PROJECT PRESENTATION

BY ABEENAYA SHAKTHI SRI YASHIKA

INTRODUCTION TO ELECTRICITY BILL CALCULATOR

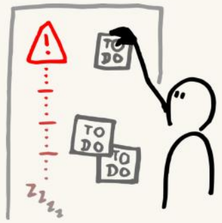
OVERVIEW AND FEATURES

INTRODUCTION

Project Overview

Problem

Automatic electricity bill calculator using tariff calculations.



Solution

We designed n automated electricity bill calculator using C programming. It validates user input, applies slab-based tariff calculation, tracks outstanding dues with file handling, and displays a clear bill breakdown along with an ASCII usage graph for easy understanding.

Why It Matters

it makes electricity billing accurate, transparent, and easy to understand.By automating tariff calculations, it reduces manual errors and helps consumers clearly see what they owe and why.

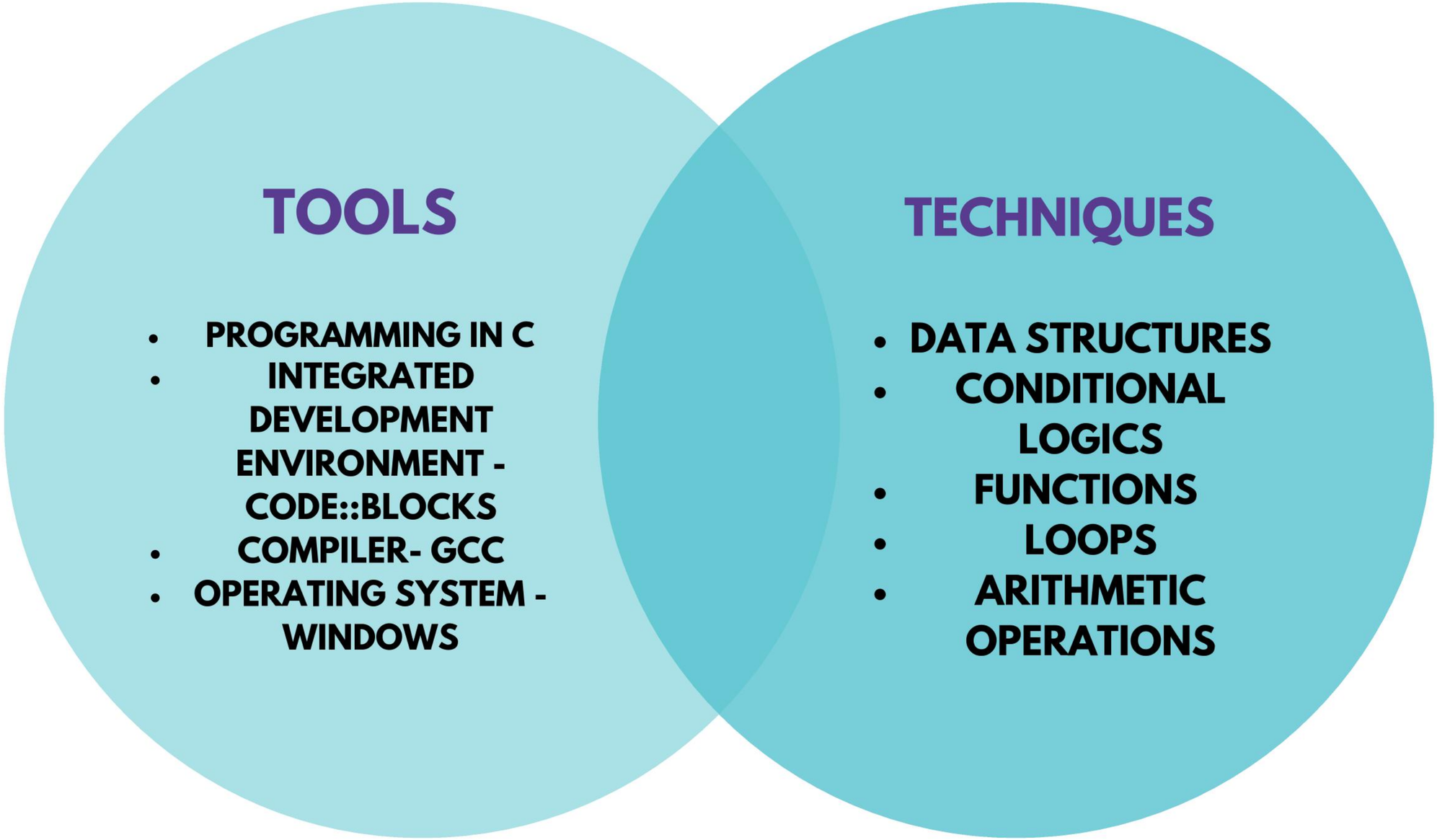
GOALS

- Automate electricity bill calculation
- Validate user input
- Track outstanding dues
- Provide clear bill breakdown

