Requirements Analysis for Online Bookstore Case Study

Key Entities and Attributes

1. Book

- Book ISBN: Unique identifier for each book.
- Book Title: Name of the book.
- Author: The author of the book.
- Genre: The category of the book (e.g., Mystery, Science).
- Publication Year: Year when the book was published.
- Price: The selling price of the book.
- Stock Quantity: The number of copies available in the inventory.
- Reorder Level: The threshold stock quantity that triggers reordering.

2. Customer

- Customer Name: The name of the customer.
- Customer ID: Unique identifier for each customer.
- Email: Contact information for the customer.
- Phone Number: Optional, for further contact details.
- Address: Shipping address for delivering orders.

3. Order

- Order ID: Unique identifier for each order.
- Customer ID: Links the order to a specific customer.
- Order Date: Date when the order was placed.

- Total Amount: The total value of the order.
- Books Ordered: List of books in the order.

4. Supplier

- Supplier ID: Unique identifier for each supplier.
- Supplier Name: The name of the supplier.
- Contact Info: Includes email and phone number.
- Books Supplied: List of books provided by the supplier.

5. Employee

- Employee ID: Unique identifier for each employee.
- Employee Name: The name of the employee.
- Role: Job title or function (e.g., Inventory Manager, Customer Service).
- Salary: Compensation for the employee.
- Contact Info: Email and phone number.

Functional Requirements

1. Order Management:

- Track Orders: The system must keep track of customer orders, including the books ordered, total amount, and order date.
- Order History: Ability to view past orders by customers for both analysis and customer service purposes.
- Order Fulfillment: Ensure that books are available for orders, and customers are notified of any delays or out-of-stock situations.

2. Inventory Management:

- Track Inventory Levels: The system needs to monitor and update the stock quantity of books in real-time.
- Low Stock Alerts: The system should flag books that have fallen below the reorder level.
- Reordering: The ability to automatically trigger reorder requests to suppliers when stock reaches the reorder level.

3. Customer Management:

- Track Customer Details: Customer profiles need to be maintained with their personal details, order history, and preferences.
- Customer Engagement: The system should allow for communication with customers regarding order status, promotions, or newsletters.
- Customer History: Ability to track purchase history for each customer.

4. Reporting & Analytics:

- Popular Books: The system should provide insights into which books are the most ordered.
- Sales Reports: Generate reports on sales revenue, order frequency, and popular genres.
- Inventory Levels: Ability to query and report on current inventory levels.

5. Supplier Management:

- Track Supplier Orders: The system needs to track book orders from suppliers.
- Supplier Communication: Ability to interact with suppliers about stock availability and delivery times.

6. Employee Management:

- Role-based Access: Employees should have role-based access to the system.

- Payroll: Employee salaries and payroll information must be managed.

Expected Interactions

1. Querying Popular Books:
   - Users can query the system for the most popular books based on the number of orders placed.
   - This can be filtered by date range, genre, or author for more targeted insights.

2. Tracking Inventory Levels:
   - Real-time data on stock levels with queries for books nearing their reorder levels.
   - Provides proactive inventory management.

3. Processing Orders:
   - When customers place orders, the system updates inventory and generates invoices.
   - If out of stock, customers should be notified, and backorders should be allowed.

4. Generating Reports:
   - The system will generate reports on sales, inventory, popular books, and customer trends.
   - These reports will aid in decision-making.

5. Managing Customer Profiles:
   - Customers can update their details, view past orders, and track current orders.
   - System should store preferences for targeted recommendations.

Conclusion

This analysis outlines the essential entities for the online bookstore system, their attributes, relationships, and the functional requirements needed for effective operation. The system should allow for seamless order processing, inventory management, customer interaction, and detailed reporting, ensuring efficient operations and customer satisfaction.