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Design and Implementation Constraints

1. Error Handling:

- Confirmation messages will be displayed after actions are taken, indicating success or failure.
- Input validation and error messages will be shown at the time of detection.

2. Security Constraints:

- Users must log in using a username and password.
- Only administrators can modify user accounts and item details.
- Unauthorized users should not be able to access or alter system data.
- Deletion actions require confirmation via a message box.

3. Hardware and Software Limitations:

- Minimum system requirements:
 - **Hardware:** Pentium IV or above, 256 MB RAM, 20 GB HDD, Monitor, Keyboard, Mouse (optional).
 - **Software:** Windows 7 or later, SQL Server, Java, MS Office 2007 or above.

4. Performance Constraints:

- Menu transitions should not exceed **3 seconds**.
- Book search operations should be completed within **3 seconds**.
- Database updates should take no more than **2 seconds**.
- Prompt messages should appear within **2 seconds**.

5. Database Constraints:

- The system must use a relational database for storing book records, sales data, and user information.
- Book details (such as title, author, ISBN, price, stock availability) must be stored in a structured format.
- Database interactions should be optimized to prevent lag or performance issues.

6. Operational Constraints:

- The system assumes that power supply and internet connectivity (if applicable) are stable.
- Data backups must be performed periodically to avoid data loss.
- If login credentials are compromised, they must be reported to the administrator immediately.

Sales Table

SaleID	INT (Primary Key)	Unique identifier for each sale transaction.
UserID	INT	Customer who made the purchase.
BookID	INT	Book being purchased.
SaleDate	DATETIME	Date and time of the sale.
Quantity	INT	Number of copies sold.
TotalAmount	DECIMAL(10,2)	Total price of the sale.

Book Table

Field Name	Data Type	Description
BookID	INT (Primary Key)	Unique identifier for each book.
Title	VARCHAR(100)	Title of the book.
Author	VARCHAR(100)	Author of the book.
Publisher	VARCHAR(100)	Publisher of the book.
ISBN	VARCHAR(20)	Unique book identifier.
Price	DECIMAL(8,2)	Price of the book.
Stock	INT	Number of available copies. Shelf location of the book in the shop.

Request table

Field Name	Data Type	Description
RequestID	INT (Primary Key)	Unique request identifier.
UserID	INT	Customer making the request.
BookTitle	VARCHAR(100)	Name of the requested book.
Author	VARCHAR(100)	Author of the requested book.
RequestDate	DATETIME	Date when the request was made.
Status	ENUM ('Pending', 'Processed')	Request status.

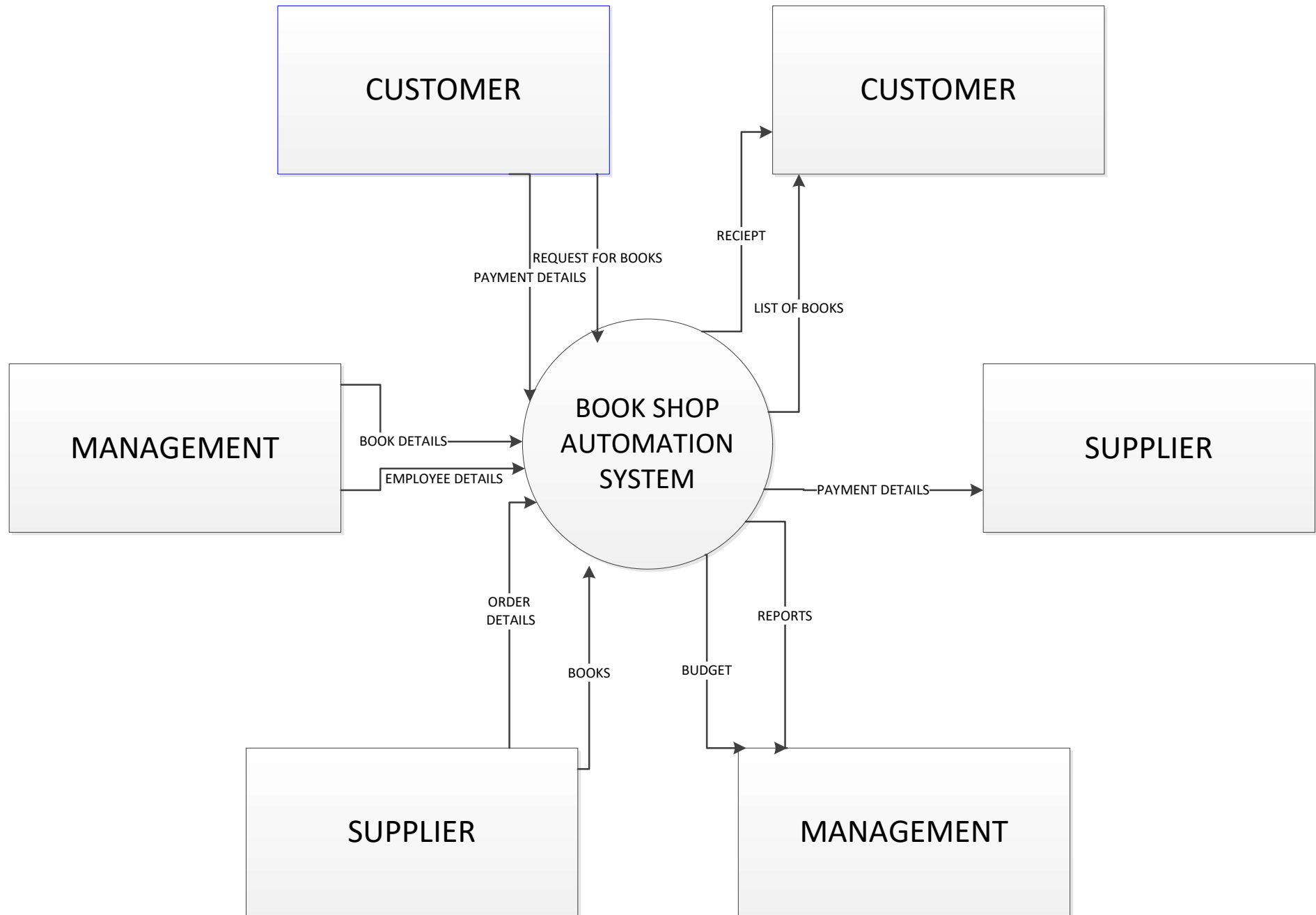
Inventory Table

Field Name	Data Type	Description
InventoryID	INT (Primary Key)	Unique identifier for inventory records.
BookID	INT	Book linked to inventory.
StockAdded	INT	Number of books added to inventory.
SupplierName	VARCHAR(100)	Name of the supplier.
ProcurementDate	DATETIME	Date when the stock was added.

Threshold alert Table

Field Name	Data Type	Description
AlertID	INT (Primary Key)	Unique identifier for threshold alert.
BookID	INT	Book running low on stock.
CurrentStock	INT	Current number of books in stock.
ThresholdValue	INT	Minimum stock level before alert is triggered.
AlertDate	DATETIME	Date when the alert was triggered.

LEVEL 0 DIAGRAM



LEVEL 1 DFD (TOP LEVEL DATA FLOW DIAGRAM)

