---------------------- Project Requirement -----------------------

Based on the high-level information you've provided, let's flesh out a detailed set of project requirements for an Inventory Management System. These requirements will be structured around the key features you've mentioned, ensuring the system is comprehensive, user-friendly, and efficient.

### 1. User and Role Management

- \*\*1.1 User Account Creation and Management\*\*

- The system must allow for the creation and management of user accounts.

- Users can register, log in, update their profile, and recover passwords.

- \*\*1.2 Role-Based Access Control (RBAC)\*\*

- Implement RBAC to define roles (e.g., Administrator, Employee) with specific permissions.

- Permissions include access control to product management, order processing, and reporting features.

### 2. Product Catalog

- \*\*2.1 Product Information Management\*\*

- Allow adding, updating, and removing products.

- Each product should have a unique identifier, name, description, price, and stock level.

- \*\*2.2 Product Categorization\*\*

- Support the creation and management of product categories.

- Enable assignment of products to one or more categories.

- \*\*2.3 Warehouse Assignment\*\*

- Products must be assignable to specific warehouses to track stock levels accurately.

### 3. Order Management

- \*\*3.1 Order Processing\*\*

- Facilitate the creation, update, and tracking of orders.

- Orders should link to specific products and update stock levels accordingly (restock for returns, decrement for sales).

- \*\*3.2 Order Status Tracking\*\*

- Implement order status tracking (e.g., Pending, Completed, Shipped).

### 4. Category Management

- \*\*4.1 Category Creation and Maintenance\*\*

- Allow users to create, edit, and delete categories for organizing products.

### 5. Warehouse Management

- \*\*5.1 Warehouse Record Management\*\*

- Enable the system to manage multiple warehouses, including information such as name, location, and capacity.

- \*\*5.2 Inventory Level Tracking\*\*

- Track and update inventory levels in each warehouse based on order and restock activities.

### 6. Activity Logging

- \*\*6.1 Audit Logs\*\*

- Automatically log user activities related to critical actions (e.g., adding products, processing orders).

- Include details like the action performed, timestamp, and user involved.

- \*\*6.2 Trigger-Based Logging\*\*

- Utilize database triggers to log specific events automatically, enhancing security and auditability.

### 7. Additional Considerations

- \*\*7.1 Scalability\*\*

- Design the system to be scalable, supporting an increase in users, products, and transaction volume.

- \*\*7.2 Security\*\*

- Implement security measures including data encryption, secure password storage, and protection against common web vulnerabilities (e.g., SQL injection, XSS).

- \*\*7.3 User Interface\*\*

- Develop a user-friendly interface that allows for efficient navigation and management of the system’s features.

- \*\*7.4 Reporting and Analytics\*\*

- Provide reporting tools for sales, stock levels, and user activity to support decision-making.

- \*\*7.5 Integration Capabilities\*\*

- Ensure the system can integrate with external systems (e.g., eCommerce platforms, ERP systems) for expanded functionality.

This comprehensive set of requirements aims to capture the essential functionalities for an effective Inventory Management System. It addresses user roles, product and order management, inventory tracking, and security considerations, laying a solid foundation for development and future scalability.

----------------- User stories and journeys ------------------------

Given these project requirements for an Inventory Management System, let's outline the user stories and journeys to provide a clear view of how different users will interact with the system. This approach will help in understanding the functionalities from the users' perspective and ensuring a user-centered design.

### User Stories

#### User and Role Management

1. \*\*As a\*\* new user, \*\*I want to\*\* register for an account \*\*so that\*\* I can access the inventory management system.

2. \*\*As an\*\* administrator, \*\*I want to\*\* assign roles to users \*\*so that\*\* they have permissions that match their responsibilities.

3. \*\*As a\*\* user, \*\*I want to\*\* update my profile \*\*so that\*\* I can keep my information up to date.

4. \*\*As a\*\* user, \*\*I want to\*\* recover my password \*\*so that\*\* I can regain access to my account if I forget my password.

#### Product Catalog

5. \*\*As an\*\* employee, \*\*I want to\*\* add new products to the catalog \*\*so that\*\* the inventory is always current.

6. \*\*As an\*\* employee, \*\*I want to\*\* categorize products \*\*so that\*\* they are easier to find and manage.

7. \*\*As a\*\* warehouse manager, \*\*I want to\*\* assign products to specific warehouses \*\*so that\*\* stock levels can be accurately tracked.

#### Order Management

8. \*\*As a\*\* salesperson, \*\*I want to\*\* create new orders \*\*so that\*\* customer purchases can be processed.

9. \*\*As a\*\* customer service representative, \*\*I want to\*\* update the status of orders \*\*so that\*\* customers can be informed about their order's progress.

#### Category Management

10. \*\*As an\*\* employee, \*\*I want to\*\* create and manage product categories \*\*so that\*\* products are organized and easy to navigate.

#### Warehouse Management

11. \*\*As a\*\* warehouse manager, \*\*I want to\*\* keep track of inventory levels \*\*so that\*\* stock can be replenished when necessary.

12. \*\*As a\*\* warehouse manager, \*\*I want to\*\* manage warehouse information \*\*so that\*\* the system reflects accurate warehouse details.

#### Activity Logging

13. \*\*As an\*\* administrator, \*\*I want to\*\* view audit logs \*\*so that\*\* I can monitor user activities and ensure system integrity.

#### Additional Considerations

14. \*\*As a\*\* developer, \*\*I want to\*\* ensure the system is scalable \*\*so that\*\* it can grow with the business.

15. \*\*As a\*\* security officer, \*\*I want to\*\* implement robust security measures \*\*so that\*\* data is protected against threats.

16. \*\*As an\*\* administrator, \*\*I want to\*\* generate reports \*\*so that\*\* I can make informed decisions based on sales, stock levels, and user activity.

### User Journeys

#### New User Registration and Role Assignment

1. A new employee visits the system's login page and selects "Register."

2. After filling in their details, they submit the registration form.

3. An administrator reviews the new registration, assigns the employee a role based on their job responsibilities, and the employee receives a confirmation email.

4. The employee logs in for the first time, updates their profile, and familiarizes themselves with the system's interface.

#### Processing an Order

1. A salesperson logs into the system and navigates to the order processing section.

2. They create a new order by selecting products, assigning them to the order, and inputting customer details.

3. The order is saved, and stock levels are automatically adjusted to reflect the sale.

4. The salesperson updates the order status throughout its fulfillment process until it is marked as completed.

#### Managing Product Catalog

1. An employee responsible for inventory logs into the system and navigates to the product management section.

2. They add new products by entering product details, including assigning categories and a warehouse for stock.

3. When a product needs to be updated or removed, they make the necessary changes to keep the catalog up to date.

These user stories and journeys outline the essential interactions users will have with the Inventory Management System, providing a blueprint for developing a system that meets the needs of all stakeholders.