



Database Systems

Cafe Management System

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Table of Content

[Detailed Functional Requirements of Each Module](#)

[Order Management Module: \(POS\)](#)

[Inventory Management Module:](#)

[Staff Management Module:](#)

[Customer Relationship Management \(CRM\) Module:](#)

[Diagrams](#)

[ERD \(Entity Relationship Diagram\):](#)

[EERD \(Enhanced Entity-Relationship Diagram\):](#)

[Relational Schema/Logical Schema with Normalization:](#)

[SQL Table Creation and Sample Data](#)

[User Documentation and Help – Usage Guidelines](#)

[Requirements: Requirement Gathering and Analysis](#)

[Screenshots OF implemented Project](#)

Introduction:

The cafe management system aims to automate operations within a cafe. This system will include managing Orders, Inventory, Staff, and Customer Interactions efficiently. The system is important for improving service quality, reducing manual errors, and enhancing overall customer experience. The technology in cafe management has become essential to meet the demands of students. Traditionally, cafes have relied on manual methods for order taking, inventory tracking, and scheduling, which can be error-prone and time-consuming.

Problem Statement:

The primary challenge addressed by this project is the manual nature of cafe operations, leading to inefficiencies, errors in order processing and difficulties in tracking inventory and sales. Additionally, managing staff schedules and customer preferences and manual methods of managing orders, inventory, staff, and customer interactions often lead to inefficiencies and hinder the cafe's ability to deliver seamless service.

Problem Solution:

The cafe management system provides a comprehensive solution by digitizing key operations. It automates order taking, inventory management and staff scheduling. Through the integration of technology and automation, the cafe management system enhances accuracy, reduces operational costs, and elevates overall efficiency, allowing cafes to focus on delivering exceptional service and enhancing customer experiences.

Advantages/Benefits of Proposed System:

- **Improved Efficiency:** efficient operations lead to faster order processing and reduced waiting times.
- **Enhanced Accuracy:** automation reduces manual errors in order entries, inventory tracking, and billing.
- **Better Customer Service:** The system helps in understanding customer preferences and facilitates personalized service.
- **Optimized Inventory:** Real-time inventory tracking minimizes wastages and ensures availability of popular items.
- **Cost Savings:** Reduced operational costs through efficient resource utilization and minimized wastage.

Users:

1. **Admin/Manager:**
 - Manage staff, menu, inventory, and overall operations.
 - Generate reports and analytics.
 - Set permissions and access levels.
2. **Staff/Cashier:**
 - Take and process orders.
 - Manage tables and reservations.
 - Access customer information for personalized service.
3. **Customer:**
 - Place orders.
 - Make reservations.
 - Provide feedback and reviews.

Modules of the Project:

- **Order Management:** Taking, processing, and tracking orders.
- **Inventory Management:** Tracking and managing stock levels.

- **Customer Relationship Management (CRM):** Recording customer preferences and feedback.
- **Reporting and Analytics:** Generating business insights from sales data.

Functional Requirements/Features for Every User:

- **Admin/Manager:**
 - Add/edit menu items.
 - View sales reports and analytics.
 - Manage staff schedules and roles.
- **Staff/Cashier:**
 - Take orders and process payments.
 - View table availability and manage reservations.
 - Access customer history and preferences.
- **Customer:**
 - Browse the menu and place orders.
 - Make table reservations.
 - Provide feedback and ratings.

Planning Approach:

In our project planning approach, we conducted surveys using questionnaires to collect structured feedback from customers, allowing us to understand their pain points and cafe service. Additionally, personal experiences and observations within cafe environments provided firsthand insights into the challenges faced by cafe operators and students(like us) on a daily basis. Moreover, we extensively reviewed existing cafe management systems online and industry standards to ensure our system design would effectively address specific needs and challenges identified during our research phase. This approach ensured that our cafe management system would be tailored to meet the unique demands of cafe businesses, enhancing operational efficiency and customer experiences.

Detailed Functional Requirements of Each Module

Order Management Module: (POS)

1. **Order Placement:**
 - Users should be able to select items from the menu and add them to their order.

