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# College Canteen Automation

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***ABSTRACT***

*The College Canteen Automation System is a digital platform designed to streamline and modernize food ordering and management process within a college environment. It enables students and staff to conveniently browse the daily menu, place food orders, and make secure digital payments-all from their mobile devices or computers. This system reduces long queues, minimizes order errors, and improves overall canteen efficiency. Canteen staff can manage the menu dynamically, track orders in real-time, and handle inventory with ease. Administrators have access to monitor sales, peak hours, and user preferences, allowing data-driven decisions to improve service quality. To ensure accessibility, the platform supports multiple languages and offers a user-friendly interface for all users. By automating routine tasks and enhancing communication between users and canteen staff, the system promotes a faster, smarter, and more efficient dining experience for the college community.*

## 1-INTRODUCTION

The Canteen Automation System project aims to streamline the food ordering process within college campuses by leveraging modern technology to reduce manual intervention and enhance efficiency. This system enables users-students and faculty-to register online, browse an electronic menu(e-menu), select desired food items, and place orders through a user-friendly interface. Upon order placement, details are transmitted directly to the kitchen display system, allowing staff to promptly prepare the items. By implementing this solution, the traditional challenges of long queues and extended waiting times are addressed.

**Existing System**

In many educational institutions, canteen operations are managed through traditional manual systems. The systems typically involve physical queues, cash transactions, and handwritten records for orders and inventory. Inventory tracking is usually conducted through manual record keeping, making it challenging to maintain accurate stock levels and leading to issues like overstocking or shortages.

**Proposed System**

**The proposed college canteen system** aims to modernize and streamline canteen operations by leveraging technology to enhance efficiency, accuracy, and user satisfaction. The system includes features for collecting customer feedback, aiding in continuous improvement of food quality and service. This automation reduces the need for manual order-taking, allowing staff to focus more on food preparation and enhancing overall service efficiency.

## 2-REQUIREMENTS ANALYSIS

**Functional Requirements**

- Login functionally for administrators to access the system.
- Management of the entire canteen system, which may include menu management, inventory control, and other operational aspects.
- Management of students and orders, allowing administrators to oversee student interactions with the canteen and handle orders.
- Login functionally for students to access their accounts.

- Signup functionally for new students to create accounts.
- Browsing through canteen items, allowing students to view available food and beverage
- Adding items to cart, enabling students to review their selections.
- Viewing cart contents, allowing students to review their selections.
- Removing items from cart, giving students the flexibility to change their orders.
- Placing orders, finalizing the students purchases.

**Non-Functional Requirements**

- **Performance:** The system should load user interface screens and verify login information within 10seconds.Queues should return results within the same timeframe.
- **Scalability:** The ability of a system to handle increased load, traffic, or data without compromising performances.
- **Security:** The system should encrypt sensitive user data, such as payment information and personal details.
- **Usability:** The system should have an user-friendly interface that is easy to navigate and use.
- **Reliability:** The system should be available and accessible to users at least 99.9%the

**Hardware Requirements**

1. Requires intel i5 processor
2. At least 8GB of RAM and a multi-core processor for efficient processing.
3. Storage of minimum 512GB for fast read/write access to datasets and logs.

**Software Requirements**

4. **Operating System:** Windows 11
5. **Frontend:** HTML, CSS.
6. **Backend:** MySQL, python.
7. **Hosting & Deployment:** Xampp Server

## 3-DESIGN

**USE CASE DIAGRAM**

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the ystem can be depicted.

