**UNIVERSITY OF BARISHAL**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Data structure project proposal

CAFETERIA MANAGEMENT SYSTEM

A REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE COURSE:

CSE-1202:DATA STRACTURE AND ALGORITHM LAB

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**Abstract**

The Cafeteria Management System is a software solution designed to streamline cafeteria operations by automating menu management, order processing, and sales tracking. Developed using the C programming language, this system employs a doubly linked list data structure for efficient data handling. The project aims to enhance administrative efficiency, improve customer experience, and generate insightful sales reports. By integrating key functionalities for both administrators and customers, the system ensures smooth transactions, reduced errors, and optimized service speed, making it a valuable tool for cafeteria management. In many cafeterias, traditional methods of managing orders and inventory lead to inefficiencies such as order delays, inaccurate billing, and poor stock management. The proposed system will provide a structured digital approach to overcome these issues, reducing human error and enhancing both administrative and customer experiences. By automating key functions, the system will enable faster service, better record-keeping, and insightful business analytics, ultimately improving operational efficiency and customer satisfaction.

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**1.Overview of the project**

The Cafeteria Management System is designed to streamline and enhance the overall efficiency of cafeteria operations.This system aims to provide an easy-to-use interface for both administrators and customers,allowing for seamless management of food items,orders,and sales.The project will be implemented using the C programming language ,with a focus on maintaining simplicity and functionality.

**2.objective of the project**  1 Enhance Administrative Efficiency:Provides tools for administrators to manage menus,tracks sales,and update food inventory . 2.Improve Customers Experience :Allow customers to browse the menu,place orders,and view their final bills easily. 3.streamline Order Processing : Implement a well -structured order management system to reduce errors and optimize service speed. 4.Generate Sales Reports : Provide insights into daily sales and customer preferences to support business decisions.

**3.Features**  **3.1 Admin Section** .View Total Sales : Displays sales summuary ,including quantities sold and revenue generated . .Add New Items : Allows administrators to insert new food items into the menu. .Delete Ordered Items :Customers can remove items rom their order. .Display Final Bill: Shows a detailed breakdown of the order and the total amount due. **3.2 Customer section** .Place Orders:Customers can select food items and specify quantities . .View ordered Items : Display items in the customers order . .Delete Ordered Items :Customers can remove items from their order . .Display Final Bill: Shows a detailed breakdown of the order and the total amount due .

**4. Implementation Details**  **4.1 Data Structure** The system uses a doubly linked list where each node represents a food item or an order . struct node {

char foodname[50];

int quantity;

float price;

int data;

struct node \*prev;

struct node \*next;

};

**4.2 Core Functions** .Admin Functions : adminmenu(): Displays admin options

createadmin(): Adds new food items.

deleteadmin(): Removes items from the menu.

displayList(): Shows all menu items.

calculatetotsales(): Computes total sales revenue.

Customer Functions:

customermenu(): Displays customer options.

createcustomer(): Creates an order entry for a customer.

deletecustomer(): Removes an item from the customer’s order.

displaybill(): Shows the final bill.

**5. Workflow**

**5.1 Admin Section Workflow**

1.Admin logs in and accesses the admin menu.

2.Admin manages menu items (add, remove, view).

3.Admin can view total sales.

**5.2 Customer Section Workflow**

1.Customer accesses the menu.

2.Customer selects items and specifies quantity.

3.Customer reviews, edits, or removes items from the order.

4.Final bill is displayed before payment.

**6. Project Plan**

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| --- | --- | --- |
| Phase | Tasks | Duration |
| Requirement Analysis | Gather requirements, define scope, identify stakeholders. | Week 1-2 |
| System Design | Define data structures, flowcharts, and UI sketches. | Week 3 |
| Implementation | Develop core functionalities, starting with the admin panel. | Week 4-6 |
| Testing | Unit, integration, and user acceptance testing. | Week 7-8 |
| Deployment | System rollout, training, and final adjustments. | Week 9 |

**6.2 Tools and Technologies** . Programming Language :C .Data Structure: Doubly Linked List Development Environment GCC Compiler,Code:: Blocks

**7.Conclusion**  The cafeteria Management System will optimize cafeteria operations by automating menu management ,order processing ,and sales tracking .The structured development approach ensures and efficient ,scalable ,and user-friendly system .Through rigorous testing and well-planned deployment ,the system will significantly enhance cafeteria efficiency and customer satisfaction.