**IDEATION PHASE**

**BRAINSTORM & IDEA PRIORITIZATION**

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| **Date** | 19-06-2025 |
| **Team ID** | LTVIP2025TMID28927 |
| **Project Name** | Medical Inventory Management |
| **Maximum Marks** |  |

**Objective**:  
To identify key operational gaps in existing medical inventory workflows through team collaboration, then brainstorm and prioritize CRM-based solutions that improve efficiency, data accuracy, and automation in a medical context.

**Step 1: Team Gathering, Collaboration, and Problem Identification**  
The team interviewed healthcare professionals, pharmacists, and inventory personnel from clinics and local medical supply stores to understand operational pain points in managing medical stock. Problems identified include:

* Lack of real-time visibility of stock levels and product expirations
* Manual handling of supplier and purchase order records
* No automation for tracking expiry dates or low stock alerts
* Inability to monitor supplier performance and order history effectively
* Poor communication between inventory and procurement departments

**Selected Problem Statement:  
“Healthcare facilities lack a centralized system to manage medical inventory, monitor expiry dates, automate replenishment, and streamline supplier communication.”**

**Step 2: Brainstorming, Idea Listing, and Grouping**

**Raw Ideas Collected:**

* Automate low-stock alerts and expiry date warnings
* Track supplier delivery timelines and performance
* Auto-calculate purchase order cost from order items
* Enable real-time inventory deduction after transaction
* Send automated notifications to procurement
* Create dashboards for inventory and procurement managers
* Generate reports: Expiry Summary, Order History, Supplier Efficiency
* Use record-triggered flows to auto-update delivery dates
* Validation rules for stock thresholds and delivery timelines
* Role-based data access for pharmacists, procurement staff, and admin

**Grouped Ideas:**

1. Automation & Workflow
   * Low-stock/expiry alerts
   * Auto-calculate order cost
   * Auto-update delivery dates via Flow
2. Inventory Control
   * Monitor stock by category (medicine, equipment, disposables)
   * Track expiry and minimum stock levels
   * Real-time update after transactions
3. Role-Based Access
   * Profiles: Pharmacist, Procurement Manager, Inventory Assistant
   * Permission sets for controlled access
4. Reporting & Dashboards
   * Inventory Summary Dashboard
   * Supplier-based Purchase Reports
   * Expiry Date Reports
5. Communication Automation
   * Email notifications for low stock or received orders
   * Notifications for delayed or missed deliveries

**Step 3: Idea Prioritization Table**

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| --- | --- | --- | --- |
| Idea | Impact | Feasibility | Priority |
| Low-stock alert automation | High | High | High |
| Expiry date validation rule | High | Medium | High |
| Role-based access configuration | Medium | High | Medium |
| Purchase Order cost calculation | High | High | High |
| Dashboards for inventory | Medium | Medium | Medium |
| Supplier efficiency reports | Medium | Medium | Medium |

**Final Shortlisted Ideas with Explanation**

1. Auto Calculation of Purchase Order Cost via Apex Trigger  
   A trigger calculates total cost by summing related Order Item amounts. Ensures accuracy, avoids human error, and updates Total Cost field on Purchase Order object.  
   Benefits: Financial accuracy, audit-readiness, improves data consistency.
2. Record-Triggered Flow to Auto-Update Actual Delivery Date  
   A flow adds 3 days to Order Date and updates Actual Delivery Date automatically upon creation.  
   Benefits: Reduces manual updates, improves procurement tracking, and aligns delivery expectations.
3. Inventory Threshold Validation Rules  
   Prevents users from entering stock values below the minimum threshold or setting expiry dates beyond acceptable range.  
   Benefits: Prevents stockouts, improves safety compliance, ensures timely reordering.
4. Custom Reports & Dashboards
   * Purchase Orders by Supplier
   * Expiring Inventory in Next 30 Days
   * Inventory Summary by Category
   * Total Cost vs. Received Inventory  
     Dashboards display real-time insights for procurement and inventory teams.  
     Benefits: Informed decision-making, trend analysis, and performance tracking.
5. Role-Based Profiles & Permission Sets  
   Defined profiles:
   * Pharmacist: Can update stock and view expiry
   * Procurement Manager: Can approve orders, track supplier data
   * Admin: Full access  
     Permission sets provide additional object-specific access (e.g., Order Item creation).  
     Benefits: Secures data, ensures task-relevant access, simplifies UI per role.
6. Email Notifications via Flow  
   Sends automated emails when:
   * Orders are received
   * Delivery is delayed
   * Stock drops below minimum
   * Products near expiry  
     Benefits: Improves cross-functional communication, speeds up response time, and supports proactive inventory management.

