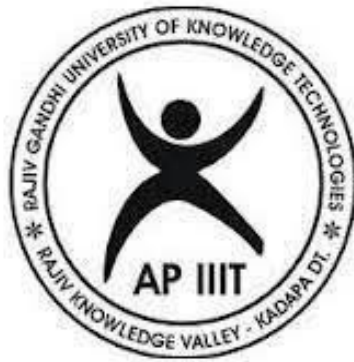


Project Report
On
“Electricity Billing System”

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING



RGUKT

Rajiv Gandhi University of Knowledge Technologies

R.K.VALLEY

Submitted by

V.Nagalakshmi--R170403

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**Under the Esteemed guidance of
Mr. Satya Nandaram N
RGUKT RK Valley.**

DECLARATION

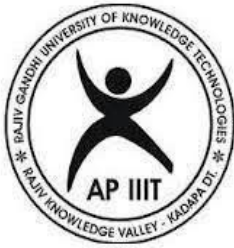
We hereby declare that the report of the B.Tech Mini Project Work entitled **“Electriciry Billing System”** which is being submitted to Rajiv Gandhi University of Knowledge Technologies, RK Valley, in partial fulfillment of the requirements for the award of Degree of Bachelor of Technology in Computer Science and Engineering, is a bonafide report of the work carried out by us. The material contained in this report has not been submitted to any university or institution for award of any degree.

V Nagalakshmi – R170403

Petnikota Vasu – R170657

Dept. Of Computer Science and Engineering.

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES



RGUKT, RK VALLEY

Department of Computer Science and Engineering

CERTIFICATE FOR PROJECT COMPLETION

This is certify that the project entitled **“Electricity Billing System”** submitted by **V Nagalakshmi(R170403),P Vasu(R170657)**,under our guidance and supervision for the partial fulfillment for the degree Bachelor of Technology in Computer Science and Engineering during the academic semester -2 2021-2022 at RGUKT, RK VALLEY. To the best of my knowledge, the results embodied in this dissertation work have not been submitted to any University or Institute for the award of any degree or diploma.

Project Internal Guide

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RGUKT, RK Valley

Head of the Department

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HOD OF CSE
RGUKT, RK Valley

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts success.

I am extremely grateful to our respected Director, Prof. K.SANDHYA RANI for fostering an excellent academic climate in our institution.

I also express my sincere gratitude to our respected Head of the Department Mr.P.HARINATH for his encouragement, overall guidance in viewing this project a good asset and effort in bringing out this project.

I would like to convey thanks to our guide at college Mr.N.Satyanandaram for his guidance, encouragement, co-operation and kindness during the entire duration of the course and academics.

My sincere thanks to all the members who helped me directly and indirectly in the completion of project work.

I express my profound gratitude to all our friends and family members for their encouragement.

Abstract

The “**Electricity Billing System**” is a Project on an automation of generating and displaying of the Electricity Bill based on the number of units entered by the consumer.

“**Electricity Billing System**” aims to generate electricity bill with all the charges.

This “**Electricity Billing System**” is an Executive information system that determines the bill based on the Consumer Service Id ,No.Of.Units ,And Charger Per 1 Unit generates the electricity bill of the Consumer.

“**Electricity Billing System**” provides an environment to maintain the Consumer Details.

Introduction

1.1: Purpose

The purpose of this document is to generate the customer electricity bill. Consumer electricity bill can be uploaded for viewing by the consumers. Customers can view latest news update concerning the power supply.

1.2: Intended Audience:

The intended audience will be the users who can access the platform to get their electricity bill and also users can view their complete statistics from the Nodejs Server and print their details.

Users:

Electricity Consumers

Product Vision:

Vision Statement:

The product vision is to develop a Simple Web Based Application to help for the Consumers of Electricity in knowing their Electricity Bill just by entering their Number Of Units, which is user friendly and easily accessible.

1.3: Scope

The main Scope of this project is to generate the customer monthly electricity bill. It is easy to generate their bills based on the No. of Units consumed by the consumer. **Energy-Saving Opportunities.** Electricity is a powerful form of energy that is essential to the operation of virtually every facility in the world.

It is also an expensive form of energy that can represent a significant portion of a manufacturing facility's cost of production. As Technology is growing rapidly we are also moving to a technical world where everything we want to be online. So with the help of this project each customer electricity bill is generate based on the charges per unit.

Software Requirement Specification(SRS)

Hardware Configuration:

Client Side:

RAM	512 GB
Hard Disk	10 GB
Processor	1.0 GHz

Server side:

RAM	1 GB
Hard Disk	20 GB
Processor	2.0 GHz

Software Requirement:

Frontend Technologies	HTML,CSS,BOOTSTRAP ,JQ QUERY,JAVASCRIPT
Backend Technology	Nodejs
DataBase	MongoDB
Web Browser	Firefox,Google Chrome or any compatible browser

Operating System	Ubuntu,Windows or any equivalent OS
Software	Linux 64-bit Processor

1.0 Functional Requirements:

This section gives a functional requirement that is applicable to the “Electricity Billing System”

1.0.1:User Module/Customer Module:

Based on the No.of Units consumed,any user can calculate his electricity bill.but,every customer has his unique service number .One customer can have exactly one service number only.

