221TCS001 ADVANCED DATABASE MANAGEMENT

Micro Project Report

on

ELECTRICITY BILL MANAGEMENT SYSTEM

Submitted by

NEETHU M (Roll No. 12)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
NSS COLLEGE OF ENGINEERING PALAKKAD
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Abstract

With all of its exciting advancements, science and technology have improved human living standards. Beyond new things, all human beings undoubtedly fall. This project is novel since it proposes a less labor-intensive way to collect payments for electricity bills via a web application. The web program known as the Electricity Bill Management System offers users a simple user interface for paying their electricity bills. This electricity bill management system suggests a computerised collecting method that automatically calculates electricity bills, streamlines the process, and uses less paper. This method improves the quality of the manual system by automating every single task. The system computes the current bill, past due bills with penalties, etc. The electricity bill management system is developed using PHP, CSS and JavaScript.

Contents

List of Figures

Chapter 1

Introduction

The main aim of developing the Electricity Bill Management System is to keep records of the customers' bills. The admin can manage all the customers' accounts, and the registered users like employees and customers can only manage their accounts. This system helps to maintain the bills and the payments. The system computes the current month's bill, the previous month's bill, metre information, etc.Customers have the option of paying for several accounts. In this project, different modules such as Login, User, Admin, Queries, Department, and Meters are designed considering the basic needs encountered at the time of generation, distribution, payment, payment, and payment of electricity bills.

1.1 The Problem Statement

Nowadays electricity monitoring still requires a human to record the metre value from the home so that the customers can pay the electricity bill without knowing the precise amount of power consumed by the house owner. Since the metre value is input by a human and humans occasionally make mistakes, the metre value may not be very accurate. This creates a significant issue when the workers need to return to the residence and enter the metre value again in order to make the necessary corrections. Furthermore, it is challenging to compute the power usage for a large residential area and maintain track of the customer's value of metre. It is also difficult to manage the price of customer's power used in meter without centralized server.

Chapter 2

Software Requirements

The necessary softwares required for this project are listed and explained below.

2.1 XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages [3].

2.2 PHP

A popular general-purpose scripting language that is especially suited to web development. PHP is used for server-side programming which will interact with databases to retrieve information, storing, email sending, and provides content to HTML pages to display on the screen [4].

2.3 CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS is designed to

enable the separation of content and presentation, including layout, colors, and fonts [5].

2.4 JavaScript

Javascript is used to create dynamic and interactive web content like applications and browsers [6].

Chapter 3

Design and Implementation

System design is an abstract representation of a system component and their relationship and which describe the aggregated functionally and performance of the system. It is also the plan or blueprint for how to obtain answer to the question being asked. The design specifies various type of approach. In this chapter 3 describes the design and implementation of the electricity bill system.

3.1 Schema

The schema for the electricity bill management system is given below. It consists of 5 tables where id is the primary key.

admin

id	name	email	pass

bill

id	aid	uid	units	amount	status	bdate	ddate

complaint

id	uid	aid	complaint	status

transaction

id	bid	payable	pdate	status

user

id	name	email	phone	pass	address

Figure 3.1: Schema

3.2 ER Diagram

The ER diagram for the electricity bill management system is given below. The admin can manage the user account. Admin have the privilege to issue the bill to any user and add new bill to the system. The user can view their account and pay the bill. And also user can send any complaint to the admin.

