ELECTRICITY BILL MANAGEMENT

A MINI-PROJECT BY:

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in partial fulfillment of the award of the degree

OF

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IN

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An Autonomous Institute

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BONAFIDE CERTIFICATE

Certified that this project **“Electricity bill management”** is the bonafide work of **“Monic Auditya.A and Manicka Meenakshi.S”** who carried out the project work under my supervision.

Submitted for the practical examination held on ____________________

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTRACT

The **Electricity Bill Management System** is a comprehensive software application designed to facilitate the efficient management of electricity billing and payment processing. Utilizing SQL for data storage, the system ensures data protection, stability, and flexibility, enabling reliable and secure handling of customer and billing information. The system consists of two major interfaces: the user interface for customers and the administrator interface for system management.

The user interface provides customers with a simple and intuitive way to manage their electricity accounts. Customers can view their electricity bills, check the status of payments, and access their personal meter readings. Additionally, the system allows users to print or download their bills and make secure payments via integrated online payment systems, enhancing convenience and ensuring secure transactions.

On the other hand, the administrator interface offers powerful control tools for managing customer accounts and overseeing the entire billing process. Administrators can monitor and allocate meter readings, generate bills based on consumption data, and track payment statuses. This functionality ensures transparency in the billing process and helps identify any overdue or failed payments, promoting efficiency and accountability.

Data security is a top priority in the system, with authentication protocols and data encryption safeguarding sensitive customer information. Advanced SQL queries enable real-time updates on bill generation, payment statuses, and detailed reporting. These features streamline financial transactions, meter reading management, and customer data, resulting in improved operational efficiency and enhanced customer satisfaction.

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INTRODUCTION

1.1 INTRODUCTION

The Electricity Bill Management System is a comprehensive software solution, designed to simplify electricity billing and payment processing. It uses SQL for secure data storage. The system consists of two interfaces: user and admin interfaces. Users can get their bill, know the payment status, and view their meter reading in the most secure way. Administrators will be able to manage customer accounts, generate bills, track meter readings, and track statuses of payments. The system implements data safety with encryption and authentication. Real-time SQL queries allow for efficient billing, payment tracking, and report generation, which shall help improve both operational efficiency and customer satisfaction.

1.1 IMPLEMENTATION

The **Electricity bill management** project discussed here is implemented usingthe concepts of **JAVA SWINGS** and **MYSQL**.

1.2 SCOPE OF THE PROJECT

The Electricity Bill Management System streamlines billing, payment processing, and meter readings for users and administrators. With real-time SQL queries, encryption, authentication, and dual-side payment handling, it ensures secure, efficient, and user-friendly operations, enhancing overall satisfaction.

1.3 FEATURES

- Automated Bill Generation
- Produces bills based on meter readings and facilitates secure online payments.
- Customer Account Access
- Enables the access to bill viewings, payment tracking, and meter reading check.
- Admin Control Panel
- Advances account managing, bills generating, and payment status tracking of the administrator.
- Data Security & Real-time Updates
- Holds and processes the data in a secured manner with real-time updates of the billing and payments.

SYSTEM SPECIFICATIONS

2.1 HARDWARE SPECIFICATIONS:

PROCESSOR	:	Intel i5
MEMORY SIZE	:	4GB(Minimum)
HARD DISK	:	500 GB of free space

2.2 SOFTWARE SPECIFICATIONS:

PROGRAMMING LANGUAGE	:	Java, MySQL
FRONT-END	:	Java
BACK-END	:	MySQL
OPERATING SYSTEM	:	Windows 10

SAMPLE CODE

3.1 Login.

```
package electricity.billing.system;

import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;

public class Login extends JFrame implements ActionListener{

    JButton login, cancel, signup;
    JTextField username, password;
    Choice logginin;
    Login() {
        super("Login Page");
        getContentPane().setBackground(Color.WHITE);
        setLayout(null);

        JLabel lblusername = new JLabel("Username");
        lblusername.setBounds(300, 20, 100, 20);
        add(lblusername);

        username = new JTextField();
        username.setBounds(400, 20, 150, 20);
        add(username);

        JLabel lblpassword = new JLabel("Password");
        lblpassword.setBounds(300, 60, 100, 20);
        add(lblpassword);

        password = new JTextField();
        password.setBounds(400, 60, 150, 20);
        add(password);

        JLabel loggininas = new JLabel("Loggin in as");
        loggininas.setBounds(300, 100, 100, 20);
        add(loggininas);

        logginin = new Choice();
        logginin.add("Admin");
        logginin.add("Customer");
        logginin.setBounds(400, 100, 150, 20);
        add(logginin);
        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/login.png"));
        Image i2 = i1.getImage().getScaledInstance(16, 16, Image.SCALE_DEFAULT);
        login = new JButton("Login", new ImageIcon(i2));
        login.setBounds(330, 160, 100, 20);
        login.addActionListener(this);
        add(login);

        ImageIcon i3 = new ImageIcon(ClassLoader.getSystemResource("icon/cancel.jpg"));
        Image i4 = i3.getImage().getScaledInstance(16, 16, Image.SCALE_DEFAULT);
        cancel = new JButton("Cancel", new ImageIcon(i4));
        cancel.setBounds(450, 160, 100, 20);
        cancel.addActionListener(this);
        add(cancel);

        ImageIcon i5 = new ImageIcon(ClassLoader.getSystemResource("icon/signup.png"));
        Image i6 = i5.getImage().getScaledInstance(16, 16, Image.SCALE_DEFAULT);
        signup = new JButton("Signup", new ImageIcon(i6));
        signup.setBounds(380, 200, 100, 20);
        signup.addActionListener(this);
        add(signup);

        ImageIcon i7 = new ImageIcon(ClassLoader.getSystemResource("icon/second.jpg"));
        Image i8 = i7.getImage().getScaledInstance(250, 250, Image.SCALE_DEFAULT);
        ImageIcon i9 = new ImageIcon(i8);
        JLabel image = new JLabel(i9);
        image.setBounds(0, 0, 250, 250);
        add(image);

        setSize(640, 300);
        setLocation(400, 200);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == login) {
            String susername = username.getText();
            String spassword = password.getText();
            String user = logginin.getSelectedItem();

            try {
                Conn c = new Conn();
                String query = "select * from login where username = '"+susername+"' and
password = '"+spassword+"' and user = '"+user+"'";

                ResultSet rs = c.s.executeQuery(query);
                if (rs.next()) {
                    String meter = rs.getString("meter_no");
                    setVisible(false);
                    new Project(user, meter);
                } else {
                    JOptionPane.showMessageDialog(null, "Invalid Login");
                    username.setText("");
                    password.setText("");
                }

            } catch (Exception e) {
                e.printStackTrace();
            }
        } else if (ae.getSource() == cancel) {
            setVisible(false);
        } else if (ae.getSource() == signup) {
            setVisible(false);

            new Signup();
        }
    }

    public static void main(String[] args) {
        new Login();
    }
}
```

3.2 Bill details

```
package electricity.billing.system;

import javax.swing.*;
import java.awt.*;
import java.sql.*;
import net.proteanit.sql.DbUtils;

public class BillDetails extends JFrame{

    BillDetails(String meter) {

        setSize(700, 650);
        setLocation(400, 150);

        getContentPane().setBackground(Color.WHITE);
        JTable table = new JTable();

        try {
            Conn c = new Conn();
            String query = "select * from bill where meter_no = '"+meter+"'";
            ResultSet rs = c.s.executeQuery(query);

            table.setModel(DbUtils.resultSetToTableModel(rs));
        } catch (Exception e) {
            e.printStackTrace();
        }

        JScrollPane sp = new JScrollPane(table);
        sp.setBounds(0, 0, 700, 650);
        add(sp);

        setVisible(true);
    }

    public static void main(String[] args) {
        new BillDetails("");
    }
}
```

