

Database Systems

Project

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Detailed Functional Requirements of each module

Efficient Ordering and Payment:

- The management system has a streamlined interface for order entry by the customers, minimizing the number of steps required to complete an order.
- Integration with payment systems to facilitate various payment methods, ensuring a quick and secure checkout process. Which includes receipt generation.
- The cashier can also view order receipts to further streamline the process and make it more efficient.

Seamless Customer Experience:

- An intuitive UI/UX design that allows customers to easily navigate through menus, select items, and customize their orders as needed.
- Customers can leave their feedback for a better experience and are also able to update their profile to their liking.

Loyalty and Rewards Programs:

- A system to track customer visits and purchases to reward loyalty points.
- Loyalty points logging for repeat customers.
- Features for customers to receive discounts or special offers.

Basic Modules and their Functional Requirements:

User Registration and Authentication:

- User Registration: Store user information, includes validation checks such as on phone number.

- Login: Authentication of users based on their email address and password , which is linked with the database.

Cafe Manager:

- Tools for menu management, including updates to pricing and item availability.
- Staff scheduling and management capabilities. Which includes hiring of new staff members.
- Comprehensive inventory management system linked with vendor orders. Financial reporting tools for sales, costs, and profit analysis.
- Regular stock check processes and discrepancy reporting.
- Maintaining a relationship with vendors which also includes hiring new vendors.
- Customer feedback collection.

Cashier:

- User-friendly POS system for efficient payment processing.
- Cash management features to track and reconcile cash flow.
- Immediate generation of receipts and handling of transactions.

Inventory Manager:

- Inventory level management with automated reordering based on predefined thresholds.
- Usage and waste tracking system to identify patterns and optimize stock levels.
- Regular stock check processes and discrepancy reporting.

Menu Management:

- CRUD operations for menu items, such as storing name, price etc.
- Categorization of menu items for efficient organization

- Tracking of change in menu items for report generation.

Order Management:

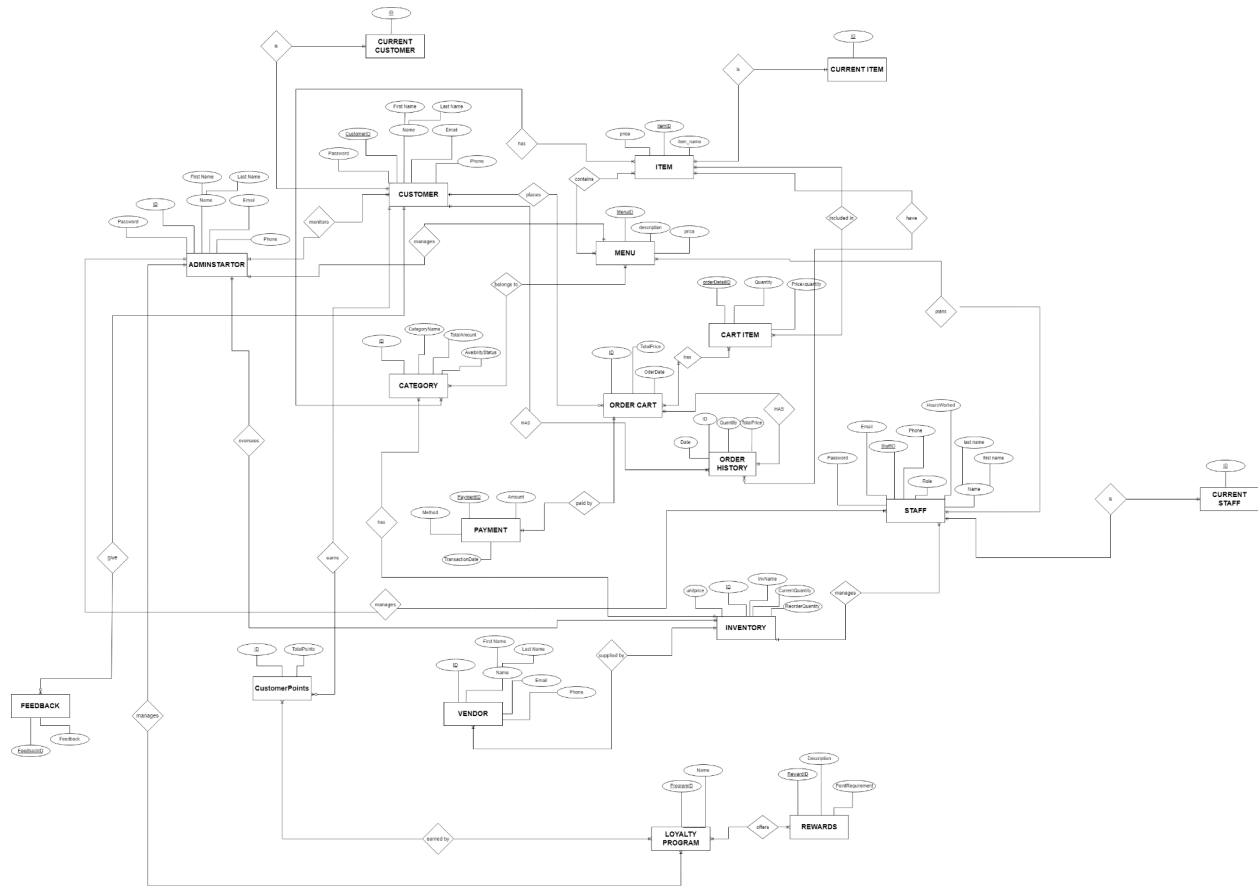
- Create and store customer orders.
- Order modification and updation of total amount to be paid with each transaction.
- Order history logging for repeat order convenience and analytics.
- Generation of order receipts with details such as item names and quantity.
- Error handling with item quantity such as if the item does not exist or the quantity entered is impossible (e.g. -1).