2.0 Non-Functional Requirements:

2.0.1 Performance Requirements

1. Response Time -

The System shall give responses in 2 seconds after user/consumer login.

2. Capacity -

The system can support multiple computers but it need to be install on every computer seperately.

3. Safety Requirement -

All logged information,updates,user activities are securely stored in Nodejs Server.

4. Security Requirement -

Any modification for the database shall be synchronized.

Technologies Covered

- HTML
- CSS
- Bootstrap
- jQuery
- JavaScript
- Nodejs
- MongoDB

HTML:-

- HTML stands for Hyper Text Markup Language.
- HTML is the standard markup language for creating Web pages.
- HTML describes the structure of a Web page

CSS:-

- CSS stands for CasCading Style Sheet.
- CSS is used to presentation and formatting and layout.

BOOTSTRAP:-

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS and (optionally) JavaScript- based design templates for typography, forms, buttons, navigation, and other interface components.

JQuery:-

jQuery is a JavaScript library designed to simplify HTML DOM traversal and manipulation as well as Event Handling, CSS Animations, and Ajax

JavaScript:-

JavaScript is the programming language of the web application used both on the Client-Side and Server-Side that allows you to make web pages interactive.

Nodejs:-

Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.

Node.js lets developers use JavaScript to write command line tools and for server-side scripting-running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser. Consequently, Node.js represents a "JavaScript everywhere" paradigm unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.

MongoDB :-

MongoDB is a document-oriented NoSQL database used for high volume data storage. Instead of using tables and rows in the traditional relational databases, MongoDB makes use of

collections and documents. Documents consist of key-value pairs which are the basic unit of data in MongoDB. Collections contain sets of documents and functions.

MongoDB Connection to Nodejs:-

```
1  const {MongoClient}=require('mongodb')
2  const dbName = "bills-api"
3  const connectionURL="mongodb://localhost:27017/"
4
5  const client=new MongoClient(connectionURL)
6  async function connection(){
7      let result =await client.connect()
8      return result.db(dbName)
9  }
10
11
12  async function addRecord(record){
13      let db=await connection()
14      let response=await db.collection("bills").insertOne(record)
15      return response
16  }
17
18  async function deleteAll(){
19      let db=await connection()
20      let response=await db.collection("bills").deleteMany()
21      return response
22  }
23  deleteAll()
24  async function findAllBills(){
25      let db=await connection()
26      let response =await db.collection("bills").find({})
27      console.log(response)
28      return response
29  }
30  module.exports={addRecord,findAllBills}
```