**SOFTWARE ARCHITECTURE**

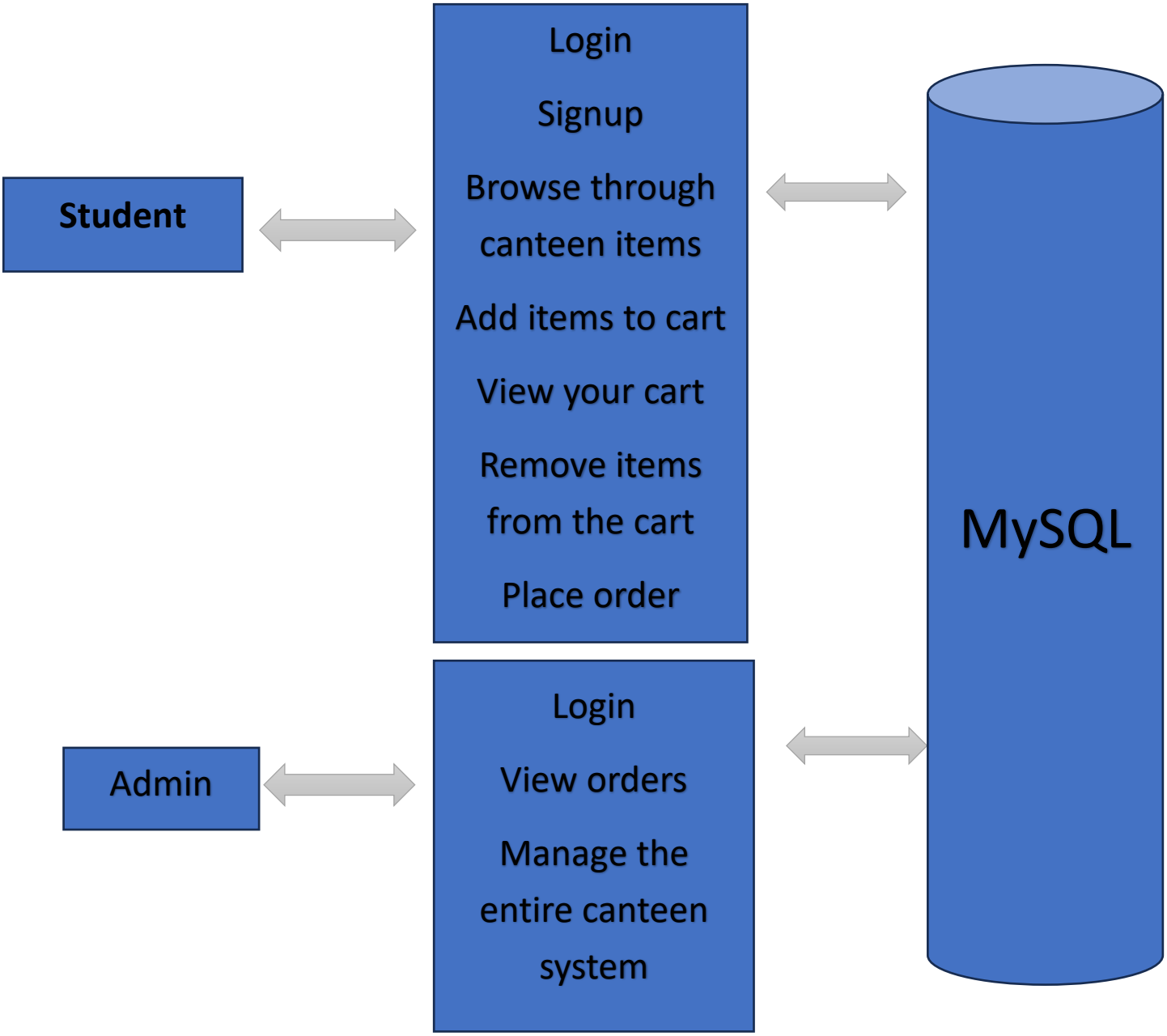



**Fig**: Software Architecture

**TECHNICAL ARCHITECTURE**

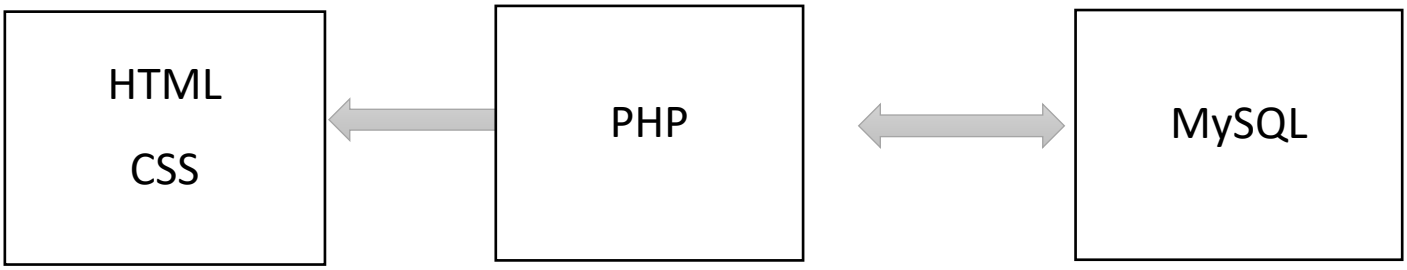



**Fig**: Technical Architecture

## 4. IMPLEMENTATION

The College Canteen Automation System is a web-based solution designed to streamline the food ordering process for students and staff. It eliminates manual operations and replaces them with an efficient digital workflow. The platform offers intuitive interfaces for registration, browsing the menu, placing orders, managing inventory, and tracking order status in real time.

1. **User Interface**

Developed using HTML, CSS (Frontend) and PHP / Python (Streamlit) for backend interaction with MySQL.

- **Secure Login/Signup for** users and admins.
- **User Dashboard** for browsing the canteen menu, managing a cart, placing orders, and viewing order status.
- **Admin Panel** for managing users, food menu items, orders, and generating reports.

2. **Menu Viewing & Food Ordering**

Students can browse food items from the dynamic menu and place orders easily.

