RBS

RESTAURANT BILLING SYSTEM

Documentation Booklet

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1. Introduction

The Restaurant Billing System is a simple, menu-driven application developed using the C programming language. The main purpose of this project is to automate the basic billing process of a restaurant.

This project is designed using fundamental concepts of C such as **arrays, loops, conditional statements, and switch-case**. It allows the **user to select food items from a fixed menu, enter the required quantity, and automatically calculates the total amount.** The system also applies GST and discount wherever applicable and displays a well-formatted final bill.

The Restaurant Billing System is especially useful for small restaurants, cafés, and food stalls, where a simple and fast billing solution is required. From an academic point of view, this project helps students understand how real-world problems can be solved using basic programming logic in C. It also improves problem-solving skills and strengthens knowledge of arrays and control structures.

2. Purpose of the Project

The main purpose of the Restaurant Billing System project is to develop a simple and efficient billing application using the C programming language. This project aims to replace the traditional manual billing method with an automated system that can quickly calculate the total bill, apply taxes and discounts, and generate accurate invoices.

Another important purpose of this project is to **reduce human errors** in billing calculations and to **save time** during the billing process in small restaurants or food counters. It also helps in maintaining consistency and accuracy in bill generation.

3. Technologies Used

Programming Language: C
Compiler: GCC

4. Project Features

- Menu-driven system
- Multiple item ordering
- Automatic bill calculation
- GST and discount calculation
- Supports multiple customers
- Clear and formatted billing

5. System Working

The Restaurant Billing System works in a simple, step-by-step manner using a menu-driven approach. The complete working of the system is explained below:

1. Program Start
   When the program is executed, a welcome message and the restaurant name are displayed on the screen. The system then prepares to serve the first customer.
2. Display of Menu
   The system displays a fixed menu containing food items along with their prices. Each item is assigned a unique number for easy selection.
3. Order Selection
   The user selects a food item by entering its corresponding number. After selecting the item, the system asks the user to enter the required quantity.
4. Storing the Order
   The selected item and its quantity are stored in arrays. If the same item is ordered again, the quantity is added to the existing value.
5. Multiple Item Ordering
   The user can continue selecting more items and quantities. The system allows multiple orders for the same customer before generating the bill.
6. Viewing Current Order
   The user can choose an option to view the current order at any time. The system displays all selected items and their quantities.
7. Clearing the Order
   If the user wants to cancel the order, the system provides an option to clear all previously selected items.
8. Bill Generation
   When the user selects the option to generate the final bill, the system calculates:
   a. Subtotal by adding the total cost of each selected item
   b. GST (5%) on the subtotal

      c. Discount (10%) if the subtotal is greater than or equal to 1000
         The final payable amount is then calculated after adding GST and
         subtracting the discount.

9. Final Bill Display
   The system displays a detailed and well-formatted final bill showing:
   a. Item name
   b. Quantity
   c. Individual item total
   d. Subtotal
   e. GST
   f. Discount
   g. Net payable amount

10. Next Customer or Exit
    After the bill is generated, the system asks whether a new customer is to be served or the program should be terminated.
    a. If "New Customer" is selected, the system clears the previous order and starts again.
    b. If "Exit" is selected, the program terminates successfully.

6. Algorithm

Restaurant Billing System

1. Start
2. Display the welcome message and restaurant name.
3. Initialize arrays to store:
   a. Item names
   b. Item prices
   c. Item quantities (set all quantities to 0)
4. Set the customer counter to 1.
5. Repeat the following steps for each customer:
   a. Display the restaurant menu with item numbers and prices.
   b. Ask the user to enter the item number.
   c. If the choice is between 1 and 6:
      (i)   Ask for the quantity.
      (ii)   Add the entered quantity to the corresponding item.
   d. Else if the choice is 7:
      (i)   Display the current order.
   e. Else if the choice is 8:

            (i)   Clear the current order.
- f. Else if the choice is 0:
  - (i)   Stop taking orders and proceed to billing.
- g. Else:
  - (i)   Display an invalid choice message.
- h. Repeat steps (a) to (g) until the user chooses to generate the bill.

6. Calculate the Subtotal by multiplying item quantity with item price for all items and adding the result.
7. Calculate GST = 5% of Subtotal.
8. If Subtotal $\geq$ 1000:

    Calculate Discount = 10% of Subtotal

  Else:

    Discount = 0

9. Calculate Net Amount = Subtotal + GST − Discount.
10. Display the detailed Final Bill with:
    a. Item name
    b. Quantity
    c. Item total
    d. Subtotal
    e. GST
    f. Discount
    g. Net payable amount
11. Ask the user:
    a. Press 1 for New Customer
    b. Press 2 for Exit
12. If user selects New Customer:
    a. Clear all item quantities.
    b. Increase customer counter.
    c. Go back to step 5.
       Else:
    d. Exit the program.
13. Stop

7. Demonstration

- The program first displays the menu.

- The user selects items and quantities.

- All data is stored in arrays.

- When billing is selected, the system automatically calculates subtotal, GST, and discount.

- A formatted bill is displayed on the screen.

8. Advantages

- Easy to use
- Reduces manual billing errors
- Fast and accurate
- Low system resource usage
- Beginner friendly

9. Conclusion

The Restaurant Billing System is a simple and effective project that demonstrates the practical application of C programming concepts. It provides a basic understanding of arrays, control structures, and real-time billing operations.