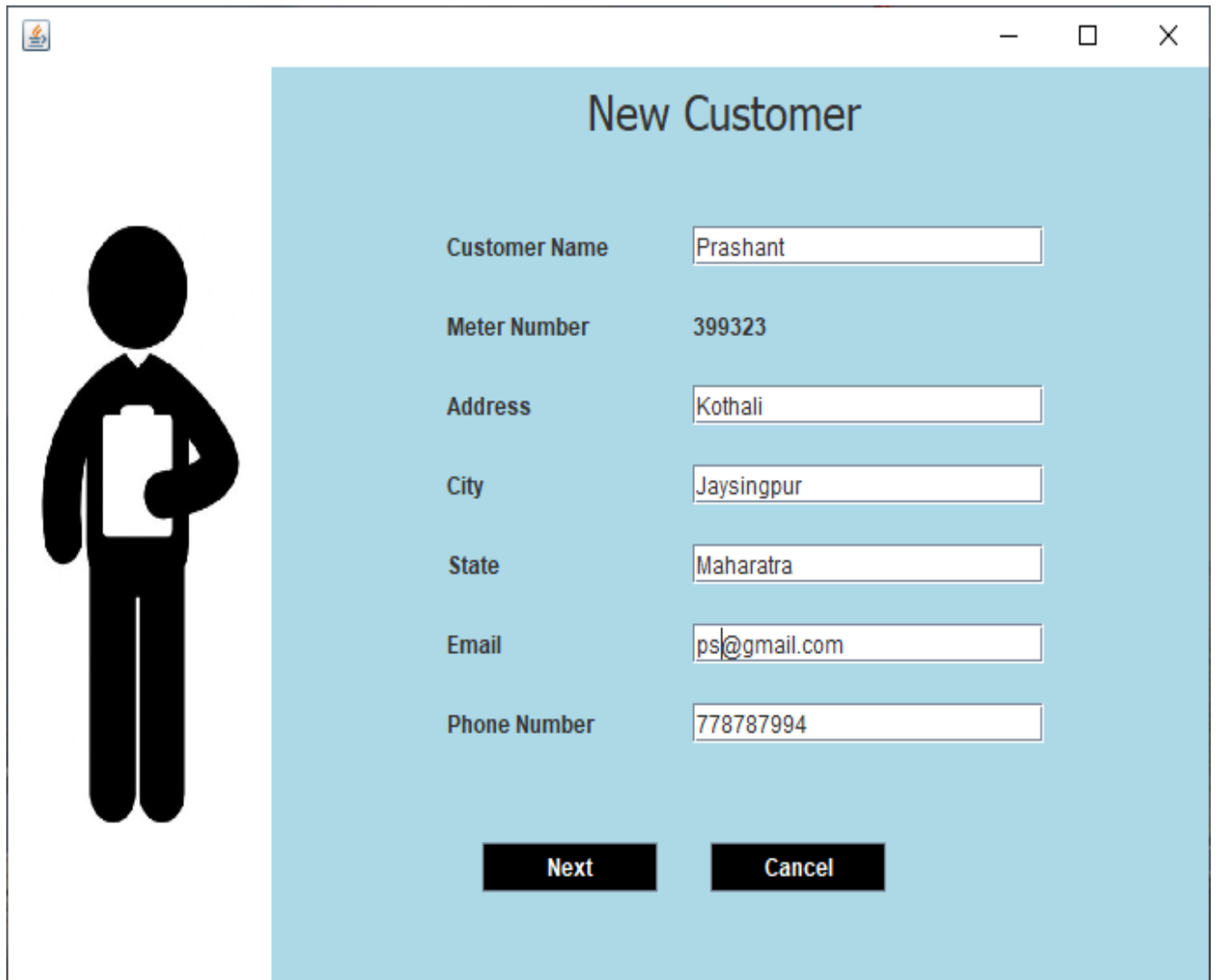
### 4) Sign up page: Customer



A screenshot of a web application window titled "Create-Account". The form is for creating a Customer account. It includes a dropdown menu for "Create Account As" set to "Customer", and text input fields for "Meter Number" (246672), "Username" (sanket), "Name" (sanket), and "Password" (123456). To the right of the form is a blue user icon with a red circular arrow. At the bottom are "Create" and "Back" buttons.

Field	Value
Create Account As	Customer
Meter Number	246672
Username	sanket
Name	sanket
Password	123456

## 5) Add New Customer Page:




The image shows a software window titled "New Customer" with a light blue background. On the left side of the window is a black silhouette of a person holding a clipboard. The main area contains a form with the following fields and values:

Field	Value
Customer Name	Prashant
Meter Number	399323
Address	Kothali
City	Jaysingpur
State	Maharatra
Email	ps@gmail.com
Phone Number	778787994

At the bottom of the form are two buttons: "Next" and "Cancel".