Reporting and Analytics Module:

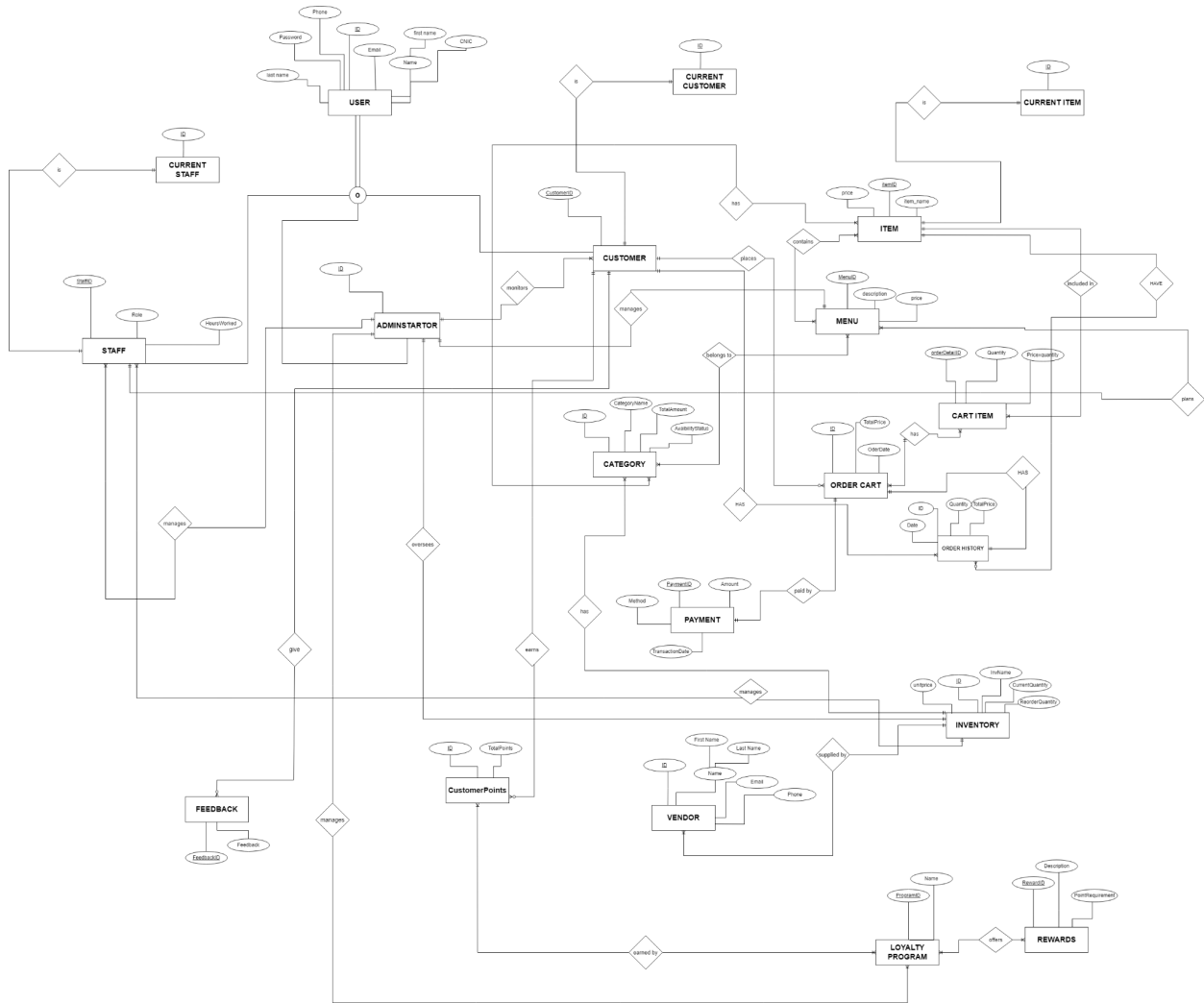
- Generation of detailed reports on sales, revenue generation, inventory, and customer feedback.
- Data analytics tools to identify trends, peak times, and customer preferences.

