Flow of textile business  
  
you already have the details of the assignment i initially sent you about the textile factory.here it is again  
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Case Study: An Order Processing System of a Textile Factory

You are to develop a computerized system with the appropriate software and hardware, so as to be

able to monitor the order processing with respect to incoming parts and outgoing accessories

The system will consist of the following functions:

− Add-Delete-Modify-Search-View Report

− Password Security

− Order Details ( dealing with order number, category, size etc)

− Stock Control ( raw materials)

− Monitoring of Indirect cost ( e.g transport)

The new system will take in charge the order processing activities and a daily updating of the data

will contribute to a more optimized and successful business. The new computerized order

processing system will contain the following features:

• A password protection feature allowing only registered personnel to enter into the system.

The users are sales persons who handle the orders from customers, inventory officers who

update the stock levels of items, and the IS manager that inputs restricted data like the

selling price of items or the list of possible transport charges. Items details are item number,

the cost price, the stock level, etc. Customer details are customer number, customer name,

address, contact details ect.

• A centralized quotation and sales order processing system supporting multiple order types

and functions. When a customer places an order, the system should check that availability

of items. If there is insufficient quantity of items on hand, a back-order is setup for the

missing items. The available items are shipped and a bill is prepared and sent to the

customer. The customer is billed for the back-ordered items when they are shipped. The

system should update the inventory accordingly. Any quotation or order should include

transport charges. Customer specific defaults and preferences to automate and streamline

the order entry process

• Dynamic product lookups to search and identify the correct product being ordered. The

transport charges should be automatically estimated given the means of transport and the

customers’ location.

• Automatic conversion of quotes to orders, eliminating re-entry of order information.

• Integrated inventory availability. This feature should have an alert mechanism that informs

the inventory personnel of items getting below out-of-stock threshold. The inventory

personnel should themselves place orders of out-of-stock items and update the inventory

whenever items are received from suppliers.

• Multiple payment methods. The payments methods may be cash, cheque or credit card. In

case of returned cheque payments, the system should have a monitoring mechanism by

which alternative forms of payments are solicited. Credit card payments will include the

credit card number, the expiration date, a bank number and the name of the card holder.

• Any other requirements deemed appropriate

In this assignment, you are expected to achieve the following in a teams of 5 at most:

(a) A report providing the full representation of the system using UML. The report should include a

complete set of well-built UML diagrams without inconsistencies and omissions.

(b) Implementation of the system with the following constraints:

• The input and output devices will be the keyboard and monitor

• The system will be stand-alone

• The system will demonstrate the following features:

- Well-designed GUI’s (at least two) making use of appropriate widgets and layouts

- Navigation between parent and child frames

- Connection with a database with functions like updates and queries

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first you get the login screen  
on the login screen, you get the the login and password . you can login if you work at the textile factory. Once login, you can interact with the application with whatever permission your role can do (is manaer)  
  
  
there is only one way ways to rcreate a quotation. it is for tge customers to call the company and talk to a sales person where he/she will enter the detais of the quotation and provide all the necessary details. they will be prompted to a screen with enter customer details, next screen is quotation information next screen is additional details .

or   
  
now once quotation is approved i, it automatically convers into an order.  
  
the sales person must then re check all the necessary details again and inputs missing details. and then confirm the order.

Once the order is confirmed , the system automatically checks the order for the amount of goods needed and compared from the inventory.

If there is sufficient, the goods are shipped and customer is billed for an invoice.   
  
if there is insufficient, the good available are shipped to the customer and a back order is automatically generated with a high priority, meaning once the inventory is restcked back, ththe process in this paragraph is looped.(each order/ backorder has a different invoice and delivery note but it reference to both the backorder and the main order in a proper format)  
  
when the customer has paid for the goods(no parital payment) , the customer contacts the the sales person. And the sales person checks if it is true. And then enters into the systems that for that invoice, the customer has paid and i dont muchundertand acoounting so write whate is ndeem necessary such as a receipt is then sent ot the customer .........add these information in it[Multiple payment methods. The payments methods may be cash, cheque or credit card. In

case of returned cheque payments, the system should have a monitoring mechanism by

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credit card number, the expiration date, a bank number and the name of the card holder.]Note : the financing part is also handled by the salesperson the customer had initially talked as he is the one who is processing the order

Below is a **comprehensive end-to-end flow** of how the Textile Factory Order Processing System handles everything from a customer’s initial quotation request through shipping, invoicing (including back-orders), and payment. This workflow integrates all of the assignment requirements: password protection, stock control, transport cost calculation, multiple payment methods, and the billing mechanism for back-ordered items.

**1. User Authentication & Roles**

1. **System Launch**
   * The stand-alone application is started on a factory computer (keyboard and monitor).
2. **Login Screen**
   * The user (Sales Person, Inventory Officer, or IS Manager) must **enter valid credentials** (username and password).
3. **Role-Based Access**
   * If the user **successfully authenticates**, the system grants access according to their **role**:
     + **Sales Person**: Manages quotations, orders, invoicing, and customer payment updates.
     + **Inventory Officer**: Monitors and updates stock levels, coordinates shipments, and sees low-stock alerts.
     + **IS Manager**: Configures system settings like transport charges, item prices, and user accounts.

