**Online Fashion Retail Database Management System**

**Group 6**

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**Project: GitHub Link**

[https://github.com/VenkataTadikonda/DMDD Group6](https://github.com/VenkataTadikonda/DMDD-Group6)

**Business Problems Addressed by the Database:**

1. Customer Management: Track customer information and interactions, enabling personalized experiences and communication.

2. Order Processing: Manage the lifecycle of customer orders, from creation to fulfillment, including handling of shopping carts and order details.

3. Product and Inventory Management: Maintain a catalog of products, along with inventory tracking to manage stock levels.

4. Employee and Role Management: Keep records of employees and their roles within the company, facilitating access control and task assignment.

5. Marketing Campaigns: Plan and execute marketing campaigns, targeting specific customer segments and evaluating the campaign's effectiveness.

6. Payment Processing: Process payments for orders, keeping track of various payment methods and transaction statuses.

7. Shipping Logistics: Manage the shipping details for orders, including tracking and updating shipping statuses.

**Entities and Relationships:**

1. **Customer**

Relationships: Has a one-to-one relationship with Cart. Has a one-to-many relationship with Order. Has a one-to-many relationship with Review.

Design Decisions: Each customer can have only one cart and consists of many products, can place multiple orders, and can submit multiple reviews for different products.

1. **Cart**

Relationships: Linked to Customers with a one-to-one relationship. Contains multiple Product items, but the relationship is abstracted without a CartItem entity.

Design Decisions: Decided against using CartItem, opting for a potentially less complex but less flexible design. This design simplifies the model but may limit the detailed tracking of individual cart items.

1. **Product**

Relationships: Has a many-to-one relationship with Category. Has a one-to-many relationship with Inventory. Products are linked to OrderDetails and Review.

Design Decisions: Each product is associated with a single category but can exist in multiple inventory records and can be part of multiple orders and reviews.

1. **Order**

Relationships: Has a one-to-many relationship with OrderDetails. Has a one-to-one relationship with Payment and Shipping.

Design Decisions: Each order is considered a single transaction with a unique payment and shipping detail, which simplifies transaction management.

1. **OrderDetails**

Relationships: Linked to Order with a many-to-one relationship. Linked to Product with a many-to-one relationship.

Design Decisions: Captures the details of each product within an order, allowing for multiple products per order while maintaining detailed records for each product ordered.

1. **Inventory**

Relationships: Has a many-to-one relationship with Product.

Design Decisions: Assumes a single inventory record per product variant, which may include different sizes or colors.mes a single inventory record per product variant, which may include different sizes or colors.

1. **Review**

Relationships: Linked to Customers with many-to-one relationships and with products its one-to-many.

Design Decisions: Allows customers to leave reviews on products, facilitating customer feedback and product quality monitoring.

1. **Employee**

Relationships: Has a one-to-many relationship with Marketing.

Design Decisions: Employees are responsible for multiple marketing campaigns, reflecting the structure of the marketing department and responsibilities.

1. **Marketing**

Relationships: Linked to Employee with a many-to-one relationship.

Design Decisions: Each marketing campaign is managed by a single employee, which simplifies the tracking of campaign responsibility.

1. **Payment**

Relationships: Has a one-to-one relationship with Order.

Design Decisions: Each order has a single payment record for simplicity and clear financial tracking.

1. **Shipping**

Relationships: Linked to Payment with a one-to-one relationship.

Design Decisions: Assumes each order results in a single shipment to streamline logistics and shipping management.

1. **Category**

Relationships: Linked to Product with a one-to-many relationship.

Design Decisions: Allows categorization of products for better organization and searchability within the store.

**Key Design Decisions:**

Opted not to use a CartItem entity to represent individual items within a cart, favoring a simpler but less detailed representation of cart contents.

Assumed a direct relationship between Inventory and Product, indicating that inventory tracks variants of products rather than individual stock items.

Decided on a one-to-one relationship between Order and Payment, and between Order and Shipping, to simplify the transaction process.

Allowed for multiple reviews per customer, reflecting the importance of customer feedback in e-commerce.

These decisions and relationships set the groundwork for how data is structured and flows within the Online Fashion Retail system. Each decision should be continually reviewed to ensure it aligns with business requirements and provides the necessary functionality for users of the system.