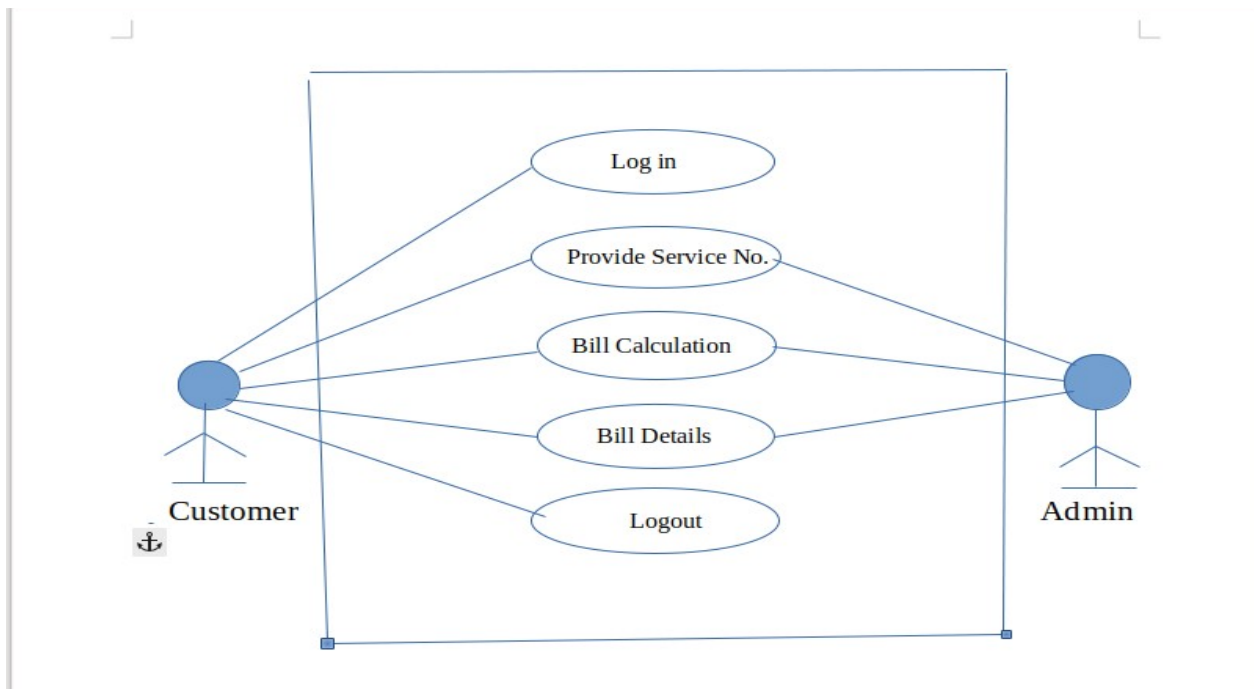
Use Case Diagram:-

Use Case Diagram model behaviour within a system and helps the developers understand what users require. The stick man represents what's called an actor.

The purpose is to show the interaction between the use case and actor.

To represent the system requirements from the user's perspective.

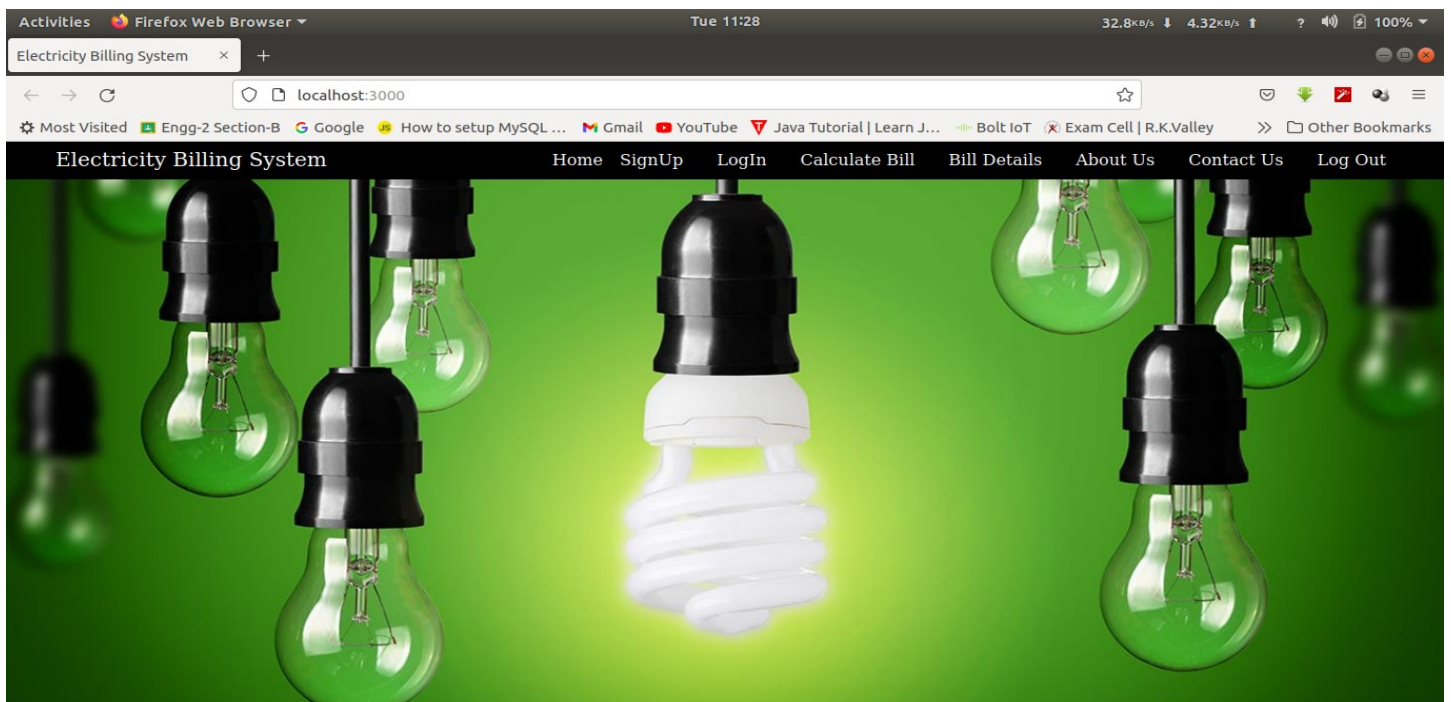
An actor could be an end-user of the system or an external system. Use case diagrams can be useful for getting an overall view of the system and clarifying what it can do and more importantly what it can't do.



