

PROBLEM SOLVING REPORT (GROUP PROJECT)

CCC1123

PROBLEM SOLVING AND PROGRAMMING FUNDAMENTAL



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Introduction

Electricity is an energy that plays a major role in human life. Our project entitled “Electricity Billing System” aims to generate electricity bills with all the charges automatically. Manual system that is employed is extremely laborious and quite inadequate. It only makes the process more difficult and hard. The aim of our project is to develop a system that is meant to partially computerize the work performed in the Electricity Board like generating electricity bills that customers need to pay.

Problem Statement

- Difficult to keep track of the customer's value of meter and calculate the usage of power.
- Monitoring of electricity still requires the human to record the meter value, then may not be very accurate as the meter value is entered by humans.
- The meter value recorded by a human could not be very accurate.
- The purpose of the project is to digitalise the electricity bill because the manual processes are prone to errors.
- To make it appealing for customers we constructed a C program that is going to help calculate the bill amount of the units without any error .

Objectives

- To shorten the duration of manual processing.
- Easy integration of upcoming innovations and adjustments.
- To keep the database error-free.

Scope

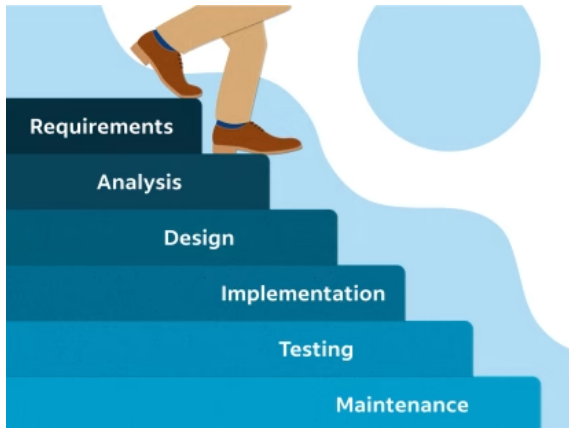
This project aims to :

- System User -The target users of this system are the customers. It satisfies the user requirement.
- The system is supposed to calculate the amount of units the electricity consumed by the customers in every household and then print out the bill automatically with a surcharge of 20%.

Previous Study

Several studies have analyzed electricity billing systems. For instance, prepaid electricity experiments. Previous study that they are using a manual billing system. This system has a wide range of disadvantages like malpractices are done while billing, escaping from punishment if any late payments, manpower for billing and collecting bills and wastage of paper billing. This project is attributed to generate electricity bills with all the charges automatically.

Methodology



- Requirements

Gathering the requirements for the electricity billing system.

- Analysis

Identifies the path that will be taken for getting the information and solution.

- Design

The design phase is to choose the ways to make the electricity billing system.

- Implementation

The rump of the project is to write and assemble the actual code that turns the design phase to a functioning system.