Each module in our management system has been designed to fulfill these specific functions while ensuring that the user experience is smooth, the user interface is intuitive, and the backend processes are efficient and secure. The management system includes database management features to handle large volumes of transactions and data securely, with the ability to scale as the cafeteria grows.

ERD:



EERD:



RELATIONAL SCHEMA:



The Relation Schema is already in 3NF.

Explanation:

1. **First Normal Form (1NF):** Each table has a primary key, and the values in each column of a table are atomic (no multi-valued attributes or repeating groups).
2. **Second Normal Form (2NF):** The table is in 1NF, and all non-key attributes are fully functionally dependent on the primary key (no partial dependency).
3. **Third Normal Form (3NF):** The table is in 2NF, and all the attributes are functionally dependent only on the primary key (no transitive dependency, i.e., a non-key attribute should not depend on another non-key attribute).

User Documentation and Help

Customer:

- Customer will login with his credentials (email address and password) , if a new user then the customer will register.
- Upon registration the customer will be asked to enter details such as their name, email address , phone number and they will also be required to choose a password.
- Once logged in, the customers are directly taken to the home page. There they will be able to go to the menu, support (feedback) page or their own profile.
- If a customer selects the menu option, they will be able to select categories. Each category will take the customer to a submenu, they will however have the option to traverse back and forth.
- Once a customer selects an item they will be taken to their cart, where they will be able to edit their item's desired quantity and see if they qualify for any membership. The customer will have the option to either go back to the menu to select more items or to go directly to checkout.
- If the customer selects the checkout option, they will be directed to the checkout page and will be able to see their total bill, if they have qualified for a membership then they will be able to see their discounted bill.

- The customer will also be able to see their order receipt and be able to select a payment method. If the customer chooses cash, they then will be directed to the cash page and will be able to enter their desired payment and change will be returned accordingly. The customer will then be able to choose the place order option.
- If the customer has chosen a debit or credit payment method, they may place their order immediately after.
- Once the customer places their order, their order history will be stored and wiped clean so that when the customer logs in again, they may start afresh with an empty cart.
- If the customer chooses the support option, they will be directed to the feedback page, where they can leave their review.
- If the customer chooses the profile option they will be directed to their profile, where they can update their profile as they wish.

Staff:

All staff members are required to log in using their unique credentials, which include their official email address and a secure password. This measure ensures that sensitive operational data remains accessible only to authorized personnel.

The creation of new staff accounts is an exclusive prerogative of the Cafe Manager. To maintain the integrity of the system, only the Cafe Manager has the authority to sign up new staff members.

Staff Member Roles:

1. Cafe Manager:

Once logged in the cafe manager will be provided with several options including adding a new staff member, managing inventory, view report and view employee schedule.

1. Adding New Staff Members.

1. Select 'Add New Staff Member'.
2. Enter the staff member's full name, email address, and assign a role (e.g., Employee, Cook, Cashier).
3. Create a unique, secure password for the new account.

4. Confirm the details and click 'Create Account'.

2. Managing Inventory

1. Go to the 'Inventory' tab in the dashboard.
2. To add new items to the menu, click 'Add New Item', fill in the details including name, category, price, and nutritional info, and then submit.
3. To adjust prices, select 'Edit Item', make the necessary changes, and save.
4. For vendor management, select 'Vendors', then 'Hire New Vendor', provide the required details, and confirm the agreement.

3. Viewing Reports

1. Select the 'Reports' section from the main dashboard.
2. Choose the type of report you wish to view. Options include:
 - Sales reports for identifying top-performing items.
 - Financial reports detailing high-revenue customers.
 - Inventory reports highlighting stock levels and usage patterns.
 - Feedback reports compile customer reviews and suggestions for service improvement.
 - Each report can be customized for different time frames and can be exported for further analysis.

4. Viewing Employee Schedules

1. Click on the 'Employee Schedule' tab.
2. View the current week's schedule, or select a date range for future planning.

