BANGLADESH UNIVERSITY OF BUSINESS AND TECHNOLOGY (BUBT)

Project Report

Project Name	:	Electricity Billing System
Course Title	:	Software Development 1
Course Code	:	CSE-100

Supervised by

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ABSTRACT

Science and technology with all its thrilling advances have brought the standards of daily life of person to the fore. The entire human beings definitely collapse beyond new things. This project is a novelty, which provides the method of collecting bill for power easier differentiate to else the previous research. This project work had apply using C language. The aim of this project is build a system which is ready to calculate the total amount of electricity bill with al of vat and charges.

DEDICATION

“What we now want is closer contact and better understanding between individuals and communities all over the earth, and the elimination of egoism and pride which is always prone to plunge the world into primeval barbarism and strife... Peace can only come as a natural consequence of universal enlightenment”

— Nikola Tesla.

Dedicated to all of our family, the symbol of love and giving, our teachers and friends who encourage and support us.

APROVAL

The report is “Electricity Billing System”. This report is submitted by Hridoy Ahmed Shajib (21225103412), Md. Mursalin Hasan Nirob (21225103423), Md. Majharul Kamal (21225103543), Md. Al Foysal Faruki Shakib (21225103360), Md. Rakibul Alam Emon (21225103329), Department of Computer Science and Engineering, Bangladesh University of Business and Technology under the supervision of Sudipto Chaki, Course Instructor, Department of Computer Science and Engineering has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc. Engg.) in Computer Science and Engineering.

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1. Introduction:

1.1 Project Aim & Objective:

The main objective of the project is to develop a Electricity Billing System which determines the bill for the consumed power per unit of time and performs its computation based on the sell rate of power per unit of time and other parameters. In this system, the user has to enter the total units consumed and the total sum amount is displayed. Also, it provides an environment to maintain consumer details. The whole project is designed in 'C' language and different variables and strings have been used for the development of this project. It's easy to operate and understand by users.

1.2 Operation Environment

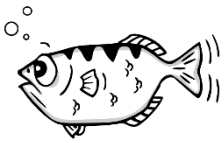
Programming Language:

- C Programming Language.

Compiler:

- GCC (MingW / GNU GCC).

Debugger:



- Interfaces GNU GDB.

2: System Analysis

2.1 System Requirement & Specification

Ram:

- Minimum: 512 MB.
- Recommended: 1 GB to above.

Windows OS Version:

- Minimum: Windows XP.
- Recommended: Windows 7 to above.

Processor:

- Minimum: 1 GHz.
- Recommended: 2 GHz or more.

2.2 Existing VS Proposed

Proposed feature:

- Calculating the payable amount of electricity bill which was the total consumed Units by the customer.
- Also adding the meter charge and vat with net bill.
- Bill will be increased or decreased by the number of units consumed by the customer which was monitored by DESCO standard electricity unit price.

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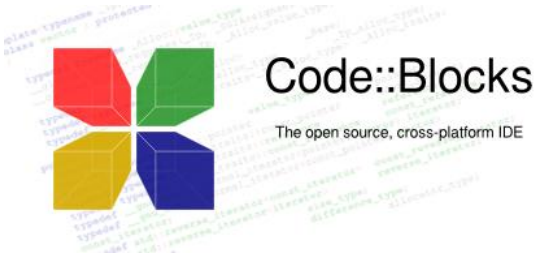
2.3 Software Tools Used

