Fig. 10.51 *Deployment diagram for insurance claim...* ... ...

10.4 WORKFLOW MANAGEMENT SYSTEM

10.4.1 Description

The work flow management system starts from procurement of raw materials and proceeds through manufacturing details, quality assessment of the manufactured product details and delivery details. The system is designed to manage the incoming and outgoing products of each department and generating the corresponding reports.

10.4.2 Product Functions

The product functions are divided into the following:

1. **Stock management** Generating separate id for each item and managing inflow and outflow of the stock.
2. **Product management** Generating id for each product which manufactured.
3. **Quality assessment** Testing the quality of the manufactured products.
4. **Delivery department** Sending product for delivery.
5. **Report generation** Generating reports for the product status.

CREDITS: Chapter from OO Analysis&Design Using UML by Mala Geetha 2013

User Classes and Characteristics

The various users in the system are the following:

1. **Administrator** Controls overall system.
2. **Stockiest** Managing inflow and outflow of the stock.
3. **Product Manager** Manages the products which are manufactured.
4. **Quality Analyzer** Analyzes and updates the status of the product.
5. **Delivery Manager** Delivers the product for sales.
6. **Report Managers** Generates report for stock and product.

10.4.3 Functional Requirements

The entire employee in the organization is provided with unique Login id, which they can get into the system.

1. **Registration** It provides unique login id for all users.

   Stimulus/Response sequences
   (a) Input: User details, Type of user
   (b) Output: Unique id, Password, Login generation
   (c) Normal Flow: Login generation
   (d) Alternate Flow: Re-entry for three times

2. **Stock management** The purchase of new Raw material will be added to existing stock and provide unique id for them. The functionality includes, generating an item-id for each item and managing the inflow and outflow of the stock items. Priority for this feature is high. Because the rest of the functionalities are depending on the item-id generated in this module.

   Stimulus/Response sequences
   (a) Input: Raw material details
   (b) Output: Stock id, report generation
   (c) Normal Flow: Update Raw material details
   (d) Alternate Flow: Re-entry of stock details

3. **Product management** The product manager can access the stock and produce new Products. The functionality includes, generating id for each product which is manufactured.

   Stimulus/Response sequences
   (a) Input: Product details
   (b) Output: Product id, Report generation, Reduce stock
   (c) Normal Flow: Update product details
   (d) Alternate Flow: Re-entry of product details

4. **Quality assessment** This functionality includes, testing the quality of the manufactured products. The quality analyzer can identify defective / qualified products.

   Stimulus/Response sequences
   (a) Input: Product details
   (b) Output: Qualified/Defective product status, Report generation
   (c) Normal Flow: Quality can be check for the product
   (d) Alternate Flow: Re-check the quality of the product

5. **Delivery management** Depend upon the quality of the products they can transfer product to either manufacturing department or to sales. The Report manager can identify qualified products and send product for sales.

Stimulus/Response sequences

(a) Input: Product status

(b) Output: Sales or re-sent to manufacturing department

(c) Normal flow: Product is ready for sales/manufacturing dept

(d) Alternate flow: Re-enter the product id

6. Report management Generate report for stock like raw material and products and it includes qualified, defective, and for product in progress report.

