

Canteen Management System.

Our Team-

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Subject-DBMS

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Subject-DBMS

Canteen Management System.



The project is to create a database system for managing a canteen's operations, including menu items, orders, billing, staff management, and user information. It allows tracking orders, managing inventory, handling payments, and monitoring staff activities under the supervision of administrators.

Why this database system : This database system is crafted to streamline and automate the management of various facets within a canteen, providing numerous advantages:

Efficient Order Management: The system efficiently organizes customer orders, including details like items ordered and quantities, facilitating seamless order processing.

Billing and Payment Handling: It automates billing processes, generating bills for orders and recording payment details, thereby simplifying transactions for customers and staff alike.

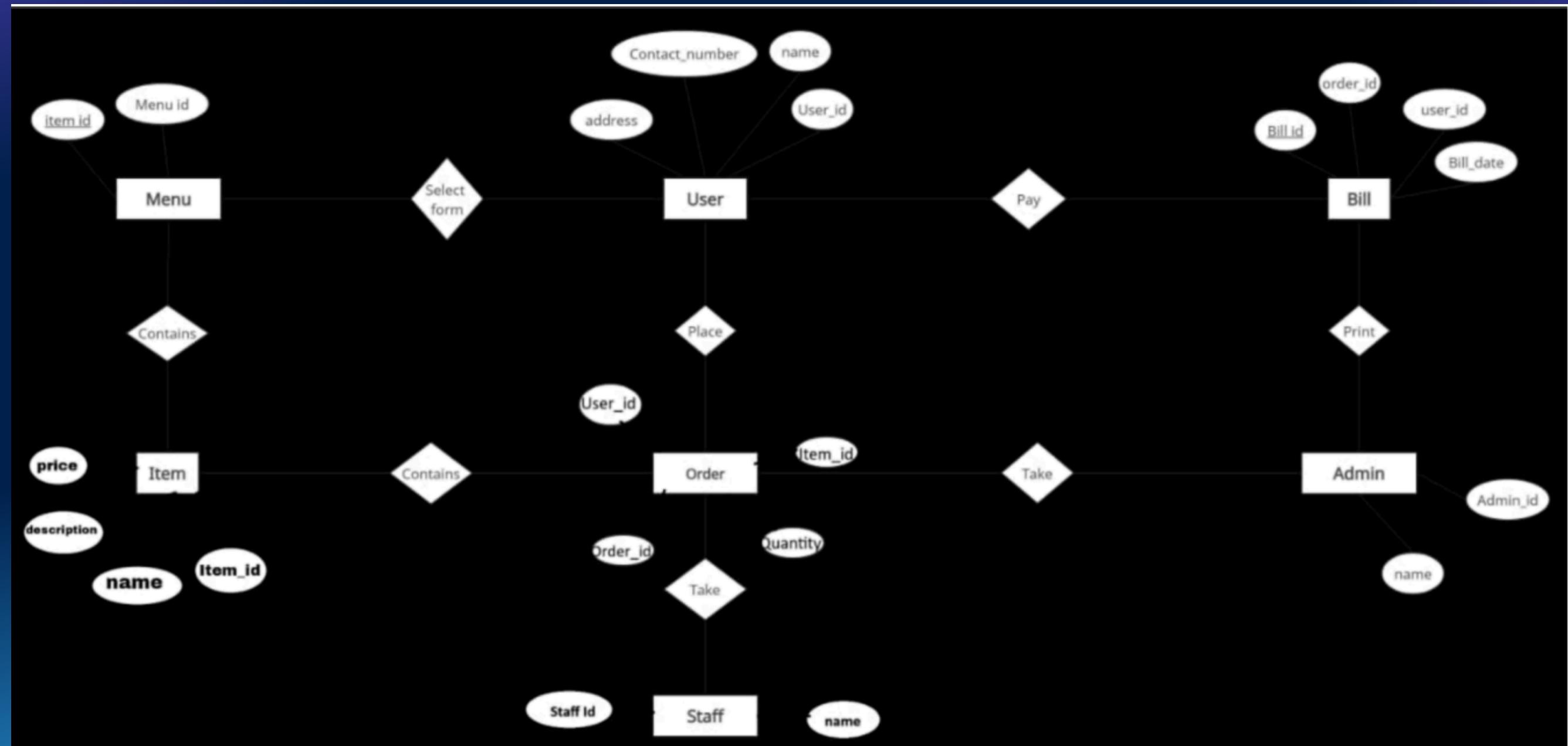
User Management: The system stores user information, allowing for personalized services and effortless tracking of customer preferences and contact details.

Staff Management: It facilitates order assignment to staff members, monitors their activities, and empowers administrators to manage staff roles and responsibilities efficiently.

Data Analysis: With structured data stored in the database, administrators can conduct insightful data analysis, gaining valuable insights into sales trends, popular menu items, and customer preferences, which can inform strategic business decisions.

Scalability and Adaptability: The modular design of the database schema enables scalability, making it effortless to expand and adapt the system to meet evolving business requirements or accommodate growth in the canteen's operations. Overall, this database system significantly enhances efficiency, accuracy, and decision-making capabilities within the canteen, ultimately leading to enhanced customer service and operational effectiveness.

Data Model-



Attributes, Entity and Relations :

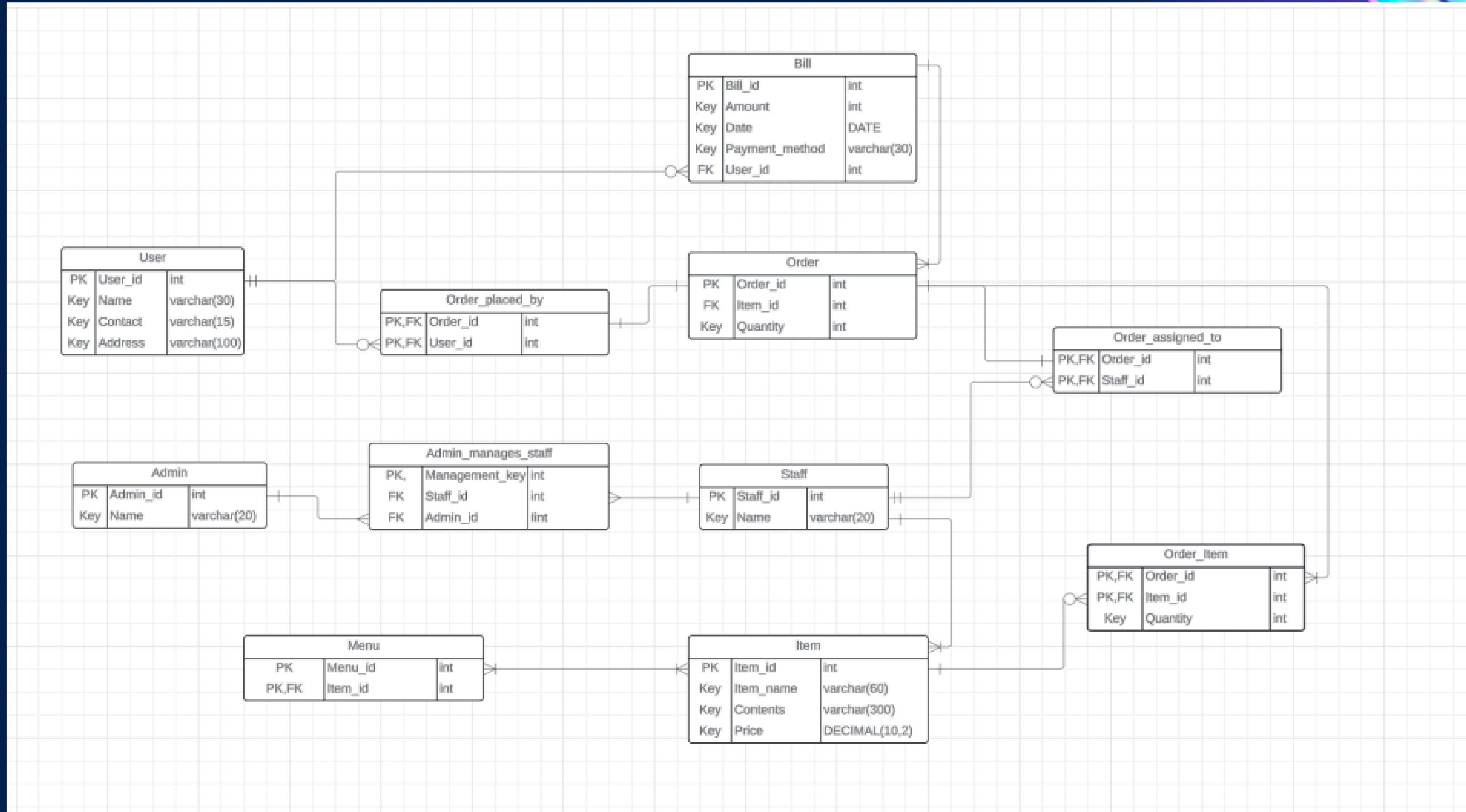
- Menu:
 - Menu_id (Primary Key)
 - Item_id (Foreign Key referencing Item)
- User:
 - User_id (Primary Key)
 - Name
 - Contact_number
 - Address
- Bill:
 - Bill_id (Primary Key)
 - Amount
 - Date
 - Payment_method
 - User_id (Foreign Key referencing User)
- Item:
 - Item_id (Primary Key)
 - Item_name
 - Contents
 - Price
- Order:
 - Order_id (Primary Key)
 - Item_id (Foreign Key referencing Item)
 - Quantity
 - User_id (Foreign Key referencing User)
- Admin:
 - Admin_id (Primary Key)
 - Name
- Staff:
 - Staff_id (Primary Key)
 - Name