3.3 Calculate Bill Java

```
package electricity.billing.system;

import javax.swing.*;
import java.awt.*;
import java.util.*;
import java.awt.event.*;
import java.sql.*;

public class CalculateBill extends JFrame implements ActionListener{

    JTextField tfname, tfaddress, tfstate, tfunits, tfemail, tfphone;
    JButton next, cancel;
    JLabel lblname, labeladdress;
    Choice meternumber, cmonth;
    CalculateBill() {
        setSize(700, 500);
        setLocation(400, 150);
```

```
JPanel p = new JPanel();
p.setLayout(null);
p.setBackground(new Color(173, 216, 230));
add(p);

JLabel heading = new JLabel("Calculate Electricity Bill");
heading.setBounds(100, 10, 400, 25);
heading.setFont(new Font("Tahoma", Font.PLAIN, 24));
p.add(heading);

JLabel lblmeternumber = new JLabel("Meter Number");
lblmeternumber.setBounds(100, 80, 100, 20);
p.add(lblmeternumber);

meternumber = new Choice();

try {
   Conn c  = new Conn();
   ResultSet rs = c.s.executeQuery("select * from customer");
   while(rs.next()) {
      meternumber.add(rs.getString("meter_no"));
   }
} catch (Exception e) {
   e.printStackTrace();
}

meternumber.setBounds(240, 80, 200, 20);
p.add(meternumber);

JLabel lblmeterno = new JLabel("Name");
lblmeterno.setBounds(100, 120, 100, 20);
p.add(lblmeterno);

lblname = new JLabel("");
lblname.setBounds(240, 120, 100, 20);
p.add(lblname);

JLabel lbladdress = new JLabel("Address");
lbladdress.setBounds(100, 160, 100, 20);
p.add(lbladdress);

labeladdress = new JLabel();
labeladdress.setBounds(240, 160, 200, 20);
p.add(labeladdress);

try {
   Conn c = new Conn();
```

```
            ResultSet rs = c.s.executeQuery("select * from customer where meter_no = 
'"+meternumber.getSelectedItem()+"'");
            while(rs.next()) {
                lblname.setText(rs.getString("name"));
                labeladdress.setText(rs.getString("address"));
            }
        } catch (Exception e) {
            e.printStackTrace();
        }

        meternumber.addItemListener(new ItemListener() {
            public void itemStateChanged(ItemEvent ie) {
                try {
                    Conn c = new Conn();
                    ResultSet rs = c.s.executeQuery("select * from customer where meter_no = 
'"+meternumber.getSelectedItem()+"'");
                    while(rs.next()) {
                        lblname.setText(rs.getString("name"));
                        labeladdress.setText(rs.getString("address"));
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        });

        JLabel lblcity = new JLabel("Units Consumed");
        lblcity.setBounds(100, 200, 100, 20);
        p.add(lblcity);

        tfunits = new JTextField();
        tfunits.setBounds(240, 200, 200, 20);
        p.add(tfunits);

        JLabel lblstate = new JLabel("Month");
        lblstate.setBounds(100, 240, 100, 20);
        p.add(lblstate);

        cmonth = new Choice();
        cmonth.setBounds(240, 240, 200, 20);
        cmonth.add("January");
        cmonth.add("February");
        cmonth.add("March");
        cmonth.add("April");
        cmonth.add("May");
        cmonth.add("June");
        cmonth.add("July");
        cmonth.add("August");
        cmonth.add("September");
        cmonth.add("October");
        cmonth.add("November");
        cmonth.add("December");
        p.add(cmonth);

        next = new JButton("Submit");
        next.setBounds(120, 350, 100,25);
        next.setBackground(Color.BLACK);
        next.setForeground(Color.WHITE);
        next.addActionListener(this);
        p.add(next);

        cancel = new JButton("Cancel");
        cancel.setBounds(250, 350, 100,25);
        cancel.setBackground(Color.BLACK);
        cancel.setForeground(Color.WHITE);
        cancel.addActionListener(this);
        p.add(cancel);

        setLayout(new BorderLayout());

        add(p, "Center");

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/hicon2.jpg"));
        Image i2 = i1.getImage().getScaledInstance(150, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        add(image, "West");

        getContentPane().setBackground(Color.WHITE);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == next) {
            String meter = meternumber.getSelectedItem();
            String units = tfunits.getText();
            String month = cmonth.getSelectedItem();

            int totalbill = 0;
            int unit_consumed = Integer.parseInt(units);

            String query = "select * from tax";
            try {
                Conn c = new Conn();
                ResultSet rs = c.s.executeQuery(query);

                while(rs.next()) {
                    totalbill += unit_consumed * Integer.parseInt(rs.getString("cost_per_unit"));
                    totalbill += Integer.parseInt(rs.getString("meter_rent"));
                    totalbill += Integer.parseInt(rs.getString("service_charge"));
                    totalbill += Integer.parseInt(rs.getString("service_tax"));
                    totalbill += Integer.parseInt(rs.getString("swacch_bharat_cess"));
                    totalbill += Integer.parseInt(rs.getString("fixed_tax"));
                }
            } catch (Exception e) {
                e.printStackTrace();
            }

            String query2 = "insert into bill values('"+meter+"', '"+month+"', '"+units+"',
'"+totalbill+"', 'Not Paid')";

            try {
                Conn c  =  new Conn();
                c.s.executeUpdate(query2);

                JOptionPane.showMessageDialog(null, "Customer Bill Updated Successfully");
                setVisible(false);
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else {
            setVisible(false);
        }
    }

    public static void main(String[] args) {
        new CalculateBill();
    }
}
```

3.4 CONNECTION WITH JAVA

```
package electricity.billing.system;
import java.sql.*;
public class Conn {
 Connection c;
  Statement s;
```

```
    Conn() {
        try {
            c = DriverManager.getConnection("jdbc:mysql:///ebs", "root", "12345");
            s = c.createStatement();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

3.5 Customer Details

```
package electricity.billing.system;

import java.awt.*;
import javax.swing.*;
import java.sql.*;
import net.proteanit.sql.DbUtils;
import java.awt.event.*;

public class CustomerDetails extends JFrame implements ActionListener{

    Choice meternumber, cmonth;
    JTable table;
    JButton search, print;

    CustomerDetails(){
        super("Customer Details");

        setSize(1200, 650);
        setLocation(200, 150);

        table = new JTable();

        try {
            Conn c = new Conn();
            ResultSet rs = c.s.executeQuery("select * from customer");

            table.setModel(DbUtils.resultSetToTableModel(rs));
        } catch (Exception e) {
            e.printStackTrace();
        }

        JScrollPane sp = new JScrollPane(table);
        add(sp);
        print = new JButton("Print");
        print.addActionListener(this);
        add(print, "South");


        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        try {
            table.print();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public static void main(String[] args) {
        new CustomerDetails();
    }
}
```

3.6 Deposit details

```
package electricity.billing.system;

import java.awt.*;
import javax.swing.*;
import java.sql.*;
import net.proteanit.sql.DbUtils;
import java.awt.event.*;

public class DepositDetails extends JFrame implements ActionListener{

    Choice meternumber, cmonth;
    JTable table;
    JButton search, print;

    DepositDetails(){
        super("Deposit Details");

        setSize(700, 700);
        setLocation(400, 100);

        setLayout(null);
        getContentPane().setBackground(Color.WHITE);
```

```
JLabel lblmeternumber = new JLabel("Search By Meter Number");
lblmeternumber.setBounds(20, 20, 150, 20);
add(lblmeternumber);

meternumber = new Choice();
meternumber.setBounds(180, 20, 150, 20);
add(meternumber);

try {
   Conn c  = new Conn();
   ResultSet rs = c.s.executeQuery("select * from customer");
   while(rs.next()) {
      meternumber.add(rs.getString("meter_no"));
   }
} catch (Exception e) {
   e.printStackTrace();
}

JLabel lblmonth = new JLabel("Search By Month");
lblmonth.setBounds(400, 20, 100, 20);
add(lblmonth);

cmonth = new Choice();
cmonth.setBounds(520, 20, 150, 20);
cmonth.add("January");
cmonth.add("February");
cmonth.add("March");
cmonth.add("April");
cmonth.add("May");
cmonth.add("June");
cmonth.add("July");
cmonth.add("August");
cmonth.add("September");
cmonth.add("October");
cmonth.add("November");
cmonth.add("December");
add(cmonth);

table = new JTable();

try {
   Conn c = new Conn();
   ResultSet rs = c.s.executeQuery("select * from bill");

   table.setModel(DbUtils.resultSetToTableModel(rs));
} catch (Exception e) {
```

```
            e.printStackTrace();
        }

        JScrollPane sp = new JScrollPane(table);
        sp.setBounds(0, 100, 700, 600);
        add(sp);

        search = new JButton("Search");
        search.setBounds(20, 70, 80, 20);
        search.addActionListener(this);
        add(search);

        print = new JButton("Print");
        print.setBounds(120, 70, 80, 20);
        print.addActionListener(this);
        add(print);


        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == search) {
            String query = "select * from bill where meter_no = 
'"+meternumber.getSelectedItem()+"' and month = '"+cmonth.getSelectedItem()+"'";

            try {
                Conn c = new Conn();
                ResultSet rs = c.s.executeQuery(query);
                table.setModel(DbUtils.resultSetToTableModel(rs));
            } catch (Exception e) {

            }
        } else  {
            try {
                table.print();
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
    }

    public static void main(String[] args) {
        new DepositDetails();
    }
}
```

3.7 Generate Bill

```
package electricity.billing.system;

import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;

public class GenerateBill extends JFrame implements ActionListener{

    String meter;
    JButton bill;
    Choice cmonth;
    JTextArea area;
    GenerateBill(String meter) {
        this.meter = meter;

        setSize(500, 800);
        setLocation(550, 30);

        setLayout(new BorderLayout());

        JPanel panel = new JPanel();

        JLabel heading = new JLabel("Generate Bill");
        JLabel meternumber = new JLabel(meter);

        cmonth = new Choice();

        cmonth.add("January");
        cmonth.add("February");
        cmonth.add("March");
        cmonth.add("April");
        cmonth.add("May");
        cmonth.add("June");
        cmonth.add("July");
        cmonth.add("August");
        cmonth.add("September");
        cmonth.add("October");
        cmonth.add("November");
        cmonth.add("December");

        area = new JTextArea(50, 15);
        area.setText("\n\n\t--------Click on the---------\n\t Generate Bill Button to get\n\tthe bill
of the Selected Month");
```

```
        area.setFont(new Font("Senserif", Font.ITALIC, 18));

        JScrollPane pane = new JScrollPane(area);

        bill = new JButton("Generate Bill");
        bill.addActionListener(this);

        panel.add(heading);
        panel.add(meternumber);
        panel.add(cmonth);
        add(panel, "North");

        add(pane, "Center");
        add(bill, "South");

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        try {
            Conn c = new Conn();

            String month = cmonth.getSelectedItem();

            area.setText("\tReliance Power Limited\nELECTRICITY BILL GENERATED FOR
THE MONTH\n\tOF "+month+", 2022\n\n\n");

            ResultSet rs = c.s.executeQuery("select * from customer where meter_no =
'"+meter+"'");

            if(rs.next()) {
                area.append("\n    Customer Name: " + rs.getString("name"));
                area.append("\n    Meter Number   : " + rs.getString("meter_no"));
                area.append("\n    Address           : " + rs.getString("address"));
                area.append("\n    City                : " + rs.getString("city"));
                area.append("\n    State               : " + rs.getString("state"));
                area.append("\n    Email               : " + rs.getString("email"));
                area.append("\n    Phone               : " + rs.getString("phone"));
                area.append("\n------------------------------------------------------");
                area.append("\n");
            }

            rs = c.s.executeQuery("select * from meter_info where meter_no = '"+meter+"'");

            if(rs.next()) {
                area.append("\n    Meter Location: " + rs.getString("meter_location"));
                area.append("\n    Meter Type:     " + rs.getString("meter_type"));
                area.append("\n    Phase Code:        " + rs.getString("phase_code"));
                area.append("\n    Bill Type:         " + rs.getString("bill_type"));
                area.append("\n    Days:              " + rs.getString("days"));
                area.append("\n---------------------------------------------------");
                area.append("\n");
            }

            rs = c.s.executeQuery("select * from tax");

            if(rs.next()) {
                area.append("\n");
                area.append("\n    Cost Per Unit: " + rs.getString("cost_per_unit"));
                area.append("\n    Meter Rent:    " + rs.getString("cost_per_unit"));
                area.append("\n    Service Charge:        " + rs.getString("service_charge"));
                area.append("\n    Service Tax:          " + rs.getString("service_charge"));
                area.append("\n    Swacch Bharat Cess:              " +
rs.getString("swacch_bharat_cess"));
                area.append("\n    Fixed Tax: " + rs.getString("fixed_tax"));
                area.append("\n");
            }

            rs = c.s.executeQuery("select * from bill where meter_no = '"+meter+"' and
month='"+month+"'");

            if(rs.next()) {
                area.append("\n");
                area.append("\n    Current Month: " + rs.getString("month"));
                area.append("\n    Units Consumed:     " + rs.getString("units"));
                area.append("\n    Total Charges:       " + rs.getString("totalbill"));
                area.append("\n------------------------------------------------------");
                area.append("\n    Total Payable: " + rs.getString("totalbill"));
                area.append("\n");
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public static void main(String[] args) {
        new GenerateBill("");
    }
}
```

3.8 Meter Information

