ELECTRICITY BILL MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

AMIT KUMAR [RA19110033010066]

Under the guidance of

Ms. SASSI REKHA

(Assistant Professor, Department of Computer Science & Engineering)

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SRM Institute of Science and Technology

(Under Section 3 of UGC Act, 1956)
S.R.M. Nagar, Kattankulathur-603 203

SRM INSTITUTE OF
SCIENCE AND TECHNOLOGY

(Under Section 3 of UGC Act, 1956)

BONAFIDE CERTIFICATE

Certified that this project report titled "**ELECTRICITY BILL MANAGEMENT SYSTEM**" is the bonafide work of "**AMIT KUMAR [RA1911033010066]** ", who carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE   **SIGNATURE**

Ms. Sassi Rekha
GUIDE   **HEAD OF THE DEPARTMENT**
Assistant Professor   Dept. of Computer Science &
Dept. of Computer Science &   Engineering
Engineering

Signature of the Internal Examiner   Signature of the External Examiner

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AMIT KUMAR

INTRODUCTION ABOUT THE PLATFORMS WORKED

MySQL

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQLis developed, marketed and supported by MySQL AB, which is a Swedish company. MySQLis becoming so popular because of many good reasons:

- MySQL is released under an open-source license. So you have nothing to pay to use it.

- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

- MySQL uses a standard form of the well-known SQL data language.

- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

- MySQL works very quickly and works well even with large data sets.

- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system canhandle it) to a theoretical limit of 8 million terabytes (TB).

- MySQL is very friendly to PHP, the most appreciated language for web development.

- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

TOOLS USED

MySQL Server

MySQL Server : It is significantly quicker than previous methods of handling big databases. It comprises a multi-threaded SQL server that supports a variety of back ends, as well as a variety of client applications and libraries, administrative tools, and application programming interfaces (APIs). MySQL Server is well-suited for accessing databases via the Internet due to its connection, speed, and security.

SQL Workbench

MySQL workbench is a database is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single integrated development for the MySQL database system.

Web Browsers

Any web browser will sufficient.

GitHub

GitHub Inc. is a Git-based version control web hosting service. It's primarily utilised in computer programming. It has all of Git's distributed version control and source code management features, as well as those of its own.

ABSTRACT

The purpose of Electricity Billing management system is to manage the details of Electricity, Unit of Energy, Bill, Store Records, Electricity Board. It manages to automate the existing manual system by the help of computerized equipment's and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work.

Electricity Billing Management System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

INTRODUCTION

Nowadays, with so much hassle in life there is a need to schedule and manage things. So, in daily household management especially for electricity bills we come across an idea to manage the bills in one place where you make payment, set reminder, and keep the records, and ,which will benefits users greatly. It is more convenient than paying for the units while keeping all the electricity bill track or records.

PROBLEM STATEMENT

This system is named as Electricity Bill Management System.This system is made to keel the records about the bill of the customers. The admin can manage all the accounts and the registered users like employees and customers can only manage their own accounts.

PROPOSED SOLUTION

Created a database system that allows consumers to register and while also allowing the user and admin to manage this system efficiently.

Like a customer can only manage his account and cannot see any details of either customer, employees can see the details of all the customer's accounts and the admin can manage all the accounts including the customers and employees accounts. This system also had the option for customers to pay their electricity bills online mode.
Either through internet banking or by debit card. This system also has the feature to add and delete customer and employee's accounts in case a customer wants to cut the connection or an employee wants to leave the job. All the employees are divided into different departments according to their job profile and the customers are divided according to their wards.

This project covers a wide range of topics, from business concepts to computer science, and itnecessitates the completion of numerous studies in order to meet the project's objectives.

OBJECTIVE

This system is made to keel the records about the bill of the customers. The admin can manage all the accounts and the registered users like employees and customers can only manage their own accounts. This system helps in maintaining the bills and the payments. A different module is there for employees to check the customer's details if their job requires it. Admin, employees, and customers all have a different interface and different privileges according to their needs.

As a system development reference, create documents such as Software Requirement Specification (SRS) and Software Design Description

METHODOLOGY

The database was designed on MYSQL Workbench, the back end was developed on MYSQL Workbench. Software methods are concerned with the process of developing software, not so much with the technical elements as with the organizational ones. Since the dawn of information technology, a variety of software development methodologies have been employed.

