VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

Internship Report

On

"ELECTRICITY BILLING SYSTEM"

A report submitted in partial fulfillment of the requirements for the award a degree of

BACHELOR OF ENGINEERING

In

COMPUTER SCIENCE AND ENGINEERING

Submitted by

FARHEEN SADIA **4AL20CS037**

Under Supervision of

Dr. Bramha Prakash H P

Associate Professor

Department of Computer Science and Engineering

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

2023-2024

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that Internship report on "ELECTRICITY BILLING SYSTEM" submitted by FARHEEN SADIA (4AL20CS037) is work done by her and submitted during the academic year 2023-2024 in partial fulfilment of the requirements for the award of the degree of BACHELOR OF ENGINEERING in COMPUTER SCIENCE AND ENGINEERING

BR.

Internship Mentor
Department of CSE

BR. 9/5/24.

Internship Coordinator
Department of CSE

Head of the Department
Department of CSE

Examiners

Name	Signature
1)	
2)	

Acknowledgement

First, I would like to thank **QSpiders** for giving me the opportunity to do an internship within the organization.

I also would like all the people that worked along with me in **QSpiders** with their patience and openness they created an enjoyable working environment.

It is indeed with a great sense of pleasure and immense sense of gratitude that I acknowledge the help of these individuals.

I am highly indebted to Managing Trustee **Mr. Vivek Alva** and Principal **Dr. Peter Fernandes, Alva's Institute of Engineering and Technology, Mijar** for the facilities provided to accomplish this internship.

I would like to thank my Head of the Department **Dr. Manjunath Kotari, Professor, Department of Computer Science and Engineering** for his constructive criticism throughout my internship.

I would like to thank my Internship Coordinator **Dr. Bramha Prakash H P, Associate Professor, Department of Computer Science and Engineering** for his guidance throughout my internship.

I am extremely grateful to my department staff members and friends who helped me in successful completion of this internship.

FARHEEN SADIA

4AL20CS037

INTERNSHIP CERTIFICATE

ABSTRACT

QSpiders is a best-in-class learning solutions organization headquartered in India's IT capital, Bangalore. It offers a wide range of courses in the area of software testing and are official partners of the ISTQB. A "finishing school" in many ways, the institute provides young job aspirants the perfect launch-pad to build a rewarding career in the growing IT sector. From its humble beginnings, QSpiders has exponentially grown to be the world's largest software testing training organization spread across countries. At QSpiders, it ensures training is imparted by specialists with proven subject matter expertise and who have spent over a decade in their area of specialization. Its faculty are highly competent, skilled and dedicated to giving their best towards the professional development of students. Besides training, it also provides placement assistance to our students and most of the big corporates in the corporate world hire our trained talent. It is indeed our pleasure to have placed over thousands of job-seekers in various IT firms across India over the years with an aim to place thousands more! Building competency into over 5000 students a month, QSpiders is where talent meets opportunity and we believe your search for the dream job or the dream professional ends here.

DAILY LOGS

DAY	DATE	TOPICS COVERED
Day 1-Day 10	15/11/2022-25/11/2022	Core Java
Day 11-Day 16	01/09/2023-05/09/2023	Advanced java concept
Day 17-Day 20	06/09/2023-09/09/2023	HTML, CSS, JavaScript
Day 21-Day 25	10/09/2023-15/09/2023	Data Structure and Algorithm
Day 26-Day 32	08/10/2023-14/10/2023	Artificial Intelligence and Machine Learning
Day 33-Day 45	15/10/2023-28/10/2023	MySQL

INDEX

LIST OF FIGURES

INTERNSHIP OBJECTIVES

The main objective of this internship is to lean both backend and fronted technologies so that workers can work in any field of software development. To maximize the quality of work in the field of software development. It has been provided to impart practical problem-solving skills which in turn will enhance prospects of career growth. It has provided hands-on Experience which aim to gain practical, real-world experience in software development, testing, or related areas. They get the opportunity to work on actual projects and tasks, applying the knowledge they've gained in academic settings to real-world scenarios. Internships provide opportunities for interns to develop and enhance their technical skills, such as programming languages, software development methodologies, version control systems, etc. They may also improve their soft skills like communication, teamwork, problem-solving, and time management.

CHAPTER 1

INTRODUCTION

QSpiders is the world's ace software training organization with an aim to bridge the gap between the demands of the industry and the curriculum of educational institutions. With centers across the Globe, the institute is a platform where young minds are given the opportunity to build successful careers. The company vision is to build an employee fit for agile workspace and provides more software related course which will help us to enlighteningour carrier. The company is mainly focusing on Software Development, Software Testing, CoreJavaand Selenium, API Testing, Java Full Stack Development etc. The company will providethe sufficient training which will be helpful to crack the interview offered by other companies.It also provides placement opportunities for both graduates as well as students in different MNC's. QSpiders, JSpiders and PySpiders hold the record of supplying the highest number of industry-ready technical resources. They can supply over 3500 technical resources at any time to meet the industry's demand.

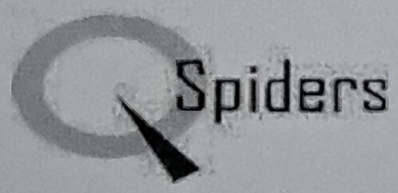

Fig 1.1 Logo of QSpiders

Contact Details:

Website: https://www.qspiders.com/

Headquarters: Bangalore

Year of Found: 2003

Company Type:

QSpiders is a private company based in Bangalore, India that provides training and placement services in software testing and other related fields. The company has several branches across India and offers courses in manual testing, automation testing, mobile testing, and more.

QSpiders has gained a reputation for providing quality training and has placed many of its students in top IT companies in India. The company has a team of experienced trainers who provide hands-on training to the students and help them build their skills in software testing.

While QSpiders has received positive reviews from many of its students and clients, it's important to note that individual experiences may vary. It's always a good idea to do your own research and read reviews before choosing a training provider.

