

Capstone Project Weekly Report

Date: 31 Aug 2025

Project Details:

1. Sponsor Company: AiSPRY
2. Project Title: Inventory Optimization Replenishment Simulation for Hospital Pharmacy

Note: All the fields in the form are required.

Project Milestones:

Progress made in Current Week:

• Architecture Finalization with AiSPRY

- The system architecture has been discussed, reviewed, and finalized in collaboration with AiSPRY, ensuring alignment on data flow, processing, and integration points.
- Complete architecture is attached in the email

• Completion of First-Round EDA

- The team has conducted the initial exploratory data analysis (EDA).
- Key observations and findings from the EDA have been documented and shared with AiSPRY for feedback and further refinement.

Tasks to finish in Next week:

1. Data Cleaning & Validation

- Fix **price variation column** → keep 10–20% margin, drop wrong column.
- Check & handle **Purchase Order anomalies** (Nov–Dec spikes/drops).
- Validate historic availability dataset for consistency.

2. EDA & SKU Segmentation

- Apply **ABC/VED analysis** on all SKUs.
- Compare with **fast/slow moving & seasonal clustering**.
- Shortlist SKUs (with rationale) for sponsor discussion.

3. Review Preparation

- Prepare **summary of EDA insights** (cleaned data, anomalies, SKU segmentation).
- Draft **mid-review PPT**: objectives, approach, deliverables, sample findings.
- Keep a clear **shortlist of SKUs** ready for sponsor validation.

Updates/MoM from Sponsor and Faculty Mentor:

Note: It is expected that you have at least one weekly connect with the faculty mentor and sponsor. If you were not able to schedule meetings with the sponsor or faculty mentor in the current week, please mention the reason for your inability to meet with the Sponsor or Faculty Mentor.

Updates/MoM from Sponsor:

Meeting 1 (Aug 27, 2025)

- **Topics:** Architecture choice, SKU prioritization, data quality issues, PO anomalies.
- **Decisions:**
 - Use **open-source** architecture with real-time (15-min delay).
 - One-time EDA at integration, not daily.
 - SKU segmentation: try **ABC, VED, fast/slow, seasonal** approaches.
 - Ignore incorrect price variation column; keep realistic 10–20% margin.
- **Next Steps:**
 - Clean data (price variation, PO spikes).
 - Update architecture with real-time ingestion.
 - Test segmentation strategies & show progress in next review.

Meeting 2 (Aug 31, 2025)

- **Topics:** Clustering trends, revenue concentration, availability data, physician prescription anomalies.
- **Decisions:**
 - Use derived historic availability for analysis.
 - Explore anomaly detection for prescriptions.
 - Role-play as different hospital departments to deepen insights.
- **Next Steps:**
 - Finalize EDA & anomalies.
 - Prepare mid-review PPT (objectives, architecture, deliverables).
 - Expect domain expert sessions (Sept 8–12).

Updates/MoM from Faculty Mentor:

Meeting (Aug 26, 2025)

- **Topic:** EDA approach & next steps.
- **Discussion:**
 - Team shared progress on EDA and approach for SKU analysis.
 - Professor suggested refining SKU selection.
- **Decision:**
 - Shortlist SKUs using **ABC/VED classification**.
 - Share shortlisted SKUs with **sponsor (AiSPRY)** for validation.
- **Next Steps:**
 - Apply ABC/VED on full SKU list.
 - Prepare shortlist and rationale.
 - Schedule discussion with sponsor for confirmation.

Challenges:

Mention any technical and non-technical challenges that you faced during the current week that hindered your project progress. Enter "NA" if you didn't face any challenges.

Technical Challenges:

NA

Non-Technical Challenges:

NA

Mention any other queries/challenges regarding the project that you want to highlight:

NA