- File Handling
- ASCII Graphical Display
- Apply tariff calculation

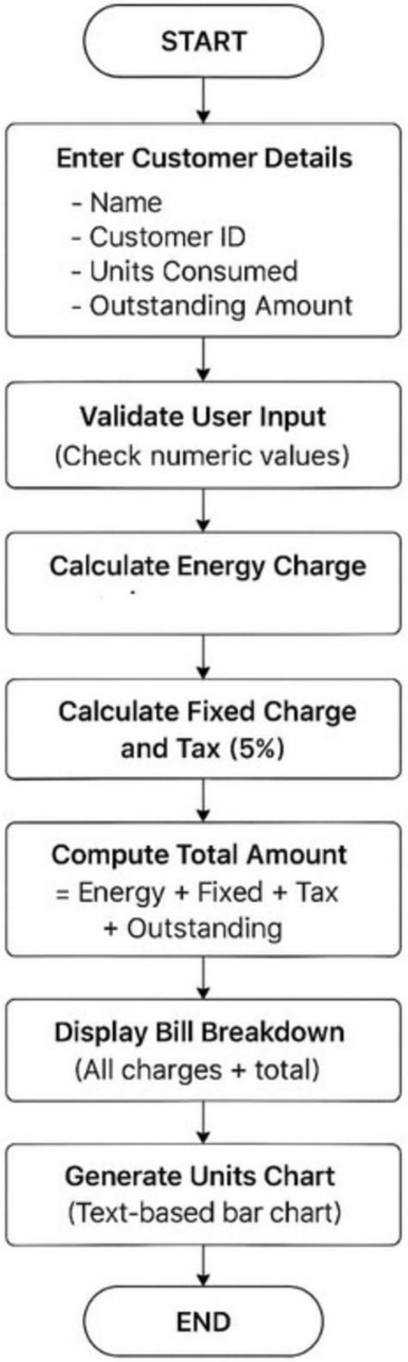
METHODOLOGY

1. **Problem Identification → Need for automated electricity billing system**
2. **System Design → Structure (struct Bill) + modular functions**
3. **Implementation → Input validation, tariff calculation, file handling, ASCII graph**
4. **Testing → Checked with valid/invalid inputs, tariff slabs, outstanding dues**
   - Output → Clear bill breakdown + usage visualization
5. **Documentation → Code comments, flowchart, report preparation**


TOOLS
PROGRAMMING IN C
INTEGRATED DEVELOPMENT ENVIRONMENT - CODE::BLOCKS
COMPILER- GCC
OPERATING SYSTEM - WINDOWS
TECHNIQUES
DATA STRUCTURES
CONDITIONAL LOGICS
FUNCTIONS
LOOPS
ARITHMETIC OPERATIONS

