INFO 579 Week 4 Assignment

Course: INFO 579: SQL/NoSQL Databases for Data and Information Sciences

Group Project Details

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Business Description of the Instacart application:

We are using a sample of the company/application, Instacart, a grocery delivery app. An online grocery delivery service that connects customers with local grocery stores. This app works around core entities such as customers, products, stores, and orders, while supporting operational processes through relationships among addresses, inventory, order items, and deliveries. Customers can create accounts, maintain multiple addresses, browse products organised into categories, and place orders from specific stores. Each order is linked to inventory levels, payment transactions, and delivery tracking, ensuring that the system reflects real-time product availability, financial reconciliation, and logistics updates.

- **Customer orders groceries via app**
- **Shoppers fulfil the order via partner stores**
- **Orders are delivered to customers within hours or minutes**

We will be focusing on database design for this application, considering the following entities

Key Entities:

1. **Customers: customers who are enrolled in the Instamart application**
   - **This entity contains the customer name, phone number, and address, which helps the business create customer profiles**
2. **Stores: shops/stores that are enrolled to deliver products**
   - **The store entity contains the store location of stores, types of products they sell to customers**

3. **Products: products that are available to customers via stores**
    - **This entity contains the various products that are available for customers to buy from Instacart**
4. **Orders: orders that are placed by customers**
    - **Orders table will contain information each order placed by customers such as order date, products purchased, and quantity bought, etc.**
5. **Order Items: Each order item from Orders**
    - **These items are purchased by the customer with a list of items, quantity, etc.**
6. **Shoppers (delivery agents): These individuals are responsible for delivering orders to customers**
    - **This will contain the details of delivery agents and the orders they are serving.**
7. **Deliveries: Contains delivery details**
    This entity contains order delivery details such as order date, delivery date, and the name of the agent who delivered the order, etc.
8. **Payments: Contains details about the payments for each orders**
    - **This will contain payment information and type of payments**
9. **Review: Contains review for each ordered items**
    - **This entity will contain reviews of each products which users can see before placing the order**
10. **Cart: contains Order items**
    - **This entity will represent shopping cart of the customers where this will contain items due for purchase**
11. **Category: contains a list of products belonging to one category**
    - **This entity will contain list of similar products, this will help customers to find relevant products**
12. **Address: address of Entities like customers, stores, etc.**
    - **Addresses will contain different addresses which will be further split in later normalisation stages.**

Data Source:

We are using the Kaggle dataset, which has millions of records as a reference. We will be creating synthetic data using this as a reference data set

based on the scope of this project.

Kaggle:

https://www.kaggle.com/datasets/yasserh/instacart-online-grocery-basket-analysis-dataset