## 6) Calculate Electricity Bill



### Calculate Electricity Bill

Meter Number

Name

Address

Units Consumed

Month

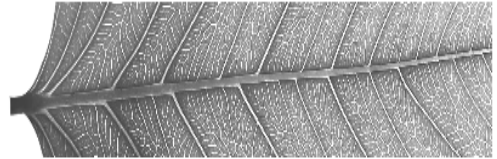
:



## 7) All information About Customer in the form of Report:

### Electricity Billing System

#### Customer Details Form

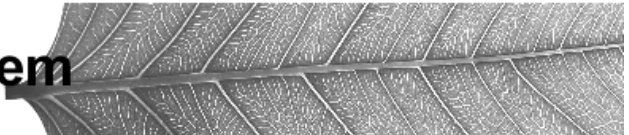


name	meter_no	address	city	state	email	phone
ujef	43913	kothali	jsp	mh	uj@gmail.com	1234567890
sanket	246672	aa	ss	pp	sanks45@gm	9689809977
Rohit	84034	Aalte	Hatkalgale	MH	rohit@gmail.	7765849946
tejas	868937	akinwad	jdp	mh	Tehjas@Gmai	384578923
	642699					

## 8) All Information About meter In the Form of Report:

### Electricity Billing System

#### Meter Information

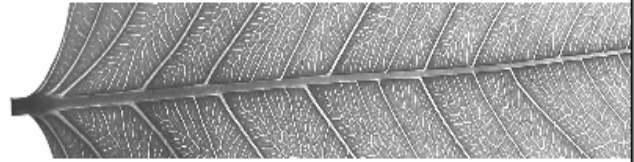


meter_no	meter_location	meter_type	phase_code	bill_type	days
43913	Outside	Electric Meter	011	Normal	30
246672	Outside	Electric Meter	011	Normal	30
84034	Inside	Smart Meter	022	Industial	30
868937	Outside	Electric Meter	022	Normal	30

## 9) All information About billing in the form of Report:

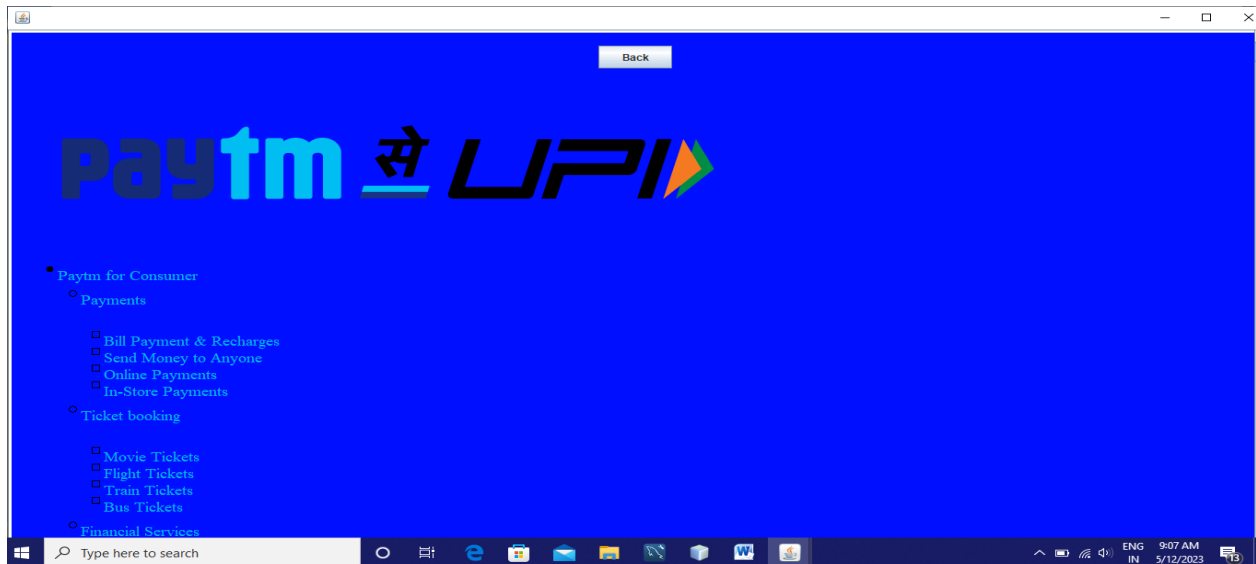
### ***Electricity Billing***

Bill Form



<b>meter_no</b>	<b>month</b>	<b>units</b>	<b>totalbill</b>	<b>status</b>
43913	January	50	600	Not Paid
246672	January	50	600	Paid
84034	March	45	555	Paid
84034	March	45	555	Paid
868937	May	60	690	Paid

## 10) Paytm link:



## 11) Generate Bill Form:

Generate Bill 246672 | May

Reliance Power Limited  
ELECTRICITY BILL GENERATED FOR THE MONTH  
OF May, 2022

Customer Name: sanket  
Meter Number : 246672  
Address : aa  
City : ss  
State : pp  
Email : sarks45@gmail  
Phone : 9689809977

Meter Location: Outside  
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

Generate Bill

## **5 IMPLEMENTATION :**

### **5.1 Hardware Interface**

- Hard disk : 1TB
- RAM : 4.00 GB
- Processor : Intel(R) Core(TM) i3-1035G1
- System type : 64 bit
- Operating System : Windows 10

### **5.2 Software Interface**

- Front End : Apache NetBeans IDE 8.2
- Back End : MySQL in XAMPP 3.3.0

### **5.3 User Guideline:**

When you run the software first there are login window. The Software are for only Admin Use for this reason Username and Password can be provided by developers.

### **5.4 Installation Process -**

In Order to complete the installation of this software you will need the following softwares installed on your system:

- ☐ Microsoft Windows or Microsoft Windows XP , 7 ,10
- ☐ NetBeans IDE framework-8.2
- ☐ MySQL in XAMPP 3.3.0

## **6. 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.

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