Damietta University

Faculty of Computers and Artificial Intelligence

Advanced System Analysis and Design, 2023/2024

[Digital Inventory Management system]

Team Members:

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1. System Request—Digital Inventory Management Project

1.1 Project Sponsor

- Salma Mohamed, Assistant Vice, IT Team Leader
- Ahmed Elzayat, manager
- Khaled Ghaly, vice president

1.2 Business Need:

The existing manual system for inventory management is inefficient, time-consuming, and costly. There is a need to transition to a digitalized system to save time, reduce costs, and improve efficiency by providing accurate and current details about inventory levels.

1.3 Business Requirements:

- Utilize software and hardware to automate inventory processes.
- Determine the quantity and type of each product.
- Maintain optimal inventory levels.
- Provide reporting capabilities for product status, movement, and delivery time.
- Offer online user support.

1.4 Business Value:

- Time and cost savings by eliminating manual record-keeping and report generation.
- Potential reduction in workforce due to automation.
- Increased sales through up-to-date inventory information.
- Improved customer service and satisfaction through online support and availability.

1.5 Special Issues and Constraints:

- Project deadline is set for December 17.
- System accessibility over the internet is necessary.

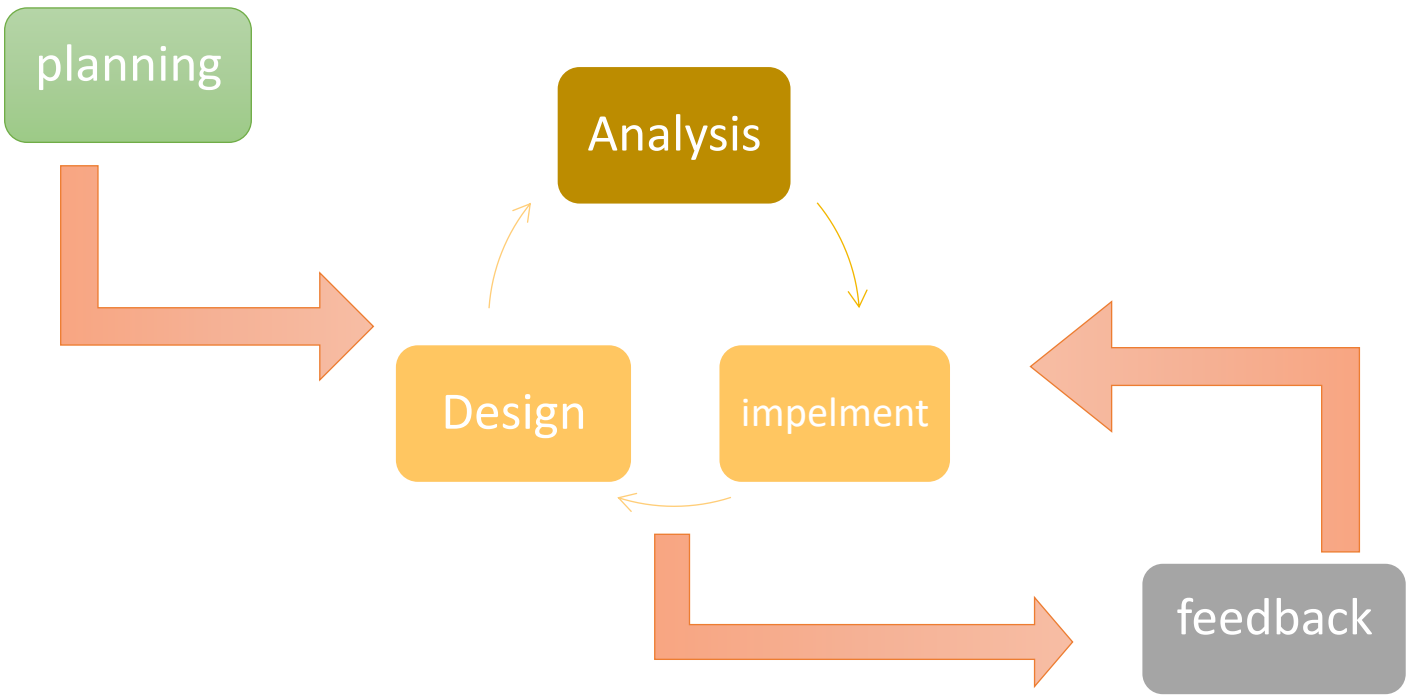
2. Objectives:

- Develop a user-friendly interface for inventory updates and vendor orders.
- Maintain accurate inventory levels to optimize stock.
- Reduce manual efforts in inventory management.
- Generate reports to analyze inventory performance.