DESIGN

SCHEMA DIAGRAM
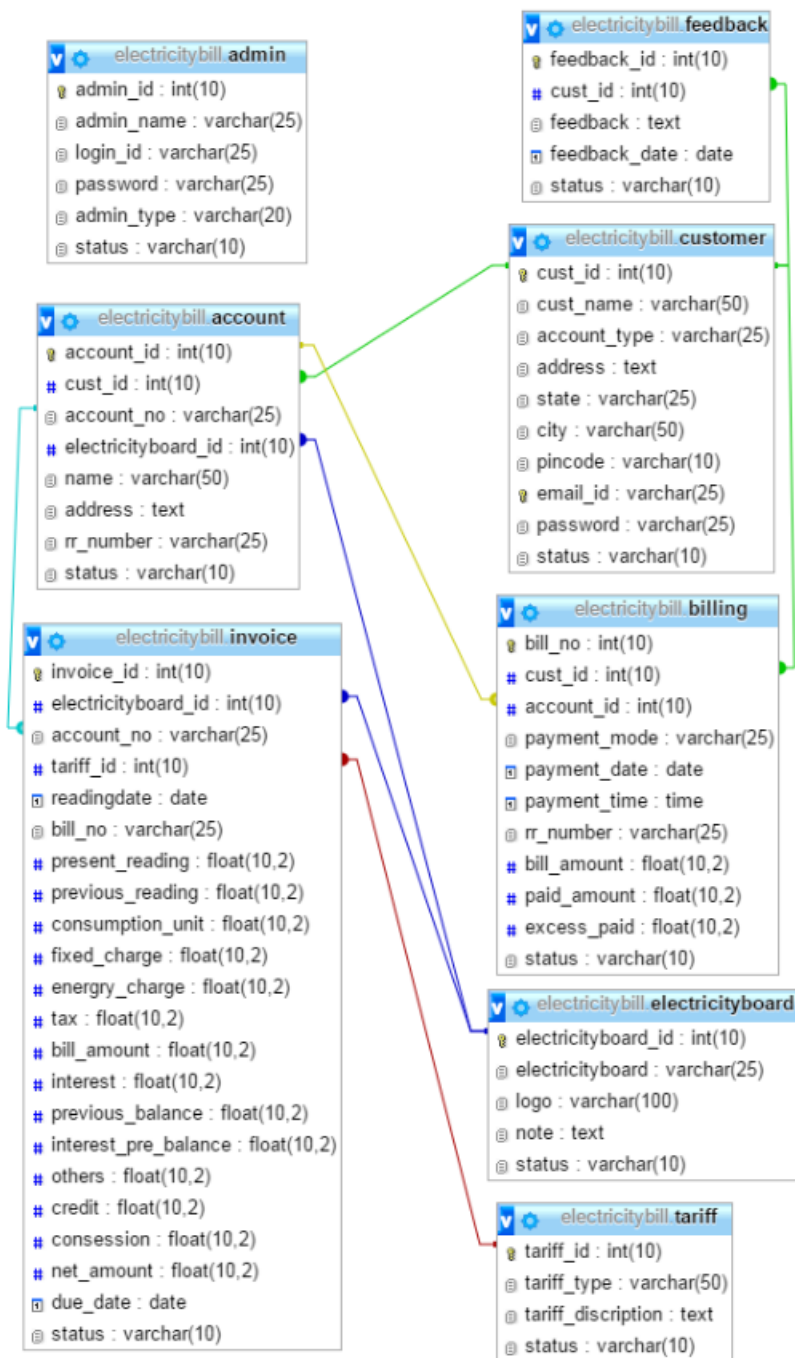
ER DIAGRAM