Address:

01, Hayavadana Rao Rd, Basappa Layout,
Gavipuram Extention,Kempegowda Nagar,
Bengaluru, Karnataka 560019
Email - enquiry@qspiders.com
Phone - 8951965854

CHAPTER 2

PROJECT DETAILS

2.1 PROJECT AREA/DOMAIN

The "Electricity Billing System" project represents a significant advancement in utility service management. By utilizing a frontend stack comprising HTML, JavaScript, CSS, and Bootstrap for intuitive user interfaces and a backend stack including PHP and MySQL for efficient data processing, the system revolutionizes the way Electricity Boards handle billing and customer records. It automates the generation of monthly electricity bills, tracks energy usage, stores customer information securely, and manages penalties for overdue payments. This comprehensive approach not only minimizes manual effort but also reduces errors, ensures timely billing, and enhances overall customer satisfaction in the electricity utility domain.

2.2 PROBLEM STATEMENT

The "Electricity Billing System" project in India seeks to automate the manual electricity billing process by eliminating the need for physical meter reading through the implementation of a web application with both Admin and User panels. Users can access information, pay bills, view transaction history, and file complaints, while the Admin has full control to generate bills, manage complaints, and oversee transactions, streamlining operations and enhancing user experience in the electricity billing domain.

2.3 PROPOSED IDEA AND METHODOLOGY

The proposed "Electricity Billing System" aims to automate manual tasks such as maintaining spreadsheets and ledger entries, saving time and ensuring accurate record-keeping. It efficiently stores client information like names, addresses, payment terms, and preferred methods, enhancing user experience and streamlining billing processes. The methodology includes designing user-friendly interfaces, implementing data storage with PHP and MySQL, incorporating billing algorithms, and integrating payment gateways for online transactions, resulting in a more effective and user-friendly billing system.

CHAPTER 3

SYSTEM DESIGN

3.1 SCHEMA DIAGRAM

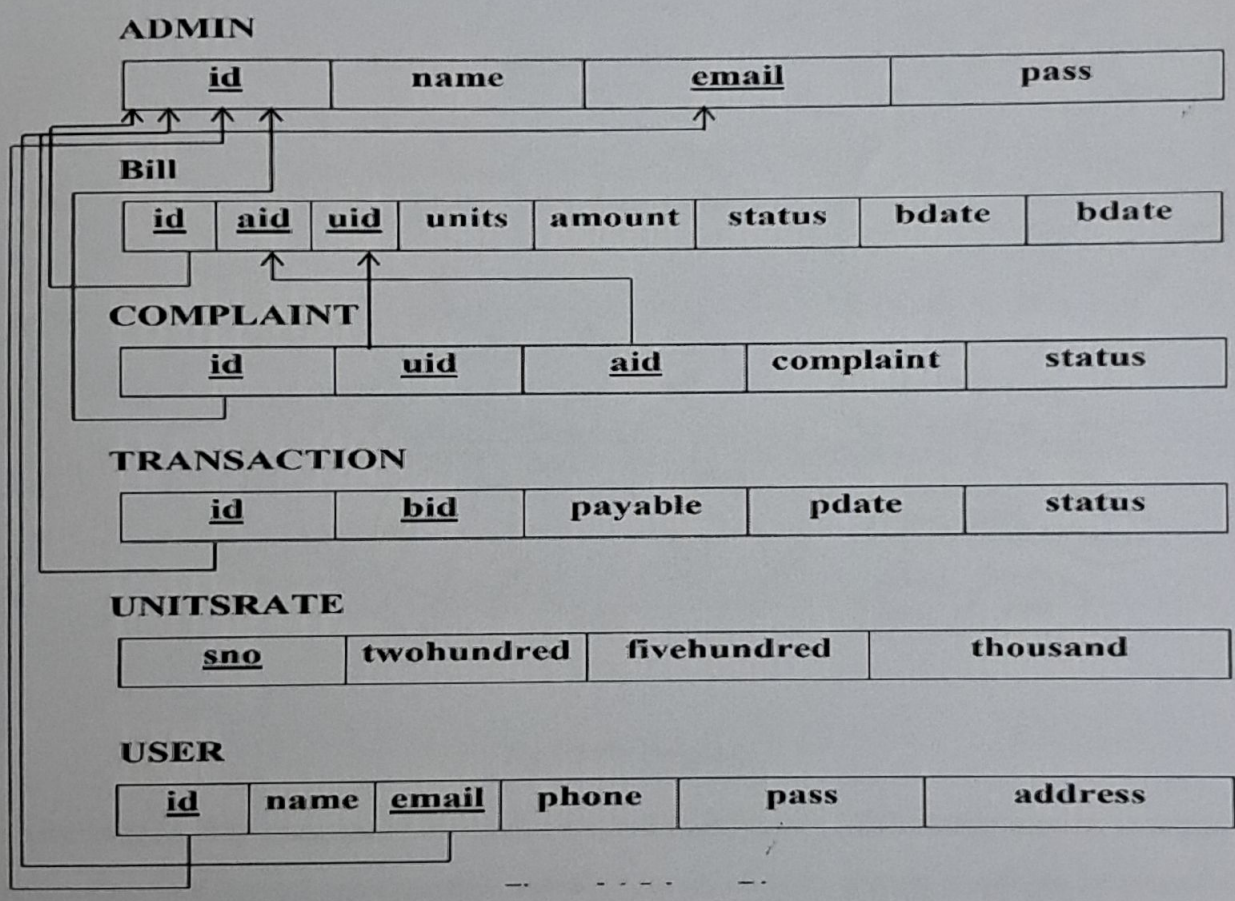

Fig 3.1 Schema Diagram

The Figure 3.1 is the schema diagram for Electricity Billing System.It shows the relationship between different table attribute. Here underlined attributes are the primary keys such as id, uid,aid,bid, The Foreign keys like id from BILL,COMPLAINT,TRANSACTION,USER will refer the primary key of ADMIN table, similarly foreign keys like aid,uid refers to BILL table respectively.

