**Schema Breakdown:**

1. **Admin Table**
   * AdminID (Primary Key)
   * Name
   * Email
   * Password
2. **User Table**
   * UserID (Primary Key)
   * Name
   * Email
   * Password
   * Phone
3. **Address Table** *(Snowflake for User Table)*
   * AddressID (Primary Key)
   * UserID (Foreign Key referencing User Table)
   * FullAddress
   * CityCorporation
   * Upazila
   * PostalCode
4. **Orders Table**
   * OrderID (Primary Key)
   * UserID (Foreign Key referencing User Table)
   * TotalAmount
   * OrderDate
   * Status
   * PaymentID (Foreign Key referencing Payment Table)
5. **Payment Table** *(Snowflake for Orders Table)*
   * PaymentID (Primary Key)
   * OrderID (Foreign Key referencing Orders Table)
   * PaymentMethod
   * TransactionID
   * AmountPaid
6. **Cart Table**
   * CartID (Primary Key)
   * UserID (Foreign Key referencing User Table)
7. **Cart\_Items Table** *(Snowflake for Cart Table)*
   * CartItemID (Primary Key)
   * CartID (Foreign Key referencing Cart Table)
   * ProductID (Foreign Key referencing Product Table)
   * Quantity
8. **Product Table**
   * ProductID (Primary Key)
   * Name
   * Price
   * CategoryID (Foreign Key referencing Category Table)
   * Description
   * stockQuantity
   * IsActive
9. **Category Table** *(Snowflake for Product Table)*
   * CategoryID (Primary Key)
   * CategoryName
10. **ProductAudit *(Tracks Changes by Admin)***
    * AuditID (Primary Key)
    * AdminID (FK referencing Admin Table)
    * ProductID (FK referencing Product Table)
    * ChangeType *(‘Added’, ‘Updated’, ‘Removed’)*
    * ChangeDetails (*JSON format for details like price change, description update, etc.)*
    * Timestamp
11. **Delivery Table**
    * DeliveryID (Primary Key)
    * OrderID (Foreign Key referencing Orders Table)
    * DeliveryStatus
    * RiderrID (Foreign Key referencing Rider Table)
    * estimatedDeliveryDate
    * ActualDeliveryDate
    * TrackingNumber
12. **Rider Table** *(Snowflake for Delivery Table)*
    * RiderID (Primary Key)
    * RiderName
    * RiderEmail
    * ContactNumber
    * MaxDeliveries (4)
    * ActiveStatus (1 for available, 0 for not taking orders)
13. **RiderPrefferedArea Table** *(Snowflake for Delivery Table)*
    * RiderID (Foreign Key)
    * CityCorporation
    * Upazila (can choose upto 3)

**1. GiftCard Table**

* GiftCardID (Primary Key)
* SenderUserID (FK referencing User Table)
* RecipientEmail *(Who will receive the card)*
* GiftAmount *(Fixed one-time balance)*
* UsedStatus *(Boolean: 0 = Not Used, 1 = Used)*
* PersonalNote
* GeneratedAt *(Timestamp when the card was created)*
* ExpirationDate *(Optional)*

**2. GiftCardTransaction Table**

*(Only one transaction is allowed per Gift Card)*

* TransactionID (Primary Key)
* GiftCardID (FK referencing GiftCard Table)
* OrderID (FK referencing Orders Table)
* AmountUsed
* TransactionDate

**3. FirstOrderDiscount**

* UserID (Primary Key, FK referencing User Table)
* IsDiscountUsed *(Boolean: 0 = Not Used, 1 = Used)*
* DiscountAmount *(Stores 10% of their first order total)*
* AppliedOnOrderID *(FK referencing Orders Table, if used)*

## **Step 1: User Signup (Account Creation)**

### ****How It Works:****

1. A new user **signs up** by providing:
   * Name, Email, Password, Phone, and Address.
2. The system **inserts** this data into the **User Table**.
3. A corresponding **Address ID** is generated and stored in the **Address Table**.
4. A **record** is added in the **FirstOrderDiscount Table** with:
   * IsDiscountUsed = 0 (eligible for discount).
5. User logs in and can now **browse products**.

### ****Database Updates:****

* **User Table:** New entry for the user.
* **Address Table:** Stores the user’s address.
* **FirstOrderDiscount Table:** Tracks first-order discount eligibility.

## **Step 2: Admin Manages Products (Add, Update, Remove)**

### ****How It Works:****

1. **Adding Products:**
   * The admin **adds a new product** with Name, Description, Price, Stock, and Category.
   * Product details are inserted into the **Product Table**.
   * A log is created in the **ProductAudit Table** (ChangeType = ‘Added’).
2. **Updating Products:**
   * Admin **updates** product details (e.g., price, stock).
   * The **Product Table** is updated.
   * The old value is logged in **ProductAudit Table** (ChangeType = ‘Updated’).
3. **Removing Products:**
   * Instead of deleting, IsActive = 0 is updated in the **Product Table**.
   * Logs removal in **ProductAudit Table** (ChangeType = ‘Removed’).