3. Methodology:

Agile methodology will be employed for development due to its flexibility in accommodating changing requirements and ensuring alignment with stakeholder expectations.

By adhering to these points, the project aims to streamline inventory management processes, enhance efficiency, and improve overall business operations.



4. Actors:

- Inventory Manager
- Purchasing Manager
- Supplier
- Business Analyst

5. Functional Requirements:

1. **Authenticate Users:**
    - Users must log in securely with unique credentials.
    - Assign different access rights based on user roles (e.g., administrator, manager, staff).
2. **Manage Inventory:**
    - Add, edit, and delete products with relevant details such as name, description, category, unit price, and quantity.
    - Automatically update inventory levels upon each transaction (e.g., sales, purchases, returns).
3. **Process Orders:**
    - Create and process purchase orders for restocking inventory.
    - Adjust inventory levels automatically upon receiving goods from suppliers.
    - Record and track order status (e.g., pending, processed, shipped, received).
4. **Generate Reports and Analytics:**
    - Generate reports on inventory levels, stock movements, and product performance.
    - Analyze sales trends, demand forecasts, and inventory turnover rates.
    - Provide insights to optimize stock levels and purchasing decisions.
5. **Send Alerts and Notifications:**
    - Send alerts for low stock levels, overdue orders, or other inventory-related issues.
    - Notify users about important updates, such as order confirmations or product arrivals.