- Testing

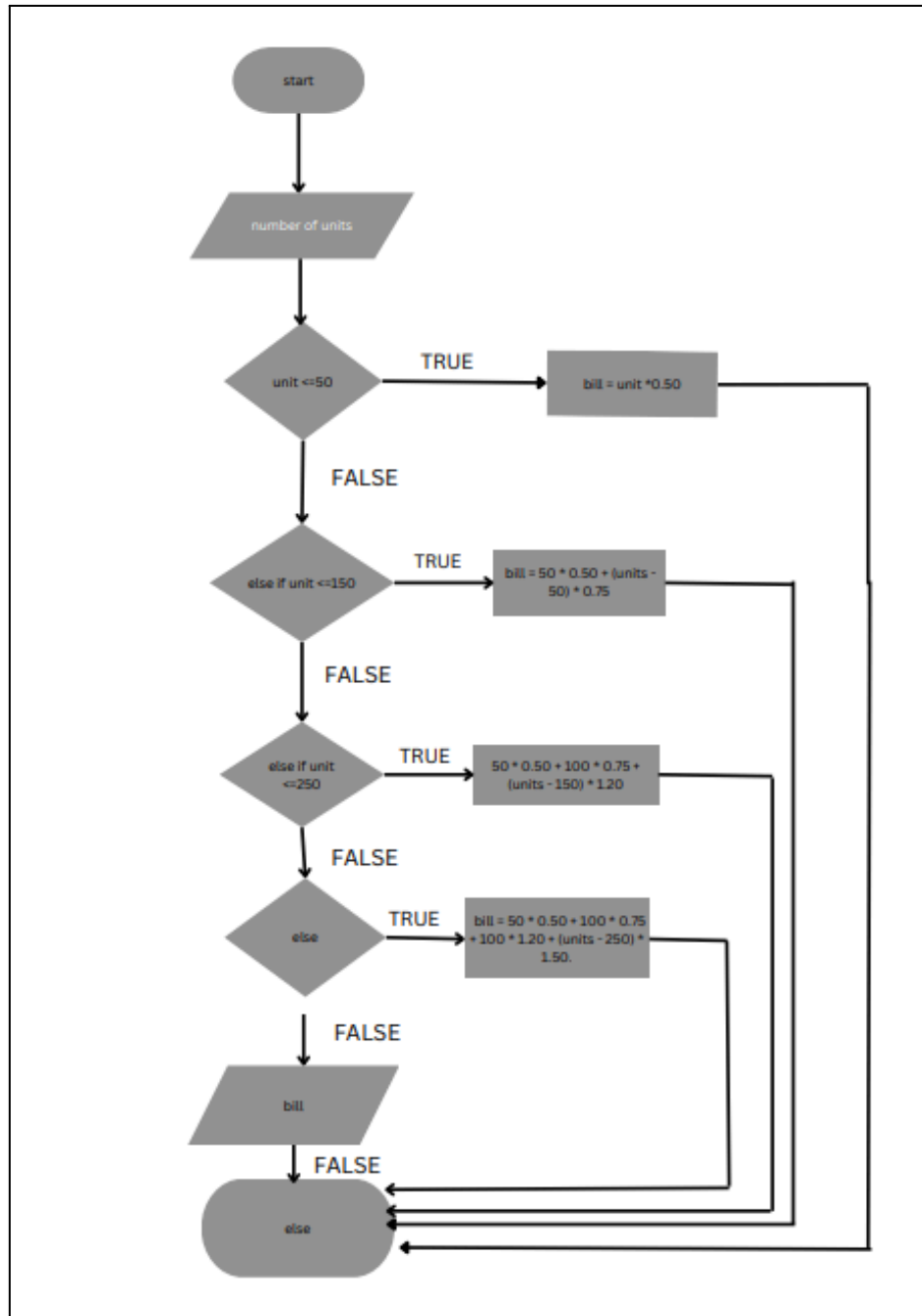
When the implantation phase has been fully completed, testers have to make sure this system works.

- Maintenance

In the maintenance phase, the primary job is now to keep the system available and running smoothly as well as fix any problem that may have been missed during the testing phase.

System Demo

- FLOWCHART



- **SOURCE CODE**

```
#include <stdio.h>

int main()
{
    int units;
    float bill;

    printf("Enter the number of units consumed: ");
    scanf("%d", &units);

    if (units <= 50)
    {
        bill = units * 0.50;
    }
    else if (units <= 150)
    {
        bill = 50 * 0.50 + (units - 50) * 0.75;
    }
    else if (units <= 250)
    {
        bill = 50 * 0.50 + 100 * 0.75 + (units - 150) * 1.20;
    }
    else
    {
        bill = 50 * 0.50 + 100 * 0.75 + 100 * 1.20 + (units - 250) * 1.50;
    }

    // apply surcharge
    bill = bill + (bill * 0.20);

    printf("Total electricity bill = $%.2f", bill);

    return 0;
}
```

- **OUTPUT**

```
Enter the number of units consumed: 260
Total electricity bill = $282.00
```

Conclusion

In conclusion, this Electricity Bill System in C with Source Code can be beneficial to students or professionals interested in learning C programming and can also be customized to meet your specific needs. This "Electricity Billing System" will maintain data such as records, searchable customer detail, calculation, and payment.