### ****Database Updates:****

* **Product Table:** Stores active products.
* **ProductAudit Table:** Tracks all changes made by admins.

## **Step 3: User Adds Items to Cart**

### ****How It Works:****

1. User selects products and adds them to their cart.
2. A **CartID** is assigned if the user does not have an existing cart.
3. The **Cart\_Items Table** records:
   * CartID
   * ProductID
   * Quantity
4. Stock levels are **not updated** yet (only when order is placed).

### ****Database Updates:****

* **Cart Table:** Stores user’s active cart.
* **Cart\_Items Table:** Stores products added to the cart.

## **Step 4: User Places an Order**

### ****How It Works:****

1. The user proceeds to checkout.
2. The system **checks if the user qualifies** for a first-order discount.
   * If IsDiscountUsed == 0, **applies 10% off**.
   * The system updates IsDiscountUsed = 1 in **FirstOrderDiscount Table**.
3. If the user **applies a Gift Card**, the system:
   * **Checks if it's used before** (UsedStatus == 0).
   * Deducts the gift card amount.
   * Updates UsedStatus = 1 in **GiftCard Table**.
4. The **final order amount** is calculated.
5. The system creates a new **OrderID** in **Orders Table**.
6. The **Payment Table** records:
   * Payment Method (Card, Gift Card, Cash, etc.).
   * Payment Status.
7. The ordered products **reduce stock** in the **Product Table**.

### ****Database Updates:****

* **Orders Table:** New order created.
* **FirstOrderDiscount Table:** IsDiscountUsed = 1 if discount applied.
* **GiftCard Table:** UsedStatus = 1 if used.
* **GiftCardTransaction Table:** Logs gift card use.
* **Payment Table:** Stores payment details.
* **Product Table:** Updates stock for ordered items.

## **Step 5: Delivery System & Order Tracking**

### ****How It Works:****

1. A **Courier is assigned** from the **Courier Table**.
2. A new **DeliveryID** is created in **Delivery Table** with:
   * OrderID
   * DeliveryStatus = ‘Pending’
   * TrackingNumber
   * EstimatedDeliveryDate
3. The **Admin updates** the order:
   * When shipped: DeliveryStatus = 'Shipped'
   * When delivered: DeliveryStatus = 'Delivered', and ActualDeliveryDate is recorded.

### ****Database Updates:****

* **Delivery Table:** Tracks the status of the order.
* **Courier Table:** Links the order to a courier.

## **Step 6: Order Completion & Review**

### ****How It Works:****

1. Once delivered, the user can **leave a review** for products.
2. The **Admin can analyze** sales, update inventory, and track order history.

### ****Final Database Updates:****

* **Orders Table:** Final status updates.
* **Product Table:** Stock adjustments.
* **Delivery Table:** Marks order as delivered.

## **Summary of Key Database Tables & Functions**

| **Table** | **Purpose** | **Key Updates** |
| --- | --- | --- |
| **User** | Stores user info | New user added |
| **Address** | Stores addresses | Links with users |
| **FirstOrderDiscount** | Tracks discount eligibility | Updated after first purchase |
| **Product** | Stores products | Updated when stock changes |
| **ProductAudit** | Tracks admin product changes | Logs add, update, remove actions |
| **Cart** | Stores user's active cart | Items added/removed |
| **Cart\_Items** | Tracks cart contents | Products & quantity stored |
| **Orders** | Stores order details | New entry when order placed |
| **Payment** | Stores transaction details | Updated after payment |
| **GiftCard** | Stores gift card data | Marks used after one-time use |
| **GiftCardTransaction** | Logs gift card usage | Tracks deducted amount |
| **Delivery** | Tracks order delivery | Updates delivery status |
| **Courier** | Stores courier details | Links to delivery |

#### **🔹 Rider Table (Stores Rider Info)**

| **Column** | **Description** |
| --- | --- |
| RiderID (PK) | Unique ID for each rider |
| Name | Rider’s full name |
| Email | Rider’s login email |
| Password | Hashed password |
| Phone | Contact number |
| VehicleType | Type of vehicle (Bike, Cycle, Car) |
| MaxDeliveries | Number of orders a rider can take at once |
| ActiveStatus | 1 = Available, 0 = Not Taking Orders |

#### **🔹 RiderPreferredArea Table (Links Riders to Areas)**

| **Column** | **Description** |
| --- | --- |
| RiderID (FK) | Links to Rider Table |
| CityCorporation | City Corporation name (e.g., Dhaka North) |
| Upazila | Upazila name (Max 3 per rider) |