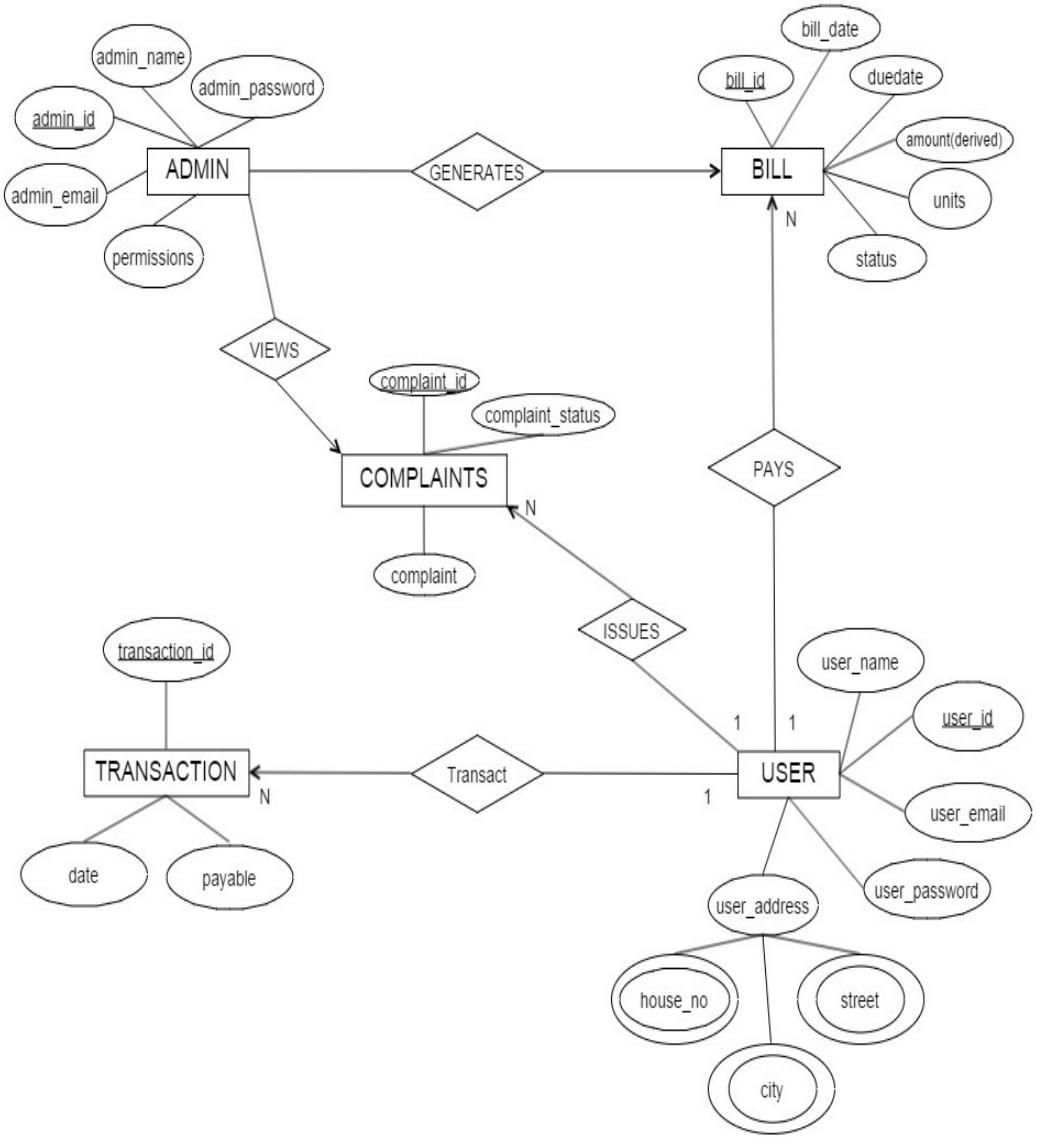

Figure 3.2: ER diagram

3.3 Tables

The entire tables used in this electricity bill system management system is given below.

3.3.1 Admin

```
CREATE TABLE ‘admin‘ (
‘id‘ int(14) NOT NULL,
‘name‘ varchar(40) NOT NULL,
‘email‘ varchar(40) NOT NULL,
‘pass‘ varchar(20) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

3.3.2 User

```
CREATE TABLE ‘user‘ (
‘id‘ int(14) NOT NULL,
‘name‘ varchar(40) NOT NULL,
‘email‘ varchar(40) NOT NULL,
‘phone‘ varchar(255) NOT NULL,
‘pass‘ varchar(20) NOT NULL,
‘address‘ varchar(100) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

3.3.3 Bill

```
CREATE TABLE ‘bill‘ (
‘id‘ int(14) NOT NULL,
‘aid‘ int(14) NOT NULL,
‘uid‘ int(14) NOT NULL,
‘units‘ int(10) NOT NULL,
‘amount‘ decimal(10,2) NOT NULL,
‘status‘ varchar(10) NOT NULL,
‘bdate‘ date NOT NULL,
‘ddate‘ date NOT NULL
```

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

3.3.4 Transaction

CREATE TABLE ‘transaction‘ (
‘id‘ int(14) NOT NULL,
‘bid‘ int(14) NOT NULL,
‘payable‘ decimal(10,2) NOT NULL,
‘pdate‘ date DEFAULT NULL,
‘status‘ varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

3.3.5 Complaint

CREATE TABLE ‘complaint‘ (
‘id‘ int(14) NOT NULL,
‘uid‘ int(14) NOT NULL,
‘aid‘ int(14) NOT NULL,
‘complaint‘ varchar(140) NOT NULL,
‘status‘ varchar(40) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

3.3.6 Unitsrate

CREATE TABLE ‘unitsrate‘ (
‘sno‘ int(1) DEFAULT NULL,
‘twohundred‘ int(14) NOT NULL,
‘fivehundred‘ int(14) NOT NULL,
‘thousand‘ int(14) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;;

Chapter 4

Screenshots

The screenshots for the pages of the electricity bill management system are give below.

4.1 The Index Page

This is the index page where admin can login with user id and password. And also here new users can register and existing users can log in.

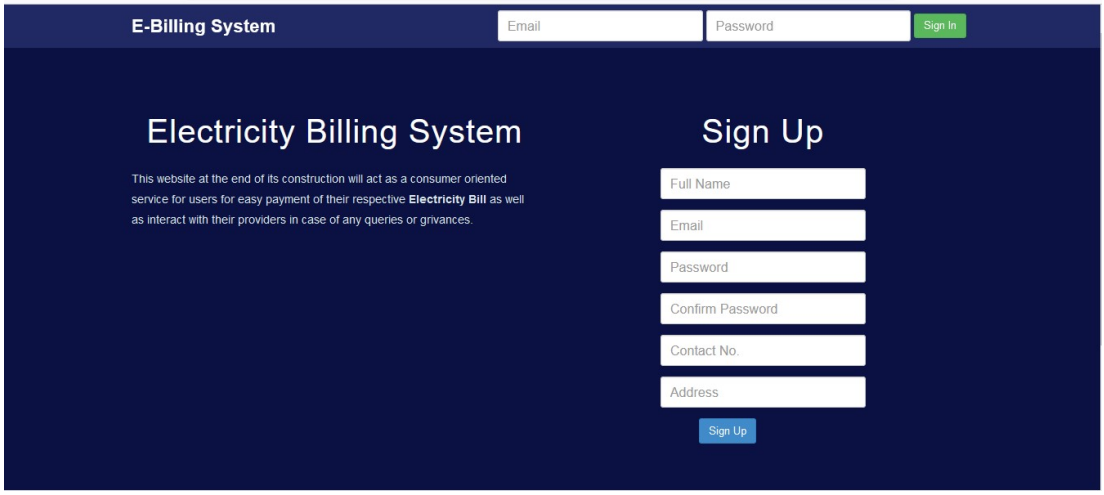

Figure 4.1: Index Page

4.2 The Admin Dashboard

The admin dashboard from where the admin can control the entire process of electricity bill system.

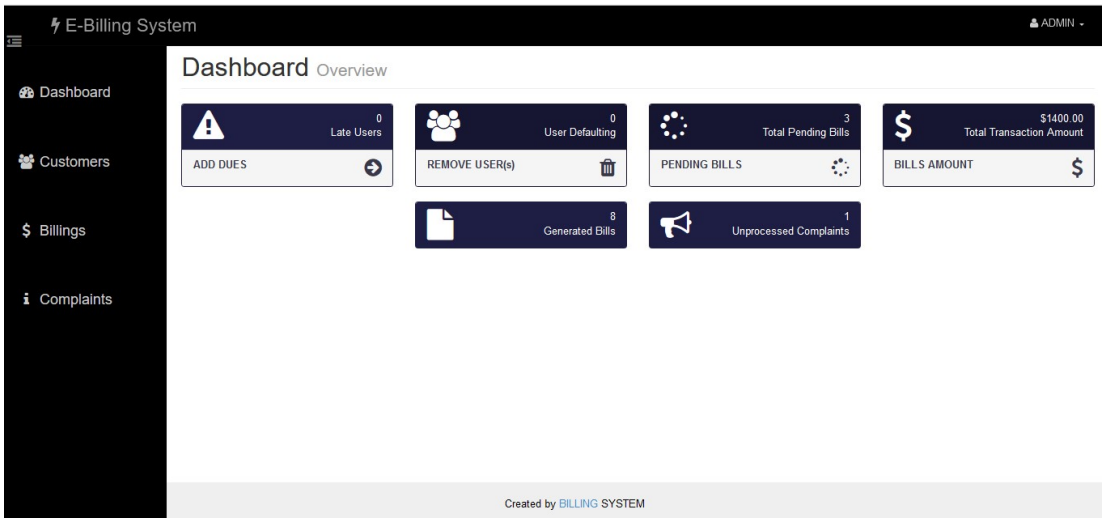

Figure 4.2: Admin Dashboard

4.3 Customer Details

Admin can see the customers details through this page.

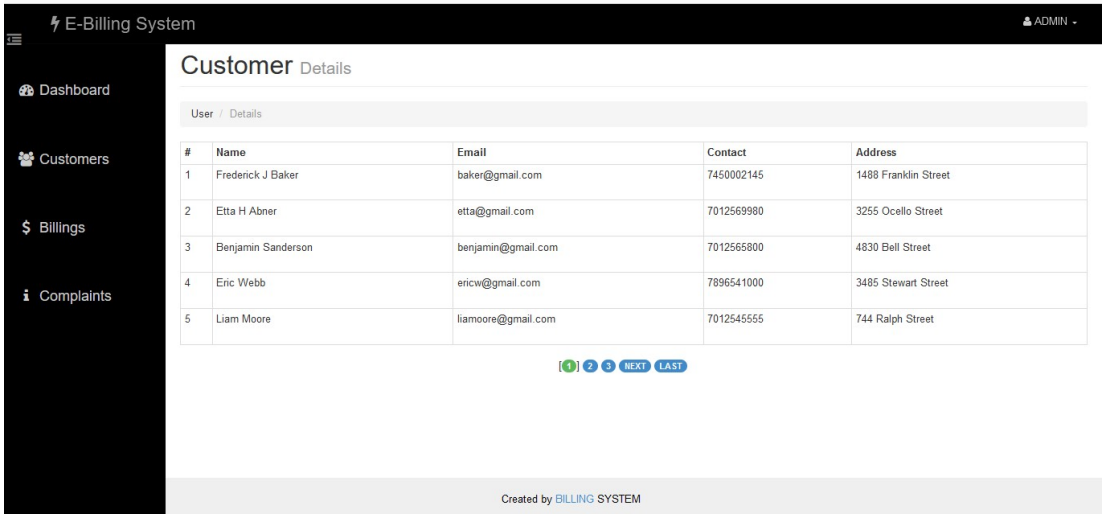

Figure 4.3: Customer Details

4.4 E-Billing System

Through this page the admin can update and generate new bills for the users.

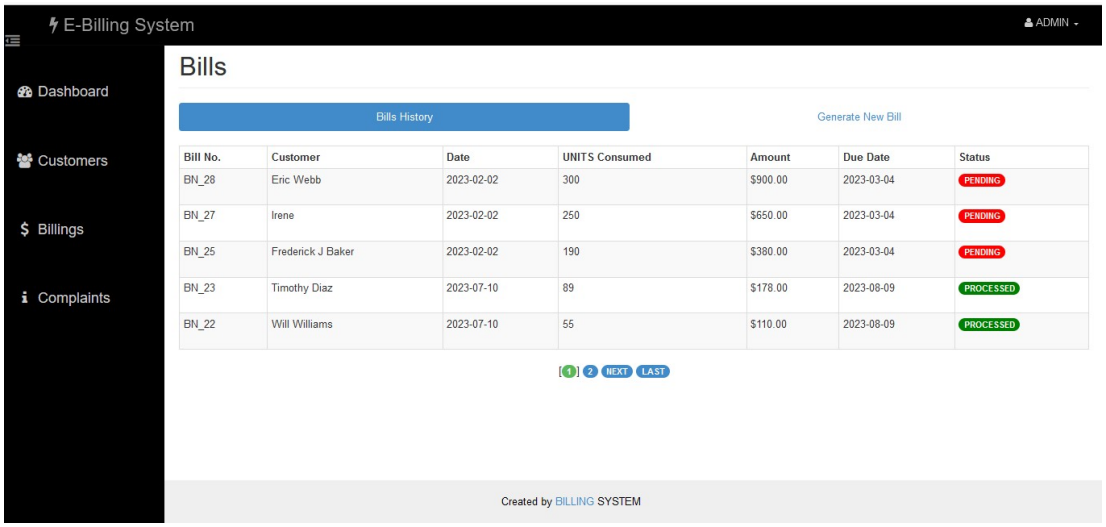

Figure 4.4: Bill details of Users

4.5 Complaint

The admin can manage the status of user's complaints.

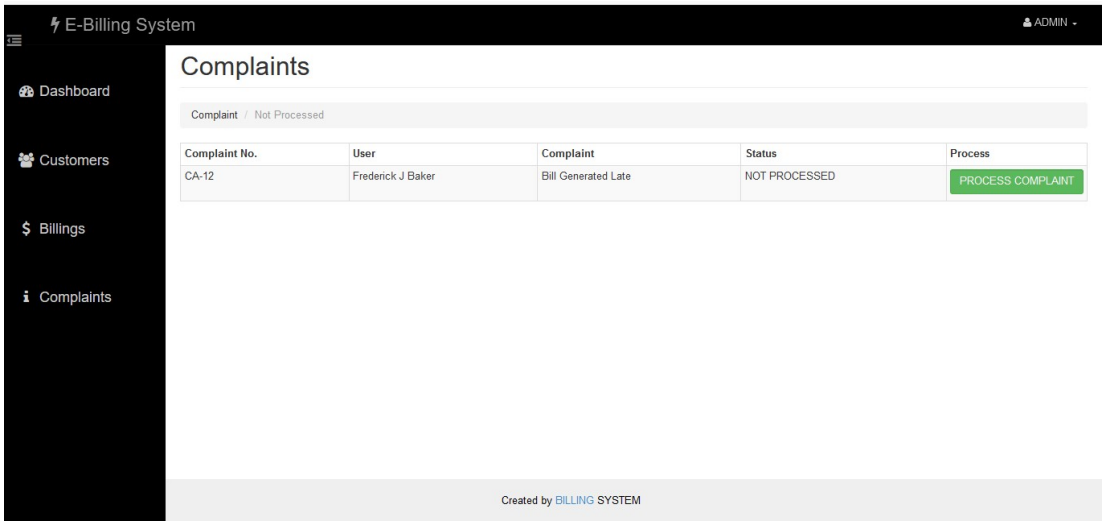

Figure 4.5: User Complaint

4.6 User Account

This page contains the details of the amount,unit consumed, due date, and transaction status of user's account.