```
package electricity.billing.system;
```

```
import javax.swing.*;
import java.awt.*;
import java.util.*;
import java.awt.event.*;

public class MeterInfo extends JFrame implements ActionListener{

    JTextField tfname, tfaddress, tfstate, tfcity, tfemail, tfphone;
    JButton next, cancel;
    JLabel lblmeter;
    Choice meterlocation, metertype, phasecode, billtype;
    String meternumber;
    MeterInfo(String meternumber) {
        this.meternumber = meternumber;

        setSize(700, 500);
        setLocation(400, 200);

        JPanel p = new JPanel();
        p.setLayout(null);
        p.setBackground(new Color(173, 216, 230));
        add(p);

        JLabel heading = new JLabel("Meter Information");
        heading.setBounds(180, 10, 200, 25);
        heading.setFont(new Font("Tahoma", Font.PLAIN, 24));
        p.add(heading);

        JLabel lblname = new JLabel("Meter Number");
        lblname.setBounds(100, 80, 100, 20);
        p.add(lblname);

        JLabel lblmeternumber = new JLabel(meternumber);
        lblmeternumber.setBounds(240, 80, 100, 20);
        p.add(lblmeternumber);

        JLabel lblmeterno = new JLabel("Meter Location");
        lblmeterno.setBounds(100, 120, 100, 20);
        p.add(lblmeterno);

        meterlocation = new Choice();
        meterlocation.add("Outside");
        meterlocation.add("Inside");
        meterlocation.setBounds(240, 120, 200, 20);
        p.add(meterlocation);

        JLabel lbladdress = new JLabel("Meter Type");
```

```
lbladdress.setBounds(100, 160, 100, 20);
p.add(lbladdress);

metertype = new Choice();
metertype.add("Electric Meter");
metertype.add("Solar Meter");
metertype.add("Smart Meter");
metertype.setBounds(240, 160, 200, 20);
p.add(metertype);

JLabel lblcity = new JLabel("Phase Code");
lblcity.setBounds(100, 200, 100, 20);
p.add(lblcity);

phasecode = new Choice();
phasecode.add("011");
phasecode.add("022");
phasecode.add("033");
phasecode.add("044");
phasecode.add("055");
phasecode.add("066");
phasecode.add("077");
phasecode.add("088");
phasecode.add("099");
phasecode.setBounds(240, 200, 200, 20);
p.add(phasecode);

JLabel lblstate = new JLabel("Bill Type");
lblstate.setBounds(100, 240, 100, 20);
p.add(lblstate);

billtype = new Choice();
billtype.add("Normal");
billtype.add("Industial");
billtype.setBounds(240, 240, 200, 20);
p.add(billtype);

JLabel lblemail = new JLabel("Days");
lblemail.setBounds(100, 280, 100, 20);
p.add(lblemail);

JLabel lblemails = new JLabel("30 Days");
lblemails.setBounds(240, 280, 100, 20);
p.add(lblemails);

JLabel lblphone = new JLabel("Note");
lblphone.setBounds(100, 320, 100, 20);
```

```
        p.add(lblphone);

        JLabel lblphones = new JLabel("By Default Bill is calculated for 30 days only");
        lblphones.setBounds(240, 320, 500, 20);
        p.add(lblphones);

        next = new JButton("Submit");
        next.setBounds(220, 390, 100,25);
        next.setBackground(Color.BLACK);
        next.setForeground(Color.WHITE);
        next.addActionListener(this);
        p.add(next);


        setLayout(new BorderLayout());

        add(p, "Center");

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/hicon1.jpg"));
        Image i2 = i1.getImage().getScaledInstance(150, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        add(image, "West");

        getContentPane().setBackground(Color.WHITE);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == next) {
            String meter = meternumber;
            String location = meterlocation.getSelectedItem();
            String type = metertype.getSelectedItem();
            String code = phasecode.getSelectedItem();
            String typebill = billtype.getSelectedItem();
            String days = "30";

            String query = "insert into meter_info values('"+meter+"', '"+location+"', '"+type+"',
'"+code+"', '"+typebill+"', '"+days+"')";

            try {
                Conn c = new Conn();
                c.s.executeUpdate(query);

                JOptionPane.showMessageDialog(null, "Meter Information Added Successfully");
                setVisible(false);
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else {
            setVisible(false);
        }
    }

    public static void main(String[] args) {
        new MeterInfo("");
    }
}
```

3.9 New User

```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
import java.util.*;
import java.awt.event.*;

public class NewCustomer extends JFrame implements ActionListener{

    JTextField tfname, tfaddress, tfstate, tfcity, tfemail, tfphone;
    JButton next, cancel;
    JLabel lblmeter;
    NewCustomer() {
        setSize(700, 500);
        setLocation(400, 200);

        JPanel p = new JPanel();
        p.setLayout(null);
        p.setBackground(new Color(173, 216, 230));
        add(p);

        JLabel heading = new JLabel("New Customer");
        heading.setBounds(180, 10, 200, 25);
        heading.setFont(new Font("Tahoma", Font.PLAIN, 24));
        p.add(heading);

        JLabel lblname = new JLabel("Customer Name");
        lblname.setBounds(100, 80, 100, 20);
        p.add(lblname);

        tfname = new JTextField();
```

```
tfname.setBounds(240, 80, 200, 20);
p.add(tfname);

JLabel lblmeterno = new JLabel("Meter Number");
lblmeterno.setBounds(100, 120, 100, 20);
p.add(lblmeterno);

lblmeter = new JLabel("");
lblmeter.setBounds(240, 120, 100, 20);
p.add(lblmeter);

Random ran = new Random();
long number = ran.nextLong() % 1000000;
lblmeter.setText("" + Math.abs(number));

JLabel lbladdress = new JLabel("Address");
lbladdress.setBounds(100, 160, 100, 20);
p.add(lbladdress);

tfaddress = new JTextField();
tfaddress.setBounds(240, 160, 200, 20);
p.add(tfaddress);

JLabel lblcity = new JLabel("City");
lblcity.setBounds(100, 200, 100, 20);
p.add(lblcity);

tfcity = new JTextField();
tfcity.setBounds(240, 200, 200, 20);
p.add(tfcity);

JLabel lblstate = new JLabel("State");
lblstate.setBounds(100, 240, 100, 20);
p.add(lblstate);

tfstate = new JTextField();
tfstate.setBounds(240, 240, 200, 20);
p.add(tfstate);

JLabel lblemail = new JLabel("Email");
lblemail.setBounds(100, 280, 100, 20);
p.add(lblemail);

tfemail = new JTextField();
tfemail.setBounds(240, 280, 200, 20);
p.add(tfemail);
```

```
        JLabel lblphone = new JLabel("Phone Number");
        lblphone.setBounds(100, 320, 100, 20);
        p.add(lblphone);

        tfphone = new JTextField();
        tfphone.setBounds(240, 320, 200, 20);
        p.add(tfphone);

        next = new JButton("Next");
        next.setBounds(120, 390, 100,25);
        next.setBackground(Color.BLACK);
        next.setForeground(Color.WHITE);
        next.addActionListener(this);
        p.add(next);

        cancel = new JButton("Cancel");
        cancel.setBounds(250, 390, 100,25);
        cancel.setBackground(Color.BLACK);
        cancel.setForeground(Color.WHITE);
        cancel.addActionListener(this);
        p.add(cancel);

        setLayout(new BorderLayout());

        add(p, "Center");

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/hicon1.jpg"));
        Image i2 = i1.getImage().getScaledInstance(150, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        add(image, "West");

        getContentPane().setBackground(Color.WHITE);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == next) {
            String name = tfname.getText();
            String meter = lblmeter.getText();
            String address = tfaddress.getText();
            String city = tfcity.getText();
            String state = tfstate.getText();
            String email = tfemail.getText();
            String phone = tfphone.getText();
            String query1 = "insert into customer values('"+name+"', '"+meter+"', '"+address+"',
'"+city+"', '"+state+"', '"+email+"', '"+phone+"')";
            String query2 = "insert into login values('"+meter+"', ", '"+name+"', ", ")";

            try {
                Conn c = new Conn();
                c.s.executeUpdate(query1);
                c.s.executeUpdate(query2);

                JOptionPane.showMessageDialog(null, "Customer Details Added Successfully");
                setVisible(false);

                // new frame
                new MeterInfo(meter);
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else {
            setVisible(false);
        }
    }

    public static void main(String[] args) {
        new NewCustomer();
    }
}
```

3.10 Pay bill

```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
import java.sql.*;
import java.awt.event.*;

public class PayBill extends JFrame implements ActionListener{

    Choice cmonth;
    JButton pay, back;
    String meter;
    PayBill(String meter) {
        this.meter = meter;
        setLayout(null);
        setBounds(300, 150, 900, 600);

        JLabel heading = new JLabel("Electicity Bill");
        heading.setFont(new Font("Tahoma", Font.BOLD, 24));
heading.setBounds(120, 5, 400, 30);
add(heading);

JLabel lblmeternumber = new JLabel("Meter Number");
lblmeternumber.setBounds(35, 80, 200, 20);
add(lblmeternumber);

JLabel meternumber = new JLabel("");
meternumber.setBounds(300, 80, 200, 20);
add(meternumber);