Evaluation

Home Page :

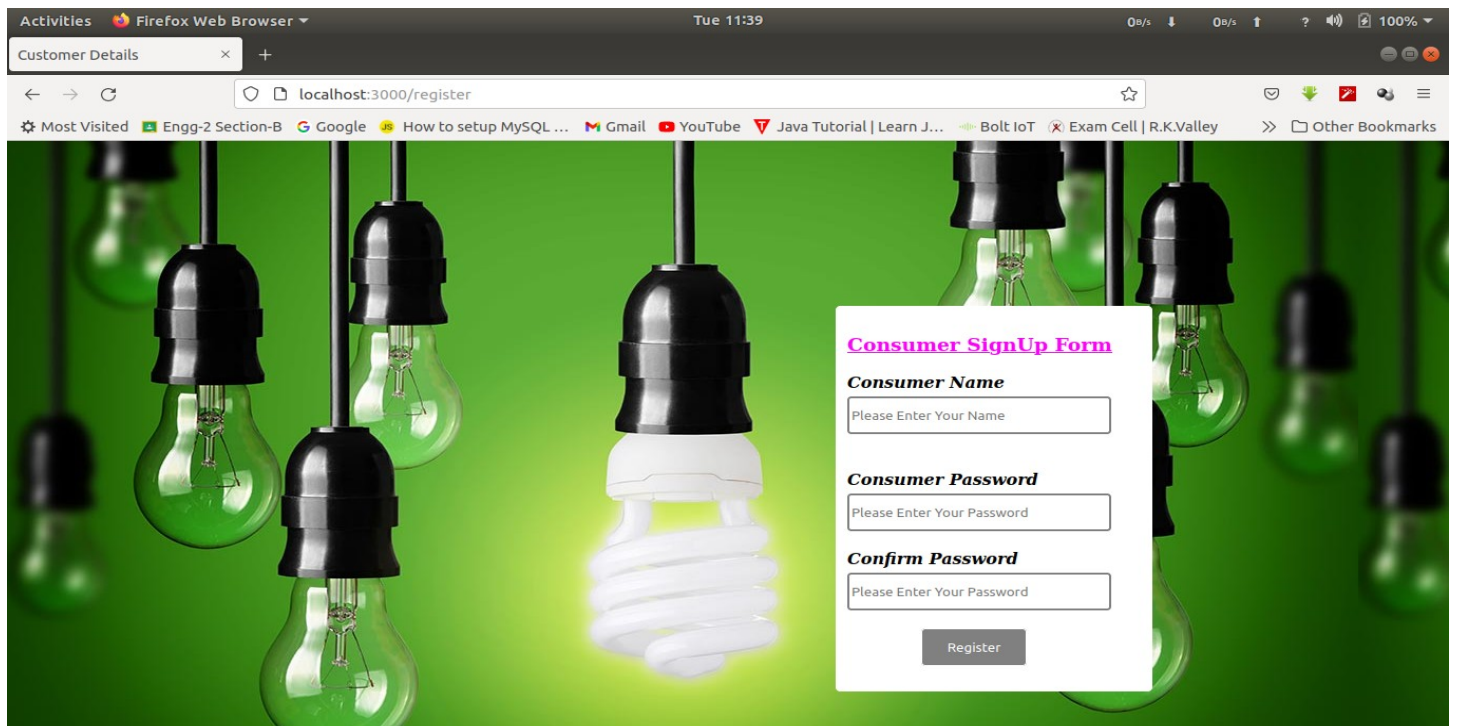
The Home Page contains all the Modules like, SignUp, LogIn, Calculate Bill, Bill Details, About Us, Contact Us and Log Out Pages.



SignUp Page:-

The SignUp Page consists of three fields such as Consumer Name, Consumer Password, Confirm Password.

Whenever the user click on the Register button, then it redirects into the Login Page for entering into the application.



The screenshot shows a Firefox Web Browser window with the address bar displaying 'localhost:3000/register'. The browser's bookmark bar includes links like 'Engg-2 Section-B', 'Google', 'Gmail', 'YouTube', 'Java Tutorial', 'Bolt IoT', 'Exam Cell', and 'R.K.Valley'. The main content area features a background image of several light bulbs hanging from black cords against a green backdrop. A white rectangular form titled 'Consumer SignUp Form' is overlaid on the right side of the image. The form contains three input fields: 'Consumer Name' with the placeholder text 'Please Enter Your Name', 'Consumer Password' with the placeholder text 'Please Enter Your Password', and 'Confirm Password' with the placeholder text 'Please Enter Your Password'. A grey 'Register' button is positioned at the bottom right of the form.

