KONGU ENGINEERING COLLEGE

(AUTONOMOUS) PERUNDURAI – 638 060

Electricity billing system

MICRO PROJECT REPORT

JAVA PROGRAMMING (22ITC31)

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ABSTRACT

- The Electricity Billing System (EBS) automates meter reading, billing and payment processing. EBS calculates consumer energy consumption in kilowatt-hours (kWh). Tariff rates and taxes are applied to generate bills. The system facilitates online payments, reducing paperwork. EBS ensures accurate, efficient and transparent billing services.

PROBLEM STATEMENT

Our manual electricity billing system faces challenges:

1. Tedious record-keeping
2. Time-consuming payment collection
3. Inefficient customer service4
4. Error-prone manual calculations
5. Limited online functionality..

METHODOLOGY

1. Collect meter readings.
2. Calculate consumption and generate bills.
3. Integrate online payment gateway.
4. Update payment status.
5. Maintain and analyze billing data.

IMPLEMENTATION

1. Install meters and automate reading collection.
2. Develop billing software with tariff calculations.
3. Integrate online payment gateway.
4. Configure billing cycles and notifications.
5. Test and deploy the system.

RESULTS AND DISCUSSION

- Key Outcomes
- 1. Accurate and timely billing
- 2. Convenient online payment options
- 3. Improved customer service
- 4. Increased revenue and efficiency
- 5. Enhanced data analysis

CONCLUSION

In conclusion, the electricity billing system efficiently calculates and tracks electricity consumption, providing accurate bills based on usage. It helps users monitor their energy consumption, ensuring transparency and convenience in billing. This system plays a key role in promoting fair pricing, timely payments, and better management of electricity resources.

SAMPLE CODING

```
import java.util.Scanner;


public class ElectricityBillingSystem {


    private String[] userNames = {"Alice", "Bob", "Charlie", "David", "Eve"};
    private String[] phoneNumbers = {"1234567890", "2345678901", "3456789012", "4567890123",
"5678901234"};
    private String[] ebNumbers = {"EB123", "EB234", "EB345", "EB456", "EB567"};
    private double[] meterReadings = {100.0, 150.0, 200.0, 250.0, 300.0);
    private double[] availableKW = {50.0, 60.0, 70.0, 80.0, 90.0};


    public ElectricityBillingSystem() {
    }
    public int getUserIndex(String input) {
        for (int i = 0; i < userNames.length; i++) {
            if (input.equals(userNames[i]) || input.equals(phoneNumbers[i]) || input.equals(ebNumbers[i]))
{
                return i;
            }
     }
        return -1;
```

SAMPLE CODING

```
 }

      return -1;

   }

   public void calculateBill(int index) {

      if (index != -1) {



         double ratePerKW = 5.0;

         double totalAmount = meterReadings[index] * ratePerKW;

         System.out.println("Postpaid User: Total bill based on the meter reading is: Rs. " +
totalAmount);

      } else {

         System.out.println("Error: User not found!");

 }

   }

   public void rechargePrepaid(int index, double amount) {

      if (index != -1) {

         double convertedKW = amount;

         availableKW[index] += convertedKW;

         System.out.println("Prepaid User: Recharge successful! You have now " +
availableKW[index] + " KW available.");

      } else {

         System.out.println("Error: User not found!");

      }}
```

SAMPLE CODING

```
public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        ElectricityBillingSystem system = new ElectricityBillingSystem();

        System.out.print("Enter your user name, phone number, or EB number: ");
        String input = scanner.nextLine();

        int userIndex = system.getUserIndex(input);

        if (userIndex != -1) {
            System.out.println("User validated successfully!");
            System.out.print("Choose your plan (1 for Prepaid, 2 for Postpaid): ");
            int planChoice = scanner.nextInt();
            scanner.nextLine();

            if (planChoice == 1) {
                // Prepaid option
                System.out.print("Enter the amount to recharge: ");
```

SAMPLE CODING

```
double amount = scanner.nextDouble();
                system.rechargePrepaid(userIndex, amount);
            } else if (planChoice == 2) {
                // Postpaid option
                System.out.println("Your current meter reading: " + system.meterReadings[userIndex]);
                System.out.print("Enter the meter reading: ");
                double meterReading = scanner.nextDouble();
                system.meterReadings[userIndex] = meterReading;
                system.calculateBill(userIndex);
            } else {
                System.out.println("Invalid plan choice!");
            }
        } else {
            System.out.println("Error: User not found! Please check the details.");
        }

        scanner.close();
    }
}
```

THANK YOU