

Capstone Project Weekly Report

Date: 05 Oct 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. **Forecasting Model**

- Developed a baseline forecasting model to test feasibility of predictions.
- Model currently under **validation** to check accuracy, feature relevance, and business alignment.
- Output will guide refinement of features and selection of final modelling approach.
- Reviewed with professor and have received feedbacks.

2. **Dashboard**

- Initial version of the dashboard has been created. Would be working on linking it with provided data

Tasks to finish in Next week:

1. Model Validation & Refinement

- Validate the model on complete dataset, for all SKUs
- Create graphs of SKU's and check if values are coming as per requirements

2. Dashboard

- Link the dashboard with real-time data.

3. Documentation

- Create a structure of documentation that needs to be submitted as part of report

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.

Meeting Sunday October 5, 2025:

Key Updates

- **Model:**
 - Incorporated feedback and re-ran multiple iterations using various models.
 - **XGBoost** delivered the best results — NRMSPE < 20% for most SKUs; efficient runtime (~3–4 mins).
 - Train-test split set at **90:10** (95:5 gave higher errors).
 - Replaced MAPE with **SMAPE and WMAPE** for more stable error measurement.
- **Dashboard & Report:**
 - Dashboard wireframes ready; linking of live data in progress.
 - Work started on final report compilation (models, results, methodology).

Decisions & Feedback

- SMAPE and WMAPE to be used as primary evaluation metrics.
- Add **actual vs forecast plots** for selected SKUs in the final report.
- Apply finalized model to all SKUs and integrate outputs with dashboard.

Next Steps

- Generate visual comparison plots for key SKUs.
- Link model outputs to dashboard and finalize visualizations.
- Complete report documentation and prepare final submission.

Updates/MoM from Sponsor:

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