- **Menu Display:** Dynamically lists items fetched from MySQL
- **Add to Cart:** Allows multiple items and quantities
- **Place Order:** Stores the order in the database with status set as "pending"
- **Order Status:** Students can view if the order is completed or still pending.

3. **Admin Panel & Order Management**

Admins get full access to view and manage canteen operations:

- **Menu Management:** Add/edit/delete food items
- **Order Handling:** View all incoming orders, update order status (Pending → Completed).

### 1.1 TECHNOLOGIES

The following technologies were used in the implementation of the system:

Technologies Used in College Canteen Automation:

- **Frontend:**

**HTML, CSS –** To create the interface for both students and admins.

- Backend:

Python (Streamlit) or PHP – To handle data processing, login validation, order placement, admin tasks.

- **Database:**

**MySQL** – Stores user information, menu items, and orders.

- **Deployment Stack:**

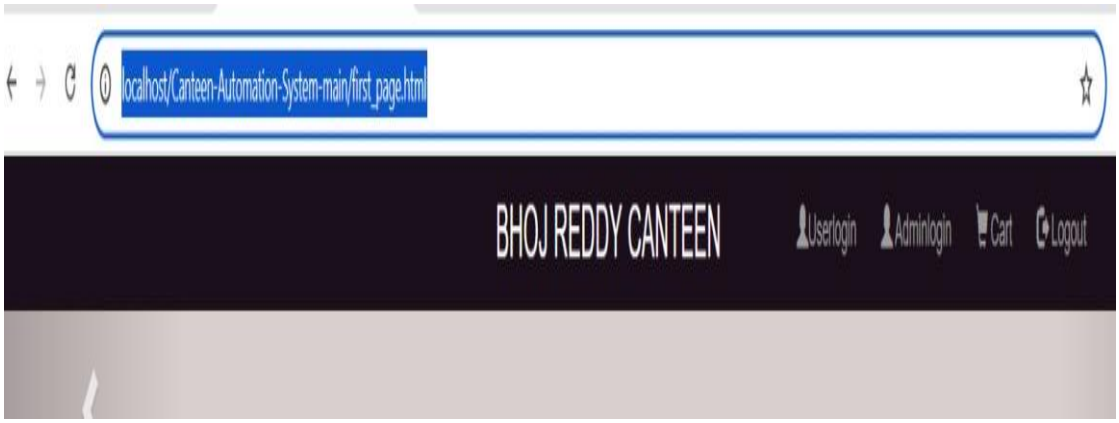
**XAMPP** – For local development (PHP & MySQL)