Employees:

Once logged in the employee will be able to view their information and work hours.

Cook:

Once logged in the cook will be able to view the current menu and will be able to log out.

Cashier:

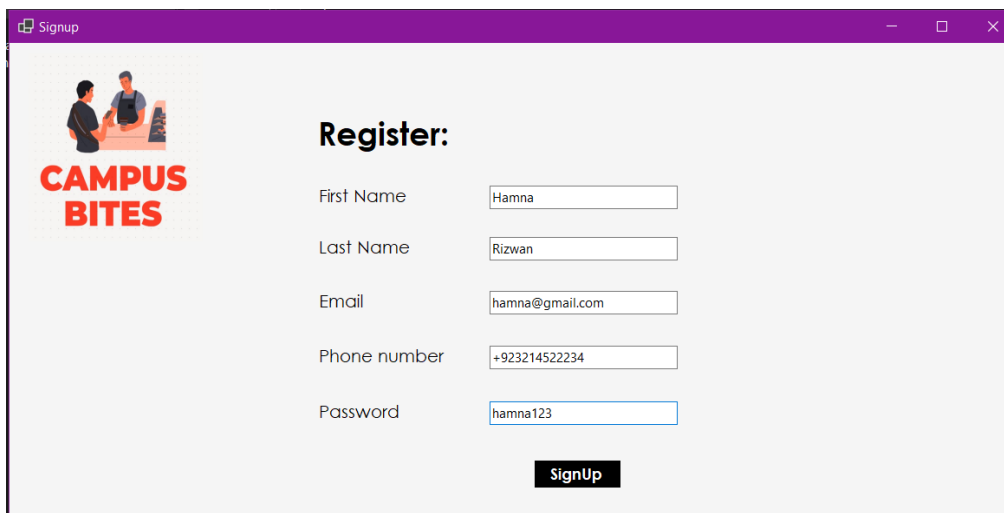
Once logged the cashier is able to view order receipts.

Admin (Inventory Manager):

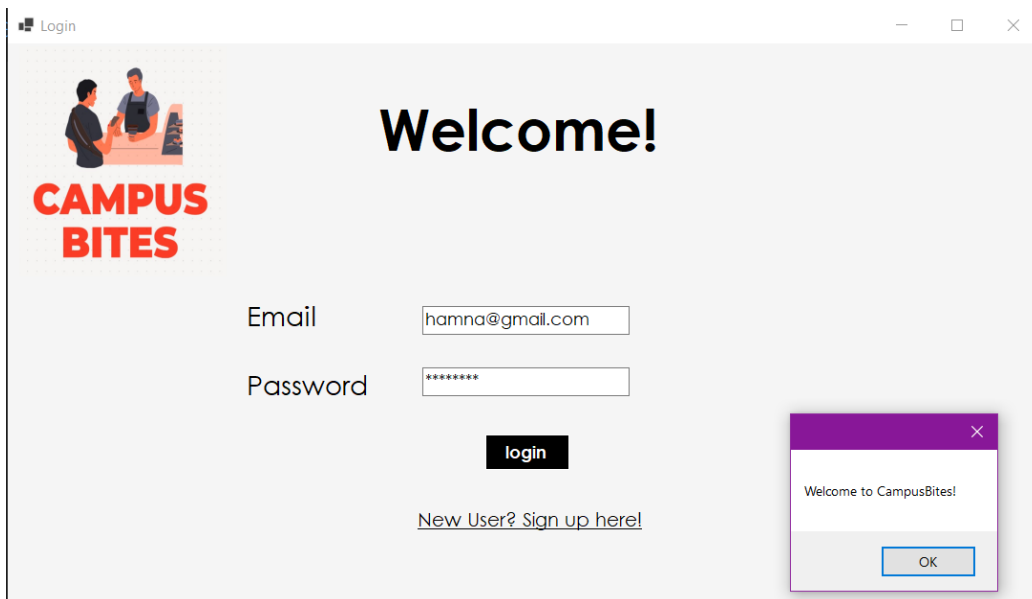
- The administrator will be able to login and manage the inventory , which includes reordering and checking stock availability.