3.2 ER DIAGRAM

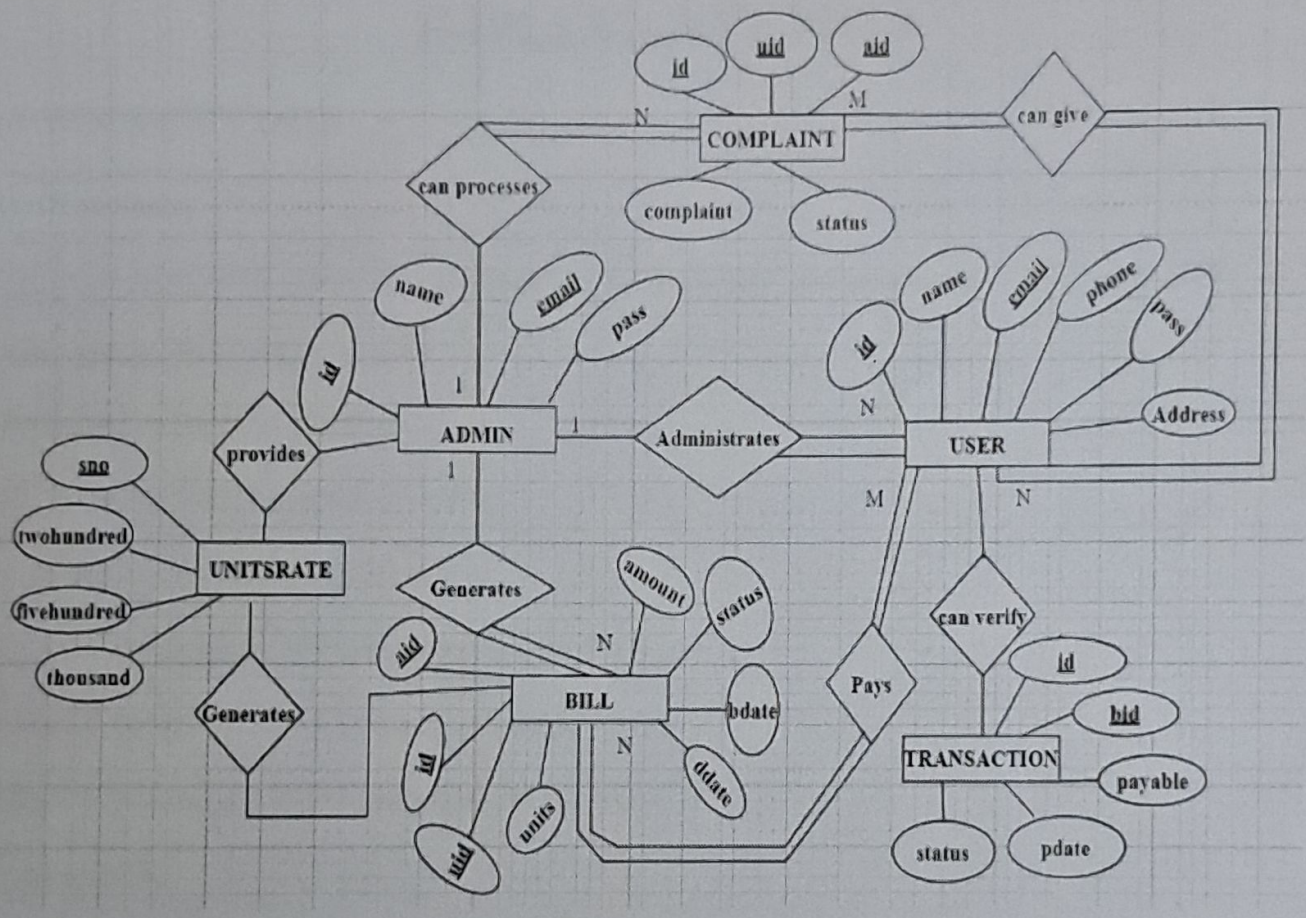

Fig 3.2 ER Diagram

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system.

Following are the main components and its symbols used in ER Diagrams:

Rectangle symbol represents entity types.

Ellipses symbol represents attributes.

Diamond symbol represents relationship types

Lines: It links attributes to entity types and entity types with other relationship types.

CHAPTER 4

IMPLEMENTATION

4.1 SOURCE CODE

- Procedures

```
CREATE DEFINER=`root`@`localhost` PROCEDURE `unitstoamount` (IN `units` INT(14),
OUT `result` INT(14)) BEGIN
DECLARE a INT(14) DEFAULT 0;
DECLARE b INT(14) DEFAULT 0;
DECLARE c INT(14) DEFAULT 0;
SELECT twohundred FROM unitsRate INTO a ;
SELECT fivehundred FROM unitsRate INTO b ;
SELECT thousand FROM unitsRate INTO c ;
IF units<200
then
SELECT a*units INTO result;
ELSEIF units<500
then
SELECT (a*200)+(b*(units-200)) INTO result;
ELSEIF units > 500
then
SELECT (a*200)+(b*(300))+(c*(units-500)) INTO result;
END IF;
```

```
END$$
```

- Functions

```
CREATE DEFINER=`root`@`localhost` FUNCTION `curdate1` () RETURNS INT(11)
BEGIN
DECLARE x INT;
SET x = DAYOFMONTH(CURDATE());
IF (x=1)
THEN
RETURN 1;
ELSE
RETURN 0;
END IF;
END IF;
END$$
DELIMITER ;
```

- Table structure for table `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;
```

- Table structure for table `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;
```

- Table structure for table `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;
```

- Table structure for table `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;
```

- Table structure for table `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;
```

- Table structure for table `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;
ALTER TABLE `admin`
ADD PRIMARY KEY (`id`);
```

- Indexes for table `bill`

```
ALTER TABLE `bill`
ADD PRIMARY KEY (`id`),
ADD KEY `aid` (`aid`),
ADD KEY `uid` (`uid`);
```

- Indexes for table `complaint`

```
ALTER TABLE `complaint`
ADD PRIMARY KEY (`id`),
ADD KEY `aid` (`aid`),
ADD KEY `uid` (`uid`);
```

- Indexes for table `transaction`

```
ALTER TABLE `transaction`
ADD PRIMARY KEY (`id`),
ADD KEY `bid` (`bid`);
```

- Indexes for table `user`

```
ALTER TABLE `user`
ADD PRIMARY KEY (`id`);
```

- AUTO_INCREMENT for table `admin`

```
ALTER TABLE `admin`
MODIFY `id` int(14) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;
```