Relationships:

For the canteen management system, we can define the following relationships:

- User-Order Relationship:
 - One user can place multiple orders.
 - Each order is associated with one user.
- User-Bill Relationship:
 - One user can have multiple bills.
 - Each bill is associated with one user.
- Item-Order Relationship:
 - One item can be included in multiple orders.
 - Each order includes multiple items.
- Staff-Order Relationship:
 - One staff member can handle multiple orders.
 - Each order is handled by one staff member.
- Admin-Staff Relationship:
 - One admin can manage multiple staff members.
 - Each staff member is managed by one admin.
- Admin-Item Relationship:
 - One admin can manage the items available in the canteen.
 - Each item is managed by one admin.
- Menu-Item Relationship:
 - One menu can have multiple items.
 - Each item belongs to one menu.
- Bill-Order Relationship:
 - One bill can contain multiple orders.
 - Each order is associated with one bill.
- User-Order Relationship:
 - One user can place multiple orders.
 - Each order is associated with one user.
- Staff-Item Relationship:
 - One staff member can manage multiple items.
 - Each item can be managed by one staff member.

Database Design:-



Database Design:-

User:

```
CREATE TABLE User (
    User_id INT PRIMARY KEY,
    Name VARCHAR(30),
    Contact VARCHAR(15),
    Address VARCHAR(100),
    KEY idx_user_details (Name, Contact, Address)
);
```

```
MariaDB [canteen_management]> describe User;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| User_id | int(11) | NO   | PRI   | NULL    |       |
| Name    | varchar(30) | YES  | MUL   | NULL    |       |
| Contact | varchar(15) | YES  |       | NULL    |       |
| Address | varchar(700) | YES  |       | NULL    |       |
+-----+-----+-----+-----+-----+
4 rows in set (0.024 sec)
```

Order:

```
CREATE TABLE Order (
    Order_id INT PRIMARY KEY,
    Item_id INT,
    Quantity INT,
    KEY idx_quantity (Quantity)
);
```

```
MariaDB [canteen_management]> describe `Order`;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| Order_id | int(11) | NO   | PRI   | NULL    |       |
| Item_id  | int(11) | YES  |       | NULL    |       |
| Quantity | int(11) | YES  | MUL   | NULL    |       |
+-----+-----+-----+-----+-----+
3 rows in set (0.023 sec)
```

Order_placed_by:

```
CREATE TABLE Order_placed_by (
    Order_id INT,
    User_id INT,
    PRIMARY KEY (Order_id, User_id),
    FOREIGN KEY (Order_id) REFERENCES Order(Order_id),
    FOREIGN KEY (User_id) REFERENCES User(User_id)
);
```

```
MariaDB [canteen_management]> describe Order_placed_by;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| Order_id | int(11) | NO   | PRI   | NULL    |       |
| User_id  | int(11) | NO   | PRI   | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.019 sec)
```

Order_assigned_to:

```
CREATE TABLE Order_assigned_to (
    Order_id INT,
    Staff_id INT,
    PRIMARY KEY (Order_id, Staff_id),
    FOREIGN KEY (Order_id) REFERENCES Order(Order_id),
    FOREIGN KEY (Staff_id) REFERENCES Staff(Staff_id)
);
```

```
MariaDB [canteen_management]> describe Order_assigned_to;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| Order_id | int(11) | NO   | PRI   | NULL    |       |
| Staff_id | int(11) | NO   | PRI   | NULL    |       |
| Quantity | int(11) | YES  | MUL   | NULL    |       |
+-----+-----+-----+-----+-----+
2 rows in set (0.023 sec)
```

Bill:

```
CREATE TABLE Bill (
    Bill_id INT PRIMARY KEY,
    Amount INT,
    Date DATE,
    Payment_method VARCHAR(30),
    User_id INT,
    FOREIGN KEY (User_id) REFERENCES User(User_id),
    KEY idx_bill_details (Amount, Date, Payment_method)
);
```

```
MariaDB [canteen_management]> describe Bill;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| Bill_id | int(11) | NO   | PRI   | NULL    |       |
| Amount  | int(11) | YES  | MUL   | NULL    |       |
| Date    | date   | YES  |       | NULL    |       |
| Payment_method | varchar(30) | YES  |       | NULL    |       |
| User_id | int(11) | YES  | MUL   | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.026 sec)
```

Order_Item:

```
CREATE TABLE Order_Item (
    Order_id INT,
    Item_id INT,
    Quantity INT,
    PRIMARY KEY (Order_id, Item_id),
    FOREIGN KEY (Order_id) REFERENCES Order(Order_id),
    FOREIGN KEY (Item_id) REFERENCES Item(Item_id),
    KEY idx_quantity (Quantity)
);
```

```
MariaDB [canteen_management]> describe Order_Item;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+
| Order_id | int(11) | NO   | PRI   | NULL    |       |
| Item_id  | int(11) | NO   | PRI   | NULL    |       |
| Quantity | int(11) | YES  | MUL   | NULL    |       |
+-----+-----+-----+-----+-----+
3 rows in set (0.025 sec)
```

Item:

```
CREATE TABLE Item (
    Item_id INT PRIMARY KEY,
    Item_name VARCHAR(60),
    Contents VARCHAR(300),
    Price DECIMAL(10, 2),
    KEY idx_item_details (Item_name, Contents, Price)
);
```

```
MariaDB [canteen_management]> describe Item;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Item_id | int(11) | NO | PRI | NULL |
| Item_name | varchar(60) | YES | MUL | NULL |
| Contents | varchar(300) | YES |  | NULL |
| Price | decimal(10,2) | YES |  | NULL |
+-----+-----+-----+-----+
4 rows in set (0.021 sec)
```

Menu:

```
CREATE TABLE Menu (
    Menu_id INT,
    Item_id INT,
    PRIMARY KEY (Menu_id, Item_id),
    FOREIGN KEY (Item_id) REFERENCES Item(Item_id)
);
```

```
MariaDB [canteen_management]> describe Menu;
+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| Menu_id | int(11) | NO | PRI | NULL |
| Item_id | int(11) | NO | PRI | NULL |
+-----+-----+-----+-----+
2 rows in set (0.023 sec)
```

Staff:

```
CREATE TABLE Staff (
    Staff_id INT PRIMARY KEY,
    Name VARCHAR(20),
    KEY idx_name (Name)
);
```

```
MariaDB [canteen_management]> describe Staff;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Staff_id | int(11) | NO | PRI | NULL |
| Staff_Name | varchar(20) | YES | MUL | NULL |
+-----+-----+-----+-----+
2 rows in set (0.024 sec)
```

Admin:

```
CREATE TABLE Admin (
    Admin_id INT PRIMARY KEY,
    Name VARCHAR(20),
    KEY idx_name (Name)
);
```

```
MariaDB [canteen_management]> describe Admin;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Admin_id | int(11) | NO | PRI | NULL |
| Admin_Name | varchar(20) | YES | MUL | NULL |
+-----+-----+-----+-----+
2 rows in set (0.022 sec)
```