Stimulus/Response sequences

(a) Input: Product details, raw material details

(b) Output: Report generation

(c) Normal flow: Report generation
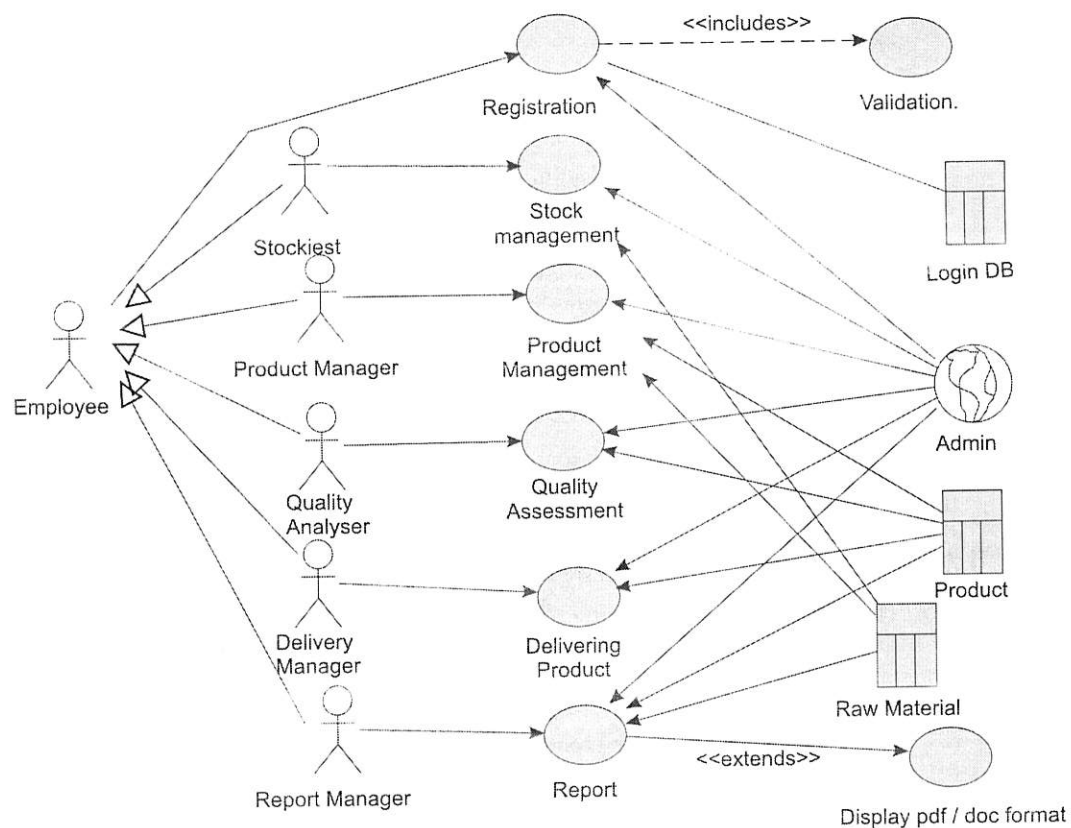
(d) Alternate flow: Re-enter the type of reports

10.4.4 Use Case Diagram

Primary Use Case Diagram

Fig. 10.52   *Primary use case diagram for workflow management system*

Secondary Use Case Diagram

Registration   The unique login id provided for all users.