**2. Quotation Creation**

1. **Customer Contact**
   * The customer calls or visits the factory; they do **not** log into the system themselves.
   * The **Sales Person** listens to the customer’s requirements (items, quantities, preferences).
2. **Create Quotation**
   * In the system, the Sales Person selects **“Create Quotation.”**
   * **Step-by-Step Entry**:
     1. **Customer Details**: Customer name, address, contact info (or select an existing customer record).
     2. **Quotation Items**: Item types, quantities, requested specifications.
     3. **Additional Details**: Transport preferences, discounts, or any special instructions.
3. **Transport Charges**
   * The system automatically **estimates** transport costs based on the customer’s **location** and the chosen **means of transport** (configured by the IS Manager).
4. **Quotation Approval & Conversion**
   * After reviewing all details, the Sales Person **approves** the quotation.
   * The system **auto-converts** the approved quotation into an **Order**, eliminating re-entry of data.

**3. Order Confirmation**

1. **Final Verification**
   * The Sales Person reviews the newly created **Order** record, ensuring items, quantities, and any shipping or pricing details are correct.
2. **Confirm Order**
   * Clicking **“Confirm”** finalizes the Order, capturing the date and assigning an order number.
3. **Inventory Check**
   * The system **immediately** checks stock availability for each item in the order:
     + **Sufficient Stock**: All ordered items are in stock.
     + **Insufficient Stock**: Partial or no stock available for some items.
4. **Partial or Full Allocation**
   * If everything is in stock, the system **allocates** the full quantity and the order is ready for shipment.
   * If only part of the requested quantity is available, the system **allocates** what it can and **automatically creates** a **back-order** for the remaining items.

**4. Shipping & Back-Orders**

1. **Shipping Workflow**
   * The **Inventory Officer** gathers the allocated items, packs them, and then **updates** the system that the shipment is ready to go.
2. **Invoice Generation**
   * Once the **Inventory Officer** marks the order (or partial order) as **“Shipped”**, the system **generates an invoice** for the **shipped** items.
   * This invoice includes the item costs, transport charges, and any applicable taxes.
3. **Back-Order Tracking**
   * For items that were **out of stock**, the system creates a **back-order** entry. This entry remains in a **high-priority** state so the Inventory Officer knows to fulfill it first when stock arrives.
   * The **original order** references both shipments (the immediate shipment and the future back-order shipment), providing a clear audit trail.
4. **Subsequent Shipments**
   * As soon as the **Inventory Officer** updates stock to reflect newly arrived items, the system **notifies** if back-orders can now be fulfilled.
   * The officer **ships** the back-ordered items when they become available, triggering a **separate invoice** for those items. The system ensures the customer is only billed for items **at the time they are actually shipped**.

**5. Customer Billing & Payment**

1. **Payment Notification**
   * After receiving the invoice (full or partial), the customer arranges payment (cash, cheque, or credit card).
   * The customer **contacts** the Sales Person once they have completed payment.
2. **Sales Person Verification**
   * The Sales Person **confirms** receipt of payment by checking external records (bank deposits or credit confirmations).
3. **System Update**
   * The Sales Person **marks** the invoice as **“Paid”** in the system.
   * If it’s a **cheque** payment and the cheque later **bounces**, the invoice is reset to **“Unpaid”**, and the system **flags** the situation, prompting the Sales Person to request an alternate payment method.
4. **Receipt Issuance**
   * The system generates a **receipt** once the invoice is fully paid. The Sales Person can **print** or **email** this receipt to the customer.
5. **Partial vs. Full Payment**
   * If the assignment calls for partial payments, the system can handle that as well. However, in scenarios where the customer **fully pays** an invoice, the system instantly marks it as paid in full.

**6. Inventory Officer Tasks**

1. **Monitor Low Stock**
   * The system alerts the Inventory Officer when items approach the **reorder threshold**.
2. **Update Stock**
   * The officer **logs incoming supplies** from external suppliers, increasing stock counts.
3. **Resolve Back-Orders**
   * Newly replenished items are allocated first to **outstanding back-orders**. The officer then initiates shipping for those, triggering new invoices.

**7. IS Manager Tasks**

1. **Configure Transport & Pricing**
   * The IS Manager can **add or adjust** transport charges, surcharges, or base item prices.
2. **User & Role Management**
   * Responsible for adding new Sales Persons or Inventory Officers, resetting passwords, and assigning privileges.
3. **High-Level Reporting**
   * Generates **management** and **audit** reports for the entire system (e.g., overall sales, profit analysis, or user activity logs).

**8. Reporting & System Security**

1. **Reports**
   * Each role can produce **role-appropriate reports**:
     + **Sales Person**: Daily sales, pending invoices, or orders in transit.
     + **Inventory Officer**: Current stock levels, back-order counts, reorder thresholds.
     + **IS Manager**: Comprehensive financial or operational summaries, user logs.
2. **Security**
   * The system is **stand-alone** with password-protected logins for each user. Only **authorized staff** can access or modify data.
   * At the end of each session, users **log out** to maintain security.

**9. Conclusion of the Flow**

Putting it all together:

1. **A customer** phones in and the **Sales Person** creates a **quotation**.
2. The **quotation** is **approved** and auto-converted into an **order**.
3. **Inventory** is checked; items in stock are shipped, **invoice** generated. Items not in stock go to **back-order** until replenished.
4. The **customer** pays the invoice upon receipt, and the **Sales Person** marks it as **paid**. If a cheque bounces, the system requests an alternative payment.
5. As soon as **back-order** items are in stock, they are shipped with a **separate invoice**.
6. **Inventory Officer** ensures stock levels stay updated and resolves back-orders quickly.
7. **IS Manager** oversees pricing, transport charges, and user permissions.
8. **Reports** can be generated by any role, each focusing on relevant operational data.

This unified flow ensures **every** step of order processing is handled in an **organized, secure, and efficient** manner, fully meeting the **assignment requirements** regarding password security, partial/back-order shipments, multiple payment methods, and real-time inventory updates.