Project Proposal

Chai-e-Banaras Cafés and Food Hub

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➢ Introduction :

The ***Chai-e-Banaras Café and food hub Management System*** is a smart digital solution that replaces slow manual ordering with a fast, accurate, and organized process. Customers can easily browse the menu, select items, and place their orders within seconds. This system reduces errors and ensures a smooth experience from ordering to billing.

- The application automatically generates bills, applies valid offers, and stores all order details securely. It also records customer information, order history, and feedback to help the café improve its service. With clear data management, the entire workflow becomes more reliable and efficient.
- The admin panel allows staff to update menu items, manage prices, and monitor stock in real time. Inventory tracking helps prevent shortages and ensures timely restocking. Overall, the system makes café operations cleaner, quicker, and far more professional.

➢ Problem Statement :

- Manual order-taking in cafés often leads to delays, missing items, and calculation mistakes during busy hours.
- Billing becomes slow and inaccurate because offers, discounts, and item totals are not applied automatically.
- Menu updates and customer records cannot be managed properly, causing confusion for both staff and customers.
- Lack of real-time inventory tracking results in sudden stock shortages and affects smooth café operations.

➢ Objective :

- To provide a clean and user-friendly digital menu for customers.
- To allow customers to add items to the cart and place orders easily.
- To generate accurate and instant bills with automatic calculations.
- To apply valid offers and discounts smoothly during billing.
- To store customer, order, and billing data securely in the database.
- To help staff manage menu items, prices, and categories effectively.
- To maintain real-time inventory levels and prevent stock shortages.
- To record customer feedback for improving service quality.
- To reduce manual work and eliminate human errors in café operations.
- To make overall café management faster, organized, and more efficient.

➢ Project Category :

Command Line Application

➢ Modules and Description :

1. Items Module :

- Stores all café menu items.
- Contains item name, price, and category information.
- Used for menu display and billing calculations.

2. Orders Module :

- Stores the main details of each customer order.
- Includes customer reference, date, and total amount.
- Used as the base for bill generation and sales reporting.

3. Order_Items Module :

- Stores item-wise details for each order.
- Includes quantity and line-total for billing.
- Helps generate complete order breakdown.

4. Customers Module :

- Stores customer personal details.
- Helps track repeat customers and history.
- Supports the Customer entity in system flow.

5. Categories Module :

- Stores menu categories like Tea, Snacks, Meals, Drink, sweets.
- Keeps menu structured and organized.
- Improves customer browsing experience.

6. Admin_Users Module :

- Stores admin and staff login information.
- Controls system access and management rights.
- Ensures security and role-based operations.

7. Inventory Module :

- Manages stock quantities for café items.
- Updates stock automatically after orders.
- Helps maintain real-time availability.

8. Offers Module :

- Stores active discounts and offers.
- Used to apply discounts during billing.
- Helps increase sales and customer attraction.

9. Feedback Module :

- Stores customer ratings and comments.
- Helps improve service and quality.
- Supports feedback analysis.

➢ Database Design (Table Structures) :

1. Items Table :

Field	Type
item_id	INT PRIMARY KEY
item_name	VARCHAR
category	VARCHAR
price	INT

2.Orders Table :

Field	Type
order_id	INT PRIMARY KEY
customer_id	INT (FOREIGN KEY)
order_date	TIMESTAMP
total_amount	INT

3. Order_Items Table :

Field	Type
order_item_id	INT PRIMARY KEY
order_id	INT (FOREIGN KEY)
item_id	INT (FOREIGN KEY)
quantity	INT
line_total	INT

4. Customers Table :

Field	Type
customer_id	INT PRIMARY KEY
name	VARCHAR
mobile	VARCHAR
address	VARCHAR

5. Categories Table :

Field	Type
category_id	INT PRIMARY KEY
category_name	VARCHAR
description	VARCHAR

6. Admin_Users Table :

Field	Type
admin_id	INT PRIMARY KEY
username	VARCHAR
password	VARCHAR
role	VARCHAR

