Background:

Remulak company specializes in finding hard-to-locate musical instruments, in particular, guitars ranging from traditional instruments to ancient varieties no longer produced. Remulak also sells rare and in-demand sheet music. Further, it is considering adding to its product line suppliers that are not as unique as its instruments, including recording and mixing technology, microphones, and recordable compact disk (CD) players.
Most of Remulak's orders are taken by or order entry clerks.
Our challenge is to design and implement a system that not only meets the company's immediate needs but also is flexible enough to support other types of products in the future. Below are the detailed descriptions of main activities :

The Process Orders activity starts when an order is either initiated or inquired about by an order clerk. It handles all aspects of the initial definition and authorization of an order, and it ends when the order clerk completes a session with a customer. The detailed activity is described below :

Customer calls and orders a guitar and supplies, and pays with a credit card.

1. Customer supplies customer number.

2. Customer is acknowledged as current.

3. For each product that the customer desires:

3.1 Product ID or description is requested.

3.2 Description is resolved with its ID if necessary.

3.3 Quantity is requested.

3.4 Item price is calculated.

4. Extended order total is calculated.

5. Tax is applied.

6. Shipping charges are applied.

7. Extended price is quoted to the customer.

8. Customer supplies credit card number.

9. Customer's credit card is validated.

10. Inventory is reduced.

11. Sale is finalized.

The Maintain Orders activity starts when an order is modified in any way by an order clerk or a customer. It handles all aspects of the order modification, and it ends when the order clerk completes the order modification session.

The Maintain Inventory activity is started by a supplier whenever a product is ordered and/or added to stock. It handles all aspects of inventory management, and it ends when either new stock is ordered or new stock has been accounted for inventory.

The Shipping activity is started by a shipping clerk or a packaging clerk when an order is either completely ready or partially ready for shipment. It handles all aspects of shipping, and it ends when the order is shipped and is either partially filled or completely filled.

The Invoicing activity is started by a billing clerk whenever an order is invoiced to a customer. It handles all aspects of invoicing, and it ends when the order is invoiced and payment is received. An overdue notice is sent to a customer for a past-due account. Sub ledger transactions are interfaced to the accounting system.

The Maintain Relationships activity is started by a customer service clerk, who is a special type of an order clerk, whenever a relationship with a customer or supplier requires special attention. It handles all aspects of Remulak's relationships with customers and suppliers, and it ends when a relationship is either created or maintained for a customer or supplier.

The Decision Support activity is started by a manager whenever a predefined or undefined request for information is made. It handles all aspects of decision support effort, and it ends when a reply is formulated for the inquiry. A timer needs to be set. When the allocated time is to expire, the timer should send a message that it is time to print the back-order report.

Draw a Use Case Diagram for the "Remulak System".

Remulak System

Customer — Maintain Orders

Order Clerk — Maintain Orders

Order Clerk — Process Orders

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Customer Service Clerk — Maintain Relationships

Manager — Decision Support

Time — Decision Support

Maintain Inventory — Supplier

Shipping — Packaging Clerk

Shipping — Shipping Clerk

Invoicing — Billing Clerk