- The system should allow customization of orders (e.g., specifying preferences, adding modifiers).
- Users should be able to view a summary of their order before confirmation.
- 2. **Order Processing:**
 - Staff members should receive real-time notifications of new orders.
 - Orders should be processed promptly and accurately, with options for order modification if needed.
 - The system should calculate the total bill including taxes and any additional charges.
- 3. **Order Tracking:**
 - Staff should be able to track the status of each order (e.g., pending, in preparation, ready for delivery).
 - Customers should receive notifications regarding the status of their orders.
- 4. **Order History:**
 - Users (both staff and customers) should have access to their order history for reference.
 - Admins should be able to generate reports on order trends, popular items, etc.

Inventory Management Module:

1. **Stock Tracking:**
 - The system should maintain real-time updates of inventory levels for each item.
 - Automatic alerts should be generated for low-stock items to prompt reordering.
2. **Supplier Management:**
 - Admins should be able to add, edit, and remove suppliers from the system.
 - Suppliers should be notified of new orders or changes in inventory requirements.
3. **Inventory Replenishment:**
 - The system should generate purchase orders for low-stock items based on predefined reorder levels.
 - Admins should review and approve purchase orders before sending them to suppliers.
4. **Inventory Reports:**
 - Admins should have access to inventory reports showing stock levels, reorder status, and consumption trends.
 - Reports should assist in optimizing inventory management and reducing wastage.

Staff Management Module:

1. **Performance Evaluation:**
 - Admins should have access to performance metrics for staff members.

- Performance evaluations should be conducted periodically based on predefined criteria.

2. Employee Development:

- The system should track staff skill levels.
- Admins should be able to monitor staff skill levels.

Customer Relationship Management (CRM) Module:

1. Customer Profiles:

- The system should maintain profiles for each customer, including contact information, order history, and preferences.

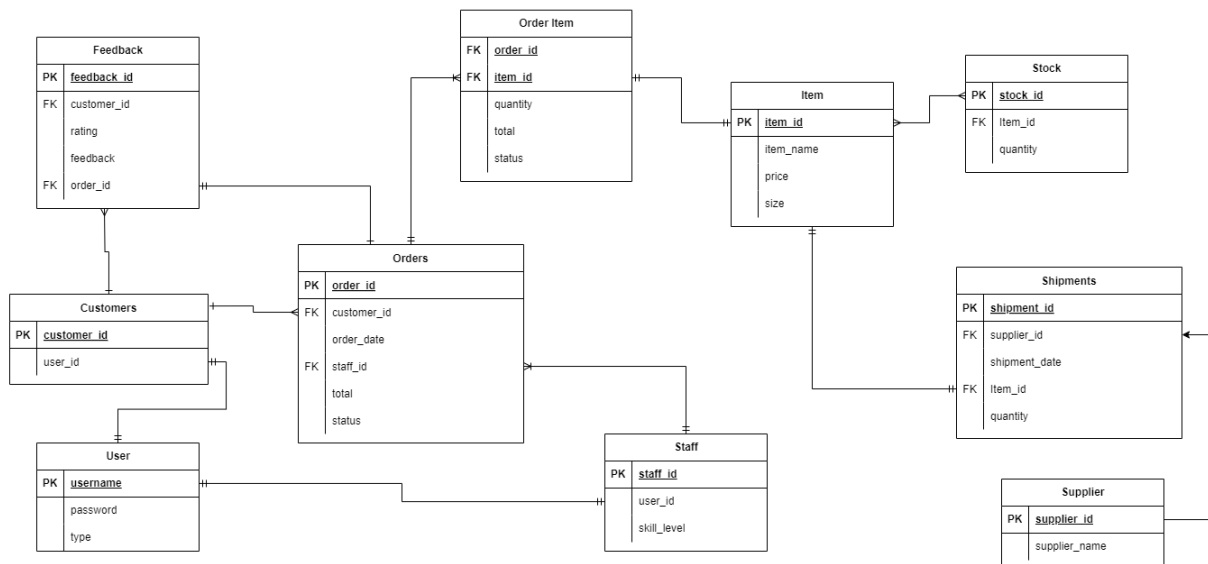
2. Feedback Management:

- Customers should have the option to provide feedback and ratings for their experience.

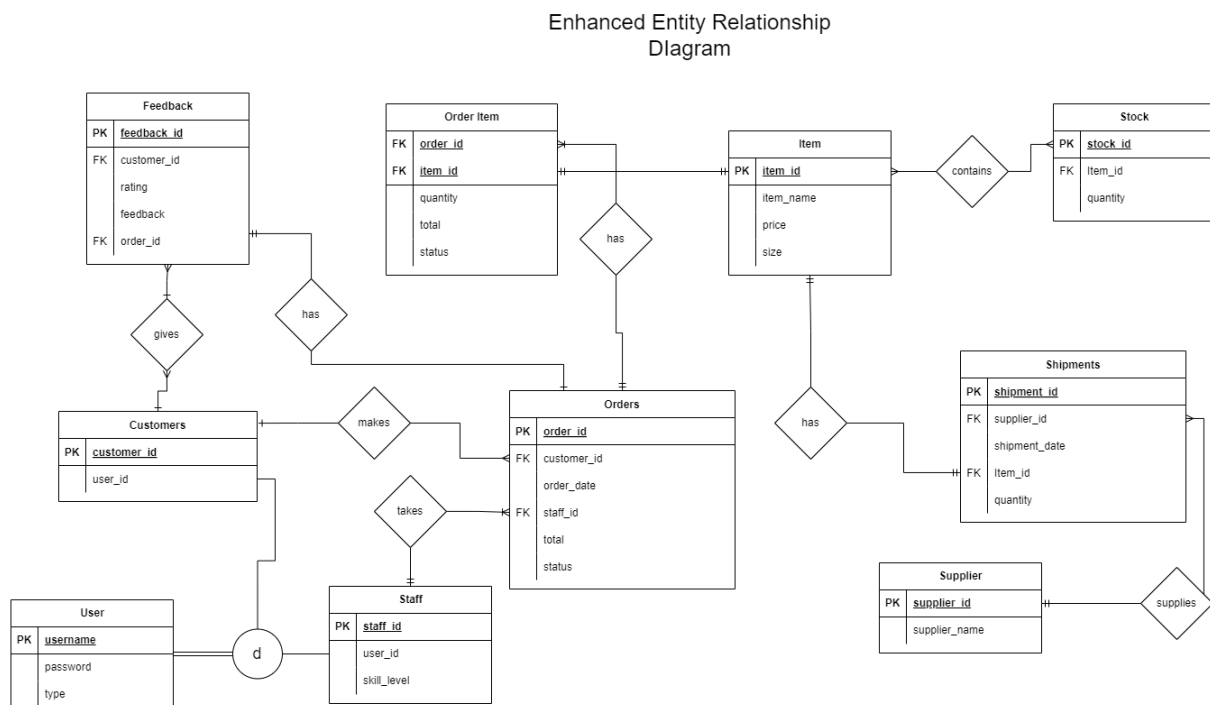
Diagrams

ERD (Entity Relationship Diagram):

Entity Relationship Diagram



EERD (Enhanced Entity-Relationship Diagram):



Relational Schema/Logical Schema with Normalization:

1. **Supplier** table: Stores information about suppliers.
 - **supplier_id** (Primary Key)
 - **supplier_name**
2. **User** table: Stores user account information.
 - **username** (Primary Key)
 - **password**
 - **fullname**
 - **type** (indicates user type, possibly staff or customer)
3. **Customers** table: Stores information about customers.
 - **customer_id** (Primary Key)
 - **username** (Foreign Key referencing **User** table)
4. **Staff** table: Stores information about staff members.
 - **staff_id** (Primary Key)
 - **username** (Foreign Key referencing **User** table)

- **skill_level**
 - 5. **Orders** table: Stores information about orders placed by customers.
 - **order_id** (Primary Key)
 - **customer_id** (Foreign Key referencing **Customers** table)
 - **order_date**
 - **staff_id** (Foreign Key referencing **Staff** table)
 - **total**
 - **status**
 - 6. **Feedback** table: Stores feedback provided by customers for orders.
 - **feedback_id** (Primary Key)
 - **customer_id** (Foreign Key referencing **Customers** table)
 - **rating**
 - **feedback**
 - **order_id** (Foreign Key referencing **Orders** table)
 - 7. **Item** table: Stores information about items available for purchase.
 - **item_id** (Primary Key)
 - **item_name**
 - **price**
 - 8. **Shipments** table: Stores information about shipments from suppliers.
 - **shipment_id** (Primary Key)
 - **supplier_id** (Foreign Key referencing **Supplier** table)
 - **shipment_date**
 - **Item_id** (Foreign Key referencing **Item** table)
 - **quantity**
 - 9. **Stock** table: Stores information about the stock of items.
 - **stock_id** (Primary Key)
 - **Item_id** (Foreign Key referencing **Item** table)
 - **quantity**
 - 10. **Order Item** table: Stores information about items in each order.
 - **order_id** (Foreign Key referencing **Orders** table)
 - **item_id** (Foreign Key referencing **Item** table)
 - **quantity**
 - **total**
 - **status**
 - Composite Primary Key: (**order_id, item_id**)
-

1. Introduction: Welcome to the user documentation for the Cafe Management System. This guide is designed to assist users in navigating and utilizing the various features of the system effectively. Whether a staff member, admin, or customer, this document will provide you with step-by-step instructions on how to make the most out of the system.

2. Logging In: To access the Cafe Management System. If you are a staff member or admin, you will have been provided with a username and password by the system administrator to log in using their unique credentials. Customers can log in using their registered email address and password.

3. Dashboard Overview: Upon logging in, users will be directed to their respective dashboards. Here's a brief overview of what each user type can expect to find:

- **Admin Dashboard:** Provides access to all administrative functionalities such as managing inventory, customers, staff and generating reports.
- **Staff Dashboard:** Allows staff members to take orders, manage pending orders, and access customer feedbacks.
- **Customer Dashboard:** Enables customers to browse the menu, place orders, give feedback and order history.

4. Placing Orders: For customers, placing orders is a straightforward process:

- Browse the menu to find desired items.
- Click on the items to add them to the cart.
- Review the order in the cart and proceed to checkout.

For staff members, taking orders involves:

- Receiving order notifications.
- Processing orders promptly and accurately.
- Updating order status as necessary.

5. Managing Inventory: Admins are responsible for managing inventory, which includes:

- Adding new items to the menu.
- Updating existing items (e.g., price changes, availability).
- Monitoring stock levels and generating purchase orders for low-stock items.

6. Customer Relationship Management: For admin, providing excellent customer service is essential:

- Pay attention to customer feedbacks.
- Record feedback and ratings provided by customers.

- Use customer trends to enhance their overall experience.

7. Conclusion: With this user documentation, users should be equipped with the knowledge and resources necessary to navigate and utilize the Cafe Management System efficiently. By following the guidelines outlined in this document, users can contribute to the smooth operation of the system and ensure a seamless experience for both staff and customers.

Requirements: Requirement Gathering and Analysis

1. **Stakeholder Interviews:**
 - Conducted interviews with cafe owners, managers, staff, and customers to gather insights into their pain points, challenges, and expectations from the system.
2. **Observation and Workflow Analysis:**
 - Observed cafe operations firsthand to identify inefficiencies, bottlenecks, and areas for automation.
3. **Brainstorming:**
 - did brainstorming to generate ideas, identify potential features for user needs and project goals.

Screenshots of Implemented Project

Orders

Dashboard

Orders

Staff

Customers

Inventory

Feedbacks

Shipments

Suppliers

Profile

Logout

Orders

	Order Id	Customer Id	Order Date	Staff Id	Total
▶	1	1	4/1/2024	1	150.50
	2	2	4/2/2024	1	75.25
	3	3	4/3/2024	1	200.00
	4	4	4/4/2024	1	50.00
	5	5	4/5/2024	1	120.75
	6	6	4/6/2024	2	90.00
	7	2	4/7/2024	2	300.50
	8	1	4/8/2024	2	175.25
	9	1	4/9/2024	2	80.00
	10	2	4/10/2024	3	250.75
	11		5/5/2024 2:52 PM	1	10.99
	12	2	5/5/2024 2:54 PM	1	43.96
	13		5/5/2024 2:54 PM	1	10.99
	14	1	5/5/2024 9:03 PM	1	133.22
	15		5/5/2024 9:05 PM	1	126.96

Generate Report

Dashboard

Orders

Staff

Customers

Inventory

Feedbacks

Shipments

Suppliers

Profile

Logout

Customers

Add New Customer

	Customer Id	Customer Name
▶	1	John Doe
	2	Jane Smith
	3	Bob Brown
	4	Emma White
	5	Michael Davis
	6	David Garcia

Edit

Form9

Dashboard

Inventory

Staff

Customers

Orders

Feedbacks

Shipments

Suppliers

Profile

Logout

Staff

Add New Staff

	Staff Id	Staff Name	Skill Level
▶	1	Alice Johnson	1
	2	Sarah Lee	2
	3	Olivia Martinez	2

Edit



KHAAPA

Welcome!