7. Inventory Table :

Field	Type
inventory_id	INT PRIMARY KEY
item_id	INT (FOREIGN KEY)

stock	INT
last_updated	TIMESTAMP

8. Offers Table :

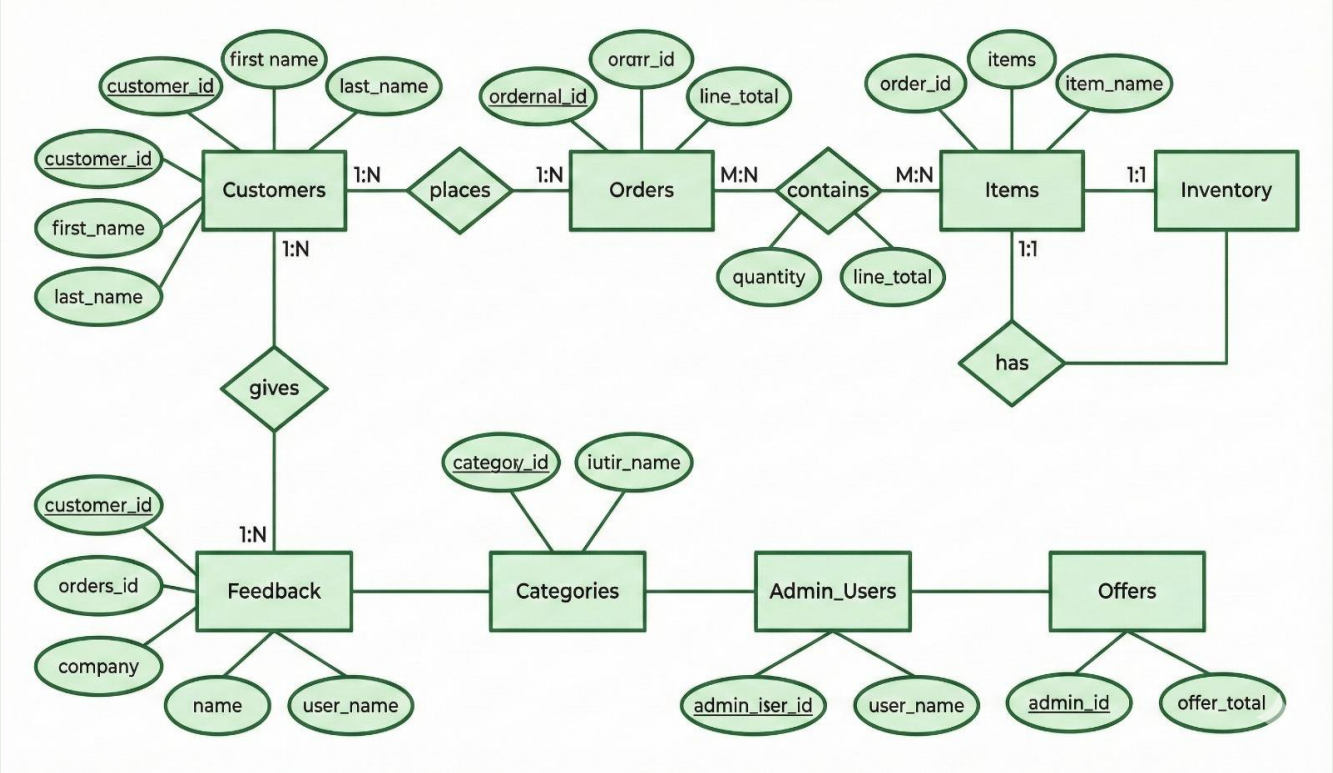
Field	Type
offer_id	INT PRIMARY KEY
offer_name	VARCHAR
discount_percent	INT
valid_from	DATE
valid_upto	DATE

9. Feedback Table :

Field	Type
feedback_id	INT PRIMARY KEY
customer_id	INT (FOREIGN KEY)
rating	INT
comments	VARCHAR
feedback_date	TIMESTAMP

