GROCERY STORE APPLICATION

I. PROBLEM STATEMENT:

In the current grocery store ecosystem, customers often face challenges such as limited accessibility to products, inefficient shopping cart management, and a lack of streamlined order processing. For store owners, managing inventory, handling orders, and maintaining customer engagement can be time-consuming and prone to errors. The absence of an integrated solution that allows customers to browse products, add them to a cart, place orders, receive notifications, and track activities impedes the growth and operational efficiency of grocery stores.

This project aims to create a seamless and efficient grocery store platform that simplifies product management, enhances customer shopping experiences, and improves the order fulfillment process for both customers and admins.

Key Business Requirements:

1. **User Management:**
    - The platform must support two primary user roles: Customer and Admin.
    - Admins must have the ability to manage products, monitor orders, and oversee customer notifications.
    - Customers must be able to create accounts, log in, and view products, place orders, and track order statuses.
2. **Product Management:**
    - Admins should be able to add, update, and delete products in the inventory.
    - Each product should include attributes such as name, description, category, price, stock quantity, and image.

- The system must support product categorization to allow customers to browse items by type (e.g., Fruits, Vegetables, Beverages).

3. **Shopping Cart and Order Management:**
    - Customers must be able to add products to their shopping cart and proceed to checkout.
    - The shopping cart must maintain a list of selected items, total price, and allow for quantity adjustments.
    - Once an order is placed, it must be associated with a customer and tracked through its lifecycle (pending, completed, canceled).
    - Admins should have the ability to view and manage orders.
4. **Notifications:**
    - Customers should receive notifications about order updates (e.g., order confirmed, shipped, delivered).
    - Admins must be able to send notifications to customers regarding promotions, product updates, and important messages.
5. **Activity Tracking:**
    - The platform should log significant actions (e.g., adding products, updating stock, placing orders) for auditing purposes.
    - Admins should be able to review the activity logs for user actions on the platform.

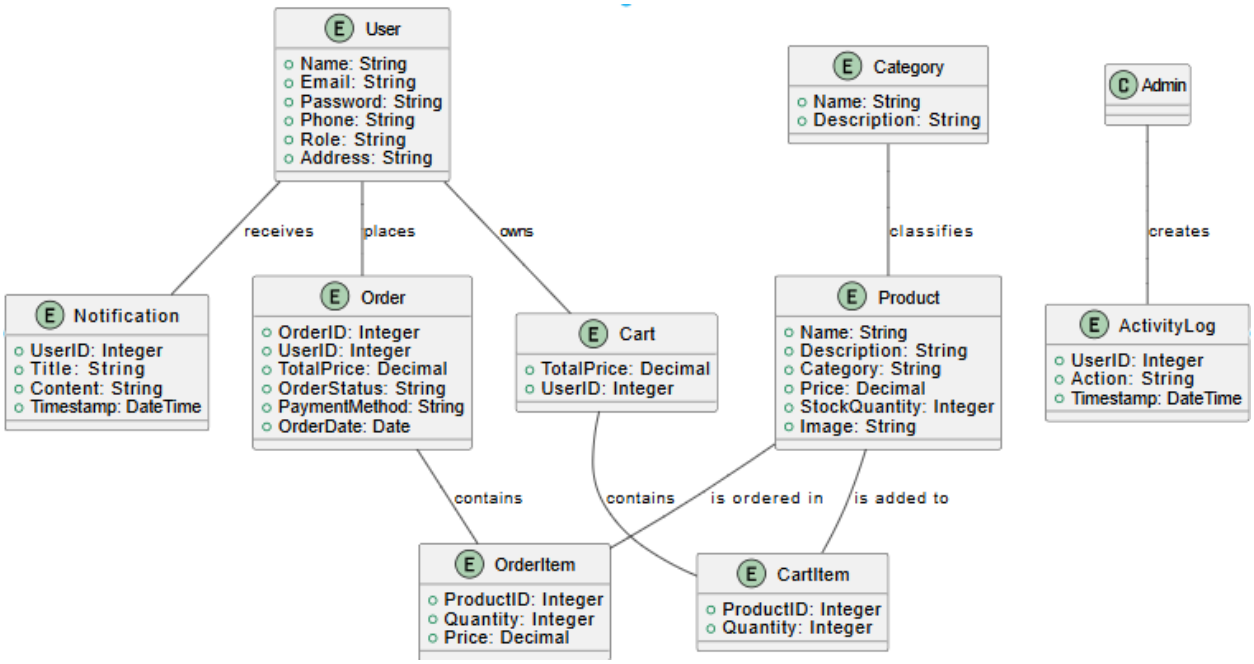
Qualities the Software Must Possess:

1. **Scalability:**
    - The system should be capable of handling an increasing number of products, customers, and orders as the grocery store grows.
2. **Usability:**

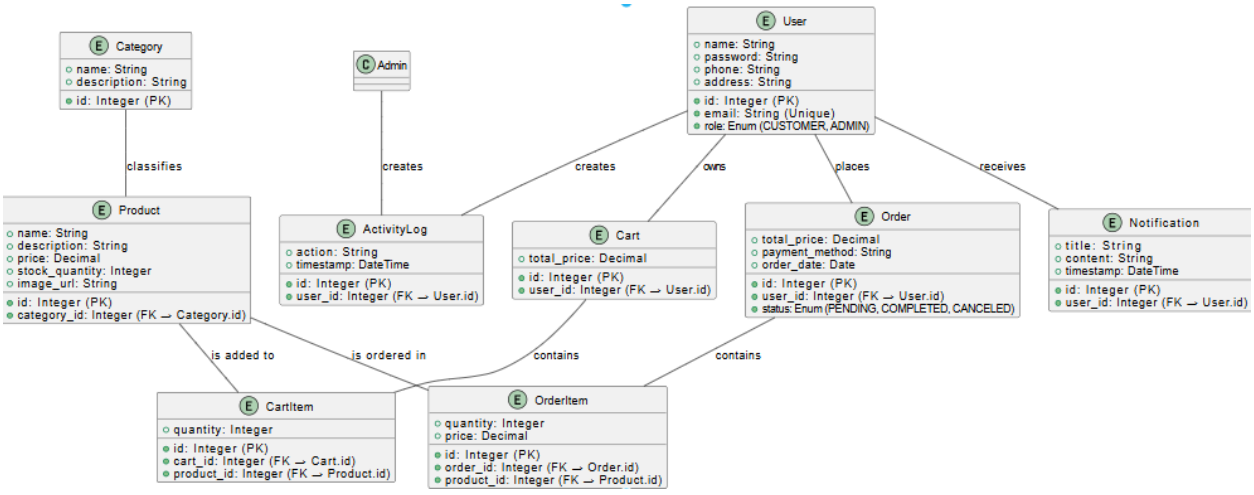
- The user interface must be intuitive, ensuring that both customers and admins can easily navigate and perform tasks without significant learning curves.

3. **Reliability:**
    - The software should have high uptime, minimal bugs, and efficient handling of user requests and data storage, ensuring the platform is available for use at all times.
4. **Performance:**
    - The application must load quickly and support fast interactions, particularly during product browsing, cart updates, and order placement.
5. **Security:**
    - User data (e.g., personal details, passwords) must be securely stored and encrypted.
    - The system should support role-based access control to ensure only authorized users (e.g., admins) can perform sensitive actions.
6. **Maintainability:**
    - The software should be easy to maintain and update, with clear code structure, modular components, and a well-documented API for future enhancements.
7. **Mobile Compatibility:**
    - The system must be responsive and work smoothly on both mobile devices and desktops, providing customers the flexibility to shop from anywhere

II. CONCEPTUAL MODEL



III. TECHNICAL DOMAIN MODEL



IV. DATABASE DOMAIN MODEL