Consumer SignUp Form

Consumer Name
Please Enter Your Name

Consumer Password
Please Enter Your Password

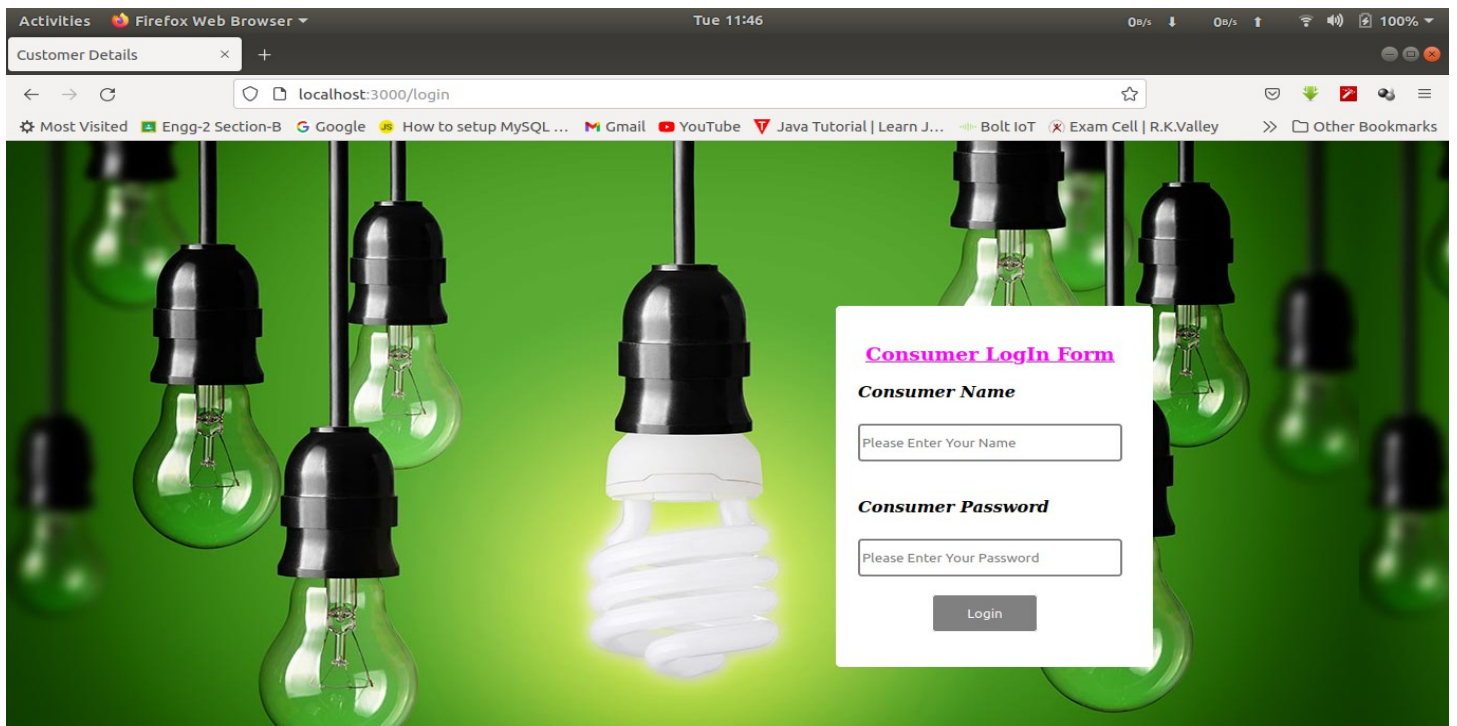
Confirm Password
Please Enter Your Password

Register

Login Page:-

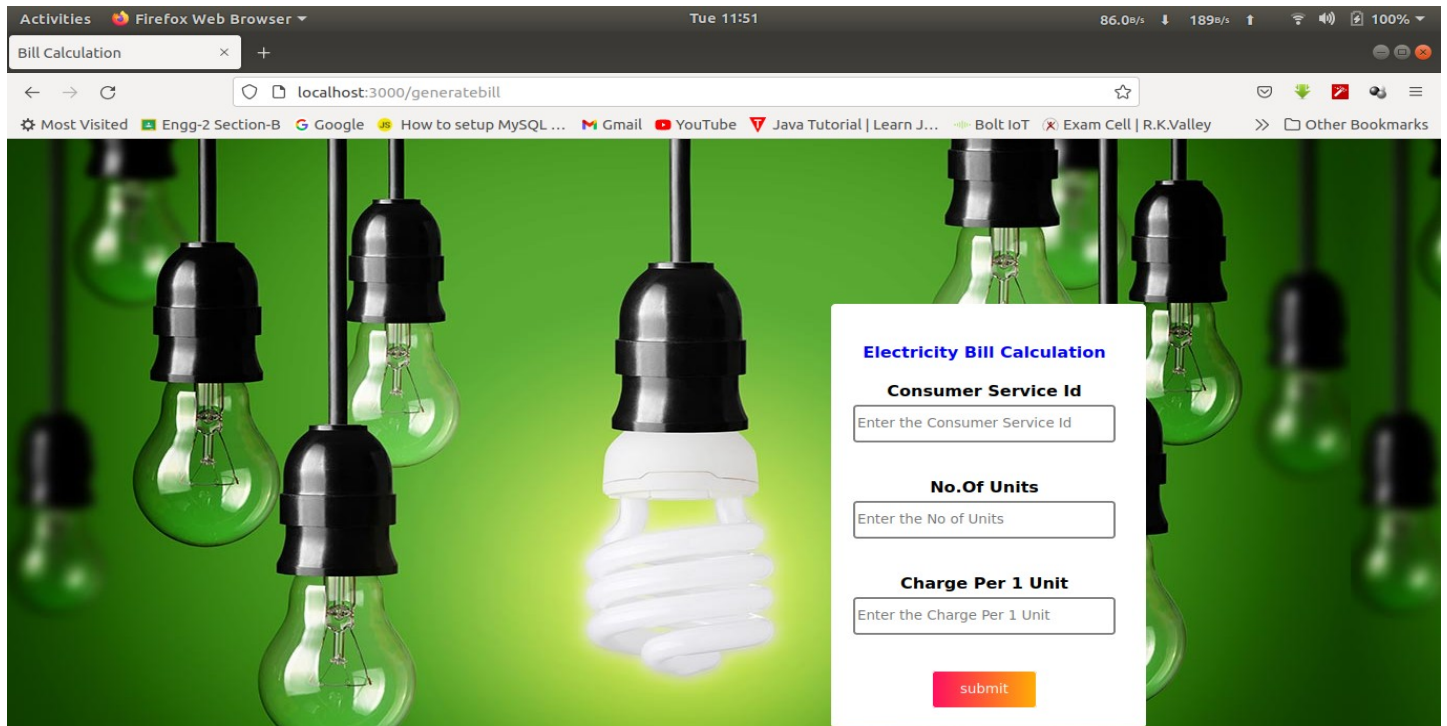
The Login Page consists of Consumer Name and Consumer Password.

