CS 5200 - Database Management Systems
Project Proposal

Zalando

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Introduction

Zalando is an e-commerce platform selling many electronics, books, health, jewelry, and FMCG products. The Zalando websites are country-specific, though some offer international shipping. Zalando acts as an intermediary platform that enables merchants and consumers to interact and transact. A seller can advertise and post their product on the website for sale where all Zalando customers can view, purchase, and review these products. Zalando also provides a store-to-door delivery service where the shippers pick up packed products from the sellers and deliver them to the customer's residence.

One can become a Zalando user by creating an account on their website with one's email id. A user can choose to be a customer, a seller, or a shipper. Customers can add products from multiple sellers in varying quantities to their orders. Payments are made using cards that are to be registered on the portal post registration. Customers can also view their purchase history. Sellers can enlist the products they wish to sell and the quantity of each product in stock. The selling price of each product is also to be mentioned. The Seller can view the history of their products sold. Shipping companies can register with Zalando and fulfill orders. They may be able to view a list of unfulfilled orders.

Database Description

The database has the following entities and relationships.

1. **User**: Consists of the user's name, email(primary key), phone number, and address. The User entity has 3 subclasses, the customer, seller, and shipper entities.
2. **Customer**: The customer has a customerId. The customer registers cards, creates orders by selecting orders, makes payments and writes reviews on ordered products.
3. **Seller**: It consists of a taxID. A seller enlists products in one of the several available categories.
4. **Shipper**: It has the shipping companyName. It ships orders mentioned in the "orders" entity.
5. **Product**: Consists of a productID which determines the kind of commodity the product is, a name, an image, a unit price and an MSRP. Varying quantities of a product may be enlisted in an order.
6. **Category**: It has a categoryId, name and description. Multiple products belong to a category.
7. **Order**: It has an orderID and a timestamp which signifies the list of products and their quantities to be purchased at a given point of time.
8. **OrderTracking**: It has a status attribute that determines the state of the shipment. It also has a timestamp and a location attribute to know where the product is at each point of time.
9. **Card**: The card entity has the card details associated with each customer. It has the cardNo, CVV, and expiryDate associated with each card.

10. **Payment**: Has details associated with the total billing amount for each order. It has a paymentID, total, and timestamp. One payment bill can be generated for an order. The payment may be made using one card. One order may only be made by one customer.
11. **Promotion**: Based on the products purchased, a promotionCode may be applied to the bill to claim a discount. One promotion may be applied per payment bill. Each promotion code has a discount value, a promoId, and an expiry date.

Why does this interest us?

As frequent users of popular e-commerce websites, we were awestruck by their intricate and complex computational, data management, and storage aspects. Working on a project along the same lines would imply that we undergo a great deal of learning in the field of e-commerce and the data engineering that tags along with it.

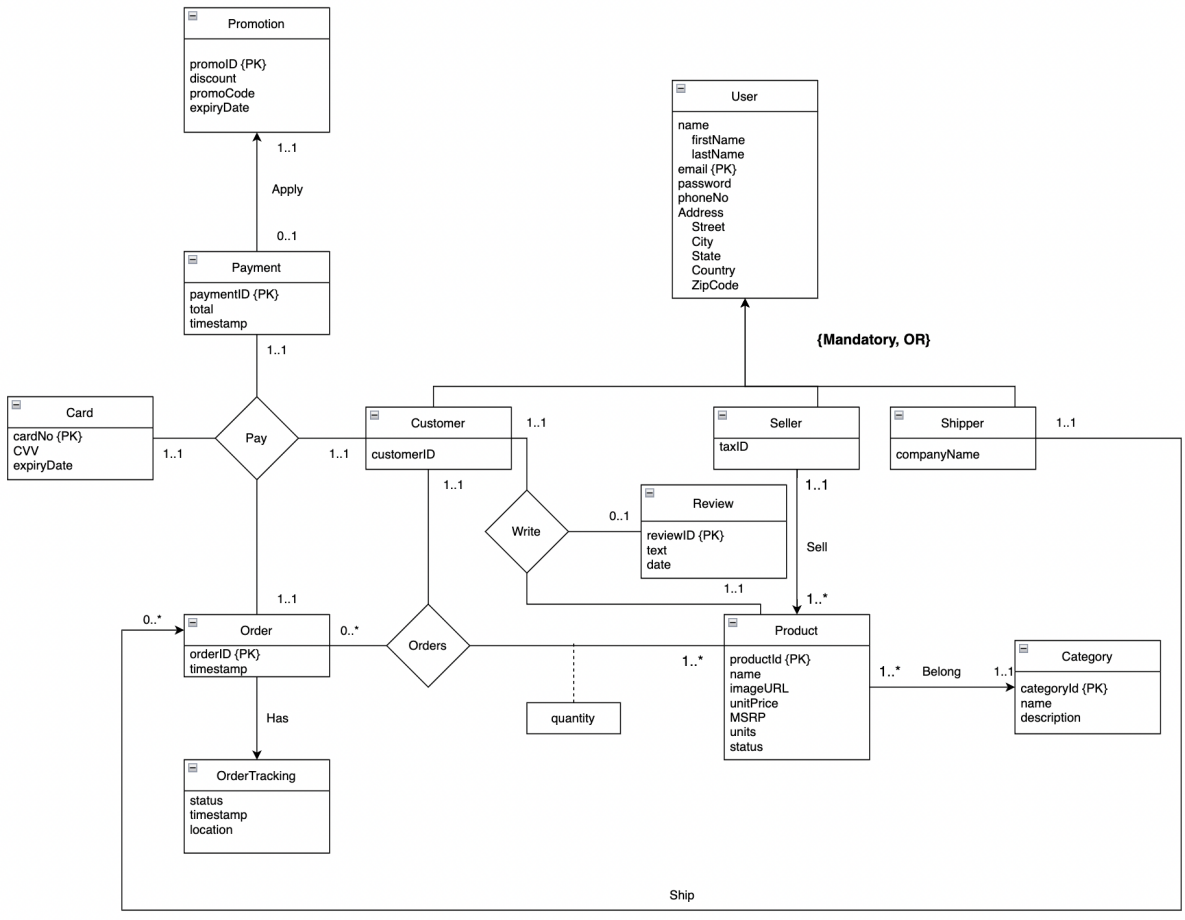
Database Language

Software: MySQL workbench

Language:

1. Flask(Python) for front-end and back-end.
2. SQL to manage the database.

UML Diagram



Activity Diagram