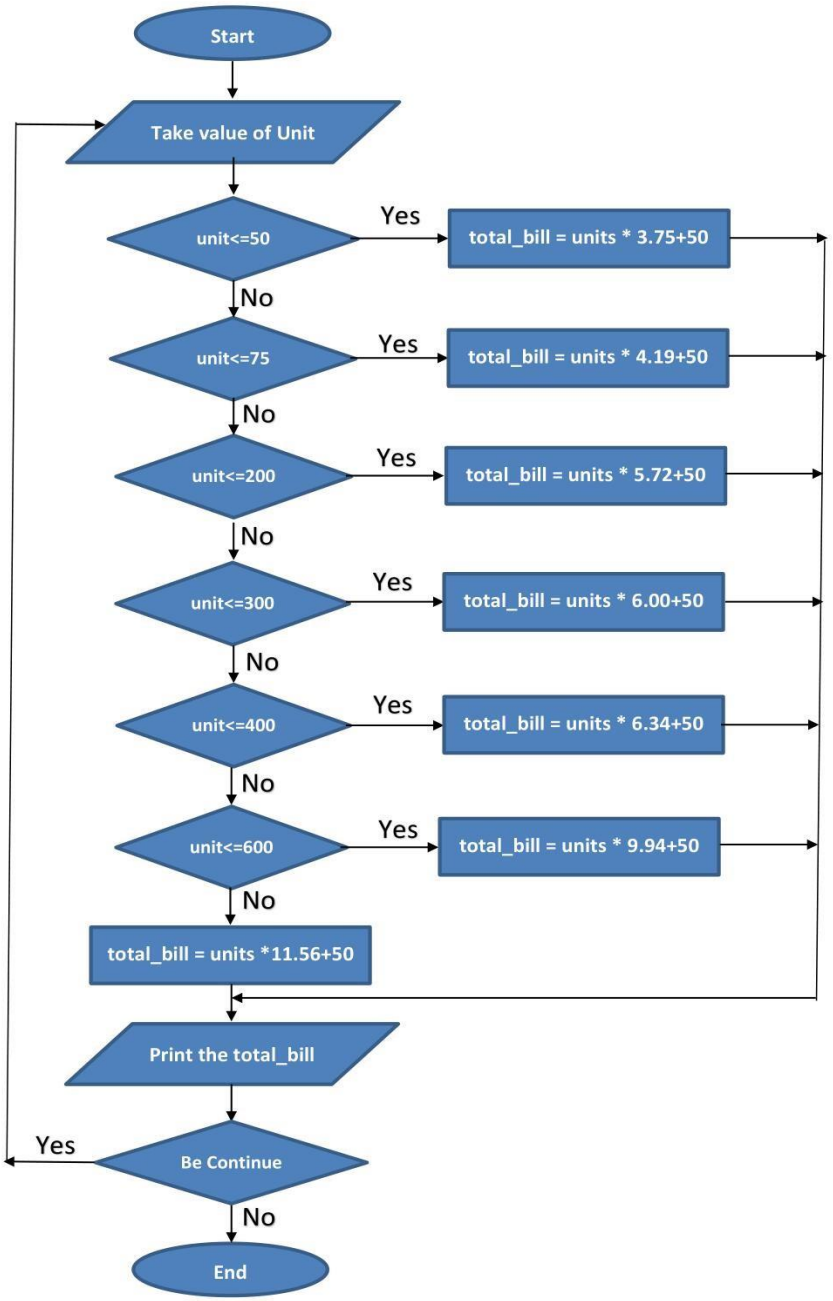
- Code::Blocks:



Code::Blocks is a free, open-source cross-platform IDE that supports multiple compilers including GCC, Clang and Visual C++. It is developed in C++ using widgets as the GUI toolkit. Using a plugin architecture, its capabilities and features are defined by the provided plugins. Currently, Code::Blocks is oriented towards C, C++, and Fortran. It has a custom build system and optional Make support. Code::Blocks is being developed for Windows and Linux and has been ported to FreeBSD, OpenBSD and Solaris.

3. System Design

3.1 Flowchart:



4. System Implementation

4.1: Module Description

- Input: Here customer write or add his total number of consumed electricity units.
- Then System takes the input and calculating it and analysis the total amount of consumed units by customer.
- Unit will be checked and the unit price will be updated by the DESCO standard Electricity Billing Unit price with basic meter charge.
- Then 5% Tax will be added with net bill and finally Total bill will be ready.
- Then system will be notified if customer want to continue or not. If its yes then the system starts process again and if the answer is no from the customer, then automatically it going to stop.