Whenever the user click on the submit button, then it will redirect into the Calculate Bill Page for calculation of his electricity bill.



Calculate Bill:-

The Electricity Bill can be calculated by using ,No.Of Units,and Charge Per 1 Unit.It will generates the total electricity bill of the particular consumer.



Activities Firefox Web Browser Tue 11:51 86.0B/s 189B/s 100%

Bill Calculation x +

localhost:3000/generatebill

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Electricity Bill Calculation

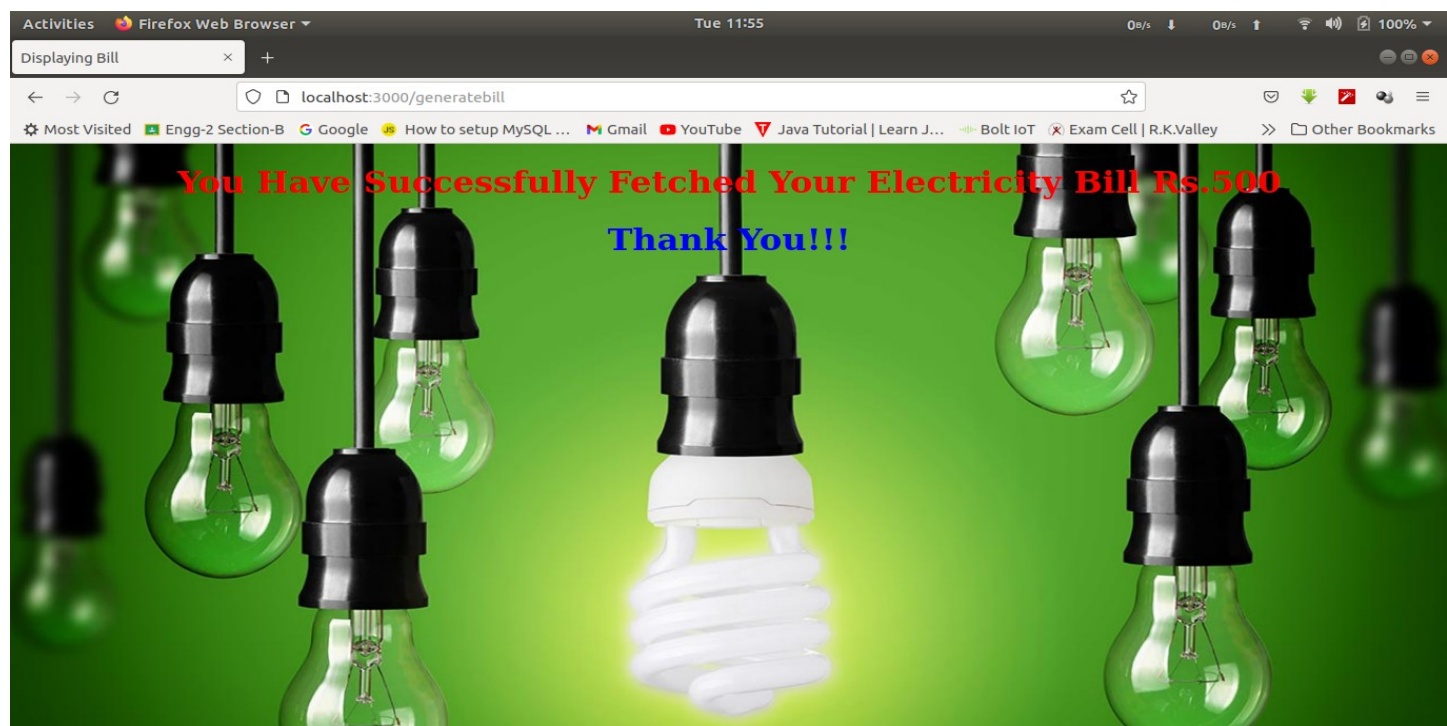
Consumer Service Id
Enter the Consumer Service Id