➢ ER Diagram :

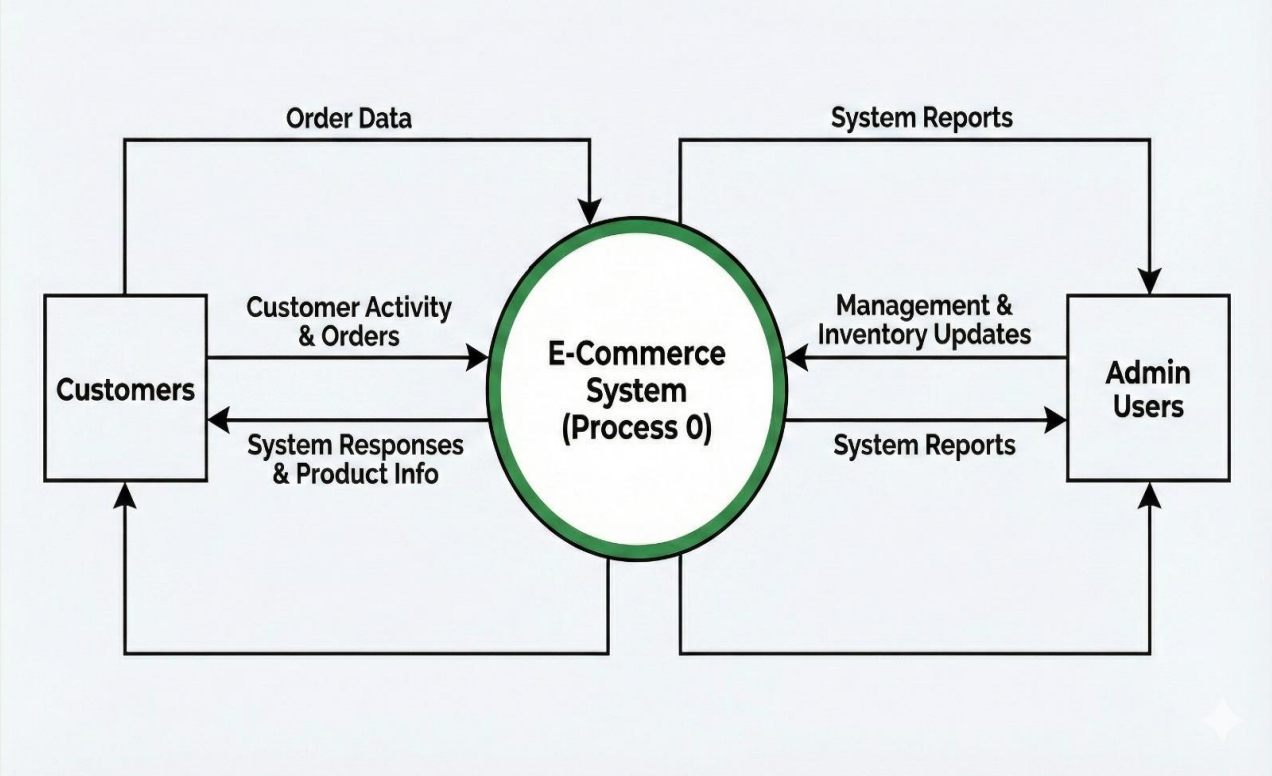
- The ER diagram displays all key entities and their essential attributes.
- It clearly defines the relationships between different database tables.
- Primary and foreign keys are used to maintain data accuracy and linkage.
- It acts as the structural blueprint for creating the complete database.