Project Implementation

- Login and Sign Up:

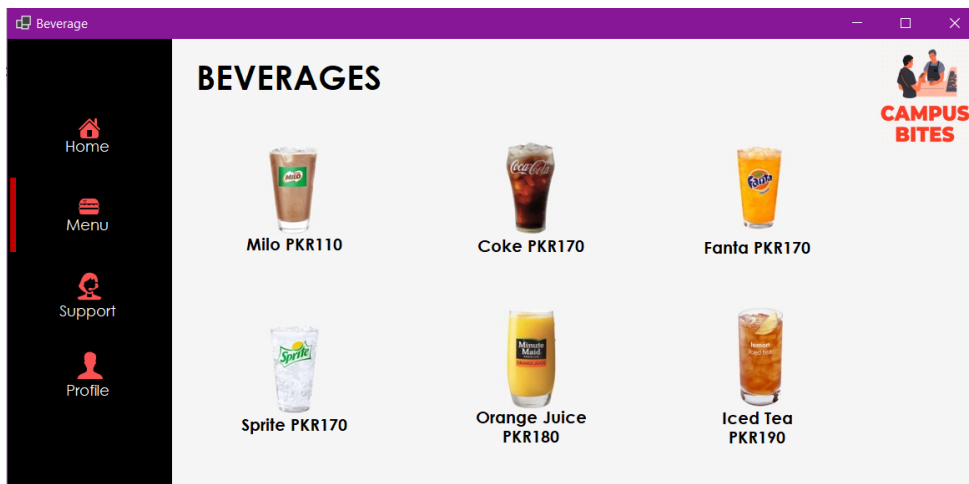
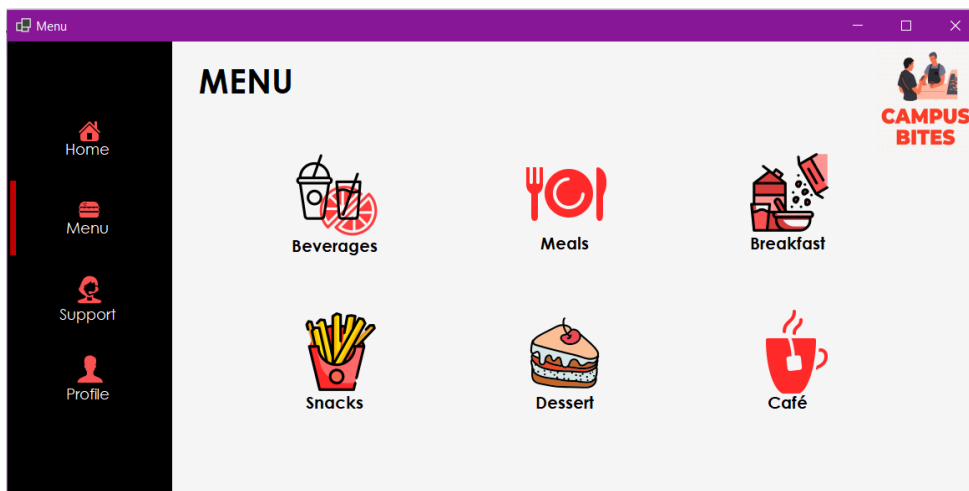
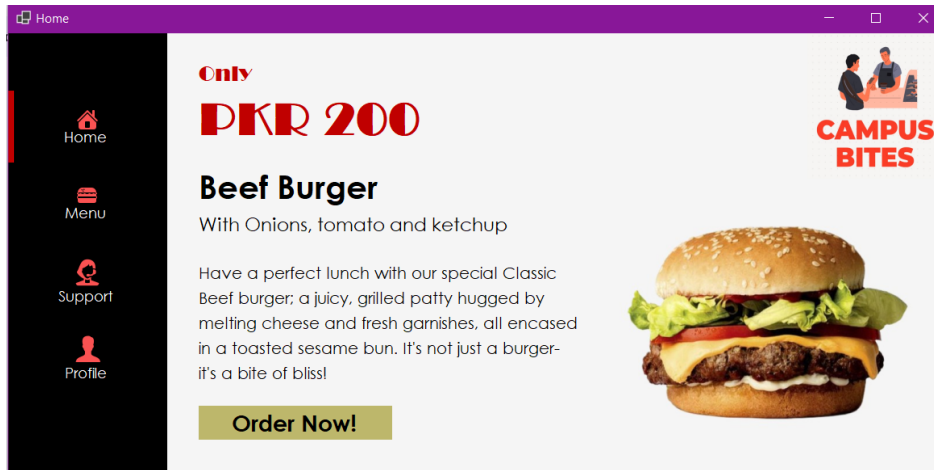


The screenshot shows a web application window titled "Signup". On the left, there is a logo for "CAMPUS BITES" featuring an illustration of two people. To the right of the logo, the heading "Register:" is displayed. Below this heading, there are five input fields: "First Name" (containing "Hamna"), "Last Name" (containing "Rizwan"), "Email" (containing "hamna@gmail.com"), "Phone number" (containing "+923214522234"), and "Password" (containing "hamna123"). At the bottom right of the form, there is a black button labeled "SignUp".



The screenshot shows a web application window titled "Login". On the left, there is a logo for "CAMPUS BITES" featuring an illustration of two people. To the right of the logo, the heading "Welcome!" is displayed. Below this heading, there are two input fields: "Email" (containing "hamna@gmail.com") and "Password" (containing "*****"). At the bottom center of the form, there is a black button labeled "login". Below the button, there is a link that says "New User? Sign up here!". In the bottom right corner, there is a small purple dialog box with a white background, containing the text "Welcome to CampusBites!" and an "OK" button.

- CUSTOMER
- Menu



Meal


Home


Menu


Support


Profile


MEALS



BBQ Wrap PKR180



Chicken Pulao PKR220


Krispy Deal PKR220


Chicken Fajita PKR180


Chicken Biryani PKR220


Friends Deal PKR440



Breakfast


Home


Menu


Support


Profile


BREAKFAST


Waffles PKR200


Paratha PKR110


Halwa Puri PKR180


Pancakes PKR200



Snacks


Home


Menu


Support


Profile


SNACKS

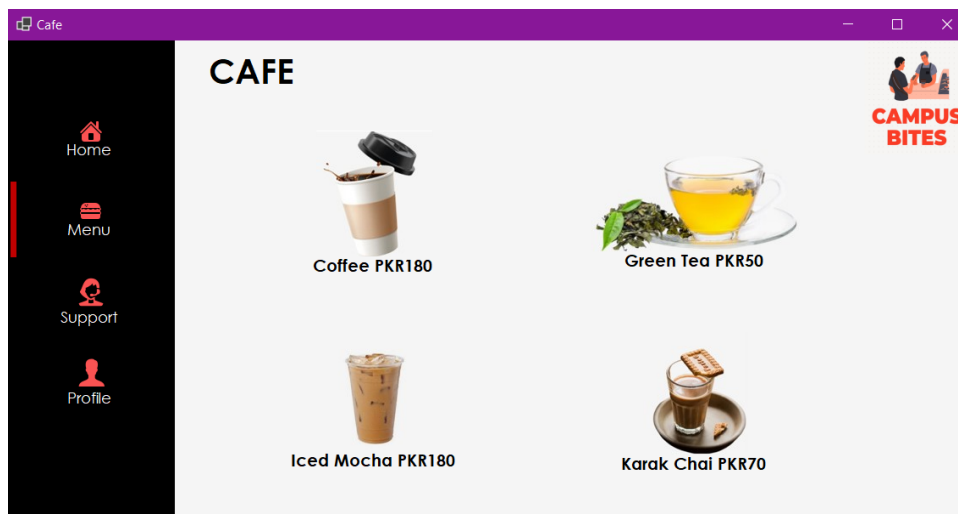
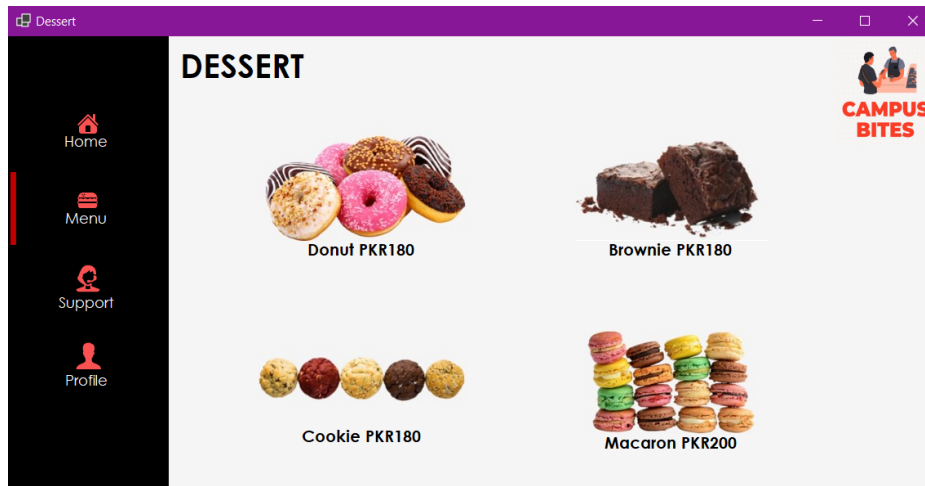

Nuggets PKR200


Gol Gappay PKR110

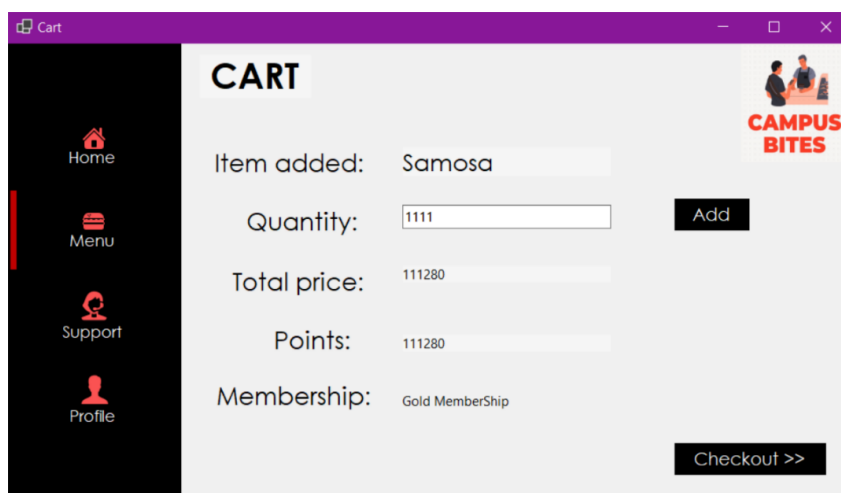

Samosa PKR100


Fries PKR120





- Order placement:



Checkout

Home

Menu

Support

Profile

CHECKOUT

Total Amount: 111280.00

Discount: 10% on all orders

After Discount: 100152

Payment Method:

Credit Card

Debit Card

Cash

Place Order

Order Details

Item name	Quantity
Samosa	1111
Brownie	1

Checkout

Home

Menu

Support

Profile

CHECKOUT

Total Amount: 111280.00

Discount: 10% on all orders

After Discount: 100152

Payment Method:

Credit Card

Debit Card

Cash

Place Order

Order Details

Item name	Quantity
Samosa	1111
Brownie	1

Payment method: Cash

OK

Cash

Total Amount: 111280.00

After Discount: 100152

Enter amount: 111111111

enter

Place Order

Amount returned: 111010959

OK

- Feedback

Support

CONTACT SUPPORT

Please leave us your feedback!

burger sucks

Thank you for giving your feedback!

OK

Save

CAMPUS BITES

- Edit Profile

Profile

PROFILE

First Name: Kissa

Last Name:

Email:

Phone number:

Password:

Updated successfully!

OK

Update

CAMPUS BITES

- Administrator (Inventory Manager)

Admin

MANAGE INVENTORY

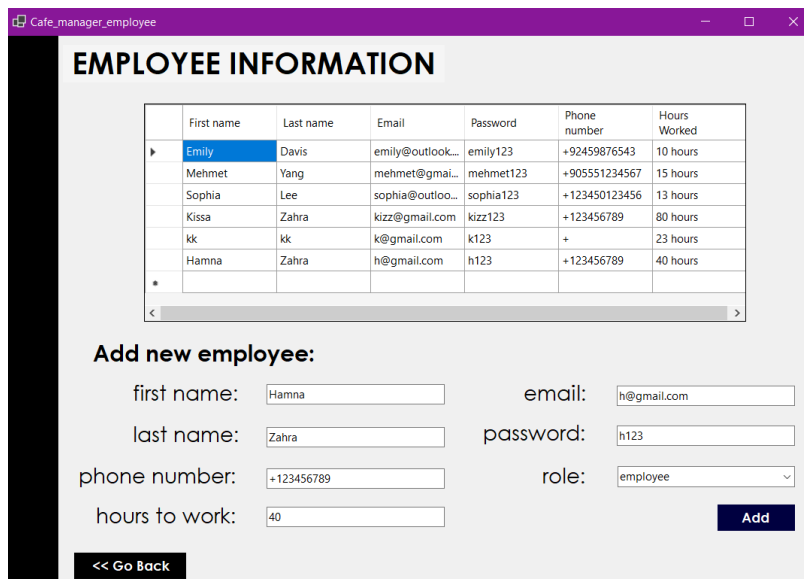
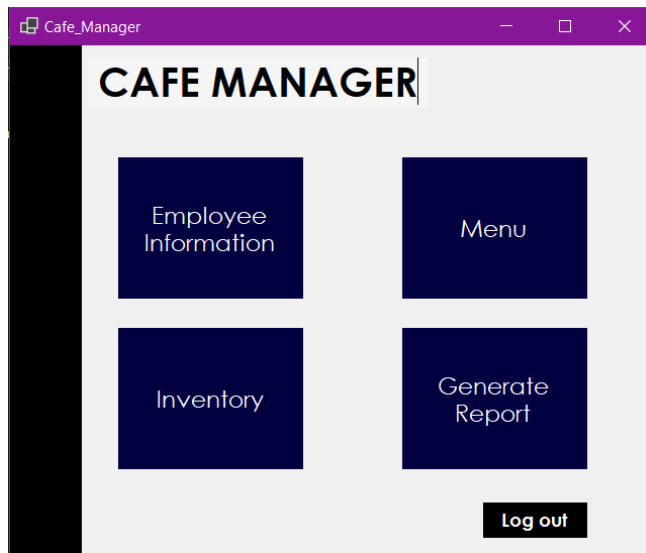
Inventory ID	Inventory Name	Current Quantity	Reorder Quantity	Vendor ID
1	inventory1	200	39	1
1	inventory1	200	39	2
1	inventory1	200	39	3

Reorder amount: 3

ok

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- STAFF
- Cafe Manager



Cafe_manager_menu

MENU

Item name	Price
Big Apple	100
Biryani	250
Karak Chai	70
Milo	110
Coke	170
Fanta	170
Sprite	170
Orange Juice	180
Iced Tea	190
BBQ Wrap	180
Chicken Pulao	220
Krispy Deal	220
Chicken Fajita	180
Chicken Biryani	220
Friends Deal	440
Waffles	200

Add item:

Item name:

Item price:

Add

Update item:

Item name:

Item price:

Update

Delete item:

Item name:

Delete

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Cafe_manager_inventory

VENDOR

Inventory ID	Vendor ID	First Name	Last Name	Email	Phone number
1	1	Jahnvi	J&ShareefCo	J&Shareef@gm...	+92765432123
1	2	Karanvir	KSupplyMart	KSupplyMart@...	+92345098765
1	2	Kissa	Zabra	kissa@hotmail.c...	+93221451232

INVENTORY

Add Vendor

Inventory ID	Inventory Name	Current Quantity	Reorder Quantity	Vendor ID
1	inventory1	200	39	1
1	inventory1	200	39	2
1	inventory1	200	39	2

Reorder amount:

ok

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REPORT

Most sold item:

	CartID	itemID	itemName	TotalSold
▶	3	21	Samosa	2224
•				

Customer who bought most sold item:

	CustomerID	FirstName	LastName	Email	PhoneNumber	TotalPurchased
▶	11	Kissa	Rizwan	hamna@gmail...	+123459876543	2262
•						

Least sold item:

	CartID	itemID	itemName	TotalSold
▶	4	3	Karak Chai	-1
*				

Customer who bought least sold item:

	CustomerID	FirstName	LastName	Email	PhoneNumber	TotalPurchased
▶	16	d	dd	dd	+	25
•						

Customer who generated most revenue:

	CustomerID	FirstName	LastName	Email	PhoneNumber	Revenue
▶	11	Kissa	Rizwan	hamna@gmail...	+23459876543	100494.00
•						

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REPORT

Feedback:

	FeedbackID	Feedback	CustomerID	FirstName	LastName	Email	PhoneNumber
▶	3	burger sucks	23	cc	cc	cc	+
•							

Items with Average Price Less Than 150

	itemID	itemName	AvgItemPrice
▶	1	Big Apple	100
	3	Karak Chai	70
	4	Milk	150

Categories with Total Available Items Less Than 5

	categoryID	cname	menuID	TotalAvailableItems
▶	5	Breakfast	1	4
	6	Snacks	1	4

Items Belonging To more Than One Category

	itemID	itemName	CategoryCount
▶	9	Iced Tea	2
•			

Categories With More Than 3 Items

	categoryID	ItemCount
▶	3	7
	4	7


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- Cook

Cook

COOK

Name: Mehmet Yang
Staff ID: 3



Today's Menu:

	Item name	Price
▶	Big Apple	100
	Biryani	250
	Karak Chai	70
	Milo	110
	Coke	170
	Fanta	170
	Sprite	170
	Orange Juice	180
	Tea	100


Log out

- Cashier

Cashier

CASHIER

Name: Sophia Lee
Staff ID: 4



Current Customer:

Kissa Rizwan

Order:

	Item name	Quantity
▶	Samosa	2
	Karak Chai	34
	Brownie	1
	Samosa	1111
	Orange Juice	1
	Macaron	1
	Brownie	1

Log out

- Employee

Employee

EMPLOYEE

Information:

	First name	Last name	Email	Password	Phone number	Hours Worked
▶	Emily	Davis	emily@outlook...	emily123	+92459876543	10 hours
*						

Log out