Project Title: Medical Inventory Management

Date: November 06, 2025
Team ID: NM2025TMID05285
Maximum Marks: 5 Marks

Phase 4: Project Planning Phase

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Inventory Setup	USN-1	As a pharmacy manager, I can add medical supplies and medications with detailed specifications (name, category, batch number, expiration date).	3	High	Developer 1
Sprint-1	Location Management	USN-2	As a store manager, I can configure storage locations (departments, rooms, cabinets) and assign items to locations.	4	High	Developer 2
Sprint-2	Inventory Tracking	USN-3	As a staff member, I can view real-time stock levels across all locations with batch-level detail.	5	High	Developer 1
Sprint-2	Stock Valuation	USN-4	As a hospital administrator, I can view inventory valuation by department and category with cost analysis.	3	High	Developer 3
Sprint-2	Barcode Integration	USN-5	As a pharmacy technician, I can scan barcodes/QR codes to receive, dispense, and count inventory items.	4	Medium	Developer 2
Sprint-3	Expiration Monitoring	USN-6	As a pharmacy manager, I receive automated alerts for items approaching expiration (90/60/30 days).	5	High	Developer 1
Sprint-3	FEFO/FIFO Workflow	USN-7	As a staff member, I can see FEFO rotation recommendations when dispensing supplies.	4	High	Developer 2
Sprint-3	Waste Analytics	USN-8	As a department manager, I can view expiration waste reports by category and cost impact.	3	Medium	Developer 3

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-4	Reorder Management	USN-9	As a procurement officer, I can configure minimum stock levels and automated reorder points for each item.	4	High	Developer 1
Sprint-4	Purchase Requisition	USN-10	As a department manager, I can generate purchase requisitions automatically when stock reaches minimum levels.	4	High	Developer 2
Sprint-5	Supplier Management	USN-11	As a procurement officer, I can manage supplier profiles with contact information, certifications, and contract terms.	4	Medium	Developer 3
Sprint-5	Order Tracking	USN-12	As a procurement officer, I can track purchase orders from creation through receipt and track supplier delivery performance.	3	Medium	Developer 1
Sprint-6	Compliance & Audit	USN-13	As a compliance officer, I want complete audit trails for all transactions with batch traceability from receipt to usage.	5	High	Developer 2
Sprint-6	Security & Access Control	USN-14	As a system admin, I can configure role-based permissions for staff access to inventory data and approval workflows.	4	High	Developer 3
Sprint-7	Dashboards & Reports	USN-15	As a hospital administrator, I can view dashboards showing inventory valuation, expiration forecasts, and consumption trends.	5	High	Developer 1
Sprint-7	Mobile Optimization	USN-16	As a clinical staff member, I can access inventory levels and record transactions from mobile devices during patient care.	4	Medium	Developer 2
Sprint-8	Testing & UAT	USN-17	As a QA tester, I should verify that all features work correctly with real healthcare facility data.	5	High	All Team
Sprint-8	Documentation & Training	USN-18	As a pharmacy manager, I need user guides and training materials for staff onboarding.	3	Medium	Developer 3

Project Tracker, Velocity & Burndown Chart (4 Marks)

Sprint Schedule & Progress

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed	Sprint Release Date (Actual)
Sprint-1	7	5 Days	01 Nov 2025	06 Nov 2025	7	06 Nov 2025
Sprint-2	12	7 Days	07 Nov 2025	14 Nov 2025	12	14 Nov 2025
Sprint-3	12	7 Days	15 Nov 2025	22 Nov 2025	12	22 Nov 2025
Sprint-4	8	5 Days	23 Nov 2025	28 Nov 2025	8	28 Nov 2025
Sprint-5	7	5 Days	29 Nov 2025	04 Dec 2025	7	04 Dec 2025
Sprint-6	9	6 Days	05 Dec 2025	11 Dec 2025	9	11 Dec 2025
Sprint-7	9	6 Days	12 Dec 2025	18 Dec 2025	9	18 Dec 2025
Sprint-8	8	5 Days	19 Dec 2025	24 Dec 2025	8	24 Dec 2025

Total Story Points: 72
Total Duration: 46 Days

Velocity Calculation

Average velocity = (Total Story Points Completed) / (Total Duration in Days)

Total: 72 points over 46 days → **Velocity = 1.57 points/day**

Burndown Chart

A burndown chart tracks remaining work (story points) versus time throughout the project. It visualizes whether the development team is on pace to complete all planned features by the target completion date. The ideal burndown line slopes steadily downward as sprints are completed, with the actual burndown tracking closely to this ideal trajectory.

Team Responsibilities & Resource Allocation

Team Members & Roles

Developer 1 (Lead Developer): Inventory setup and tracking, expiration monitoring, reorder management, dashboards

Developer 2 (Integration Specialist): Location management, barcode integration, FEFO/FIFO workflows, purchase requisitions, compliance audit trails, mobile optimization

Developer 3 (Analytics Expert): Stock valuation, waste analytics, supplier management, order tracking, security configuration

Key Deliverables by Sprint

Sprint	Deliverable
Sprint-1	Inventory setup with location management operational
Sprint-2	Real-time inventory tracking with barcode scanning and valuation
Sprint-3	Expiration monitoring with FEFO/FIFO workflow and waste analytics
Sprint-4	Automated reordering with purchase requisition generation
Sprint-5	Supplier management and order tracking system
Sprint-6	Compliance audit trails and security controls
Sprint-7	Business dashboards and mobile access
Sprint-8	Fully tested system with documentation

Risk Management & Mitigation

Risk	Probability	Impact	Mitigation Strategy
Complex medical inventory specifications may not fit standard data model	Medium	High	Conduct detailed requirements workshop with pharmacy and clinical staff; use flexible custom fields for varied medical supply types
Integration with barcode/RFID hardware and existing hospital systems	Medium	Medium	Test with multiple hardware vendors; implement HL7/FHIR standards for EHR integration; have manual entry fallback
Data migration from legacy inventory systems	High	High	Allocate extra time for data cleansing and batch number reconciliation; implement validation rules; run parallel systems during transition
User adoption by clinical staff with limited time for training	High	Medium	Provide extensive hands-on training sessions; create simplified mobile interface; assign super-users in each department
Compliance requirements for controlled substances and audit trails	Medium	High	Implement comprehensive audit logging; work with compliance officers; ensure DEA and FDA regulatory alignment

Conclusion

The project planning phase establishes a comprehensive 46-day development roadmap for the Medical Inventory Management system. With 72 story points distributed across 8 focused sprints, clear team responsibilities, and robust risk mitigation strategies, the project is positioned for successful delivery. The velocity metric of 1.57 points/day ensures realistic timelines while the phased approach allows for iterative feedback and refinement of features specific to healthcare inventory operations.

Success Criteria

○ All 72 story points completed within 46-day timeline

○ System accurately tracks 5000+ medical items with full batch and expiration tracking

○ 95% reduction in manual data entry for inventory management

○ Expiration waste reduced by 50% through proactive monitoring and FEFO workflows

○ Staff can access inventory data on mobile in <3 seconds

○ Zero data loss incidents; all audit trails and business rules functioning correctly

○ 100% compliance with regulatory requirements (FDA, DEA, state health departments)

○ 90% of staff successfully trained and using system daily

○ ROI positive within 6 months through reduced waste, prevented stockouts, and procurement efficiency