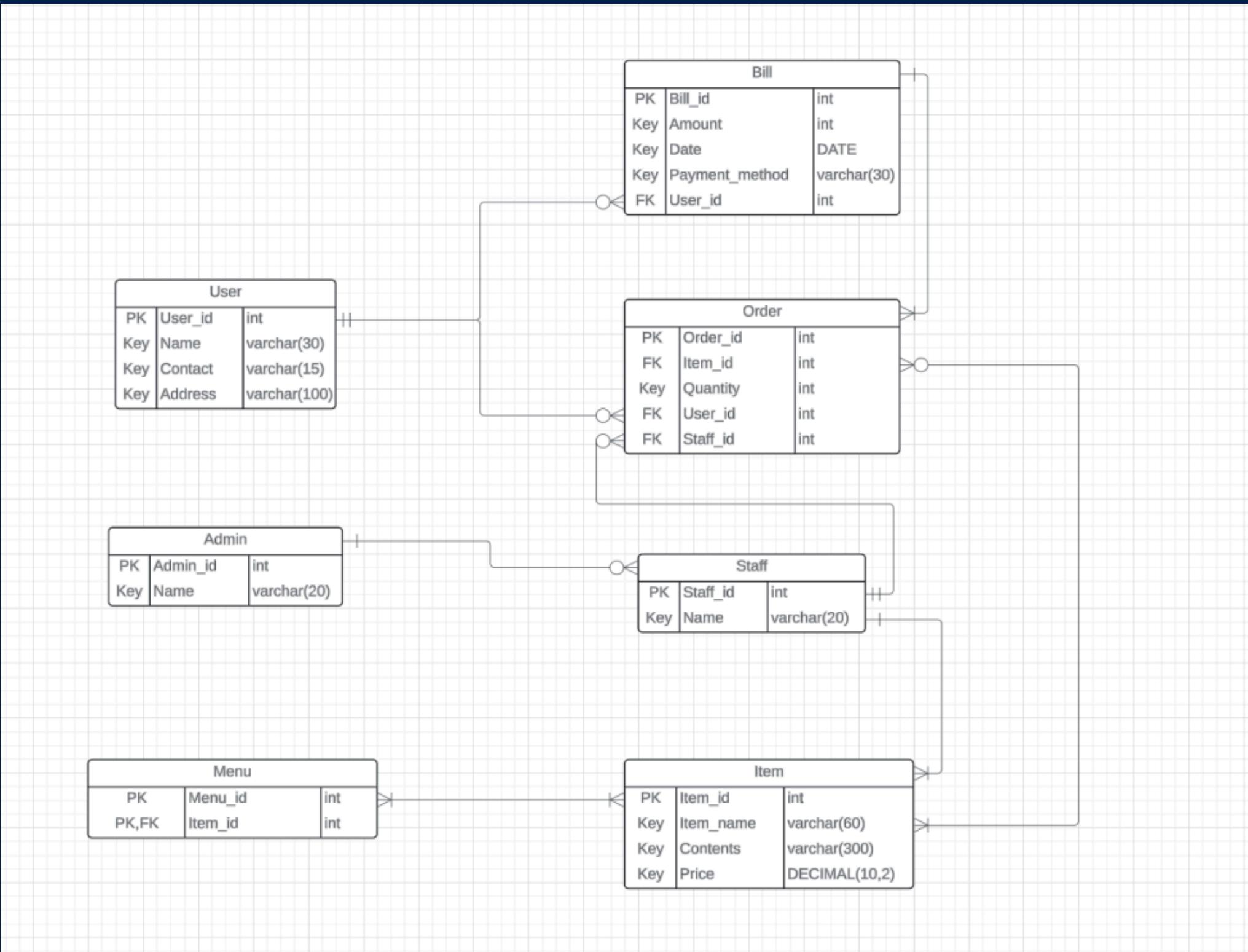
Admin_manages_staff:

```
CREATE TABLE Admin_manages_staff (
    Management_key INT AUTO_INCREMENT PRIMARY KEY,
    Staff_id INT,
    Admin_id INT,
    FOREIGN KEY (Staff_id) REFERENCES Staff(Staff_id),
    FOREIGN KEY (Admin_id) REFERENCES Admin(Admin_id)
);
```

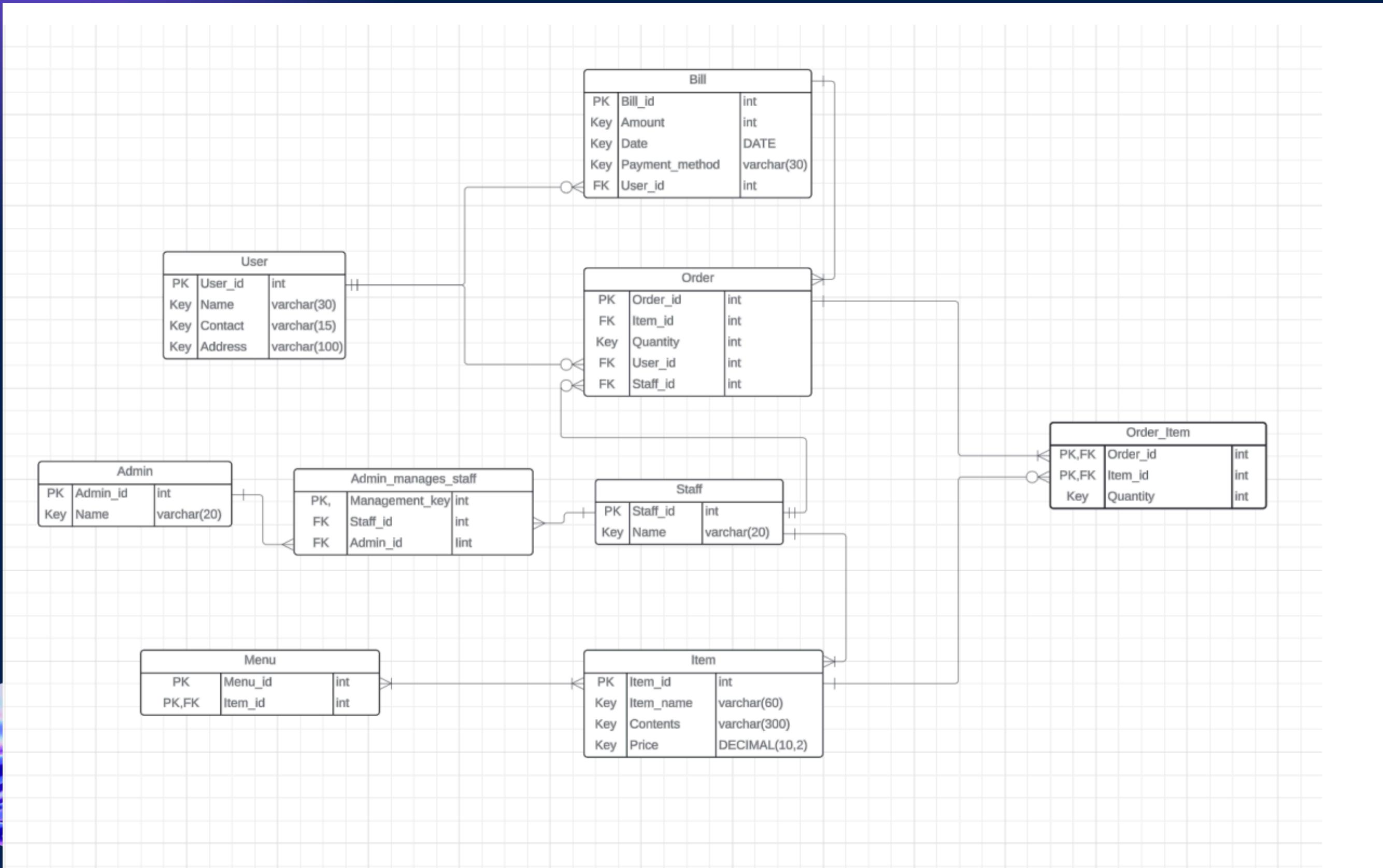
```
MariaDB [canteen_management]> describe Admin_manages_staff;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| Management_key | int(11) | NO | PRI | NULL | auto_increment |
| Staff_id | int(11) | YES | MUL | NULL |
| Admin_id | int(11) | YES | MUL | NULL |
+-----+-----+-----+-----+
3 rows in set (0.023 sec)
```

Normalisation to 3NF/BCNF:

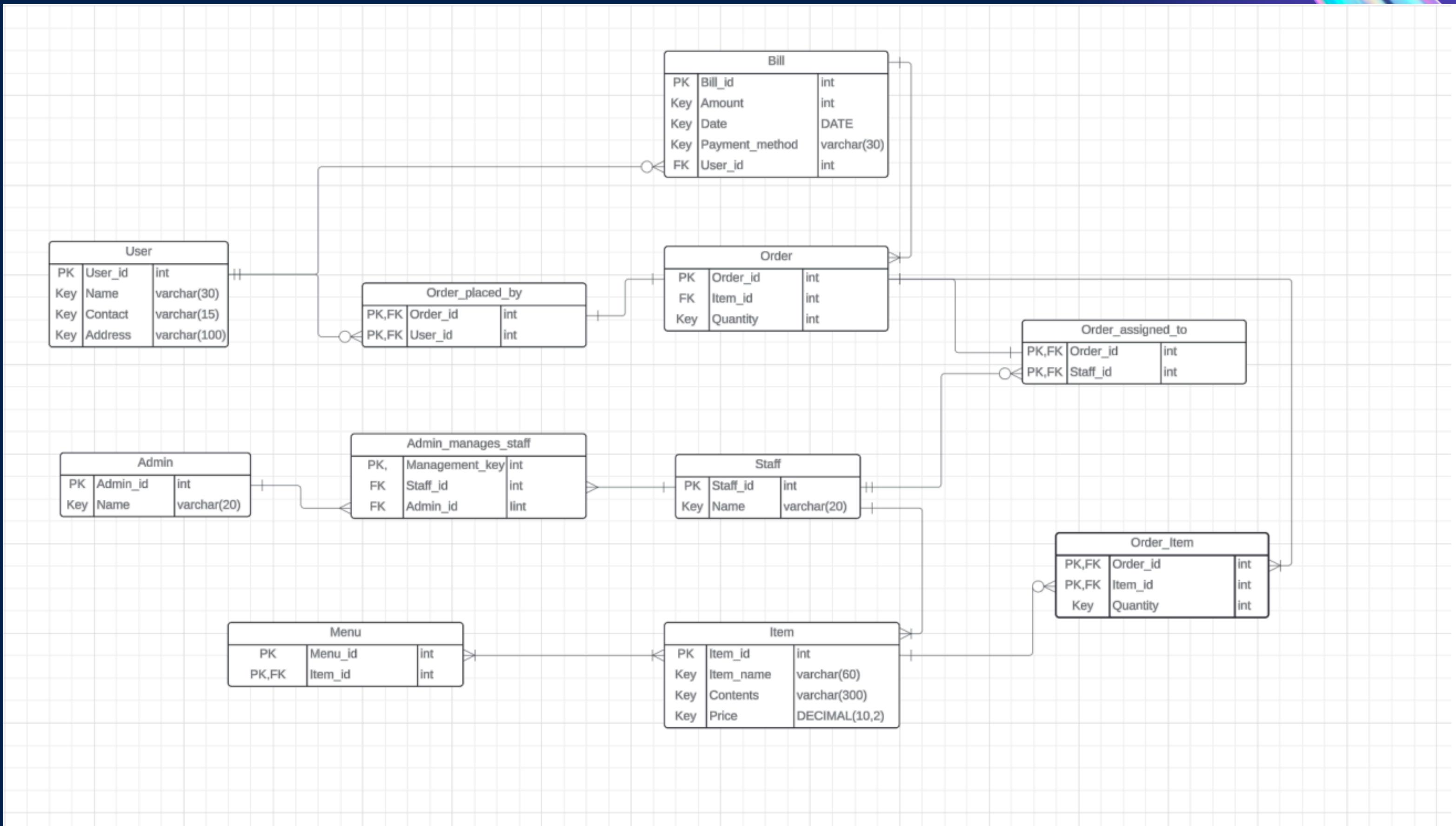
1st Step:



2nd Step:



Final 3NF/BCNF Schema:



Data Queries:

Insert,Update,Delete:

2.Insert a new order item:

```
MariaDB [canteen_management]> INSERT INTO Order_Item (Order_id, Item_id, Quantity)
-> VALUES (241, 4, 2);
Query OK, 1 row affected (0.003 sec)
```

241	4	2
288	11	2
672	28	2
939	32	2
323	37	3
362	40	3
664	36	3
700	20	3
909	30	3

41 rows in set (0.001 sec)

3.Insert a new order:

```
MariaDB [canteen_management]> INSERT INTO `Order` (Order_id,Item_id, Quantity)
-> VALUES (2211,4,2);
Query OK, 1 row affected (0.003 sec)
```

878	33	1
879	31	1
909	30	3
939	32	2
2211	4	2

41 rows in set (0.001 sec)

4.Insert a new item:

```
MariaDB [canteen_management]> INSERT INTO Item (Item_id,Item_name, Contents, Price)
-> VALUES (66,'Samosa Chaat', 'Samosa topped with chutney and spices', 45.75);
Query OK, 1 row affected (0.004 sec)
```

1	66 Samosa Chaat	Samosa topped with chutney and spices	45.75
2	Samosa Pav	Samosa pav is a fusion street food where a samosa is sandwiched between a pav bread roll, typically served with chutneys and sometimes garnished with onions and cilantro.	14.00
4	Samosa Plate	Samosa plate typically consists of crispy triangular pastry filled with spiced potatoes and peas, served alongside tangy tamarind chutney and minty coriander chutney.	24.00

5.Insert a new user:

```
MariaDB [canteen_management]> INSERT INTO User (User_id,Name, Contact, Address)
-> VALUES (44,'Michael Brown', '5678901234', '789 Oak Ave, City');
Query OK, 1 row affected (0.004 sec)
```

45	Jane Smith	555-1234	123 Main St, Anytown USA
39	Labdhni	7620489209	Dunhill, Pali Hill Shop 3, Dr Ambedkar Rd, Khar West
13	Maithili	7620489263	Saki Vihar Rd, Murarji Nagar, Mayur Nagar, Passpoli, Powai, Mumbai
14	manas	7620489264	Sahar Airport Road, Andheri - Kurla Rd, near Mumbai International Airport
44	Michael Brown	5678901234	789 Oak Ave, City
35	Moksh	7620489205	Shop No. 1, Edward Apartment, Off Link Road, Evershine Nagar, Malad West
15	Mrunmayi	7620489265	462, Senapati Bapat Marg, Lower Parel, Mumbai, Maharashtra 400013, India
16	Nishit	7620489266	Plot No.34, 21, MIDC Central Rd, near Akriti Center Point
17	Pavan	7620489267	Oberoi Garden City, International Business Park, Yashodham, Goregaon

6.Delete from order item:

```
MariaDB [canteen_management]> DELETE FROM Order_Item
-> WHERE Order_id = 221 AND Item_id = 4;
Query OK, 0 rows affected (0.004 sec)
```

7.Delete from User:

```
MariaDB [canteen_management]> DELETE FROM User
-> WHERE User_id = 44;
Query OK, 1 row affected (0.003 sec)
```

8.Delete from Item:

```
MariaDB [canteen_management]> DELETE FROM Item
-> WHERE Item_id = 44;
Query OK, 0 rows affected (0.001 sec)
```

9.Delete from Menu:

```
MariaDB [canteen_management]> DELETE FROM Menu
-> WHERE Menu_id = 2211 AND Item_id = 44;
Query OK, 1 row affected (0.003 sec)
```

10.Delete from Order:

```
MariaDB [canteen_management]> DELETE FROM `Order`
-> WHERE Order_id =2211;
Query OK, 1 row affected (0.002 sec)
```

11.Update Bill:

```
MariaDB [canteen_management]> UPDATE Bill
-> SET Payment_method = 'Credit Card'
-> WHERE Bill_id = 2200;
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

12.Update Staff:

```
MariaDB [canteen_management]> UPDATE Staff
-> SET Staff_Name = 'Joginder'
-> WHERE Staff_id = 7891;
Query OK, 1 row affected (0.003 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

13.Update User:

```
MariaDB [canteen_management]> UPDATE User
-> SET Contact = '9876543210'
-> WHERE User_id = 1;
Query OK, 1 row affected (0.003 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

14.Update Item:

```
MariaDB [canteen_management]> UPDATE Item
-> SET Contents = 'Spicy potato patty in bread bun'
-> WHERE Item_id = 1;
Query OK, 1 row affected (0.004 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

15.Update Admin:

```
MariaDB [canteen_management]> UPDATE Admin
-> SET Admin_Name = 'Ranvir'
-> WHERE Admin_id=80037;
Query OK, 1 row affected (0.003 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Aggregate Functions:

6. Retrieve the average quantity of items ordered per order:

```
MariaDB [canteen_management]> SELECT AVG(Quantity) AS Average_Quantity_Per_Order
-> FROM Order_Item;
+-----+
| Average_Quantity_Per_Order |
+-----+
| 1.3750 |
+-----+
1 row in set (0.000 sec)
```

7. List all bills sorted by date in descending order:

```
MariaDB [canteen_management]> SELECT * FROM Bill ORDER BY Date DESC;
+----+----+----+----+----+
| Bill_id | Amount | Date | Payment_method | User_id |
+----+----+----+----+----+
| 2239 | 40 | 2024-04-05 | Cash | 40 |
| 2228 | 28 | 2024-04-05 | Cash | 28 |
| 2227 | 40 | 2024-04-05 | Cash | 28 |
| 2226 | 20 | 2024-04-05 | Cash | 27 |
| 2225 | 20 | 2024-04-05 | Cash | 26 |
| 2224 | 10 | 2024-04-05 | Cash | 25 |
| 2223 | 10 | 2024-04-05 | Cash | 24 |
| 2222 | 25 | 2024-04-05 | Cash | 23 |
| 2221 | 20 | 2024-04-05 | Cash | 22 |
| 2229 | 60 | 2024-04-05 | Cash | 30 |
| 2230 | 20 | 2024-04-05 | Cash | 31 |
| 2238 | 30 | 2024-04-05 | Cash | 39 |
| 2237 | 10 | 2024-04-05 | Cash | 38 |
| 2236 | 80 | 2024-04-05 | Cash | 37 |
| 2235 | 90 | 2024-04-05 | Cash | 36 |
| 2234 | 10 | 2024-04-05 | Cash | 35 |
| 2233 | 20 | 2024-04-05 | Cash | 34 |
| 2232 | 20 | 2024-04-05 | Cash | 33 |
| 2231 | 20 | 2024-04-05 | Cash | 32 |
| 2220 | 30 | 2024-04-05 | Cash | 21 |
| 2219 | 30 | 2024-04-05 | Cash | 20 |
| 2218 | 10 | 2024-04-05 | Cash | 19 |
| 2207 | 20 | 2024-04-05 | Cash | 8 |
| 2206 | 10 | 2024-04-05 | Cash | 7 |
| 2205 | 20 | 2024-04-05 | Cash | 6 |
| 2204 | 10 | 2024-04-05 | Cash | 5 |
| 2203 | 10 | 2024-04-05 | Cash | 4 |
| 2202 | 40 | 2024-04-05 | Cash | 3 |
| 2201 | 8 | 2024-04-05 | Cash | 2 |
| 2200 | 5 | 2024-04-05 | Cash | 1 |
| 2208 | 10 | 2024-04-05 | Cash | 9 |
| 2209 | 20 | 2024-04-05 | Cash | 10 |
| 2217 | 15 | 2024-04-05 | Cash | 18 |
| 2216 | 10 | 2024-04-05 | Cash | 17 |
| 2215 | 20 | 2024-04-05 | Cash | 16 |
| 2214 | 10 | 2024-04-05 | Cash | 15 |
| 2213 | 40 | 2024-04-05 | Cash | 14 |
| 2212 | 30 | 2024-04-05 | Cash | 13 |
| 2211 | 5 | 2024-04-05 | Cash | 12 |
| 2210 | 40 | 2024-04-05 | Cash | 11 |
| 201 | 50 | 2023-04-10 | Cash | 12 |
+----+----+----+----+----+
41 rows in set (0.000 sec)
```

8. Find the total number of orders placed by each user:

```
MariaDB [canteen_management]> SELECT u.User_id, COUNT(o.Order_id) AS Total_Orders_Placed
-> FROM User u
-> LEFT JOIN Order_placed_by opb ON u.User_id = opb.User_id
-> LEFT JOIN `Order` o ON opb.Order_id = o.Order_id
-> GROUP BY u.User_id;
+----+----+
| User_id | Total_Orders_Placed |
+----+----+
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 1 |
| 5 | 1 |
| 6 | 1 |
| 7 | 1 |
| 8 | 1 |
| 9 | 1 |
| 10 | 1 |
| 11 | 1 |
| 12 | 1 |
| 13 | 1 |
| 14 | 1 |
| 15 | 1 |
| 16 | 1 |
| 17 | 1 |
| 18 | 1 |
| 19 | 1 |
| 20 | 1 |
| 21 | 1 |
| 22 | 1 |
| 23 | 1 |
| 24 | 1 |
| 25 | 1 |
| 26 | 1 |
| 27 | 1 |
| 28 | 1 |
| 29 | 1 |
| 30 | 1 |
| 31 | 1 |
| 32 | 1 |
| 33 | 1 |
| 34 | 1 |
| 35 | 1 |
| 36 | 1 |
| 37 | 1 |
| 38 | 1 |
| 39 | 1 |
| 40 | 1 |
| 41 | 1 |
| 42 | 1 |
| 43 | 1 |
| 44 | 1 |
| 45 | 0 |
+----+----+
61 rows in set (0.000 sec)
```

6. Retrieve the average quantity of items ordered per order:

```
MariaDB [canteen_management]> SELECT AVG(Quantity) AS Average_Quantity_Per_Order
-> FROM Order_Item;
+-----+
| Average_Quantity_Per_Order |
+-----+
| 1.3750 |
+-----+
1 row in set (0.000 sec)
```

7. List all bills sorted by date in descending order:

```
MariaDB [canteen_management]> SELECT * FROM Bill ORDER BY Date DESC;
+----+----+----+----+----+
| Bill_id | Amount | Date | Payment_method | User_id |
+----+----+----+----+----+
| 2239 | 40 | 2024-04-05 | Cash | 40 |
| 2228 | 28 | 2024-04-05 | Cash | 28 |
| 2227 | 40 | 2024-04-05 | Cash | 28 |
| 2226 | 20 | 2024-04-05 | Cash | 27 |
| 2225 | 20 | 2024-04-05 | Cash | 26 |
| 2224 | 10 | 2024-04-05 | Cash | 25 |
| 2223 | 10 | 2024-04-05 | Cash | 24 |
| 2222 | 25 | 2024-04-05 | Cash | 23 |
| 2221 | 20 | 2024-04-05 | Cash | 22 |
| 2229 | 60 | 2024-04-05 | Cash | 30 |
| 2230 | 20 | 2024-04-05 | Cash | 31 |
| 2238 | 30 | 2024-04-05 | Cash | 39 |
| 2237 | 10 | 2024-04-05 | Cash | 38 |
| 2236 | 80 | 2024-04-05 | Cash | 37 |
| 2235 | 90 | 2024-04-05 | Cash | 36 |
| 2234 | 10 | 2024-04-05 | Cash | 35 |
| 2233 | 20 | 2024-04-05 | Cash | 34 |
| 2232 | 20 | 2024-04-05 | Cash | 33 |
| 2231 | 20 | 2024-04-05 | Cash | 32 |
| 2230 | 30 | 2024-04-05 | Cash | 31 |
| 2239 | 10 | 2024-04-05 | Cash | 30 |
| 2238 | 20 | 2024-04-05 | Cash | 29 |
| 2237 | 10 | 2024-04-05 | Cash | 28 |
| 2236 | 20 | 2024-04-05 | Cash | 27 |
| 2235 | 50 | 2024-04-05 | Cash | 26 |
| 2234 | 60 | 2024-04-05 | Cash | 25 |
| 2233 | 10 | 2024-04-05 | Cash | 24 |
| 2232 | 20 | 2024-04-05 | Cash | 23 |
| 2231 | 20 | 2024-04-05 | Cash | 22 |
| 2230 | 60 | 2024-04-05 | Cash | 21 |
| 2229 | 30 | 2024-04-05 | Cash | 20 |
| 2228 | 10 | 2024-04-05 | Cash | 19 |
| 2227 | 20 | 2024-04-05 | Cash | 18 |
| 2226 | 10 | 2024-04-05 | Cash | 17 |
| 2225 | 20 | 2024-04-05 | Cash | 16 |
| 2224 | 10 | 2024-04-05 | Cash | 15 |
| 2223 | 20 | 2024-04-05 | Cash | 14 |
| 2222 | 10 | 2024-04-05 | Cash | 13 |
| 2221 | 20 | 2024-04-05 | Cash | 12 |
| 2220 | 50 | 2023-04-10 | Cash | 11 |
| 201 | 50 | 2023-04-10 | Cash | 12 |
+----+----+----+----+----+
41 rows in set (0.000 sec)
```

8. Find the total number of orders placed by each user:

```
MariaDB [canteen_management]> SELECT u.User_id, COUNT(o.Order_id) AS Total_Orders_Placed
-> FROM User u
-> LEFT JOIN Order_placed_by opb ON u.User_id = opb.User_id
-> LEFT JOIN `Order` o ON opb.Order_id = o.Order_id
-> GROUP BY u.User_id;
+----+----+
| User_id | Total_Orders_Placed |
+----+----+
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 1 |
| 5 | 1 |
| 6 | 1 |
| 7 | 1 |
| 8 | 1 |
| 9 | 1 |
| 10 | 1 |
| 11 | 1 |
| 12 | 1 |
| 13 | 1 |
| 14 | 1 |
| 15 | 1 |
| 16 | 1 |
| 17 | 1 |
| 18 | 1 |
| 19 | 1 |
| 20 | 1 |
| 21 | 1 |
| 22 | 1 |
| 23 | 1 |
| 24 | 1 |
| 25 | 1 |
| 26 | 1 |
| 27 | 1 |
| 28 | 1 |
| 29 | 1 |
| 30 | 1 |
| 31 | 1 |
| 32 | 1 |
| 33 | 1 |
| 34 | 1 |
| 35 | 1 |
| 36 | 1 |
| 37 | 1 |
| 38 | 1 |
| 39 | 1 |
| 40 | 1 |
| 41 | 1 |
| 42 | 1 |
| 43 | 1 |
| 44 | 1 |
| 45 | 0 |
+----+----+
61 rows in set (0.002 sec)
```

Nested Queries/Join Queries:

3. Retrieve the names of all users who have not placed any orders yet:

```
MariaDB [canteen_management]> SELECT Name
-> FROM User
-> WHERE User_id NOT IN (
->     SELECT DISTINCT User_id
->     FROM `Order`
-> );
Empty set (0.001 sec)
```

4. Calculate the total revenue generated from all orders placed:

```
MariaDB [canteen_management]> SELECT SUM(oi.Quantity * i.Price) AS Total_Revenue
-> FROM Order_Item oi
-> JOIN Item i ON oi.Item_id = i.Item_id;
+-----+
| Total_Revenue |
+-----+
|    1799.00 |
+-----+
1 row in set (0.001 sec)
```

5. List all bills along with the corresponding user's name and address:

```
MariaDB [canteen_management]> SELECT b.Bill_id, u.Name AS User_Name, u.Address, b.Amount, b.Date, b.Payment_method
-> FROM Bill b
-> JOIN User u ON b.User_id = u.User_id;
+-----+-----+-----+-----+-----+-----+
| Bill_id | User_Name | Address          | Amount | Date       | Payment_method |
+-----+-----+-----+-----+-----+-----+
| 201 | Gaurav   | opp. Domestic Airport, Navpada, Vile Parle East, Vile Parle, Mumbai | 50 | 2023-04-10 | Cash
| 2200 | Aayush   | Apollo Bandar, Colaba, Mumbai | 5 | 2024-04-05 | Cash
| 2201 | Aditi    | Dr E Moses Rd, Gandhi Nagar, Upper Worli, Mumbai | 8 | 2024-04-05 | Cash
| 2202 | Anrut    | Juhu Tarsi Rd, Uditri Tarang Housing Colony, Juhu Tarsi, Juhu, Mumbai | 45 | 2024-04-05 | Cash
| 2203 | Toro     | Sahar Airport Rd, Ashok Nagar, Andheri East, Mumbai | 10 | 2024-04-05 | Cash
| 2204 | Aaditya  | Balraj Sahani Marg, Juhu, Mumbai | 10 | 2024-04-05 | Cash
| 2205 | Aastha   | Sakinaka Junction, Andheri - Kurla Rd, Andheri East, Mumbai | 20 | 2024-04-05 | Cash
| 2206 | Abhi     | Juhu Beach, Juhu, Mumbai, Maharashtra | 10 | 2024-04-05 | Cash
| 2207 | Abhijit  | Opposite Mittal Industrial Estate, Andheri Kurla Rd, Andheri East, Mumbai | 20 | 2024-04-05 | Cash
| 2208 | Achal    | Andheri - Kurla Rd, J B Nagar, Andheri East, Mumbai | 10 | 2024-04-05 | Cash
| 2209 | Anan     | Chhatrapati Shivaji International Airport, IA Project Rd, Navpada | 20 | 2024-04-05 | Cash
| 2210 | Dhruv    | Apollo Bandar, Colaba, Mumbai, Maharashtra 400001, India | 40 | 2024-04-05 | Cash
| 2211 | Gaurav   | opp. Domestic Airport, Navpada, Vile Parle East, Vile Parle, Mumbai | 5 | 2024-04-05 | Cash
| 2212 | Maithili | Saki Vihar Rd, Murarji Nagar, Mayur Nagar, Powai, Mumbai | 38 | 2024-04-05 | Cash
| 2213 | manas   | Sahar Airport Road, Andheri - Kurla Rd, near Mumbai International Airport | 40 | 2024-04-05 | Cash
| 2214 | Mrunmayi | 462, Senapati Bapat Marg, Lower Parel, Mumbai, Maharashtra 400013, India | 10 | 2024-04-05 | Cash
| 2215 | Nishit   | Plot No.34, 21, MIDC Central Rd, near Akruti Center Point | 20 | 2024-04-05 | Cash
| 2216 | Pavan    | Oberoi Garden City, International Business Park, Yashodham, Goregaon | 10 | 2024-04-05 | Cash
| 2217 | Purvi   | Nariman Point, Mumbai, Maharashtra 400021, India | 15 | 2024-04-05 | Cash
| 2218 | Raj      | X - 22, MIDC Central Rd, Hanuman Nagar | 10 | 2024-04-05 | Cash
| 2219 | Riddhi   | Cambridge School, Karishma Chambers, Off, Sahar Rd | 30 | 2024-04-05 | Cash
| 2220 | Sachin   | 19A, Sunshine Building, Opp: Domino's Pizza, 1st Cross Road | 30 | 2024-04-05 | Cash
| 2221 | Sahil    | 333, Dr Ambedkar Rd, Pali Pathar, Khar West | 20 | 2024-04-05 | Cash
| 2222 | Sarvesh  | 14/A, SV Rd, next to Khar Masjid, Khar, Khar Danda | 25 | 2024-04-05 | Cash
| 2223 | Shon     | 6, 1st floor, Puran Niwas Bldg, Opp Radio C | 10 | 2024-04-05 | Cash
| 2224 | Shravani | Saagar Fortune, Ground Floor, First Floor, Water Field Road | 10 | 2024-04-05 | Cash
| 2225 | Shubhan  | 505, Mastermind-1, Royal Palm Estate, , Aarey Colony | 20 | 2024-04-05 | Cash
| 2226 | Sumit    | India House No.2, Near Indian Bank Pedder Road | 20 | 2024-04-05 | Cash
| 2227 | Tamay   | Unit 39, Madhu Corporate Park, Pandurang Budhkar Marg, Worli, Mumbai | 40 | 2024-04-05 | Cash
| 2228 | Vansh   | Shop No. 7, 15th Rd, Kamal Kunj, Bandra West, Mumbai | 28 | 2024-04-05 | Cash
| 2229 | Yash    | P-57, 23rd Rd, Bandra West, Mumbai, Maharashtra 400050, India | 60 | 2024-04-05 | Cash
| 2230 | Vedika  | Bandra Kurla Complex, Grand Hyatt Shopping Plaza | 20 | 2024-04-05 | Cash
| 2231 | Vaibhavi | 201, Monterossa, 2nd Floor, 90 Feet Road, Parel Nagar | 20 | 2024-04-05 | Cash
| 2232 | Ruchi   | Marine Mansion, Shop No.110, 1st Marine Street, Anandilal Podar Marg | 20 | 2024-04-05 | Cash
| 2233 | Anish   | Shop No 18/A Khandene Shopping Centre Lokhandwala | 20 | 2024-04-05 | Cash
| 2234 | Moksh   | Shop No. 1, Edward Apartment, Off Link Road, Evershine Nagar, Malad West | 10 | 2024-04-05 | Cash
| 2235 | Soham   | Shop No 4, Parvati Bhawan Opp Dr Sanan Clinic, GD Ambedkar Marg | 90 | 2024-04-05 | Cash
| 2236 | Chaitali | Shop No.2 Jai Ambe garage, K.N.G Marg, Nr Bank of India, Chembur Naka | 80 | 2024-04-05 | Cash
| 2237 | Pranjali | Shop No. 3, Maaz Centre, Opposite The Shop Pall Naik | 10 | 2024-04-05 | Cash
| 2238 | Labdhil | Dunhill, Pali Hill Shop 3, Dr Ambedkar Rd, Khar West | 30 | 2024-04-05 | Cash
| 2239 | Yuvraj  | Rustam & Co, Arsimala Building, 3rd Ground floor Wodehouse Rd | 40 | 2024-04-05 | Cash
+-----+
41 rows in set (0.000 sec)
```

11. Retrieve the names of all users who have placed orders for items containing 'coffee' in the contents:

```
MariaDB [canteen_management]> SELECT DISTINCT u.Name
-> FROM User u
-> JOIN Order_placed_by opb ON u.User_id = opb.User_id
-> JOIN 'Order' o ON opb.Order_id = o.Order_id
-> JOIN Order_Item oi ON o.Order_id = oi.Order_id
-> JOIN Item i ON oi.Item_id = i.Item_id
-> WHERE i.Contents LIKE '%coffee%';
+-----+
| Name |
+-----+
| Pranjali |
+-----+
1 row in set (0.001 sec)
```

12. List all orders placed by users who have '10' in their contact number:

```
MariaDB [canteen_management]> SELECT o.Order_id, u.Name AS User_Name, u.Contact
-> FROM `Order` o
-> JOIN Order_placed_by opb ON o.Order_id = opb.Order_id
-> JOIN User u ON opb.User_id = u.User_id
-> WHERE u.Contact LIKE '%10';
+-----+-----+-----+
| Order_id | User_Name | Contact |
+-----+-----+-----+
|    362 | Yuvraj   | 7620489210 |
+-----+-----+-----+
1 row in set (0.000 sec)
```

13. Retrieve the names of users who have placed orders for items with a price higher than the average price of all items:

```
MariaDB [canteen_management]> SELECT DISTINCT u.Name
-> FROM User u
-> JOIN Order_placed_by opb ON u.User_id = opb.User_id
-> JOIN 'Order' o ON opb.Order_id = o.Order_id
-> JOIN Order_Item oi ON o.Order_id = oi.Order_id
-> JOIN Item i ON oi.Item_id = i.Item_id
-> WHERE i.Price > (SELECT AVG(Price) FROM Item);
+-----+
| Name |
+-----+
| Maithili |
| manas |
| Mrunmayi |
| Nishit |
| Pavan |
| Purvi |
| Raj |
| Riddhi |
| Sachin |
| Sahil |
| Sarvesh |
| Shravani |
| Sumit |
| Vansh |
| Vedika |
| Ruchi |
| Anish |
| Moksh |
| Soham |
+-----+
19 rows in set (0.001 sec)
```

Triggers:

```
MariaDB [canteen_management]> SELECT *  
-> FROM information_schema.TRIGGERS  
-> WHERE TRIGGER_SCHEMA = 'canteen_management';  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| TRIGGER_CATALOG | TRIGGER_SCHEMA | TRIGGER_NAME | EVENT_MANIPULATION | EVENT_OBJECT_CATALOG | EVENT_OBJECT_SCHEMA | EVENT_OBJECT_TABLE | ACTION_ORDER | ACTION_CONDITION | ACTION_STATEMENT |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| ACTION_ORIENTATION | ACTION_TIMING | ACTION_REFERENCE_OLD_TABLE | ACTION_REFERENCE_NEW_TABLE | ACTION_REFERENCE_OLD_ROW | ACTION_REFERENCE_NEW_ROW | CREATED | SQL_MODE  
| DEFINER | CHARACTER_SET_CLIENT | COLLATION_CONNECTION | DATABASE_COLLATION |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| def | canteen_management | PreventNegativePrice | INSERT | def | canteen_management | item | 1 | NULL | BEGIN  
IF NEW.Price < 0 THEN  
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Price cannot be negative';  
END IF;  
END  
  
| ROW | BEFORE | NULL | NULL | OLD | NEW | 2024-05-16 07:56:16.19 | STR  
ICT_TRANS_TABLES,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION | root@localhost | utf8mb4 | utf8mb4_general_ci | utf8mb4_general_ci |  
| def | canteen_management | update_item_price | UPDATE | def | canteen_management | item | 1 | NULL | BEGIN  
IF OLD.Price <> NEW.Price THEN  
    UPDATE Order_Item  
    SET Quantity =  
        (SELECT Quantity  
        FROM `Order`  
        WHERE `Order`.Order_id = Order_Item.Order_id AND `Order`.Item_id = NEW.Item_id  
    )  
    WHERE Item_id = NEW.Item_id;  
END IF;  
END  
  
| ROW | AFTER | NULL | NULL | OLD | NEW | 2024-05-16 07:40:12.64 | STRICT_TRANS_TABLES,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_  
CREATE_USER,NO_ENGINE_SUBSTITUTION | root@localhost | utf8mb4 | utf8mb4_general_ci | utf8mb4_general_ci |  
| def | canteen_management | prevent_menu_item_delete | DELETE | def | canteen_management | menu | 1 | NULL | BEGIN  
IF EXISTS (SELECT 1 FROM `Order` WHERE Item_id = OLD.Item_id) THEN  
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Cannot delete menu items with existing orders.';  
END IF;  
END  
  
| ROW | BEFORE | NULL | NULL | OLD | NEW | 2024-05-16 07:44:14.06 | STRICT_TRANS_TABLES,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION | root@localhost | utf8mb4 |  
| def | canteen_management | UpdateOrderTotalAfterInsert | INSERT | def | canteen_management | order_item | 1 | NULL | BEGIN  
CALL UpdateOrderTotal(NEW.Order_id);  
END  
  
| ROW | AFTER | NULL | NULL | OLD | NEW | 2024-05-16 08:14:07.33 | STRICT_TRANS_TABLES,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION | root@localhost | utf8mb4 |  
| def | canteen_management | prevent_order_item_pk_update | UPDATE | def | canteen_management | order_item | 1 | NULL | BEGIN  
IF OLD.Order_id <> NEW.Order_id OR OLD.Item_id <> NEW.Item_id THEN  
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Cannot update primary key columns.';  
END IF;
```

Triggers :

Procedures:-