**Apache Server** – To run the PHP application

**Streamlit** – Alternative option to build Python-based dashboards

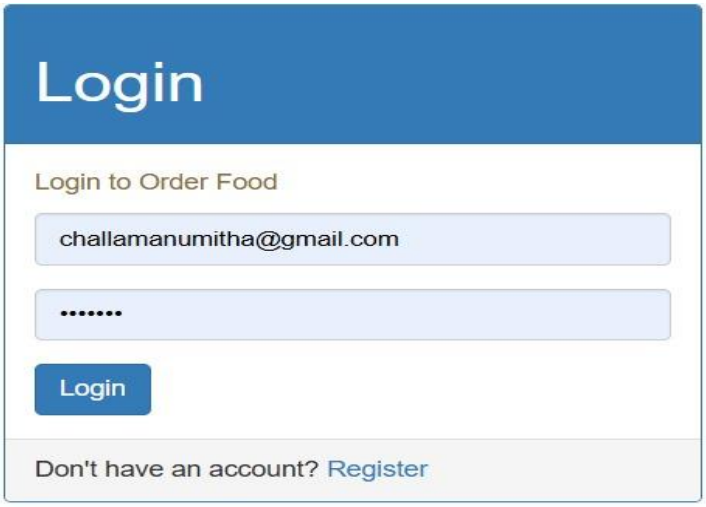
## 5. SCREENSHOTS

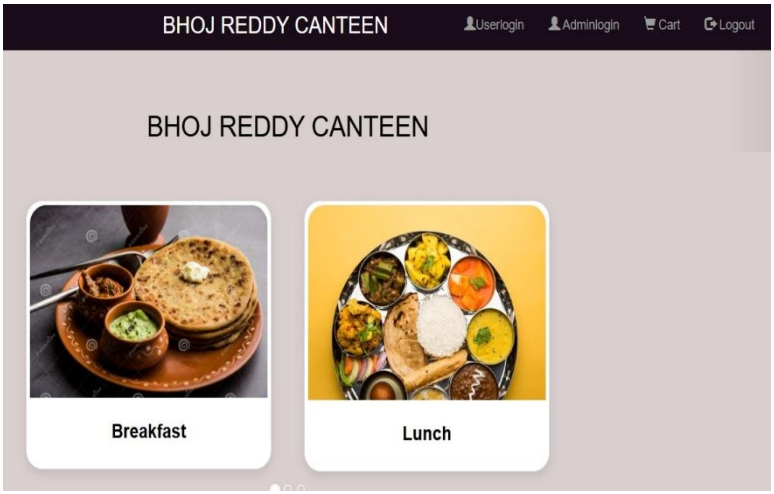
**HOME PAGE :**




**Sign up for User**

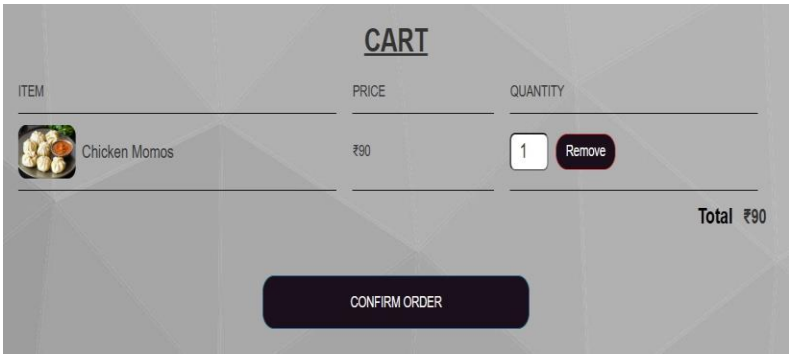

**Login for User**



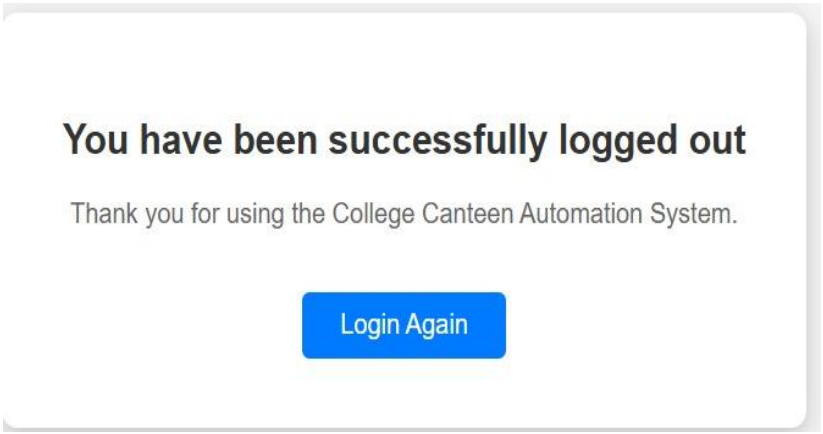



**Breakfast Menu**

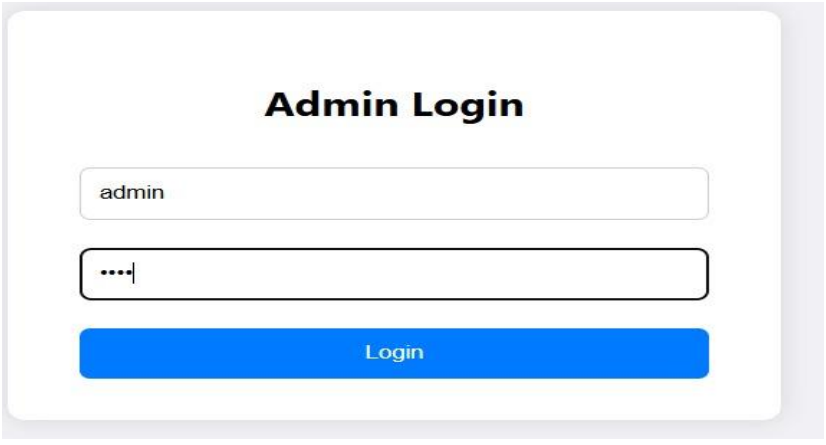

**Today's Lunch Specials**



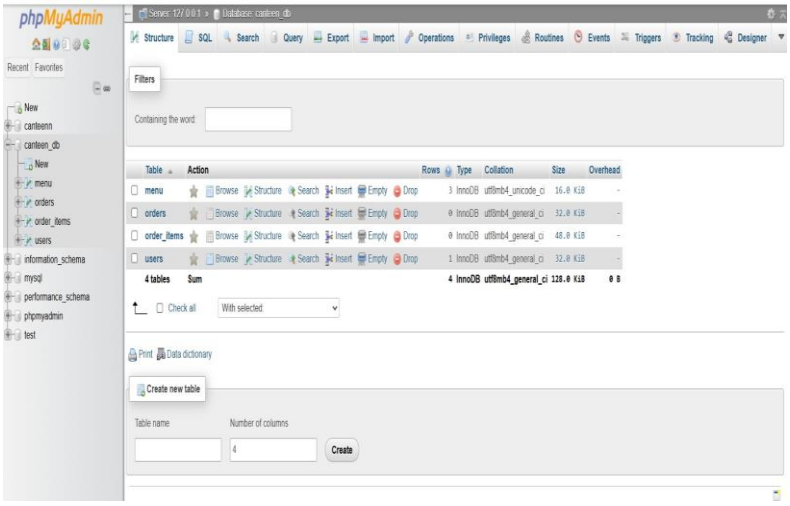


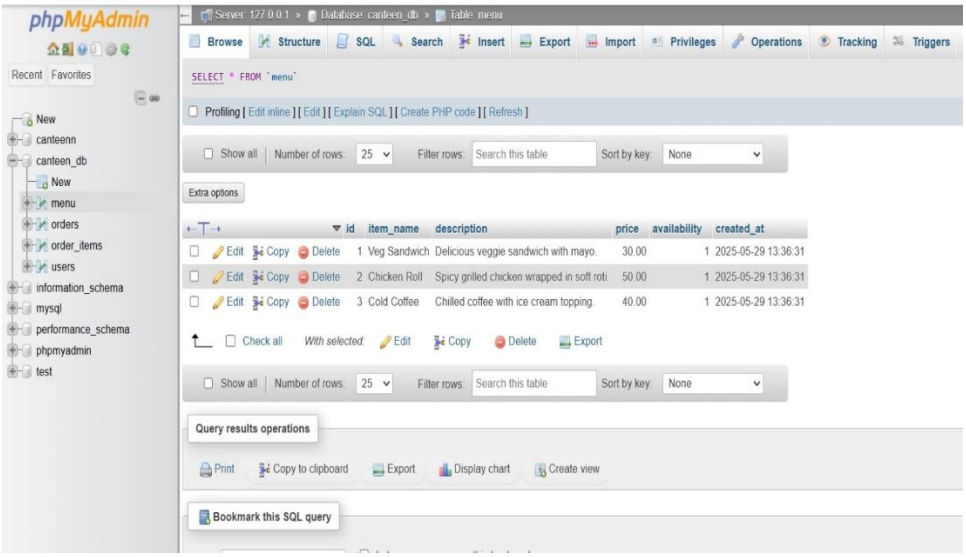



Login for Admin




Admin Login
Welcome Admin
Update Menu
View Orders
Menu Items
Burger - $5.00
Delete
Pizza - $8.00
Delete
Sandwich - $4.00
Delete
Add New Food Item
Food Name
Price (in $)
Add Food


phpMyAdmin
Structure
