

Database Systems

Final Project



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Project:	Fast Cafe Management System
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1. Modules of the Project:

1.1 Order Management:

1.1.1 Order Placement

Customers should be able to browse products.

Customers should be able to manage products to their shopping cart by using CRUD operations.

Customers should be able to view their shopping cart.

Customers should be able to proceed to checkout.

Customers should be able to enter shipping and billing information.

Customers should be able to select a preferred payment method.

Customers should be able to review and confirm their order before finalizing the purchase.

1.1.2 Order Fulfillment:

Upon order confirmation, the system should generate an Receipt for the customer.

Orders should be processed on time.

Products should be accurately picked, and prepared for shipping.

Packages should be handed over to the designated shipping carrier.

1.1.3 Order Modification:

Customers should be able to modify their orders before they are fulfilled.

Modification options may include updating quantities, removing items, and changing products.

The system should reflect any changes made by the customer in real-time.

Modification requests should be validated against order status and inventory availability

1.1.4 Remove Item Option:

Customers should have the option to remove items from their shopping cart or order.

The system should update the cart/order total and reflect the removal of items immediately.

Removal of items should be possible at any stage of the checkout process.

1.2Inventory Management:

1.2.1 Monitors Quantity and Availability:

The system continuously tracks the quantity of each product in inventory.

Availability status (e.g., in stock, out of stock) is updated in real-time based on inventory changes.

Alerts are triggered when inventory levels fall below predefined thresholds.

1.2.1 Analyze Inventory Levels:

The system analyzes historical sales data and current inventory levels to predict future demand.

Reorder point and reorder quantity are calculated based on demand forecasts and lead times.

Thresholds are set to trigger reorder suggestions when inventory falls below a certain level.

1.3 Employee Management:

1.3.1 Create Employee Profiles:

Admins can create new employee profiles within the system.

Required information includes employee name, contact details, job title, department, and hire date.

Optional fields may include emergency contact information, employee ID, and photo.

1.3.2 Read Employee Information:

Admins can view detailed employee profiles, including all relevant information.

Access to employee profiles is restricted based on role-based access controls.

1.3.3 Update Employee Information:

Admins can edit employee profiles to update information such as contact details, job title, or department.

Changes to employee profiles are logged for audit purposes.

1.3.4 Delete Employee Profiles:

Admins can delete employee profiles if necessary, such as when an employee leaves the company.

1.4 Customer Relationship Module:

1.4.1 Collect Feedback:

Customers can provide feedback about their experiences with products, services, or interactions with the company.

Feedback forms are available online

1.4.2 Feedback Rating:

Customers rate their experience on a numerical scale or provide qualitative feedback.

Rating criteria may include satisfaction with products, services, customer support, and overall experience.

1.4.3 View Feedback Details:

Feedback details include customer ratings, comments, date/time of submission, and any associated customer information (if provided).

Feedback is presented in an organized format for easy review and analysis.

Customers can select delivery as an option during the checkout process.

Delivery fees, estimated delivery times, and delivery address verification are integrated into the ordering system.

Orders are dispatched to delivery personnel or third-party carriers for fulfillment.

Admins can enable reservation booking for services offered by the company, such as appointments, tables at restaurants, or event bookings.

1.5 Reporting and Analytics

1.5.1 Total Products Overview:

Admins can view a summary of the total number of products available in inventory.

Information includes product categories, quantities, and any low-stock alerts.

1.5.2 Inventory Availability:

Admins can monitor inventory levels in real-time.

Graphical representations and numerical data display current stock levels and highlight any items nearing depletion.

1.5.3 Total Feedback Analysis:

Admins can access analytics on customer feedback.

Metrics include average ratings, sentiment analysis, and trending feedback topics.

1.5.4 Customer Traffic Analysis:

Admins can track website or store traffic metrics.

Data includes total visits, unique visitors, popular pages, and traffic sources.

1.5.5 Product Recommendations:

Customers receive personalized product recommendations based on their browsing and purchase history.