Sign up

[Already have an account? Login](#)



Previous Orders

	order_id	order_date	total

Give Feedback



KHAAPA

Welcome Back!



☒ Remember Me

Login

[Don't have an account? Sign up](#)



Feedback

	Id	Rating	Feedback
▶	1	4	Good service
	2	5	Excellent products
	3	3	Average experien...
	4	2	Poor delivery time
	5	4	Satisfied overall
	8	1	Poor Delivery

Dashboard

Feedbacks

Profile

Logout

Browse Items

	ID	Name	Price
▶	1	Item A	10.99
	2	Item B	20.50
	3	Item C	15.75
	4	Item D	5.25
	5	Item E	30.00
	6	Item F	25.99
	7	Item G	8.50
	8	Item H	12.75
	9	Item I	18.25
	10	Item J	22.50

Add to Cart

Date 2024-05-05

	ID	Name	Quantity

Remove

Total Bill: \$0.00

Checkout

Dashboard

Inventory

Staff

Customers

Orders

Feedbacks

Shipments

Suppliers

Profile

Logout

Feedbacks

	Id	Rating	Feedback
▶	1	4	Good service
	2	5	Excellent products
	3	3	Average experien...
	4	2	Poor delivery time
	5	4	Satisfied overall
	6	5	Great communica...
	7	4	Awesome
	8	1	Poor Delivery
	9	5	CHapri



Pending Orders

	Order Id	Customer Id	Order Date	Total
▶	13		5/5/2024 2:54 PM	10.99

Deliver Order

Dashboard

Inventory

Staff

Customers

Orders

Feedbacks

Shipments

Suppliers

Profile

Logout

Suppliers

Add New Supplier

	Id	Name
▶	1	Supplier A
	2	Supplier B
	3	Supplier C
	4	Supplier D
	5	Supplier E
	6	Supplier F
	7	Supplier G
	8	Supplier H
	9	Supplier I
	10	Supplier J

Remove

←

New Name William Rodriguez

Update

Dashboard

Inventory

Staff

Customers

Orders

Feedbacks

Shipments

Suppliers

Profile

Logout

Shipments

New Shipment

	Shipment Id	Supplier Id	Shipment Date	Item Id	Quantity
▶	1	1	4/1/2024	1	100
	2	2	4/2/2024	2	75
	3	3	4/3/2024	3	50
	4	4	4/4/2024	4	120
	5	5	4/5/2024	5	90
	6	6	4/6/2024	6	150
	7	7	4/7/2024	7	200
	8	8	4/8/2024	8	80
	9	9	4/9/2024	9	100
	10	10	4/10/2024	10	60
	11	9	5/5/2024 1:29 PM	5	4
	12	1	5/5/2024 1:35 PM	1	10
	13	1	5/5/2024 1:37 PM	1	10
	14	2	5/5/2024 1:40 PM	2	69
	15	4	5/5/2024 2:15 PM	10	20
	16	10	5/5/2024 9:15 PM	8	101

Dashboard

Orders

Staff

Customers

Inventory

Feedbacks

Shipments

Suppliers

Profile

Logout

Inventory

	Stock ID	Item ID	Name	Price	Quantity
▶	2	2	Item B	20.50	25
	3	3	Item C	15.75	20
	4	4	Item D	5.25	80
	5	5	Item E	30.00	60
	6	6	Item F	25.99	100
	7	7	Item G	8.50	150
	8	8	Item H	12.75	100
	9	9	Item I	18.25	50
	10	10	Item J	22.50	30

Remove Item

Discard Expired Items

Dashboard

Pending Orders

Feedbacks

Orders

Profile

Logout

Add Items to Cart

	ID	Name	Price
▶	1	Item A	10.99
	2	Item B	20.50
	3	Item C	15.75
	4	Item D	5.25
	5	Item E	30.00
	6	Item F	25.99
	7	Item G	8.50
	8	Item H	12.75
	9	Item I	18.25
	10	Item J	22.50

Add to Cart

Order Id: 16

Date: 2024-05-05

	ID	Name	Quantity
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Remove

Total Bill: \$0.00

Checkout

←

Current Password

New Password

Repeat Password

Update



user10

Change Full Name

Change Password

Supplier

Item

Quantity

Price

Add