- AUTO_INCREMENT for table `bill`

```
ALTER TABLE `bill`
MODIFY `id` int(14) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=25;
```

- AUTO_INCREMENT for table `complaint`

```
ALTER TABLE `complaint`
MODIFY `id` int(14) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=14;
```

- AUTO_INCREMENT for table `transaction`

```
ALTER TABLE `transaction`
MODIFY `id` int(14) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=25;
```

- AUTO_INCREMENT for table `user`

```
ALTER TABLE `user`
MODIFY `id` int(14) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=12;
```

- Constraints for dumped tables

```
ALTER TABLE `bill`
ADD CONSTRAINT `bill_ibfk_1` FOREIGN KEY (`aid`) REFERENCES `admin` (`id`)
ON DELETE CASCADE ON UPDATE CASCADE,
ADD CONSTRAINT `bill_ibfk_2` FOREIGN KEY (`uid`) REFERENCES `user` (`id`) ON
DELETE CASCADE ON UPDATE CASCADE;
```

- Constraints for table `complaint`

```
ALTER TABLE `complaint`
ADD CONSTRAINT `complaint_ibfk_1` FOREIGN KEY (`aid`) REFERENCES `admin`
(`id`) ON DELETE CASCADE ON UPDATE CASCADE,
ADD CONSTRAINT `complaint_ibfk_2` FOREIGN KEY (`uid`) REFERENCES `user`
(`id`) ON DELETE CASCADE ON UPDATE CASCADE;
```

- Constraints for table `transaction`

```
ALTER TABLE `transaction`
ADD CONSTRAINT `transaction_ibfk_1` FOREIGN KEY (`bid`) REFERENCES `bill`
(`id`) ON DELETE CASCADE ON UPDATE CASCADE;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101SETCHARACTER_SET_CONNECTION=@OLD_COLLATION_CONNECTION
*/
```

CHAPTER 5

RESULTS

5.1 SNAPSHOTS

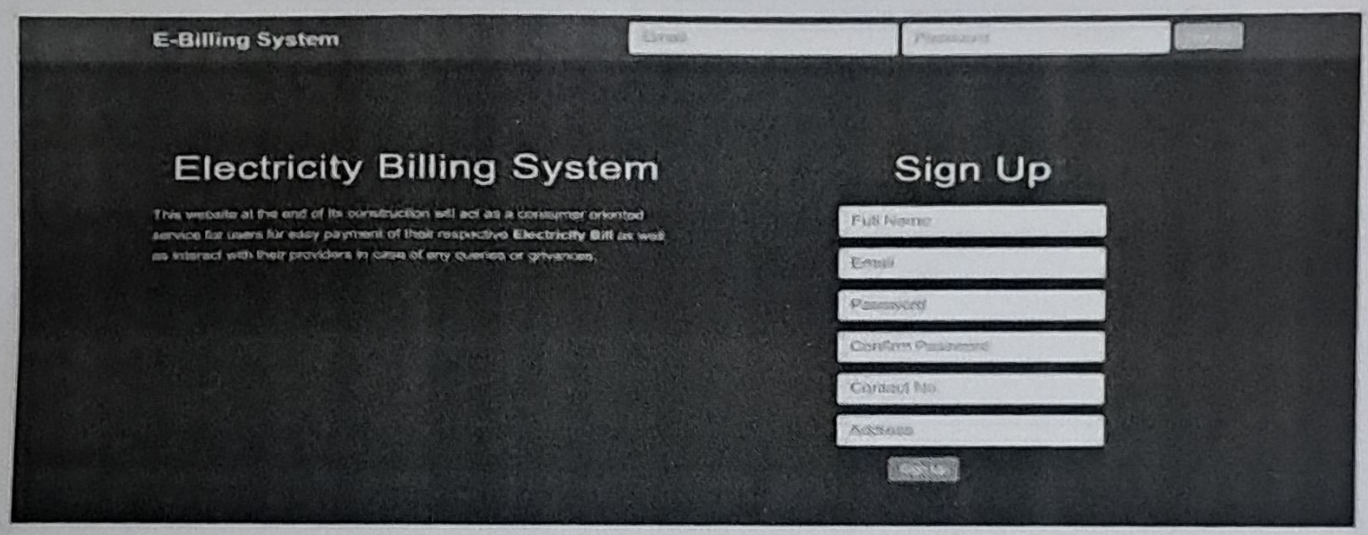

Fig 5.1 Login Page

This is the snapshot of login page where customer can login to their existing account, but if there is a new customer then they should use sign up panel to create their account.

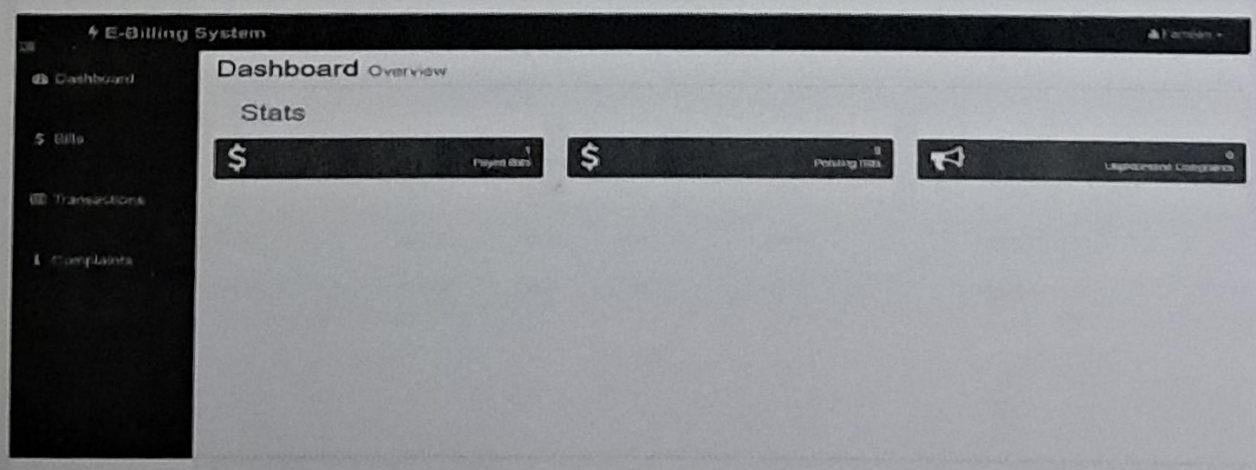

Fig 5.2 User Dashboard Page

This is the overview of user dashboard, here there is a many options or a fields like Bills, Transaction, Complaints etc. and are available for users.

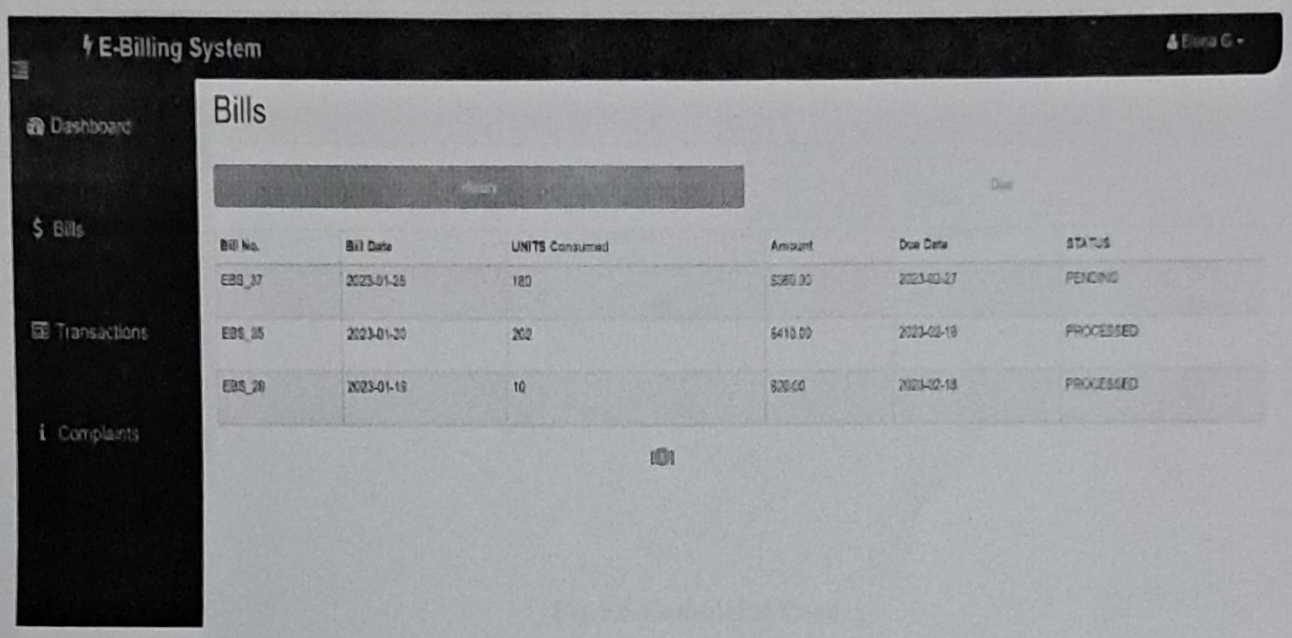

Fig 5.3 Bills Page

The Bills page shows detailed information about the amount that has been generated based on the units consumed along with the due date and the status of Bill.

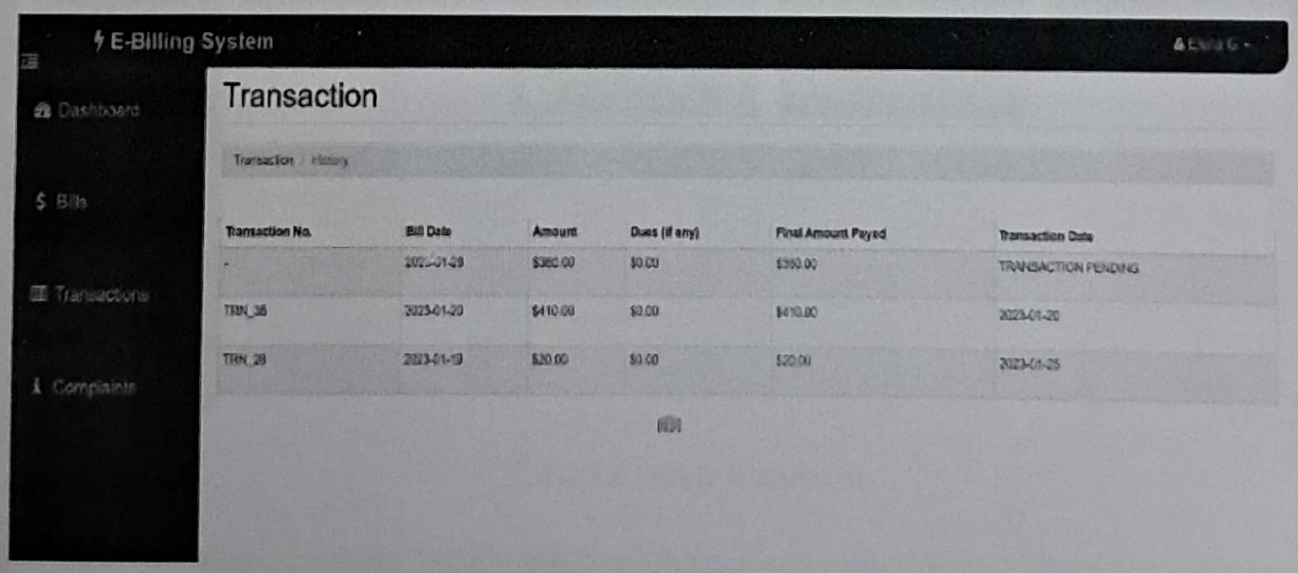

Fig 5.4 Transaction Page

This page shows the transaction history of the bills, along with the Bill date and the Transaction date, if the bill is not paid, then it displays Transaction Pending.