4.2 Coding Analysis

CODE

```
#include <stdio.h>
#include <stdlib.h>
#include <Windows.h>
int main()

{

    int units;
    int i;

    float total_bill;
    system("color 9f");
     static CONSOLE_FONT_INFOEX  fontex;
     fontex.cbSize = sizeof(CONSOLE_FONT_INFOEX);
     HANDLE hOut = GetStdHandle(STD_OUTPUT_HANDLE);
     GetCurrentConsoleFontEx(hOut, 0, &fontex);
     fontex.FontWeight = 50;
     fontex.dwFontSize.X = 15;
     fontex.dwFontSize.Y = 15;
     SetCurrentConsoleFontEx(hOut, NULL, &fontex);

     char cont = 'y';
while(cont == 'y'){

    printf("\n\n\t\t WELLCOME TO ELECTRICITY BILLING SYSTEM \n\n");
    printf("\t       ELECTRICITY TARIFF FOR HOUSEHOLDS
(Rates/Unit)\n\n");
```

```
    printf(" \t      **(Meter bill is Tk 50 and includes tax
5%%)**\n\n");

  for(i=0;i<70;i++)

        printf("=");

    printf("\n\t 0 To 50 Units .....   =taka.3.75/Unit  ||\n\n");
    printf("\t 51 To 75 Units ..........=taka.4.19/Unit  ||\n\n");
    printf("\t 76 To 200 Units ..........=taka.5.72/Unit  ||\n\n");
    printf("\t 201 To 300 Units ......... =taka.6/Unit     ||\n\n");
    printf("\t 301 To 400 Units ..........=taka.6.34/Unit  ||\n\n");
    printf("\t 401 To 600 Units ...........=taka.9.94/Unit  ||\n\n");
    printf("\t600+ Units ................. =taka.11.56/Unit ||\n\n");

    for(i=0;i<70;i++)
        printf("=");

    printf("\nPlease Enter Your Total Units Consumed : \n\n");


    scanf("%d", & units);

    if (units <= 50)
    total_bill = units * 3.75+50;

    else if (units <= 75)
    total_bill = units * 4.19+50;

    else if (units <= 200)
    total_bill = units * 5.75+50;  // here meter bill 50 taka

    else if (units <= 300)
    total_bill = units * 6+50;

    else if (units <= 400)
```

```
    total_bill = units * 6.34+50;

    else if (units <= 600)
    total_bill = units * 9.94+50;

    else total_bill = units * 11.56+50;
    total_bill=total_bill*1.05;  // here  tax 5%


    printf("\n\nYour Total Bill Is taka = %f", total_bill);


    getch();

    printf("\n\nDo you want to continue?[y/n]:\t");
scanf("%s",&cont);
system("cls");
}
}
```

CODE EXPLANATION

1. At first we state the welcome message and government rates of price per unit of using electricity by the printf() function.

2. Then we collect the unit of electricity from customers by the scantf() function.

3. After collecting the units, we calculate the total bill as per government rates of price per unit of using electricity. Here I used the if-else statement to do this.

4. If units consumed less or equal to 50 units. Then total_bill= units*3.75+50.

5. If units consumed more than 50 units but less than 75 units. Then total_bill= units*4.19+50.

6. If units consumed more than 75 units but less than 200 units. Then total_bill= units*5.72+50.

7. If units consumed more than 200 units but less than 300 units. Then total_bill= units*6.00+50.

8. If units consumed more than 300 units but less than 400 units. Then total_bill= units*6.34+50.

9. If units consumed more than 400 units but less than 600 units. Then total_bill= units*9.94+50.

10. If units consumed more than 600 units. Then total_bill= units*11.56+50.

11. Then we print the total bill by print() function.

12. After printing the total bill, we can start our calculation process again

Chapter- 5: Conclusion

5.1 Limitations

This project is a modern version of the traditional electricity billing system. The focus of this project is to computerize the electricity billing system to make it more seamless, accessible, and efficient. The software calculates the units consumed within specified time duration and accordingly calculates the amount of money to be paid for those units.

5.2 Future works

In this world of technology, a smart way of solving a problem is the most necessary task. This system will bring a solution for the wastage of high manpower, inefficient, and inaccurate billing, and abundantly increased malpractices and irregular payments in electricity billing departments. Proper implementation of bills, and taxes will enhance the nation's economy. If the government is interested to make it online payments on the mobile application can be built or an updated version of the present available. A mobile application can be developed which helps in making the transaction easier. This mobile application should help to file complaints, apply for new meter connections, etc.

5.3 Conclusion

This is a smart way of using technology to reduce manpower and increase work efficiency and accuracy without any malpractices. The electricity Billing System project reports before suggesting this solution they were using a manual process for meter reading, amount calculation, billing customers, and so on. The interaction between customers and Electricity Board was very poor and it took much longer time to respond to customer queries. By using our software it will be a very pleasant experience for both users and Electricity Maintenance Authority