➢ Data Flow Diagram (DFD):

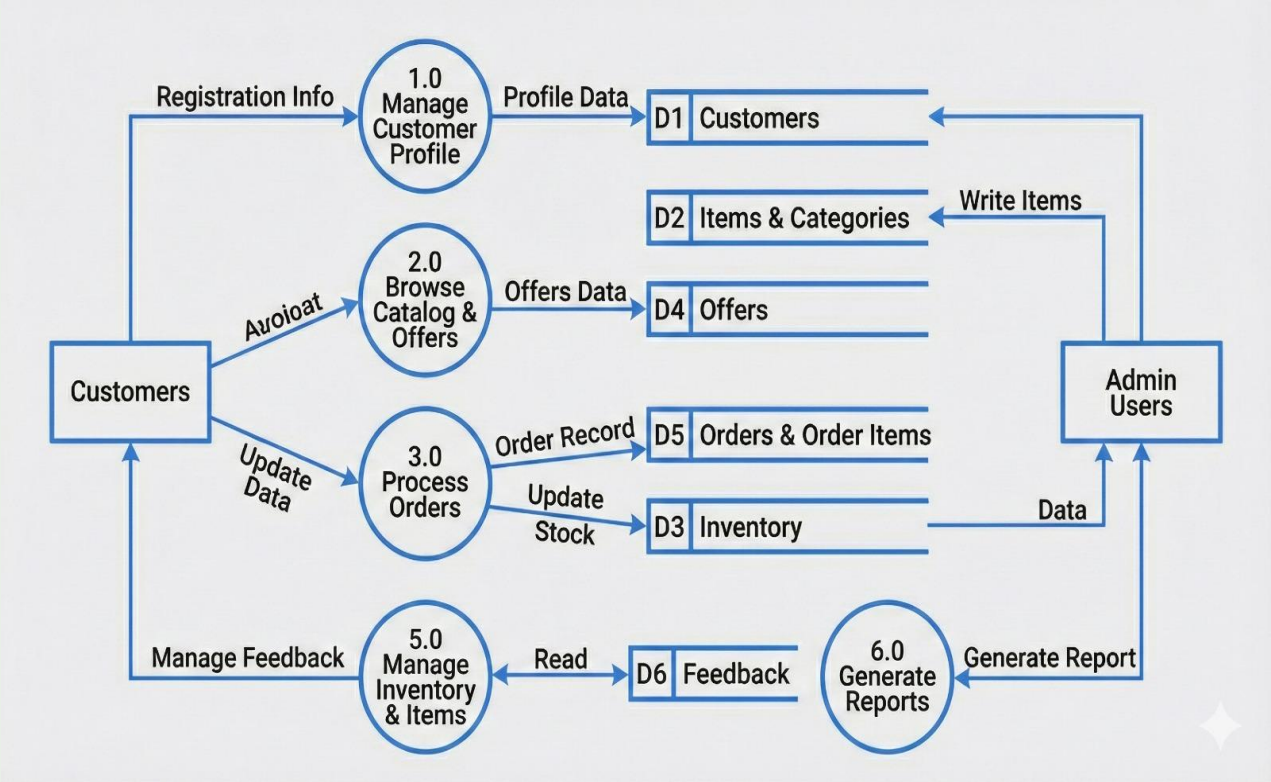
DFD Level 0:

- Level-0 gives a high-level overview of the café system as one main process.
- It shows interactions between users and the system through simple data flows.
- External entities and major inputs/outputs are clearly highlighted.
- This level defines the system boundary and overall workflow.