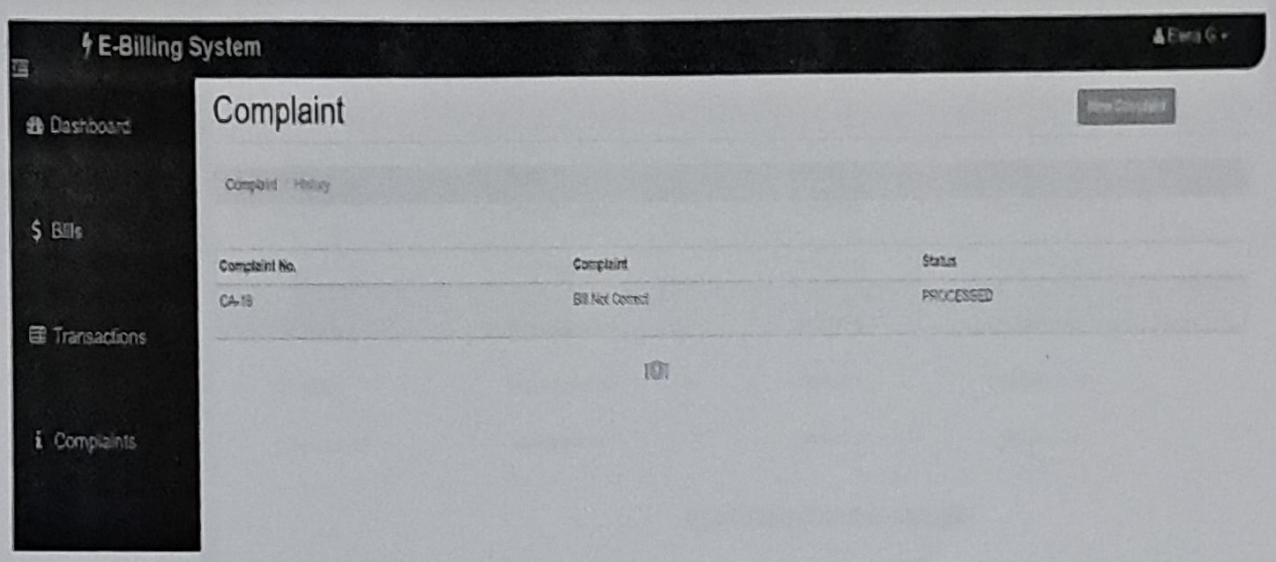

Fig 5.5 Complaint Page

Users can give complaints regarding to the bills.

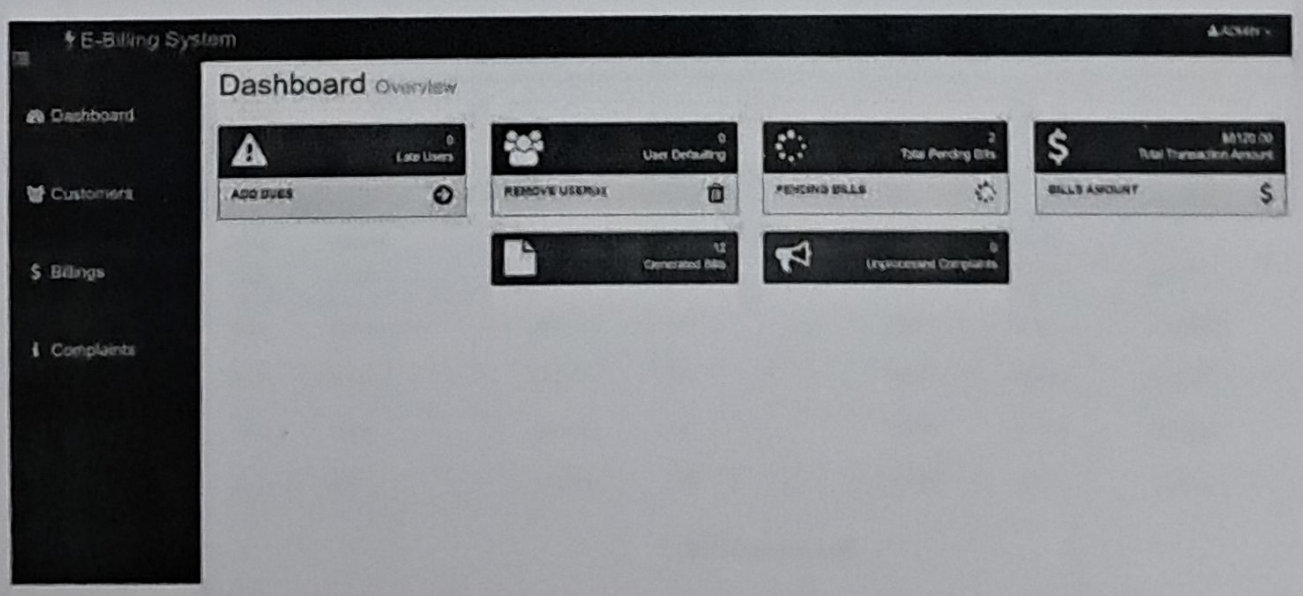

Fig 5.6 Admin Dashboard

This the snapshot of Admin Dashboard containing many information's about the customer, billings, complaints etc.

