

Capstone Project Weekly Report

Date: 07 Sep 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:

1. EDA and Data Analysis:

- **Department-wise Insights-** Analysed consumption & revenue contribution by each department. Identified high-performing departments and areas with irregular demand.
- **SKU Clusters & Consumption Patterns-** Grouped SKUs based on usage and demand trends. Highlighted fast vs slow-moving SKUs and seasonal variations.
- **Physician Prescription Patterns-** Mapped physicians to SKUs prescribed. Identified anomalies (general vs specialized drugs) and frequent prescribing trends.
- **Vendor vs Purchase Orders Analysis-** Compared POs raised vs delivered. Measured delays and vendor reliability patterns.
- **Margin Analysis-** Calculated profitability department-wise and physician-wise. Performed MoM and QoQ comparisons to highlight trends.

2. Mid-Review Preparation

- Created presentation summarizing objectives, approach, insights, and progress.
- Aligned with expected deliverables for mid-review.

3. KPI Finalization

- Finalized dashboard KPIs (availability, demand vs supply, vendor performance, margins, etc.).

Tasks to finish in Next week:

1. **Complete EDA**

- Finalize anomaly handling, clean dataset, and summarize key findings.

2. **Identify Forecasting Parameters**

- Shortlist parameters/features (e.g., SKU demand, vendor performance, seasonality) to be used in predictive models.

3. **Initial Model Development**

- Build a baseline forecasting model to test approach feasibility.
- Validate on sample SKUs.

4. **Architecture Development (Start)**

- Begin setting up the technical architecture for data pipelines, model integration, and dashboard flow.

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:

Discussion Points:

- Reviewed progress on EDA work done so far (Dept-wise, SKU clusters, physician prescriptions, vendor performance, margins).
- Reviewed the mid review presentation.
- Aligned on next week milestones:
 1. Complete EDA (final anomaly handling & cleaned dataset).
 2. Identify parameters required for forecasting (features like SKU demand, seasonality, vendor reliability).
 3. Develop an initial forecasting model as baseline.
 4. Start work on architecture development to integrate data & models with dashboard.

Next Steps:

- Finalize EDA and submit cleaned dataset.
- Document selected forecasting parameters with rationale.
- Build and test initial model on sample SKUs.
- Begin architecture setup for pipeline + dashboard integration.

Updates/MoM from Faculty Mentor:

Same as MoM with Sponsor. Had a common meeting with Professor and Sponsor

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