SQL
Search
Query
Export
Import
Operations
Privileges
Routines
Events
Triggers
Tracking
Designer
Filters
Containing the word:
Table
Action
Rows
Type
Collation
Size
Overhead
menu
orders
order_items
users
4 tables
Sum
Check all
With selected:
Print
Data dictionary
Create new table
Table name
Number of columns
Create


phpMyAdmin
Server: 127.0.0.1 » Database: canteen_db » Table: menu
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Tracking
Triggers
SELECT * FROM `menu`
Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]
Show all
Number of rows: 25
Filter rows: Search this table
Sort by key: None
Extra options
id
item_name
description
price
availability
created_at
1 Veg Sandwich Delicious veggie sandwich with mayo. 30.00 1 2025-05-29 13:36:31
2 Chicken Roll Spicy grilled chicken wrapped in soft roti 50.00 1 2025-05-29 13:36:31
3 Cold Coffee Chilled coffee with ice cream topping. 40.00 1 2025-05-29 13:36:31
Check all
With selected:
Edit
Copy
Delete
Export
Query results operations
Print
Copy to clipboard
Export
Display chart
Create view
Bookmark this SQL query

## 6-CONCLUSION

The college canteen automation project operational efficiency by reducing human error, minimizing wait times, and providing a seamless experience for students through features like online ordering and automated payments. It also provide canteen management with valuable insights into consumption pattern and resource usage, allowing for better planning and cost control.

## REFERENCE

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