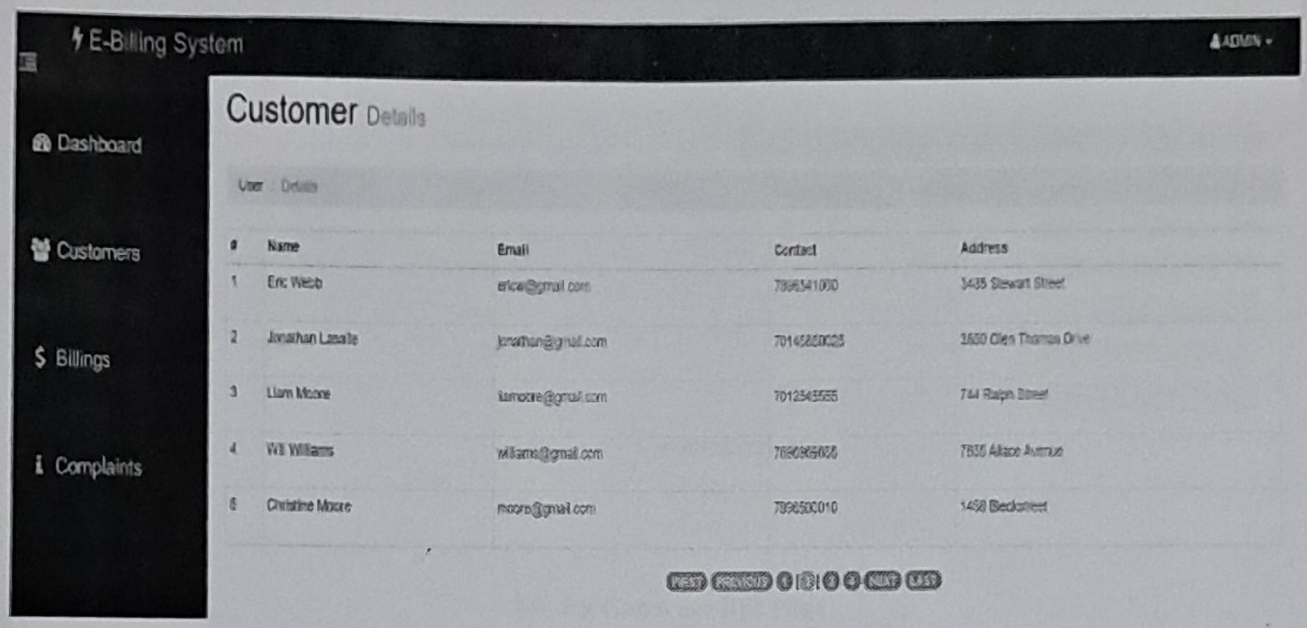

Fig 5.7 Customer Details Page

Admin can view the details of the customers or the users.

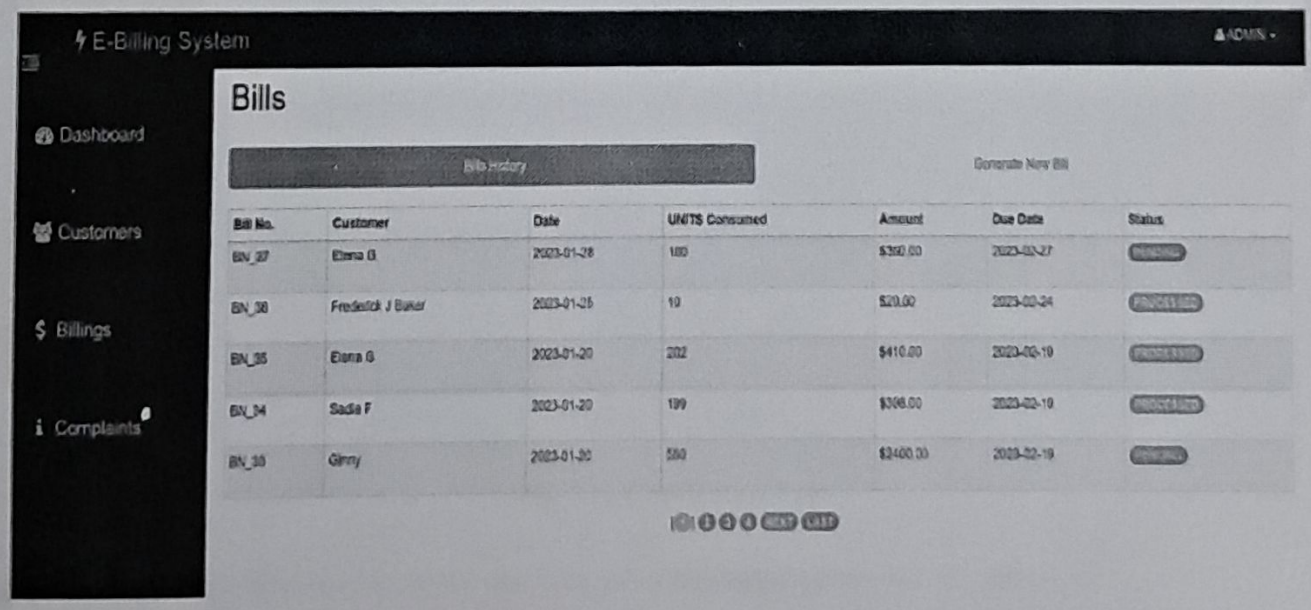

Fig 5.8 Bills Details

Admin can check the details of the bill, and the status of the bill to check whether bill paid by the user or not.

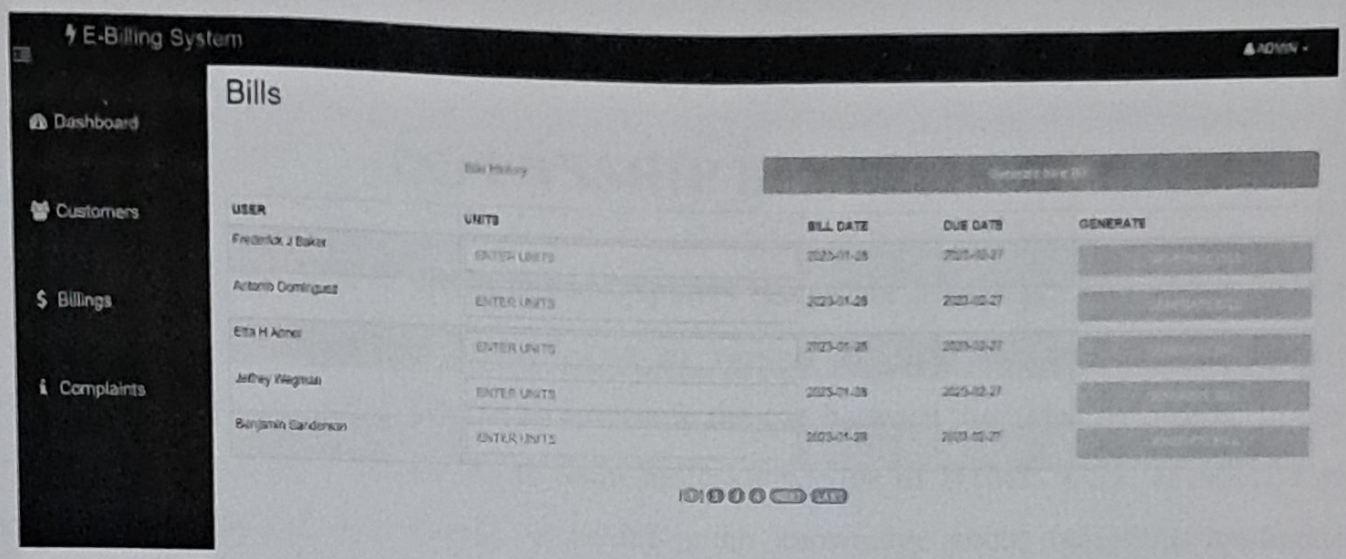

Fig 5.9 Generate Bill Page

Admin generates the bill to the customer based on the units consumed.