JLabel lblname = new JLabel("Name");
lblname.setBounds(35, 140, 200, 20);
add(lblname);

JLabel labelname = new JLabel("");
labelname.setBounds(300, 140, 200, 20);
add(labelname);

JLabel lblmonth = new JLabel("Month");
lblmonth.setBounds(35, 200, 200, 20);
add(lblmonth);

cmonth = new Choice();
cmonth.setBounds(300, 200, 200, 20);
cmonth.add("January");
cmonth.add("February");
cmonth.add("March");
cmonth.add("April");
cmonth.add("May");
cmonth.add("June");
cmonth.add("July");
cmonth.add("August");
cmonth.add("September");
cmonth.add("October");
cmonth.add("November");
cmonth.add("December");
add(cmonth);

JLabel lblunits = new JLabel("Units");
lblunits.setBounds(35, 260, 200, 20);
add(lblunits);

JLabel labelunits = new JLabel("");
labelunits.setBounds(300, 260, 200, 20);
add(labelunits);
```

```
        JLabel lbltotalbill = new JLabel("Total Bill");
        lbltotalbill.setBounds(35, 320, 200, 20);
        add(lbltotalbill);

        JLabel labeltotalbill = new JLabel("");
        labeltotalbill.setBounds(300, 320, 200, 20);
        add(labeltotalbill);

        JLabel lblstatus = new JLabel("Status");
        lblstatus.setBounds(35, 380, 200, 20);
        add(lblstatus);

        JLabel labelstatus = new JLabel("");
        labelstatus.setBounds(300, 380, 200, 20);
        labelstatus.setForeground(Color.RED);
        add(labelstatus);

        try {
            Conn c = new Conn();
            ResultSet rs = c.s.executeQuery("select * from customer where meter_no = 
'"+meter+"'");
            while(rs.next()) {
                meternumber.setText(meter);
                labelname.setText(rs.getString("name"));
            }

            rs = c.s.executeQuery("select * from bill where meter_no = '"+meter+"' AND month = 
'January'");
            while(rs.next()) {
                labelunits.setText(rs.getString("units"));
                labeltotalbill.setText(rs.getString("totalbill"));
                labelstatus.setText(rs.getString("status"));
            }
        } catch (Exception e) {
            e.printStackTrace();
        }

        cmonth.addItemListener(new ItemListener(){
            @Override
            public void itemStateChanged(ItemEvent ae) {
                try {
                    Conn c = new Conn();
                    ResultSet rs = c.s.executeQuery("select * from bill where meter_no = '"+meter+"' 
AND month = '"+cmonth.getSelectedItem()+"'");
                    while(rs.next()) {
                        labelunits.setText(rs.getString("units"));
                        labeltotalbill.setText(rs.getString("totalbill"));
                        labelstatus.setText(rs.getString("status"));
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        });


        pay = new JButton("Pay");
        pay.setBackground(Color.BLACK);
        pay.setForeground(Color.WHITE);
        pay.setBounds(100, 460, 100, 25);
        pay.addActionListener(this);
        add(pay);

        back = new JButton("Back");
        back.setBackground(Color.BLACK);
        back.setForeground(Color.WHITE);
        back.setBounds(230, 460, 100, 25);
        back.addActionListener(this);
        add(back);

        getContentPane().setBackground(Color.WHITE);

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/bill.png"));
        Image i2 = i1.getImage().getScaledInstance(600, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        image.setBounds(400, 120, 600, 300);
        add(image);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == pay) {
            try {
                Conn c = new Conn();
                c.s.executeUpdate("update bill set status = 'Paid' where meter_no = '"+meter+"'
AND month='"+cmonth.getSelectedItem()+"'");
            } catch (Exception e) {
                e.printStackTrace();
            }
            setVisible(false);
            new Paytm(meter);
        } else {
            setVisible(false);
        }
    }

    public static void main(String[] args){
        new PayBill("");
    }
}
```

3.11 Paytm

```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class Paytm extends JFrame implements ActionListener{

    String meter;
    JButton back;
    Paytm(String meter) {
        this.meter = meter;

        JEditorPane j = new JEditorPane();
        j.setEditable(false);

        try {
            j.setPage("https://paytm.com/online-payments");
        } catch (Exception e) {
            j.setContentType("text/html");
            j.setText("<html>Could not load<html>");

        }

        JScrollPane pane = new JScrollPane(j);
        add(pane);

        back = new JButton("Back");
        back.setBounds(640, 20, 80, 30);
        back.addActionListener(this);
        j.add(back);

        setSize(800, 600);
        setLocation(400, 150);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        setVisible(false);
        new PayBill(meter);
    }

    public static void main(String[] args) {
        new Paytm("");
    }
}
```

3.12 Project

```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class Project extends JFrame implements ActionListener{

    String atype, meter;
    Project(String atype, String meter) {
        this.atype = atype;
        this.meter = meter;
        setExtendedState(JFrame.MAXIMIZED_BOTH);

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/elect1.jpg"));
        Image i2 = i1.getImage().getScaledInstance(1550, 850, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        add(image);

        JMenuBar mb = new JMenuBar();
        setJMenuBar(mb);

        JMenu master = new JMenu("Master");
        master.setForeground(Color.BLUE);



        JMenuItem newcustomer = new JMenuItem("New Customer");
        newcustomer.setFont(new Font("monospaced", Font.PLAIN, 12));
        newcustomer.setBackground(Color.WHITE);
        ImageIcon icon1 = new ImageIcon(ClassLoader.getSystemResource("icon/icon1.png"));
        Image image1 = icon1.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
```

```
        newcustomer.setIcon(new ImageIcon(image1));
        newcustomer.setMnemonic('D');
        newcustomer.addActionListener(this);
        newcustomer.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_D,
ActionEvent.CTRL_MASK));
        master.add(newcustomer);

        JMenuItem customerdetails = new JMenuItem("Customer Details");
        customerdetails.setFont(new Font("monospaced", Font.PLAIN, 12));
        customerdetails.setBackground(Color.WHITE);
        ImageIcon icon2 = new ImageIcon(ClassLoader.getSystemResource("icon/icon2.png"));
        Image image2 = icon2.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        customerdetails.setIcon(new ImageIcon(image2));
        customerdetails.setMnemonic('M');
        customerdetails.addActionListener(this);
        customerdetails.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_M,
ActionEvent.CTRL_MASK));
        master.add(customerdetails);

        JMenuItem depositdetails = new JMenuItem("Deposit Details");
        depositdetails.setFont(new Font("monospaced", Font.PLAIN, 12));
        depositdetails.setBackground(Color.WHITE);
        ImageIcon icon3 = new ImageIcon(ClassLoader.getSystemResource("icon/icon3.png"));
        Image image3 = icon3.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        depositdetails.setIcon(new ImageIcon(image3));
        depositdetails.setMnemonic('N');
        depositdetails.addActionListener(this);
        depositdetails.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_N,
ActionEvent.CTRL_MASK));
        master.add(depositdetails);

        JMenuItem calculatebill = new JMenuItem("Calculate Bill");
        calculatebill.setFont(new Font("monospaced", Font.PLAIN, 12));
        calculatebill.setBackground(Color.WHITE);
        ImageIcon icon4 = new ImageIcon(ClassLoader.getSystemResource("icon/icon5.png"));
        Image image4 = icon4.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        calculatebill.setIcon(new ImageIcon(image4));
        calculatebill.setMnemonic('B');
        calculatebill.addActionListener(this);
        calculatebill.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_B,
ActionEvent.CTRL_MASK));
        master.add(calculatebill);

        JMenu info = new JMenu("Information");
        info.setForeground(Color.RED);



        JMenuItem updateinformation = new JMenuItem("Update Information");
        updateinformation.setFont(new Font("monospaced", Font.PLAIN, 12));
        updateinformation.setBackground(Color.WHITE);
        ImageIcon icon5 = new ImageIcon(ClassLoader.getSystemResource("icon/icon4.png"));
        Image image5 = icon5.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        updateinformation.setIcon(new ImageIcon(image5));
        updateinformation.setMnemonic('P');
        updateinformation.addActionListener(this);
        updateinformation.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_P,
ActionEvent.CTRL_MASK));
        info.add(updateinformation);

        JMenuItem viewinformation = new JMenuItem("View Information");
        viewinformation.setFont(new Font("monospaced", Font.PLAIN, 12));
        viewinformation.setBackground(Color.WHITE);
        ImageIcon icon6 = new ImageIcon(ClassLoader.getSystemResource("icon/icon6.png"));
        Image image6 = icon6.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        viewinformation.setIcon(new ImageIcon(image6));
        viewinformation.setMnemonic('L');
        viewinformation.addActionListener(this);
        viewinformation.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_L,
ActionEvent.CTRL_MASK));
        info.add(viewinformation);

        JMenu user = new JMenu("User");
        user.setForeground(Color.BLUE);



        JMenuItem paybill = new JMenuItem("Pay Bill");
        paybill.setFont(new Font("monospaced", Font.PLAIN, 12));
        paybill.setBackground(Color.WHITE);
        ImageIcon icon7 = new ImageIcon(ClassLoader.getSystemResource("icon/icon4.png"));
        Image image7 = icon7.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        paybill.setIcon(new ImageIcon(image7));
        paybill.setMnemonic('R');
        paybill.addActionListener(this);
        paybill.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_R,
ActionEvent.CTRL_MASK));
        user.add(paybill);

        JMenuItem billdetails = new JMenuItem("Bill Details");
        billdetails.setFont(new Font("monospaced", Font.PLAIN, 12));
        billdetails.setBackground(Color.WHITE);
        ImageIcon icon8 = new ImageIcon(ClassLoader.getSystemResource("icon/icon6.png"));
        Image image8 = icon8.getImage().getScaledInstance(20, 20, 
Image.SCALE_DEFAULT);
        billdetails.setIcon(new ImageIcon(image8));
        billdetails.setMnemonic('B');
        billdetails.addActionListener(this);
        billdetails.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_B, 
ActionEvent.CTRL_MASK));
        user.add(billdetails);

        JMenu report = new JMenu("Report");
        report.setForeground(Color.RED);