6. Non-Functional Requirements:

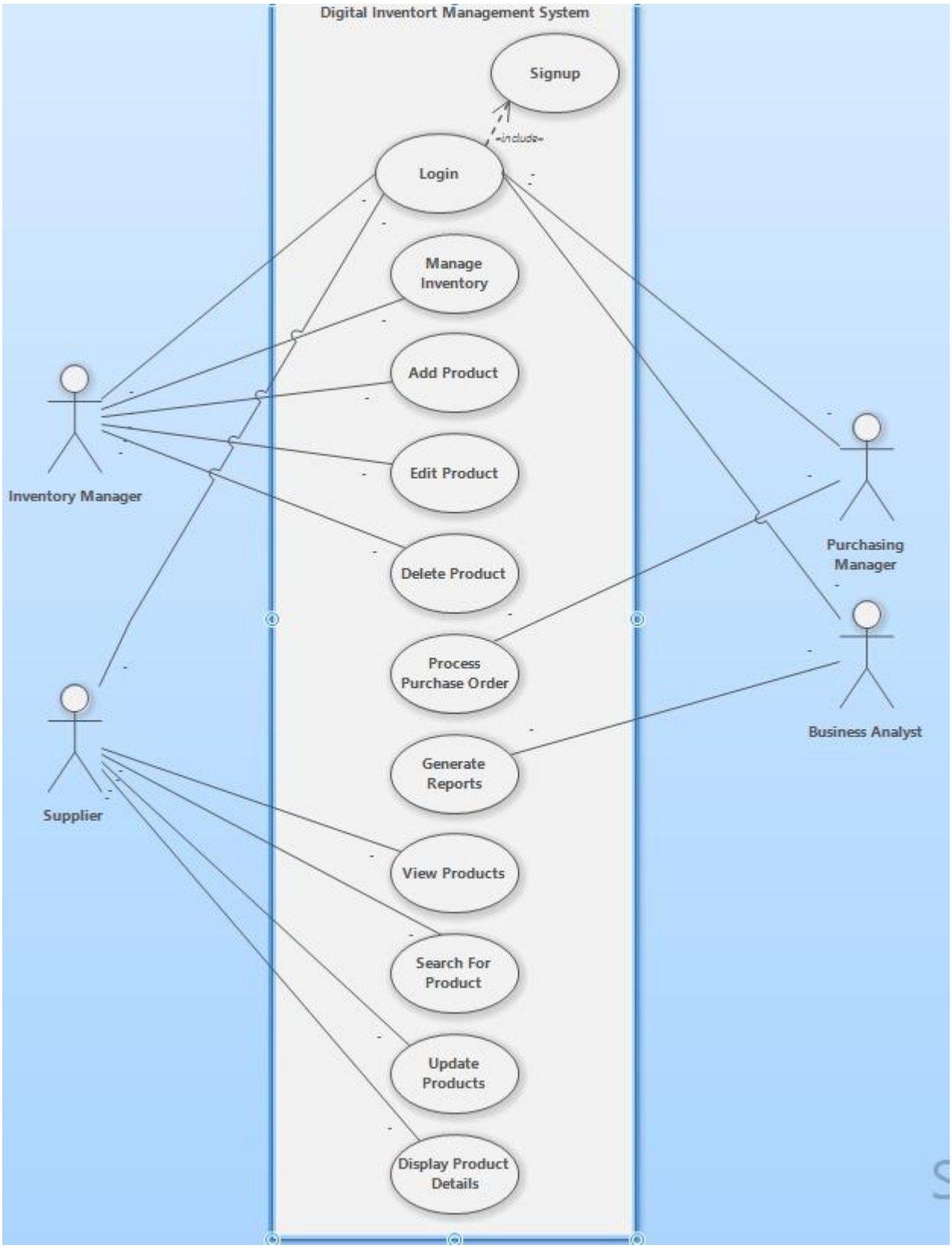
1. **Performance:**
    - The system should respond to user actions within 2 seconds under normal load conditions.
    - It should be able to handle a concurrent user load of at least 100 users without significant performance degradation.
2. **Reliability:**
    - The system should have an uptime of at least 99.9%.
    - It should be resilient to hardware failures or network interruptions, with automatic failover mechanisms in place.
3. **Scalability:**
    - The system should be able to scale horizontally to accommodate increased workload and data volume.
4. **Security:**
    - User data must be encrypted during transmission and storage using industry-standard encryption algorithms.
    - The system should undergo regular security audits and vulnerability assessments to identify and mitigate potential risks.
5. **Usability:**
    - The user interface should be intuitive and easy to navigate, requiring minimal training for users to operate.
    - The system should support multiple languages and localization preferences.
6. **Compatibility:**
    - The system should be compatible with major web browsers (e.g., Chrome, Firefox, Safari, Edge) and operating systems (e.g., Windows, macOS, Linux).
7. **Maintainability:**
    - The system should be modular and well-documented to facilitate future enhancements and maintenance.

- Codebase should follow coding standards and best practices, with version control and issue tracking tools in place.

