Stakeholder identification & Analysis

Inventory Management System is managing multiple stores inventory tracking efficiently and able known the status of each product and make the business owner to identify, which products are to be ordered for a specific location. Then allow the staff to update at least monthly the inventory as means to verify the inventory in the warehouse in different locations for any error. It is crucial for business owner to the details of about the inventory brought from client, like how much inventory is brought for a particular month in easy understand way or graphical representation. Product wise monthly or yearly sales data in graphical form for good grasp.

Sales tracking is way more important for a business to know the current, previous and future prediction to specified for custom forecasting or subjected to sales data. Tracking of sales and use to update inventory automatically, where the system informs the business owner which needed to be order or tells best performing product for this month and worst performing product make the final decision for business owner.

Reporting the data for sales or inventory like how much is month sales and inventory, then product wise or top performing product data can make custom adjustment according business owner requirement. Then at least basic reporting for net profit, cost of goods sold, gross revenue, forecasting net profit, revenue, sales or price increase to the required information to his benefit.

Primary Stakeholders:

Retail business owner & Operation Mangers

Business owners make crucial decision regarding smooth operation of sales for multiple location, able to see required data for multiple data for sales tracking, inventory tacking, product wise tracking for at specific location top performer or worst performer at different location. Profit gained from each location and where the business profited more at specific location or specific product.

IT Team (Developers, Testers)

It is responsibility of developers and testers maintain the system like point of sales, warehouse management of inventory and payment system for client or from customer for smooth transcitation. Conduct regularly security checks for sensitive sales and inventory data for real time integration between sales and inventory or reporting efficient time utilization for everyone involved in the process. May have system notification to owners for low stock for certain product inform the owner to order additional stock certain occasion relaying previous data. Cloud based infrastructure for scalability or security.

Store Managers

Store managers are responsible for day-to-day operations, inventory levels for the store proper use arrangement of products in the store for more accessible for the customers see, monitor daily sales and best product for this month. He is also required to update inventory of the store for any damaged product, out of date, returned product from customers needed to be updated from the store they are brought. Managers are responsible for more work towards identify which product to be placed for order, make it not difficult for the system to track slow moving product regarding sales and inform not put any stock. Customer makes inquire about new product they want, and managers can be able inform the business owners.

Warehouse Staff

Warehouse staff are primary responsivity can verify the order reached the warehouse in specified in the order and if not updates the inventory to required amount. Then store the inventory in the specified location storing. Then distribute the inventory to specified locations based on reports. Always update the inventory regarding the waste or damaged products that will not affect stock level for restocking. Have barcode scanning for the shipment to update the specific shipment and product wise sales for each product to track.

Sales Team

Sales team more inclined towards the sales pattern for each location or stock demand for each product. Share data for best perform product to make better decision regarding inventory or fast-moving products to able restock efficiently. Tracking seasonal trends and offering promotions or discounts option for specific products. Able to see the dynamic pricing for different and offer promotions on products.

Customers

Customers are the end users where they can be able to buy desired products from specific store. It is going to be difficult for not providing the required product, where it should be long checkout queues or problem with payment system and inefficient price information. It should faster check timeouts and good payment system.

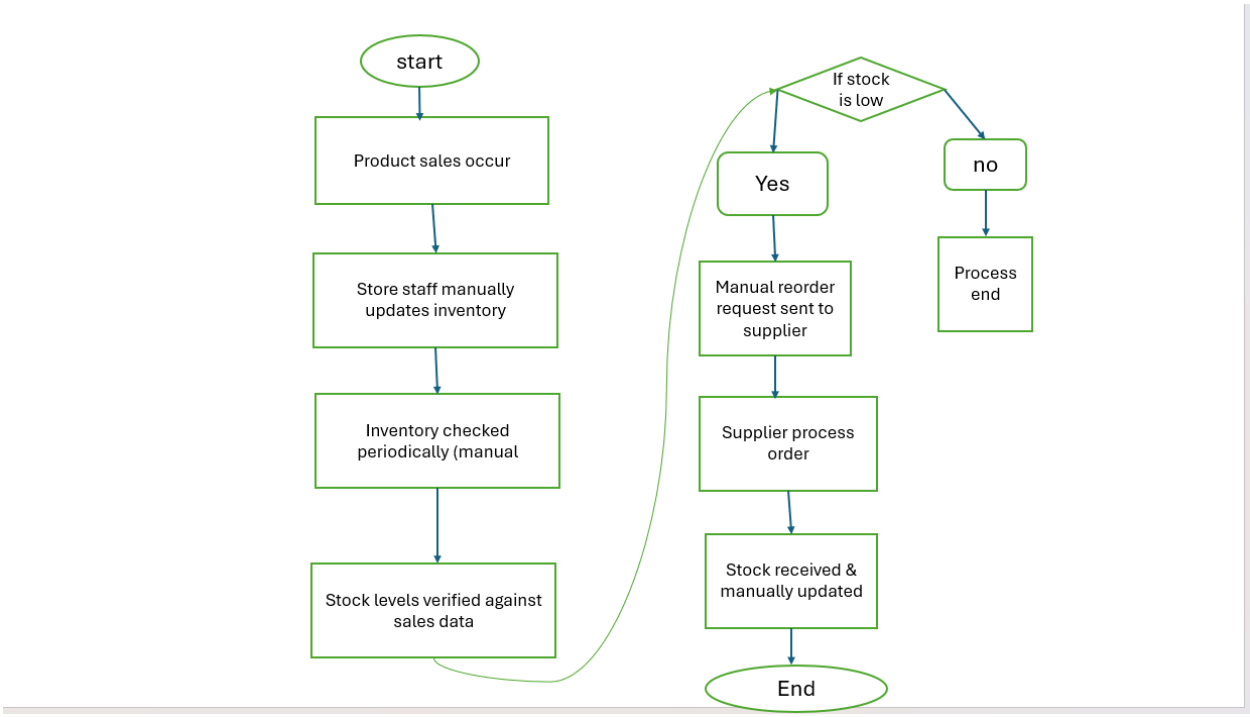
Stakeholder Communication Strategy:

Stakeholder	Communication Method	Frequency	Purpose
Business Owners & Operation Managers	Monthly Review, Meeting & email, reports	Monthly or weekly	High level updates, strategic decision making
IT Team	Daily scrum Meeting	Daily	Track progress, resolve problems, align development efforts
Store Managers	Weekly meeting & reports, feedback sessions	Weekly	Review inventory issues, discuss sales trend, gather improvement suggestions.
Warehouse staff	Inventory Replenishment meetings	Daily Or weekly	Sales demands and stock forecasting
Sales team	Market Trend Analysis Reports	Weekly &Monthly	Track sales trends, customer demands and stock performance.
Customers	Product availability updates	Real time	Notify customers about stock and availability in store
Regulatory Authorities	Tax compliance	Quarterly or yearly	Compliance with tax laws

Software vendors	Api maintenance & system updates	Required	Ensures the integration for software runs smoothly.

Business Process Mapping & Requirements Gathering

Map The Current State:



Current State Analysis & Pain Points

- Inventory is managed using spreadsheets, leading to data entry errors and delays.
- Stock levels are not updated in real time, causing discrepancies.
- Sales and warehouse systems operate in silos, requiring manual reconciliation.
- Stock replenishment is delayed, leading to frequent product shortages.
- Reporting is slow and unreliable, making demand forecasting ineffective.

Pain Points & Inefficiencies:

- **High Error Rate**: Manual entry increases human errors in stock records.
- **Lack of Visibility:** No centralized view of inventory across multiple stores.
- **Slow Replenishment:** No real-time tracking leads to late restocking.

- **Poor Forecasting:** Lack of historical data analysis impacts decision-making.
- **Security Risks:** Manual processes increase vulnerability to fraud and mismanagement**.**

Business Goals: Business goals are real time inventory tracking for all the retail stores and automating stock replenishment to prevent shortages & overstocking. Integration of existing sales & inventory data to avoid issues or automating ordering re stock of inventory based on data collected from different stores. Business owners can able to see reports for various details regarding sales trends, net profits, stock order details, products low on stock and able forecasting capabilities for efficient process.

Scope:

- Real time inventory tracking for different stores at a time and updates in real time.
- Automated stock replenishment
- Integration of sales & inventory system for better decision making for inventory.
- Control of IMS is based on the job specification like business owners can access everything, store manager access everything related to his store.
- Scanning for barcodes for everything to update, delete or change order details. Barcode scanning for receiving orders and selling products.
- Customize reports based specific category like sale reports for specific store, multiple stores sales reports, net profit reports for single stores or multiple stores, seasonal trends of sales, best performance products, change price for products.
- Store managers can a portable mobile like support for updating the store products, selling the various products and do other things.

Out of scope

- Hardware procurement like barcode scanner, radio frequency identification devices.
- Import of historical data from legacy system from all stores available

Functional Requirements:

- The system must track real time stock levels across multiple location.
- Users shall receive low stock alerts and automatic order suggestions for specific store manager.
- The system allows inventory management of multiple stores or order of stock for multiple stores.
- IMS needs to integration with warehouse system & sales system.
- Role based control for different stakeholders working in the organization like manager, warehouse manager, warehouse staff, sales team, owner.

- Barcode scanning shall be available for order purchase, selling products or stock updates.
- The system shall automatically generate purchase order for suppliers.
- Users can see customize reports of different nature related to each role.
- Portable app for custom build mobile phone & app for different store managers & staff shall be available.
- The system shall support different currencies for various location & tax rules.

Non- Functional s requirements:

- **Performance**: system should be able handle up to 10,000+ transactions per day.
- **Scalability:** Must support future expansion of retail stores & warehouse.
- **Security:** Encrypted data storage & two factor authentication.

Assumptions & constraints:

- Client is willing to invest in cloud-based hosting.
- Adequate training will be provided to store staff & managers.
- The budget may be maximum up to 160 core rupees.
- The project Timeline must be completed in 6 months.
- Some old may be lost and cannot be integrated into new system.