No.Of Units
Enter the No of Units

Charge Per 1 Unit
Enter the Charge Per 1 Unit

submit

After entering the Service Id ,Units ,Charge,Click on “Submit”,it will display the total “Electricity Bill”of the consumer.



Bill Details:-

After Calculating the Electricity Bill of the consumer then Click on “Bill Details”it will shows the following table -

Consumer Statistics				
Sl.No	Consumer Service Id	No.Of Units Consumed	Charge Per Unit	Total Amount To Be Paid
1	9988776655444	50	10	Rs.500

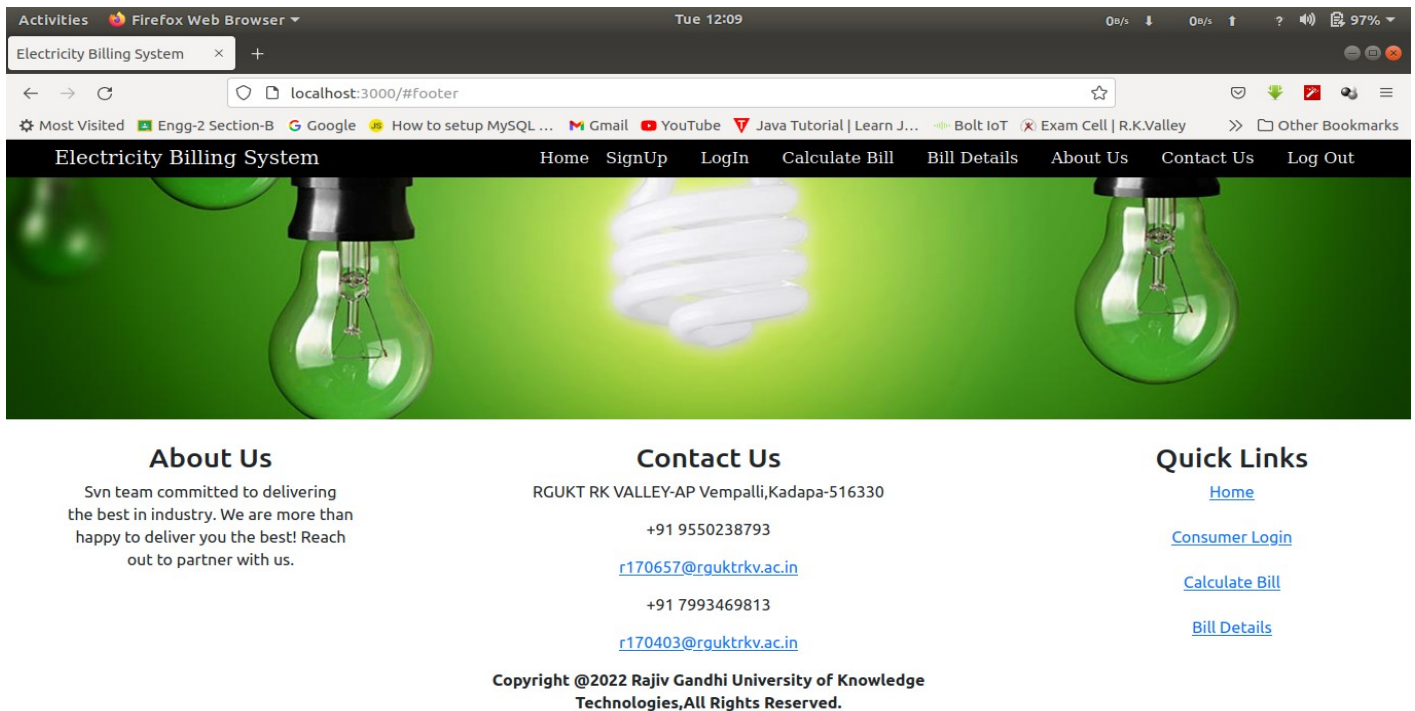
If Multiple consumers can enter the service numbers,then it stores and shows all the bill details in the Nodejs server.i.e;

Consumer Statistics				
Sl.No	Consumer Service Id	No.Of Units Consumed	Charge Per Unit	Total Amount To Be Paid
1	9988776655444	50	10	Rs.500
2	8877665544333	40	10	Rs.400
3	7766554433222	30	10	Rs.300
4	66	20	10	Rs.200
5	5544332211000	10	10	Rs.100

About Us:-

SVN Team Committed to delivering the best in industry. we are more than happy to deliver you to best! Reach out to partner with us.