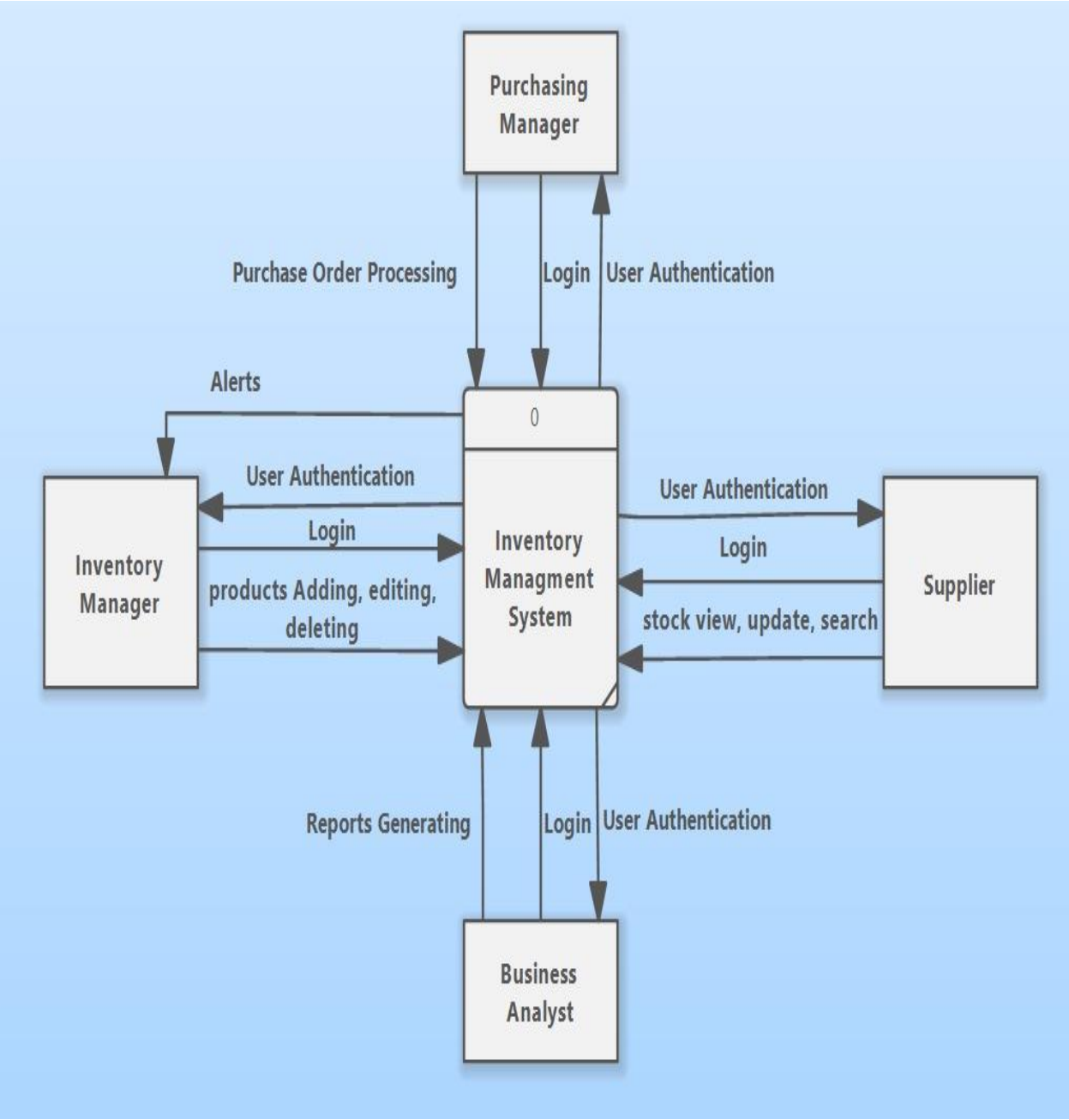
8. **Availability:**

    - The system should be available 24/7, with scheduled maintenance windows communicated in advance to users.

