

Restaurant Billing System

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Introduction

The Restaurant Billing System is a comprehensive C++ console-based application designed to streamline the ordering, billing, and tracking process for restaurant customers. The system allows users to select from various menu categories, apply eligible discounts, compute tax, and generate a detailed bill. This project demonstrates the practical application of C++ concepts, including structures, arrays, loops, and functions.

Key Features

- Multiple Menu Categories: Breakfast, Lunch, Dinner, Tea, Seasonal, Special
- Discount System: 10% for students, 5% for regular customers
- Tax Calculation: 8% applied after discount
- Order Processing: Customers can place multiple orders
- Real-Time Order Tracking
- Bill Generation: Displays itemized billing with subtotal, discount, tax, and total amount
- Structured and Modular Code for Scalability

Code Implementation

The project is implemented using structured programming principles in C++. It includes various functionalities such as menu selection, order processing, bill calculation, and order tracking. Below are the key components of the system:

1 Structure Definition

- struct MenuItem stores menu item names and prices.
- struct Order maintains order details such as customer name, quantity, and total price.

2 Menu Initialization

- Six different menu categories are stored as arrays of struct MenuItem.

3 Order Processing

- The system prompts customers to enter their name, select a menu category, and choose an item.

4 Discount & Tax Calculation

- A 10% discount applies to students and 5% to regular customers.
- An 8% tax is applied to the discounted amount.

5 Order Tracking

- Customers can check the status of their orders in real-time.

6 Order Display

- The system organizes and displays all orders, grouping them by customer name.

Sample Code Snippet

```
int main() {
    char choice;
    do {
        cout << "\n===== " << endl;
        cout << "    *Welcome to the Restaurant*    " << endl;
        cout << "===== " << endl;
        cout << "1. Take Order\n";
        cout << "2. Display Orders\n";
        cout << "3. Track Order\n";
        cout << "4. Exit\n";
        cout << "===== " << endl;
        cout << "Enter choice: ";
        cin >> choice;

        switch (choice) {
            case '1': takeOrder(); break;
            case '2': displayOrders(); break;
            case '3': trackOrder(); break;
            case '4': cout << "** Thank you for visiting! **" << endl; return 0;
            default: cout << "Invalid choice! Try again.";
        }
    } while (true);
}
```

Testing & Results

The system was tested using multiple test cases to ensure smooth functionality. It successfully processed orders, calculated discounts and tax correctly, and displayed accurate billing information.

Conclusion

The Restaurant Billing System effectively streamlines the ordering and billing process by offering automated bill generation and order tracking. This project highlights key programming concepts in C++ and provides a foundation for further enhancements such as GUI integration and database connectivity.

References

- C++ Documentation: <https://www.cplusplus.com/>
- Programming Fundamentals Course Material