1. **Functional requirements** The entire employee in the organization is provided with unique login id, which they can get into the system.
2. **Users** Stockiest, Product manager, Quality analyzer, Delivery manager, Report Manager, Admin
3. **Database** Login database table is used to store user details like user id, password and type of user.
4. **Input** User details, Type of user
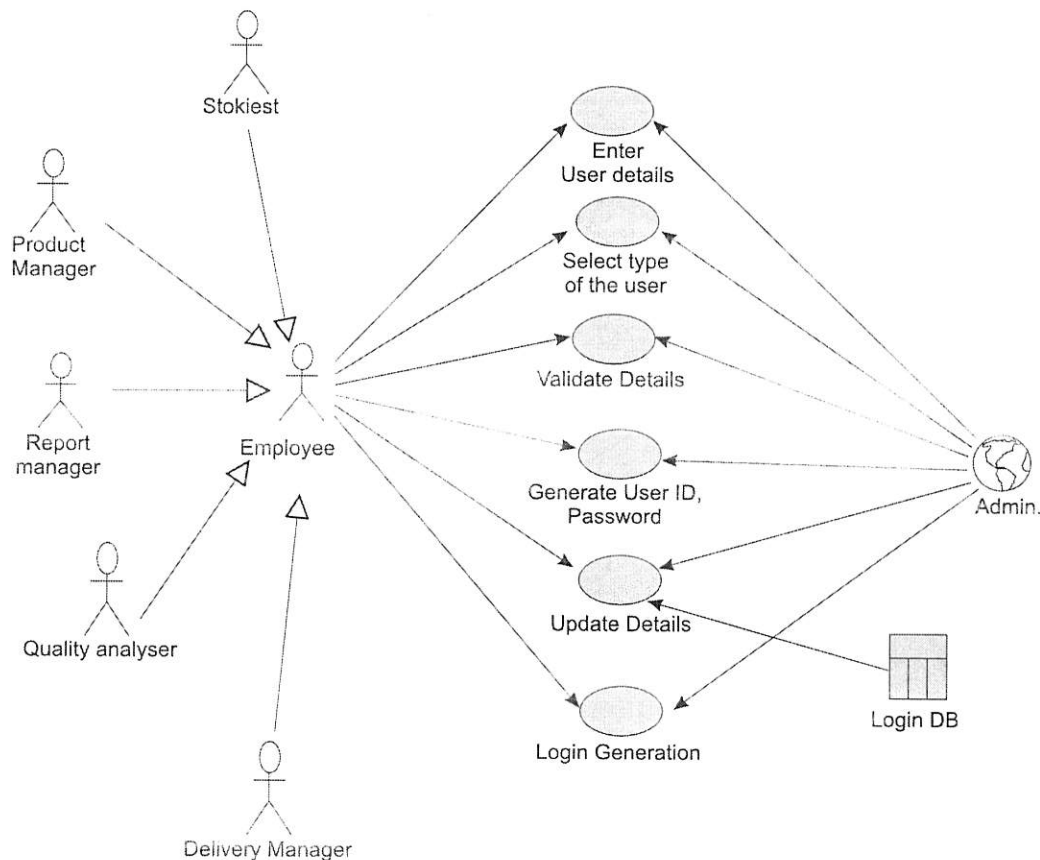5. **Output** Unique id, Password, Login generation

Fig. 10.53   *Secondary use case diagram for registration*

Stock Management   Generating separate id for each item and managing inflow and outflow the stock. Priority for this feature is high. Because without this feature we cannot move further.

1. **Functional requirements** The purchase of new raw material will be added to existing stock and provide unique id for them.
2. **Users** Stockiest, Admin
3. **Database** Raw materials table is used to store details like raw materials information.
4. **Input** Raw material details
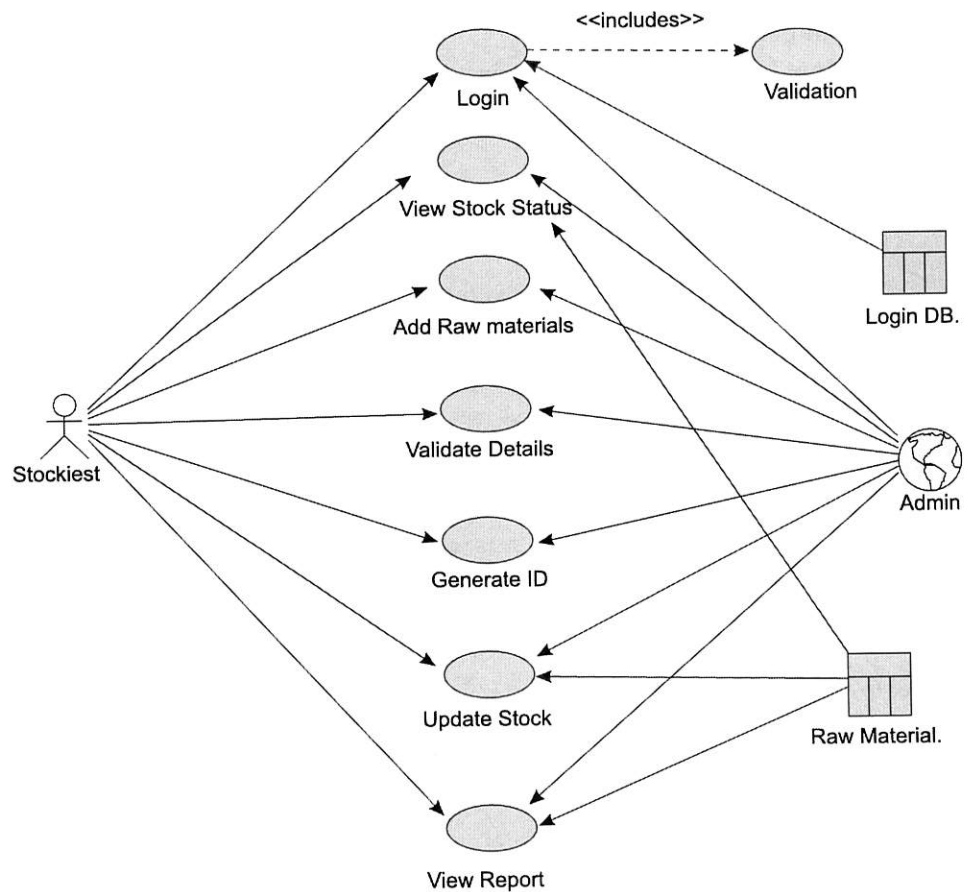5. **Output** Stock id, report generation.

Fig. 10.54 *Secondary use case diagram for stock management*

Product Management   The product manager can access the stock and produce new products.

1. **Functional requirements** Generating id for each product which manufactured
2. **Users** Product Manager, Admin
3. **Database** Product table is used to store details like Product information.
4. **Input** Product details
5. **Output** Product id, Report generation, Reduce stock

Fig. 10.55 *Secondary use case diagram for product management*

Quality Assessment   The quality analyzer can identify defective/qualified products.

1. **Functional Requirements** Testing the quality of the manufactured products
2. **Users** Quality analyzer, Admin
3. **Database** Product table is used to update the product status like Quality or defective.
4. **Input** Product details
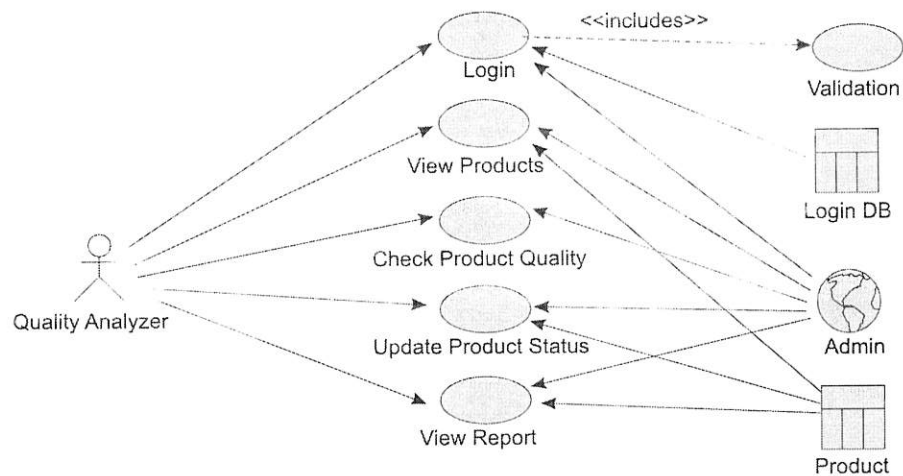5. **Output** Qualified /defective product status, Report generation

Fig. 10.56 *Secondary use case diagram for quality assessment*

Delivery Management   The product manager can identify qualified products and send product for sales.

1. **Functional requirements** Depends upon the quality of the products they can transfer product to either manufacturing department or to sales.
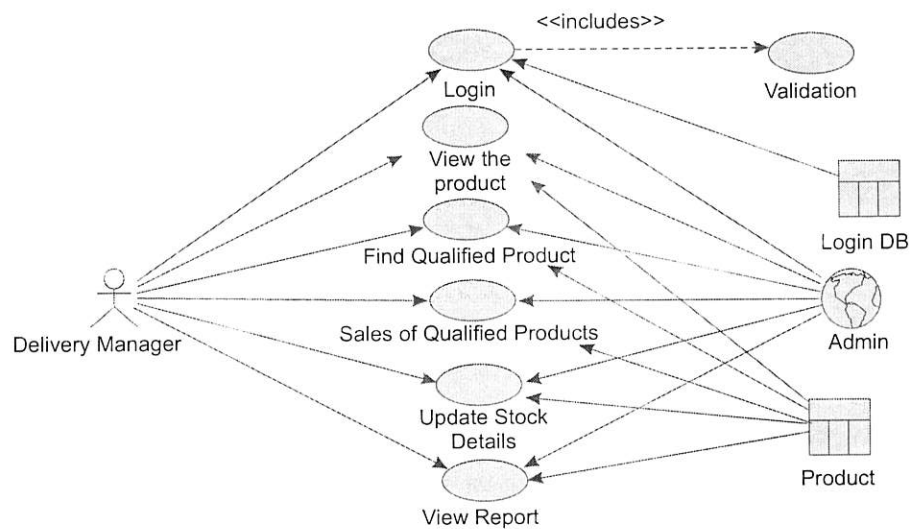
2. **Users** Delivery Manager, Admin