**EMPATHY MAP CANVAS**

**Objective**:  
To step into the shoes of primary users in the medical supply ecosystem to deeply understand their behaviors, emotions, needs, and challenges. This will ensure that the CRM solution is not only functional but truly supportive of their day-to-day workflows and goals.

Who Are We Empathizing With?

1. Medical Inventory Managers:  
   Responsible for maintaining accurate records of incoming/outgoing medical stock, monitoring expiry dates, managing reorders, and ensuring compliance. They are under pressure to ensure that no item goes expired, stockouts are avoided, and regulatory documentation is up to date.
2. Procurement Officers:  
   Responsible for creating purchase orders, tracking supplier deliveries, managing invoices, and maintaining supplier relationships. Their key concerns include cost control, timely deliveries, vendor performance, and financial reconciliation.

User Says (What the user verbalizes)

* “I want to know what’s about to expire without checking everything manually.”  
  Implication: They need expiry monitoring that is proactive, not reactive—automated alerts, filters for soon-to-expire items, and prioritized task lists.
* “I don’t want to calculate total costs every time.”  
  Implication: Purchase order cost tracking should be automated through related Order Items, minimizing the manual arithmetic they currently perform.
* “I can’t track which supplier is delivering late.”  
  Implication: They lack visibility into supplier performance and delivery timelines. This requires detailed purchase order tracking and supplier analytics.

User Thinks (What the user is pondering but may not say)

* “There has to be an easier way to reorder stock.”  
  Implication: They are mentally burdened by complex or manual restocking processes. The system must automate reorder suggestions based on minimum stock levels.
* “I hope I don’t miss another expired item.”  
  Implication: There's constant stress due to limited visibility. The CRM must make expiry status visible at a glance—dashboards, color-coded indicators, and reports.

User Does (What the user does in their routine)

* Maintains Excel sheets or notebooks for stock & expiry tracking  
  Implication: This is inefficient, error-prone, and non-collaborative. The CRM should serve as a centralized, digital record-keeping and alert system.
* Calls suppliers or sends emails manually for order follow-up  
  Implication: Time-consuming communication that should be replaced with automated reminders, status updates, and delivery logs in the system.

User Feels (Emotional triggers)

* Stressed when an item expires or stock runs out  
  Implication: Errors can impact patient safety and compliance. CRM must prevent this with proactive alerts and reporting.
* Relieved when inventory levels and expiry dates are clearly visible  
  Implication: Simple, well-visualized data reduces anxiety. Dashboards and real-time data panels are not luxury—they’re essential for peace of mind.

Insights Gained

1. Critical Need for Centralized Inventory Visibility  
   Insight: Manual stock tracking via notebooks and spreadsheets creates silos and increases error risk. Inventory Managers require a centralized, cloud-based system to track:
   * Current stock
   * Expiry dates
   * Minimum stock alerts
   * Supplier and purchase order linkages  
     Impact on Design:
   * Custom objects: Product, Supplier, Purchase Order, Order Item, Inventory Transaction
   * Relationships between objects: Lookup and Master-Detail fields to connect records
   * Dashboards to visualize stock and expiry risks
2. Automation of Procurement & Expiry Alerts  
   Insight: Procurement staff currently rely on mental math or manual calculations for reordering and cost estimation. Expiry monitoring is entirely manual.  
   Impact on Design:
   * Validation Rules: e.g., Expected Delivery Date should not exceed 7 days
   * Flows: Record-Triggered Flows to auto-update delivery dates, notify on low stock or expiry
   * Apex Trigger: Automatically update Purchase Order total based on Order Items
3. Need for Role-Based Access Control  
   Insight: Inventory Managers and Procurement Officers have overlapping but distinct responsibilities. Not everyone should see or edit all data.  
   Impact on Design:
   * Profiles: Inventory Manager, Purchase Manager
   * Roles: Procurement Manager, Inventory Officer
   * Permission Sets: Allow specific tasks like editing Order Items or generating reports
   * Field-Level Security and Page Layouts: Tailored per role for focused user experience
4. Reporting & Dashboarding is Core, Not Optional  
   Insight: Users value insights like supplier performance, expiring stock, and purchase order volume—but don't currently have tools to access them easily.  
   Impact on Design:
   * Custom Reports: Purchase Orders by Supplier, Items Nearing Expiry
   * Summary & Matrix Reports: Complete Purchase Details
   * Dashboards: Medical Inventory Overview, Reorder Insights, Procurement Health
5. Communication Automation is a Must  
   Insight: Manual calls and follow-ups with suppliers and internal teams consume valuable time and lead to inconsistencies.  
   Impact on Design:
   * Record-Triggered Flows to send email notifications (e.g., order received, expiry warning)
   * Email Templates for communication standardization
   * Email Logs to track delivery and status of automated message

**CUSTOMER PROBLEM STATEMENTS**

**Purpose**:  
Problem statements help ensure that the solution being built addresses real-world issues that medical staff, inventory managers, and procurement officers face. These statements define what the user is struggling with, why it’s happening, and what the consequences are — setting a focused foundation for CRM development.

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**Problem Statement 1: Operational Breakdown and Stock Mismanagement in Medical Facilities**

We believe that medical inventory managers and procurement staff are struggling with real-time stock monitoring, expiry tracking, and purchase order management because of the absence of an integrated digital system and reliance on manual tools such as spreadsheets and notebooks. This causes untracked stockouts and overstocking, increased risk of expired product usage, and significant delays in the procurement cycle.

**Elaboration:**

* Customer Type: Inventory Managers, Pharmacists, Procurement Officers in hospitals, clinics, or healthcare supply chains.
* Core Problem: “Struggling with real-time stock monitoring and procurement” reflects the inability to control what’s available, what’s needed, and what’s outdated.
* Root Causes:
  + “Absence of an integrated system” means that inventory, order, supplier, and expiry information is not connected.
  + “Reliance on manual tools” introduces errors, slow access to data, and no automated checks or workflows.
* Negative Impacts:
  + Untracked stockouts and overstocking: Medical items may be ordered in excess or not reordered in time, leading to waste or lack of supply during critical needs.
  + Increased risk of expired product usage: Manually tracking expiry dates can lead to use of expired medications or equipment, compromising patient safety.
  + Procurement delays: Without automated alerts or workflows, purchase orders are delayed or lost, resulting in operational inefficiencies.

**Problem Statement 2: Lack of Proactive Communication and Uncertainty in Supply Chain Coordination**

We believe that procurement managers and inventory teams are struggling with timely communication and visibility into order fulfillment and supplier delivery because of manual follow-ups and lack of automated tracking systems. This causes uncertainty in delivery timelines, frequent miscommunication with suppliers, and increased time spent on status checks and error correction.

**Elaboration:**

* Customer Type: Procurement Officers, Store Supervisors, Inventory Staff.
* Core Problem: “Struggling with timely communication and delivery visibility” reflects a broken feedback loop between ordering and receiving goods.
* Root Causes:
  + “Manual follow-ups” means staff are emailing or calling suppliers individually, without standardized communication.
  + “Lack of automated tracking systems” means there's no way to get notified when an order is delayed or fulfilled.
* Negative Impacts:
  + Uncertainty in delivery timelines: Orders may arrive late or be forgotten altogether, leaving critical departments understocked.
  + Frequent miscommunication: Mismatched expectations between internal teams and suppliers leads to finger-pointing and blame.
  + Time wasted on manual tracking: Employees spend hours chasing updates instead of focusing on core tasks.

**Problem Statement 3: Compliance Risks and Data Fragmentation in Medical Inventory Handling**

We believe that healthcare inventory teams are struggling with maintaining accurate and auditable records for inventory movements and financial reconciliation because of poor system integration and lack of role-based visibility. This causes difficulty in meeting compliance standards, fragmented record-keeping, and loss of accountability across users.

**Elaboration:**

* Customer Type: Compliance Officers, Inventory Managers, Admins.
* Core Problem: “Struggling with accurate and auditable record-keeping” is critical in highly regulated environments like healthcare.
* Root Causes:
  + “Poor system integration” means there’s no consolidated log of inventory transactions, billing, and supplier histories.
  + “Lack of role-based visibility” means too many users have full access or no access, increasing the risk of unauthorized changes and user confusion.
* Negative Impacts:
  + Compliance difficulties: Auditors cannot easily track transaction history, approval workflows, or expired items.
  + Fragmented data: Different teams use different tools, causing gaps in information.
  + Loss of accountability: Without audit trails or user-specific access controls, errors can’t be traced to specific users.