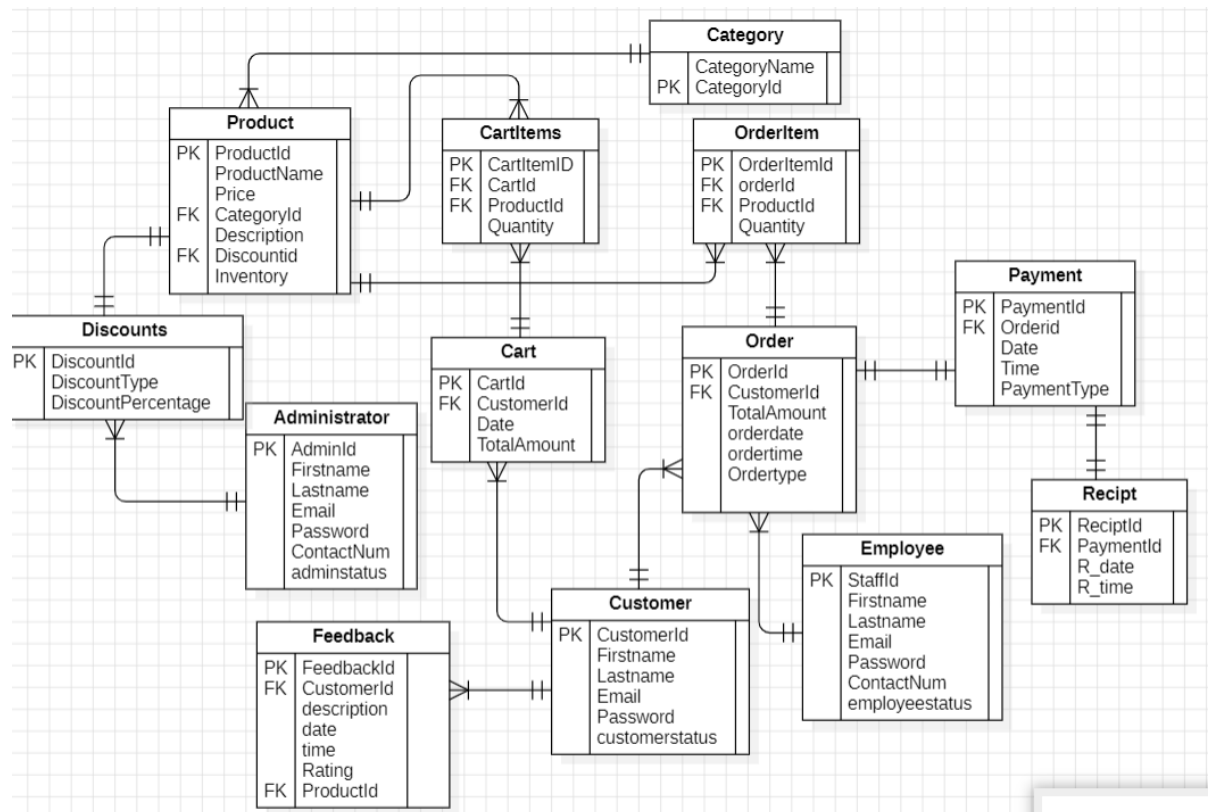
Recommendations may be based on similar products, trending items, or customer preferences.

1.5.6 Category Search Functionality:

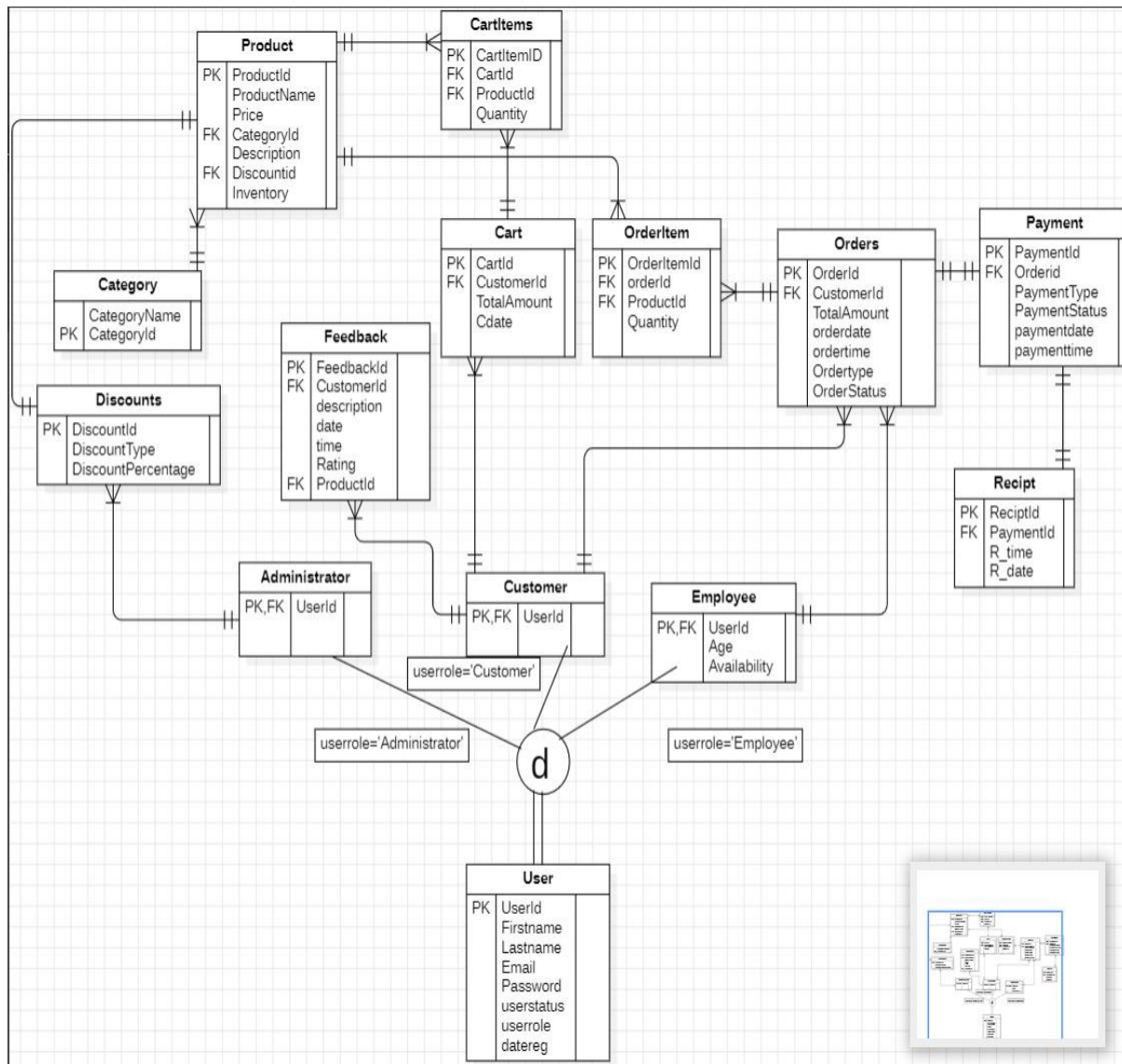
Customers can search for products by category using a dedicated search function.

Categories may include product types, brands, or any other predefined classification criteria.

2. Entity Relational Diagram



3. Enhanced ERD



4. Relational Schema

Users

PK Id	Fname	LastName	Password	Role	Status	Email	DateReg
-------	-------	----------	----------	------	--------	-------	---------

Administrator

FK PK AdminId

Customer

PK FK CustomerId

Discount

PK DiscountId	DiscountType	DiscountPer
---------------	--------------	-------------

Product

PK PID	name	price	FK categoryId	FK DiscountId	Description	Inventory
-----------	------	-------	------------------	------------------	-------------	-----------

Category

PK CategoryId	CategoryName
---------------	--------------

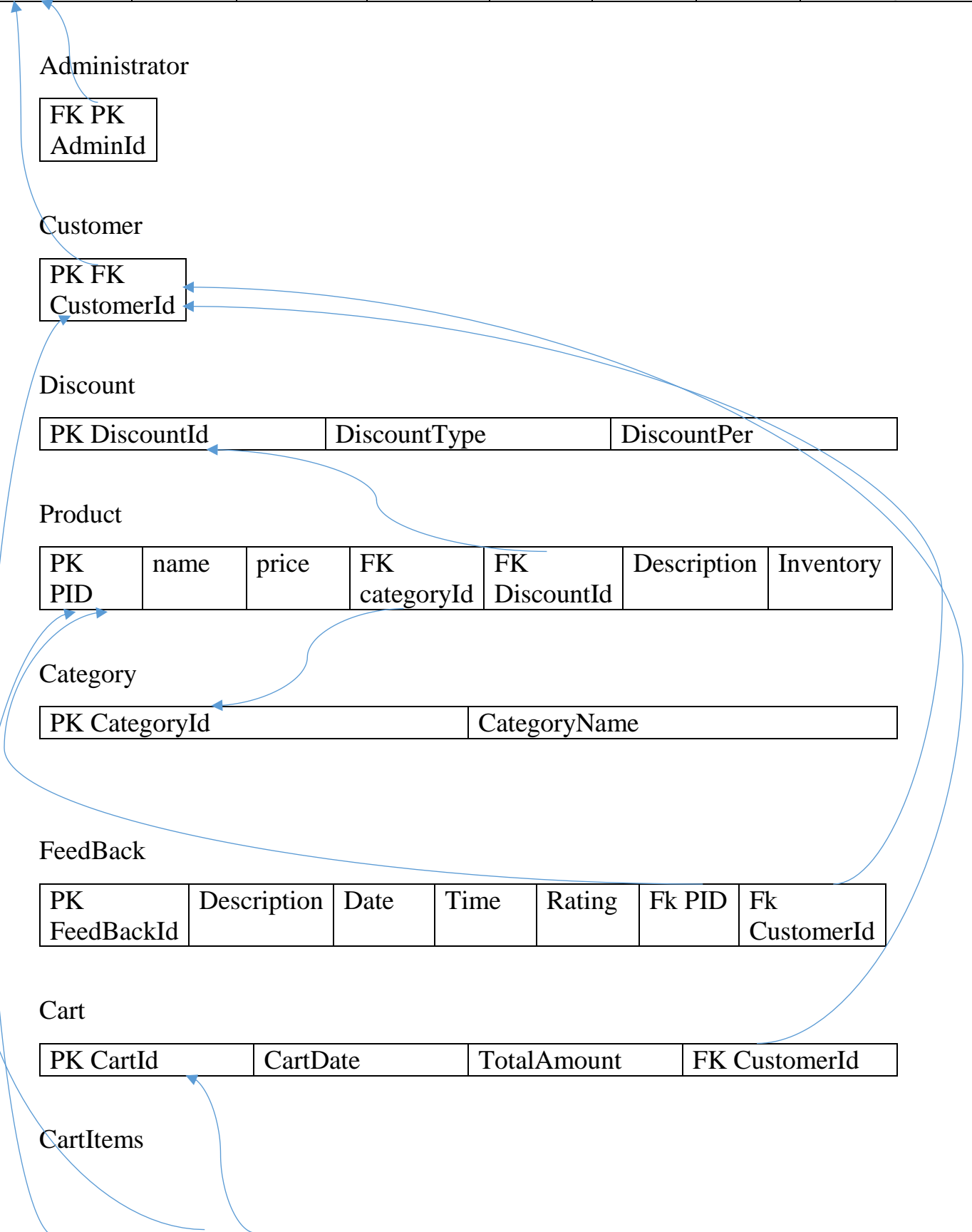
FeedBack

PK FeedBackId	Description	Date	Time	Rating	Fk PID	Fk CustomerId
------------------	-------------	------	------	--------	--------	------------------

Cart

PK CartId	CartDate	TotalAmount	FK CustomerId
-----------	----------	-------------	---------------

CartItems



PK CartItemsId	FK CartId	Fk PID	Quantity
----------------	-----------	--------	----------

Employees

PK EmployeeId	Age	Availability
---------------	-----	--------------

Orders

PK OrderId	FK customerId	TotalAmount	OrderDate	OrderTime	OrderType	OrderStatus
------------	---------------	-------------	-----------	-----------	-----------	-------------

OrderItems

PK OIId	FK OrderId	FK ProductId	Quantity
---------	------------	--------------	----------

Payment

Pk PaymentId	FK OrderId	PaymentDate	PaymentType	PaymentTime	PaymentStatus
--------------	------------	-------------	-------------	-------------	---------------

Receipt

PK ReceiptId	R_time	R_date	FK PaymentId
--------------	--------	--------	--------------

Normalization:**1NF:**

The Given Relational Schema is already in 1NF, as there are no Composite or Multi-valued attributes.

2NF:

The given Relational Schema is in 2NF, as there are no partial dependencies in any of above entities.

3NF:

The given Relational Schema is in 3NF, as there are no transitive dependencies in any of above entities.

5. User Documentation and Help:

Login and Register Pages:

First of all, the user will navigate to the login page, then if he/she is already registered, then will login in to the system, according to his/her role (Administrator, customer or employee) and the system will verify that the user is registered or not registered. If the user is not registered then he/she can register as an administrator or customer (Employees can only be added by the Administrator), the user will enter the desired details and then will click register, to get registered. Then the user can easily login accordingly.

There are total of 3 perspectives:

- Administrator
- Employee
- Customer

According to the details and role, the user will navigate the respective screen.