Fig. 10.57 *Secondary use case diagram for delivery management*

3. **Database** Product table is used to update the product status like product is ready to sales or to manufacture again.

4. **Input** Product details

5. **Output** Product is ready for sales or to be re-sent to manufacturing department.

Report Management   Generate report for product and raw material.

1. **Functional requirements** Generate report for stock like raw material and products and it includes qualified, defective, and for product in progress report.

2. **Users** Report Manager, Admin

3. **Database** The Product table is used to show the product status and raw material details

4. **Input** Product details, raw material details
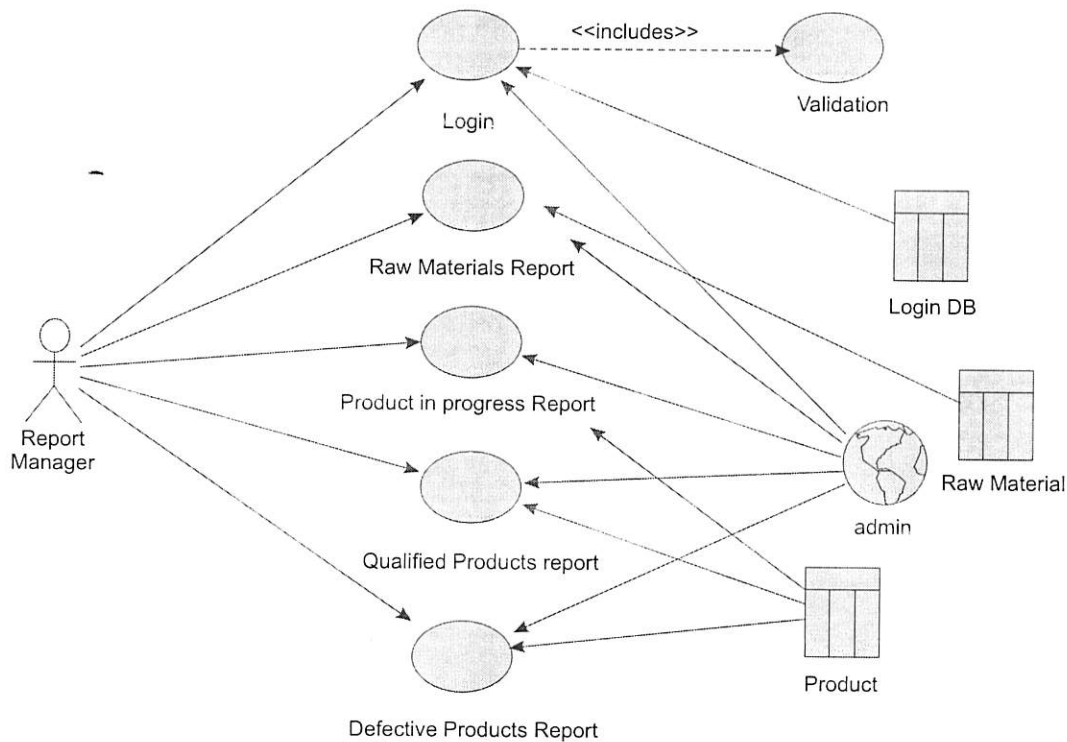
5. **Output** Report generation

Fig. 10.58 *Secondary use case diagram for report management*