User Stories & use Cases:

1. As a Store Manager I want to receive real time low stock alerts, so that I can reorder products before they run out and avoid stockouts.
2. As a Warehouse staff I want to scan barcodes to update levels instantly so that I can reduce manual errors and improve inventory accuracy.
3. As a Business Owner I want to generate customized sales and inventory reports so, that I can analyse and make informed decisions.
4. As a Sales representative I want to system to automatically update inventory when a sale is made, I can prevent overselling and ensure stock availability.
5. As a IT Administrator I want to configure user roles and access permission so that employees only access relevant data, ensuring data security and compliance.

Use case:

Actors: store manager

Precondition:

- The inventory management system detects that stock levels of a product have fallen below the approved level.
- The system generates an automatic replenishment request and sends it to the store manager for approval.
- The store manager reviews the request from the system and either approve it or reject it.
- If approved the request is sent to warehouse system for fulfilment.
- Warehouse staff process the request and prepares the stock for dispatch.
- IMS updates inventory levels once the replenishment stock is received at the store.

Alternative Flows:

- If the requested item is out of stock, the system suggests alternative suppliers.
- If the store managers reject the replenishment request the system logs the rejection and notify the business owner.

Postconditions:

- The stock levels are successfully in the IMS.
- The replenishment request is recorded in the system for future reference and reporting.

USE CASE:

Actors:

Store manger

Inventory Management System.

Preconditions:

- The stock level of a product falls below a threshold.
- The notification system is configured for alerts.

Main Flow:

- The inventory Management System continuously monitor stock levels in real time.
- When a product reaches the low stock threshold the system triggers an alert.
- A notification is sent to the store manager via email, SMS, Ims's dashboard.
- The store manager reviews the alert and decided whether to initiate a replenishment.

Alternative Flows:

- If the store has Manager replenishment enabled the system creates purchase order automatically.
- If the threshold is adjusted the system recalculates alerts to prevent unnecessary.

Postconditions:

- The store manager is notified and can initiate stock replenishment if needed.
- The system logs the alert for audit and reporting purpose.

Functional Prototyping & Wireframes

Test cases & Acceptance criteria:

Test cases:

Low stock alert trigger:

Test Scenario: The system should trigger a low stock alert when inventory drops below a predefined threshold.

Expected Result: The system a real time notification to the store manager.

Tests steps:

- Log into the inventory management system as a store manager
- Select a product and manually reduce its stock level below the predefined threshold.
- Wait for the system to detect the low stock level.
- Verify that the store manager receives an alert via email, sms, system notification.

Pass / Fail Criteria:

Pass: if the store manager receives the alert within the 15 seconds.

Fail: if no alert is triggered if it is delayed the acceptable limit.

Test Case: Inventory Replenishment Process

Test Scenario: When a order is placed for low stock items the inventory should update after order fulfilment.

Expected Result: The system correctly updates stock levels after the order is fulfilled.

Test Steps:

- Log in as a store manager and review stock levels.
- Approve a replenishment request for a low stock product.
- The warehouse confirms shipment of the requested stock.
- The IMS updates stock levels accordingly.
- Verify that the inventory reflects the new stock levels.

Pass/Fail:

Pass: if the updated stock levels match the order quantity after shipment.

Fail: if the stock does not update or shows incorrect values.

Test case:

role-based access control

Test scenario: System should enforce role-based access control to prevent unauthorized actions.

Test Steps:

- Log in as a store manager and try accessing admin only features.
- Log in as warehouse staff and try modifying sales records.
- Log in as an admi and attempt to access system features.
- Verify if access is correctly restricted for unauthorized users.

Pass/ Fail:

Pass: if unauthorized users cannot access restricted and admin can access all relevant sections.

Fail: if any user role has incorrect permission.

Acceptance Criteria for Inventory Management system:

- The system provides real time inventory systems with updates reflecting within 5 seconds of stock change.
- Automated replenishment functionality correctly triggers purchase orders when stock levels drop below the set threshold.
- The system generates custom inventory and sales reports within 3 seconds of the request.
- Role based access control prevents unauthorized access and ensures that only designed roles can perform critical actions.
- The system supports barcode scanning for faster stock updates without manual entry errors.
- Low stock alerts must be delivered within 10 seconds via email, SMS, system notifications.
- The platform should handle at least 10,000 transactions per day without performance degradation.
- Data security is enforced with encrypted storage and two factor authentication for login.
- The system must integrate seamlessly with the scales and warehouse management system without causing delays.
- The solution should be scalable to support additional retail stores without requiring major reconfiguration.

Communication Plan & Project Timeline:

Stakeholder	Communication Method	Frequency	Report type	Purpose
Project sponsor	Email Updates & Monthly progress	Weekly, email, monthly meeting	Project status, report Key Milestones, risk, logs	Provide high level progress updates, discuss and ensure alignment with business goals
It team	Daily standups	daily	Development progress, blockers, next steps	Ensure coordination resolve issues and development momentum.

Project timeline:

Requirements Gathering: 1 to 2 Months

System Design & prototyping: Month 3

Development integration: months 4 to 5.

Testing & UAT: month 6

Go Live: post month 6.