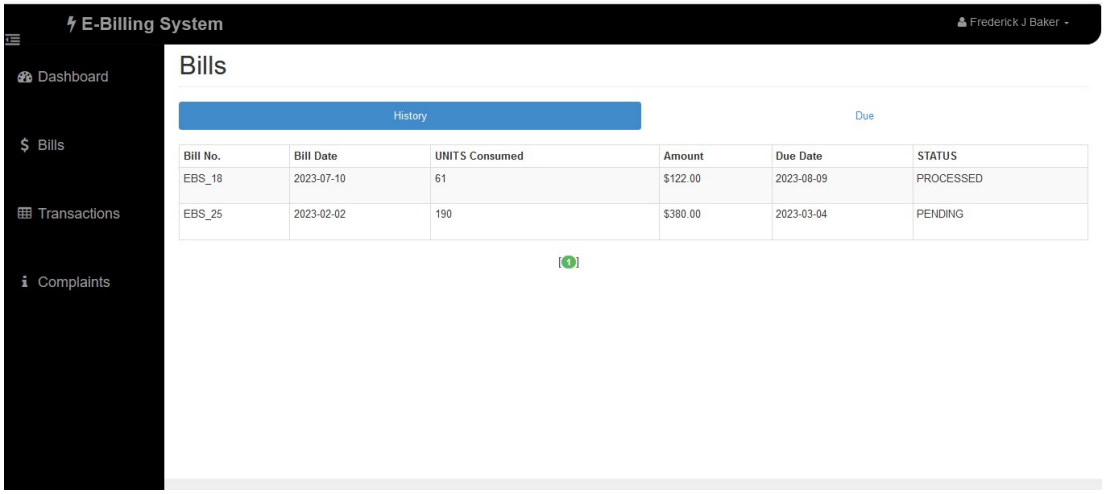

Figure 4.6: User Billing System

4.7 User Dashboard

The user can view an overview of their account details from the dashboard page.

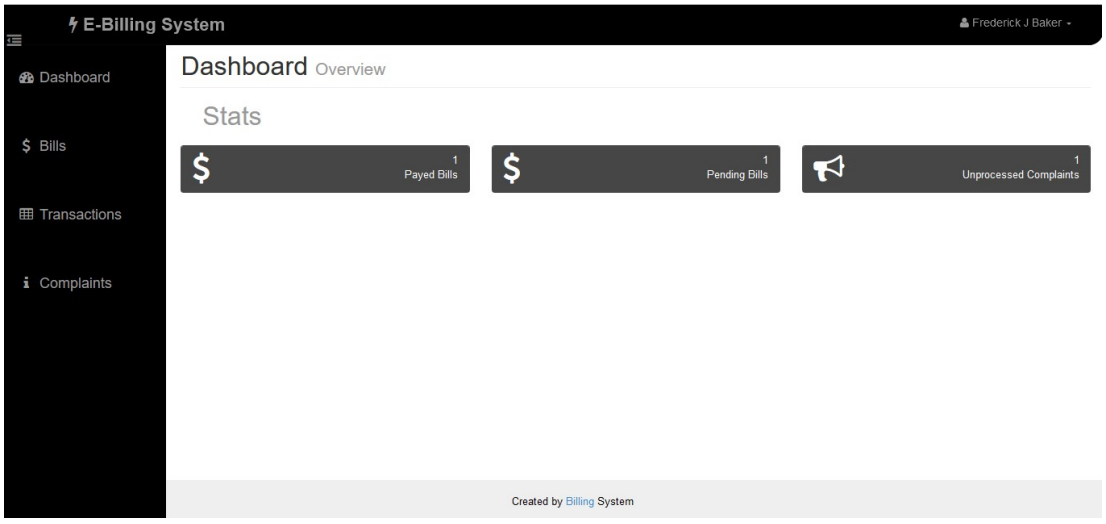

Figure 4.7: User Dashboard

References

[1] R. Elmasri, S.B. Navathe, “Fundamentals of Database Systems”, 7/e, Pearson Education/Addison Wesley, 2016.

[2] Henry F Korth, Abraham Silberschatz, S. Sudharshan, “Database System Concepts”, 7/e, Tata McGraw Hill, 2019.

[3] https://en.wikipedia.org/wiki/XAMPP

[4] https://en.wikipedia.org/wiki/PHP

[5] https://en.wikipedia.org/wiki/CSS

[6] https://en.wikipedia.org/wiki/JavaScript