Customer Perspective:

In the customer perspective, there are total of 6 options:

- View Products
- See Profile
- Search Categories
- Check Cart
- Discounted Products
- Logout

View Products:

After clicking the view products button, the customer will navigate to view products screen, where the customer can see the available products by clicking Check products, can add a product to cart, by selecting the product, inputting the Quantity and then clicking Add to cart, and then the product will be added to the customer's cart. The customer can similarly remove a product from Cart by

selecting the product from the cart and clicking the remove from cart button. After adding products to Cart the customer can click checkout after checking out, the customer will navigate to the check cart screen.

Check cart:

Here the customer can see all of product that he/she added to the cart. The customer can select products from the cart and then select the order type option and then click the order now button to place an order and this will navigate the customer to the payment page. There is also a button of edit cart, through which the customer will navigate back to view products screen and can add/remove products from the cart.

Search Categories:

After clicking the Search Categories button, the user will navigate to the Search Categories screen, where the customer can see products according to the category they belong, like food, drinks etc. After selecting a category, the customer can check respective products. The customer can select the products, enter quantity, and can add the products to cart. The other options are all similar like the View Products options.

Discounted Products:

After clicking the Discounted Products button, the customer will navigate to the discounted products screen, the customer can check all the discounted products and can add, remove them to cart by using the similar process as used in the other screens and can similarly check out.

See Profile:

In the see profile screen, the customer can change his/her name and password and can then simply submit the new name and password.

Checkout/Payment Screen:

After clicking the checkout in the check cart screen, the customer will navigate to the payment screen where the customer will see his order and will select the payment method through the button, that will navigate to the mobile payment or bank payment screen, where the customer will fill the form and then the payment procedure will be completed.

Employee Perspective:

In Employee Perspective, there are 5 options: Orders, By hand Payment, generate receipt, Products/Orders, Emp Profile.

In the orders screen, the employee can see the orders placed and can update the status of the orders from “NOT READY” to “READY”.

In the By hand Payment, the staff can view any order, whose payment status is Pending, and can update the status of order to “DONE”.


In the Generate receipt screen, the employee will see all the orders, whose payment is “DONE”, order status is “READY” and there is no receipt of these, then the employee can generate receipt of these orders.

In the Products/Order, the employee can see the products and the total number of times the product is ordered.

In the Emp Profile screen the employee can simply view his profile.

FAST Cafe Management System

LOGIN IN



Select Your Role:

Username:

Password:

☐ See password:


LOGIN

Create an Account?

REGISTER

FAST Cafe Management System

Admin's Portal



Main Menu

Username: ahsan

No of Employees

2

Total Revenue

1810.00

Total Feedback

3

No of Customers


5

Products

2

Inventory

FAST Cafe Management System



Resgister Account

Roles:

First Name:

Last Name:

Email:

Password:

Confirm Password:

☐ See password:

REGISTER

OR

LOGIN

FAST Cafe Management System



Admin's Portal

Username: ahsan

Customers Traffic

	CustomerId	Username	UserLastn.
▶	2	mirza	mukarram
	7	alii	alii
	9	boy1	boy1

Top Products

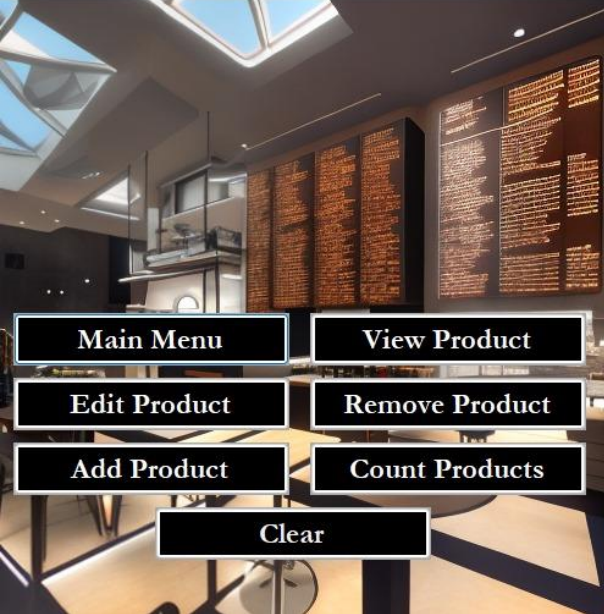
	PID
▶	1
	2

Top Customers

	customerId
▶	7
	11

Main Menu

FAST Cafe Management System



Main Menu

View Product

Edit Product

Remove Product

Add Product

Count Products

Clear

Admin's Portal

x

Username: ahsan

Product ID:

Product Name:

Product Price:


Product Quantity:

Product Category: Food

Product Description:

Products

FAST Cafe Management System



Logout

Admin's Portal

x

Username: ahsan

Products Management

Employees Management


Dashboard

Customers Records

Feedback Analysis

Discounts

FAST Cafe Management System



Add Discount

Regular Price

Main Menu

Admin's Portal

X

Username:

ahsan

Product ID:

Product Name:

Apply Discount:

Product New Price:

Discounts:

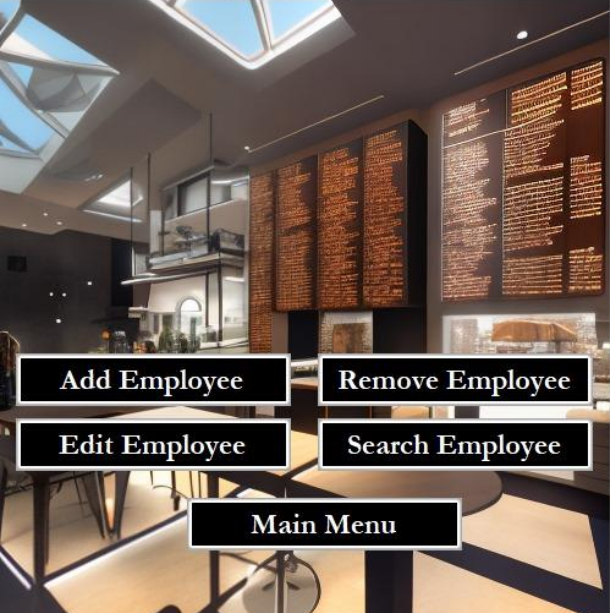
DiscountType

Fixed Amount

Products In Discount Type:

Clear

FAST Cafe Management System



Add Employee

Remove Employee

Edit Employee

Search Employee

Main Menu

Admin's Portal

X

Username:

ahsan

Employee ID:

Employee Name:

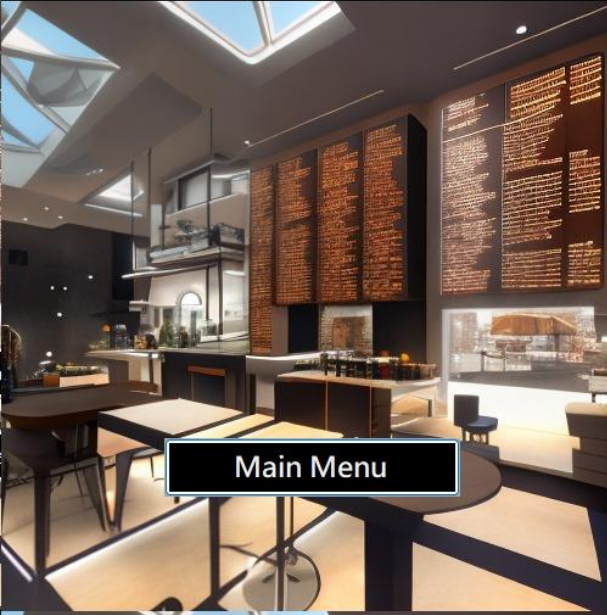
Employee Age:

Password:

Availability:

Employees

FAST Cafe Management System




Main Menu

Employee Details

Empld	username	age
10	Mukarram	22

FAST Cafe Management System



Logout

Username: Mukarram

Orders

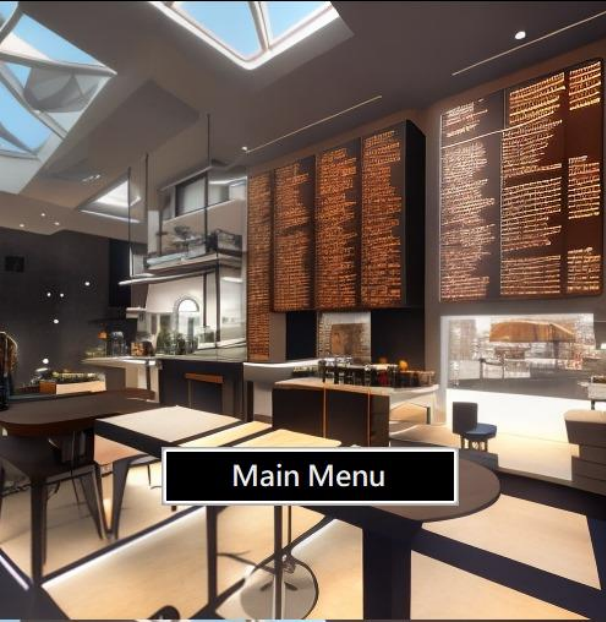
By Hand Payments

Generate Receipt

Products/Orders

Emp Profile

FAST Cafe Management System



Main Menu


Username: Mukarram

View Orders:

	OrderId	CustomerName	OrderTi
▶	2	alii	02:26:20
	3	alii	04:41:10
	4	alii	04:42:20
	4	alii	04:42:20
	5	alii	14:42:50
	5	alii	14:42:50
	6	alii	14:43:19

Update Status

FAST Cafe Management System




Main Menu

Username: Mukarram

View Products:

	name	price	TimesOrde
▶	Drink	10	1
	Pizza	50	15
★			

FAST Cafe Management Systemx



Main Menu


Username: Mukarram

View Orders:

	PaymentId	PaymentStatus	TotalAmou
▶*			

Update Status

FAST Cafe Management System



Main Menu

FAST Cafe Management System

Username: Mukarram

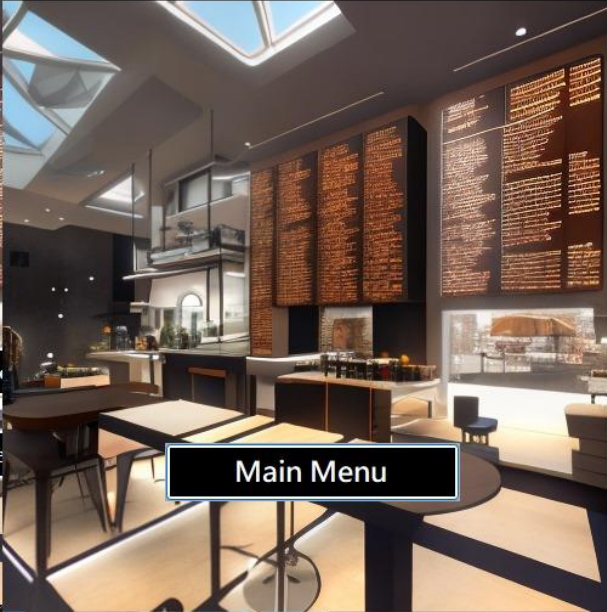
Orders

	OrderId	PaymentId	P
▶	1	1	D
	11	8	D
	12	0	D

Generate Receipt

Receipts

FAST Cafe Management System



Main Menu

Admin's Portal

Username: ahsan

Feedback Analysis


	FeedbackId	Description	date
▶	1	1212121212	5/5/2024
	2	good	5/5/2024
	3	ddd	5/5/2024
✱			

Rating Count

	Rating	RatingCount	
▶	10	1	
	5	1	
	1	1	

FAST Cafe Management System

Customer's Portal



By Hand
Mobile
Credit / debit
Main Menu


Username: Ahmad

Payment:

	OrderId	Quantity	ProductN
*			

FAST Cafe Management System

Customer's Portal



Main Menu

Username: Ahmad





Credit/Debit Payment:

To:

Reference:

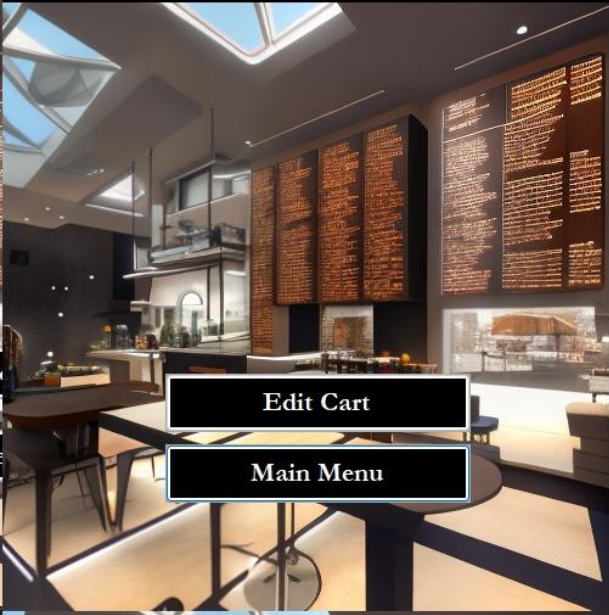
Account No:

Amount:

Done

FAST Cafe Management System



Edit Cart

Main Menu

Customer's Portal

Username: Ahmad

View Cart:

	Selected	CustomerName	productID
▶	<input checked="" type="checkbox"/>	Ahmad	1
	<input type="checkbox"/>	Ahmad	2
	<input type="checkbox"/>	Ahmad	1
•	<input type="checkbox"/>		

Order Type:

Total Price:

Clear

Order Now

FAST Cafe Management System



Add to Cart

Check Products

Remove from Cart

Main Menu

Customer's Portal

Username: Ahmad

View Products:

	PID	name	p
▶	1	Pizza	50
	2	Drink	10

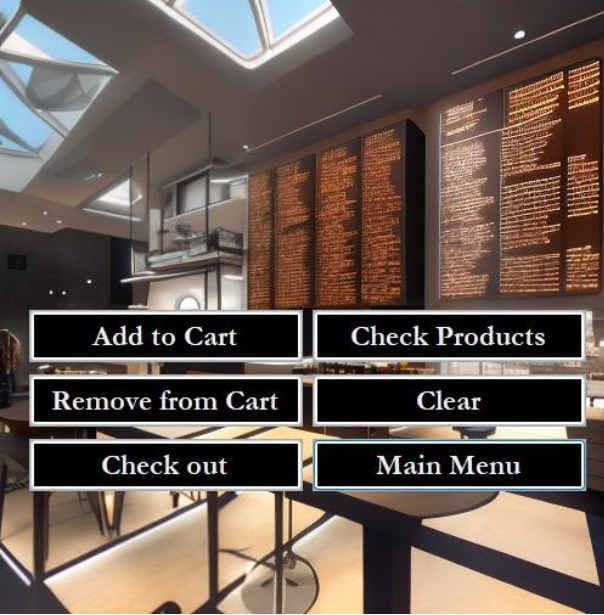
Quantity: Total Price:

Cart Items:

Clear

Check out

FAST Cafe Management System



Add to Cart
Check Products
Remove from Cart
Clear
Check out
Main Menu

Customer's Portal
X

Username: Ahmad

Product Category:

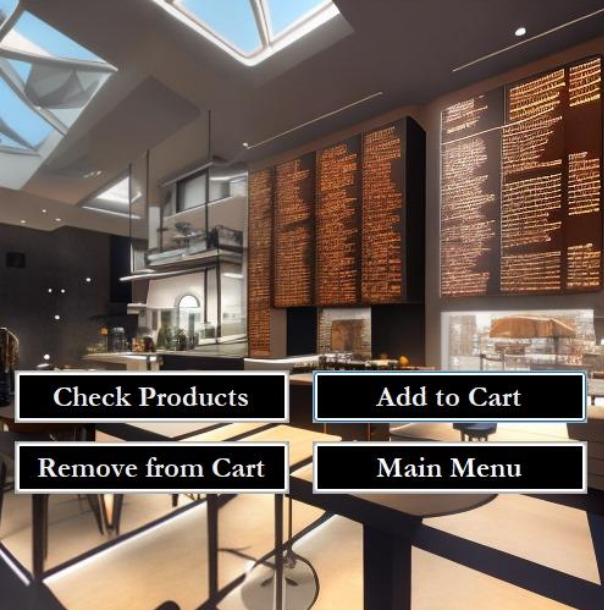
Products:

Quantity:
Total Price:

Category Details:

Cart Details:

FAST Cafe Management System



Check Products
Add to Cart
Remove from Cart
Main Menu

Customer's Portal
X

Username: Ahmad

Avg for Discount Type:


Discounted Products:

Cart Items:

Quantity: 1
Total Price: 210

Clear
Check out

FAST Cafe Management System



Logout

Customer's Portal

Username: Ahmad
ID: 11

View Products
Discounted Products
Check Cart
Search by categories
See Profile

FAST Cafe Management System



Main Menu

Customer's Portal

Username: Ahmad
ID: 11

Enter New Name


Enter New Password

Submit



	CustomerId	username	userpasswo
▶	11	Ahmad	12356789
*			


FAST Cafe Management System



Main Menu

Customer's Portal

Username: Ahmad


Mobile Banking: 

Enter Bank Account Number

Enter Amount

Select Purpose of Payment

Enter Receiver's Phone Number



Send