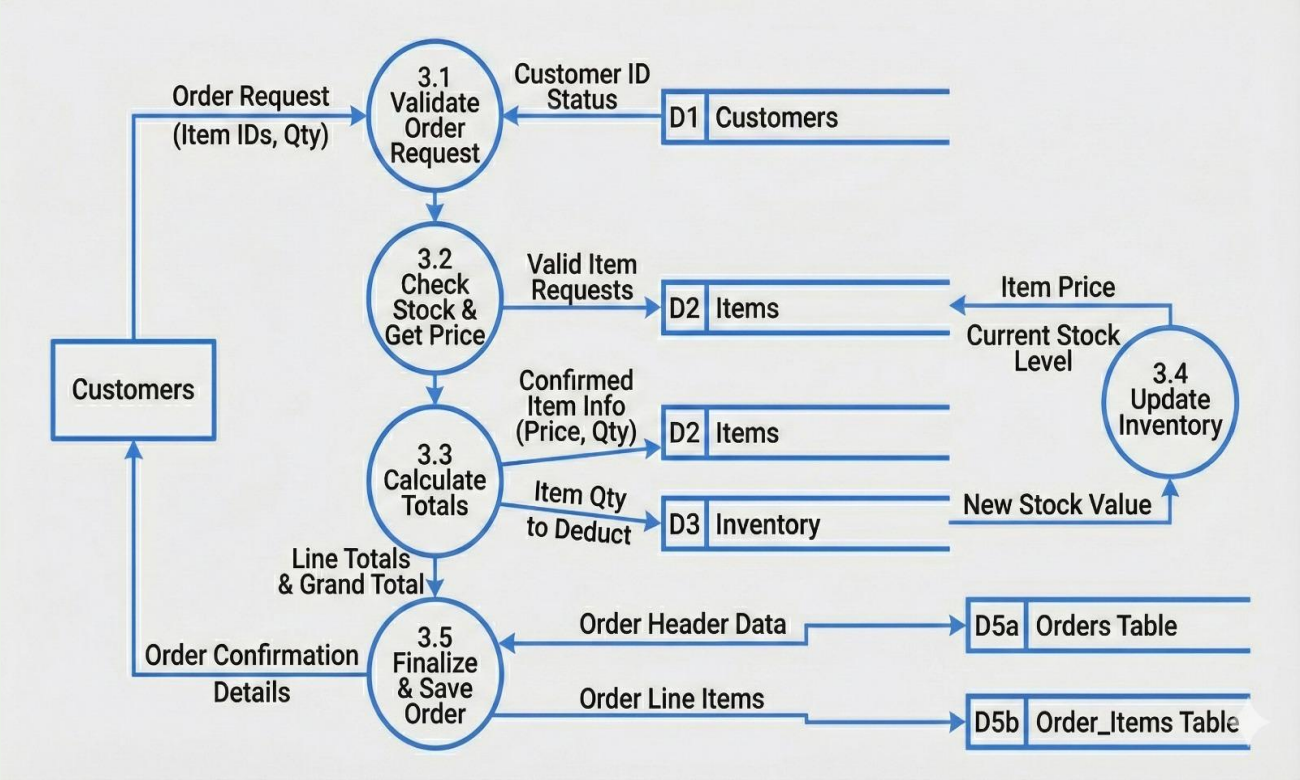
➢ DFD Level 1:

- Level-1 breaks the main system into sub-processes like items, orders, and offers.
- It shows detailed data flow between processes and data stores.
- Key data stores such as items, customers, and orders are highlighted.
- This level explains how major system modules work internally.



➢ DFD Level 2:

- Level-2 provides detailed steps of each process, such as placing an order.
- It explains how data moves inside a sub-process to produce the final output.
- Shows internal tasks like selecting items, calculating totals, and saving records.
- This level helps convert process logic directly into Java program steps.



➢Complete Structure:

- Customer enters the system
- Menu loads with categories
- Items added to cart
- Offer checked
- Order saved
- Order items stored
- Inventory updated
- Admin updates items/stock
- Feedback stored

➢Platform Used:

→Hardware :

- Intel i3/i5 or higher processor
- 4GB RAM

→Software :

- Java JDK
- MySQL
- JDBC
- NetBeans/IntelliJ/Eclipse
- Windows/Linux

➢ Future Scope:

- Online Ordering and Mobile App Support
- QR Code Based Table Ordering
- Digital Payments Integration
- AI-Based Item Recommendations
- Automated Inventory Alerts
- Multi-Branch Café Management

➢ Bibliography :

- Java Documentation
- MySQL Documentation
- JDBC Tutorials
- GeeksforGeeks & W3Schools
- Draw.io / Lucidchart (ER & DFD Designing Tool)