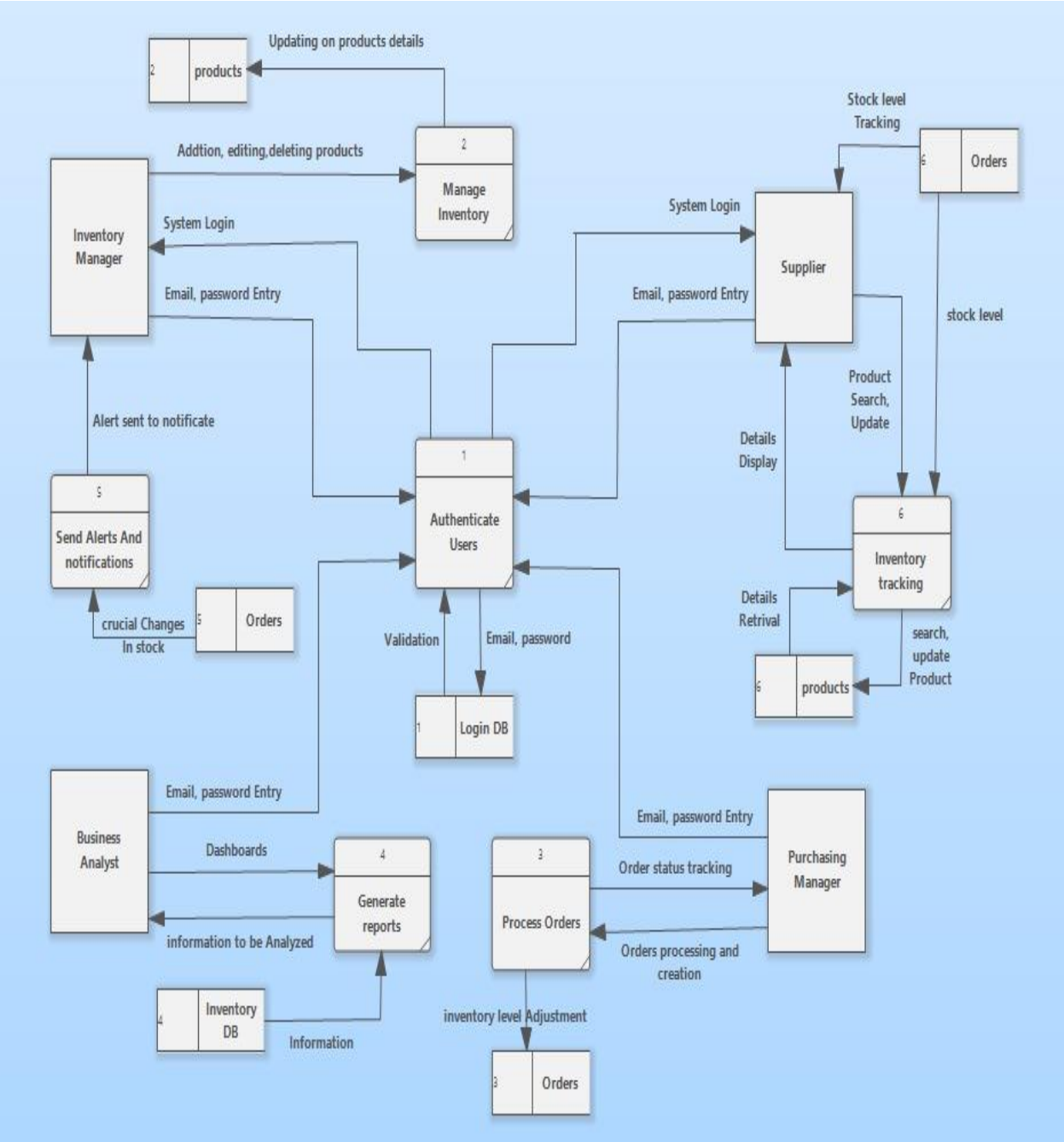
7. Use Cases:


Digital Inventort Management System
Signup
«include»
Login
Manage Inventory
Add Product
Edit Product
Delete Product
Process Purchase Order
Generate Reports
View Products
Search For Product
Update Products
Display Product Details
Inventory Manager
Supplier
Purchasing Manager
Business Analyst