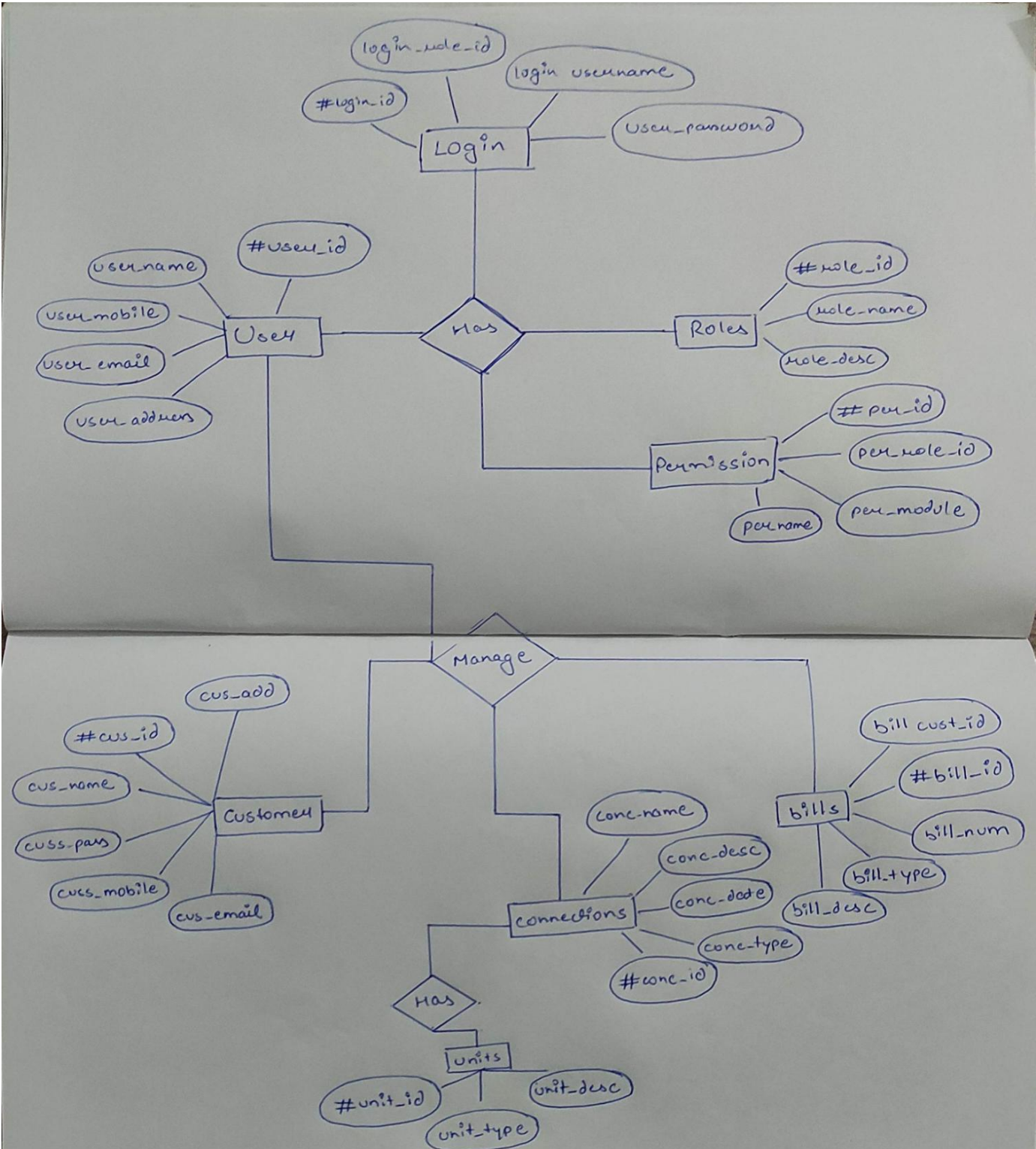
ER Diagram For Electricity Bill Management System