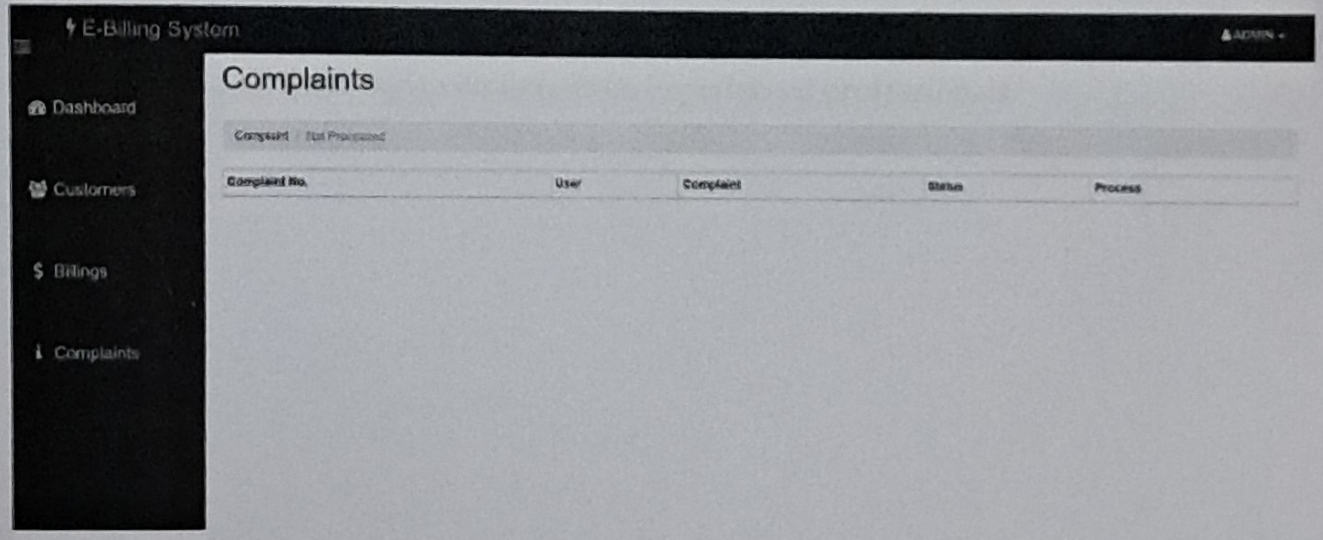

Fig 5.10 Complaints Page

Admin can process the one or many number of complaints given by the users.

CHAPTER 6

INTERNSHIP BENEFITS

After Completing 90 days of internship in QSpiders Bangalore ,I have got idea about different python and Java frameworks, technologies in various IT field for real time application development. This internship help us to overcome the gap between the industrial needs. In these 30 days of internship, it helped me to learn basic knowledge of HTML, CSS, JavaScript and Database like MySQL and Oracle. Provides much knowledge about real time application development using software development practices. Learned to debugging the code to fix the error. Able to work with team and learned how to be a part of team during work. Learnt both frontend and backend technologies for efficient application. Internship has enhanced the technical skills in Java programming, web development (HTML, CSS, JavaScript), data structures, algorithms, AI/ML concepts, and database management (MySQL) and learnt industry best practices and methodologies directly from experienced professionals.

CHAPTER 7

CONCLUSION

The proposed Electricity Billing System serves as a valuable tool for the owners and administrators of electricity departments by facilitating the billing process for customers. This user-friendly application simplifies bill payments, providing customers with a seamless experience while ensuring ease of handling and maintenance for administrators. With features designed for efficiency and convenience, such as online bill payment capabilities, detailed billing information, and streamlined administrative functions, this system enhances overall operational effectiveness and customer satisfaction. Its intuitive interface and robust backend infrastructure make it a reliable and scalable solution for modernizing electricity billing systems, catering to the evolving needs of both users and administrators in the utility sector.

REFERENCES

[1] A. Andrew1 Nigerian Electricity Regulatory Commission, Phase 2, 274 10th Street, Central Business District Abuja –Nigeria. nokamanda@gmail.com P.U.Okorie2 Department of Electrical Engineering, Faulty of Engineering, Ahmadu Bello Univesity, Zaria. Zaria - Nigeria patrickubeokorie@yahoo.com A.I. Abdu3 Department of Computer Engineering, Faulty of Engineering, Ahmadu Bello Univesity, Zaria Zaria - Nigeria aiabdu@abu.edu.ng DESIGN AND IMPLEMENTATION OF AN ELECTRICITY ON-LINE BILLING PAYMENT SYSTEM, Conference: 2nd International Conference of the IEEE Nigeria Computer Chapter (IEEEnigComputConf'19At: Department of Computer Enginering, Ahmadu Bello University, Zaria, November 2019.

[2] Arimoro, T. A., Oyetunji, A. K., & Odugboye, O. E. (2019). Analysis of Electricity Billing System in Corporate Buildings in Lagos, Nigeria. Studies, 1(6), 10-20.

[3] Adegboyega, A., Gabriel, A. A., Ademola, A. J., Victor, A. I., & Nigeri, K. (2013). Design and Implementation of an Enhanced Power Billing System for Electricity Consumers in Nigeria. African Journal of Computing & ICT, 6(1).