        JMenuItem generatebill = new JMenuItem("Generate Bill");
        generatebill.setFont(new Font("monospaced", Font.PLAIN, 12));
        generatebill.setBackground(Color.WHITE);
        ImageIcon icon9 = new ImageIcon(ClassLoader.getSystemResource("icon/icon7.png"));
        Image image9 = icon9.getImage().getScaledInstance(20, 20, 
Image.SCALE_DEFAULT);
        generatebill.setIcon(new ImageIcon(image9));
        generatebill.setMnemonic('G');
        generatebill.addActionListener(this);
        generatebill.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_G, 
ActionEvent.CTRL_MASK));
        report.add(generatebill);

        JMenu utility = new JMenu("Utility");
        utility.setForeground(Color.BLUE);


        JMenuItem notepad = new JMenuItem("Notepad");
        notepad.setFont(new Font("monospaced", Font.PLAIN, 12));
        notepad.setBackground(Color.WHITE);
        ImageIcon icon10 = new 
ImageIcon(ClassLoader.getSystemResource("icon/icon12.png"));
        Image image10 = icon10.getImage().getScaledInstance(20, 20, 
Image.SCALE_DEFAULT);
        notepad.setIcon(new ImageIcon(image10));
        notepad.setMnemonic('N');
        notepad.addActionListener(this);
        notepad.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_N, 
ActionEvent.CTRL_MASK));
        utility.add(notepad);
        JMenuItem calculator = new JMenuItem("Calculator");
        calculator.setFont(new Font("monospaced", Font.PLAIN, 12));
        calculator.setBackground(Color.WHITE);
        ImageIcon icon11 = new
ImageIcon(ClassLoader.getSystemResource("icon/icon9.png"));
        Image image11 = icon11.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        calculator.setIcon(new ImageIcon(image10));
        calculator.setMnemonic('C');
        calculator.addActionListener(this);
        calculator.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_C,
ActionEvent.CTRL_MASK));
        utility.add(calculator);

        JMenu mexit = new JMenu("Exit");
        mexit.setForeground(Color.RED);


        JMenuItem exit = new JMenuItem("Exit");
        exit.setFont(new Font("monospaced", Font.PLAIN, 12));
        exit.setBackground(Color.WHITE);
        ImageIcon icon12 = new
ImageIcon(ClassLoader.getSystemResource("icon/icon11.png"));
        Image image12 = icon12.getImage().getScaledInstance(20, 20,
Image.SCALE_DEFAULT);
        exit.setIcon(new ImageIcon(image12));
        exit.setMnemonic('W');
        exit.addActionListener(this);
        exit.setAccelerator(KeyStroke.getKeyStroke(KeyEvent.VK_W,
ActionEvent.CTRL_MASK));
        mexit.add(exit);

        if (atype.equals("Admin")) {
           mb.add(master);
        } else {
           mb.add(info);
           mb.add(user);
           mb.add(report);
        }

        mb.add(utility);
        mb.add(mexit);

        setLayout(new FlowLayout());

        setVisible(true);
    }
    public void actionPerformed(ActionEvent ae) {
        String msg = ae.getActionCommand();
        if (msg.equals("New Customer")) {
            new NewCustomer();
        } else if (msg.equals("Customer Details")) {
            new CustomerDetails();
        } else if (msg.equals("Deposit Details")) {
            new DepositDetails();
        } else if (msg.equals("Calculate Bill")) {
            new CalculateBill();
        } else if (msg.equals("View Information")) {
            new ViewInformation(meter);
        } else if (msg.equals("Update Information")) {
            new UpdateInformation(meter);
        } else if (msg.equals("Bill Details")) {
            new BillDetails(meter);
        } else if (msg.equals("Notepad")) {
            try {
                Runtime.getRuntime().exec("notepad.exe");
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else if (msg.equals("Calculator")) {
            try {
                Runtime.getRuntime().exec("calc.exe");
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else if (msg.equals("Exit")) {
            setVisible(false);
            new Login();
        } else if (msg.equals("Pay Bill")) {
            new PayBill(meter);
        } else if (msg.equals("Generate Bill")) {
            new GenerateBill(meter);
        }
    }

    public static void main(String[] args) {
        new Project("", "");
    }
}
```

3.13 Signup

```
package electricity.billing.system;
import javax.swing.*;
import javax.swing.border.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;

public class Signup extends JFrame implements ActionListener{

    JButton create, back;
    Choice accountType;
    JTextField meter, username, name, password;
    Signup(){

        setBounds(450, 150, 700, 400);
        getContentPane().setBackground(Color.WHITE);
        setLayout(null);

        JPanel panel = new JPanel();
        panel.setBounds(30, 30, 650, 300);
        panel.setBorder(new TitledBorder(new LineBorder(new Color(173, 216, 230), 2),
"Create-Account", TitledBorder.LEADING, TitledBorder.TOP, null, new Color(172, 216,
230)));
        panel.setBackground(Color.WHITE);
        panel.setLayout(null);
        panel.setForeground(new Color(34, 139, 34));
        add(panel);

        JLabel heading = new JLabel("Create Account As");
        heading.setBounds(100, 50, 140, 20);
        heading.setForeground(Color.GRAY);
        heading.setFont(new Font("Tahoma", Font.BOLD, 14));
        panel.add(heading);

        accountType = new Choice();
        accountType.add("Admin");
        accountType.add("Customer");
        accountType.setBounds(260, 50, 150, 20);
        panel.add(accountType);

        JLabel lblmeter = new JLabel("Meter Number");
        lblmeter.setBounds(100, 90, 140, 20);
        lblmeter.setForeground(Color.GRAY);
        lblmeter.setFont(new Font("Tahoma", Font.BOLD, 14));
        lblmeter.setVisible(false);
        panel.add(lblmeter);

        meter = new JTextField();
        meter.setBounds(260, 90, 150, 20);
        meter.setVisible(false);
        panel.add(meter);

        JLabel lblusername = new JLabel("Username");
        lblusername.setBounds(100, 130, 140, 20);
        lblusername.setForeground(Color.GRAY);
        lblusername.setFont(new Font("Tahoma", Font.BOLD, 14));
        panel.add(lblusername);

        username = new JTextField();
        username.setBounds(260, 130, 150, 20);
        panel.add(username);

        JLabel lblname = new JLabel("Name");
        lblname.setBounds(100, 170, 140, 20);
        lblname.setForeground(Color.GRAY);
        lblname.setFont(new Font("Tahoma", Font.BOLD, 14));
        panel.add(lblname);

        name = new JTextField();
        name.setBounds(260, 170, 150, 20);
        panel.add(name);

        meter.addFocusListener(new FocusListener() {
            @Override
            public void focusGained(FocusEvent fe) {}

            @Override
            public void focusLost(FocusEvent fe) {
                try {
                    Conn c  = new Conn();
                    ResultSet rs = c.s.executeQuery("select * from login where meter_no = 
'"+meter.getText()+"'");
                    while(rs.next()) {
                        name.setText(rs.getString("name"));
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        });
        JLabel lblpassword = new JLabel("Password");
        lblpassword.setBounds(100, 210, 140, 20);
        lblpassword.setForeground(Color.GRAY);
        lblpassword.setFont(new Font("Tahoma", Font.BOLD, 14));
        panel.add(lblpassword);

        password = new JTextField();
        password.setBounds(260, 210, 150, 20);
        panel.add(password);

        accountType.addItemListener(new ItemListener() {
            public void itemStateChanged(ItemEvent ae) {
                String user = accountType.getSelectedItem();
                if (user.equals("Customer")) {
                    lblmeter.setVisible(true);
                    meter.setVisible(true);
                    name.setEditable(false);
                } else {
                    lblmeter.setVisible(false);
                    meter.setVisible(false);
                    name.setEditable(true);
                }
            }
        });

        create = new JButton("Create");
        create.setBackground(Color.BLACK);
        create.setForeground(Color.WHITE);
        create.setBounds(140, 260, 120, 25);
        create.addActionListener(this);
        panel.add(create);

        back = new JButton("Back");
        back.setBackground(Color.BLACK);
        back.setForeground(Color.WHITE);
        back.setBounds(300, 260, 120, 25);
        back.addActionListener(this);
        panel.add(back);

        ImageIcon i1 = new
ImageIcon(ClassLoader.getSystemResource("icon/signupImage.png"));
        Image i2 = i1.getImage().getScaledInstance(250, 250, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        image.setBounds(415, 30, 250, 250);
        panel.add(image);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == create) {
            String atype = accountType.getSelectedItem();
            String susername = username.getText();
            String sname = name.getText();
            String spassword = password.getText();
            String smeter = meter.getText();

            try {
                Conn c = new Conn();

                String query = null;
                if (atype.equals("Admin")) {
                    query = "insert into login values('"+smeter+"', '"+susername+"', '"+sname+"',
'"+spassword+"', '"+atype+"')";
                } else {
                    query = "update login set username = '"+susername+"', password =
'"+spassword+"', user = '"+atype+"' where meter_no = '"+smeter+"'";
                }
                c.s.executeUpdate(query);

                JOptionPane.showMessageDialog(null, "Account Created Successfully");

                setVisible(false);
                new Login();
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else if (ae.getSource() == back) {
            setVisible(false);

            new Login();
        }
    }

    public static void main(String[] args) {
        new Signup();
    }
}
```

3.14 Splash

```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
public class Splash extends JFrame implements Runnable {
    Thread t;
    Splash() {

        ImageIcon i1 = new ImageIcon(ClassLoader.getSystemResource("icon/elect.jpg"));
        Image i2 = i1.getImage().getScaledInstance(730, 550, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        add(image);

        setVisible(true);

        int x = 1;
        for (int i = 2; i < 600; i+=4, x+=1) {
            setSize(i + x, i);
            setLocation(700 - ((i + x)/2), 400 - (i/2));
            try {
                Thread.sleep(5);
            } catch (Exception e) {
                e.printStackTrace();
            }
        }

        t = new Thread(this);
        t.start();

        setVisible(true);
    }

    public void run() {
        try {
            Thread.sleep(7000);
            setVisible(false);

            // login frame
            new Login();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
    public static void main(String[] args) {
        new Splash();
    }
}
```

3.15 Update Information

```
        package electricity.billing.system;
        import javax.swing.*;
         import java.awt.*;
         import java.sql.*;
        import java.awt.event.*;
        public class UpdateInformation extends JFrame implements ActionListener{

            JTextField tfaddress, tfstate, tfcity, tfemail, tfphone;

            JButton update, cancel;

            String meter;

            JLabel name;

            UpdateInformation(String meter) {

                this.meter = meter;

                setBounds(300, 150, 1050, 450);

                getContentPane().setBackground(Color.WHITE);

                setLayout(null);


                JLabel heading = new JLabel("UPDATE CUSTOMER INFORMATION");

                heading.setBounds(110, 0, 400, 30);

                heading.setFont(new Font("Tahoma", Font.PLAIN, 20));

                add(heading);


                JLabel lblname = new JLabel("Name");

                lblname.setBounds(30, 70, 100, 20);

                add(lblname);


                name = new JLabel("");
```

```
name.setBounds(230, 70, 200, 20);
add(name);

JLabel lblmeternumber = new JLabel("Meter Number");
lblmeternumber.setBounds(30, 110, 100, 20);
add(lblmeternumber);

JLabel meternumber = new JLabel("");
meternumber.setBounds(230, 110, 200, 20);
add(meternumber);

JLabel lbladdress = new JLabel("Address");
lbladdress.setBounds(30, 150, 100, 20);
add(lbladdress);

tfaddress = new JTextField();
tfaddress.setBounds(230, 150, 200, 20);
add(tfaddress);

JLabel lblcity = new JLabel("City");
lblcity.setBounds(30, 190, 100, 20);
add(lblcity);

tfcity = new JTextField();
tfcity.setBounds(230, 190, 200, 20);
add(tfcity);

JLabel lblstate = new JLabel("State");
lblstate.setBounds(30, 230, 100, 20);
add(lblstate);
```

```
        tfstate = new JTextField();
        tfstate.setBounds(230, 230, 200, 20);
        add(tfstate);

        JLabel lblemail = new JLabel("Email");
        lblemail.setBounds(30, 270, 100, 20);
        add(lblemail);

        tfemail = new JTextField();
        tfemail.setBounds(230, 270, 200, 20);
        add(tfemail);

        JLabel lblphone = new JLabel("Phone");
        lblphone.setBounds(30, 310, 100, 20);
        add(lblphone);

        tfphone = new JTextField();
        tfphone.setBounds(230, 310, 200, 20);
        add(tfphone);

        try {
            Conn c = new Conn();
            ResultSet rs = c.s.executeQuery("select * from customer where meter_no =
'"+meter+"'");
            while(rs.next()) {
                name.setText(rs.getString("name"));
                tfaddress.setText(rs.getString("address"));
                tfcity.setText(rs.getString("city"));
                tfstate.setText(rs.getString("state"));
                tfemail.setText(rs.getString("email"));
                tfphone.setText(rs.getString("phone"));
                meternumber.setText(rs.getString("meter_no"));
            }
        } catch (Exception e) {
            e.printStackTrace();
        }

        update = new JButton("Update");
        update.setBackground(Color.BLACK);
        update.setForeground(Color.WHITE);
        update.setBounds(70, 360, 100, 25);
        add(update);
        update.addActionListener(this);

        cancel = new JButton("Cancel");
        cancel.setBackground(Color.BLACK);
        cancel.setForeground(Color.WHITE);
        cancel.setBounds(230, 360, 100, 25);
        add(cancel);
        cancel.addActionListener(this);

        ImageIcon i1 = new
ImageIcon(ClassLoader.getSystemResource("icon/update.jpg"));
        Image i2 = i1.getImage().getScaledInstance(400, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        image.setBounds(550, 50, 400, 300);
        add(image);



        setVisible(true);
```

```
    }

    public void actionPerformed(ActionEvent ae) {
        if (ae.getSource() == update) {
            String address = tfaddress.getText();
            String city = tfcity.getText();
            String state = tfstate.getText();
            String email = tfemail.getText();
            String phone = tfphone.getText();

            try {
                Conn c = new Conn();
                c.s.executeUpdate("update customer set address = '"+address+"', city = '"+city+"', state = '"+state+"', email = '"+email+"', phone = '"+phone+"' where meter_no = '"+meter+"'");

                JOptionPane.showMessageDialog(null, "User Information Updated Successfully");
                setVisible(false);
            } catch (Exception e) {
                e.printStackTrace();
            }
        } else {
            setVisible(false);
        }
    }

    public static void main(String[] args) {
        new UpdateInformation("");
    }
}
```

3.16 View Information

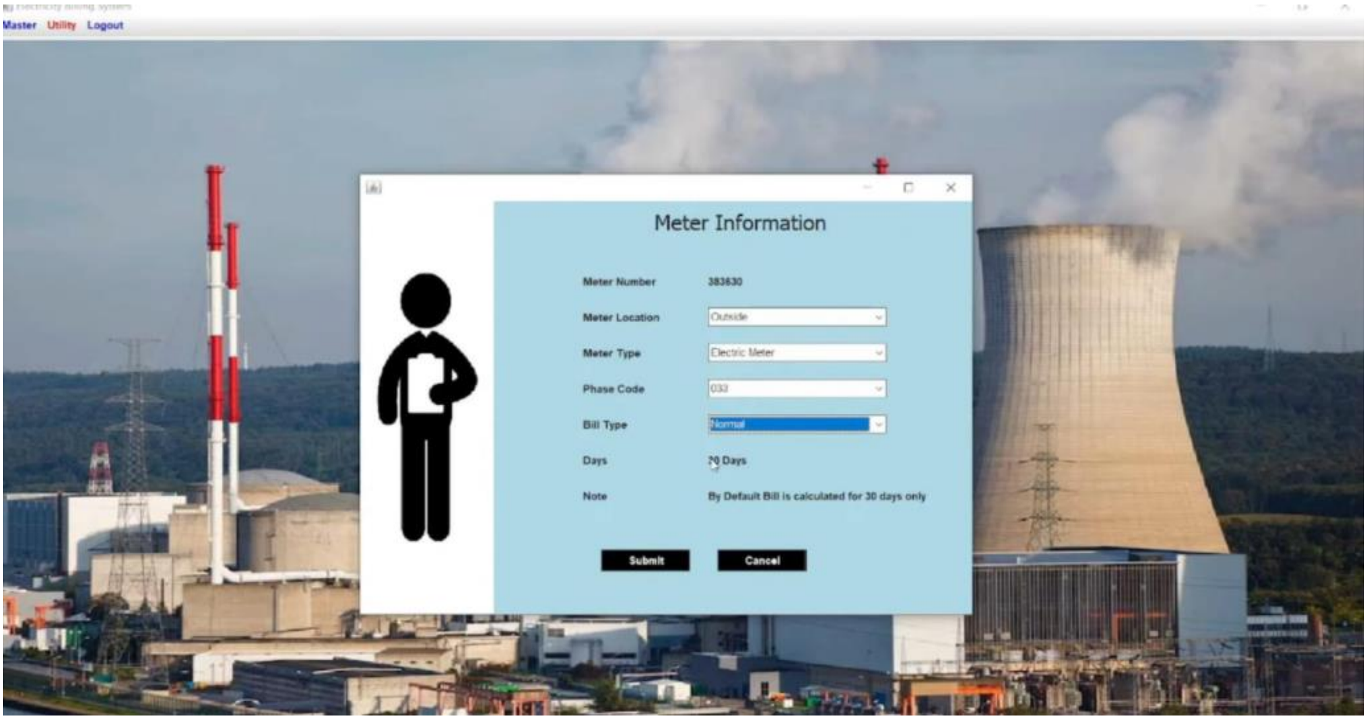
```
package electricity.billing.system;
import javax.swing.*;
import java.awt.*;
import java.sql.*;
import java.awt.event.*;

public class ViewInformation extends JFrame implements ActionListener{

    JButton cancel;
    ViewInformation(String meter) {
        setBounds(350, 150, 850, 650);
        getContentPane().setBackground(Color.WHITE);
        setLayout(null);


        JLabel heading = new JLabel("VIEW CUSTOMER INFORMATION");
        heading.setBounds(250, 0, 500, 40);
        heading.setFont(new Font("Tahoma", Font.PLAIN, 20));
        add(heading);

        JLabel lblname = new JLabel("Name");
        lblname.setBounds(70, 80, 100, 20);
        add(lblname);

        JLabel name = new JLabel("");
        name.setBounds(250, 80, 100, 20);
        add(name);

        JLabel lblmeternumber = new JLabel("Meter Number");
        lblmeternumber.setBounds(70, 140, 100, 20);
```

```
add(lblmeternumber);

JLabel meternumber = new JLabel("");
meternumber.setBounds(250, 140, 100, 20);
add(meternumber);

JLabel lbladdress = new JLabel("Address");
lbladdress.setBounds(70, 200, 100, 20);
add(lbladdress);

JLabel address = new JLabel("");
address.setBounds(250, 200, 100, 20);
add(address);

JLabel lblcity = new JLabel("City");
lblcity.setBounds(70, 260, 100, 20);
add(lblcity);

JLabel city = new JLabel("");
city.setBounds(250, 260, 100, 20);
add(city);

JLabel lblstate = new JLabel("State");
lblstate.setBounds(500, 80, 100, 20);
add(lblstate);

JLabel state = new JLabel("");
state.setBounds(650, 80, 100, 20);
add(state);
```

```
        JLabel lblemail = new JLabel("Email");
        lblemail.setBounds(500, 140, 100, 20);
        add(lblemail);

        JLabel email = new JLabel("");
        email.setBounds(650, 140, 100, 20);
        add(email);

        JLabel lblphone = new JLabel("Phone");
        lblphone.setBounds(500, 200, 100, 20);
        add(lblphone);

        JLabel phone = new JLabel("");
        phone.setBounds(650, 200, 100, 20);
        add(phone);

        try {
            Conn c = new Conn();
            ResultSet rs = c.s.executeQuery("select * from customer where meter_no = '"+meter+"'");
            while(rs.next()) {
                name.setText(rs.getString("name"));
                address.setText(rs.getString("address"));
                city.setText(rs.getString("city"));
                state.setText(rs.getString("state"));
                email.setText(rs.getString("email"));
                phone.setText(rs.getString("phone"));
                meternumber.setText(rs.getString("meter_no"));
            }
        } catch (Exception e) {
            e.printStackTrace();
        }

        cancel = new JButton("Cancel");
        cancel.setBackground(Color.BLACK);
        cancel.setForeground(Color.WHITE);
        cancel.setBounds(350, 340, 100, 25);
        add(cancel);
        cancel.addActionListener(this);