IMPLEMENTATION

Code:

```
CREATE TABLE `account` (
 `account_id` int NOT NULL,
 `cust_id` int NOT NULL,
 `account_no` varchar(45) NOT NULL,
 `electricityboard_id` int NOT NULL,
 `name` varchar(50) NOT NULL,
 `address` text NOT NULL,
 `rr_number` varchar(25) NOT NULL,
 `status` varchar(10) NOT NULL,
 PRIMARY KEY (`account_id`),
 KEY `cust_id_idx` (`cust_id`),
 CONSTRAINT `cust_id2` FOREIGN KEY (`cust_id`) REFERENCES `customer` (`cust_id`) ON DELETE
CASCADE ON UPDATE CASCADE
)

CREATE TABLE `admin` (
 `admin_id` int NOT NULL,
 `admin_name` varchar(25) NOT NULL,
 `login_id` varchar(25) NOT NULL,
 `password` varchar(25) NOT NULL,
 `admin_type` varchar(20) NOT NULL,
 `status` varchar(10) NOT NULL,
 PRIMARY KEY (`admin_id`)
)

CREATE TABLE `billing` (
 `bill_no` int NOT NULL,
 `cust_id` int NOT NULL,
 `account_id` int NOT NULL,
 `payment_mode` varchar(45) NOT NULL,
 `payment_date` date NOT NULL,
 `payment_time` time NOT NULL,
 `rr_number` varchar(25) NOT NULL,
 `bill_amount` float(10,2) NOT NULL,
 `paid_amount` float(10,2) NOT NULL,
 `excess_paid` float(10,2) NOT NULL,
 `status` varchar(10) NOT NULL,
 PRIMARY KEY (`bill_no`),
 KEY `account_id_idx` (`account_id`),
 KEY `cust_id_idx` (`cust_id`),
 CONSTRAINT `account_id1` FOREIGN KEY (`account_id`) REFERENCES `account` (`account_id`) ON
DELETE CASCADE ON UPDATE CASCADE,
 CONSTRAINT `cust_id3` FOREIGN KEY (`cust_id`) REFERENCES `customer` (`cust_id`) ON DELETE
CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

CREATE TABLE `customer` (
 `cust_id` int NOT NULL,
 `cust_name` varchar(50) NOT NULL,
 `account_type` varchar(25) NOT NULL,
 `address` text NOT NULL,
 `state` varchar(25) NOT NULL,
 `city` varchar(50) NOT NULL,
 `pincode` varchar(10) NOT NULL,
```

```sql
  `email_id` varchar(25) NOT NULL,
  `password` varchar(25) NOT NULL,
  `status` varchar(10) NOT NULL,
  PRIMARY KEY (`cust_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

CREATE TABLE `electricityboard` (
  `electricityboard_id` int NOT NULL,
  `electricityboard` varchar(25) NOT NULL,
  `logo` varchar(100) NOT NULL,
  `note` text NOT NULL,
  `status` varchar(10) NOT NULL,
  PRIMARY KEY (`electricityboard_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci


CREATE TABLE `feedback` (
  `feedback_id` int NOT NULL,
  `cust_id` int NOT NULL,
  `feedback` text NOT NULL,
  `feedback_date` date NOT NULL,
  `status` varchar(10) NOT NULL,
  PRIMARY KEY (`feedback_id`),
  KEY `cust_id_idx` (`cust_id`),
  CONSTRAINT `cust_id4` FOREIGN KEY (`cust_id`) REFERENCES `customer` (`cust_id`) ON DELETE
CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

CREATE TABLE `invoice` (
  `invoice_id` int NOT NULL,
  `electricityboard_id` int NOT NULL,
  `account_no` varchar(45) NOT NULL,
  `tariff_id` int NOT NULL,
  `readingdate` date NOT NULL,
  `bill_no` varchar(45) NOT NULL,
  `present_reading` float(10,2) NOT NULL,
  `previous_reading` float(10,2) NOT NULL,
  `consumption_unit` float(10,2) NOT NULL,
  `fixed_charge` float(10,2) NOT NULL,
  `energy_charge` float(10,2) NOT NULL,
  `tax` float(10,2) NOT NULL,
  `bill_amount` float(10,2) NOT NULL,
  `interest` float(10,2) NOT NULL,
  `previous_balance` float(10,2) NOT NULL,
  `interest_pre_balance` float(10,2) NOT NULL,
  `others` float(10,2) NOT NULL,
  `credit` float(10,2) NOT NULL,
  `consession` float(10,2) NOT NULL,
  `net_amount` float(10,2) NOT NULL,
  `due_date` date NOT NULL,
  `status` varchar(10) NOT NULL,
  PRIMARY KEY (`invoice_id`),
  KEY `electricityboard_id2_idx` (`electricityboard_id`),
  KEY `tariff_id_idx` (`tariff_id`),
  CONSTRAINT `electricityboard_id1` FOREIGN KEY (`electricityboard_id`) REFERENCES `electricityboard`
(`electricityboard_id`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `tariff_id1` FOREIGN KEY (`tariff_id`) REFERENCES `tariff` (`tariff_id`) ON DELETE
CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

```sql
CREATE TABLE `tariff` (
  `tariff_id` int NOT NULL,
  `tariff_type` varchar(50) NOT NULL,
  `tariff_discription` text NOT NULL,
  `status` varchar(10) NOT NULL,
  PRIMARY KEY (`tariff_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

UPDATE `ebms`.`electricityboard` SET `status` = 'due' WHERE (`electricityboard_id` = '1121');
UPDATE `ebms`.`electricityboard` SET `status` = 'done' WHERE (`electricityboard_id` = '1001');

INSERT INTO `ebms`.`electricityboard` (`electricityboard_id`, `electricityboard`, `logo`, `note`, `status`) VALUES
('1121', 'UPPCL', 'bulb', '0', 'done');

INSERT INTO `ebms`.`invoice` (`invoice_id`, `electricityboard_id`, `account_no`, `tariff_id`, `readingdate`, `bill_no`,
`present_reading`, `previous_reading`, `consumption_unit`, `fixed_charge`, `energy_charge`, `tax`, `bill_amount`,
`interest`, `previous_balance`, `interest_pre_balance`, `others`, `credit`, `consession`, `net_amount`, `due_date`,
`status`) VALUES ('01', '1001', '12345678', '501', '2022-05-04', '1', '3005', '1002', '2003', '6', '5', '2.4', '12018', '18', '0',
'0', '0', '0', '200', '11818', '2022-05-18', 'Active');

INSERT INTO `ebms`.`feedback` (`feedback_id`, `cust_id`, `feedback`, `feedback_date`, `status`) VALUES ('1001',
'101', 'Good', '2022-03-10', 'Done');
INSERT INTO `ebms`.`feedback` (`feedback_id`, `cust_id`, `feedback`, `feedback_date`, `status`) VALUES ('1003',
'103', 'Good', '2022-03-06', 'Done');
INSERT INTO `ebms`.`feedback` (`feedback_id`, `cust_id`, `feedback`, `feedback_date`, `status`) VALUES ('1004',
'104', 'Good', '2022-03-05', 'Done');


ALTER TABLE `ebms`.`billing`
DROP FOREIGN KEY `account_id1`;
ALTER TABLE `ebms`.`billing`
ADD CONSTRAINT `account_id1`
  FOREIGN KEY (`account_id`)
  REFERENCES `ebms`.`account` (`account_id`)
  ON DELETE CASCADE
  ON UPDATE CASCADE;
ALTER TABLE `ebms`.`feedback`
ADD CONSTRAINT `cust_id4`
  FOREIGN KEY (`cust_id`)
  REFERENCES `ebms`.`customer` (`cust_id`)
  ON DELETE CASCADE
  ON UPDATE CASCADE;


MODIFY `Id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;

AUTO_INCREMENT for table `customertable`

ALTER TABLE `electricityboard_table`
MODIFY `Id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;

AUTO_INCREMENT for table `table`
ALTER TABLE `custometable`

MODIFY `Id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;
AUTO_INCREMENT for table `custometable`
```

```sql
ALTER TABLE `billingtable`
MODIFY `Id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;

Constraints for dumped tables
Constraints for table `billingtable`

ALTER TABLE `billingtable`
ADD CONSTRAINT `customertable` FOREIGN KEY (`billingid`) REFERENCES `billingtable` (`Id`) ON
DELETE CASCADE ON UPDATE CASCADE;
COMMIT;
DELIMITER $$
CREATE PROCEDURE createEmailList (
INOUT emailList varchar(4000)
)

BEGIN
DECLARE finished INTEGER DEFAULT 0;
DECLARE emailAddress varchar(100) DEFAULT "";

-- declare cursor for employee email
DEClARE curEmail
CURSOR FOR
SELECT emp_email_address FROM employees;

-- declare NOT FOUND handler
DECLARE CONTINUE HANDLER
FOR NOT FOUND SET finished = 1;
OPEN curEmail;
getEmail: LOOP
FETCH curEmail INTO emailAddress;
IF finished = 1 THEN
LEAVE getEmail;
END IF;

-- build email list
SET emailList = CONCAT(emailAddress,";",emailList);
END LOOP getEmail;
CLOSE curEmail;
END$$
DELIMITER ;
SET @emailList = "";
CALL createEmailList(@emailList);
SELECT @emailList;

// DELIMITER
CREATE TRIGGER billing_after_delete
AFTER DELETE ON billings
FOR EACH ROW
BEGIN
INSERT INTO billings_Audit VALUES
(NULL, OLD.billings_id, OLD.billing_date, OLD.due_date, OLD.`payment_status`, OLD.`billing_date`,
OLD.`payment_type`, OLD.`total_bill_booked`, OLD.`electricity_board_id`, OLD.`customer_id`,
OLD.`employees_emp_id`, OLD.`total_amount`,"DELETED", NOW());
END//
DELIMITER ;
```

MySQL Account Table :

account_id	cust_id	account_no	electricityboard_id	name	address	rr_number	status
11	101	12345678	1121	Mohan	11, Street-1,Mumbai,India	1101	done
12	102	12345676	1111	Sohan	12, Street-1,Lucknow,India	1102	done
13	103	12345671	1121	Rohan	23, Street-1,Mumbai,India	1103	due
14	104	12345674	1111	Sohan	14, Street-1,Lucknow,India	1104	due
15	105	12345677	1001	Rocky	15, Street-1,Delhi,India	1105	due
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

ADMIN TABLE:

admin_id	admin_name	login_id	password	admin_type	status
001	Raj Patel	Raj@123	123123123	Admin	Active
	NULL	NULL	NULL	NULL	NULL

BILLING TABLE:

bill_no	cust_id	account_id	payment_mode	payment_date	payment_time	rr_number	bill_amount	paid_amount	excess_paid	status
1	101	11	Online	2022-03-10	06:25:00	1101	1820.00	1820.00	0.00	Done
2	102	12	Online	2022-03-13	08:25:00	1102	2021.00	2021.00	0.00	Done
3	103	13	Cash	2022-03-06	04:25:00	1103	1584.00	1000.00	0.00	Due
4	104	14	Cash	2022-03-05	06:25:00	1104	2524.00	1500.00	0.00	Due
5	105	15	Online	2022-03-15	05:25:00	1105	1021.00	500.00	0.00	Due
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Customer Table:

ELECTRICITY BOARD TABLE:

FEEDBACK TABLE:

INVOICE TABLE:

`1 • SELECT * FROM ebms.invoice;`

invoice_id	electricityboard_id	account_no	tariff_id	readingdate	bill_no	present_reading	previous_reading	consumption_unit	fixed_charge	energy_charge	tax	bill_amount	interest	previous_balance	interest_pre_balance	other
01	1001	12345678	501	03-05-2022	1	3005	1002	2003	6	5	2.4	12018	18	0	0	0
02	1101	12345676	501	04-05-2022	2	2505	1500	1005	6	5	2.4	6030	18	0	0	0
03	1111	12345671	502	01-05-2022	3	2445	1111	1334	6	5	2.4	8004	18	0	0	0
04	1121	12345674	502	03-05-2022	4	2405	986	1419	6	5	2.4	8514	18	0	0	0
05	1122	12345677	503	04-05-2022	5	1990	856	1134	6	5	2.4	6804	18	0	0	0
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

nce	others	credit	consession	net_amount	due_date	status
0	0	200	11818	18-05-2022	Active
0	0	100	5930	18-05-2022	Active
0	0	500	7504	18-05-2022	Active
0	0	400	8114	18-05-2022	Active
0	0	600	6204	18-05-2022	Active
NULL	NULL	NULL	NULL	NULL	NULL

TARIFF TABLE:

`1 • SELECT * FROM ebms.tariff;`

tariff_id	tariff_type	tariff_discription	status
501	specific	fixed monetary amount per unit of imported good	done
502	ad valorem	a fixed percentage of the value of the imported good	done
503	specific	fixed monetary amount per unit of imported good	done
NULL	NULL	NULL	NULL

CONCLUSION

In comparison to previous experiences, when every activity related to the vehicle rental business was restricted to a physical place alone, the car rental industry has emerged with new delicacies. Even if the physical location has not been completely eliminated, the internet's power has altered the nature of functions and how these tasks are accomplished. Customers may now book vehicles online, rent automobiles online, and have the car delivered to their home if they are a registered member, or they can travel to the office to pick up the car.

REFERENCES

[1]   https://www.w3schools.com/mySQl/

[2]   https://www.w3schools.com/css/default.asp

[3]   StudyProjectguide.com

[4]   You Tube - to install the MYSQL Workbench