Database Management System Project (Online Retail Store)

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Scope

This project is a replica of a famous Online Retail Store. The project consists of an online store's database called "ApnaStore" and a set of queries to retrieve meaningful information from it. It consists of an ER diagram representing the relationships between all the different stakeholders/entities involved. The ER diagram has then been converted into a Relational Schema, which paved the way for making the actual database. In this project, we have used MySQL WorkBench to create the database and execute queries on it.

Objectives

We can efficiently store the data about the **customers** who log in to our website through this project, including the details of the products they keep in their **shopping carts**, **payment** details, and personal information. We can also store the data of the varied types of **products** belonging to different **categories**. For every successful payment, the items from the customer's shopping cart are automatically removed from the database. We can also store the information of the different **employees** responsible for **managing** the various categories of products available in the store.

Stakeholders

1. Customers/Users: An application catering to the customer needs for buying products from the Online Retail Store has been developed. Consumers can retrieve the details of various products within a category and also check their order details and transaction summary from the database.

2. Employees of the store: Employees of the store can query to extract various information like product availability, average sales from each category of items, and various transaction details of the consumers. It will be helpful for an employee to know details of customers with some additional requirements, or to know the availability of products in the store, etc.

3. Online Payment Portals: Online payment Gateways of various banks can have a stake over the payment of various goods purchased by the consumers. This way consumers can directly find an advantage of ordering and paying online without the hassle of Cash payment.

4. Offline retail Stores: People who run their offline stores can make their shop business online and the database is useful to handle the consumer's data and execute various queries on a single platform without keeping any paper records.

5. Delivery Services: Home Delivery/ courier service providers can find their role with this application as the ordered items can be delivered with the help of these companies.

- **Entities and their Attributes**

Entities	List of Attributes	Primary Key(Not Null, Unique)	Foreign Key (Integrity Constraint)
Customer	Customer_ID, Customer_Name, Username, Password, Phone#	Customer_ID	None
Product	Product_ID, Product_Price, Product_Name, Product_Description, Product_Image	Product_ID	None
Employee	Employee_ID, Employee_Name	Employee_ID	Category_ID
Categories	Category_ID, Category_Name	Category_ID	None
Shopping_Cart	Total_Price, Quantity, Added_On	(Customer_ID, Product_ID, AddedOn)	(Customer_ID, Product_ID)
Payment Portal	Payment_ID, Payment_Mode, Amount, Shipping_Address	Payment_ID	Customer_ID
Stock Order	Order_ID, Product_ID, Item_QTY, Order_date, Order_Status	Product_ID	Order_ID
Supplier	Supplier ID, Supplier_name, Category_ID	Supplier_ID	Category_ID

Product, Customer Also behaves as an aggregate entity

Weak Entity

In our project, **Shopping Cart** behaves as a weak entity. The reason is that there is no attribute of its own that can behave as a primary key as a result of which it uses two foreign keys along with one of its attributes as a **composite key**. Also, the existence of a Shopping Cart depends on the existence of an aggregate entity (Product, Customer).

Relationship between the Entities

Entity 1	Entity 2	Relationship Description	Relationship Type	Participation of Entities: Entity 1, Entity 2
Customer	Product	Customer can **choose** many products	Many-Many	Partial, Partial
Product	Category	Products **belong to** various Categories	Many-Many	Total, Partial
Employee	Category	A number of employees together **manage** a category	Many-One	Total, Total
Customer	Payment Portal	Each customer can **access** all his/her previous payment details.	One-Many	Partial, Total
Payment Portal	Product	During every payment, the portal **stores billed items** from the product.	Many-Many	Total, Partial
Shopping Cart	(Product, Customer)	A list of (Product, Customer) is **contained in** shopping cart	One-Many	Total, Total
Stock order	Supplier	Stocks ordered by employee goes **to** Suppliers	One-Many	Total, Total
Supplier	Product	Supplier **supplies** all the ordered products of category to the store	One- Many	Total, Total

Ternary Relationship

The relationship between Shopping Cart, Customer, and Payment namely **“proceeds for payment”** is a ternary relationship. Proceeding for payment not only requires the participation of a customer but also the participation of the shopping cart and the payment portal.