CSE370 : Database Systems
Project Report
Project Title : Electricity Bill Management

Group No : _05_, CSE370 Lab Section : _07_, Spring 2023		
ID	**Name**	**Contribution**
21101051	Tanmin Alam Rokti	Homepage, Database,
21101052	Mutasim Fouad Showmik	Login/signup page
21101044	Sabrina Tajnim Sithi	Find Bill and Payment pages
21101242	MD.Abu Hussain	Dashboard, Session/Database Config

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Introduction

The online electricity bill payment website is a digital solution that aims to simplify the process of managing and paying electricity bills for households and businesses. Electricity is an essential utility for modern life, and managing electricity bills can be a daunting task for many individuals and businesses. The traditional method of manual billing is often time-consuming, error-prone, and can result in missed payments and penalties.

The online electricity bill payment website proposes a digital platform that streamlines the entire billing process, from billing generation to payment and record-keeping. The project's goal is to provide an efficient, user-friendly, and secure platform for consumers to manage their electricity bills seamlessly. The platform offers multiple payment options, payment history features that enable users to view and pay their electricity bills from a single platform.

The website platform will utilize modern technologies such as cloud computing, big data analytics, and machine learning to deliver an intelligent and personalized experience to users.

Furthermore, the online electricity bill payment website can provide an eco-friendly option for bill management by reducing paper usage and promoting sustainability. With the help of this project, users can easily access their bills and payment history online, eliminating the need for paper-based billing and record-keeping.

Overall, the online electricity bill payment website is an innovative solution to modernize the electricity billing system and improve the consumer experience. The project's digital platform can make the process of paying electricity bills more accessible, convenient, and secure.

In this project report, we will discuss the design and implementation of the “Electricity bill management” online website. We will explore the features and

functionalities of the website, along with its database design and security measures. Finally, we will conclude with an analysis of the project's successes and areas for improvement.

Project Features

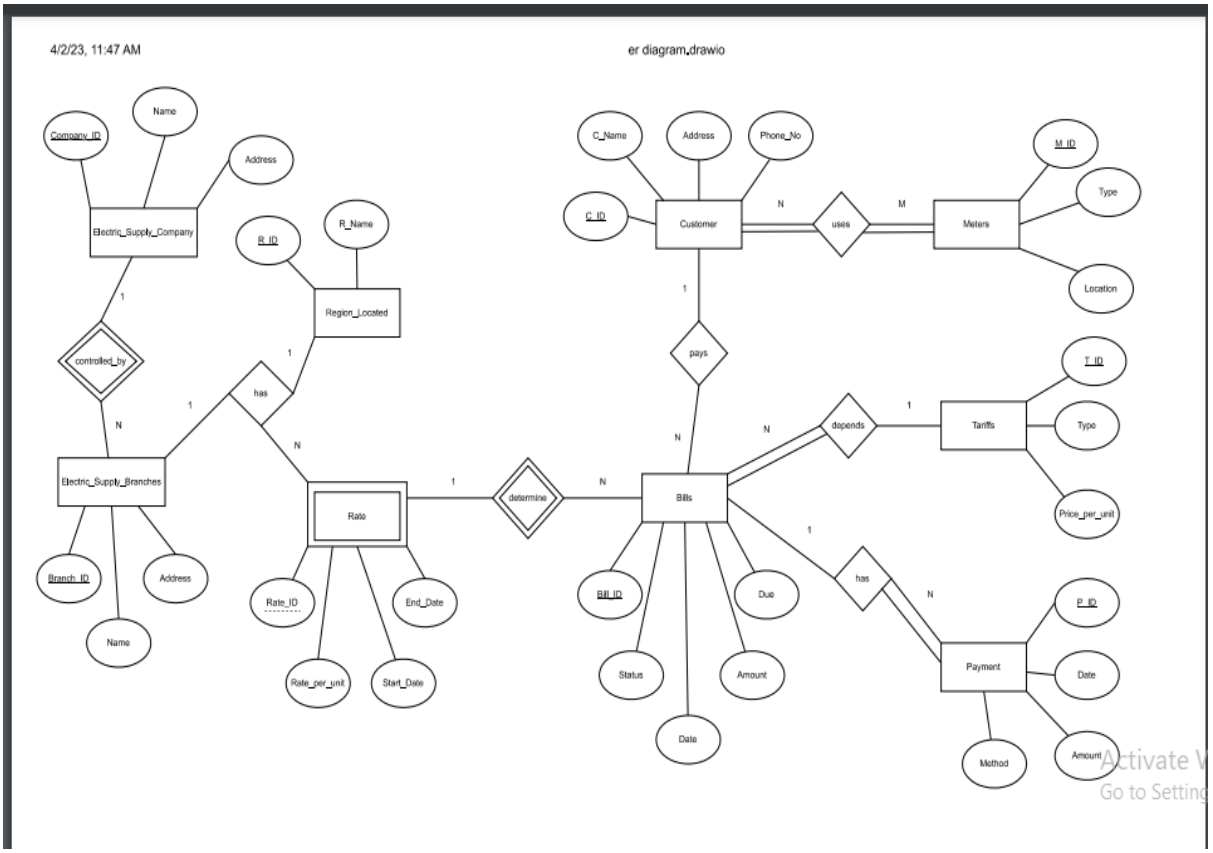
1. **Account Creation and Login:** Users can create their accounts by providing necessary information such as name, email, and password. After creating an account, they can log in to access their billing information and payment options.
2. **View Bills:** Users can view their electricity bills from the platform, which provides a convenient and paperless option for bill management.
3. **Payment History**: Users can view their payment history, including past bills and payment dates, from the platform, which provides a transparent and organized payment record.
4. **Customer Support:** The platform provides customer support through a dedicated helpdesk or chatbot, which can answer common queries related to bill payment, account management, and payment issues.
5. **Admin control:** The "Admin ability to add dues, remove users who're on defaulting, generate bills, see all customers, their billings, and meter info" feature provides administrators with full control over the billing and meter information of all customers, allowing them to add dues, generate bills, and

remove users who are defaulting on their payments, ensuring that the billing process is efficient and transparent.

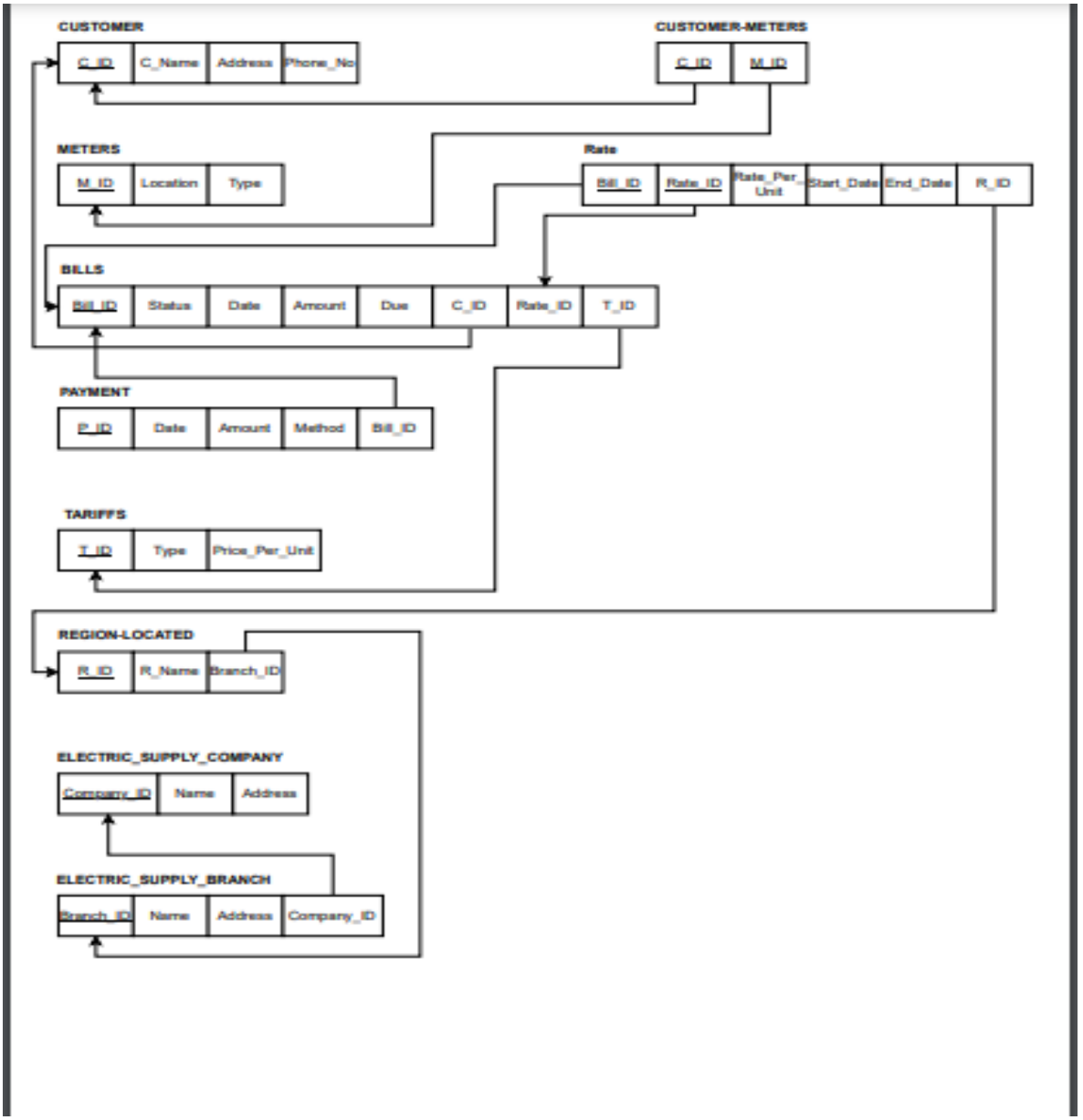
Overall, these features can make the online electricity bill payment website platform a convenient, user-friendly, and secure option for managing electricity bills and payments.

ER/EER Diagram

The ER diagram for the database management system will include entities such as customers,bills,payments,Tariffs,Rate,Electic_Supply_Company,Electic_Supply_Brances and meters. The relationships between these entities will be depicted using relationships such as one-to-one, one-to-many, and many-to-many.



Schema Diagram



Frontend Development

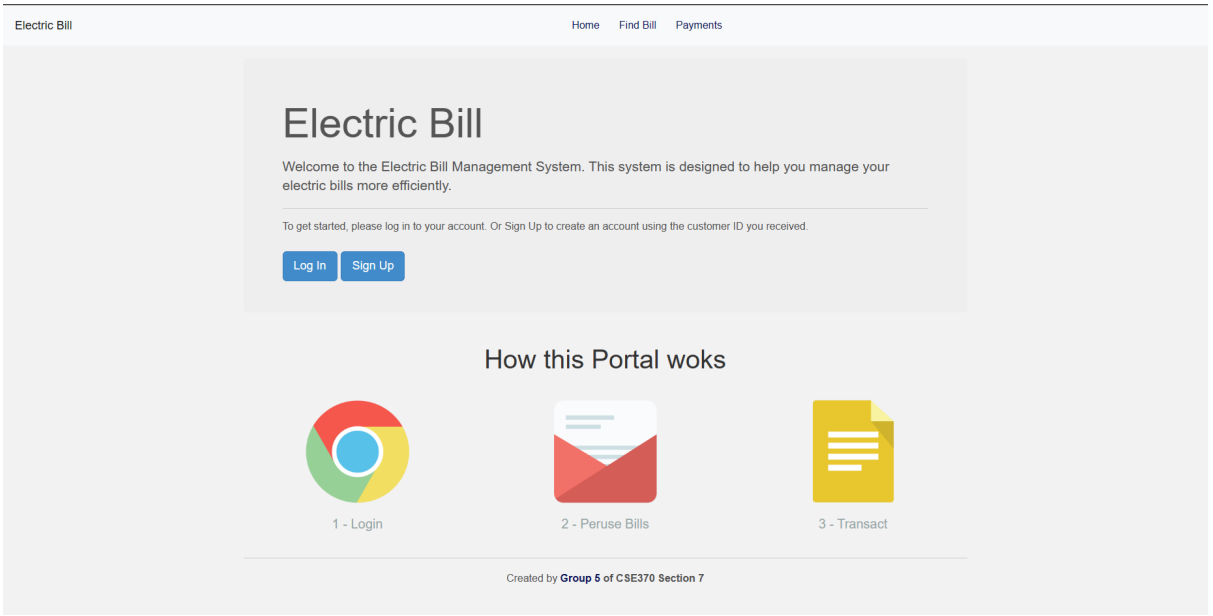
Briefly discuss about Frontend Development and add Screenshots by mentioning Individual Contributions

The frontend of the database management system will be developed using php,mysql,databases and Html.IThe user interface will be designed to be user-friendly, with easy navigation and clear labeling. The frontend will include pages such as 1) Homepage with header, intro, and a brief on how the page works. 2)Login/signup page. 3) Pages where a bill and payment info can be found by running a mysql query. 4) Dashboard design for admin and user.

Contribution of ID :21101051

Name : Tanmin Alam Rokti

Homepage with header, intro, and a brief on how the page works:

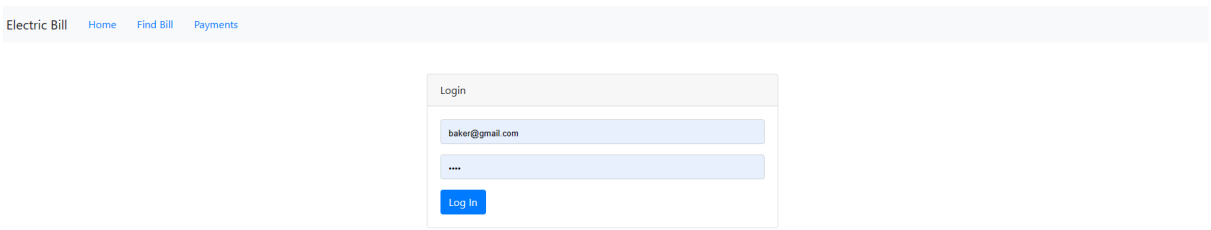


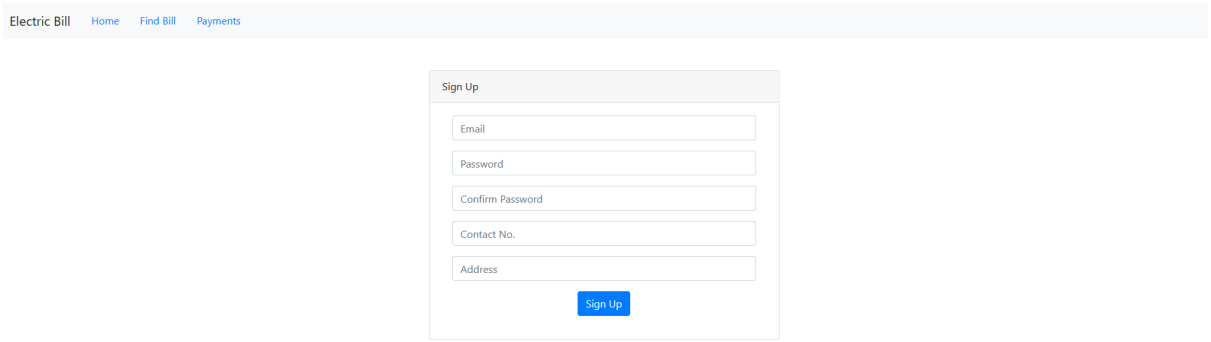
Contribution of ID :21101052

Name : Mutasim Fouad Showmik

Session/ database configuration for database access, admin and user dashboard configuration

Login/signup page:



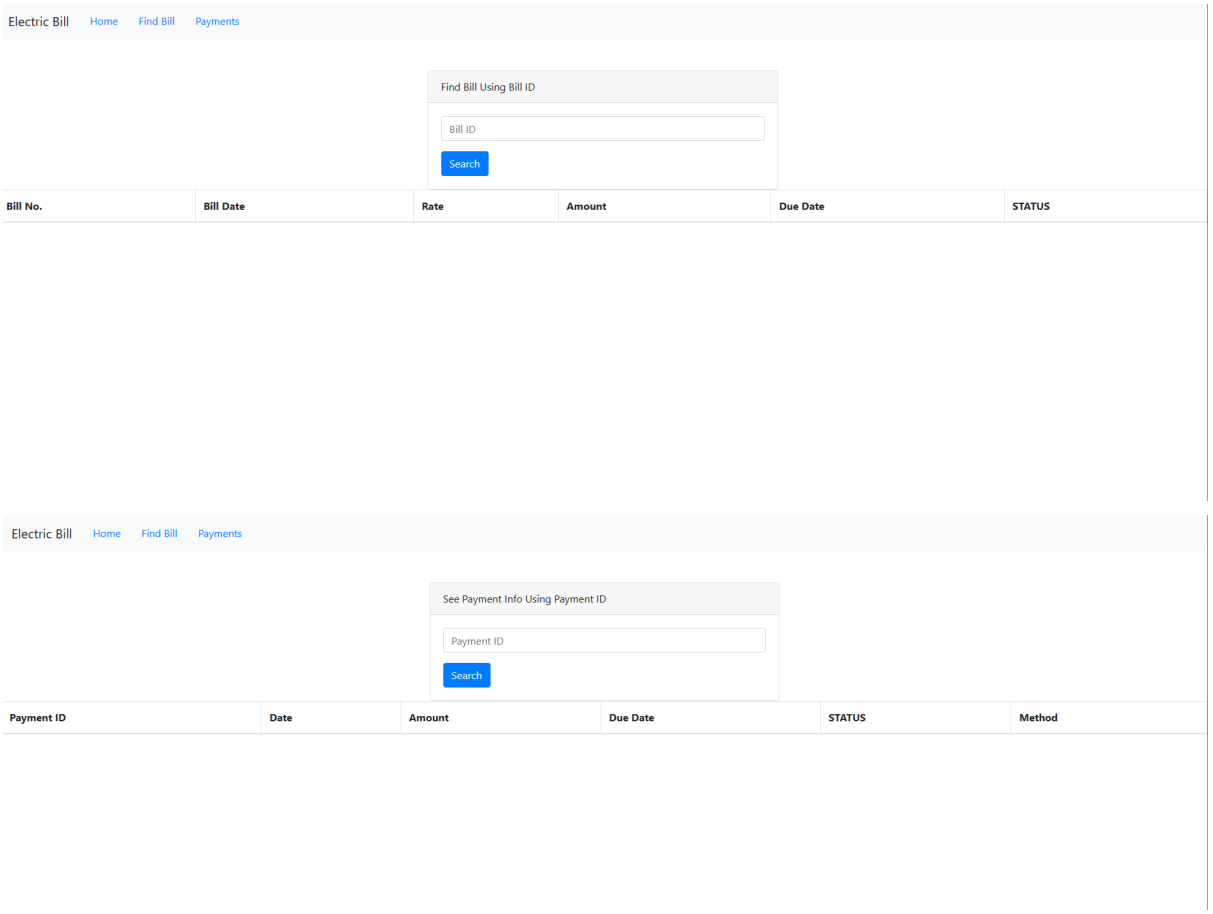


Contribution of ID :21101044

Name : Sabrina Tajnim Sithi

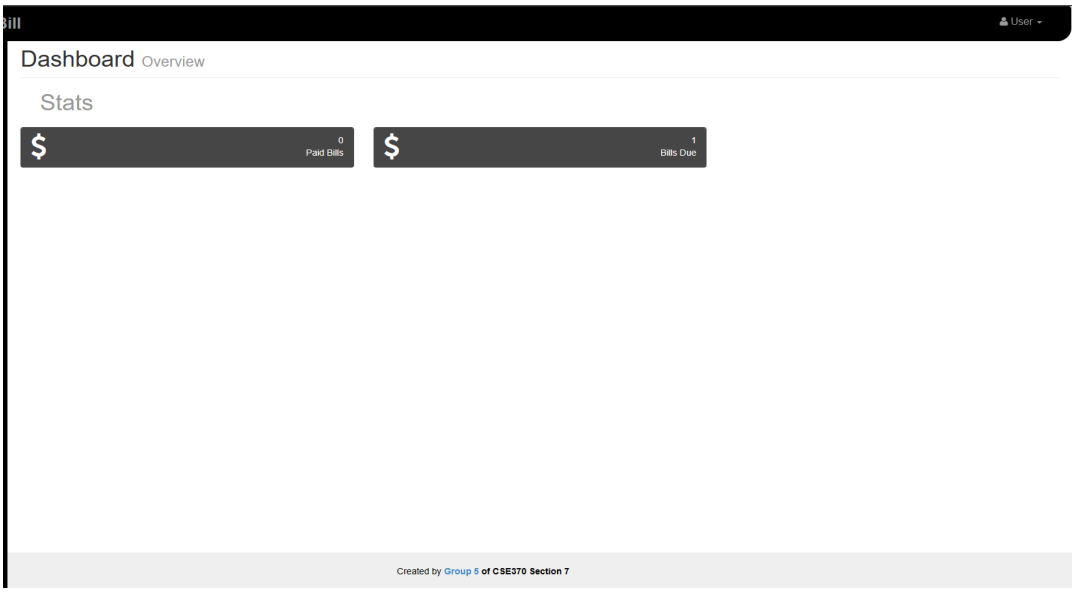
Bill/Payment query functions for "Find Bill and "Payment" pages

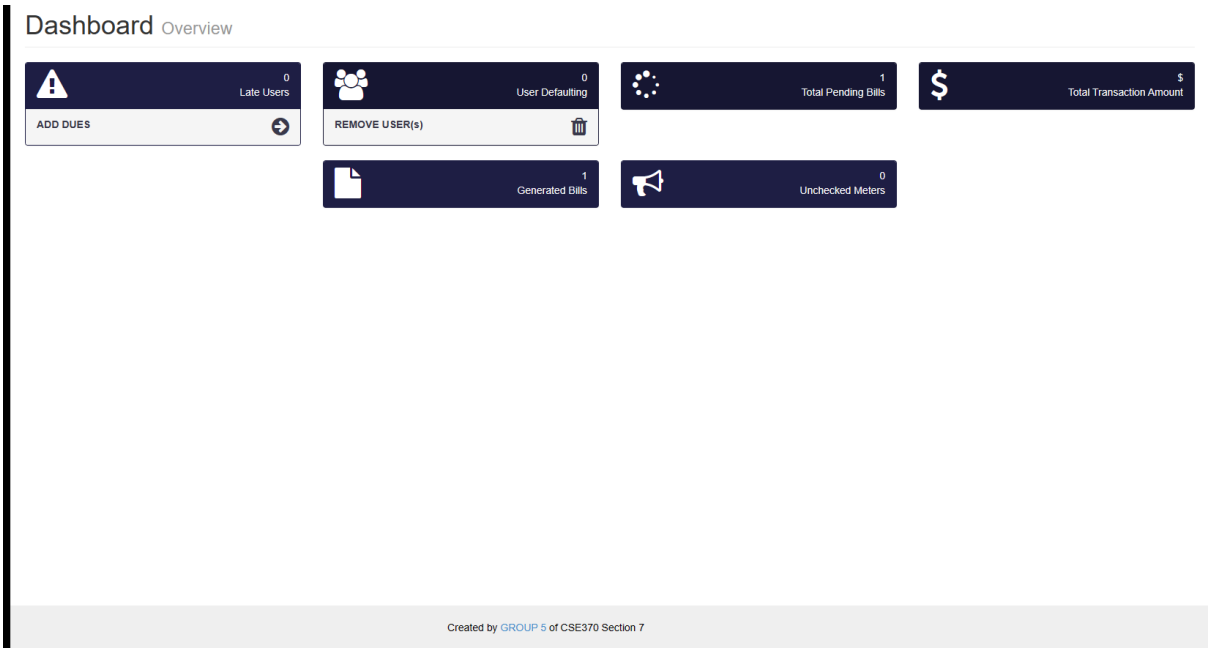
Pages where a bill and payment info can be found by running mysql query



Contribution of ID : 21101242,
Name : MD. Abu Hussain

Dashboard design for admin and user:


User
Dashboard Overview
Stats
0
Paid Bills
1
Bills Due
Created by Group 5 of CSE370 Section 7


Dashboard Overview
0
Late Users
ADD DUES
0
User Defaulting
REMOVE USER(s)
1
Total Pending Bills
$
Total Transaction Amount
1
Generated Bills
0
Unchecked Meters
Created by GROUP 5 of CSE370 Section 7

Backend Development

Briefly discuss about Backend Development and add Screenshots by mentioning Individual Contributions:

Backend Development is a critical part of website development that focuses on creating and maintaining the server-side of a website. It involves creating and managing the database server that enables the website's functionality.

Contribution of ID :21101051,
Name : Mutasim Fouad Showmik

Login/Signup Checking, query, and insertion into database:
The Login/Signup feature involves checking user credentials against the database for authentication, while the query and insertion into database feature involves retrieving and storing data in the database for various functionalities.

```php
<?php
require_once("Includes/config.php");
require_once("Includes/session.php");
// if ($count===0) {
//     $err_login="There were some problem";
// }
if(isset($_SESSION['logged']))
{
    if ($_SESSION['logged'] == true)
    {
        if ($_SESSION['account']=="admin") {
                header("Location:admin/index.php");
            }
        elseif ($_SESSION['account']=="user") {
                header("Location:user/index.php");
            }
    }
    else  {
        header("Location:../index.php");
      }
}

if(isset($_POST['login_submit'])) {
    if(!(isset($_POST['email']))) {
        if(!(isset($_POST['pass']))) {
            location('index.php');
        }
    }
}
?>
```

```
    <script>

function validateForm() {
        var x = document.forms["myForm"]["email"].value;
        var atpos = x.indexOf("@");
        var dotpos = x.lastIndexOf(".");
        if (atpos< 1 || dotpos<atpos+2 || dotpos+2>=x.length) {
            alert("Not a valid e-mail address");
            return false;
        }
    }  </script>
```

Contribution of ID : 21101242,
Name : MD. Abu Hussain

Session/ database configuration for database access, admin and user dashboard configuration:

The Session/database configuration involves setting up a persistent connection to the database to allow for efficient data retrieval, while the admin and user dashboard configuration involves designing and implementing the interface for user and admin interactions with the website

```php
if($logged != true)
{
    $email = "";
    if (isset($_POST['email']) && isset($_POST['pass']))
    {
        $email=$_POST['email'];
        $password=$_POST['pass'];
        // some prereq-safeguards for the purpose of DB searching ->
        $email = stripslashes($email);
        $email = mysqli_real_escape_string($con,$email);
        $password = stripslashes($password);
        $password = mysqli_real_escape_string($con,$password);

        //DB HAS 2 TABLES ADMIN AND USER BOTH HAVING THEIR OWN ATTRIBUTES
        //EMAIL AND PASSWORD
        // user
        $sql = "SELECT * FROM user WHERE email='$email' AND pass='$password' ";
        $result = mysqli_query($con,$sql);
        $count = mysqli_num_rows($result);
        if ($count == 1) {
            $row=mysqli_fetch_array($result,MYSQLI_ASSOC);
            $_SESSION['user'] = $row['name'];
            $_SESSION['logged']=true;
            $_SESSION['uid']=$row['id'];
            $_SESSION['email'] = $email;
            $_SESSION['account']="user";
            // echo "Yadpde";
            header("Location:user/index.php");
        }
        // admin
        $sql = "SELECT * FROM admin WHERE email='$email' AND pass='$password' ";
        $result = mysqli_query($con,$sql);
        $count = mysqli_num_rows($result);
        if ($count == 1) {
            $row=mysqli fetch array($result,MYSQLI ASSOC);
```

```php
<?php
    $host='localhost'; # MySQL Host
    $mysql_user="root";# MySql Username
    $mysql_pwd=""; # MySql Password
    $dbms="ebillsystem"; # Database

    $con = mysqli_connect($host,$mysql_user,$mysql_pwd,$dbms);
    if (!$con) die('Could not connect: ' . mysql_error());
    mysqli_select_db($con,$dbms) or die("cannot select DB" . mysql_error());
?>
```

```php
<?php
    // require_once("config.php");

    function retrieve_bills_generated($id,$offset, $rowsperpage) {
        global $con;
        $query  = "SELECT user.name AS user, bill.bdate AS bdate , bill.units AS units , bill.amount AS amount , bill.bid as bid ";
        $query .= ", bill.ddate AS ddate, bill.status AS status ";
        $query .= " FROM user , bill ";
        $query .= " WHERE user.id=bill.uid AND aid={$id} ";
        $query .= " ORDER BY bill.bid DESC ";
        $query .= "LIMIT {$offset}, {$rowsperpage} ";

        $result = mysqli_query($con,$query);
        if($result === FALSE) {
            die(mysql_error()); // TODO: better error handling
        }
        return $result;
    }

    function retrieve_bill_data($offset, $rowsperpage){
        global $con;
        $query  = "SELECT curdate() AS bdate , adddate( curdate(),INTERVAL 30 DAY ) AS ddate , user.id AS uid , user.name AS uname FROM u
        $query .= " LIMIT {$offset}, {$rowsperpage} ";
        // echo $query;
        $result = mysqli_query($con,$query);
        if($result === FALSE) {
            die(mysql_error()); // TODO: better error handling
        }
        return $result;
    }

    function retrieve_complaints_history($id,$offset,$rowsperpage)
    {
        global $con;
        $query  = "SELECT complaint.id AS id , complaint.complaint AS complaint , complaint.status AS status , user.name AS uname ";
        $query .= "FROM user , complaint ";
```

```php
<?php
    // require_once("config.php");

    function retrieve_complaints ($id,$offset, $rowsperpage) {
        global $con;
        $query = "SELECT * FROM complaint where uid={$id} ";
        $query .= "ORDER BY id DESC ";
        $query .= "LIMIT {$offset}, {$rowsperpage}";
        $result1 = mysqli_query($con,$query);
        return $result1;
    }

    function retrieve_bills_history($id,$offset, $rowsperpage) {
        global $con;
        $query = "SELECT * FROM bill where uid={$id} ";
        $query .= "ORDER BY bdate DESC ";
        $query .= "LIMIT {$offset}, {$rowsperpage} ";
        $result = mysqli_query($con,$query);
        return $result;
    }

    function retrieve_bills_due($id,$offset, $rowsperpage) {
        global $con;
        $query  = "SELECT bill.bdate AS bdate, bill.units AS units, bill.ddate AS ddate, transaction.payable AS payable, ";
        $query .= " bill.amount AS amount ,transaction.payable-bill.amount AS dues , bill.id AS id ";
        $query .= "FROM bill , transaction ";
        $query .= "WHERE transaction.bid=bill.id AND bill.uid={$id} AND bill.status='PENDING' ";
        $query .= "ORDER BY bill.ddate desc ";
        $query .= "LIMIT {$offset}, {$rowsperpage} ";
        $result = mysqli_query($con,$query);
        return $result;
    }
    function retrieve_transaction_history($id,$offset, $rowsperpage) {
        global $con;
        $query  = "SELECT transaction.id AS id , bill.bdate AS bdate, transaction.pdate AS pdate, transaction.payable AS payable, ";
        $query .= " bill.amount AS amount ,transaction.payable-bill.amount AS dues ";
```

Contribution of ID : 21101044,
Name : Sabrina Tajnim Sithi

Bill/Payment query functions for "Find Bill and "Payment" pages:

The Bill/Payment query functions involve retrieving and displaying user bills and payment history from the database for the "Find Bill" and "Payment" pages of the website.

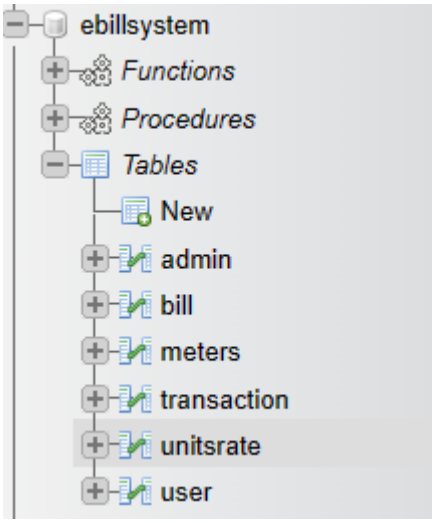
```php
<?php

 if(isset($_POST['hehe']))
 {
     $id = $_POST['bill_id'];
     $result=mysqli_query($con, "SELECT * FROM bill where bid={$id}");
     if(mysqli_num_rows($result)!=0)
     {
   //$result = retrieve_bills_history($_SESSION['uid'],$offset, $rowsperpage);
   // Initialising #
        while($row = mysqli_fetch_assoc($result)){
        ?>
            <tr>
                <td height="50"><?php echo 'B_'.$row['bid'] ?></td>
                <td height="50"><?php echo $row['bdate'] ?></td>
                <td><?php echo $row['units'] ?></td>
                <td><?php echo 'TK.'.$row['amount'] ?></td>
                <td><?php echo $row['ddate'] ?></td>
                <td><?php echo $row['status'] ?></td>
            </tr>
        <?php  }}} ?>
</tbody>
```

```php
<?php

if(isset($_POST['hehe']))
{
    $id = $_POST['payment_id'];
    $result=mysqli_query($con, "SELECT * FROM transaction t inner join bill b on t.bid=b.bid  where id={$id}");
    if(mysqli_num_rows($result)!=0)
    {

//$result = retrieve_bills_history($_SESSION['uid'],$offset, $rowsperpage);
// Initialising #
    while($row = mysqli_fetch_assoc($result)){
    ?>
        <tr>
            <td height="50"><?php echo 'P_'.$row['id'] ?></td>
            <td height="50"><?php echo $row['pdate'] ?></td>

            <td><?php echo 'TK.'.$row['payable'] ?></td>
            <td><?php echo $row['ddate'] ?></td>
            <td><?php echo $row['status'] ?></td>
            <td><?php echo $row['method'] ?></td>
        </tr>
```

Contribution of ID :21101051, Name :Tanmin Alam Rokti

Database:

The database is a central component of the backend that stores all data related to the electricity bill management system, such as customer information, billing details, and payment history. It allows for efficient data retrieval and manipulation for various functionalities.



	id	name	email	phone	pass	address
Edit Copy Delete	1	Fahad	fahad@gmail.com	01814473471	123	Dhaka
Edit Copy Delete	2	Faiyaz	faiyaz@gmail.com	01711789076	123	Khulna
Edit Copy Delete	3	Sabbir Rahma	sabbir@gmail.com	01899124312	123	Dhaka
Edit Copy Delete	4	Sadi Ashraf	sadi@gmail.com	018776523412	789	Barisal
Edit Copy Delete	5	Mohammad Ruhan	ruhan@gmail.com	01892341123	789	Dhaka
Edit Copy Delete	6	Arnob Kabir	kabir@gmail.com	01922125673	123	Cumilla
Edit Copy Delete	7	Udoy Saha	saha@gmail.com	01712321786	789	Barisal
Edit Copy Delete	8	Md. Karim	karim@gmail.com	01912343278	123	Feni
Edit Copy Delete	9	Md. Abul	abul@gmail.com	01913432781	789	Khulna
Edit Copy Delete	10	Md. Salam	salam@gmail.com	01315643218	123	Dhaka
Edit Copy Delete	11	Md. Arman	arman@gmail.com	01913432191	789	Cumilla
Edit Copy Delete	12	Md. Jamal	jamal@gmail.com	01712321897	789	Chittagong
Edit Copy Delete	13	Md. Kamal	kamal@gmail.com	01812321786	789	Dhaka
Edit Copy Delete	14	Zabed Sohel	sohel@gmail.com	01712343217	789	Cumilla
Edit Copy Delete	15	Kamal Khan	kamal@gmail.com	01917654578	123	Dhaka

	id	name	email	pass
Edit Copy Delete	1	Administrator01	showmik@gmail.com	1234
Edit Copy Delete	2	Administrator02	hussain@gmail.com	1234

	id	aid	bill ID	units	amount	status	bdate	ddate
Edit Copy Delete	1	1	1	200	400.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	2	1	2	300	900.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	3	1	3	150	300.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	4	1	4	200	400.00	PROCEED	2023-04-05	2023-05-02
Edit Copy Delete	5	1	5	300	900.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	6	1	6	300	900.00	PROCEED	2023-04-05	2023-05-02
Edit Copy Delete	7	1	7	300	900.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	8	1	8	200	400.00	PROCEED	2023-04-05	2023-05-02
Edit Copy Delete	9	1	9	200	400.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	10	1	10	300	900.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	11	1	11	300	900.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	12	1	12	200	400.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	13	1	13	200	400.00	PENDING	2023-04-05	2023-05-02
Edit Copy Delete	14	1	14	150	300.00	PROCEED	2023-04-05	2023-05-02
Edit Copy Delete	15	1	15	150	300.00	PENDING	2023-04-05	2023-05-02

Conclusion

In conclusion, the Electricity Bill Management project is an innovative and practical solution that addresses the challenges associated with managing electricity bills for households and small businesses. The project offers a user-friendly platform that streamlines the entire billing process, from generating bills to payment and record-keeping. The platform's digital interface makes it easy for users to manage their bills, view payment history, and receive notifications and reminders for upcoming payments. The project's implementation will also benefit energy companies by providing data insights that can be used to optimize their services and reduce costs.

The Electricity Bill Management project can utilizes modern technologies such as cloud computing, big data analytics, and machine learning to deliver an intelligent and personalized experience to users. These technologies enable the platform to learn from user behavior and preferences, making it more efficient and effective over time. The project's emphasis on security ensures that users' data is protected and their transactions are secure.

The success of the Electricity Bill Management project will depend on the adoption rate by consumers and energy companies. However, with the increasing demand for digital solutions and the benefits of automation and data analytics, we believe that the project has the potential to revolutionize the electricity billing system. Overall, the Electricity Bill Management project is an important step towards modernizing the utility industry and improving the quality of life for consumers.

References

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