OBJECT ORIENTED PROGRAMMING

Supermarket Point of Sale Terminal Design

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Functional Requirements:

1. User Management:

   The system shall allow the creation, modification, and deletion of user accounts with different roles such as admin, cashier, and stock manager.
   Admin users shall have the ability to manage user accounts.

2. Product Management:

   The system shall support adding, updating, and deleting products.
   Each product shall have attributes such as name, description, price, and quantity.
   The system shall track stock levels and generate notifications for low stock items.

3. Sales Management:

   Cashiers shall be able to scan and add products to a customer's shopping cart.
   The system shall calculate the total price of the items in the cart.
   The system shall generate itemized receipts for each transaction.
   Sales data shall be stored for reporting and analysis purposes.

4. Inventory Management:

   The system shall support managing inventory, including receiving new stock, updating quantities, and tracking expiry dates.
   The system shall generate notifications for expired products.
   Stock managers shall have the ability to generate reports on stock levels and sales data.

5. Reporting and Analytics:

   The system shall provide reporting capabilities to generate sales reports, stock reports, and profit analysis.
   Reports shall be available in both tabular and graphical formats.
   The system shall support filters and date ranges for customized reports.

6. Customer Loyalty Program:

   The system shall support a customer loyalty program.
   Customers shall be able to enroll in the program and earn points based on their purchases.
   The system shall track customer points and provide rewards based on predefined rules.

Non-functional Requirements:

1. Usability:

The system shall have a user-friendly interface with intuitive navigation.
It shall support multiple languages and provide localization options.
The system shall be responsive and accessible on different devices.
Performance:
The system shall handle concurrent users and large data sets efficiently.
Response times for operations shall be minimal to provide a seamless user experience.

2. Security:

   User authentication and authorization shall be implemented to ensure secure access to the application.
   Sensitive data such as customer information and financial records shall be encrypted and stored securely.

3. Reliability:

   The system shall be highly reliable and available 24/7.
   Regular backups of data shall be performed to prevent data loss.

4. Scalability:

   The system shall be scalable to accommodate future growth and increasing data volumes.
   It shall support integration with additional modules or external systems if required.

Data Flow Diagram Drawn

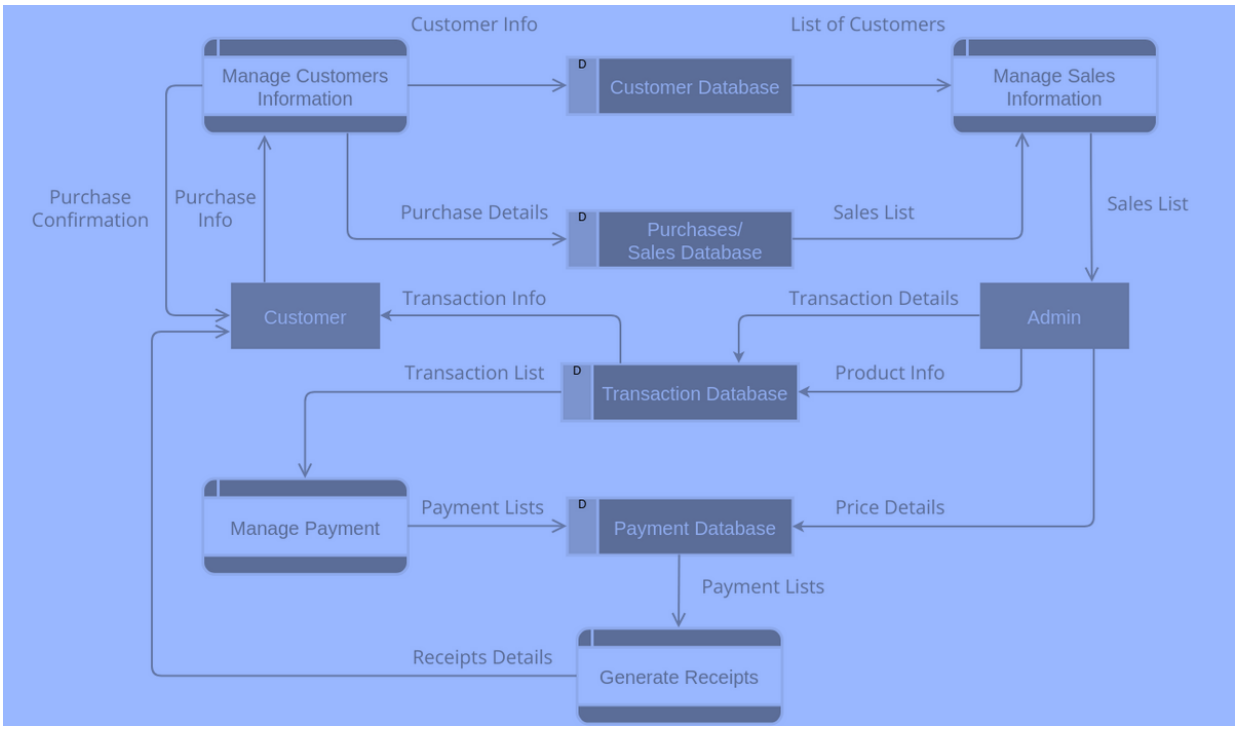

Figure 1: Data Flow Diagram Drawn using online visual-paradigm