WORKFLOW

THIS DIAGRAM ILLUSTRATES THE COMPLETE BILLING PROCESS FROM INPUT TO OUTPUT WITH VALIDATION AND FILE HANDLING



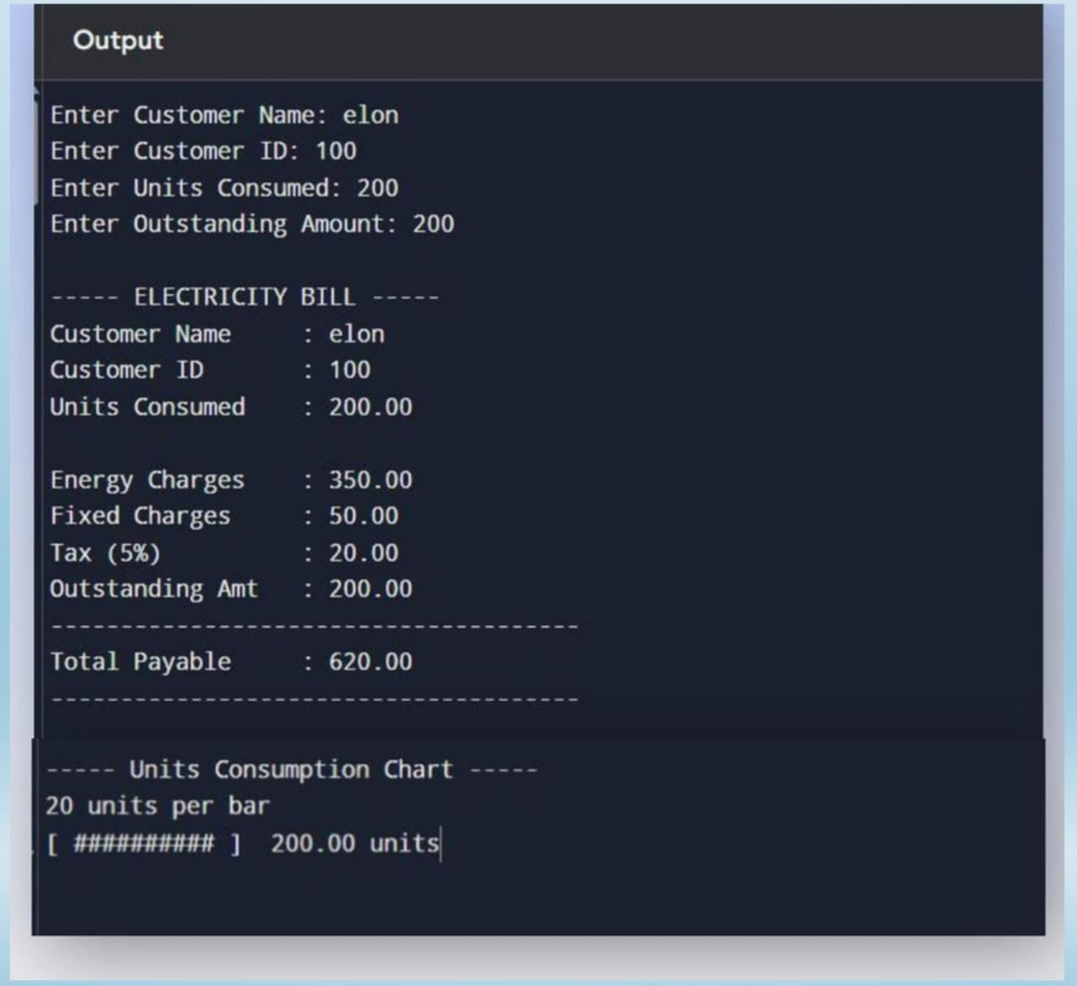
RESULT ANALYSIS

main.c

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

// STEP 1: Structure to store bill details
struct Bill {
    char customerName[50];
    int customerID;
    float units;
    float outstanding;
    float energyCharge;
    float fixedCharge;
    float tax;
    float totalAmount;
};

// Function to calculate energy charge based on slabs
float calculateEnergyCharge(float units) {
    float charge = 0;

```

```
21      if (units <= 100)
22          charge = units * 1.50;
23      else if (units <= 200)
24          charge = (100 * 1.50) + ((units - 100) * 2.00);
25      else
26          charge = (100 * 1.50) + (100 * 2.00) + ((units - 200) * 3.50);
27
28      return charge;
29  }
30
31  // Function to safely get integer input
32  int getValidatedInt(char *msg) {
33      int x;
34      while (1) {
35          printf("%s", msg);
36          if (scanf("%d", &x) == 1) return x;
37          else {
38              printf("Invalid input! Enter a valid number.\n");
39              fflush(stdin);
40          }
41      }
42  }
43
```

OUTPUT


Output
Enter Customer Name: elon
Enter Customer ID: 100
Enter Units Consumed: 200
Enter Outstanding Amount: 200
----- ELECTRICITY BILL -----
Customer Name : elon
Customer ID : 100
Units Consumed : 200.00
Energy Charges : 350.00
Fixed Charges : 50.00
Tax (5%) : 20.00
Outstanding Amt : 200.00
Total Payable : 620.00
----- Units Consumption Chart -----
20 units per bar
[##########] 200.00 units

Process

1

ADVANTAGES

2

DISADVANTAGES

3

LIMITATIONS

Conclusion

The electricity Bill Calculator project automates billing using C programming concepts like structures, functions, conditionals, loops, and file handling. It ensures accurate calculations, validates inputs, generates ASCII usage graphs, and stores bills for future reference. This project demonstrates practical application of programming fundamentals and provides a strong base for future enhancements such as GUI, database integration, and dynamic tariff updates.

FUTURE FRAMEWORK

GUI INTEGRATION

ONLINE BILL PAYMENT STIMULATION

DYNAMIC TARIFF SYSTEM

USER AUTHENTICATION

UNIT TESTING AND ERROR LOG

MOBILE AND WEB PORTABILITY

DATABASE INTEGRATION

ADVANCED DATA VISUALIZATION

REFERENCES

v Programming in ANSI C by E. Balagurusamy

v The C Programming Language by Brian W. Kernighan and Dennis M. Ritchie

v LET US C by Yashavant Kanetkar

v https://youtu.be/0yxWwIac3tc?si=88XLA8NIrcbOUYDB

v https://youtu.be/DfBRMYE7Ofo?si=ZnK-SAPtUjiv2Mib

Thank You