```
MariaDB [canteen_management]> Show Procedure STATUS where Db = "canteen_management";
+-----+-----+-----+-----+-----+-----+-----+
| Db          | Name           | Type      | Definer      | Modified       | Created       | Sec
| urity_type | Comment        | character_set_client | collation_connection | Database Collation |
+-----+-----+-----+-----+-----+-----+-----+
| canteen_management | CalculateTotalBill | PROCEDURE | root@localhost | 2024-05-16 07:50:12 | 2024-05-16 07:50:12 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | GetOrderDetails  | PROCEDURE | root@localhost | 2024-05-16 07:49:00 | 2024-05-16 07:49:00 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | GetStaffDetails  | PROCEDURE | root@localhost | 2024-05-16 07:47:03 | 2024-05-16 07:47:03 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | GetStaffOrders   | PROCEDURE | root@localhost | 2024-05-16 07:49:41 | 2024-05-16 07:49:41 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | Insert_Order     | PROCEDURE | root@localhost | 2024-04-18 13:25:58 | 2024-04-18 13:25:58 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | PlaceOrder      | PROCEDURE | root@localhost | 2024-05-16 07:59:23 | 2024-05-16 07:59:23 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | UpdateItemPrice | PROCEDURE | root@localhost | 2024-05-16 07:48:25 | 2024-05-16 07:48:25 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
| canteen_management | UpdateOrderTotal | PROCEDURE | root@localhost | 2024-05-16 08:13:41 | 2024-05-16 08:13:41 | DEF
| INER          | utf8mb4          |           | utf8mb4_general_ci | utf8mb4_general_ci |           | 
+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.025 sec)
```

Visualisation :

Login

Username

Password

LOGIN

Canteen Billing System

Order ID:	<input type="text"/>	Menu ID:	<input type="text"/>
User ID:	<input type="text"/>	Item ID:	<input type="text"/>
Insert Order_placed_by		Insert Menu	
Admin ID:	<input type="text"/>	Order ID:	<input type="text"/>
Admin Name:	<input type="text"/>	Item ID:	<input type="text"/>
Insert Admin		Insert Order	
Management Key:	<input type="text"/>	Staff ID:	<input type="text"/>
Staff ID:	<input type="text"/>	Staff Name:	<input type="text"/>
Admin ID:	<input type="text"/>	Insert Staff	
Insert Admin Manages Staff		User ID:	<input type="text"/>
Bill ID:	<input type="text"/>	Name:	<input type="text"/>
Amount:	<input type="text"/>	Contact:	<input type="text"/>
Date (YYYY-MM-DD):	<input type="text"/>	Address:	<input type="text"/>
Payment Method:	<input type="text"/>	Insert User	
User ID:	<input type="text"/>	Insert Bill	
Order ID:	<input type="text"/>	Order ID:	<input type="text"/>
Staff ID:	<input type="text"/>	Staff ID:	<input type="text"/>
Assign Order to Staff		Insert Item	
Item ID:	<input type="text"/>	Order ID:	<input type="text"/>
Item Name:	<input type="text"/>	Item ID:	<input type="text"/>
Contents:	<input type="text"/>	Quantity:	<input type="text"/>
Price:	<input type="text"/>		
Insert Item			
Order ID:	<input type="text"/>		
Item ID:	<input type="text"/>		
Quantity:	<input type="text"/>		

Report Generation:

Canteen Management System Report

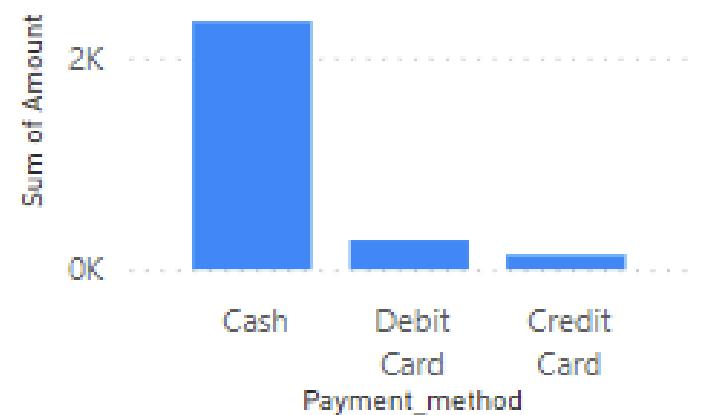
2750

Sum of Amount

77

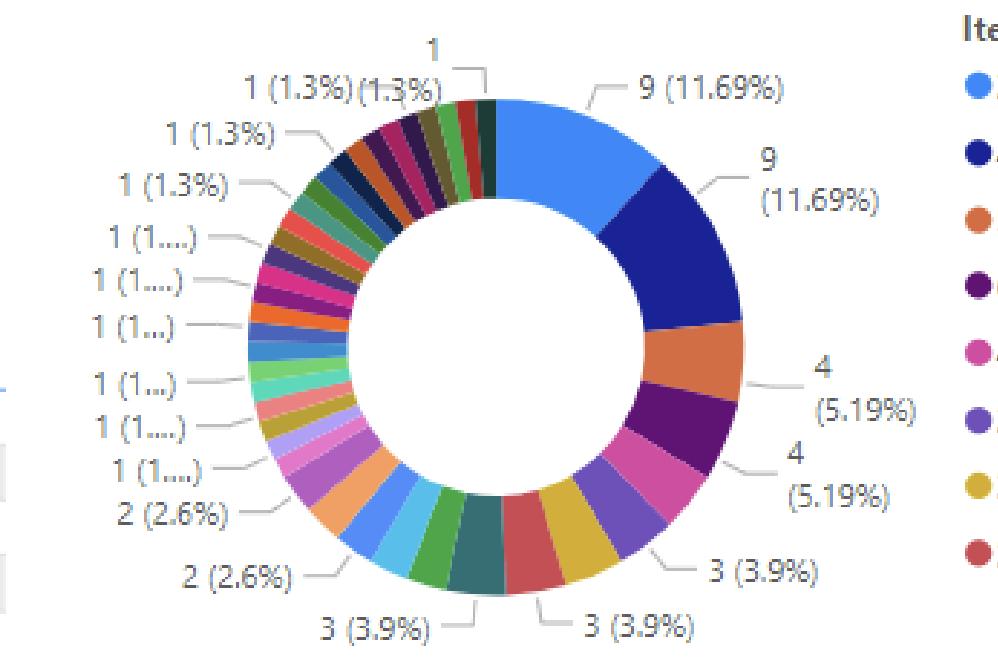
Sum of Quantity

Sum of Amount by Payment_method

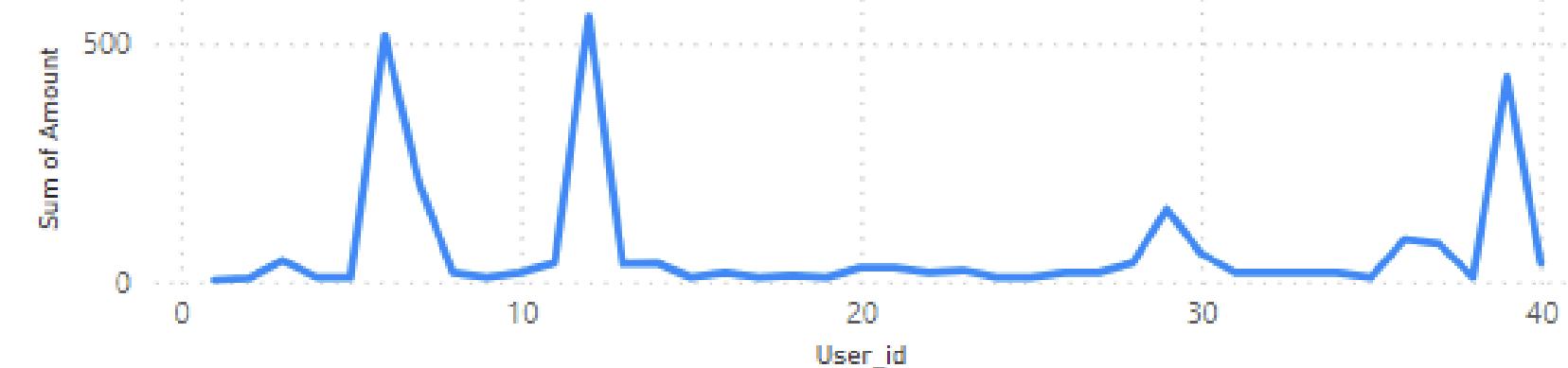


Payment_method	Staff_id	Staff_Name
Cash	25	Aayush
Credit Card	39	Raju
Debit Card	69	yuvraj
	256	anam
	7891	Arun
	7892	Kishor

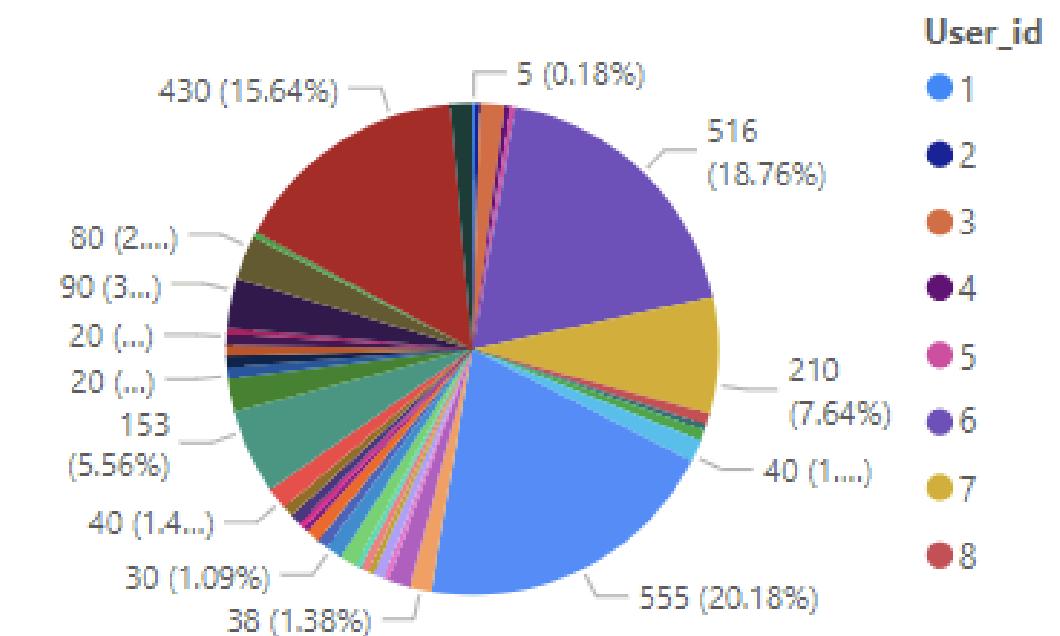
Sum of Quantity by Item_id

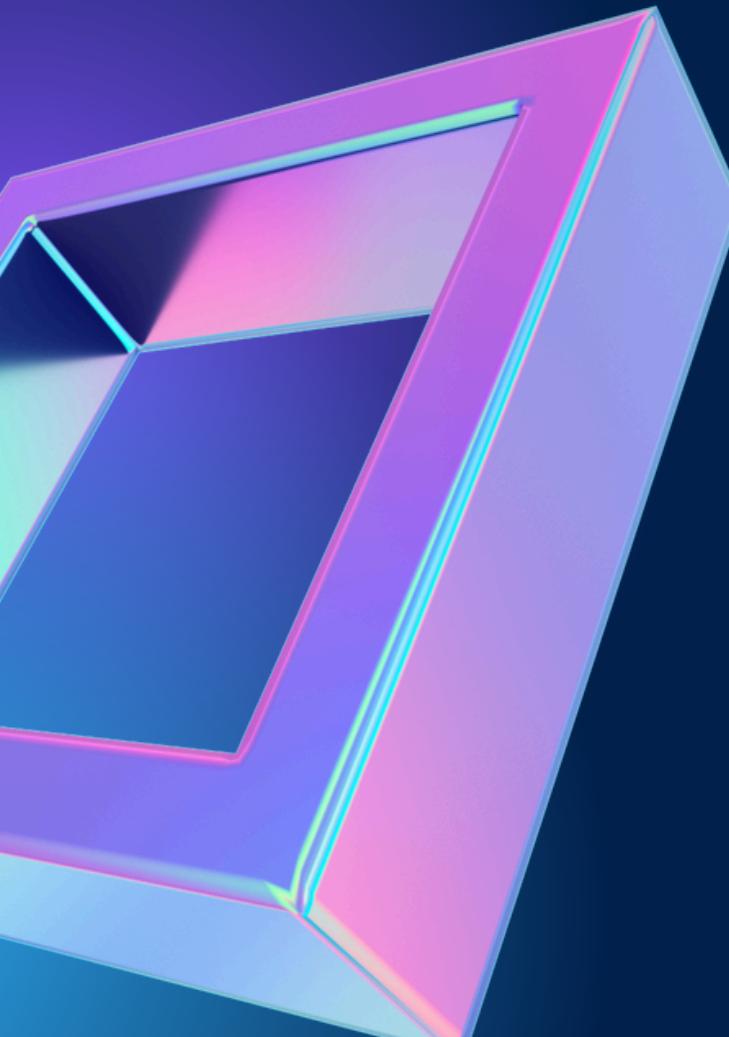


Sum of Amount by User_id



Sum of Amount by User_id





Thank You