        ImageIcon i1 = new
ImageIcon(ClassLoader.getSystemResource("icon/viewcustomer.jpg"));
        Image i2 = i1.getImage().getScaledInstance(600, 300, Image.SCALE_DEFAULT);
        ImageIcon i3 = new ImageIcon(i2);
        JLabel image = new JLabel(i3);
        image.setBounds(20, 350, 600, 300);
        add(image);

        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        setVisible(false);
    }

    public static void main(String[] args) {
        new ViewInformation("");
    }
}
```

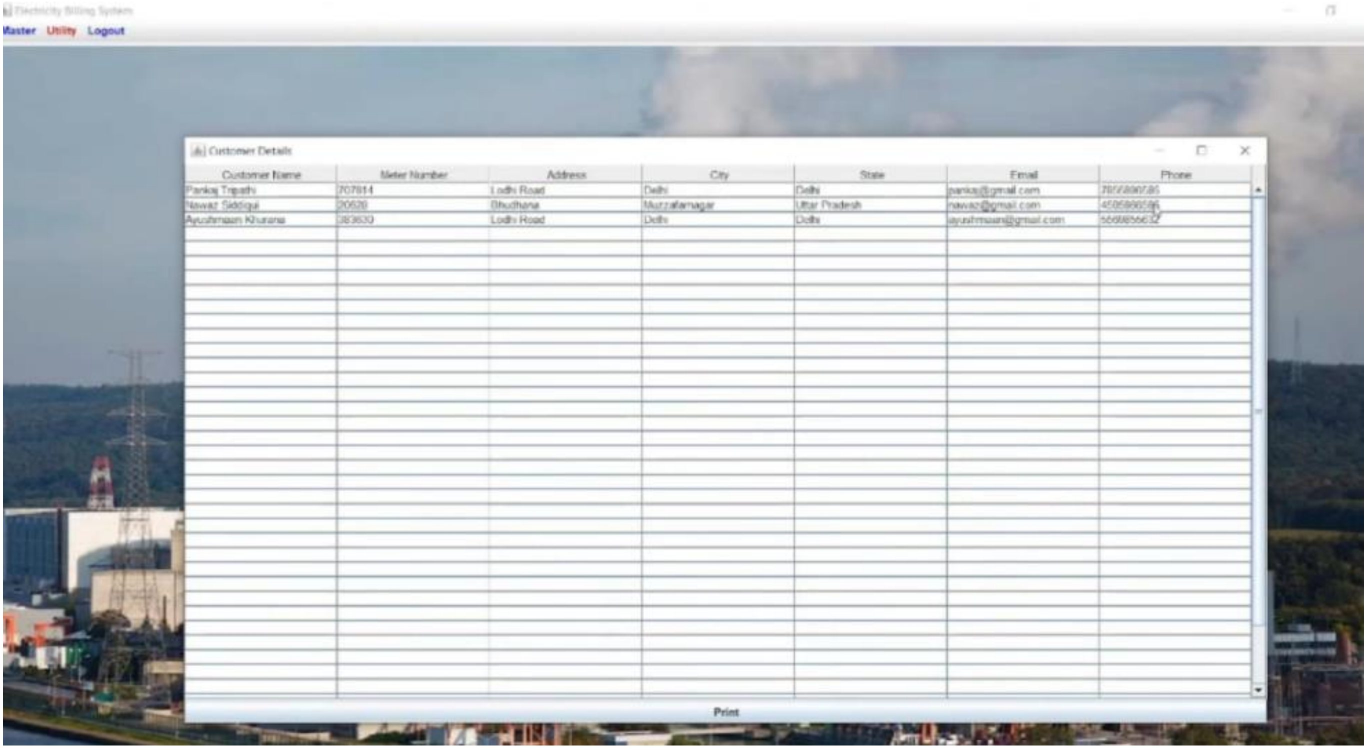
SNAPSHOTS

4.1 ADMIN INTERFACE



Meter Information

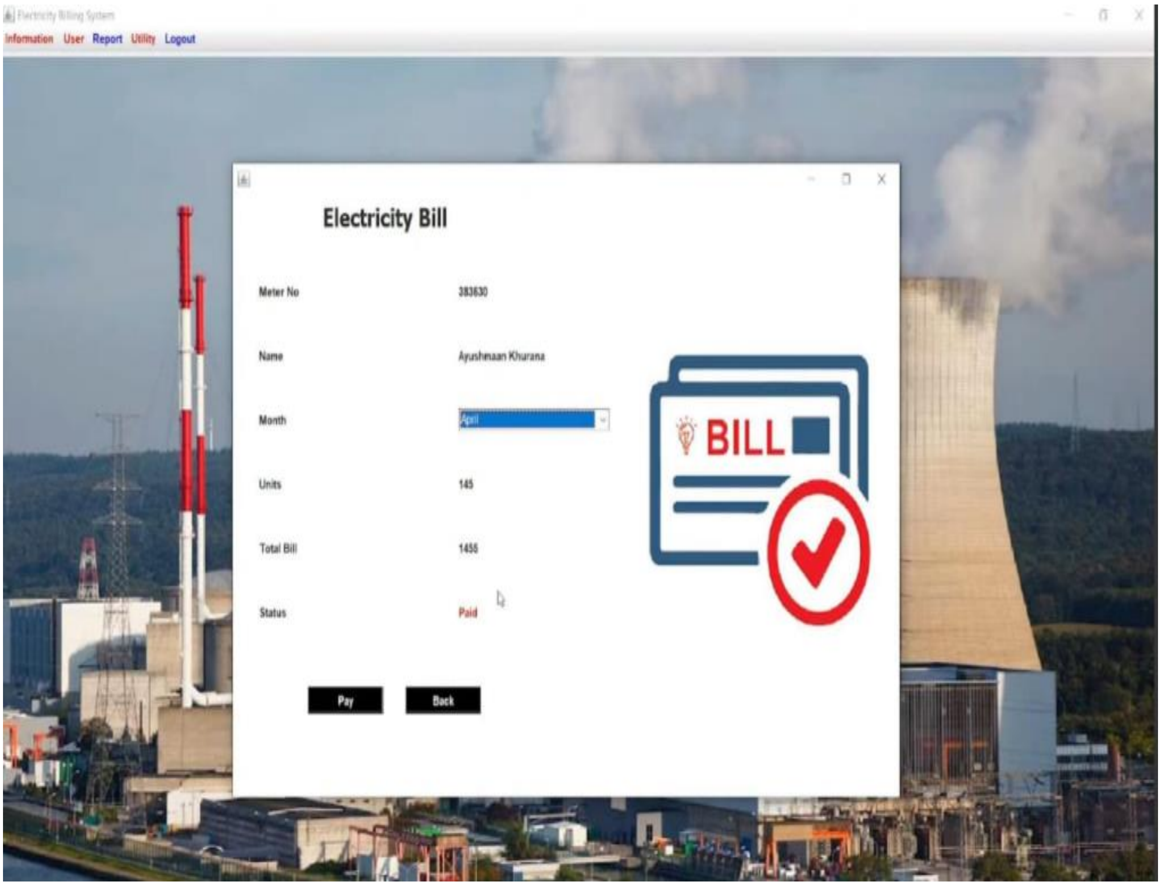
Meter Number	383630
Meter Location	Outside
Meter Type	Electric Meter
Phase Code	033
Bill Type	Normal
Days	30 Days
Note	By Default Bill is calculated for 30 days only



Customer Details

Customer Name	Meter Number	Address	City	State	Email	Phone
Pankaj Tripathi	707814	Lodhi Road	Delhi	Delhi	pankaj@gmail.com	7855890785
Nawaz Siddiqui	20520	Bhudhana	Muzzafarnagar	Uttar Pradesh	nawaz@gmail.com	4505890586
Ayushmaan Khurana	383630	Lodhi Road	Delhi	Delhi	ayushmaan@gmail.com	5668856632

4.2 USER INTERFACE



Electricity Bill

Meter No 383630

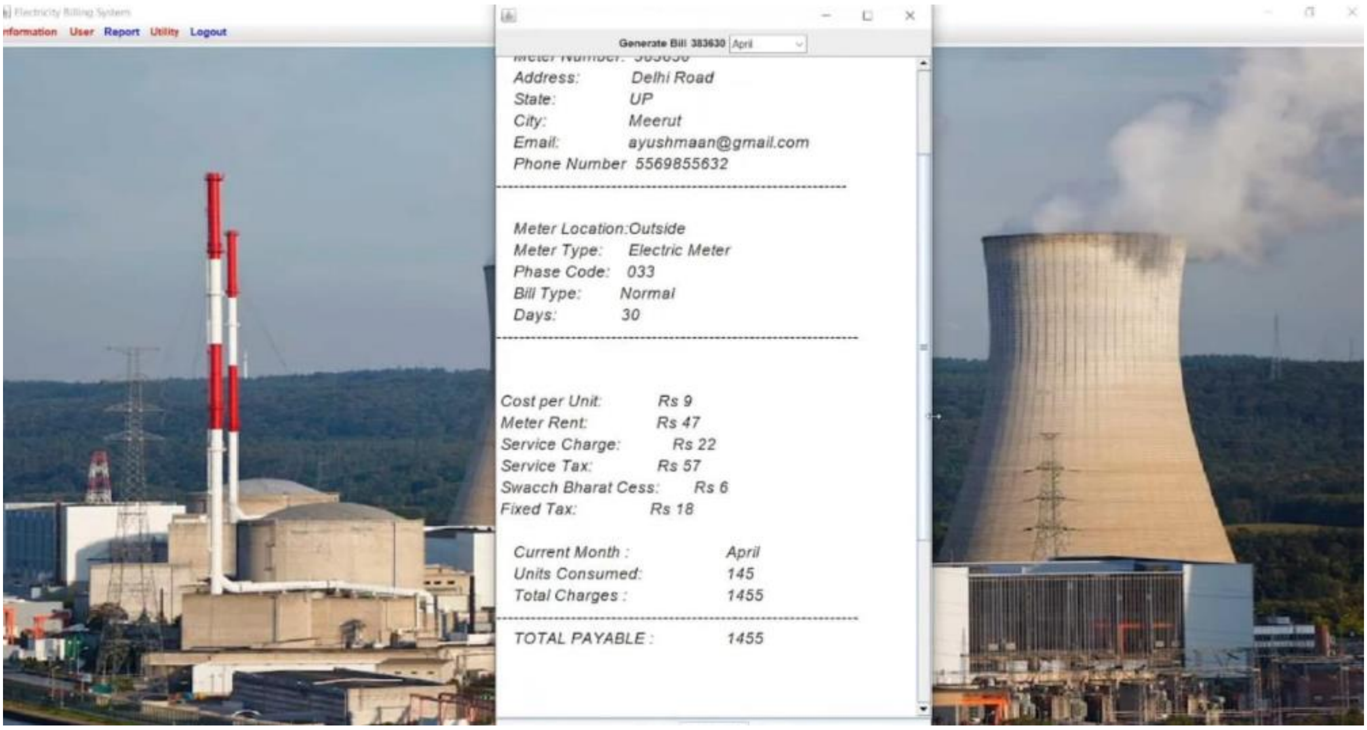
Name Ayushmaan Khurana

Month April

Units 145

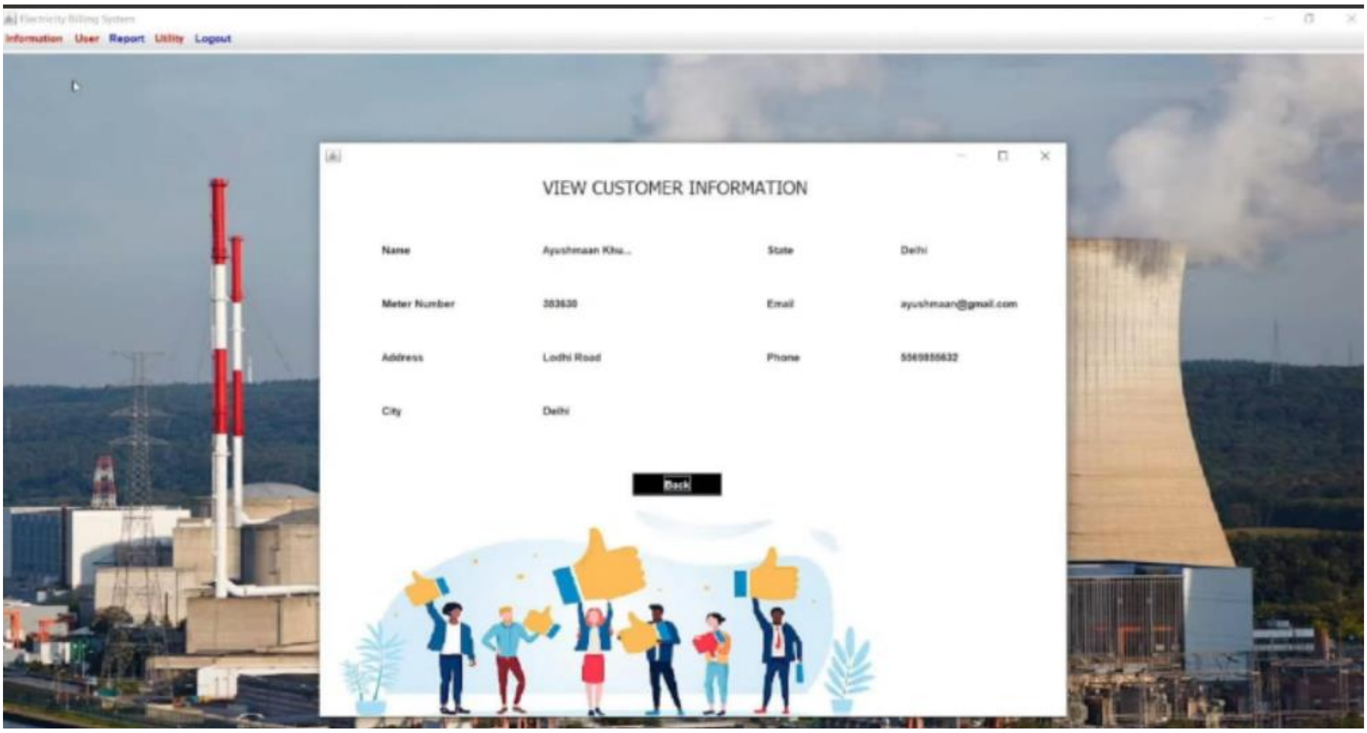
Total Bill 1455

Status Paid



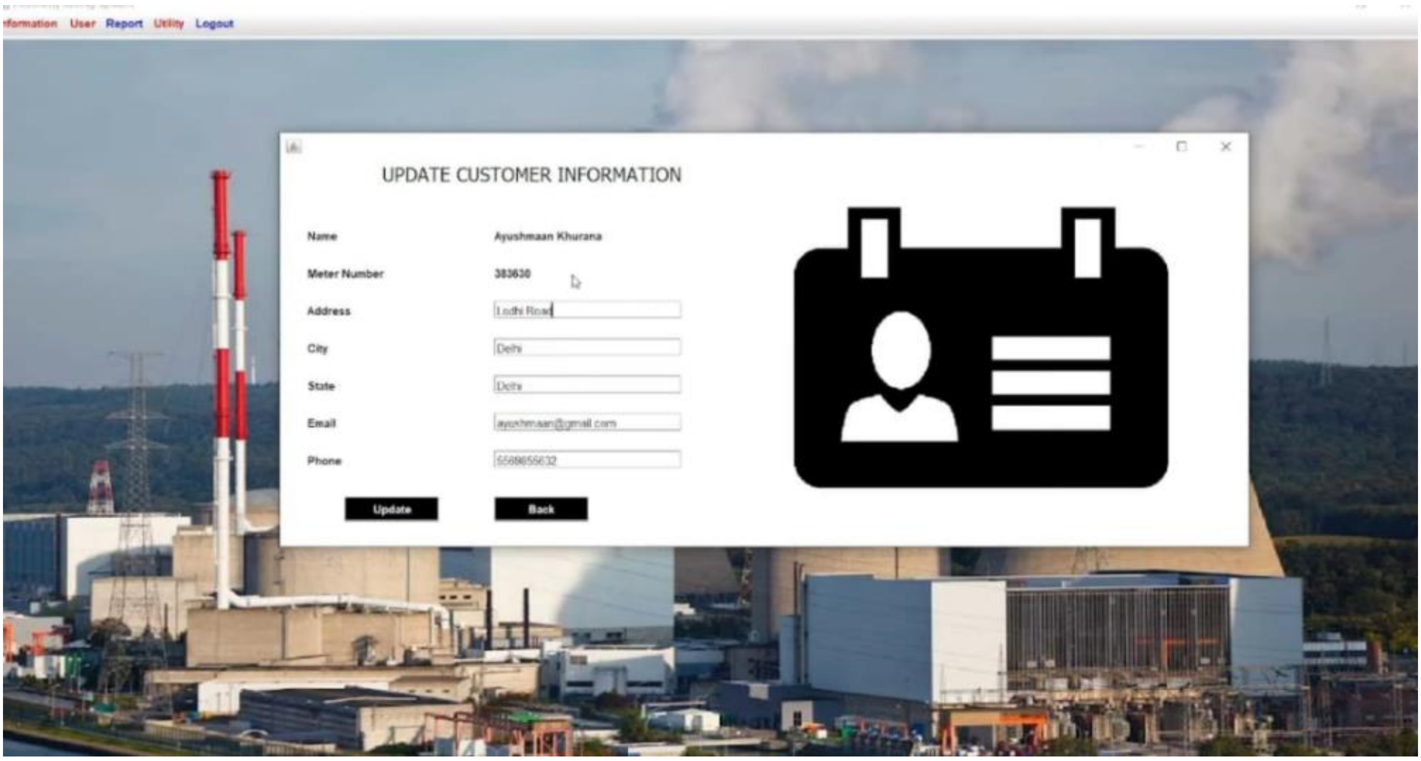
Generate Bill 383630 April

```
Meter Number: 383630
Address:        Delhi Road
State:          UP
City:           Meerut
Email:          ayushmaan@gmail.com
Phone Number  5569855632
------------------------------------------------------------

Meter Location:Outside
Meter Type:     Electric Meter
Phase Code:     033
Bill Type:      Normal
Days:           30
--------------------------------------------------------------

Cost per Unit:          Rs 9
Meter Rent:             Rs 47
Service Charge:             Rs 22
Service Tax:            Rs 57
Swacch Bharat Cess:         Rs 6
Fixed Tax:              Rs 18

Current Month :                 April
Units Consumed:                 145
Total Charges :                 1455
--------------------------------------------------------------
TOTAL PAYABLE :                 1455
```



VIEW CUSTOMER INFORMATION

Name	Ayushmaan Khu...	State	Delhi
Meter Number	383630	Email	ayushmaan@gmail.com
Address	Lodhi Road	Phone	5569855632
City	Delhi		



UPDATE CUSTOMER INFORMATION

Name	Ayushmaan Khurana
Meter Number	383630
Address	Lodhi Road
City	Delhi
State	Delhi
Email	ayushmaan@gmail.com
Phone	5568855632

CONCLUSION

The Electricity Bill Management System serves as a high-level solution in the management of billing and payment by using SQL, which securely and stably provides data storage with room for flexibility to ensure easy access. On the interface available, customers can view and download their bills as well as make payments. Administrators, on the other hand, manage accounts, track the process of reading meters and issuing bills, and so forth. Apart from that, it has real-time status of payments and features encryption and authentication as security measures. It boosts the level of operational efficiency and also user experience through the automation of bill generation and payment tracking. The system optimizes both electricity bill management for providers and customers by giving secure payment options and transparency.

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2. Java JDBC Tutorial : https://www.javatpoint.com/java-jdbc
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