FastFruits - An Online Retail Store

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Project Scope

We are designing the database and business logic layer for a Quick Commerce retail store specializing in fruits and vegetables. Fruits and vegetables are the most difficult Stock Keeping Unit category for most grocery companies owing to a standard wastage rate of 30%. Our system aims to minimize this wastage through algorithmic end-to-end lifecycle management of fruits and vegetables.

Tech Stack

1. **Golang** for performance-critical, high throughput services and database ORM.
2. **Python** for batch processing, lifecycle management, and other services where response time is not a bottleneck.
3. **MySQL** instance as the primary data store.
4. **Redis** instance low latency hot cache.
5. **RabbitMQ** as pub-sub MQ to communicate between batch processing services and CRUD APIs.
6. **ERPNext** FOSS for dashboards.

Technical Requirements

1. **Username**: A username can belong to only one user as well as customers are required to enter a valid email address or phone number.
2. **Supplier**: Each supplier can link to multiple unique IDs, while each unique ID can only be linked to one supplier. This helps ensure that each record is associated with the correct supplier
3. **Order**: Since an order can belong to only one customer, a unique order ID needs to be maintained to prevent any mix-up during order delivery.
4. **SKU**: The unique number(Stock Keeping Unit) for each product helps track the inventory level and differentiate between similar products.
5. **Payment**: The ID generated on purchasing goods is unique to that particular order and thus cannot belong to multiple customers.

Functional Requirements

1. **Customer Registration**: allows customers to sign up by providing details such as name, email, and password. The website can use such data to authenticate users and offer them more personalized experiences.
2. **User management**: manage the database by setting up user accounts, and maintaining, monitoring, and auditing user activities.
3. **Membership/Subscription**: give customers a choice to subscribe for recurring deliveries of specific products they select regularly. This functionality makes the customer's ordering experience more convenient as it provides automatic billing and delivery.
4. **Supplier management**: allows the store to manage its suppliers and the goods they supply. It has functionality for adding new suppliers, updating supplier data, monitoring inventory levels, and placing orders for fresh products from suppliers.
5. **Inventory management**: allows the store to maintain track of the items in inventory, including their quantity, location, and pricing. Restocking, checking up on sales, and monitoring inventory levels are also included in this function.
6. **Payment**: allows users to pay for items using various methods, including credit/debit cards, e-wallets, or online bank transfers, along with other features like cancellation, payment tracking, and receiving refunds.
7. **Sales management**: allows the administration of sales data, including customer orders, product inventory, and financial transactions. Data thus collected provides sales performance (profit/loss).
8. **Feedback**: allows customers to comment on their buying experience, including the products' quality and overall rating. This helps in deciding which products to feature in the product catalog.
9. **Promotion/discount**: allows the store to offer deals and promotions to customers. This includes flat-rate discounts, "buy one, get one free" deals, etc., on specific products and set an expiry date on coupons.