Grocery Store System Design Report

Overview

The grocery store application is designed to provide users with a convenient and efficient platform for browsing and purchasing grocery items. The system comprises several key components, including user management, product catalog, shopping cart, order processing, and administrative functionalities.

Models:

1. User Model:

Attributes:
id: Integer, Primary Key
username: String(80), Unique
password: String(100)
role: String(20), Default: "user"
status: String(20), Default: "approved"
last_activity: DateTime, Default: Current UTC Time
Methods:
update_last_activity(): Updates the last_activity attribute with the current UTC time.

2. Section Model:

Attributes:
id: Integer, Primary Key
name: String(255), Not Nullable

3. Product Model:

Attributes:
id: Integer, Primary Key
section_id: Integer, Foreign Key to Section
name: String(255), Not Nullable
unit_type: String(50), Not Nullable
rate_per_unit: Float, Not Nullable
quantity_available: Integer, Not Nullable

4. SectionRequest Model:

Attributes:
id: Integer, Primary Key
request_type: String(20), Not Nullable
section_id: Integer, Foreign Key to Section (Nullable)
section: Relationship to Section
section_name: String(100)
status: String(20), Default: "pending"
Methods:

to_dict(): Converts the SectionRequest object to a dictionary.

5. Order Model:
Attributes:
id: Integer, Primary Key
user_id: Integer, Foreign Key to User
items: Relationship to OrderItem
timestamp: DateTime, Default: Current UTC Time

6. OrderItem Model:
Attributes:
id: Integer, Primary Key
order_id: Integer, Foreign Key to Order
product_id: Integer, Foreign Key to Product
product_name: String(255), Foreign Key to Product
quantity: Integer
price: Float

Overall System Design

- Frontend – Vue.js
- Backend – Flask
- Database – SQLite
- Redis for caching
- Redis and Celery for batch jobs
- User Management:
  - Users have roles (e.g., "admin," "store manager," "user") and approval status.
  - The last activity is tracked to monitor user engagement.
- Product and Section Management:
  - Products are categorized into sections.
  - Sections and products have well-defined attributes.
- Section Request Management:
  - Users can request the creation or modification of sections.
  - Requests track the request type, section details, and status.
- Order and OrderItem Management:
  - Orders capture user purchases.
  - Each order consists of multiple order items, linking products, and quantities.

Presentation Video Link -
https://www.loom.com/share/837eb10bbec84076a3ca083568eb62d0?sid=3b392b84-63f9-4e58-a34d-7c00596f1947