If any consumer faces any queries or else problems in electricity bill calculation, then they can Contact Us in this About Us field at any time.



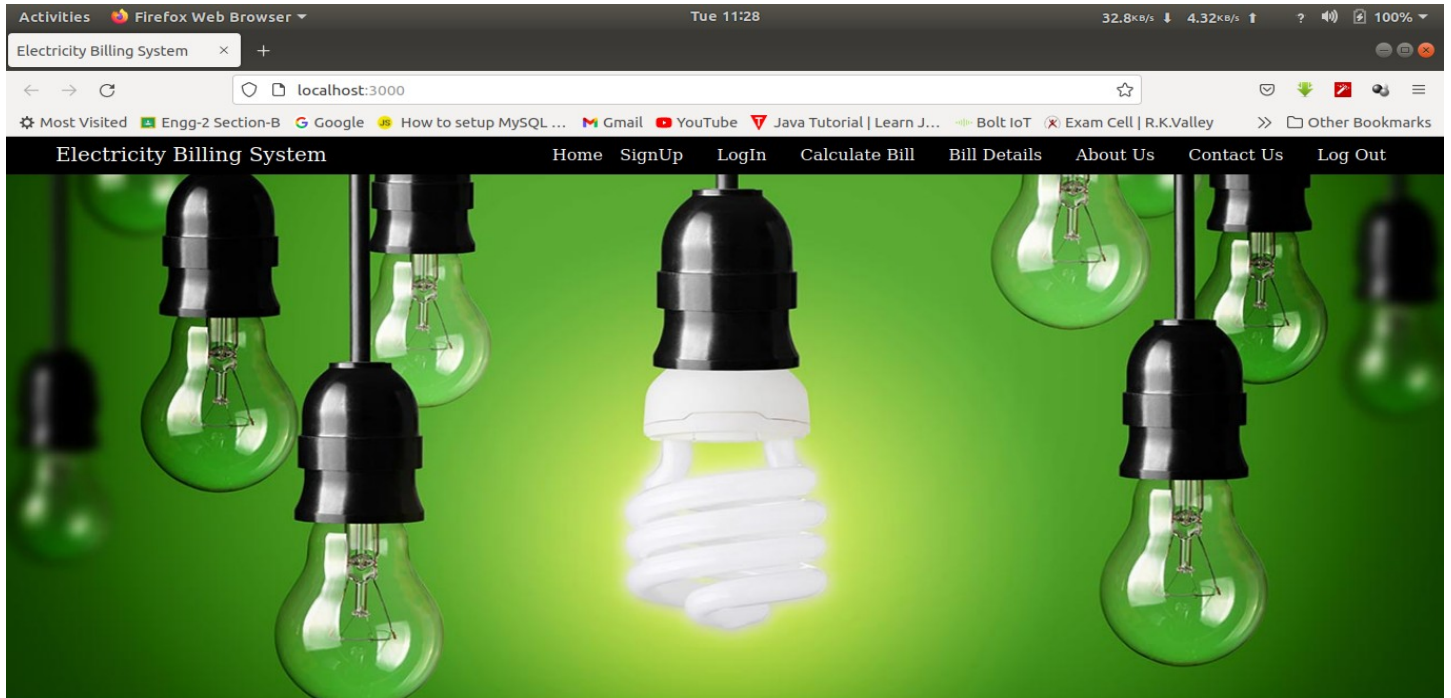
The screenshot shows a Firefox Web Browser window displaying the footer of a website titled "Electricity Billing System". The browser's address bar shows "localhost:3000/#footer". The website's navigation bar includes links: Home, SignUp, LogIn, Calculate Bill, Bill Details, About Us, Contact Us, and Log Out. The footer is divided into three columns:

- About Us**: Svn team committed to delivering the best in industry. We are more than happy to deliver you the best! Reach out to partner with us.
- Contact Us**:
 - RGUKT RK VALLEY-AP Vempalli, Kadapa-516330
 - +91 9550238793
 - r170657@rguktrkv.ac.in
 - +91 7993469813
 - r170403@rguktrkv.ac.in
- Quick Links**:
 - [Home](#)
 - [Consumer Login](#)
 - [Calculate Bill](#)
 - [Bill Details](#)

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LogOut Page:-

When you click on the Log Out Module,then it again redirects into the HomePage Only.



CONCLUSION:-

This Electricity Billing System provides consumers to know their Electricity Bill.

As the model built based on web application,it calculates and displays on the web page based on consumer_entered data whenever consumer enter his details in the application gives the amount to be paid by him to the respective Govt Authorities.

Consumer can know the bill amount,so that they can think about further actions like paying bill.

REFERENCES:-

BOOTSTRAP:<https://getbootstrap.com/>

JQUERY :<https://developers.google.com/>

HTML : <https://www.w3schools.com/html/>

CSS : <https://www.w3schools.com/css/>