8. Context Diagram:



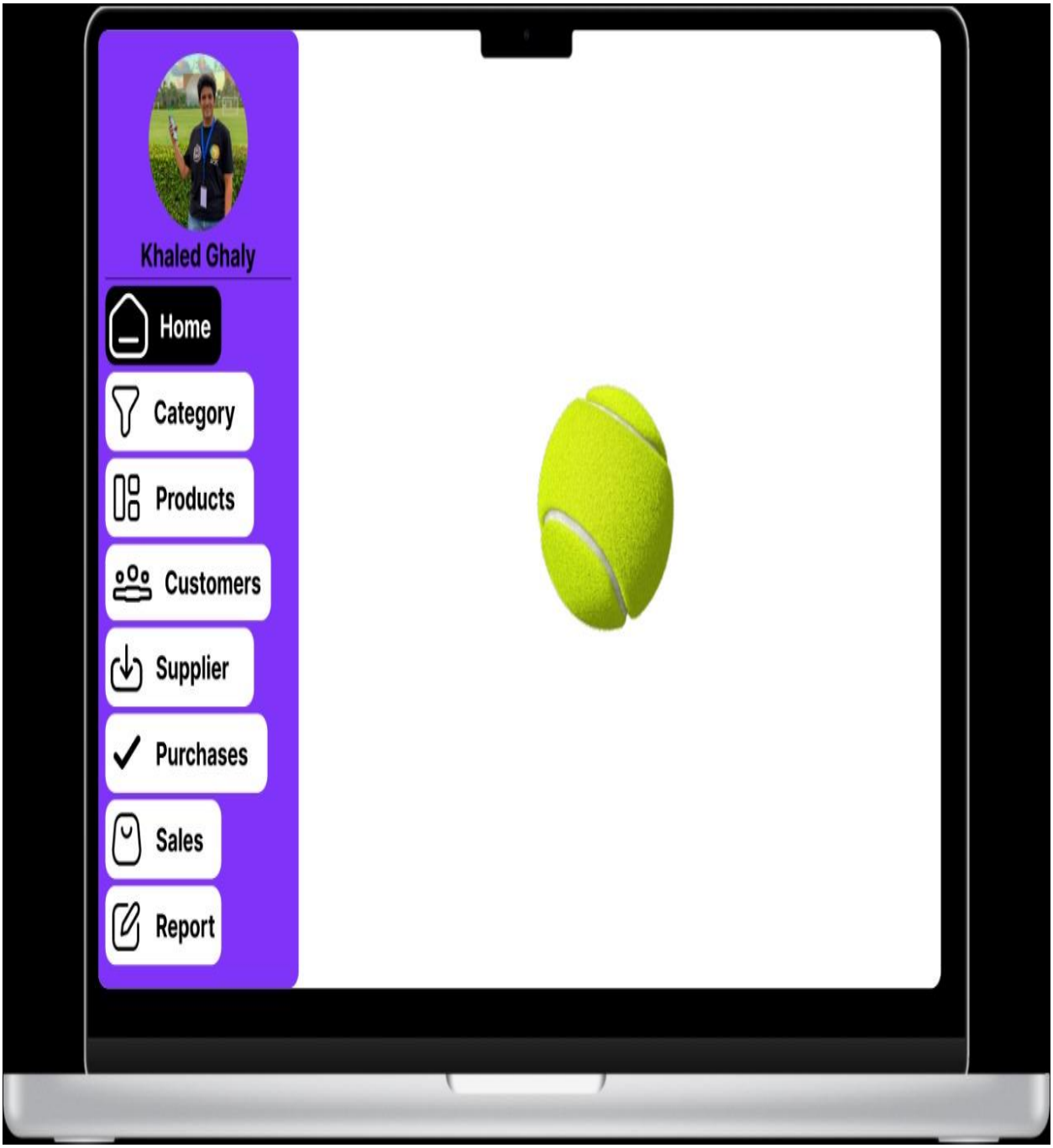
9. DFD Level 1:


Updating on products details
products
Addtion, editing,deleting products
Manage Inventory
Inventory Manager
System Login
Email, password Entry
Stock level Tracking
Orders
System Login
Supplier
Email, password Entry
stock level
Product Search, Update
Details Display
Alert sent to notificate
Send Alerts And notifications
Authenticate Users
Inventory tracking
crucial Changes In stock
Orders
Validation
Email, password
Details Retrival
search, update Product
products
Login DB
Business Analyst
Email, password Entry
Dashboards
Generate reports
information to be Analyzed
Email, password Entry
Purchasing Manager
Order status tracking
Process Orders
Orders processing and creation
Inventory DB
Information
inventory level Adjustment
Orders

10. UI Screens:

Login Screen:

Home Screen:


Khaled Ghaly
Home
Category
Products
Customers
Supplier
Purchases
Sales
Report

Input Screen:

Output Screen: