NIRMA UNIVERSITY

INSTITUTE OF TECHNOLOGY

Innovative Assignment Report

On

"Electricity billing system"

B. Tech CSE 2022-23

SEMESTER III

2CS302 Object Oriented Programming

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Objectives

This project consists of several objectives as stated below:

    i.   To develop an online system to manage electrical billing for the administrator.

    ii.   To calculate the electrical bill.

    iii.   To generate a report on the power consumption information monthly.

    iv.   To make payment online and show the current transaction details.

Introduction

The Online Electricity Bill management system is provided to all the users who want to keep the bill record and pay their electricity bill. It reduces and removes the following issues to a great extent.

1) The importance of an Electricity Online Bill System cannot be over emphasized because its calculation reflects the exact power consumption for prospective consumers, and in monitoring the billing details of electricity consumers. It provides an environment to maintain the consumer details starting from receiving bill to making bill payments.

2) This system can reduce the pressure of the user to stand in queues for bill payment and charges. This system enables the user to perform all the payment of bills and charges sitting at the comfort of his/her own desk.

3) The online electricity management system can remove the errors regarding late or accidental wrong bill delivery to the customer.

4) Manually maintained files have the possibility of getting worn out, getting misplaced or even destroyed in unforeseen circumstances which can be avoided by this online system.

System modules and functions

This system comprises of the following modules and functions: -

1. <u>Administrative Login</u>: In the administrative login, the administrator has the authority of the system. The administrator can add, delete notifications and update the system. Before that the administrator needs to login to the system with the specified password to have access of the admin rights. The administrator performs the following functions on the system:
    - <u>New Consumers Registration:</u> The Admin will register the consumer by entering the consumer's basic registration details such as: Name, id, Residential Address, meter readings, payment details etc: -
    - <u>Updating details of existing consumers:</u> - The Admin can update the unit readings every month for the consumers who already registered with the system.
    - <u>View Registered Users:</u> The Administrator can also view all the registered users in the system, view all the consumer's record like their unit readings and bill etc: -

2. <u>Bill Generation:</u> This function generates the bill of the consumer. It displays the information of the consumer such as name, id and the units of power consumption and then calculates the total amount of each month according to the electricity price including GST.

3. <u>Payment Record:</u> This function allows the user to check the pending payment of the consumer according to the month.

4. <u>Make Payment:</u> In this function user can clear their pending payments. It asks the consumer the payment amount, and then shows the message whether the payment is successfully done. It doesn't let the user make a payment of more than the pending amount.

5. <u>Meter reading:</u> This function shows the units of electricity consumption of the consumer as recorded on the meter board monthly.

In this Java project, we have used two classes:

1) <u>Generates class:</u> This is the parent class.
- Constructors
  This class contains a non-parameterized constructor and a parameterized constructor which consists of the following parameters: name, id, units, units2, payment and bill.
- Display ()
  It contains the display method which calculates the bill according to the units of power consumed every month. It also generates the bill containing name, id, units of power consumption and the total bill to be paid.
- Payment ()
  It also contains payment method which allows the user to make payment. This method prints the pending payment from the previous months and once the consumer deposits more than the required amount, it generates the appropriate message.
- Meter_reading ()
  Meter_reading is the method which takes month as an input from the consumer and displays the reading of the meter board in terms of units of power consumed.
- Details ()
  This method displays the details of every consumer registered with this system when accessed by an administrator.
- Iunit ()
  Iunit method allows the admin to update the units of power consumed by a consumer already registered with this online electricity billing system for a particular month. It also allows the admin to add new entry for a month.

2) <u>Admin:</u> This is the child class.
- Constructors
  This class contains a non-parameterized constructor.
- Getter ()
  This method allows the admin to register new consumers with this system. It takes inputs such as name, id, units of power consumed and pending bill etc: -.
- Details ()
  This method displays the details of all the consumers newly registered by the administrator.
- Iunit ()
  This method allows the admin to update and add details of power units consumed by a consumer newly registered byy the administrator.

Output

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaage


----------------ELECTRICITY BILL SYSTEM------------------


Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
1

    Enter your id :
231
******ELECTRICITY BILL RECORD******


    NAME : Diksha Sharma


    January    =1,  February   =2,  March       =3,
    April      =4,  May        =5,  June        =6,
    July       =7,  August     =8,  September   =9,
    October    =10, November   =11, December    =12
```

```
    Enter the month: 2
    Units : 85.6
    GST = 18%


    Your bill for this month is : 303.024 Rs



----------------ELECTRICITY BILL SYSTEM----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
2
    Enter your id :
231
    2534.0 Rs is pending
```

```
    ----------------ELECTRICITY BILL SYSTEM----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
3
    Enter your id :
231
    Diksha Sharma
    Your pending bill is : 2534.0

    Enter how much amount you want to pay now :
2000

    2000 debited from your account successfully....
```

```
----------------ELECTRICITY BILL SYSTEM-----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
4

    Enter your id :
231

    Diksha Sharma


    January   =1,  February   =2,  March      =3,
    April     =4,  May        =5,  June       =6,
    July      =7,  August     =8,  September  =9,
    October   =10, November   =11, December   =12


    Enter the month: 5
    Your meter reading for this month is 0.0 units
```

```
----------------ELECTRICITY BILL SYSTEM-----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
1

    Enter your id :
100

    Not valid id...
```

```
----------------ELECTRICITY BILL SYSTEM-----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
3

    Enter your id :
231
    Diksha Sharma
    Your pending bill is : 534.0

    Enter how much amount you want to pay now :
1000
You are paying more money than pending bill..
```

```
----------------ELECTRICITY BILL SYSTEM-----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
5

    Enter the password
NirmaUni
    Not valid password
```

```
----------------ELECTRICITY BILL SYSTEM-----------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
5

    Enter the password
123password


----------------ADMIN RIGHTS-----------------

Enter :
    1. To insert data of new customer
    2. To insert data of existing customer
    3. To view details of all the consumers
    0. To exit admin portal
1
    Enter the name of the consumer :
Shruti Patel
    Enter the id :
100

    January    =1,  February   =2,  March       =3,
    April      =4,  May         =5,  June        =6,
    July       =7,  August      =8,  September   =9,
    October    =10, November    =11, December    =12

    Enter the month: 3
    Enter the units of electricity used :
28

----------------ADMIN RIGHTS-----------------

Enter :
    1. To insert data of new customer
    2. To insert data of existing customer
    3. To view details of all the consumers
    0. To exit admin portal
```

```
1
    Enter the name of the consumer :
Anjali Kumari
    Enter the id :
200


    January    =1,  February   =2,  March       =3,
    April      =4,  May         =5,  June        =6,
    July       =7,  August      =8,  September   =9,
    October    =10, November    =11, December    =12


    Enter the month: 3
    Enter the units of electricity used :
23


----------------ADMIN RIGHTS------------------

Enter :
    1. To insert data of new customer
    2. To insert data of existing customer
    3. To view details of all the consumers
    0. To exit admin portal
2
    Enter the id :
100


    January    =1,  February   =2,  March       =3,
    April      =4,  May         =5,  June        =6,
    July       =7,  August      =8,  September   =9,
    October    =10, November    =11, December    =12


    Enter the month: 2
    Enter the unit:
87


----------------ADMIN RIGHTS------------------

Enter :
    1. To insert data of new customer
    2. To insert data of existing customer
    3. To view details of all the consumers
    0. To exit admin portal
```

```
January   =1,   February   =2,   March        =3,
April     =4,   May        =5,   June         =6,
July      =7,   August     =8,   September    =9,
October   =10,  November   =11,  December     =12


Enter the month: 1
Name:              Id:                  Units:            Payment:

Nupur Gandhi              123              56.5              2000.0
Diksha Sharma            231              45.0               534.0
Dhruvi dholakia          345              32.6              3541.0
Siddhi Pandya            456              67.0              5754.0
Vrushti Patel            789              70.0              1313.0
Shruti Patel             100              0.0         0.0
Anjali Kumari            200              0.0         0.0
```

```
Enter :
    1. To insert data of new customer
    2. To insert data of existing customer
    3. To view details of all the consumers
    0. To exit admin portal
3

    January   =1,   February   =2,   March        =3,
    April     =4,   May        =5,   June         =6,
    July      =7,   August     =8,   September    =9,
    October   =10,  November   =11,  December     =12


    Enter the month: 3
    Name:              Id:                  Units:            Payment:

    Nupur Gandhi              123              0.0         2000.0
    Diksha Sharma            231              0.0         534.0
    Dhruvi dholakia          345              0.0         3541.0
    Siddhi Pandya            456              0.0         5754.0
    Vrushti Patel            789              0.0         1313.0
    Shruti Patel             100              28.0         0.0
    Anjali Kumari            200              23.0         0.0
```

```
----------------ELECTRICITY BILL SYSTEM------------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
1

    Enter your id :
100
******ELECTRICITY BILL RECORD******

    NAME : Shruti Patel

    January    =1,  February    =2,  March       =3,
    April      =4,  May         =5,  June        =6,
    July       =7,  August      =8,  September   =9,
    October    =10, November    =11, December    =12
```

```
    Enter the month: 2
    Units : 87.0
    GST = 18%


    Your bill for this month is : 307.98 Rs



----------------ELECTRICITY BILL SYSTEM------------------

Enter :
    1. To generate the bill
    2. To check payment record
    3. To make payment
    4. To check your meter readings
    5. To access admin rights
    0. To exit
0


Process finished with exit code 0
```

<u>Conclusion</u>

In conclusion, we have created this Java project titled "ONLINE ELECTRICITY BILLING SYSTEM" with the aim to deal with the various issues that we face in manual recording, calculation and delivery of the electricity bills.